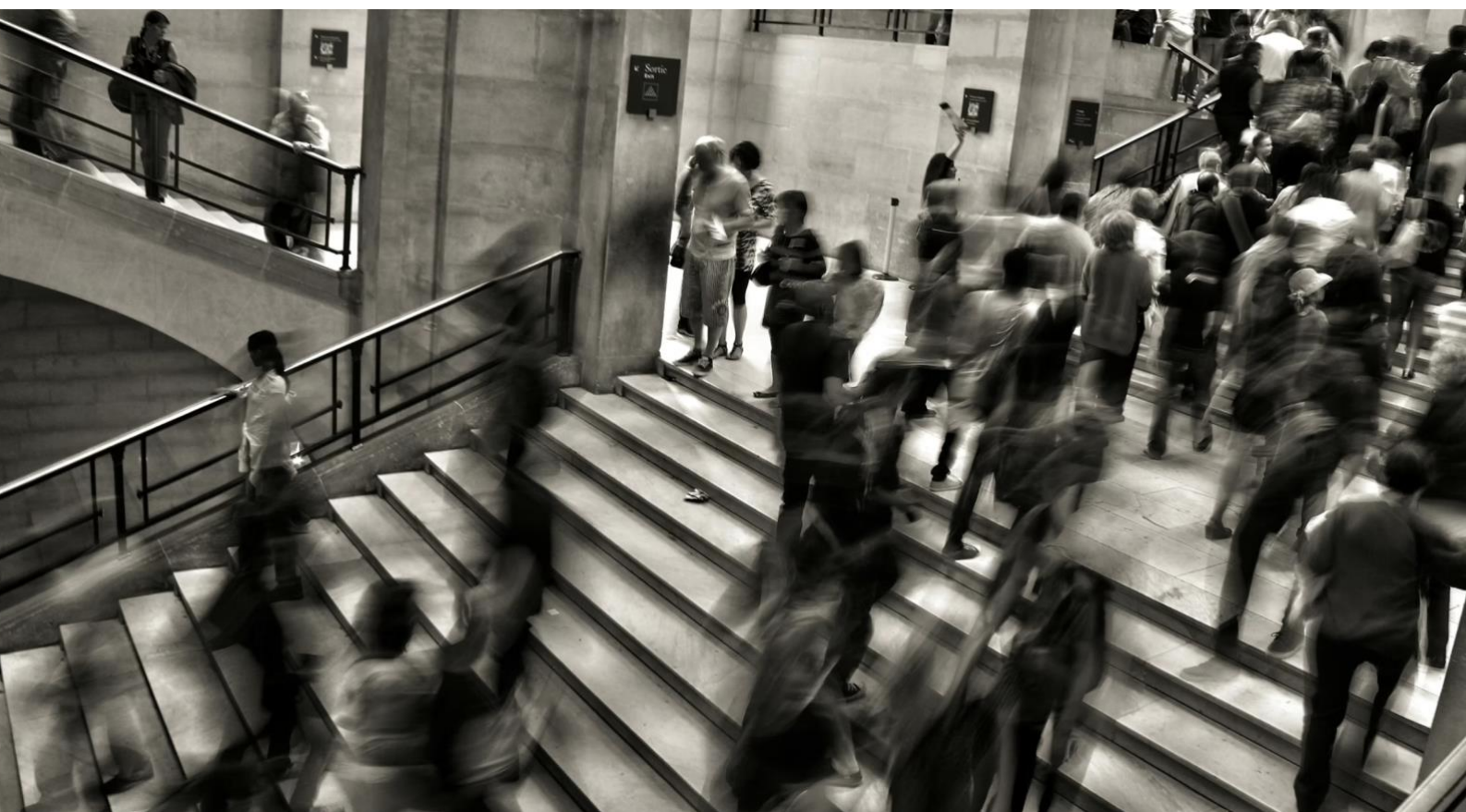


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# Generating a Telework Implementation Matrix Model: The Role of Culture in Interdisciplinarity

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## Abstract

**Aims:** This paper argues that even a single business undertaking such as telework implementation demands multifaceted and composite perspectives and analysis through interdisciplinary research. Interdisciplinarity is both necessary and effective. It constructs a matrix that organizes the comprehensive considerations for telework implementation by classifying the multifaceted meanings of telework into eight dimensions, synthesizing prior research that has been fragmented across individual academic disciplines. It advances the thesis that historical and cultural conditions undergird the other analytical dimensions, thereby demonstrating the foundational positioning of the humanities and historical perspective within interdisciplinary research. These eight dimensions exert multilayered and cyclical influences on three actor levels involved in telework adoption: the micro level (individual teleworker), the *meso* level (intermediate organizations such as labor unions and corporations), and the macro level (government/policy). The discussion focusses on comparative analysis of telework adoption patterns across EU member states and Japan, review of prior research in management science, labor economics, sociology, and organizational psychology. The analysis of the divergent national responses to uniform national-level lockdowns during the COVID-19 crisis reveals that cultural factors exert foundational influence across all three actor levels. Examining positive and negative factors affecting telework adoption rates by country, the Netherlands is identified as an exemplary case in which tripartite cooperation among government, labor, and management—rooted in the cultural heritage of Christian Democracy and personalism—has structurally enabled flexible working. Taking this cultural perspective into account, the paper demonstrates that historical and cultural conditions do not merely constitute one dimension among many, but function as the bottom line of foundational stratum undergirding law and policy, corporate systems, job design, and individual psychology. From this perspective, the distinctive feature of telework adoption in Japan is identified in the spontaneous civic behavior of workers within non-institutionalized and non-discretionary domains. The proposed eight-domain matrix model provides a bird's-eye framework that foregrounds the foundational positioning of the humanities and historical perspective within interdisciplinary research on telework.

**Keywords:** Telework, Transdisciplinary Research, Implementation Matrix, Organizational Culture, Flexicurity, COVID-19, Netherlands, Japan

## 1. Introduction

The global spread of the COVID-19 pandemic beginning in 2020 generated worldwide interest across the full spectrum of telework: its functions and effects, its technological and institutional preconditions, and the entire process leading to its adoption and implementation (Christopher 2021). Google Trends data for searches of the term ‘telework’ in Japan (September 1, 2016–June 1, 2025) show a marked spike peaking in April 2020, at the height of the pandemic, attesting to the sudden surge in public interest.<sup>1</sup>

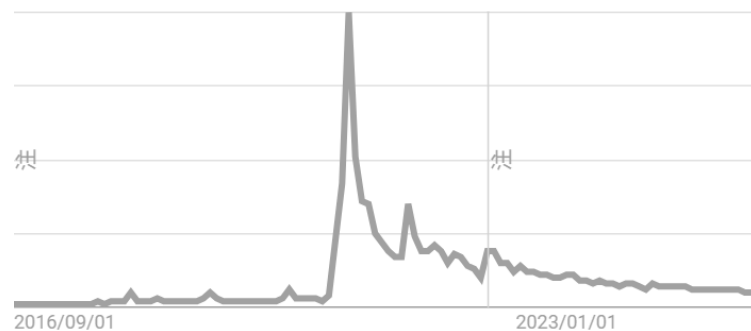


Figure 1: Google Trends search volume for ‘telework’ [テレワーク] in Japan (September 2016–June 2025)

Telework demands analysis that encompasses not merely information technology or the institutional dimensions of legal policy, but also historical social concerns, the corporations that adopt it, and the attitudes of workers—embracing a diverse range of actors. The prefix ‘tele-’ in telework derives from the ancient Greek *τηλέ-*, used by Homer in works such as the *Odyssey*, meaning ‘far from’ or ‘at a distance.’ Telework enables a mode of working spatially ‘removed’ from the traditional workplace. An international comparison of definitions reveals two universally shared elements: (1) work performed outside the conventional workplace, (2) work conducted with the use of ICT (Kennerly et.al. 2021).

Enabled by the technological conditions of ICT that made it possible to work from a ‘remote’ location, telework has been called by various analogous terms—mobile work, remote work, nomad work—reflecting shifts in societal concern and the perceptions of those who use it. Despite this terminological flux, telework has consistently carried an ideological significance: the ‘liberation’ of human beings from traditional labour conditions that mediate production. For example, the definition found in Japanese policy documents—‘a flexible way of working unconstrained by place or time, using Information and Communication Technology (ICT)’<sup>2</sup>—reveals that telework has long embodied an ideological value: enabling liberation from being ‘bound’ by traditional means of production.

This ideal has lent telework the meaning of an ideal labour form across various industries, and its value has been concretized in diverse ways. This paper argues that even a single business undertaking such as telework implementation demands multifaceted and composite perspectives and analysis through interdisciplinary research, and that such an approach is both necessary and effective. In particular, it advances the thesis that historical and cultural conditions undergird the other analytical dimensions, thereby demonstrating the foundational positioning of the humanities and historical perspective within interdisciplinary research on telework. Accordingly, this paper first analyses the historical development of telework to clarify what society has expected of it and what functions it has been called upon to fulfil. It then compares cases from EU member states and Japan, and, by surveying prior

<sup>1</sup> Fig. 1. shows a result of Google Trends search for ‘telework’ [テレワーク] (accessed June 2, 2025, 15:12 JST). Related keywords included ‘subsidy’ and ‘remote’; by region, searches were concentrated in the Greater Tokyo area (Kanagawa, Tokyo, Chiba), suggesting strong interest from public agencies and corporations related to policy and subsidy administration.

<sup>2</sup> In the U.S. Telework Enhancement Act (December 2010), ‘telework’ or ‘teleworking’ is defined as ‘a work flexibility arrangement under which an employee performs the duties and responsibilities of such employee’s position, and other authorized activities, from an approved worksite other than the location from which the employee would otherwise work.’ The Japanese nuance of being ‘bound by’ traditional constraints—implicit in the phrase ‘*torawareru*’—reflects the cultural difference discussed in this paper.

research across management science, labour economics, sociology, and organizational psychology, constructs an eight-domain matrix model that makes visible the foundational role of culture relative to the other domains.

## 2. Historical Development of Ideological Dimensions and Technological Preconditions

In the 1950s and 1960s, Jack Nilles, a NASA engineering consultant engaged in rocket science in Los Angeles, moved in the 1970s to lead interdisciplinary research at the University of Southern California, where he began studying new, computer-assisted ways of working. He initially coined the term ‘telecommuting’ (Berthiaume & Lanarès 2020) and began advocating for the social implementation of this concept. Telework was from the outset conceived as a transformation of workers’ ‘commuting’.

‘Commuting’ attracted particular attention in the context of traffic congestion and air pollution in the Los Angeles metropolitan area, and in connection with growing societal concern about energy ‘consumption’ in the wake of the oil crises of 1973 and 1979, alongside the need for improved business efficiency in the face of those crises. Telework was thus expected to be a work style that reduced three categories of public cost by eliminating ‘commuting’ from traditional working conditions: (1) environmental cost, (2) managerial/operational cost, and (3) social and resource cost. It was assigned an ideological value accordingly.

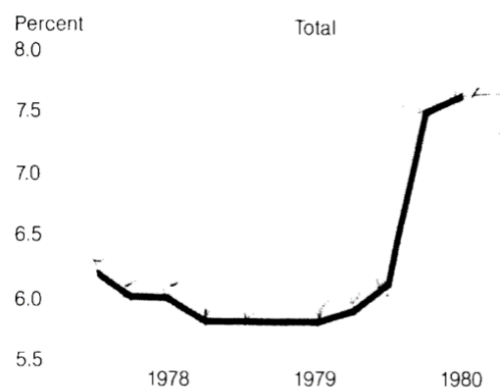


Figure 2: Growth in highly educated white-collar unemployment in the manufacturing sector (1980s)

Following the stagflation of the 1970s, the 1980s witnessed a sharp increase in unemployment among highly educated white-collar workers, particularly in manufacturing (Fig. 2.) (Westcott & Bednarzik 1981). Many began to pursue economic independence, founding enterprises in a form that constituted the prototype of SOHO (Small Office, Home Office)—the self-employed telework model. SOHO, true to its name, involved starting a business by using a room at home as one’s own office. It became a catalyst for the growing awareness that telework could reduce entrepreneurial costs. Recognition of this potential spread primarily within the professions—lawyers, consultants, accountants, and bookkeepers, though at this stage the environmental conditions for teleworking to become mainstream had not yet been established.

During the 1980s, the technological conditions for telework began to be put in place, strengthening the linkage with the micro-businesses (SOHOs) of the knowledge-intensive sector noted above. For example, in May 1980, Apple released the Apple III—the world’s first computer equipped with a hard disk—and in the same month Oki Electric launched the IF800 series with an integrated printer, while Epson released the dot printer MP-80 in October. In 1981, Japanese manufacturers accelerated computer development: Sharp launched the MZ-80B, Hitachi the Basic Master Level 3, Fujitsu the FM-8 in May, and NEC the 16-bit N5200/05 in July—production lines aimed at practical commercialization came in rapid succession.

The catalyst for the expansion of the PC hardware market was the IBM PC, released in August 1981 (Yamada 2014). By collaborating with Intel for the CPU and Microsoft for MS-DOS, IBM was able to reduce production costs, freeing resources for marketing to expand sales channels. As a result, IBM PC sales overwhelmingly surpassed those of Apple. Through this process, computers became accessible to ordinary citizens throughout the

1980s. With the establishment of technological conditions in hardware, primarily U.S. IT and telecommunications companies began experimental use of telework—IBM, for instance, began installing dedicated terminals (remote terminals) for certain employees.

This development of technological conditions enabled ‘tele-communication’ to become a reality and brought about the decentralization of tasks previously performed by office workers. This decentralization expanded global recognition of the value of telework as a means of reducing labour-centred costs and improving production efficiency.

Entering the 1990s, broadband diffusion and technological advances in Personal Digital Assistants (PDAs) progressed. Japan’s SHARP pioneered the market in 1993 with the ‘Zaurus’—a portable device with an 8-bit CPU and monochrome LCD—and BlackBerry<sup>3</sup> unveiled the ‘Inter@ctive’ in 1996, drawing attention to portable terminals capable of sending email from outside the office. These mobile information terminals made it possible to work ‘on the move.’ Inspired by Gilles Deleuze and Félix Guattari’s *Mille Plateaux* (Deleuze & Guattari, 1980) and their suggestions regarding nomadology (*nomadologie*) and the social division of labour,<sup>4</sup> the way of working later called the hyper-nomad—as described by Jacques Attali after 2000—began to take shape conceptually in this era.

In the 1990s, among the technological conditions for telework, software advances became as conspicuous as hardware developments. In 1992, the commercial Internet Service Provider IJJ (Internet Initiative Japan) was established, and experiments in email interconnection were conducted between WIDE, NIFTY-Serve, and PC-VAN. The integration of PC-based communications with the Internet proceeded through WWW access from PC communication services and dial-up PPP connections.

Windows 95, released by Microsoft in 1995, shipped with TCP/IP pre-installed, enabling any PC that came with it pre-loaded to connect immediately to the Internet via dial-up and web browser. Hypertext spread worldwide, and in 1994 the world’s first banner advertisement was published by U.S. telephone company AT&T. Google Search launched in 1997.

Entering the 2000s, while network infrastructure continued to improve, the Japanese government—concerned about Japan’s lag behind other nations in adapting to the digital economy—positioned IT as the cornerstone of national strategy, enacting the Basic Law on the Formation of an Advanced Information and Telecommunications Network Society (IT Basic Law) in 2000 (enforced 2001). Through subsequent strategies—the ‘Ubiquitous Network Society’ vision (2004 White Paper on Information and Communications), e-Japan (2001), e-Japan Strategy II (2003), New IT Reform Strategy (2006), and i-Japan Strategy 2015 (2009)—telework began to be positioned as the symbol of ICT-enabled work styles, with the expansion of the telework population featured in IT strategies reviewed every few years.

Moreover, as social problems such as declining vitality due to an aging and shrinking population, the deterioration of communities through agricultural land abandonment and vacant houses, industrial hollowing-out, and labour shortages became apparent, telework strengthened its ideological significance as a new technological approach to ‘supporting the balance between work and family life and reforming work styles,’ capable of enabling ‘a work-life balanced way of working.’

In practice, however, as discussed later in this paper, the spread of telework in Japan did not proceed smoothly. Nevertheless, its multidimensional value was comprehensively understood. A 2006 Japanese government policy document promoting telework adoption enumerated seven multi-angle ideological values aimed at realizing work-

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<sup>3</sup> The BlackBerry brand name was first used in 1999 for the ‘RIM 850 Wireless Handheld’ and the ‘BlackBerry Wireless Solution/Enterprise Server software for Microsoft Exchange.’

<sup>4</sup> Deleuze, G., & Guattari, F. (1980). *Mille plateaux*. Minuit. In their discussion of *nomadology*, the authors note that ‘the state cannot but experience friction with the intellectual workers (nomads) it has itself produced, for this body brings forth new nomadic political claims’—because nomads practice ‘a division of labour opposed to that of the state’ (p. 46-4). Nomads destabilize and recreate capitalist society through their constant movement (Derrida, 2002, pp. 185–186). How telework acts on capitalism itself—beyond its ideological purposes—remains a subject for future research.

life balance while improving business efficiency and productivity (Table 1). Despite this awareness, the diffusion of telework in Japan did not advance.

Table 1: Social effects of telework  
(Adapted from Ministry of Internal Affairs and Communications, Japan, 2007)

| Social Impacts of Telework                             |                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Addressing Demographic Challenges                   | <ul style="list-style-type: none"> <li>● Expanding employment opportunities for women, the elderly, and individuals with disabilities</li> <li>● Facilitating the balance between employment and childcare/nursing care responsibilities</li> </ul>                                                                                                             |
| 2. Promoting Regional Revitalization                   | <ul style="list-style-type: none"> <li>● Encouraging permanent settlement (expanding residential choices)</li> <li>● Increasing employment opportunities in rural areas</li> <li>● Revitalizing local economies through entrepreneurship</li> <li>● Invigorating local community activities</li> <li>● Ensuring children's safety within communities</li> </ul> |
| 3. Alleviating Commuting and Traffic Congestion Issues | <ul style="list-style-type: none"> <li>● Mitigating traffic congestion</li> <li>● Reducing long commutes and congestion on commuter trains</li> </ul>                                                                                                                                                                                                           |
| 4. Reducing Environmental Impact                       | <ul style="list-style-type: none"> <li>● Contributing to the prevention of global warming by reducing CO2 emissions through transportation substitution</li> </ul>                                                                                                                                                                                              |
| 5. Achieving Work-Life Balance                         | <ul style="list-style-type: none"> <li>● Enabling the successful harmonization of work and personal life</li> <li>● Improving the overall quality of personal life</li> </ul>                                                                                                                                                                                   |
| 6. Enhancing Productivity and Efficiency               | <ul style="list-style-type: none"> <li>● Improving the capacity for autonomous work execution</li> <li>● Increasing collaborative work styles (utilizing diverse human resources)</li> </ul>                                                                                                                                                                    |
| 7. Crisis Management for Disasters                     | <ul style="list-style-type: none"> <li>● Reducing the number of stranded commuters and individuals unable to report to work during disasters</li> <li>● Enabling rapid business resumption following a disaster</li> </ul>                                                                                                                                      |

In the United States, meanwhile, the number of employees working from home during working hours increased by 115% between 2005 and 2015, reaching approximately 4 million people by 2015 (FlexJobs 2017). Even at this stage, workers engaged in telework remained largely confined to the previously mentioned specialist consultants and university researchers,<sup>5</sup> making emerging disparities in the characteristics of the telework labour force apparent. It became clear that telework is realized contingent on the industry and sector in which the internet can be utilized, and on individuals' ICT literacy skills. The correlation between telework participation rates, corporate ICT skills training, and worker IT literacy across various European countries has been re-examined in the post-COVID era (Fig. 3., Joint Research Centre, European Commission 2020).

<sup>5</sup>In Japan, an experimental network linking the University of Tokyo, Tokyo Institute of Technology, and Keio University was launched in October 1984, eventually connecting approximately 700 institutions. The WIDE (Widely Integrated & Distributed Environment) research group, founded in 1985 by university researchers, evolved into the WIDE Project in 1988.

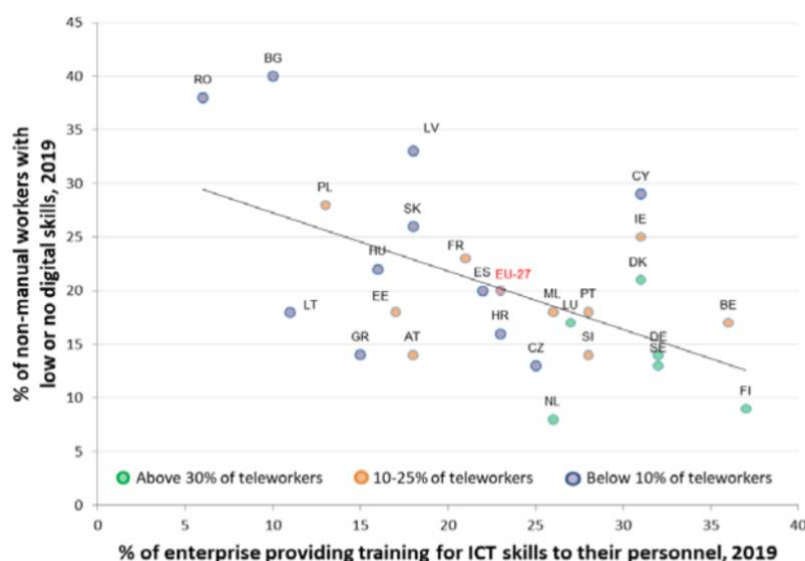


Figure 3: Relationship between ICT Skills Training Provision and the Share of Non-manual Workers with Low or No Digital Skills in Europe (2019)

Similar correlations between labor forms and telework adoption have been documented in the United States. According to the Pew Research Centre (DeSilver 2020), as of 2019 telework was most prevalent (24% and 14% of respective groups) among ‘knowledge workers’—corporate executives, IT administrators, financial analysts, accountants, insurance professionals, lawyers, software designers, scientists, engineers, and other professionals whose work is predominantly computer-based. Conversely, the proportion of teleworkers among those engaged in human services—restaurant staff, hairdressers, plumbers, police officers, construction workers—remained at approximately 1%, given the nature of their work. Even if AI and robots were to replace the primary functions of human service provision in the future, the diffusion of telework among care workers, counselling support staff, and manual-technical workers is expected to face significant challenges.

Even as DX and automation progress for knowledge workers, it is not possible to define the technological preconditions for telework solely by hardware and software. Defining and classifying the compound conditions for telework infrastructure requires consideration of three layers: the social environmental conditions of institutional structure, industry, and occupation; and the internal environmental *humanware* of individual ICT skills.

### 3. The HSH Telework Environment Model

As clarified in the preceding sections, the technological preconditions for telework involve three tiers: hardware, software, and *humanware*. Hardware constitutes the foundational condition as communications infrastructure; above it lies the layer of software technology; and only then does the question of workers’ capacity and literacy in ICT use arise. The regulatory role of government–local authority–corporate policy/labour law compliance as the *meso*-level normative condition—institutionally promoting telework—can also be understood as the effect of *humanware*. These three tiers may be modelled as ‘individual (worker’s internal environment)’–‘particularity (policy/institutional framework and corporate policy)’–‘generality (hardware and software)’ as the technological preconditions for telework, as follows (Fig. 4.).

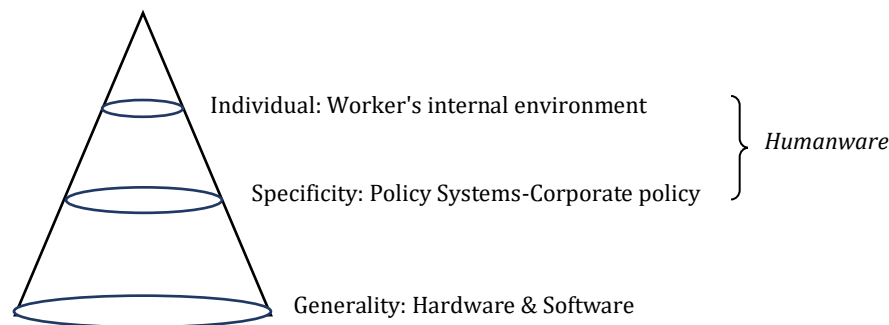


Figure 4: HSH Telework Environment Model: Hardware–Software–*Humanware*

#### 4. Telework and Natural Disasters: The Perspective of Business Continuity Planning (BCP)

Alongside the historical development of technological preconditions that enabled recognition of telework's ideological values as described above, it is important to acknowledge the specific function telework serves in response to unpredictable, sudden disasters that render normal work impossible. The 1994 Northridge earthquake in California was the first event to reveal telework's function as a social labour model capable of realizing sustainable social operation and risk distribution in the face of natural disasters—that is, its capacity for business continuity management (risk management) as a component of crisis management for organizations.

Following the September 11, 2001, terrorist attacks in the United States, the early resumption of business by companies that had introduced telework attracted attention. The U.S. Government's Continuity of Operations Plan (COOP) took note of this and began promoting telework for all government employees as part of crisis management. This culminated in the passage of the Telework Enhancement Act (December 2010), which mandated the designation of telework managers in federal agencies, explicitly positioning the various values of telework within the policy toolkit.<sup>6</sup> Furthermore, initiatives responding to federal telework policies—such as expanded telework adoption in response to extreme seasonal weather patterns in Washington, D.C.—spread to private-sector companies serving government agencies.

In Japan, the 2011 Great East Japan Earthquake caused power outages and traffic congestion, prompting an increase in companies adopting BCP (Business Continuity Plans) and advancing data backup measures through cloud services. Subsequently, the large-scale traffic disruption caused by Typhoon No. 15 in 2019 in the Kanto region highlighted the problem that many workers did not choose to telework, revealing that 'work-style reform' in Japan was proving more difficult than anticipated.

#### 5. Socio-cultural environmental conditions: The EU experience

As mentioned in Section 2, telework was originally conceived as a technology to eliminate workers' 'commuting,' thereby realizing economic efficiency, the mitigation of traffic congestion and environmental problems, and the efficient use of resources. That the elimination of 'commuting' as material cause also generated expectations for telework's function in BCP during natural disasters was an 'unanticipated consequence' (Merton, 1936, Boudon 1982). The conditions enabling telework came about through an inevitable trajectory driven by information technology developments that were not aimed at telework per se. Although the development of each technical condition (H–S–H) constrained the emergence of new means of production, the resolution of each condition and the progression of technological evolution were not aimed at telework itself.

<sup>6</sup>According to 2018 data, 43% of federal employees were eligible for telework. U.S. Office of Personnel Management. (2018). Status of Telework in the Federal Government: Report to Congress, Fiscal Year 2018.

The same applies to the relationship between telework adoption in European countries and its effects during the pandemic (Fig.5.). Countries where the employment and unemployment situation was more severely affected by the pandemic crisis were precisely those with lower pre-crisis telework prevalence rates. Switzerland, Finland, and the Netherlands, by contrast, had proactively pursued 'labour flexibility' as the explicit goal of telework policy, building environments in which 30% of workers could work via telework. 'Labour flexibility' itself was not designed with the pandemic's use of telework in mind.

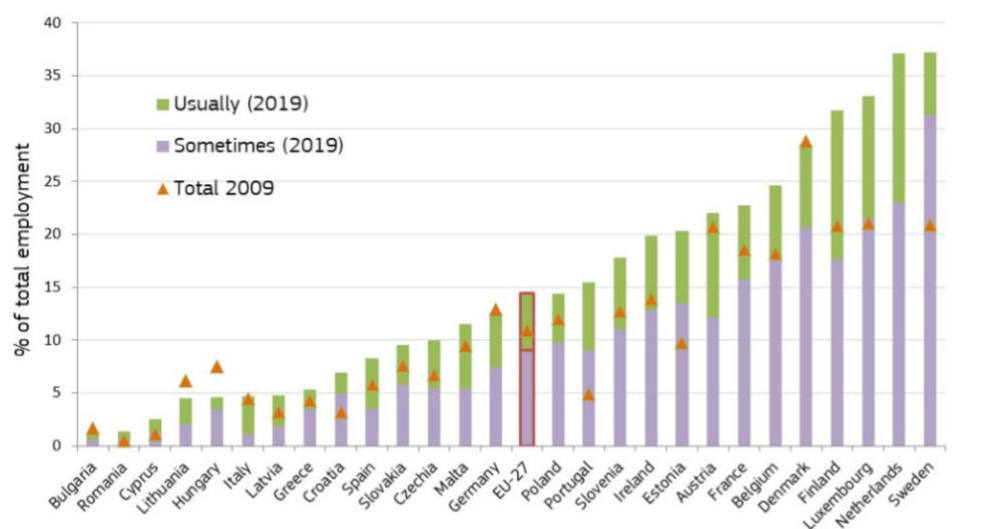


Figure 5: Prevalence of telework across EU Member States in 2019

Viewed through this lens of purpose-means relationships, the telework situation in European countries following the COVID-19 crisis served to clarify the policy significance of diversity and flexibility in working environments, even as the crisis served as a litmus test. For example, the Nordic nations—Sweden, Finland, and Luxembourg—where large proportions of workers could engage in telework already had more knowledge-worker industries than other European countries (Fig. 5.).

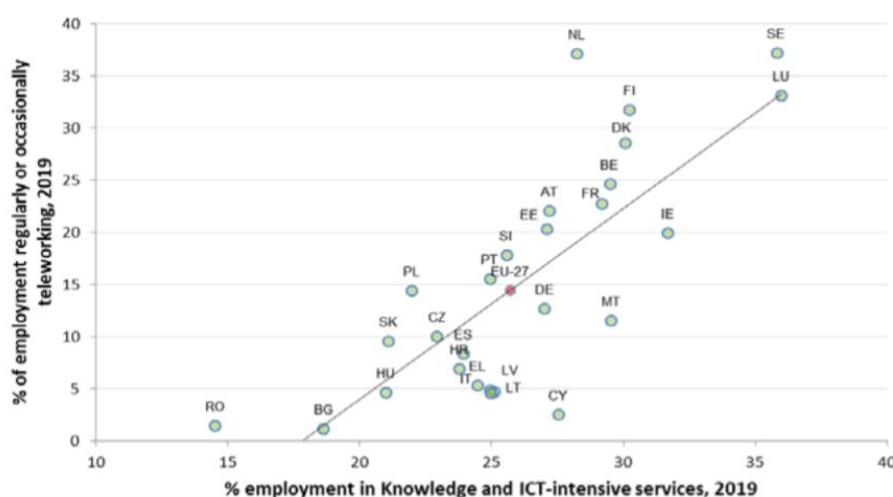


Figure 6: Industrial structure of employment and telework, EU-27

Behind this lies the historical fact that these nations had sustained labour policies since the 2010s promoting and fostering professional and knowledge-intensive industries. These divergences in the labour policies of various nations clarify the necessity for interdisciplinary research on telework (Fig. 6.).

As an international comparative study from a policy perspective, Huws et al. (1999) attempt to explain divergences in telework prevalence rates across the United States, Australia, and EU nations by classifying national policy tendencies into three broad types. In the 'liberal model,' the laissez-faire approach to the labour market tends to

externalize labor flexibility to market competition and telework tends to expand in the form of precarious non-regular employment contracts and freelance sub-contracting. In contrast, in countries fitting the 'corporatist' model—where intermediate organizations such as labor unions maintain policy dialogue—labor contracts tend to be strictly regulated, and labor flexibility tends to be internalized (internal flexibility). At the same time, employers who become conservative due to the high cost of regular employment, including social insurance, tend to be skeptical of introducing new working methods such as telework. For these reasons, telework prevalence in Germany, France, and Italy lagged North America, Australia, and the United Kingdom as of 1999. Sweden's high telework prevalence rate, on the other hand, stemmed from the fact that its policy formation regime—premised on the ideal of 'regulated flexibility by mutual consent'—facilitated compliance and adoption on the employer side, and was noted as distinct from the 'unregulated flexibility' typical of liberal policy nations. Furthermore, in the social democratic model of Sweden, Norway, Denmark, and Finland, there is less inequality between genders, occupational types, and employment forms, while retaining characteristics of the corporatist model.

Building on this research, for example, liberal economic models—characterized by deregulation of labor markets, protection of intellectual property, and innovation by a small number of entrepreneurs (e.g., the United States, Ireland, Australia)—tend toward the privatization of knowledge centered on corporations. Social democratic models—as in Denmark, Finland, and Sweden—characterized by high educational attainment, vocational training, and employment protection in the public domain outside corporations, tend toward the broad socialization of knowledge (Boyer, 2002). The high economic performance of social democratic models showing high telework prevalence rates in the COVID-19 crisis should be understood not as the result of information and communications technology development per se, but as something more generally ideational—concerning the shared societal understanding of the meaning of labour flexibility held by government and society. It is appropriate to conclude that policy and institutional mechanisms for the social utilization of telework functioned first, subsequently driving the technological development of telework. From this perspective, even in Luxembourg—distant from software and IT innovation—knowledge workers who constituted a mere 13% of the workforce in 2003/2005 were able to double that figure by 2016/2018 (Fig. 7.). During the Lehman Shock, the Netherlands actively commissioned private-sector research studies, harnessing economic policy to prioritize the protection of professional and knowledge-intensive industries. The country's work-sharing and other labour flexibility policies subsidized knowledge-worker industries and employment.

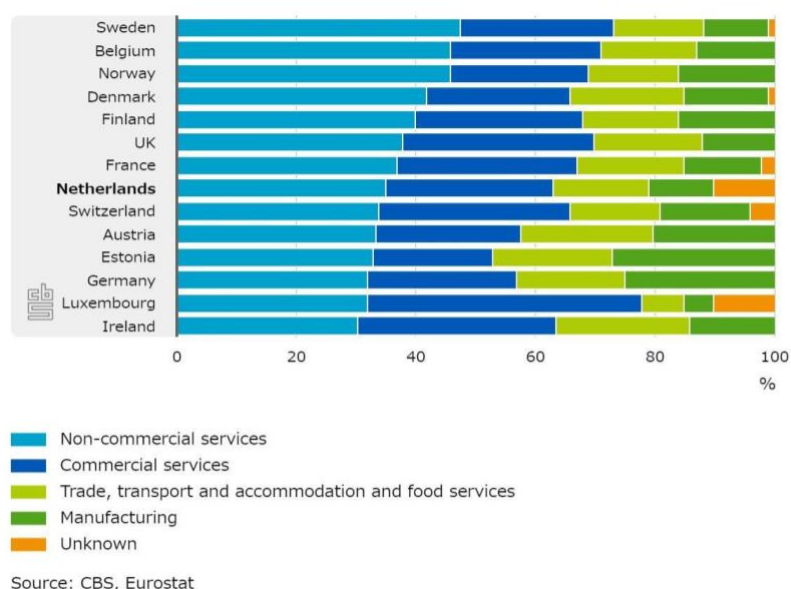


Figure 7: International Knowledge Workers by sector, 2016/ 2018

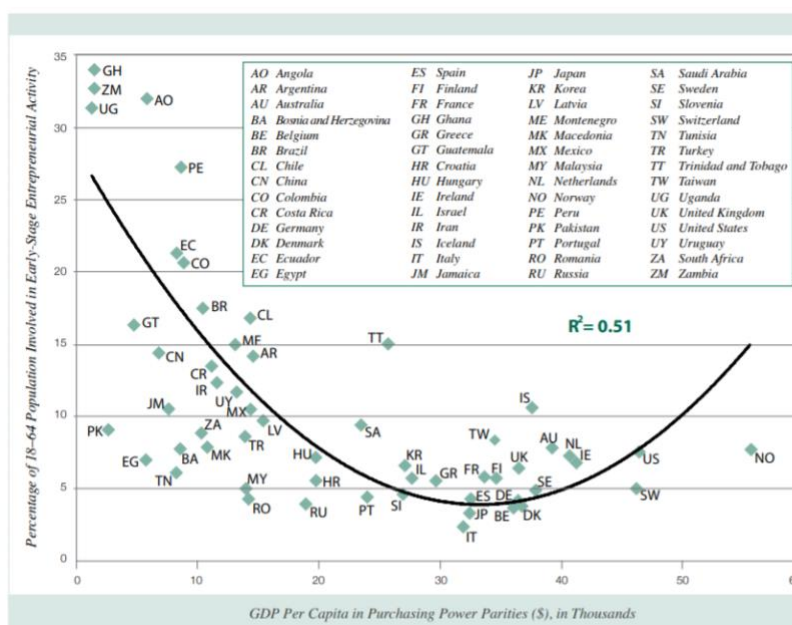


Figure 8: International comparison of entrepreneurial activity relative to GDP, 2010 (GEM 2010)

However, examining the statistical facts, the Netherlands—whose knowledge-worker and professional-intellectual sector was comparatively smaller in employment population—had the third highest telework prevalence rate in 2019, after Luxembourg and Sweden, a situation that warrants consideration. In the Netherlands, self-employed teleworkers constituted 20% of all workers as of 2018, on par with the United Kingdom. The correlation between the growth in the proportion of professional-intellectual industries and the knowledge-worker population from the 2000s onward, and the expansion of freelance micro-business and self-employed telework ventures, had been noted early on (Audretsch & Thurik, 2001), and in the Netherlands, single-employee firms accounted for 78% of all companies as of 2017. The empirically established 'U-curve theory' (Fig. 8.)—whereby entrepreneurial activity first declines and then revives beyond a certain threshold as the level of economic

development (e.g., GDP) rises—generally holds. Integrating these facts, it may be inferred that knowledge-based economic activity and telework employment rates are driven by freelancers, entrepreneurs, and digital nomads. 41% of Netherlands self-employed teleworkers were employed in the commercial services sector, followed by 33% in the non-commercial sector (Fig. 9.). These Netherlands trends demonstrate that the substantive effects of telework in BCP—addressing crises brought about by sudden external factors (Lehman Shock/COVID-19) in economic-labour policy, welfare policy—operated through a circular and cumulative causal relationship. This 'unintended' linkage provides a crucial key to understanding the underlying causes of Japan's low telework employment rate after the COVID-19 crisis. The following section continues to focus on the Netherlands case to clarify the significance of 'culture' in shaping *humanware*, which lies at the root of Japan's stagnating telework employment rate in the post-COVID era.

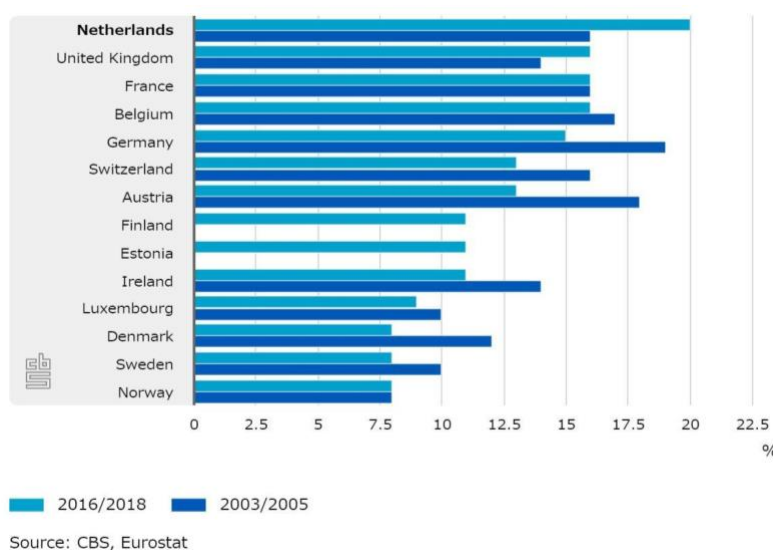


Figure 9: Self-employed among international knowledge workers in work 2016/ 2018 vs 2003/ 2005

## 6. The development of socio-cultural environmental conditions in the Netherlands

From the 1870s onward, the Netherlands—unlike resource-rich countries such as Belgium with large-scale factory and mining labour industries—entered the Industrial Revolution and the development of capitalism centred on small and medium-sized enterprises in the service sector. Consequently, when it became possible to exploit natural gas from North Sea oil and gas fields discovered in the 1960s, enabling resource exports, the windfall profits could be redirected to enhance social welfare. The flip side of this was that the 1970s brought economic stagnation, fiscal deficits due to the high welfare burden, and high unemployment rates (9% in 1982; 11.7% in 1983) known as 'Netherlands disease'.<sup>7</sup>

At the time, the Netherlands sought to overcome these difficulties by establishing a long-term tripartite dialogue between government, business, and labour. In 1982, the tripartite policy agreement known as the 'Wassenaar Accord' (Akkoord van Wassenaar)<sup>8</sup> was concluded. This accord involved employers implementing wage cuts and employment protection through reduced working hours, while the government implemented tax cuts to compensate workers for their income losses and reduced social security burdens on employers maintaining employment—cultivating a public-private partnership. As a result, the government implemented fiscal consolidation and business investment promotion policies; the proportion of part-time workers rose from 18.5% in 1983 to 33.0% in 2001; and the unemployment rate fell from 14% in 1983 to 2.4% in 2001. Moreover, while the EU-15 average annual employment growth rate over the fifteen years from 1984 to 1996 was only 0.4%, the Netherlands was able to recover this figure to 1.8%.

In 1992, a fresh tripartite agreement was concluded (Cornelis & Tillema 1992), and a fundamental policy reorientation was demanded as major revisions to the Civil Code (which had been in place since 1942), corresponding changes to the tax system and government investment policy, and legal reforms accompanying accession to the EC all converged. During this period, the Netherlands adopted a 'New Course' (*nieuwe koers*) that sought to introduce American-style liberal economic policies while maintaining the social-democratic model (Nordic welfare state) characterized by high levels of income redistribution. Given the deep-rooted civic demand to preserve the Christian-family values and traditional gender division of labour alongside this policy orientation, the Netherlands independently pursued a hybrid welfare state with three aspects of a conservative continental welfare state model.

<sup>7</sup>A condition in which welfare costs driven by economic growth strain public finances, leading to economic stagnation when the economy deteriorates. The Economist. (1977, November 26). The Netherlands disease (pp. 82–83).

<sup>8</sup>The agreement is named 'Wassenaar' after the location of the Van Veen home near The Hague, where the chairman of the employers' federation (Van Veen) and the chairman of FNV (Kok) conducted the negotiations that led to the accord.

Adopting this course, when the EU began promoting women's independence through gender equality policies, the conservative tendency was initially marked, and women's autonomy and workforce participation consciousness remained low at first. However, in response to the new situation of increasing lone-parent households and poverty resulting from rising divorce rates, when child-rearing support policies, employment and childcare service legislation, life-course systems, and the Social Support Act were enacted premised on dual-income households, the civic movement of *Dolle Mina* (Crazy Women), which championed *"Baas in eigen buik"* (women as masters of their own bodies/lives)<sup>9</sup> against conservative culture, began. The civic impulse resisting conservative culture combined with citizens' consciousness of responding to new social problems. As a result, in the process of policies and citizens approaching each other on women's social participation, the Working Time Adjustment Act (*Wet Aanpassing Arbeidsduur*) enacted in 2000—following the Flexibility and Security Act (*Wet Flexibiliteit en Zekerheid*) of 1999<sup>10</sup>—became a groundbreaking institution enabling workers with more than one year of continuous service to apply for an extension or reduction of working hours. It thus enabled fluidity between full-time and part-time labor forms, and new positive-image terminology such as 'combination work' and the '1.5 model' was added to supplant the negative image of part-time work—associated in Japan, notably, with non-regular and precarious status. As a result, the proportion of part-time workers subject to discriminatory treatment was reduced to a mere 2% by 2004, while institutionalizing dispute resolution for discriminatory treatment and making it operationally effective, thereby sustainably growing women's employment rate (Fig. 10.).

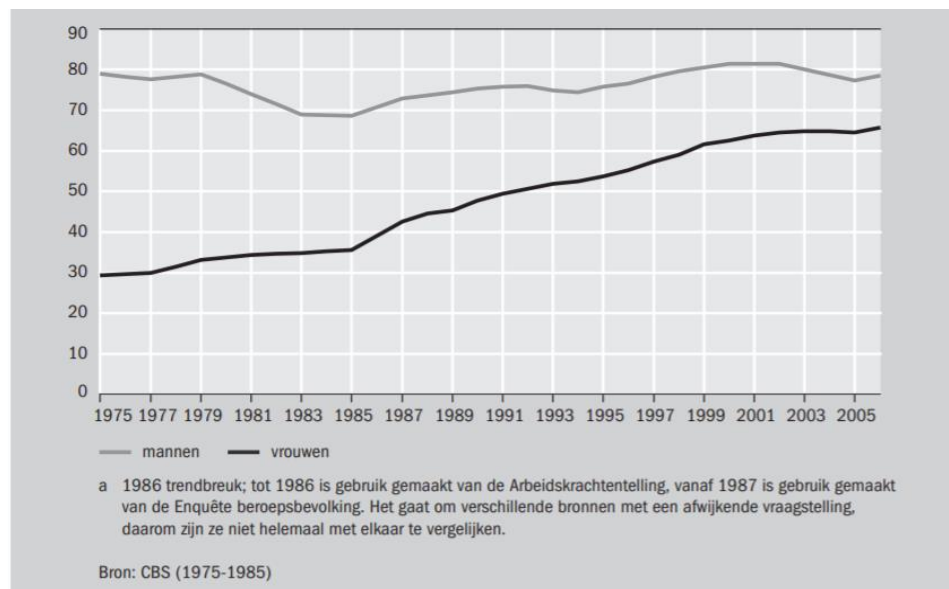


Figure 10: Labor participation rate of the population aged 15–64 (Nederland Deeltijdland, 2008)

The bold Netherlands policy allowing workers themselves to determine their weekly working hours created, through work-sharing, job expansion, economic growth, and fiscal balance, a 'polder model' as a unique socio-cultural environment. Building on this foundation, the Flexible Work Act (*Wet Flexibel Werken*) was enacted in January 2016, making it possible for employees to apply not only for changes in the number of working hours, but also for changes in working hours and place of work.

<sup>9</sup> Activities included founding the feminist magazine *Opzij* and actively lobbying government officials. However, the content—asserting the dignity of women who manage work, housework, and childcare simultaneously—largely retained traditional gender-role frameworks. See Schippers, J. (2003). Child care and female labour supply in the Netherlands.

<sup>10</sup> A law balancing labour market flexibility (*flexibiliteit*) with security (*zekerheid*) for workers facing precarious employment. Its stated purpose is 'to harmonize employers' ability to manage their businesses flexibly with workers' right to employment and income security.' SZW. (2000, March). *Flexibiliteit en Zekerheid Voor werkgevers en (tijdelijke) werknemers* (p. 2).

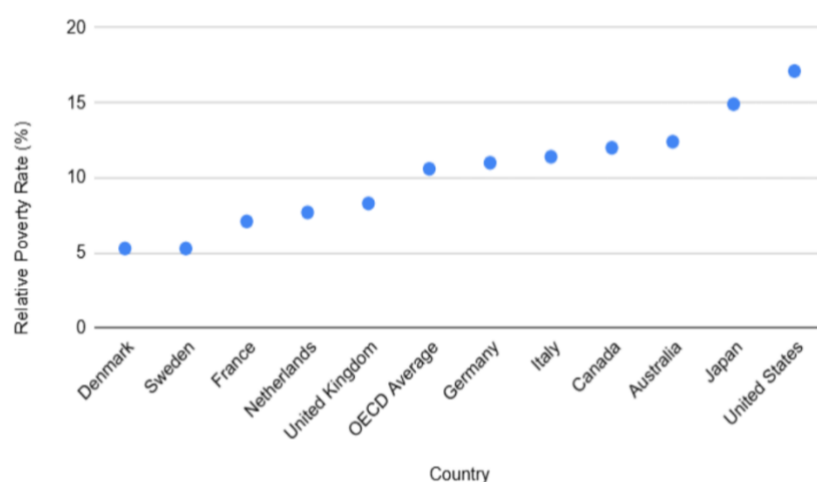


Figure 11: OECD "Growing Unequal? Income Distribution and Poverty in OECD Countries" (2008).

The core concept underlying this polder model is 'flexicurity'—an idea embodied in policy since the Flexibility and Security Act of 1999. This concept seeks to harmonize the need of employers for a flexible workforce and fluid labour market (e.g., adjusting employee numbers) with the needs of workers for income stability, welfare security (security), and continued employment<sup>11</sup>. By means of this, the Netherlands was able to achieve a comparatively equitable society—reducing relative poverty after income redistribution to a level second only to Denmark<sup>12</sup> (Fig. 11.).

Furthermore, in 2001 the Work and Care Act (*Wet Arbeid en Zorg*) was enacted, introducing a diverse range of paid leave schemes (including paternity leave, adoption leave, foster-child leave, short-term care leave, long-term care leave, special leave, emergency leave, and others) for combining paid work with childcare and caregiving responsibilities.<sup>13</sup>

It is only on the basis of this historical trajectory of the general ideal of flexible labor and its institutionalization that the structural spread of telework became possible. This was achieved through a historical process of seeking a unique institutional environment distinct from both the liberal competitive model and the social democratic model. That is, premised on the institutional momentum respecting worker self-determination, the 2015 Flexible Work Act explicitly codified the right of workers in companies with ten or more employees to apply for changes in their place of work. As a result, by 2017 the proportion of companies that had introduced telework was 78%, and the proportion of teleworkers among employees had already reached 33%. The rate of telework adoption was 74% for companies with 10–49 employees, 91% for 50–250 employees, and 98% for companies with over 250 employees (Kenjō 2018).

As a concrete case, Schiphol Group, operating under the banner of a 'New Approach to Working,' allows employees to freely combine telework while choosing weekly working hours of 36, 38, or 40 hours. Schiphol Group's telework utilizes its own hybrid platform based on VDI (Virtual Desktop Infrastructure) and SBC (Server-Based Computing), with 24-hour back-office and front-desk support (Fujitsu 2013). The company has strongly integrated 'Quality of Life' and environmental protection—including decarbonization—into its operational

<sup>11</sup> Heerma van Voss, G. J. J. (2000, March 17). Flexibility in Netherlands labour law [Lecture for the Japan International Labor Law Forum] (pp. 8–9, 12).

<sup>12</sup> A survey of 502 companies ('Effectiviteit van de Wet Aanpassing Arbeidsduur') found that approximately 90% of employers accommodated employee requests for adjusted working hours, with only one-quarter of requests rejected.

<sup>13</sup> The high implementation rate of these policies is largely attributable to the Netherlands' systematic approach to policy evaluation. Following the Finance Ministry's 1999 report to parliament ('*Van beleidsverantwoording tot beleidsbegroting*'), policy evaluation was systematized. In 2002, the Ministry of Finance issued the 'Regulation of Periodic Evaluation,' and in 2003 a manual for ex-post evaluation procedures was adopted, requiring standardized, multi-perspective policy analysis—including analysis of policy alternatives—across all ministries.

guidelines, and since 2009 has been able to continuously pursue telework adoption as part of these efforts under the banner of 'New Ways of Working (Het Nieuwe Werken).'

## 7. The foundational character of cultural environmental conditions

As demonstrated above, the Netherlands has overcome economic crises and policy innovations through tripartite cooperation, gradually establishing a cultural environment in general terms. What, then, was the social structure that made such a cultural environment possible?

After the Second World War, Christian Democracy in Western Europe was enthusiastically engaged in European integration, mediated by supranational political cooperation and informal solidarity through intermediate organizations—employers' associations, self-employed associations, agricultural cooperatives, labour unions, senior citizen organizations, leisure organizations, and the like (Burgess 1990:142, Portelli 1986: 85, Kaiser 2004:221). As a result, after the Works Constitution Act (*Gesetz über die Betriebsräte*) on employee representation was enacted in 1950 and underwent numerous revisions, cross-enterprise labour union formation advanced. Subsequently, as in other states of the German continental legal tradition, the Netherlands also gradually formed a policy-legal custom in which legislation incorporating the views of labour organizations directly defined the framework of corporate employment rules and labour contract relations. In this custom, since the effect of the law extends to individual labour contracts beyond company-specific employment rules, the result is that the costs that corporations and labour-management would otherwise spend on institutional conflict and adjustment can instead be directed toward the design of performance-based evaluation systems—enabling top-down realization of the agreed ideals at the implementation stage.

Such Christian Democracy, operating across government, business, and unions, derives from the intellectual culture of personalism (*personalisme*) rooted in Catholic social teaching. (Papini 1997, Hanley 1994). From this standpoint, the person is not an isolated individual standing alone, but a social being who engages with other persons and realizes themselves subjectively through community. This personalism shapes the educational culture of society in general, which in turn gives economic, labor, and welfare policies a unified direction from the policy level to the citizen level, consistently and comprehensively.

The most prominent expression of this culture was the principle of subsidiarity (*subsidiariteitsbeginsel*) in the *papal encyclical Quadragesimo Anno* (1931). This principle maximally respects the autonomous problem-solving capacity and self-governance of communities—families, associations, bodies. The role of the state, on the other hand, is to 'assist' only when problems arise that communities cannot solve on their own. In the Netherlands case, not only Catholic Christian Democracy but also Calvinist social teaching in the twentieth century produced proponents—exemplified by the theologian Abraham Kuyper (1837–1920)—of 'sphere sovereignty' (*soevereiniteit in eigen kring*), which recognized sovereignty parallel to the state for each social group and community and emphasized their self-governance and autonomy (Van Wissen, 1980). This principle of subsidiarity also influenced the provision on education in the Netherlands constitution, enabling both 'freedom of education' and 'equal government funding for public and private schools.'

In the Christian Democratic parties, where not only social-democratic labor unions but also multiple denominational labour unions were heavily intermingled, labour union membership rates stagnated. As a substitute, the Netherlands formed 'pillars' (*zuilen*) based on Calvinist and Catholic denominational forces that transcended companies, enabling Christian Democratic parties to hold power continuously for approximately 76 years from 1918 to 1994. Since 1950, the Social and Economic Council (Sociaal-Economische Raad: SER)—the highest advisory body on social and economic policy—has participated in policy-making through deliberations among eleven independent commissioners and eleven each from labour and management<sup>14</sup>. The SER is complemented by the Labor Foundation (Stichting van de Arbeid: SvdA)—a corporatist body serving as the

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<sup>14</sup> Criticism of the SER's insularity has been noted. Akkerman, A. (2005). Verhoudingen tussen de sociale partners in Nederland anno 2005: Corporatisme of lobbyisme. B en M, 32(4), 1871–1898.

highest-level bipartite deliberative body between labor and management—which holds binding resolutions (Andeweg & Irwin, 2009: 173).<sup>15</sup>

As described above, religious solidarity and social pillars not based on companies formed the meso (intermediate) domain between politics and citizens, enabling the 1982 Wassenaar Accord<sup>16</sup> to realize tripartite coordination in Netherlands labor and economic policy thereafter (Bruggeman & Van der Houwen, 2005: 273-1). For example, one distinctive social actor is the sectoral collective labour agreement (CAO: Collectieve Arbeidsovereenkomst) concluded between labor and management at each industrial level. Through a general binding declaration, the CAO applies uniformly to the relevant industry even where organizational rates of labour and management are low. As a result, in tandem with the cultural tendency to allow high autonomy to intermediate organizations, once decisions are reached through dialogue among government, labour, and management, they penetrate top-down to the labor-management shop floor of each company.

As demonstrated above, it can be stated that the flexibility of labor forms in the Netherlands and the institutional permeation power of policy ideals have enabled the spread of telework, underpinned historically by the culture of Christian Democracy and personalism exerting foundational influence on education, labor, and policy formation.

## 8. The relationship between cultural conditions and telework prevalence in Japan during the COVID-19 crisis

In the preceding section, it was confirmed that culture's foundational effects exert fundamental influence on the various dimensions of telework. This section shifts the focus of inquiry to Japan to clarify the relationship between its cultural conditions and telework prevalence rates.

In Japan, even at the 2017 pre-COVID stage, awareness of telework was only 62.2%, with 37.4% of workers not even knowing the term (Fig. 12.).

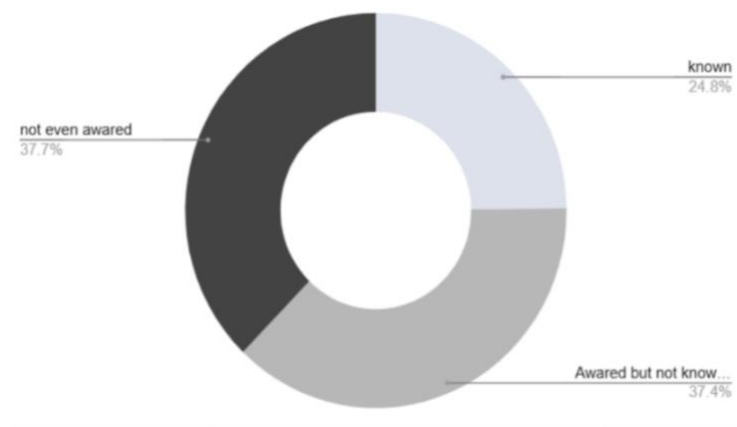


Figure 12: Telework awareness in Japan (2017)

Focusing particularly on inhibiting factors on the institutional and regulatory side of companies (Fig. 13.), the contrast between the inhibiting problems that arose in France and the successful Netherlands model introduced earlier remains instructive. In France, successive amendments to the general Labour Code necessitated the interpretation of complex regulations and the creation of employment rules for telework introduction.<sup>17</sup> In the

<sup>15</sup> The biannual tripartite consultations are described as 'one of the highlights of the Netherlands consultative economy' (Delsen, 2002, p. 15).

<sup>16</sup> Named after the location of Van Veen's residence in Wassenaar, near The Hague, where the Chairman of the employers' federation (Van Veen) and the Chairman of FNV (Kok) held successive rounds of dialogue.

<sup>17</sup> In France, where 76% of the workforce is employed in the tertiary sector and public employment is high, the privatisation of state enterprises (e.g., France Télécom, now Orange) between 1990–2000 increased employee stress and suicides. Work-sharing was introduced in 1998 to reduce stress. Telework was legally codified only in 2012; the revised Labour Law of 2017 recognised telework as an employee right and obliged employers to provide justification for refusal. The 2013 national inter-sector agreement on 'Quality of Working Life (QWL)' guaranteed teleworkers the right to disconnect from the internet. Centre for Economics and Business Research. (2014). Economic impact of telework.

Netherlands, by contrast, telework-related provisions are specifically incorporated at the legal-policy stage, meaning companies can concentrate their efforts on hardware and software development rather than regulatory compliance (Mori Hamada & Matsumoto Law Office 2021). Viewing this from a Japanese perspective, France-type inhibiting factors are conspicuously apparent: the complexity of regulatory and institutional formation within companies tends to act as a constraint on employer adoption of telework. As the figure below shows, for employed teleworkers, the proportion of companies with institutionalized telework policies was proportional to company size and telework participation rates also tended to be higher (Fig. 14. 15).<sup>18</sup>

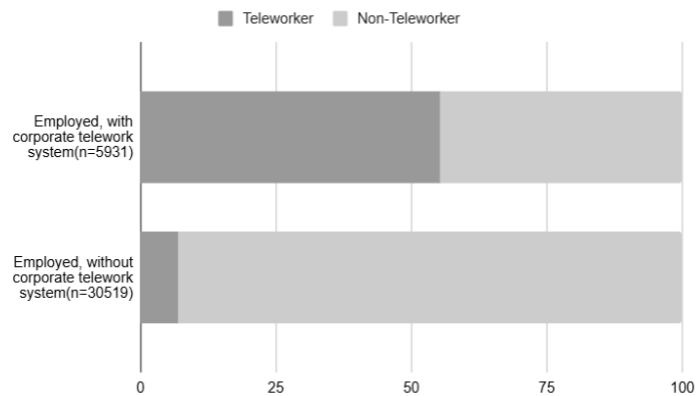


Figure 13: Proportion of teleworkers with corporate telework systems (2017 survey)

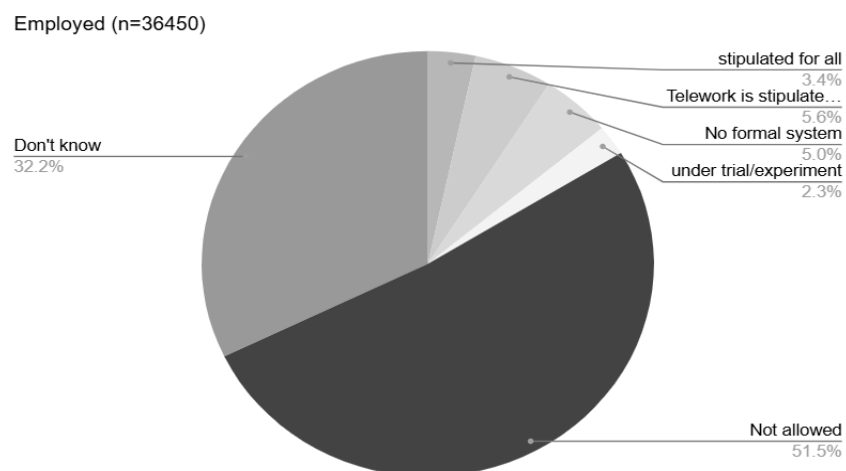


Figure 14: Proportion of telework-related systems at their workplace (2017 survey)

<sup>18</sup> Ministry of Land, Infrastructure, Transport and Tourism Japan, Urban Policy Division. (2018, March). FY2017 survey on the telework population [平成 29 年度テレワーク人口実態調査].

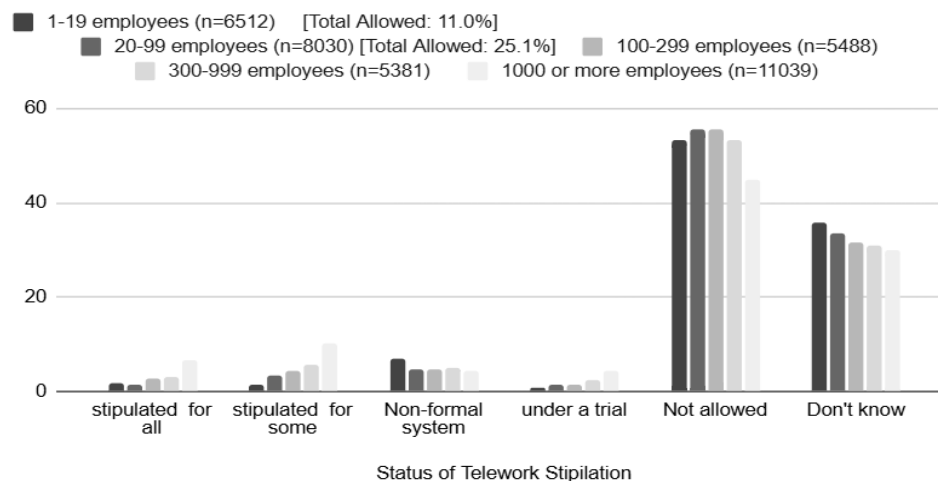


Figure 15: Telework system adoption rate by company size (2017 survey)

Particularly in micro-enterprises of 1–19 employees, cases where telework was informally permitted by supervisors without any institutional framework represented 6.9%—a higher proportion compared to larger companies. As already noted, however, the spread of telework under the liberal model tends to destabilize workers' status, increasing the risk of anxiety and stress within workers' internal environments. This point requires discussion alongside the psychological dimension addressed later.

In any case, Japan failed to achieve its own policy targets by the time of the COVID-19 crisis in 2020. Against this backdrop, the inhibiting factors of telework adoption in Japan have remained a major point of contention in prior research from before and after COVID-19 (Fig. 16.).

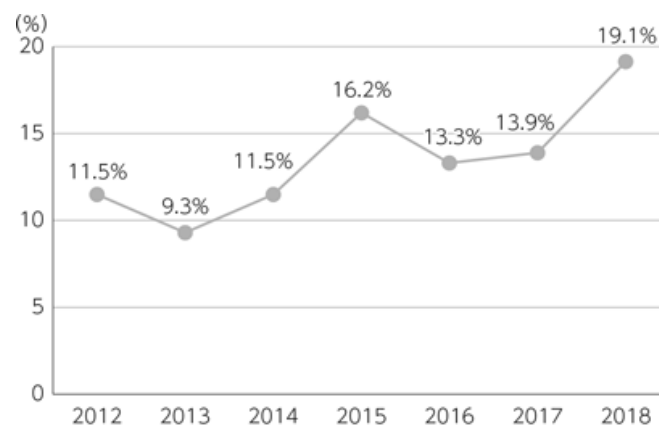


Figure 16: Trend in corporate telework adoption rates in Japan  
(compiled from MIC 'Survey on Telecommunications Usage Trends,' various years)

Looking at post-COVID research, Mori (2020) identified the gap in telework rates across eight countries as related to the severity of each country's lockdown policy (Fig. 17.), noting a high correlation (0.87). However, the ratio of people who began teleworking after the lockdown was 2.4 times in Japan—which had the most lenient lockdown—while in China, which implemented the most stringent urban lockdown, it was only 1.2 times. Despite this, a survey conducted in February 2020, just before COVID-19 spread, found that over 50% of Chinese enterprises had already adopted telework or remote work business platforms for office employees (Fig. 18.).<sup>19</sup>

<sup>19</sup>Cushman & Wakefield. (2020). Looking beyond COVID-19: Home/remote working in China and its potential impact on office workplace strategy. <https://www.cushmanwakefield.com/en/insights/covid-19/lessons-from-china/looking-beyondcovid-19-home-or-remote-working-in-china>

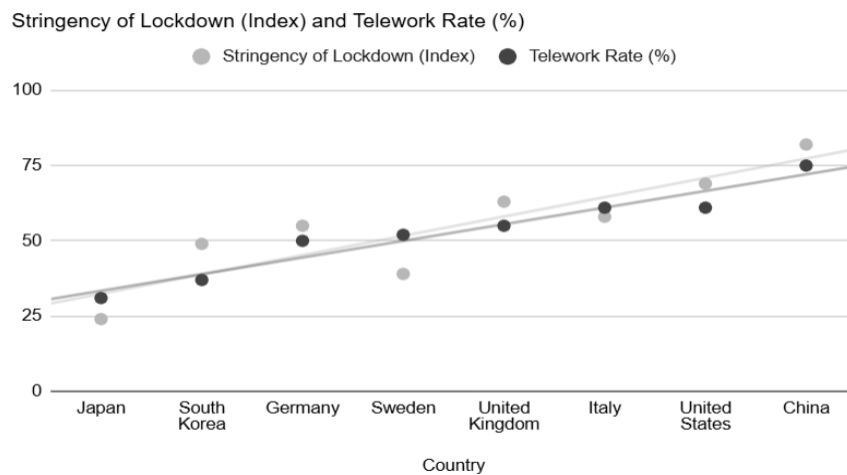


Figure 17: Telework utilization rates and lockdown stringency in eight countries

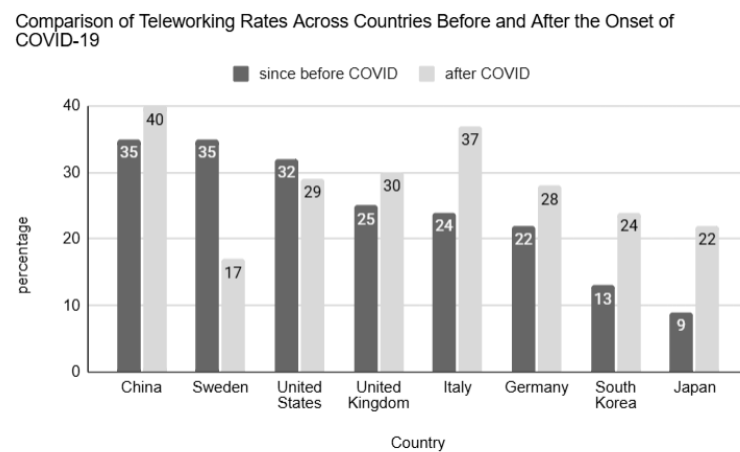


Figure 18: Telework utilization rates in eight countries worldwide (July 2020, Nomura Research Institute, 2020)

When considering telework prevalence rates in the post-COVID era, as examined in preceding sections, it is necessary to consider 'culture' as the foundational element—permeating the comprehensive preconditions for telework adoption—while policy institutions and *humanware* accumulate cultural capital.

An Asana survey of 10,223 knowledge workers<sup>20</sup> in six countries (Japan, the United States, the United Kingdom, Germany, Australia, and New Zealand) found that Japan has the lowest global managerial understanding of labour flexibility, retains a 'paper culture,' and has the highest rate of burnout due to long overtime both in offices and at home (Asana 2021). For example, 82% of Japanese respondents reported 'working overtime every day at the office or at home'—the highest among the six countries. On 'what percentage of a workday do you find productive,' Japan's score of 54% was the lowest among the six countries, against a global average of 70%. Only 19% of respondents reported being 'able to recognize that their work contributes to their organization's goals'—less than half the survey average of 46%. The proportion reporting that 'their company is operating efficiently' was also the lowest. Only 39% of organizations reported having 'a method for managing work procedures and processes (tracking progress or organizing),' and even among managers, only 24% reported 'understanding how much work

<sup>20</sup> Defined as professionals who spend most of their working hours in an office, or who use computers or devices for 50% or more of their tasks. See, Asana. (2021). Anatomy of work index 2021: Overcoming disruption in a distributed world. <https://asana.com/resources/anatomy-of-work-index>

is progressing within their division.' Japanese knowledge workers spent 59% of their working time on 'work about work'—excessive reliance on email, meetings about how to do work, and communication for managing work. The use of IT tools for work was also the lowest in Japan, with the least stress reduction being achieved through tools. Japan's poor productive efficiency is evident throughout its working practices.

Among the earliest prior research on Japan's working practices, Spinks (1999) identifies three impediments to telework adoption in Japan: 'ambiguous job definitions,' 'on-the-job skill formation,' and 'multidimensional personnel evaluation.' 'Ambiguous job definitions' refers to the labour contract custom in which individual job scopes are unclear, and decision-making and task execution tend to be performed collectively within small groups. This work organization constrains individual autonomy and results in unclear individual-level job definitions, discretion, responsibility, and outcomes—acting in the diametrically opposite direction to telework, which requires working independently of the group. 'On-the-job skill formation' refers to the Japanese corporate tendency for job skill development through OJT, premised on long-term employment relations within the context of Japanese-style management and the continuous sharing of a common 'place' (shared workplace) among supervisors, subordinates, and colleagues. Since telework disperses individuals away from the workplace and involves working without sharing that place, it acts contrary to this traditional labour practice. 'Multidimensional personnel evaluation' means that evaluation encompasses attitude, motivation, and cooperation with colleagues—not focused primarily on performance—making it difficult to engage in telework away from the conventional workplace (Shinada 2002).

Research building on the above, by Shimozaki (2001), deepened the analysis from the general perspective of the Japanese self. In traditional Japanese-style management, workers' high sense of organizational belonging and loyalty to the company have been matched by the company's welfare provision, lifetime employment, and seniority systems—and the economic rationality of the personnel system is underpinned by relational capital that can only be described as family-like, namely trust between supervisors and subordinates. This relational capital derives from the cultural trait of the Japanese—unique to Japan compared to the West—of emotionally identifying with a particular group and organization, creating, from a distinctly Japanese sense of ego uncertainty, a collectivist characteristic that causes corporate norms to supplement each worker's ego. Regarding this sense of ego, Shimozaki develops the argument that the depth of maternal involvement in child-rearing in Japanese family relations, and the sense of mother-child unity, is reflected in the relationships of trust with others in the corporate context.

However, the employment and wage system that Japanese-style management—premised on this sense of unity—guarantees requires devices to elevate workers' morale. Consequently, there is competition for status within the seniority-based promotion system (Iwata 1977). The assigned work at the pre-employment labour contract stage is unclear; the tasks that affect personnel evaluation and wage calculation are assigned by supervisors on each occasion (Spinks 2000). Performance is judged subjectively from the supervisor's perspective, taking into account the subordinate's ability, personality, and character, along with performance, capability, and attitudinal appraisal. In such subjective judgment, the subordinate who undertakes the supervisor's work is evaluated as excellent. The empirical material for such subjective judgment requires face-to-face interpersonal relations. In Japanese personnel evaluation, proximity within the supervisor's line of sight is essential. This culture of personnel evaluation is reflected in OJT-centred education and training, and in after-hours collective socializing '*tsukiai*'<sup>21</sup>—the norm of building interpersonal bonds through shared informal time.

Compared to the above Japanese culture, in the United States—where telework is comparatively widespread—job descriptions clearly define individual work scope and responsibilities. Performance-based evaluation, whereby rewards are determined by goal achievement, is established. In Europe, long working-hour habits are weak in the United Kingdom, and France and Germany strictly manage working hours while having institutionalized work systems such as job-sharing. Furthermore, as described above, in the Netherlands, since law and policy strongly influence labour contracts, it can be said that Japanese labour culture, as a foundational element, makes the realization of various forms of labour flexibility—including telework—difficult.

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<sup>21</sup> Derived from the practice of '*tsuke-ai*' (付合) in renga linked verse of the Muromachi period—the cultural norm of building interpersonal bonds through shared time and informal social exchange.

Post-COVID research also identifies the challenges of telework as: (1) digitalization of information, (2) personnel evaluation systems, and (3) 'three gaps' among employees (Yasui 2020). Culture is considered to exert comprehensive influence on all of these.<sup>22</sup> A particularly important question—if telework working environments cannot be established because workers' job content is ambiguous, and if COVID-19 caused forced work-from-home to generate unexpected work tasks—is: which workers assumed those tasks? This is likely to form a research domain uniquely pertinent to Japan.

## 9. Psychological dimensions of individual workers

Finally, this section reviews prior research focusing on the psychological dimensions of individual workers engaged in telework. After the COVID-19 crisis of 2020, telework satisfaction regarding improved work efficiency rose to around 80%; however, there is a strong awareness of problems regarding the difficulty of grasping organizational and interpersonal dynamics, and communication including casual conversation and mutual understanding.

Among the 'anxieties' felt by teleworkers, 'difficulty understanding what the other person is feeling' was cited by 37.4%, and 'concern about being seen as slacking off' by 28.4%. On 'changes before and after telework implementation,' 'interactions with supervisors decreased' (45.2%) and 'interactions with colleagues decreased' (50.0%)—communication-related challenges ranked at the top (Okada 2020, Persol 2020). These concerns reflect the validity of the research by Shimozaki et al. discussed in the preceding section. In telework, compared to face-to-face interaction, the quantity and quality of non-verbal communication decreases, and it becomes difficult to grasp workplace interpersonal relations and psychological states—but the very orientational awareness demanding such comprehension is shaped by Japanese culture. The imperative to devise ways to enhance psychological safety (Psychological Security) in online communication (Arai 2020) is particularly evident in Japan (Table. 2.).<sup>23</sup>

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<sup>22</sup> From the employer perspective, the main reasons cited for not introducing telework were: 'No suitable work' (73.1%), 'Difficulty managing work progress' (22.8%), 'Concern about information leakage' (20.5%), and 'Unclear benefit of introduction' (13.4%). Ministry of Internal Affairs and Communications. (2018). Survey on telecommunications usage trends [通信利用動向調査].

<sup>23</sup> This trend was present even before COVID-19. Ministry of Internal Affairs and Communications. (2017). Work-style reform and ICT utilization [働き方改革とICT利活用]. *White Paper on Information and Communications*.

Table 2: Measures to enhance psychological safety in online communication (Arai, 2020)

| Category                   | Strategies to Supplement the "Quantity" of Non-Verbal Communication                                                                                                                                                                                                                                                                                                                                                                                                                  | Strategies to Supplement the "Quality" of Non-Verbal Communication                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Daily Communication</b> | <ul style="list-style-type: none"> <li>• Intentionally create an environment for casual small talk using chat tools, etc.</li> <li>• Encourage ICT-proficient members to actively communicate and lead the team (resolving communication gaps by supporting those less familiar with PCs and networks).</li> <li>• For young employees or newly transferred subordinates, break down tasks into smaller units and increase the frequency of meetings and 1-on-1 sessions.</li> </ul> | <ul style="list-style-type: none"> <li>• Strive for softer and more nuanced expressions in written text such as chats.</li> <li>• Verbally indicate understanding of the conversation content (e.g., "I see. I understand perfectly.").</li> <li>• Verbally express feelings of gratitude or discrepancies.</li> <li>• (Assuming rapid environmental changes) carefully listen to their difficulties and anxieties, not limited to work tasks.</li> <li>• Verbalize and confirm the counterpart's feelings and thoughts.</li> <li>• Encourage opinions and counterarguments.</li> <li>• Prevent isolation among young employees or newly transferred subordinates by providing multiple layers of support, such as assigning OJT supervisors or mentors.</li> </ul> |
| <b>Internal Meetings</b>   | <ul style="list-style-type: none"> <li>• For large groups, assign a support role to monitor the chat in addition to the facilitator.</li> <li>• Utilize the chat function in online meetings to promote real-time communication.</li> <li>• Supervisors and leaders should take the initiative in asking questions and encouraging opinions and feedback.</li> </ul>                                                                                                                 | <ul style="list-style-type: none"> <li>• Avoid jumping straight into the main topic; use a 1-2 minute icebreaker to direct participants' mindset toward the online meeting.</li> <li>• Considerations are needed to avoid unnecessary fatigue regarding camera usage (e.g., allowing audio-only participation).</li> <li>• Speak concisely and select easily understandable terminology.</li> <li>• Promptly intervene if someone attempts to interrupt another speaker.</li> <li>• Be more conscious of the proportion of speaking and listening compared to face-to-face interactions.</li> </ul>                                                                                                                                                                 |
| <b>External Meetings</b>   | <ul style="list-style-type: none"> <li>• Even if the counterpart is not accustomed to teleworking, do not give up; respond courteously to prevent work stoppages.</li> <li>• Carefully confirm that no information has been missed or misheard.</li> </ul>                                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>• Pay attention to attire and grooming.</li> <li>• Avoid jumping straight into the main topic; courteously inquire about the counterpart's situation and context.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

As regards the individual psychological dimension in countries other than Japan, prior research was lacking until at least the 2000s (Bailey & Kurland 2002, Johanson 2007). The prior research that had not been sufficiently organized is analysed here by raising key issues.

Research focused on individual teleworkers has distinguished three types of factors according to the scope of telework's effects: individual factors, social factors, and conditional factors (Neufeld & Fang, 2005). Individual factors include the reduction of psychological stress through shorter commuting times (Baruch, 2000; Frolick et al., 1993), it has been pointed out that self-management of working hours is required for telework efficiency (Bailyn 1988, Bélanger 1999). Social factors include customer–colleague–supervisor relationships, with the premise that enriched communication positively influences work quality (Neufeld & Fang, 2005). Work communication is considered effective for improving work through receiving support from surrounding others and exchanging information, forming an organizational culture and norms that build cooperative relationships. Since such communication in telework is limited to electronic media, the 'trade-off' relationship between this limitation and traditional labour has been debated (Kraut 1989, Shamir & Salomon 1985). In particular, off-task conversation and communication in office settings expand social relationships and build friendly relations (Salomon & Salomon 1984, Sias & Cahill 1998). This point may be understood as having been affirmatively clarified in the context of the significance of communication that has been considered uniquely Japanese. Telework is said to psychologically promote isolation on the other hand. Research has thus been conducted from the perspective of how to prevent this isolation through the utilization of internet-based communication media and software (Hartman et al. 1991, Katz 1987, Poissonnet 2002).

As conditional factors, research has examined how the SOHO workspace environment affects teleworkers' psychology—including peripheral equipment such as software and printers; family environment issues related to the home life-stage such as childcare and caregiving; and problems related to the place of telework. Hill et al. (1998) and previously introduced works by Hartman et al. (1991) and Shamir and Salomon (1985) note that the effects of factors that inhibit work performance (interruption) and distract concentration (distraction) differ depending on the complexity of the intellectual work performed and the level of creativity required. Notably, for tasks requiring creativity and innovative thinking, even factors that would ordinarily inhibit or distract from work can instead produce positive effects in a telework context.

As such, focusing on individuals engaged in telework, the internal psychological environment—*anxiety, stress*—may be classified as *humanware*, while the objective (external) environment relating to hardware and software may be broadly distinguished as two types. Productivity in these Western prior studies has been defined as the efficiency of individual teleworkers in utilizing resources over a given period and demonstrating their talents and abilities. On the other hand, attending to the qualitative differences in telework as a labor form, Furukawa (2003) argues that while telework is not well suited to the process of combining individual-source knowledge (tacit knowledge) to create organizational knowledge (making it explicit), it is effective when integrating easily documentable information (explicit knowledge) to create new explicit knowledge.

Prior research has analyzed the processual elements of telework adoption from the individual's perspective through the lenses of opportunity, preference, choice, and frequency (Haddad et al., 2009):

Table 3: Individual-level adoption factors for telework and key issues in prior research

| Adoption Factor | Key Issues in Prior Research                              |
|-----------------|-----------------------------------------------------------|
| Opportunity     | Whether the employer provides the opportunity to telework |
| Preference      | Whether the worker wishes to work via telework            |
| Choice          | Whether the worker chooses to telework                    |
| Frequency       | How frequently the worker engages in telework             |

Regarding 'opportunity,' as Singh et al. (2013) note, highly educated workers tend to be more likely to propose telework to their employers—indicating that policy–labour–management–employer relationships are considered

as external factors. Additionally, Sasaki (2016) proposes a 'Telework Maturity CCken Model'<sup>24</sup> representing the level of telework development and maturity as Levels I–V, using five evaluation indicators: 'awareness,' 'systems,' 'tools,' 'structure,' and 'other.'

These studies demonstrate that telework has built an independent research domain centred on the individual perspective. On the other hand, prior research on the relationships among workers, colleagues, intra-corporate systems, and employers—as discussed in the preceding section—must be acknowledged as lacking a comparative cultural approach.

## 10. Conclusion

Having historically analyzed telework's ideological dimensions and technological preconditions and having examined the foundational character of cultural environmental conditions through to the individual psychological dimensions of telework, this paper now summarizes. Surveying the research on telework examined here from a bird's-eye perspective and presenting it as a matrix (Fig. 19.), it becomes clear that comprehensive analysis from the following domains is required for telework implementation:

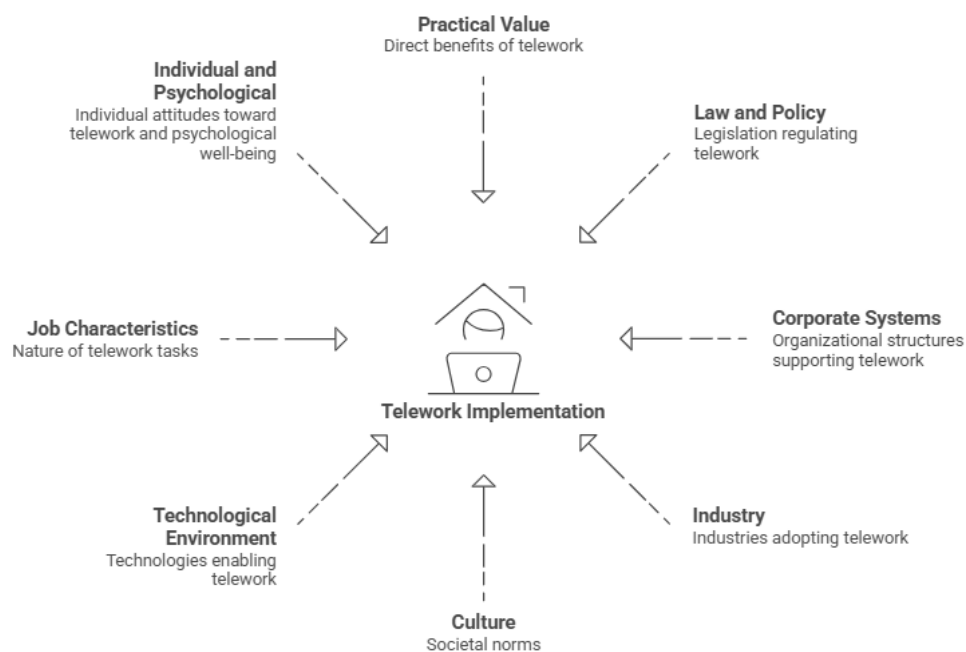


Figure 19: Telework Implementation Matrix: Domains of Influence

'Practical values' refers to the values that telework's decentralizing effect—liberating workers from traditional labour forms represented by 'commuting'—produces concretely, the realization of work-life balance, reduction of environmental impact, improvement of business operational efficiency, regional revitalization, and reduction of natural disaster risk (BCP). These social value dimensions are promoted by national governments into policy, forming legal systems. Moreover, as already seen through the Netherlands-centred European 'flexicurity' policies that facilitated the spread of telework, law and policy themselves have the effect of establishing the basic preconditions enabling corporate telework adoption. Corporations then proceed to build their institutional frameworks, beginning with employment rules, in response to these legal policies.

<sup>24</sup> The 'CCken Model' (CC 研モデル) takes its name from the 'CC Kenkyūkai' (CC 研究会; CC Research Group), a cross-company study group composed of IT departments within the Mitsubishi corporate group. 'CC' stands for 'Critical Capability,' a concept drawn from the IT Capability Maturity Framework (IT-CMF) developed by the Innovation Value Institute (IVI). In 2015, this research group examined 'work-style transformation' (*wākusutairu henkaku*).

Telework exhibits great disparities in adoption across industries; it has been pointed out that adoption is inherently difficult in direct production labor such as manufacturing and in person-to-person services. However, the outcome that uniform COVID-19 work restrictions operated across all industries—forcing telework adoption in sectors where it had not previously been introduced—and what creative changes, innovations, and internal role redistribution occurred within those sectors, has not yet been sufficiently clarified. For example, in countries with heavy Japanese manufacturing investment such as Thailand, it has been reported that reviews and strengthening of supervisory functions, capital and group restructuring, and portfolio reviews were carried out, along with supply chain transformation and automation advancement, and the creation of new contactless businesses (in agriculture, medical, education, and financial fields).

Furthermore, within the same industry, administratively and indirectly intensive intellectual work is suitable for telework adoption, but the objective external conditions of 'law and policy' and 'technological environment' associated with urban-rural disparities and developed-developing country differences must be fully considered. 'Culture' in each country's labor and workplace context is the most foundational element, exerting sustained influence across the broad domains of 'law and policy,' 'corporate systems,' 'job design,' and 'individual psychology.' Particularly regarding employer (supervisor)–worker (subordinate) and worker (colleague)–to-worker relationships, it has been pointed out that these constitute important elements to be considered from the 'individual psychology' domain. Employing this bird's-eye matrix, the research by Nguyen (2021) conducted in Hanoi, Vietnam during the COVID pandemic can be cited as a comparatively high-quality study realizing the comprehensive consideration this paper advocates: it identifies negative factors such as difficulty concentrating on work, technical limitations impeding data access, and the presence or absence of children as impediments; while noting that Hanoi's traffic congestion and environmental pollution constituted a telework adoption rationale that could garner broad civic—not merely employer-employee—support.

As demonstrated above, this paper has clarified that at least eight domains of influence must be considered for telework implementation. The matrix model constructed here demonstrates that even a single business undertaking such as telework implementation requires multifaceted and composite perspectives and analysis through interdisciplinary research, and that such an approach proves both necessary and effective. Among these eight domains, culture does not merely stand alongside the other dimensions; rather, it undergirds them as a foundational stratum. The historical and cultural conditions of each country—shaped by long processes of religious, social, and political development—exert sustained influence across 'law and policy,' 'corporate systems,' 'job design,' and 'individual psychology.' This finding points to a broader methodological implication for transdisciplinary research: the positioning of the humanities and historical perspective is not merely one viewpoint among many but occupies a foundational role relative to the other analytical dimensions. A particularly important task for future post-COVID telework research is to further elucidate how differences in historically rooted culture generate differences in telework adoption, and what creative innovations and culturally grounded civic organizational behaviors emerged in countries, industries, corporations, and job categories where telework had not previously been smoothly adopted.

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## References

- Andeweg, R. B., & Irwin, G. A. (2009). *Governance and politics of the Netherlands (3rd ed.)*. Palgrave Macmillan.
- Asana. (2021). *Anatomy of work index 2021: Overcoming disruption in a distributed world*. <https://asana.com/resources/anatomy-of-work-index>
- Audretsch, D. B., & Thurik, A. R. (2001). What's new about the new economy? Sources of growth in the managed and entrepreneurial economies. *Industrial and Corporate Change*, 10(1), 267–315.
- Arai, M. (2020). Transformation of work styles: Key considerations for online communication. Mitsubishi UFJ Research & Consulting.
- Bailey, D. E., & Kurland, N. B. (2002). A review of telework research: Findings, new directions, and lessons for the study of modern work. *Journal of Organizational Behavior*, 23(4), 383–400.
- Bailyn, L. (1988). Freeing work from the constraints of location and time. *New Technology, Work and Employment*, 3(2), 143–152.
- Baruch, Y. (2000). Teleworking: Benefits and pitfalls as perceived by professionals and managers. *New Technology, Work and Employment*, 15(1), 34–49.
- Bélanger, F. (1999). Workers' propensity to telecommute: An empirical study. *Information & Management*, 35(3), 139–153.
- Berthiaume, D., & Lanarès, J. (2020). L'expérience doctorale: État des lieux et propositions de structuration. Conférence Universitaire de Suisse Occidentale (CUSO).
- Boudon, R. (1982). The unintended consequences of social action. Macmillan.
- Boyer, R. (2002). *Une nouvelle économie ?*. Odile Jacob.
- Bruggeman, J., & Van der Houwen, P. (2005). Voorbij Wassenaar: De Stichting van de Arbeid 1982–2005. Stichting van de Arbeid.
- Burgess, M. (1990). Political Catholicism, European unity and the rise of Christian Democracy. In M. L. Smith & P. M. R. Stirk (Eds.), *Making the new Europe: European unity and the Second World War* (pp. 142–155). Pinter Publishers.
- Christopher, E. (2021). Diversity in international management: A silver lining to the Covid-19 cloud—overcoming management resistance to employee telework. In M. Chavan & L. Taksa (Eds.), *Intercultural Management in Practice* (pp. 53–68). Emerald Publishing Limited.
- Cornelis, H. J., & Tillema, A. J. P. (1992). Major revisions in Netherlands law: Adoption of new civil code and implementation of EC directives. *International Lawyer*, 26, 1075.
- Cushman & Wakefield. (2020). Looking beyond COVID-19: Home/remote working in China and its potential impact on office workplace strategy. Retrieved from <https://www.cushmanwakefield.com/en/insights/covid-19/lessons-from-china/>
- Deleuze, G., & Guattari, F. (1980). *Mille plateaux [A thousand plateaus]*. Minuit.
- Delsen, L. (2002). *Exit Polder Model?: Socio-economic Changes in the Netherlands*. Praeger Publishers.
- Derrida, J. (2002). *Without Alibi*. (P. Kamuf, Ed. & Trans.). Stanford University Press.
- DeSilver, D. (2020, March 20). Before the coronavirus, telework was an optional benefit, mostly for the affluent few. Pew Research Center. <https://www.pewresearch.org/fact-tank/2020/03/20/before-the-coronavirus-telework-was-an-optional-benefit-mostly-for-the-affluent-few/>
- The Economist. (1977, November 26). The Netherlands disease (pp. 82–83).
- Eurofound & International Labour Office. (2017). Working anytime, anywhere: The effects on the world of work. Publications Office of the European Union & ILO.
- FlexJobs. (2017). The 2017 State of Telecommuting in the U.S. Employee Workforce.
- Frolick, M. N., Wilkes, R. B., & Urwiler, R. (1993). Telecommuting as a workplace alternative: An identification of significant factors in American firms' determination of work-at-home policies. *Journal of Strategic Information Systems*, 2(3), 206–220.
- Fujitsu Technology Solutions. (2013). Case study: Schiphol Group.
- Furukawa, Y. (2003). Success factors for telework in Japan. *Sogo Seisaku Kenkyu*, 13, 25–40.
- Haddad, H., Lyons, G., & Chatterjee, K. (2009). An examination of determinants influencing the desire for and frequency of part-day and whole-day homeworking. *Journal of Transport Geography*, 17, 124–133.
- Hanley, D. (Ed.). (1994). *Christian democracy in Europe: A comparative perspective*. Pinter.
- Hartman, R. I., Stoner, C. R., & Arora, R. (1991). An investigation of selected variables affecting telecommuting productivity and satisfaction. *Journal of Business and Psychology*, 6(2), 207–225.
- Heerma van Voss, G. J. J. (2000). Flexibility in Netherlands labour law. Lecture for the Japan International Labor Law Forum, March 17, 2000.
- Hill, E. J., Miller, B. C., Weiner, S. P., & Colihan, J. (1998). Influences of the virtual office on aspects of work and work/life balance. *Personnel Psychology*, 51(3), 667–683.
- Huws, U., Jagger, N., & Bates, P. (1999). *Teleworking and Globalisation*. Institute for Employment Studies.

- Ikegami, K. (2020). Impact of COVID-19 in Thailand and strategic directions for Japanese companies. Mitsubishi UFJ Research & Consulting.
- Iscan, O. F., & Naktiyok, A. (2005). Attitudes towards telecommuting: The Turkish case. *Journal of Information Technology*, 20, 52–63.
- Iwata, R. (1977). *Organizational principles of Japanese management* [日本的経営の編成原理]. Bun-Shindo.
- Johanson, K. G. (2007). Effects of a sense of isolation on productivity among office workers, managers, and telecommuters [Doctoral dissertation]. Walden University.
- Joint Research Centre, European Commission. (2020). Telework in the EU before and after COVID-19: Where we were, where we head to. European Union.
- Kaiser, W. (2004). Review article: Christian democracy in twentieth-century Europe. *Journal of Contemporary History*, 39(1), 127–135.
- Katz, A. I. (1987). The management, control, and evaluation of a telecommuting project: A case study. *Information & Management*, 13, 179–190.
- Kennerly, M., Frederick, S., & Abel, J. E. (2021). *Information: Keywords*. Columbia University Press. <https://doi.org/10.7312/kenn19876>
- Kenjō, E. (2018, April). The Netherlands labour market [オランダの労働市場]. *Japan Labour Issues*.
- Kraut, R. (1989). Telecommuting: The trade-offs of home work. *Journal of Communication*, 39(3), 19–47.
- Loo, B. P. Y., & Wang, B. (2018). Factors associated with home-based e-working and e-shopping in Nanjing, China. *Transportation*, 45, 365–384.
- Merton, R. K. (1936). The unanticipated consequences of purposive social action. *American Sociological Review*, 1, 894–904.
- Ministry of Internal Affairs and Communications, Japan. (2007). Promoting telework [テレワークの推進].
- Ministry of Internal Affairs and Communications, Japan. (2017). White Paper on Information and Communications.
- Ministry of Internal Affairs and Communications, Japan. (2018). Survey on telecommunications usage trends.
- Ministry of Internal Affairs and Communications, Japan. (2019). White Paper on Information and Communications.
- Ministry of Land, Infrastructure, Transport and Tourism, Japan. (2018, March). FY2017 survey on the telework population.
- Ministry of Health, Labour and Welfare, Japan. (2012). White Paper on Health, Labour and Welfare (p. 105).
- Mori, K. (2020, December). COVID-19 and telework usage in eight countries. Nomura Research Institute.
- Mori Hamada & Matsumoto Law Office. (2021, March). Survey research on the actual state of telework in European countries. [https://www.meti.go.jp/meti\\_lib/report/2020FY/000193.pdf](https://www.meti.go.jp/meti_lib/report/2020FY/000193.pdf)
- Neufeld, D. J., & Fang, Y. (2005). Individual, social and situational determinants of telecommuter productivity. *Information & Management*, 42(7), 1037–1049.
- Nguyen, M. H. (2021). Factors influencing home-based telework in Hanoi (Vietnam) during and after the COVID-19 era. *Transportation*. <https://doi.org/10.1007/s11116-021-10169-5>
- OECD. (2000). *Economic surveys 1999–2000: Netherlands*. OECD Publishing.
- Okada, M. (2020, October 2). “Telework ni yoru shanai komyunikēshon no henka” ni kansuru chōsa kekka (sokuhō) [Preliminary results of the survey on changes in internal communication due to telework]. Center for Development and Research on Psychological Support for Working People (T-One Lab), University of Tsukuba. <http://www.human.tsukuba.ac.jp/counseling/t-one-lab/>
- Papini, R. (1997). *The Christian Democrat International*. Rowman & Littlefield.
- Persol Research Institute. (2020). Emergency survey on the impact of COVID-19 on telework (2nd survey). <https://rc.persol-group.co.jp/news/202004170001.html>
- Poissonnet, S. P. (2002). Profiles of fit for successful telework outcomes [Doctoral dissertation]. University of California, Los Angeles.
- Portelli, H. (1986). La Démocratie Chrétienne et les Internationales des partis. In H. Portelli & T. Jansen (Eds.), *La Démocratie Chrétienne, force internationale* (pp. 85–93).
- Ruch, W. A. (1994). Measuring and managing individual productivity. In D. H. Harris (Ed.), *Organizational linkages: Understanding the productivity paradox* (pp. 1–320). National Academy Press.
- Salomon, I., & Salomon, M. (1984). Telecommuting: The employee's perspective. *Technological Forecasting and Social Change*, 25(1), 15–28.
- Sasaki, Y. (2016). Proposal of a telework Maturity Model [テレワーク成熟度モデルの提案], *Journal of the Japan Society for Management Information*, 24(4), 239–246.
- Sener, I. N., & Reeder, P. R. (2012). An examination of behavioral linkages across ICT choice dimensions. *Environment and Planning A*, 44, 1459–1478.
- Shamir, B., & Salomon, I. (1985). Work-at-home and the quality of working life. *Academy of Management Review*, 10(3), 455–464.

- Shimozaki, C. (2001). Compatibility and contradictions between telework and the transformation of Japan's personnel management system. *Kokumin Keizai Zasshi*, 184(1), 1–17.
- Shinada, F. (2002). Factors impeding the settlement of telework in Japanese companies. *Japanese Telework Society Journal*, 1(1), 41–58.
- Schippers, J. (2003). Childcare and female labour supply in the Netherlands. In D. M. Blau & J. Currie (Eds.), *The Economics of Child Care*. Russell Sage Foundation.
- Sias, P., & Cahill, D. (1998). From coworkers to friends: The development of peer friendships in the workplace. *Western Journal of Communication*, 62(3), 273–299.
- Singh, P., Paleti, R., Jenkins, S., & Bhat, C. R. (2013). On modeling telecommuting behavior: Option, choice, and frequency. *Transportation*, 40, 373–396. <https://doi.org/10.1007/s11116-012-9429-2>
- Social en Cultureel Planbureau. (2008, February). Nederland Deeltijdland: Vrouwen en deeltijdwerk. Den Haag.
- Spinks, W. A. (1999). Traditional Japanese employment and telework: The possibilities and challenges of Japanese-style telework. *Japanese Telework Society Journal*, 1(7), 35–40.
- Spinks, W. A. (2000). Implementing telework: Lessons from work design. Proceedings of the 2nd Annual Conference of the Japanese Telework Society.
- University of Tsukuba. (2020). Survey on changes in internal communication due to telework [preliminary report]. Psychological Support Development Research Center for Working People.
- U.S. Office of Personnel Management. (2018). Status of Telework in the Federal Government: Report to Congress, Fiscal Year 2018.
- Van der Meulen, N., Van Baalen, P., & Van Heck, E. (2012). Please, do not disturb: Telework, distractions, and the productivity of the knowledge worker. Thirty-Third International Conference on Information Systems, Orlando.
- Van Wissen, C. J. M. (1980). De christen-democratische visie op de rol van de staat in het sociaal-economisch leven [Doctoral dissertation]. Universiteit van Amsterdam.
- Westcott, D. N., & Bednarzik, R. W. (1981). Employment and unemployment: A report on 1980. *Monthly Labor Review*, 104(2), 4–14.
- Yamada, A. (2014). Systematic survey of personal computer technology history. Technical History Series of National Museum of Nature and Science, 21, 217–319.
- Yasui, N. (2020). Telework challenges and the potential for 'seeds of change.' *Economic Information*, 463, 16–22.

# From Higher Education to the Career Paths: Students’ Perspectives of Education and Employability

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## Abstract

Graduate employability is a pressing concern in higher education, particularly in lower- and middle-income countries such as Bangladesh. Many graduates struggle to find employment due to skill mismatches, limited work-integrated learning, and unequal access to networks. Research on students' views regarding employability in this context is scarce, highlighting a critical gap in understanding. This qualitative research examines Bangladeshi students' and recent graduates' perceptions of employability and early career navigation through 21 structured interviews across various academic fields. By integrating Career Ecosystem Theory, Perceived Employability, and Social Capital Theory, the study finds that employability is influenced by academic learning, experiential exposure, psychological resources, and social networks. Participants emphasized adaptability, communication skills, and self-improvement, while recognizing challenges like the experience paradox and institutional hierarchies. The findings inform higher education institutions, employers, and policymakers seeking to promote inclusive and sustainable graduate employability in developing-country contexts.

**Keywords:** Graduate Employability, Higher Education, Bangladesh, Social Capital, Career Ecosystem

## 1. Introduction

The transition from higher education to employment has become increasingly complex in contemporary labor markets. Traditionally, a university degree was viewed as a relatively secure pathway to stable employment. However, economic restructuring, technological change, and shifting employer expectations have weakened this linear relationship, intensifying competition and uncertainty for graduates (Tomlinson, 2017; Holmes et al., 2022). As a consequence, graduate employability has become a central concern for higher education institutions, policymakers, and researchers (Hillage & Pollard, 1998; Clarke, 2018).

Employability is no longer understood solely by the ability to obtain a first job. Rather, it encompasses a combination of skills, knowledge, attributes, and personal resources that enable individuals to gain, maintain, and progress in employment (Yorke, 2006; Fugate et al., 2004). Contemporary perspectives emphasize that employability is shaped by both individual agency and contextual conditions, including institutional support, labor

market structures, and social networks (Forrier & Sels, 2003; Donald et al., 2018). In this regard, graduates' perceptions of their own employability—commonly referred to as perceived employability—play a critical role in shaping motivation, confidence, and career-related behavior (Rothwell & Arnold, 2007; Vanhercke et al., 2014).

In lower- and middle-income countries such as Bangladesh, graduate employability has become an urgent policy and research issue. Despite the rapid expansion of higher education institutions, many graduates struggle to secure suitable employment due to skills gaps, limited work experience, and weak university–industry linkages (Alam et al., 2022; Ehsan, 2021). Employers frequently report deficiencies in communication, problem-solving, and applied skills, while graduates face intense competition for a limited number of quality jobs (Hossain & Arefin, 2025). These challenges are further compounded by institutional inequalities and unequal access to career development resources (Hasan et al., 2024).

Higher education institutions in Bangladesh are therefore under increasing pressure to support not only disciplinary learning but also employability-enhancing experiences. Work-integrated learning (WIL) has been widely promoted as a mechanism for connecting academic study with workplace practice (Zegwaard & Coll, 2009; Jackson, 2016). At the same time, extracurricular activities and informal networking opportunities are recognized as important sources of skill development and social capital (Roulin & Bangerter, 2013; Pinto & Ramalheira, 2017). However, access to these opportunities remains uneven, shaping differential employability outcomes.

Against this backdrop, this study examines how Bangladeshi students and recent graduates understand employability and navigate their transition from higher education into early-career pathways. By foregrounding student perspectives and situating the analysis within established employability theories, the study contributes to a context-sensitive understanding of graduate employability in Bangladesh.

## 2. Literature Review

Early conceptualizations of employability focused primarily on individuals' ability to secure employment, often emphasizing the acquisition of skills and labor market readiness (Hillage & Pollard, 1998). Over time, the concept has evolved to encompass broader dimensions of adaptability, lifelong learning, and sustainable career development (Yorke, 2006; Clarke, 2018). Employability is now widely understood as a multidimensional construct comprising human capital, social capital, and psychological capital (Fugate et al., 2004; Luthans et al., 2016).

Human capital refers to the knowledge, skills, and competencies individuals acquire through education and training. While academic qualifications remain important, research suggests that employers increasingly value transferable skills such as communication, teamwork, and problem-solving (Bridgstock, 2009; Alam et al., 2022). In Bangladesh, skills mismatches between higher education outcomes and labor market demands have been identified as a major barrier to graduate employment (Hossain & Arefin, 2025).

Work-integrated learning has been widely identified as a key mechanism for enhancing employability. Internships, placements, and project-based learning allow students to apply theoretical knowledge in real-world contexts, develop professional identities, and gain workplace experience (Jackson, 2016; Wilton, 2012). Empirical studies suggest that such experiences can positively influence degree performance and early career outcomes (Brooks & Youngson, 2016). However, the effectiveness of WIL depends on quality, supervision, and institutional support—factors that remain inconsistent in many developing-country contexts (Ehsan, 2021).

Beyond formal curricula, social capital plays a crucial role in developing employability. Social capital refers to resources embedded within social networks that facilitate access to information and opportunities (Saifuddin & Zaman, 2026). In labor markets where informal recruitment practices are common, personal connections and referrals can significantly influence employment outcomes (Seibert et al., 2001). Participation in extracurricular activities and professional networks also supports identity development and future orientation, shaping how students imagine and prepare for possible career selves (Stevenson & Leontiev, 2011; Roulin & Bangerter, 2013).

Psychological capital and perceived employability further influence how graduates navigate career transitions. Perceived employability reflects individuals' beliefs about their capacity to obtain and sustain employment and has been linked to proactive job search behavior and career adaptability (Rothwell & Arnold, 2007; Onyishi et al., 2015). These perceptions are shaped by educational experiences, institutional reputation, and social context (Vanhercke et al., 2014).

More recent perspectives adopt a systemic view of employability. Career Ecosystem Theory conceptualizes careers as embedded within interconnected systems involving individuals, educational institutions, employers, and labor markets (Baruch, 2015; Donald et al., 2024). Sustainable career models further emphasize the dynamic interaction between individual agency and structural conditions over time (De Vos et al., 2020). Such perspectives are particularly relevant in Bangladesh, where employability outcomes are shaped by institutional hierarchies, labor market constraints, and social inequality.

Despite a growing international literature, empirical research capturing students' perspectives on employability in Bangladesh remains limited. This study addresses this gap by integrating employability theories to examine how students and recent graduates understand and manage employability within a structurally constrained context.

### **3. Methodology**

#### *3.1. Research design and data collection*

This study employed a qualitative research design grounded in an interpretivist paradigm to explore how Bangladeshi students and recent graduates construct and interpret employability within the context of higher education and early career transition. Ontologically, the study is informed by relativism, recognizing that reality is socially constructed and experienced differently across individuals (Lincoln & Guba, 1985). Epistemologically, the research seeks to understand participants' lived experiences and subjective interpretations of employability and career navigation. Such an approach aligns with qualitative research traditions that prioritize meaning-making and contextual understanding rather than objective measurement (Bryman, 2016; Easterby-Smith et al., 2018).

Structured interviews with open-ended questions were used to collect data. Although the interview guide ensured that all participants addressed comparable themes aligned with the research objectives, the open-ended format enabled respondents to articulate their experiences in their own words. This balance between consistency and flexibility enhanced both reliability and depth of insight. Interviews lasted 45-60 minutes, allowing participants to provide detailed reflections on their perceptions of employability, the influence of higher education, and the challenges they encountered during their transition to the labor market. Purposive sampling was employed to recruit participants at a critical stage between higher education and employment (Patton, 2015). The sample (table 1) comprised 21 participants, including final-year undergraduate students and recent graduates (within 1 year of degree completion) from various universities in Bangladesh.

Participants were recruited through academic and professional networks, and participation was voluntary. Prior to data collection, respondents were informed of the study's purpose, their right to withdraw at any time, and the measures implemented to ensure confidentiality and anonymity. Written informed consent was obtained from all participants. To safeguard identities, respondents were assigned pseudonymous codes (R1–R21). Ethical approval for the study was granted by the East West University Ethical Review Committee (EWUERC). The research adhered to established ethical principles for social science research (Saunders et al., 2007, 2012).

#### *3.2 Respondent Profile*

A total of 21 participants (R1–R21) from academic programs including Business Administration, Economics, Engineering, Computer Science, and Microbiology participated in the study. Final-year students and graduates were included in the sample, reflecting diverse notions of preparedness for work and transition.

There was variation in participants' exposure to professional environments: some had completed internships, part-time work, or volunteer experiences, whilst others had little or no practical experience. Drawing on this diversity, the study collected a range of views on perceptions of employability across academic disciplines and institutions.

Table 1: Respondent Profile

| Code              | Discipline / Major               | Status               | Experience                                          |
|-------------------|----------------------------------|----------------------|-----------------------------------------------------|
| R1–R4             | Business Administration          | Final-year Graduates | & Internships completed                             |
| R5, R11, R15, R21 | Economics                        | Final-year Graduates | & NGO / Ongoing internships / None                  |
| R2, R6, R13       | Pure Science                     | Final-year students  | None / Research assistantship                       |
| R7, R12, R14, R16 | Business Administration          | Graduates            | Work or part-time experience                        |
| R8, R9, R17       | Business Administration          | Final-year students  | Internship / Volunteer work                         |
| R10, R16          | Engineering                      | Graduates            | Industrial or technical work                        |
| R18               | Computer Science and Engineering | Final-year student   | Project-based work / Club involvement               |
| R19, R20          | Microbiology                     | Final-year students  | Laboratory experience / Limited internship exposure |

All interviews were audio-recorded with participants' permission and transcribed verbatim. Where interviews involved bilingual communication, careful translation procedures were followed to preserve semantic accuracy and contextual meaning.

### 3.3 Data Analysis

The data were analyzed using thematic analysis, following Braun and Clarke's (2006) six-stage framework. An inductive strategy was used to allow themes and meanings to surface from participants' voices. The researcher began by becoming familiar with the data through several readings, then created initial codes to develop categories based on prevalent concepts. These codes were subsequently processed and clustered into additional categories through comparative iterative analysis. For rigor and trustworthiness, themes were consistently compared across cases, and researchers also engaged in reflexive note-taking to reduce potential researcher bias (Gibbs, 2007). In this systematic approach, three dominant themes emerged under the study's aim, as follows: i. Students and Graduates' Employability Perception. ii Higher Education-The Shaper of Employability. iii. Obstacles and Success Factors Related to the Transition from School to Work

This investigation employs the robust trustworthiness framework established by Lincoln and Guba (1985), comprising credibility, transferability, dependability, and confirmability. To enhance credibility, we used comprehensive references and summarized key interview points to accurately capture participants' viewpoints (Atkinson & Coffey, 2003). Transferability was achieved through detailed contextual descriptions and purposive sampling to capture relevant variations within the research setting (Maxwell, 2005; Saunders et al., 2012). Dependability was ensured by creating an audit trail that included recorded interviews, bilingual transcripts, and documented analytical procedures, thereby enabling evaluation of research consistency amid contextual changes (Lincoln & Guba, 1985). Confirmability was maintained by meticulously grounding interpretations in raw data and by documenting analytic decisions transparently, thereby adhering to the principles of ethical qualitative research (Miles & Huberman, 1994).

#### 4. Findings and Analysis

The analysis of twenty-two structured interviews yields three interconnected themes: Bangladeshi students' and graduates' understanding of employability, the impact of higher education, and their reactions to structural barriers encountered in their transition into the workplace. These themes are: *Student and Graduate Perceptions of Employability*; *The Influence of Higher Education in Structuring Employability*; *Obstacles and Facilitators in the Transition From Higher Education to the Labor Market*

##### 4.1 Perceptions of Employability

As a whole, participants conceptualized employability as a complex, not merely academic, concept—incorporating confidence, independence, and practical experience—but fundamentally interpersonal. Students described employability as getting a good job and the capacity to progress professionally through lifelong learning and self-development.

In contrast, confidence was higher amongst those from the applied disciplines (Business, HRM, Computer Science, and Engineering). One computer science student says, “I am pretty confident I will be able to get a job after graduation. At this moment, I could feel my own enthusiasm for the growing knowledge and future employability prospects being compelling enough to get a good job” (R18). Likewise, students from the business discipline also connected employability with a mix of communication and leadership abilities: “I have a very strong CGPA and improved my leadership in the club. This makes me confident that I can eventually get a good job in line with my goals” (R2).

Vocational categories aside, however, Microbiology, English, Philosophy, and Economics students tended to experience significant uncertainty. One microbiology student admitted, “I am worried about my CGPA... employers prefer references or experience. I think I am just not sure that I am going to be able to get a job straight out after university” (R19). A graduate of English shared this worry: “Experience is needed in so many institutions, and they do not want to provide opportunities to freshers. For this reason, new graduates suffer and feel frustrated” (R17).

For some students, employability was portrayed as a continual process, with responsibility for it devolved from the workplace to the individual. As one respondent noted, “University curricula do not evolve as fast, but the world has, and our job market is changing. It is that we have to have an initiative and learn things as such by ourselves” (R18). This perspective was further strengthened by the part-time work experience some respondents already had. A Senior Executive Officer with prior teaching experience explained, “I have worked really young, and I already have experience in teaching and administration. This gives me the advantage in the labor market” (R7).

Overall, participants demonstrated a shift from credential-based employability toward capability-oriented employability, emphasizing self-learning, adaptability, and networking as critical determinants of career readiness.

##### 4.2 The Influence of Higher Education in Shaping Employability

Students invariably insisted that higher education was crucial for academic and intellectual growth, but respondents said it had not adequately prepared them for life after education. There was a view that universities were “foundational but incomplete” in their preparation for employability.

A finance student stated,

“The university builds the base for students, but we have to work on that base further to improve ourselves. Only the foundation cannot help anyone reach new heights” (R4).

Participants considered experiential learning opportunities such as internships, research, lab work, and club activities among the most important skill-building opportunities. For instance, a computer science student reflected upon his involvement in the university's technology club as life-changing: “Being in the Computer Club helped

to provide me with team and cooperative work skills. It is also what allowed me to network and be exposed to practical application” (R18). Equally, students in HRM and business routes saw value in extra-curricular activities and voluntary work for further development of communication and leadership skills: “The Business Club allowed me to bring together alumni from MNCs at a national level. That taught me about how companies work” (R3).

In contrast, lab-based or pure science student indicated a low connection between their discipline and employability. One microbiology student remarked, “The most important thing for me is the practical experience, but there are not so many areas to which you can go with my subject” (R20).

A few universities were lauded for launching career-focused courses and fostering industry relations. An Environmental Science student reflected, “Our university provides us with technical knowledge, lab sessions, and industrial visits in every semester. But it could use more career advice, and internship links would make it even better” (R16).

Similarly, an English graduate noted, “The professional orientation had provided us with some training programs and workshop courses, which have helped us to acquire professional ability more or less, but we need practical training” (R17).

It can be argued that higher education was considered a necessary platform. However, this is not sufficient; students reiterated that employability is shaped by applied learning, experience, and institutional connections, rather than by academic credentials in isolation.

#### *4.3 Barriers and Facilitators in the Transition From Higher Education to the Labor Market*

Although hopeful, respondents noted systemic obstacles they faced while negotiating transition to the labor force. The top issues were a lack of choice, systemic bias, insufficient mentorship, financial inequality, and employer preference for experience.

One common frustration was the “experience paradox”: employers look for experienced fresh graduates. As a communication executive noted, “It is hard to find a job because every company wants experienced people. But for freshers who were just completing their degrees, how would they have all the experience?” (R8).

This sentiment was also expressed among participants in various institutions:

“Employers should offer chances to people who can do their job, not just family or friends” (R21).

Students also talked about institutional hierarchy and privilege. Preference is often given to public universities and some major private ones.” Students from well-known universities receive more attention even if their skills are more or less identical. It is not a level playing field” (R18).

Female and middle-class respondents also highlighted financial and gender-based barriers to access to training or internships:

“Not every student can afford extra courses, but employers still expect them” (R17).

Some participants from science and environmental fields described disciplinary barriers, noting that research-based subjects offer few immediate employment options: “Our nation has fewer research or scientific field-type jobs available, so we do not find the opportunities commensurate with our qualifications” (R19).

Several enablers also appeared throughout the interviews. Students referred to networking, English fluency, digital literacy, and ongoing skill development as tactics for overcoming barriers. A marketing student suggested, “Students’ CVs must be built, as well as learning English, and it is necessary to continue improving communication” (R1).

For others, globalization and remote work were seen as prospects for new employability: “Globalization makes career plans easier and better, jobs now at a finger tap away – remote” (R11).

Some even adopted entrepreneurial or flexible career mindsets. An economics student shared, “I want to create my own company. Today’s career is more about management than stability” (R13).

Ultimately, although institutional prestige and structural inequality were powerful influences, individuals' capacity to draw on their adaptive skills, persistence, and learning mechanisms was paramount in a complex Bangladeshi labor market.

## 5. Discussion

This study demonstrates that Bangladeshi students' and graduates' employability is an unfolding, multi-dimensional process determined by a complex interplay of individual agency, institutional scope for action, and structural constraints. It is found that participants do not regard employability as a final condition tied solely to academic qualifications, but rather as a lifelong process in which one should be adaptable, have self-confidence, and keep learning. This further underscores the previous theoretical reasoning that employability is a psychological and social construct encompassing human, social, and psychological capital (Fugate et al., 2004; Vanhercke et al., 2014; Luthans et al., 2016).

One important point is the evolving move from credential-based to capability-focused perceptions of employability. Students value strong academic results but increasingly view employability as more closely associated with factors beyond technical competence, such as communication, teamwork, leadership, and confidence. This appears to support Clarke's (2018) proposition that employability has shifted from a concern with qualification attainment or vocational readiness to a more comprehensive focus on lifelong learning and personal flexibility. Respondents from business, HRM, and engineering were more confident about employment outcomes given their investment in applied learning, internships, and co-curricular involvement. By contrast, students in other programs (such as microbiology, environmental science, economics, or philosophy) tended to express greater doubt and concern about their future career prospects. This raises the issue of a very unequal distribution of opportunities for practical learning across degree programs. This is consistent with earlier research showing differences in employability between curriculum- and resource-rich institutions (Jackson, 2016; Hasan et al., 2024).

Higher education proved to be double-edged in its impact. On the one hand, students appreciated universities as institutions that fostered academic formation, intellectual maturity, and self-discipline. At the same time, they perceived higher education to be too unresponsive to the labor market. Many participants noted that the university system in Bangladesh is very theoretical and does little to expose students to experiential or career aspects. These findings are supported by Ehsan (2021), who suggested that career services, practical internship arrangements, and industry linkage in Bangladeshi universities were poorly structured. While some respondents appreciated the value of industrial visits, club activities, and student competitions, the primary narrative is that employability education is piecemeal and largely relies on institutional reputation and individual initiative. Consistent with Social Capital Theory (Seibert et al., 2001), students with greater access to peers or networks and to top universities undoubtedly possessed greater employability capital than those in less-prestigious HEIs.

The results also expose fundamental structural and systemic impediments to fair access to employment. Some students also expressed anger at what they called the “experience paradox,” in which hiring managers seek job candidates with experience, even at entry-level positions. This paradox creates an uneven playing field, especially for those who graduate from schools that offer little to no internship support or have limited alumnae networks. Financial divisions and gendered expectations also limited access to training and development, reproducing class-based and institutional stratification in employability. These results are consistent with Tomlinson's (2017) contention that employability is a socially embedded practice framed by economic advantage and access to opportunity. This inequality is exacerbated in Bangladesh, where prestige rankings among public–private universities and urban–rural disparities in exposure to and access to resources are pronounced.

However, within these limitations, participants also expressed high levels of agency, optimism, and resilience. Some discussed initiatives such as self-study, online courses, language learning, and informal networking to enhance employability. This corresponds to perceived employability (Vanhercke et al., 2014), whereby

individuals' perceptions of their chances of securing employment influence their motivation and proactive behavior. Many informants reported high levels of perceived self-efficacy and flexibility, supporting the importance of psychological capital—confidence, hope, and resilience—for employability in the face of uncertainty (Luthans et al., 2016). Some participants also pursued an entrepreneurial or boundaryless career orientation, desiring control through both self-employment and remote work, which aligns with growing freelance and/or boundaryless career attitudes in emerging country contexts (Donald et al., 2018).

When viewed through the lens of career ecosystem theory (Baruch, 2015), the results suggest that employability in Bangladesh is co-constructed through an interplay between agency and environmental constraints. Some students seek to navigate career ecosystems using the tools at their disposal—education, social connections, and increasingly digital ones—while many also contend with ineffective systems and unequal access. The flexicurity and self-responsibility displayed by the respondents highlight a shift toward a more protean attitude, in which they feel responsible for their employability without significant structural support. However, this self-reliance can never replace systemic flaws, for employability also depends on personal capacity and institutional support.

The discussion suggests that graduate employability in Bangladesh is shaped by a hybrid model of personal agency and systemic constraints. At once an individual pursuit but also a structural result—motivated by self-directed learning and circumscribed by systemic inequity. The evidence indicates that universities should better connect students' academic knowledge with vocational and career-directed learning. At the same time, policymakers and employers should create opportunities for all, based on potential rather than privilege. Etymologically, employability in Bangladesh is not just about being qualified—it is about being flexible, connected, and robust within an unequal knowledge or labor-market environment.

## 6. Implications and Limitations

The study highlights the need for higher education institutions to strengthen work-integrated learning, career counseling, and industry engagement, particularly in non-vocational disciplines. Inclusive approaches to experiential learning are necessary to ensure equitable access across student groups (Jackson, 2016; Brooks & Youngson, 2016). Employers and policymakers should consider hiring practices that emphasize potential and trainability rather than institutional prestige alone (Tomlinson, 2017).

The study has several limitations. The sample size was small and primarily urban-based, limiting generalizability. In addition, the findings rely on self-reported perceptions rather than observed employment outcomes. Future research could adopt longitudinal or comparative designs to examine how perceived employability translates into actual career trajectories across different contexts (De Vos et al., 2020).

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## References

- Alam, M. J., Ogawa, K., & Islam, S. R. B. (2022). Importance of skills development for ensuring graduates' employability: The case of Bangladesh. *Social Sciences*, 11(8), 360. <https://doi.org/10.3390/socsci11080360>
- Baruch, Y. (2015). Career development: An international perspective. *Career Development International*, 20(6), 588–602. <https://doi.org/10.1108/CDI-08-2014-0117>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Bridgstock, R. (2009). The graduate employability skills we've overlooked: More explicit consideration of the hard-to-measure soft skills when calculating credits. *Higher Education Research & Development*, 28(1), 31–44. <https://doi.org/10.1080/07294360802444347>
- Brooks, R., & Youngson, P. L. (2016). Undergraduate internships: Impact on career development. *Studies in Higher Education*, 41(9), 1618–1631.
- Bryman, A. (2016). *Social research methods* (5th ed.). Oxford University Press.
- Clarke, M. (2008). The dynamics of employability in changing career contexts. *Journal of European Industrial Training*, 32(4), 258–284. <https://doi.org/10.1108/03090590810871379>
- Clarke, M. (2018). Rethinking graduate employability: Capital, the individual and context. *Studies in Higher Education*, 43(11), 1923–1937. <https://doi.org/10.1080/03075079.2017.1294152>
- De Vos, A., Van der Heijden, B., & Akkermans, J. (2020). Sustainable careers: Toward a conceptual model. *Journal of Vocational Behavior*, 117, 103196. <https://doi.org/10.1016/j.jvb.2018.06.011>
- Donald, W. E., Ashleigh, M. J., & Baruch, Y. (2018). Students' perceptions of education and employability: Facilitating career transition from higher education into the labor market. *Career Development International*, 23(5), 513–540. <https://doi.org/10.1108/CDI-09-2017-0171>
- Donald, W. E., Van der Heijden, B. I. J. M., & Baruch, Y. (2024). Introducing a sustainable career ecosystem: Theoretical perspectives, conceptualization, and future research agenda. *Journal of Vocational Behavior*, 151, 103989. <https://doi.org/10.1016/j.jvb.2024.103989>
- Easterby-Smith, M., Thorpe, R., & Jackson, P. R. (2018). *Research methods for management and business* (6th ed.). SAGE Publications.
- Ehsan, S. M. A. (2021). Revisiting tertiary education system in Bangladesh: In quest for unraveling existing issues and challenges. *Journal of Contemporary Governance and Public Policy*, 2(1), 45–66.
- Forrier, A., & Sels, L. (2003). The construct employability: A complex mosaic. *International Journal of Human Resources Development and Management*, 3(2), 102–124. <https://doi.org/10.1504/IJHRDM.2003.002414>
- Fugate, M., Kinicki, A. J., & Ashforth, B. E. (2004). Employability: A psycho-social construct, its dimensions and applications. *Journal of Vocational Behavior*, 65(1), 14–38. <https://doi.org/10.1016/j.jvb.2003.10.005>
- Gibbs, G. R. (2007). *Analyzing qualitative data*. SAGE Publications. <https://doi.org/10.4135/9781849208574>
- Hasan, K. K., Sharmin, S., Islam, A. F., Khandakar, H., Siddique, A. H., Shuhan, A. H., & Khandaker, M. A. (2024). Measuring the mediating role of quality education for ensuring employability skills: An analysis of higher education student perception in Bangladesh. *PLOS ONE*, 19(10), e0310815.
- Hillage, J., & Pollard, E. (1998). *Employability: Developing a framework for policy analysis* (Vol.107). DfEE.
- Holmes, L., Jackson, D., & Rahman, A. (2022). Worldwide trends in graduate employability: Comparing common issues. *Higher Education Policy*, 35(4), 789–808.
- Hossain, M. Z., & Arefin, T. (2025). Bridging the skills gap: Examining factors influencing graduate employability in Bangladesh. *European Journal of Contemporary Education and E-Learning*, 3(2), 55–74.
- Jackson, D. (2016). Rethinking graduate employability: The role of pre-professional identity. *Higher Education Research & Development*, 41(8), 1237–1258.
- Luthans, K. W., Luthans, B. C., & Palmer, N. F. (2016). A positive approach to management education: The relationship between academic PsyCap and student engagement. *Journal of Management Development*, 35(9), 1098–1118. <https://doi.org/10.1108/JMD-06-2015-0091>
- Morley, L. (2001). Creating workers: Quality, equality and employability in higher education. *Quality in Higher Education*, 7(2), 131–138. <https://doi.org/10.1080/13538320120060024>
- Onyishi, I. E., Enwereuzor, I. K., Ituma, A. N., & Omenma, J. T. (2015). Perceived employability as a mediator of the relationship between core self-evaluations and job search behaviour. *Career Development International*, 20(6), 604–626. <https://doi.org/10.1108/CDI-09-2014-0130>
- Patton, M. Q. (2015). *Qualitative research & evaluation methods* (4th ed.). SAGE Publications.
- Pinto, L. H., & Ramalheira, D. C. (2017). Academic performance and academic engagement: Predictors of perceived employability of business graduate students. *Journal of Vocational Behavior*, 99, 165–178. <https://doi.org/10.1016/j.jvb.2017.01.005>
- Roulin, N., & Bangerter, A. (2013). Student employability in higher education: The impact of extracurricular activities and internships. *Journal of Education and Work*, 26(1), 21–47. <https://doi.org/10.1080/13639080.2011.623122>

- Rothwell, A., & Arnold, J. (2007). Self-reported employability: Construction and validation of a scale. *Personnel Review*, 36(1), 23–41. <https://doi.org/10.1108/00483480710716704>
- Saifuddin, S. M., & Zaman, L. (in press). *Clicks to connections: Exploring networking, social media, and career benefits in Bangladesh*. In S. M. Saifuddin, R. Haq, R. Ramani, & I. Gutiérrez-Martínez (Eds.), *Diversity, equity, inclusion, and ingenuity (DEII) in business in South Asia*. Palgrave Macmillan.
- Saunders, M., Lewis, P., & Thornhill, A. (2007). *Research methods for business students* (4th ed.). Prentice Hall.
- Seibert, S. E., Kraimer, M. L., & Liden, R. C. (2001). A social capital theory of career success. *Academy of Management Journal*, 44(2), 219–237. <https://doi.org/10.2307/3069452>
- Stevenson, J., & Leontiev, A. N. (2011). Possible selves: Students' orientation toward the future through external activities. *British Educational Research Journal*, 37(2), 231–246. <https://doi.org/10.1080/01411920903540672>
- Tomlinson, M. (2017). Types of graduate capital and their association with getting a job at graduation. *Education + Training*, 59(4), 338–352. <https://doi.org/10.1108/ET-05-2016-0090>
- Vanhercke, D., De Cuyper, N., Peeters, E., & De Witte, H. (2014). The notion of perceived employability: An ethical-philosophical exploration. *Personnel Review*, 43(4), 592–605. <https://doi.org/10.1108/PR-07-2012-0110>
- Wilton, N. (2012). Internships and degree performance for business and management graduates. *Studies in Higher Education*, 37(5), 603–620. <https://doi.org/10.1080/03075079.2010.532548>
- Yorke, M. (2006). *Employability in higher education: What it is – what it isn't*. Higher Education Academy.
- Zegwaard, K. E., & Coll, R. K. (2009). Leveraging work-integrated learning to optimize employability and graduate outcomes. *Higher Education Research & Development*, 28(5), 431–433.

# Does Governance Affect Economic Growth? Evidence from SANE Countries

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## Abstract

This study examined the link between the six World Bank World Governance Indicators of voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption and economic growth in SANE countries: South Africa, Algeria, Nigeria and Egypt from 1996 to 2023. Due to the multicollinearity brought on by a strong connection between some pairings of the governance indices, the unique determinants of governance from among the six dimensions of governance were chosen using the principal component analysis. Control of corruption was the only factor with an eigenvalue larger than one and accounted for over 74% of the variability in the initial data after the principal component analysis. It was termed the index of good governance. The relationship between the index of good governance and economic growth was studied in both the short and long-term using the Pooled Mean Group Panel Autoregressive Distributed Lag approach. The findings showed that the index of good governance had a negative and insignificant impact on economic growth. However, foreign direct investment and domestic credit to the private sector had a positive effect on economic growth. The study advises governments and policymakers in the SANE economies to sustain existing policies on foreign direct investment since it is yielding the desired outcome and foster an atmosphere that draws foreign direct investment. Policies for guaranteeing the growth of the private sector through domestic financing should also be sustained.

**Keywords:** Governance, Governance Indicators, Economic Growth, Principal Component Analysis, SANE

## 1. Introduction

The discussion on the relationship between governance and economic growth has captured the interest of academics, activists, development economists, international practitioners, development partners, development policy practitioners, civil society groups, political institutions, and policymakers. Poor governance is largely to blame for the economic and developmental issues of the SANE (South Africa, Algeria, Nigeria, and Egypt) economies. Lawbreaking, insecurity, corruption, nepotism, unemployment, abduction for ransom, religious extremism, and the rising level of poverty are all symptoms of bad government. According to the 2022 Transparency International corruption perceptions report, South Africa, Algeria, Nigeria, and Egypt (SANE) rank 72nd, 116th, 150th, and 130th out of 180 countries, respectively, due to their poor governance, which prevents them from prospering and luring investors. Their scores are 43, 33, 24, and 30, respectively. It makes sense that the World Bank (1994) and Perkins, Radelet, and Lindauer (2006) introduced the idea of governance and its significance to economic advancement at the start of the 1990s.

In addition to sustaining and boosting growth, governance is crucial for establishing peace and reviving economies that have been ravaged by war (Brinkerhoff, 2005). It makes sense why development and aid professionals highlighted governance reforms as a requirement for maintaining the economy. The development and growth of a state's economy depend greatly on its governance indices. It is understandable why economists agree that one of the key factors explaining the performance gap between developing and developed countries is governance (Nducho, 2022). Data from the World Bank's Governance Indicators indicate that majority of African economies have struggled with corruption, political unrest, violent crime, and weak governance over the years (African Capacity Building Foundation [ACBF], 2017).

Implementing wise policies, delivering public services, and fostering economic growth and development all benefit from good governance. At both the regional and national levels in Africa over the past 20 years, there has been an increase in interest in governance (ACBF, 2017). In both developing and developed economies around the world, good governance can establish the framework for reducing abuse of power, poverty, legal infractions, insecurity, corruption, unrestrained military spending, and inequality. The findings of this study will be important for policymakers who have emphasized the importance of good governance in SANE countries. Through the adoption of ideas for the enhancement of governance in SANE economies, this study will lead to the implementation of people-oriented policies. Once more, the results of this study may help establish policies that promote development and sustainable growth to raise living standards in emerging economies. Additionally, policymakers in SANE economies and other nations might use the study's findings as a benchmark for assessing their governance practices and enacting the necessary changes to promote economic growth. The results would ensure that development policies in SANE economies mainstream good governance.

Despite having a wealth of mineral resources, some SANE countries have remained among the most indebted economies with a low per capita income. For instance, Hanson-Agumbah (2019) asserted that since Nigeria's independence in 1960, the military has deposed its democratically elected government eight times. Along with the coup d'état, other issues include terrorism, social unrest, self-determination movements, nepotism, militants in the Niger Delta's calls for resource control, and an alarming rate of poverty. These precursors are primarily the product of poor governance, which has led to erratic economic growth. Furthermore, despite the significant resources invested in economic growth, policy reforms, and their implementation for the enhancement of governance in SANE economies, there have been no discernible changes in the standard of living of the citizens of some of these countries. This is further supported by the fact that South Africa, Algeria, Nigeria, and Egypt are ranked 116th, 168th, 124th, and 151st on the 2023 Index for Economic Freedom, respectively, with scores of 55.7, 43.2, 53.9, and 49.6.

Poor governance may be to blame for the ineffective use of external debt in some SANE countries, and the reason they have continued to struggle with issues. In the contention of Easterly (2002), wars and external shocks were not the main causes of how highly indebted poor countries (HIPCs) came to be. Instead, it was bad governance and the policies that went along with it. SANE economies have to use governance to enhance policymaking,

achieve sustainable economic growth, and properly integrate into the global economy as key actors, according to Rodrik's (2008) argument that it is a crucial tool for development.

The governance-economic growth literature's empirical findings are rife with flaws. Some of the existing literature suggested a negative relationship between the two (Evrensel, 2010; Assiotis & Sylwester, 2012; Goldsmith, 1995; Salawu, Yusuff, Salman, Ogunniyi & Rufa, 2018)), while others suggested a positive relationship between the two (Adams & Mengistu, 2008; Anwar & Cooray, 2012; Alonso, 2010; Busse & Groizard, 2008; Khamfula, 2007; Mauro, 1995; Seldadyo, Nugroho & Haan, 2007; Law & Habibullah, 2006; Han, Khan & Zhuang, 2014; Emara & Jhonsa, 2014; Emara & Chiu, 2016; Alam, Kitenge & Bedane, 2017; Epaphra & Kombe, 2017; Lahouji, 2017; Kraipornsak, 2018; Salawu, Yusuff, Salman, Ogunniyi & Rufa, 2018), some studies suggested that it could be positive if it interacted with the money supply (Anwar & Cooray, 2012), some showed that it could be positive depending on the situation (Butkiewicz & Yanikkaya, 2011), or insignificant (Feeny & McGillivray, 2010; Ekanayake & Chatma, 2010; Commander & Nikoloski, 2010; Pere, 2015; Emara & Chiu, 2016; Mira & Hammadache, 2017; Almohammed & Eksi, 2021).

Despite its significance in developing nations around the world, the literature has not completely explored the empirical relationship between governance and economic growth. There are many previous studies (Olson, Sarna, & Swamy, 2000; Kurtz, & Schrank, 2007; Younis, Lin, Sharahili, & Selvarathinam, 2008; Hamadi, Rihab, & Lotfi, 2009; Huynh, & Jacho-Chávez, 2009; Mehanna, Yazbeck, & Saredidine, 2010; Zhuang, de Dios, & Martin, 2010; Gani, 2011; Haggard, & Tiede, 2011; Chowdhury, & Sundaram, 2012; Akpan, & Effiong, 2012; Abdelbaky, 2012; Fayissa, & Nsiah, 2013; Han, Khan, & Zhuang, 2014; Asuquo, 2014; AIBassam, 2013; Omoteso, & Ishola, 2014; Sen, 2014; Emara, & Jhonsa, 2014; Asuquo, 2014; Emara, & Jhonsa, 2014; Manyinsa, 2014; Pere, 2015; Yerrabati, & Hawkes, 2015; Emara & I-Ming, 2016; Emara & Chiu, 2016; Adefeso & Abioro, 2016; Lahouij, 2017; Rachid & Ahmed, 2017; Tharanga, 2018; Kim, Wu, & Lin, 2018; AlAdlani, 2019; Anoy, 2021; Almohammed & Eksi, 2021; Nducho, 2022) that examine the relationship between governance and economic growth.

Nonetheless, a number of these research focused on the economies of the Middle East and North Africa (MENA) (Mehanna, Yazbeck, & Saredidine, 2010; Abdelbaky, 2012; Emara & Jhonsa, 2014; Emara, & I-Ming, 2016; Rachid & Ahmed, 2017). Once more, the South and East Asia and Pacific region, Africa, developing countries, selected economies of sub-Saharan African region, transition economies, sub-Saharan Africa, Western Balkan economies, developing Asia, East African Community Countries and Morgan Stanley Capital International (MSCI) economies were the focus of some (Yerrabati, & Hawkes, 2015), (Fayissa, & Nsiah, 2013), (Gani, 2011), (Asuquo, 2014), (Hamadi, Rihab, & Lotfi, 2009), (Akpan & Effiong, 2012; Omoteso & Ishola, 2014), (Pere, 2015), (Zhuang, de Dios, & Martin, 2010), (Manyinsa, 2014) and (Almohammed & Eksi, 2021). Moreover, a few (Younis, Lin, Sharahili, & Selvarathinam, 2008; Haggard, & Tiede, 2011), focused on the broken-down components of governance and economic growth. The remaining research was both country-specific and cross-country analyses.

Thus, there is a lack of research on how governance affects economic growth in SANE countries. Additionally, a large portion of the research on governance (Adefeso & Abioro, 2016; Salawu, Yusuff, Salman, Ogunniyi & Rufa, 2018; Adenuga & Evbuomwan, 2014) focused on governance as an aggregate (single aggregate score for governance). From the best that we can tell, the disaggregated governance elements (the six aspects of governance) have not received any attention in SANE countries. Because it has not piqued the broad attention of many academics, it is necessary to research how these governance metrics affect economic growth in SANE countries. Finally, there aren't many studies that aim to examine all or even most aspects of governance simultaneously. Therefore, the purpose of this study is to determine whether the economic growth of SANE countries is influenced by the governance indices of Government Effectiveness (GE), Rule of Law (RL), Control of Corruption (CC), Regulatory Quality (RQ), Voice and Accountability (VA), and Political Stability and Absence of Violence (PS). The question to be addressed in this study is does economic growth in SANE economies depend on the six governance indicators?

This study will add to the governance-economic growth nexus from four different directions. First, based on what we know, the effect of governance on economic growth in SANE economies will be investigated for the first time. In the second case, the Gross Domestic Product (GDP) per capita, Purchasing Power Parity (PPP) was used as the dependent variable to examine price differences among the SANE countries, in contrast to other research that used GDP per capita. In the third case, analysis was conducted using Principal Component Analysis (PCA) and the Heterogeneous Dynamic Panel Data estimation Approach. The variables were subjected to a PCA to resolve the multicollinearity induced by the significant correlation between some pairs of governance indices, and to identify the linear combination that accounts for the most variability. Lastly, it will identify the aspect of governance that has a greater bearing on the explanation of economic expansion in the SANE economies. The schedule for the rest of this research is as follows: A summary of the SANE economies' economic growth rates and governance developments is presented in Section 2; the literature review and theoretical framework are presented in Section 3; the methodology is presented in Section 4; the results are analysed in Section 5; the limitation of the study is presented in Section 6 and the conclusion and recommendations are presented in Section 7.

## 2. Overview of SANE Countries

### 2.1. Overview of Economic Growth Rate of SANE Countries

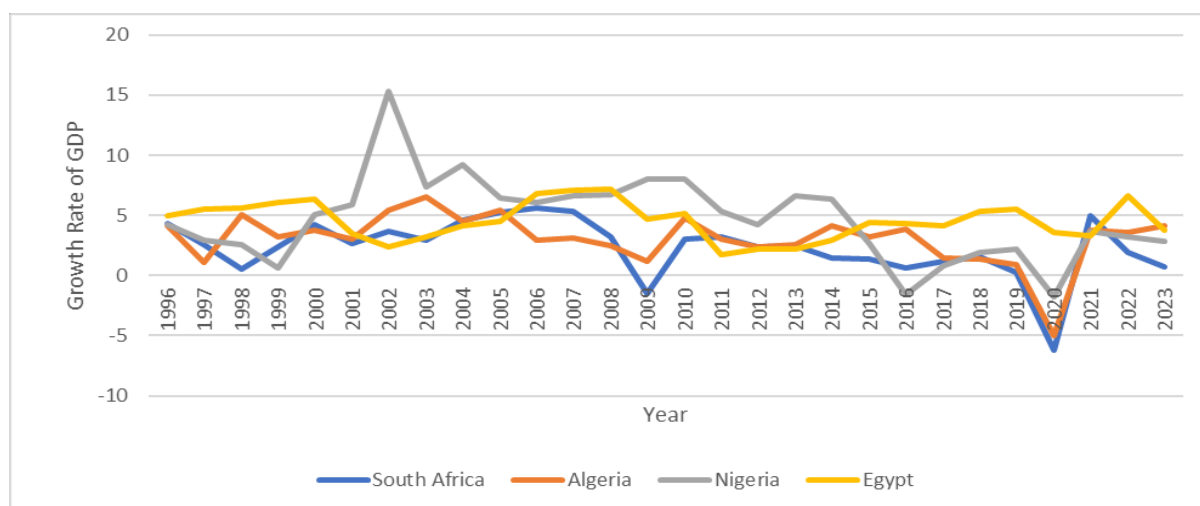


Figure 1: Growth Rate of Economic Growth for the SANE Economies from 1996 – 2023

Source: Authors' Compilation using data from WB WDI Database

In terms of revealing Africa's potential for economic development, the SANE (South Africa, Algeria, Nigeria, and Egypt) countries, or Africa's G4, have been dubbed the continent's growth poles. According to Michele and Michael (2010), of the 54 countries in Africa, the G4 is considered to have the continent's most likely opportunity of creating an economic bloc whose function in Africa will be similar to that of the BRIC (Brazil, Russia, India, and China) rising markets. Numerous issues that have had an impact on these economies' rates of economic growth have plagued them throughout their histories. For instance, insufficient electricity supply has repeatedly constrained South Africa's Gross Domestic Product (GDP) growth rate; Algeria's GDP per capita has decreased due to ineffective reforms; Nigeria's GDP growth rate has been impacted by the Boko Haram insurgency; and Egypt's GDP growth rate has been negatively impacted by the Arab Spring. These nations were also impacted by the COVID-19 epidemic. Figure 1 illustrates the GDP growth rate performance of SANE economies. For the period under consideration, SANE economies' economic performance was inconsistent. Nigeria had the highest average growth rate over the examined period, at 4.7 percent, followed by Egypt, Algeria, and South Africa, at 4.5, 3.1, and 2.3 percent, respectively.

The rapidity of structural reforms and the implementation of Vision 2030 were responsible for Egypt's economic performance (Asharq Al-Awsat, 2021). The poorest record, though, was held by South Africa. The South African economy's growth rate throughout the review period must have been constrained by a lack of electricity supplies

(The World Bank Group, 2023). According to trend data, Nigeria had the highest growth rate in the years 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2013, and 2014, with percentages of 11.6, 5.6, 7.1, 4.9, 4.6, 5, 5.2, 6.1, 6.1, 5.1 and 4.8. Egypt was the only nation to post a positive GDP growth rate of 3.6 per cent during the COVID-19 pandemic in 2020. Nigeria, Algeria, and South Africa all experienced negative growth rates, with respective figures of -1.8, -5, and -6.1. Additionally, in 2009 and 2016, respectively, both South Africa and Nigeria saw negative growth rates. South Africa's negative growth rate in 2009 was caused by the worldwide financial crisis of 2008–2009 (Maral, 2009). Nigeria's own was caused by the severe economic downturn endured as a result of the sharp decline in oil prices. Additionally, Egypt experienced the highest growth rate in 1997, 1998, 1999, 2000, 2006, 2007, 2008, 2010, 2018, 2019 and 2022 respectively among SANE economies. Furthermore, Egypt was also the only SANE economy to experience positive GDP growth over the study period.

## 2.2. Governance Developments in SANE Countries

The data on the six indices of governance for the SANE countries were not available in 1997, 1999 and 2001 respectively. Thus, our analysis was from 2002 to 2023. An overview of the six indices of governance – Control of Corruption, Political Stability and Absence of Violence/Terrorism, Rule of Law, Regulatory Quality, Government Effectiveness, and Voice and Accountability for the period under review in SANE economies indicated that the South African economy performed very well. South Africa has improved considerably compared to other SANE countries. The governance index is appraised on a scale of -2.5 considered as poor quality of governance to 2.5 believed to be high quality of governance. The governance trends in SANE countries are depicted in Figures 2, 3, 4, 5, 6 and 7 respectively.

The voice and accountability indicators are the degree to which a nation's residents can choose their government, as well as their right to free speech, association, and the press. For this metric during the period under review, South Africa was ranked best. Nigeria and Algeria were in second and third positions respectively. However, the worst-ranked SANE country was Egypt. Among the SANE economies, Egypt was the worst ranked in 2002 at -1.10. South Africa was the highest-ranked country at 0.66. Algeria and Nigeria are at -1.04 and -0.63 followed by Egypt respectively. South Africa sustained its highest ranking from 2002 to 2023. In addition, Nigeria maintained its position as the second-ranked SANE economy. This is depicted in Figure 2.

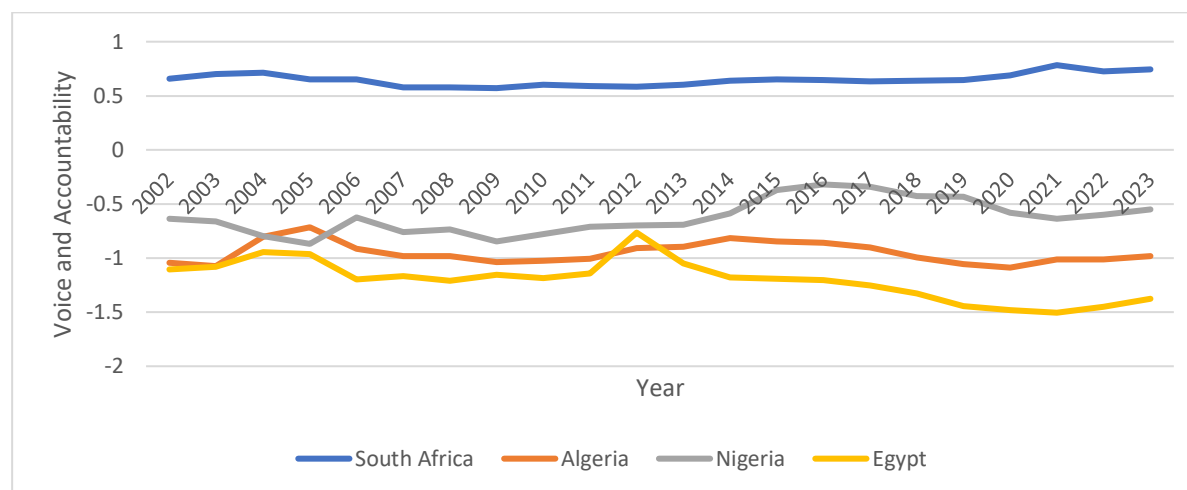


Figure 2: Trends of Voice and Accountability in SANE Countries (2002 – 2023)

Source: Authors' compilation using data from the WB WDI Database

The political stability and absence of violence metric is based on the probability that a government may be overthrown by violent or unconstitutional means, including terrorism. For this indicator, Figure 3 showed that South Africa was the most politically stable SANE country for the period under investigation. However, their performance declined from 2021 to 2023. Unlike the voice and accountability metric, Nigeria was ranked as the most politically unstable SANE country. In 2002, Algeria and Nigeria were the lowest-ranked SANE economies at -1.63 respectively. On the other hand, South Africa and Egypt were ranked first and second at -0.25 and -0.41

individually. In 2011, Egypt deteriorated in terms of political stability and absence of violence and it continued till 2020. However, at the same time, Algeria improved in terms of political stability and absence of violence and it continued till 2023. The Arab Spring that started on 17<sup>th</sup> December 2010 was responsible for this situation. While Egypt suffered as a result of the Arab Spring, Algeria was not affected.

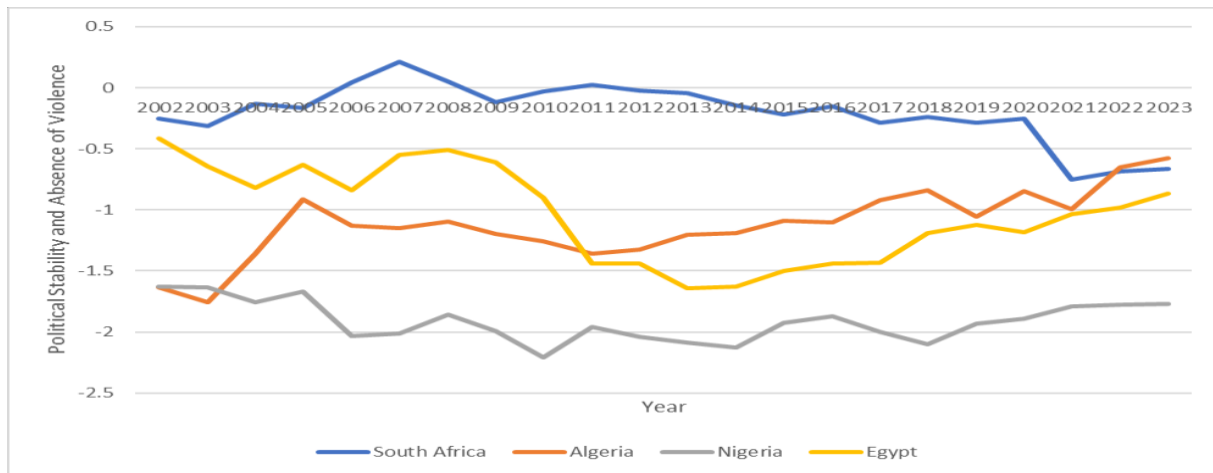


Figure 3: Trends of Political Stability and Absence of Violence in SANE Countries (2002 – 2023)

Source: Authors' compilation using data from the WB WDI Database

Figure 4 depicts the government effectiveness metrics of SANE countries. This indicator is evaluated in terms of the effectiveness of public services, the capability of the civil service, its independence from political influence, and the standard of policymaking. South African government was the most effective government in SANE countries. On the other hand, the Nigerian government was the least efficient. This indicator is critical for the advancement of private undertakings, reduction of bureaucracy and stimulation of economic activities (Manyinsa, 2014). From -1.20 in 2009, Nigeria improved to -0.10 in 2013. The efficiency of governance in Algeria and Egypt was uneven and unpredictable most of the time.

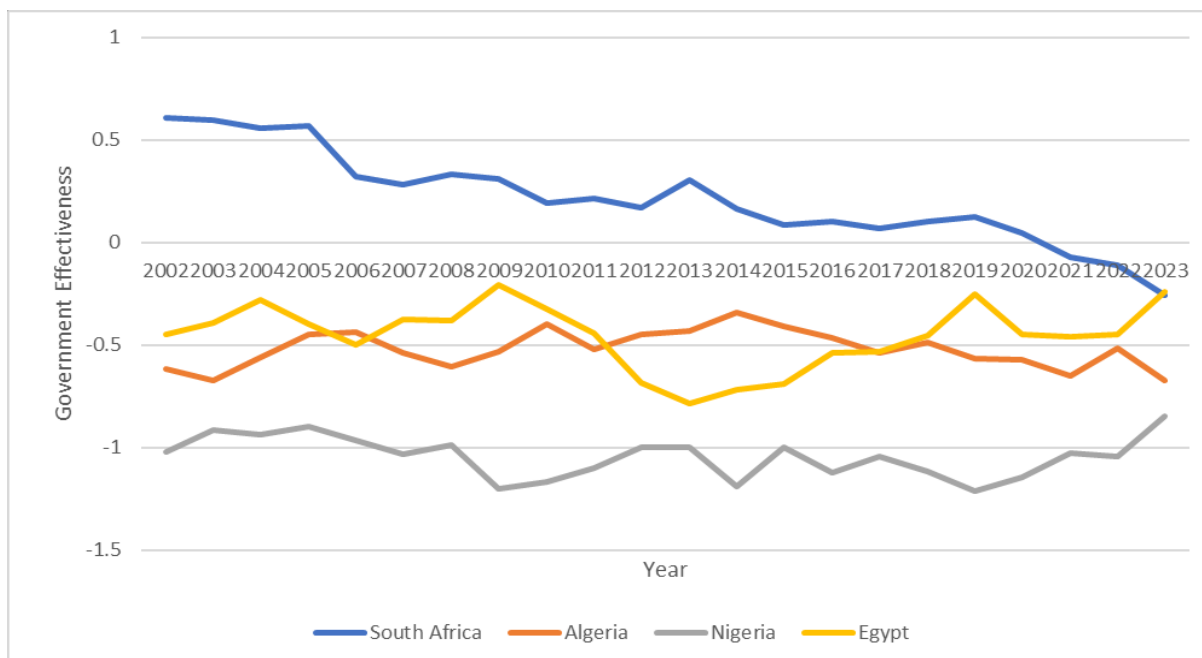


Figure 4: Trends of Government Effectiveness in SANE Countries (2002 – 2023)

Source: Authors' compilation using data from the WB WDI Database

The metric of regulatory quality is gauged by a government's capacity to implement wise laws and rules that support and encourage the growth of the private sector. For this metric, South Africa was the highest-ranked SANE

country. South Africa had the best regulatory framework at 0.73 in 2002. Nigeria had the worst regulatory framework in 2002 at -1.18. However, Algeria and Egypt were ranked -0.57 and -0.46 respectively in 2002. This is indicated in Figure 5.

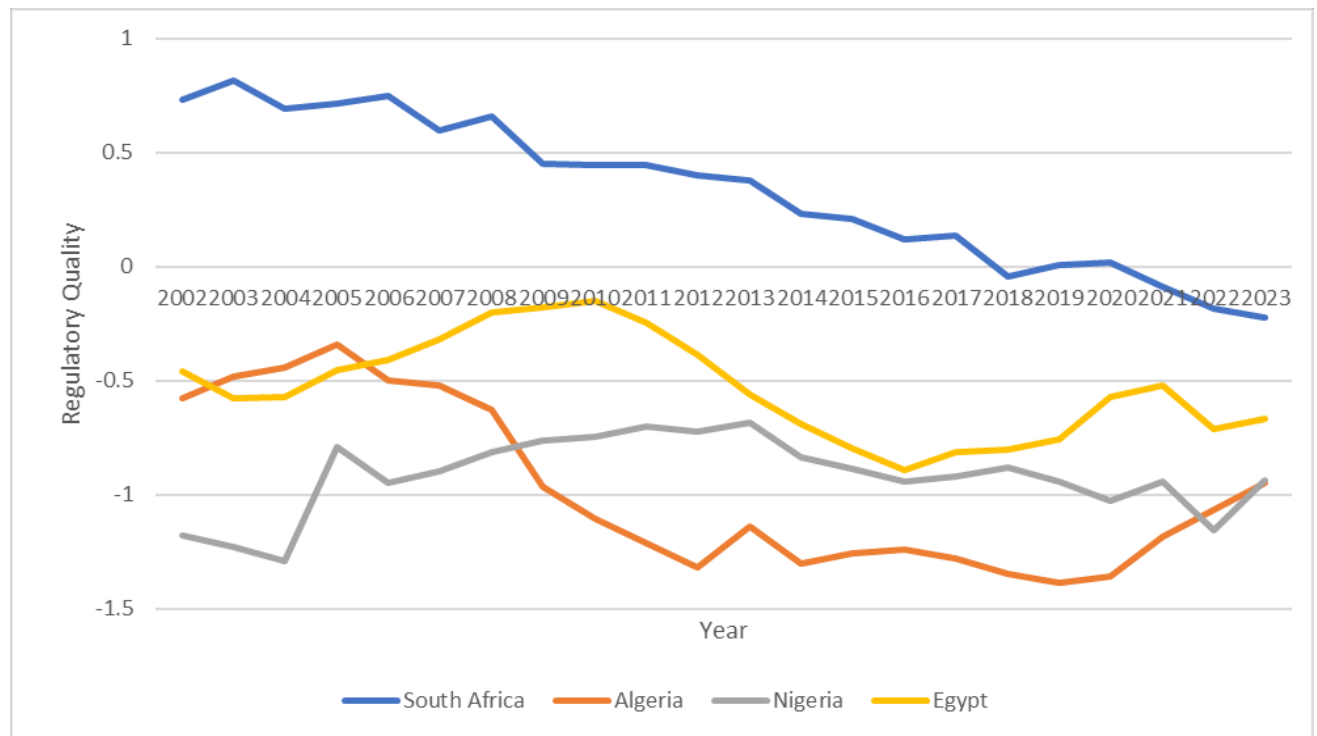


Figure 5: Trends of Regulatory Quality in SANE Countries (2002 – 2023)

Source: Authors' compilation using data from the WB WDI Database

The rule of law index is gauged by how much agents respect and uphold social norms, such as the standard of property rights, the effectiveness of the police and courts, and the likelihood of crime. This metric is shown in Figure 6. For this metric, South Africa just like in the last four indicators had consistently maintained the best-ranked position. Thus, South Africa was the highest-ranked SANE country in terms of adherence to the rule of law. However, Nigeria was the worst-ranked SANE country from this angle. This governance index is vital for the attraction of foreign direct investment and the development of the private sector. In 2002, South Africa had the best adherence to the rule of law at 0.03. This was followed by Egypt, Algeria and Nigeria at -0.01, -0.64 and -1.50 respectively.

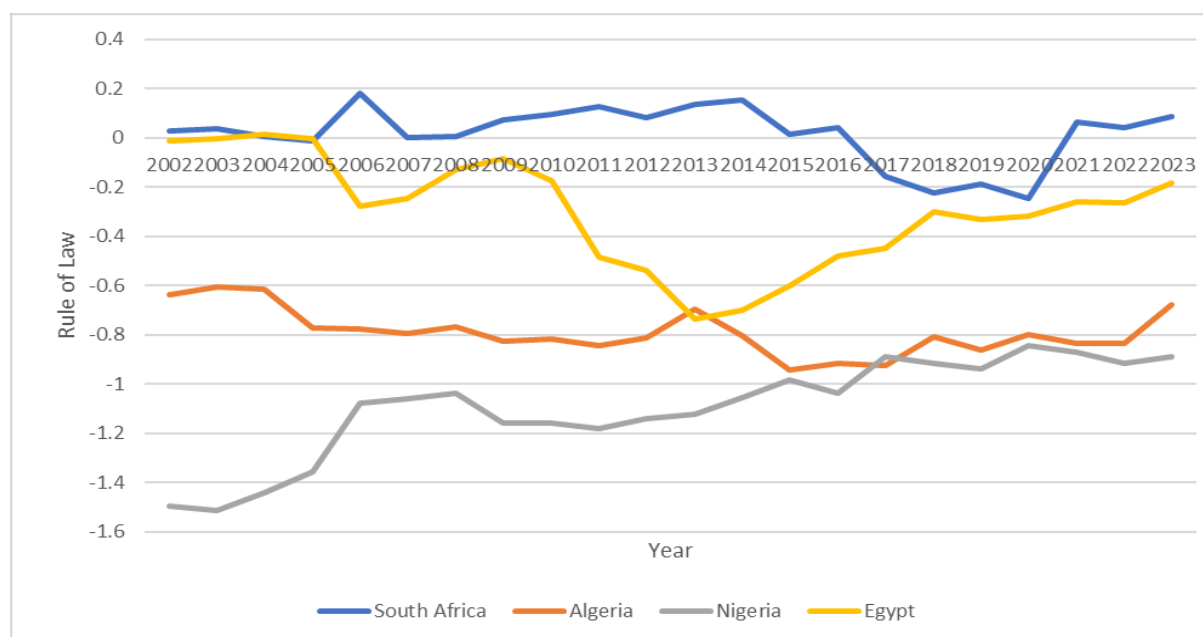


Figure 6: Trends of Rule of Law in SANE Countries (2002 – 2023)

Source: Authors' compilation using data from the WB WDI Database

The control of corruption is the degree to which public authority is used for personal advantage, including both small-scale and large-scale corruption as well as elite "capture" of the state. This indicator is revealed in Figure 7. For this metric, South Africa was again ranked as the least corrupt economy in SANE countries. However, Nigeria was ranked as the most corrupt country in SANE economies. In 2002, South Africa was ranked the least corrupt economy at 0.33. The SANE economies of Algeria, Nigeria and Egypt were ranked at -0.93, -1.50 and -0.44 respectively. South Africa sustained positive rankings from 2002 to 2010. However, with the exception of 2016, negative rankings were recorded for the remaining years under investigation. Furthermore, from 2016 to 2021, South Africa was volatile with inconsistent oscillations.

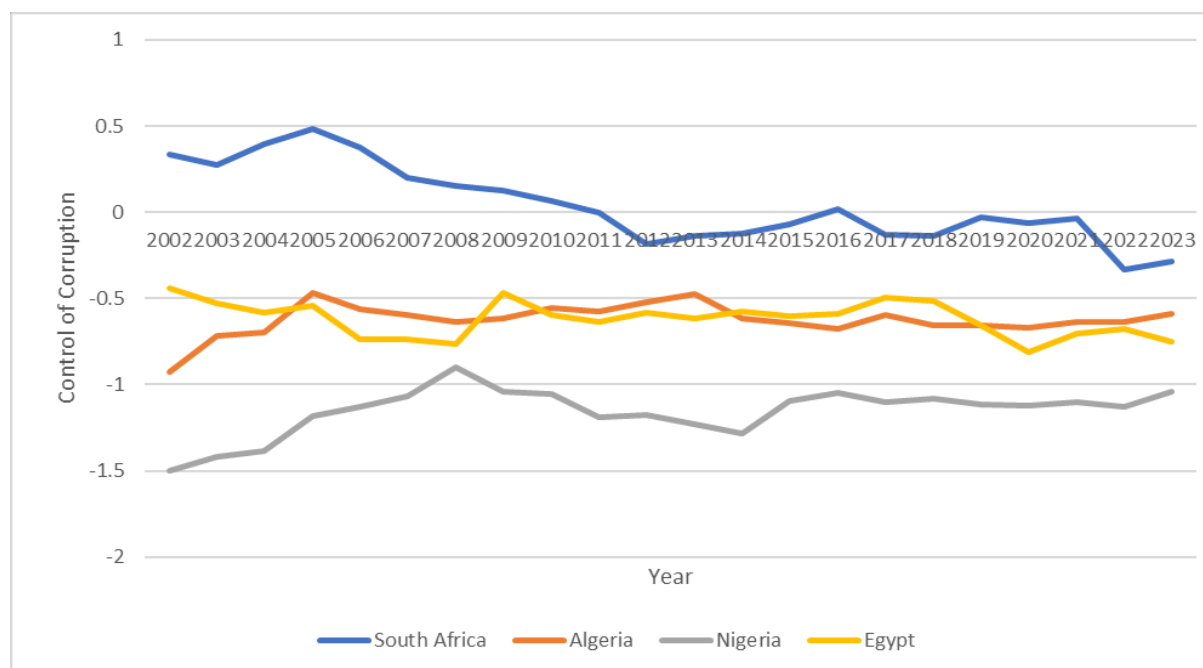


Figure 7: Trends of Control of Corruption in SANE Countries (2002 – 2023)

Source: Authors' compilation using data from the WB WDI Database

### 3. Theoretical and Empirical Issues

#### 3.1. Theoretical Framework

In order to investigate the connection between economic growth and its underlying causes, economists have used a variety of hypotheses. Prior until today, it was not thought to be significant because the role of the government in promoting economic growth "lies outside the boundary of economics" (Kong, 2007, p. 7). The endogenous and neoclassical theories of economic growth put forth various perspectives on the role of the government in the economy. The neoclassical academics opposed the government's creation of an atmosphere that encouraged investment. However, it was backed by proponents of the new growth theories. Numerous studies have demonstrated the value of institutions for economic growth since they serve as incentives for luring in foreign investment (Acemoglu, Johnson & Robinson, 2004; North, 1990).

Government and governance historically were interchangeable terms before the 1970s. However, its significance increased as a result of the implementation of a revolutionary governance paradigm. The concepts of governance, as well as their extensive use by many organizations and practitioners, are described below. The early philosophers accepted the state's functions in economic growth through the governors. As Smith (1776) put it, proponents of the "mercantile system" or "system of commerce" believed that accumulating wealth was the source of economic progress and that it was a tool for enhancing state sovereignty (McDermott, 1999). Mercantilists understood that a country's worth depended on how much gold and currency it had acquired. As a result, they were in favour of the "favourable trade balance" strategy, which states that "a country must export more than it imports, which would lead to a net inflow of bullion" (Magnusson, 2015, p. 217). This served as justification for government interference in the economy to increase the state's riches and authority.

According to Wood (2002), this was accomplished by limiting wages, controlling the sea, giving traders monopolies, emphasizing the export of finished goods, safeguarding the home industry, and regulating the export of raw materials. Following the Mercantilists, Physiocrats believed that agriculture or production was the source of prosperity through their theory of Physiocracy, which was considered the antithesis of mercantilism. Instead of using business and industrial models, they believed that land development was the primary force behind economic growth. Classical growth thinkers continued this discussion by criticizing the economic theories of mercantilists and Physiocrats.

The classicists, led by Adam Smith, had a different viewpoint, though. Less government involvement in the economy was advocated, but they backed the construction of an environment that allowed people to pursue their development through the "invisible" forces of supply and demand. Therefore, these philosophers consistently saw the need for a well-run state that would protect the populace, uphold law and order, provide ways of trade, etc., to realize progress (AlAdlani, 2019). John Maynard Keynes established the need for the state to actively participate in economic activities by engaging in productive economic activity as well as creating and maintaining an environment that is conducive to economic players while keeping an eye on the contributions of classical thinkers. According to Sharipov (2015), the Keynesian model emphasized the expansion of aggregate demand and investment as the key drivers of economic growth.

This leads to a variety of opinions on the relationship between the state's responsibility and economic growth because the state's responsibility is thus understood not only from the perspective of the significance of the state's machinery but also exceedingly in the employment of such machinery by those in authority. In this way, the institutional and structural constraints on economic growth in developing economies are seen by the structuralist theory of the late 1960s and early 1970s. This is predicated on the idea that, in the eyes of structuralists, Less Developed Economies (LDCs) are characterized by rigidities that restrict economic adjustments and suffer significant constraints or structural difficulties. This model emphasized the impact of institutional constraints that are both internal and external on a state's ability to build its economy.

As a result, structural reasons are what cause the governance phenomena in global emerging economies. The complexity of the SANE countries' experience is explained by this. The economic development of nations is

influenced by rules and units because they are arranged by fundamental structures that the human mind has built into important systems. Accordingly, Jhingan (1997) said that nowadays, it is widely accepted that the state must play a constructive role in order to overcome the rigidities that characterize less developed countries (LDCs). Jhingan (1997) further emphasized that the state's primary duty in such economies is to close social disparities and promote the psychological, ideological, social, and political circumstances necessary for economic growth and development. Government reformers and the World Bank both agree that "good governance" is a prerequisite for sustainable development and an environment that is conducive to investment (Nducho, 2022).

### *3.2. Review of Empirical Studies*

The relationship between governance and economic growth has been extensively studied in literature from around the world, with varying outcomes and interpretations. In the first instance, Albassam (2013) utilized an exploratory method of analysis to investigate whether the strong association between governance and economic growth occurs in eras of economic crises or merely in non-crisis times. The findings revealed that the global economic crisis exerted an invisible effect on the association between governance and economic growth. Nevertheless, the study unearthed that the association between governance and growth in crisis periods is influenced in innumerable aspects by the diverse levels of the country's development. Hence, the volatility in the association between governance and economic growth throughout the economic crisis is underlined by the findings of this study.

Manyinsa (2014) explored the impact of World Governance Indicators (WGI) of Voice and Accountability, Political Stability, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption on economic growth in East Africa Community (EAC) countries from 1999 to 2012. Panel data methodology was utilized in the study. The five economies were Burundi, Tanzania, Rwanda, Kenya and Uganda. The findings showed that Regulatory Quality and Political Stability had a negative impact on economic growth. On the other hand, Control of Corruption exerted a positive impact on economic growth. Furthermore, the growth rate of the population and rates of inflation exerted negative impacts on economic growth in EAC economies.

Sen (2014) studied the connection between governance and outcomes of development in Asia with an emphasis on the developing economies of Asia. They utilized the disaggregated indicators of governance – administrative capacity, state accountability and legal infrastructure in their practical analysis. The findings showed that governance affected most development indicators apart from the levels of schooling. This result is remarkably obvious for the administrative capacity of the state and legal infrastructure. However, it was less obvious for state accountability. Nevertheless, our findings depicted that the association between governance and development was weaker for economies of Asia for numerous indices of development employed. In addition, the results revealed that increment in domestic resources mobilization and strengthening of the mechanism for spending these resources on social sectors were the main means through which governance affects development.

Adenuga and Evbuomwan (2014) looked into the dynamics of governance, investment, and economic growth in Nigeria from 1999Q1 to 2010Q4 using cointegration and the Vector Error Correction Mechanism (VECM). Estimating the short-run dynamics and error-correction mechanisms of governance, investment ratio, price level, prime lending rate, openness, and financial sector development on economic growth were the specific goals. The findings supported the theory that investment and good governance encourage economic growth in Nigeria. Yerrabati and Hawkes (2015) in another study, meta-synthesised the practical proof of the nexus between governance and economic growth in South and East Asia Pacific economies from 1980 to 2012 building on 29 papers with 554 estimates. The findings demonstrated that even as corruption had a negative and significant impact on economic growth, government effectiveness and regulation exerted a positive and significant impact. In addition, law and political stability exerted no significant influence on economic growth. Furthermore, the empirical literature on governance and economic growth was unsuccessful in presenting proof of the real influence of voice and accountability on economic growth. Conclusively, the results revealed that total governance was vital for economic growth.

Emara and Chiu (2016) used a cluster of 188 economies to analyse the relationship between governance and economic growth. They used the Principal Components Analysis (PCA) technique to create a "Composite

Governance Index" (CGI) that condensed the present six elements of governance in the WGI into a single overall score for governance. The results demonstrated that governance has a beneficial effect on economic growth in nine MENA economies. This includes economies that had seen a fall accompanied by a decline and economies that had experienced an improvement accompanied by, respectively, an improvement in the index of governance and economic growth. Additionally, the results showed that a one-unit increase in CGI would increase GDP per capita by around 2%. The results further demonstrated that a simple five-unit increase in CGI would result in a seven-year GDP per capita gain twice based on the Rule of 70. They emphasized that they focused primarily on the 21 MENA economies, but that their findings are also relevant to other economies.

Adefeso and Abioro (2016) examined the relationship between governance administration and economic development in Nigeria from 1970 to 2014 using the Error Correction Methodology (ECM). The results demonstrated that the governance administration index had a favourable effect on economic growth. Tax income also had a detrimental effect on the growth of the economy. Using Panel data methodology, Lahouij (2017) examined the link between governance and economic growth in developing economies from 2002 to 2014 intending to carry out a comparative analysis. The results showed that governance had a positive relationship with economic development in developing economies irrespective of their income level. Additionally, the findings revealed that political stability, voice and accountability and the rule of law exerted a positive and significant impact on the economic development of low-income economies. Furthermore, it indicated that regulatory quality, voice and accountability, rule of law and government effectiveness had a positive link with the economic growth of upper-middle-income economies.

Tharanga (2018) used the Pooled Ordinary Least Square Methodology, Fixed Effects (FE) Methodology and Random Effects Methodology (RE) to examine the impact of control of corruption, political stability and absence of violence and voice and accountability on economic growth utilizing data from 145 economies from 2002 to 2014. The results showed that control of corruption was a vital ingredient for economic growth. However, the study stressed the significance of joint and effective management of control of corruption and political stability and absence of violence for the realization of higher economic growth. In addition, it emphasized that when the rate of economic growth is compared to those of European Union (EU) economies and the North American economies, other economies recorded considerably lower rates except for the MENA regions. Furthermore, the results revealed that the rate of economic growth in high-income economies was greater than that of middle-income economies by 20%. Conversely, the economic growth rate in low-income economies was 23.5% lower than that of middle-income economies.

AlAdlani (2019) used descriptive analysis and panel data techniques to investigate the association between governance and economic growth in the Arab World from 1996 to 2017. The WGI six dimensions of governance - Voice and Accountability (VA), Government Effectiveness (GE), Political Stability and Absence of Violence (PS), Regulatory Quality (RQ), Control of Corruption (CC) and Rule of Law (RL) were utilized in the study. The findings showed that there is no significant association between governance and economic growth in the Arab World. However, the findings showed that governance may be related to economic growth in some specific groups of economies once the Arab World was disintegrated into several political, regional and economic groups. The results further showed that some indices of governance exerted more impact when compared to others. For instance, government effectiveness, political stability and absence of violence, and voice and accountability had a significant link with economic growth in Low- Income Countries. On the other hand, voice and accountability and control of corruption had a significant association with economic growth in the region of Greater Maghreb. Moreover, voice and accountability had a significant link with economic growth in Republics while government effectiveness had a significant association with economic growth in Monarchies. Furthermore, the results revealed that variation in the function of governance was caused by regime, the distribution of income and region.

In another study, Anoy (2021) employed regression methodology to investigate the impact of WGI of voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law and control of corruption on the growth rate of the GDP of Bangladesh from 1996-2018. The findings revealed that control of corruption was the most significant index of governance and exerted a positive impact on economic growth. Equally, there was a positive and significant relationship between rule of law and economic growth. Granting that the parameter estimate for voice and accountability was significant, the negative sign of the

parameter does not suggest the anticipated influence on GDP growth possibly as a result of the small sample size utilized for the study. However, government effectiveness, regulatory quality and political stability and absence of violence were not statistically significant and had no impact on the economic growth of Bangladesh. Almohammed and Ekşi (2021) studied the impact of governance on economic development in emerging economies from 2002-2018. The study employed countries based on MSCI classification as a sample owing to their growing significance. The study used the PCA and Generalized Method of Moments (GMM) for empirical analysis. The findings revealed that governance had no significant effect on economic development.

Nducho (2022) evaluated the effect of governance on economic growth in Cameroon in relation to Finland by employing the qualitative methodology. The case study model was used for data analysis. The case models used were Yaoundé and Helsinki. The findings revealed that the economic growth level caused by good governance was comparatively higher in Finland than in Cameroon. Evidence from the evaluated literature suggested that research on the connection between governance and economic growth in SANE countries was scarce. Much of the research was conducted about other pronounced economic blocs of the world. Many findings emerged from the empirical literature on the relationship between governance and economic growth. These investigations employed various methods for analysis. The WGI dataset was used in most research as a stand-in for governance. A portion of these research was conducted in MSCI economies, East African Community countries, and developing economies in Asia. The Pooled Mean Group (PMG) Panel Autoregressive Distributed Lag (ARDL) approach was not employed in any of the studies analyses. Once more, none of these researches were conducted in economies of SANE. However, this study was influenced by the dearth of empirical research on the relationship between six indicators of governance and economic growth in SANE economies.

## 4. Methodology

### 4.1. Data

The data used in this study ranged from 1996 to 2023. The choice of this period was influenced by the data's accessibility. Only the years 1996 to 2023 were covered by the World Bank's (WB) WGI statistics. However, data on the six indices of governance for the SANE countries were not available in 1997, 1999 and 2001 respectively. We used extrapolation to fill the gaps. Even though there were other indices for assessing governance in the literature, this study utilized the six WB WGI governance indicators. The WGIs are more dependable than other indices because they combine individual indicators from a wide range of corporate and nonprofit organizations, as well as experts, to create a composite index that can be used to compare the quality of governance across nations and even within particular regional countries over time. They have also been extensively employed in research investigations and development projects. Indicators that cover all facets or dimensions of the governing process, such as political, economic, and institutional, are also included in the WGIs, which is extremely important for the goals of this study. Six separate metrics, each representing a different aspect of governance quality, are available in the database.

These factors include political stability, government effectiveness, regulatory quality, the rule of law, voice and accountability and corruption control. The indicators are presented in two different ways: first, as conventional normal units with a range of around -2.5 to 2.5, and second, as percentile ranks with a range of 0 to 100, where higher values indicate better results. The six indicators were first proposed and used by Kaufmann, Kraay, and Zoido-Lobaton (1999), and they have since been used by academic researchers and international organizations to assess government performance and investigate the link between governance and growth (Arndt & Oman, 2006; Huynh & Jacho-Chávez, 2009; Emara & I-Ming, 2016; Zhu, 2013). A World Bank team published the data for these indicators.

Kauffman, Kraay, and Mastruzzi (2009) provided the approach for the production of these indicators, which are thought to have a significant ability to improve the business environment. The WB's WGI database served as the source of information for the six governance indices, which include voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and corruption control. The WB World Development Indicators (WDI) database was used to acquire information on the GDP per capita, PPP, domestic credit to the

private sector and foreign direct investment. The GDP per capita, PPP was utilized as the dependent variable to check the price differentials among the SANE economies. Table I displays the variable's name and definition.

Table 1: Variable's Name and definition

| Dimension of Governance/Variable      | Definition                                               |
|---------------------------------------|----------------------------------------------------------|
| <b>Dependent Variable</b>             |                                                          |
| GDP per capita, PPP                   | GDP per capita, PPP (%) (Constant 2017 International \$) |
| <b>Independent Variables</b>          |                                                          |
| Index of good governance              | Index of good governance                                 |
| Domestic credit to the private sector | Domestic credit to the private sector (% of GDP)         |
| Foreign direct investment             | Foreign direct investment, net inflows (% of GDP)        |

Source: Authors' Compilation

Table 2: Correlation matrix for the six indicators of governance for SANE Countries

| Variable  | CC                  | GE                  | PS                 | RL                  | RQ                  | VA                 |
|-----------|---------------------|---------------------|--------------------|---------------------|---------------------|--------------------|
| <b>CC</b> | 1.0000              | 0.9625*<br>(0.0000) | 0.6978<br>(0.0000) | 0.8297<br>(0.0000)  | 0.8593*<br>(0.0000) | 0.3117<br>(0.0018) |
| <b>GE</b> | 0.9625*<br>(0.0000) | 1.0000              | 0.7576<br>(0.0000) | 0.8466<br>(0.0000)  | 0.8645*<br>(0.0000) | 0.3414<br>(0.0002) |
| <b>PS</b> | 0.6978<br>(0.0000)  | 0.7576<br>(0.0000)  | 1.0000             | 0.7905<br>(0.0000)  | 0.6878<br>(0.0000)  | 0.2995<br>(0.0013) |
| <b>RL</b> | 0.8297<br>(0.0000)  | 0.8466<br>(0.0000)  | 0.7905<br>(0.0000) | 1.0000              | 0.8523*<br>(0.0000) | 0.5253<br>(0.0000) |
| <b>RQ</b> | 0.8593*<br>(0.0000) | 0.8645*<br>(0.0000) | 0.6878<br>(0.0000) | 0.8523*<br>(0.0000) | 1.0000              | 0.3583<br>(0.0001) |
| <b>VA</b> | 0.3117<br>(0.0018)  | 0.3414<br>(0.0002)  | 0.2995<br>(0.0013) | 0.5253<br>(0.0000)  | 0.3583<br>(0.0001)  | 1.0000             |

Source: Authors' Compilation

Table 2 shows the correlation matrix of the six dimensions of governance. Outside of the brackets are the variables' correlation coefficients. The likelihood values, though, are in parenthesis. There was a multicollinearity issue. This was due to several pairs of starred regressors having pairwise correlations of more than 0.8. It would be difficult to separate the impact of CC and GE, CC and RQ, GE and RQ, GE and RQ, and RL and RQ separately on GDP per capita, PPP, in this scenario.

In our study, a high correlation between the explanatory factors may be problematic. For the purpose of tackling multicollinearity problems in datasets, the Principal Component Analysis (PCA) has been extensively used (Jolliffe, 2002; Johnson & Wichern, 2007; Hair, Black, Babin, & Anderson, 2010). Furthermore, improving interpretation is one advantage of employing PCA for multicollinearity (Browne, 2001; Shlens, 2014; Ding et al., 2018). Thus, it makes analysis and interpretation easier as a result. Hence, to find the linear combination that explains the most variability, the variables were submitted to a PCA to resolve the multicollinearity caused by the significant correlation between some pairs of governance indices resulting in the emergence of a sole composite index termed the Index of Good Governance (IGG). The linear combination of the original variables that makes up the first PCA component explains the most variation in the original data. Following the PCA, CC emerged as the sole factor that accounted for 74% of the variability in the initial data. Only this governance indicator had an eigenvalue greater than one. The eigenvalue of it is 4.4628. As a result, it was kept. This element of the governance indicator is thus regarded as the IGG. Hence, to investigate the relationship between governance and economic growth, IGG was chosen as the primary governance indicator. The variables also met the minimal criterion of 0.4 and had loadings between 42% and 96%. Our data were subjected to PCA because Kaiser's Measure of Sampling Adequacy value of 0.8097 indicated that it was appropriate. The findings of the factor analysis are shown in Table 3.

Table 3: Factor analysis results of the governance construct

| Component                                              | Loadings | Initial Eigenvalues |            |                       | Extraction Sums of Squared Loadings |            |                       |
|--------------------------------------------------------|----------|---------------------|------------|-----------------------|-------------------------------------|------------|-----------------------|
| Indicators                                             |          | Total               | Proportion | Cumulative Proportion | Total                               | Proportion | Cumulative Proportion |
| Control of Corruption                                  | 0.9395   | 4.4628              | 0.7438     | 0.7438                | 4.4628                              | 0.7438     | 0.7438                |
| Government Effectiveness                               | 0.9600   | 0.8477              | 0.1413     | 0.8851                |                                     |            |                       |
| Political Stability                                    | 0.7950   | 0.3766              | 0.0628     | 0.9478                |                                     |            |                       |
| Rule of Law                                            | 0.9351   | 0.1797              | 0.0299     | 0.9778                |                                     |            |                       |
| Regulatory Quality                                     | 0.8978   | 0.1010              | 0.0168     | 0.9946                |                                     |            |                       |
| Voice and Accountability                               | 0.4248   | 0.0323              | 0.0054     | 1.0000                |                                     |            |                       |
| <b>Extraction Method:</b> Principal Component Analysis |          |                     |            |                       |                                     |            |                       |
| a. 1 component extracted                               |          |                     |            |                       |                                     |            |                       |

Source: Authors' Compilation

Table 4: Correlation Matrix of Variables

| Variable         | RGDPPCPPP          | IGG                | DOMCREP            | FDI                |
|------------------|--------------------|--------------------|--------------------|--------------------|
| <b>RGDPPCPPP</b> | 1.0000             | 0.6389<br>(0.0000) | 0.5925<br>(0.0000) | 0.0346<br>(0.7173) |
| <b>IGG</b>       | 0.6389<br>(0.0000) | 1.0000             | 0.7704<br>(0.0000) | 0.0687<br>(0.4714) |
| <b>DOMCREP</b>   | 0.5925<br>(0.0000) | 0.7704<br>(0.0000) | 1.0000             | 0.0812<br>(0.3945) |
| <b>FDI</b>       | 0.0346<br>(0.7173) | 0.0687<br>(0.4714) | 0.0812<br>(0.3945) | 1.0000             |

The correlation matrix between the dependent and independent variables is displayed in Table 4. The highest coefficient in this result that was reported was 0.7704, which was below the 0.8 benchmark. Based on this premise, no independent variable pairs had a strong correlation, and multicollinearity was not an issue.

#### 4.2. Model Specification

For this investigation, the model used by Manyinsa (2014) will be modified. A general empirical model connecting governance and economic growth in the SANE countries can be stated as follows, based on the intuitions provided by this author regarding the anticipated link between economic growth and some causative variables:

$$LRGDPPCPPP_{it} = \beta_0 + \beta_1 IGG_{it} + \beta_2 DOMCREP_{it} + \beta_3 FDI_{it} + \varepsilon_{it} \quad 3.1$$

Where:

$\beta_0 - \beta_3$  = Parameters in the model

$LRGDPPC_{it}$  = Real GDP per capita in logarithm form at time t

$IGG_{it}$  = Index of Good Governance at time t

$DOMCREP_{it}$  = Domestic credit to the private sector at time t

$FDI_{it}$  = Foreign direct investment at time t

$\varepsilon_{it}$  = Disturbance term

Each of the variables had a country (i) and period (t) index. The dependent variable was logged, and its logarithm sign was represented by L. The time-series features of the data were examined using the Levin, Lin and Chu panel unit root tests before the estimation of the equation of economic growth. Additionally, we tested for multicollinearity to establish if the explanatory variables were highly correlated with one another. We used the Pooled Mean Group (PMG) Panel Autoregressive Distributed Lag (ARDL) procedure introduced by Pesaran, Shin and Smith (1999) for analysis. In addition to the predicted long-run coefficients, this technique also displays short-run dynamics. The panel ARDL statistical process was calculated using E-Views version 9 of the econometric program.

Equation 3.2 depicts the ARDL (p,q) model, which is established from the work of Pesaran and Shin (1996).

$$Y_{i,t} = \sum_{j=1}^p \lambda_{ij} Y_{i,t-j} + \sum_{j=0}^q \omega_{ij} X_{i,t-j} + \varepsilon_{it} \quad 3.2$$

Where:

$Y_{i,t}$  = Dependent variable for group i

$X_{i,t-j}$  = Vector of economic growth related factors for group i

$\omega_{ij}$  = Vector of coefficients

$i = 1, 2, \dots, N$

$t = 1, 2, \dots, T$

The re-parameterised panel-ARDL model of equation 3.2 is specified to account for the long-run and short-run dynamic panel model. Hence, to account for the adjustment coefficient and the long run dynamics, equation 3.2 is reparametrized as follows:

$$\Delta y_{it} = \phi_i (y_{i,t-1} + y_i^1 X_{i,t}) + \sum_{j=1}^{p-1} \lambda_{ij}^* \Delta y_{i,t-j} + \sum_{j=0}^{q-1} \omega_{ij}^* \Delta X_{i,t-j} + \varepsilon_{it} \quad 3.3$$

Where:

$\Delta y_{it} = y_{it} - y_{i,t-1}$

$\phi_i$  = Speed of adjustment

$\lambda_{ij}^*$  and  $\omega_{ij}^*$  = Short – run coefficients

$\phi_i (y_{i,t-1} + y_i^1 X_{i,t})$  = ECM that represents the long – run model

$\sum_{j=1}^{p-1} \lambda_{ij}^* \Delta y_{i,t-j} + \sum_{j=0}^{q-1} \omega_{ij}^* \Delta X_{i,t-j} + \mu_i$  = Represents the short – run model

To estimate equation 3.3, the PMG developed by Pesaran et al. (1999) was employed. Thus, the panel-ARDL model of the relationship between governance and economic growth is:

$$\begin{aligned} \Delta LRGDPPCPPP_{it} &= \phi_i (LRGDPPCPPP_{i,t-1} + IGG_{i,t-1} + y_i^1 X_{i,t}) \\ &+ \sum_{j=1}^{p-1} \lambda_{ij}^* \Delta LRGDPPCPPP_{i,t-j} + \sum_{j=1}^{p-1} \vartheta_{ij}^* \Delta IGG_{i,t-j} + \sum_{j=0}^{q-1} \sigma_{ij}^* \Delta X_{i,t-j} + \mu_i + \varepsilon_{it} \end{aligned} \quad 3.4$$

Where:

$RGDPPCPPP_{it}$  = Real GDP per capita

$IGG_{it}$  = Index of good governance

$X_{i,t}$  = Vector of explanatory variables of domestic credit to the private sector and foreign direct investment

The dependent and independent variables are defined in model form in Equation 3.5.

$$\Delta \text{RGDPPCPPP}_{it} = \beta_{ij} + \sum_{k=1}^n \partial_{11ik} \Delta \text{RGDPPCPPP}_{it-k} + \sum_{k=1}^n \partial_{12ik} \Delta \text{IGG}_{it-k} + \sum_{k=1}^n \partial_{13ik} \Delta \text{DOMCREP}_{it-k} + \sum_{k=1}^n \partial_{14ik} \Delta \text{FDI}_{it-k} + \varphi_{1i} \text{ECT}_{1it-1} + \varepsilon_{it} \quad 3.5$$

Where:

$\beta$  = vector of constants

$\Delta$  = difference operator

$n$  = lag length

## 5. Results and Discussions

Table 5: Results of Panel Unit Root Test

| Variable   | Levin, Lin, Chu |                  |       |
|------------|-----------------|------------------|-------|
|            | Level           | First Difference | I(d)  |
| LRGDPPCPPP | -0.7578         | -6.4722***       | I (1) |
| IGG        | -2.8233***      | -                | I (0) |
| DOMCREP    | -0.1110         | -5.9510***       | I (1) |
| FDI        | -2.9771***      | -                | I (0) |

Note: \*\*\*indicate statistical significance at the 1% level of significance

Source: Authors' Compilation

The series was tested for stationarity using the panel unit root test developed by Levin, Lin, and Chu in 2002. Results for the unit root are shown in Table 5. The outcomes showed that the variables had either an integration order of I(0) or I(1). The adoption of the panel ARDL approach was supported by the various degrees of integration among the series.

Table 6: Results of Long-run Coefficients

| IGG       | DOMCREP  | FDI      |
|-----------|----------|----------|
| -0.4029   | 0.0075*  | 0.1946** |
| [-1.5858] | [1.7314] | [2.3159] |
| (0.1165)  | (0.0870) | (0.0230) |

Note: \*\* and \* indicate statistical significance at the 5% and 10% levels of significance, respectively.

Source: Authors' Compilation

Note: Probability Values are in bracket - ( ).

t-statistics are in []

Table 6 displays the outcomes of the long-run coefficients. The results showed that the index of good governance had a negative and insignificant effect on economic expansion. The findings of Anoy (2021), Manyinsa (2014), Assiotis and Sylwester (2012), Haggard and Tiede (2011), Khamfula (2007), Hakimi and Hamdi (2017), Lahouij (2017), AlAdlani (2019) and Mauro (1995) are opposed to this outcome. It, however, agrees with what Evrensel (2010) and Gani (2011) found. Hence, it has a greater bearing on the explanation of economic expansion in the SANE economies. Additionally, domestic credit to the private sector had a positive and effect on economic expansion. This suggests that, over time, domestic financing of the private sector promotes economic growth in SANE economies. Additionally, foreign direct investment had a positive impact on economic expansion. This finding agrees with AlAdlani's (2019) and Lahouij's (2017) submissions. However, it violates Duru and Ezenwe's (2020) submission.

Table 7: Results of Short-run Coefficients

| <b>Dependent Variable: RGDPPC</b> |                    |                   |                    |              |
|-----------------------------------|--------------------|-------------------|--------------------|--------------|
| <b>Variable</b>                   | <b>Coefficient</b> | <b>Std. Error</b> | <b>t-Statistic</b> | <b>Prob.</b> |
| $\Delta(\text{IGG})$              | 0.0093             | 0.0173            | 0.4771             | 0.6345       |
| $\Delta(\text{DOMCREP})$          | -0.0026            | 0.0049            | -0.5318            | 0.5963       |
| $\Delta(\text{FDI})$              | -0.0112            | 0.0081            | -1.3846            | 0.1698       |
| C                                 | 0.6004             | 0.1737            | 3.4570***          | 0.0009       |
| $\text{ECM}_{t-1}$                | -0.0763            | 0.0259            | -2.9460***         | 0.0042       |

Note: \*\*\* and \*\* indicate statistical significance at the 1% and 5% levels of significance, respectively

Source: Authors' Compilation

Table 7 displays the outcomes of the short-run dynamics. The results demonstrated that there was no significant correlation between economic growth in SANE economies and changes in the index of good governance, domestic loans to the private sector, or foreign direct investment from the previous year. The results showed that the Error Correction Terms (ECT) were negative and statistically significant. The coefficient value of the ECT suggests that about 7.63 per cent of divergences from long-run equilibrium are adjusted in 13 years. This implies that there are long-term correlations between the variables. Additionally, in the long run, IGG, DOMCREP, and FDI do mutually propagate to produce RGDPPCPPP. However, the short-run coefficients per country data revealed that South Africa, Algeria, Nigeria and Egypt had ECT coefficients of -0.0623, -0.0530, -0.1525 and -0.0374, respectively. They were statistically significant and negative. For South Africa, Algeria, Nigeria and Egypt, respectively, the coefficients of -0.0623, -0.0530, -0.1525 and -0.0374 indicate that 0.06%, 0.05%, 0.15% and 0.04% of divergences from long-run equilibrium were rectified in 16 years, 19 years, 7 years and 27 years respectively. We may also conclude that the variables were cointegrated and that IGG, DOMCREP, and FDI collectively generate RGDPPCPPP in the long term because the ECT was negative and significant. Table 8 displays the short-run coefficient results by country. The finding from the short-run coefficients by country results showed that the ECT coefficient was negative and significant in line with the short-run dynamics group findings.

Table 8: Short-run Coefficients Results of Panel ARDL Estimations by Country

| <b>Country: South Africa</b> |                    |                   | <b>Country: Algeria</b> |                   | <b>Country: Nigeria</b> |                   | <b>Country: Egypt</b> |                   |
|------------------------------|--------------------|-------------------|-------------------------|-------------------|-------------------------|-------------------|-----------------------|-------------------|
| <b>Variable</b>              | <b>Coefficient</b> | <b>Std. Error</b> | <b>Coefficient</b>      | <b>Std. Error</b> | <b>Coefficient</b>      | <b>Std. Error</b> | <b>Coefficient</b>    | <b>Std. Error</b> |
| $\Delta(\text{IGG})$         | -0.0201***         | 0.0002            | -0.0066*                | 0.0024            | 0.0585***               | 0.0004            | 0.0012                | 0.0005            |
| $\Delta(\text{DOMCREP})$     | 0.0016***          | 0.0000            | -0.0170***              | 0.0000            | -0.0001***              | 0.0000            | 0.0051***             | 0.0000            |
| $\Delta(\text{FDI})$         | -0.0026***         | 0.0000            | -0.0108***              | 0.0003            | -0.0340***              | 0.0000            | 0.0026***             | 0.0000            |
| C                            | 0.5500***          | 0.0037            | 0.4800                  | 0.2994            | 1.0923**                | 0.2661            | 0.2794**              | 0.0589            |
| $\text{ECM}_{t-1}$           | -0.0623***         | 0.0010            | -0.0530***              | 0.0041            | -0.1525***              | 0.0042            | -0.0374***            | 0.0010            |

Note: \*\*\*, \*\* and \* indicate statistical significance at the 1%, 5% and 10% levels of significance, respectively.

Source: Authors' Compilation

## 5. Limitations of the Study

The study's data set covered the years 1996 through 2023. The availability of the data had an impact on the selection of this time frame. The WB's WGI data only covered the period from 1996 to 2023. However, in 1997, 1999, and 2001, respectively, statistics on the six indices of governance for the SANE countries were not available. To close the gaps, extrapolation was applied. This did not allow us to extend the study to 2024. Moreover, the WB's WDI database did not provide the yearly percentage of GDP per capita increase in PPP. It was anticipated that this indicator would enable comparisons of GDP per capita growth across SANE economies. In its absence, however, the PPP of GDP per capita growth was used as the dependent variable to verify the pricing differences among the

SANE economies. Furthermore, in 2023, the data on domestic credit to the private sector was not available for Nigeria. Once again, extrapolation was applied to fill the gap.

## 6. Conclusion and Recommendations

The relationship between governance and economic growth in SANE economies from 1996 to 2023 was examined in this study. The analysis used the PCA and the PMG Panel ARDL approach. According to the findings, the index of good governance had a negative and insignificant impact on economic growth in SANE economies. As a result, the management of the index of good governance can be partly responsible for the SANE economies' economic adversity. Furthermore, the economic growth of SANE economies depends mostly on the index of good governance element of the governance indexes. It has a negative and insignificant influence on economic growth in SANE economies. Hence, it has not really influenced economic expansion in SANE countries. However, foreign direct investment had a positive and significant effect on economic growth in SANE economies. Furthermore, domestic loans to the private sector had a positive impact on economic growth in SANE countries. Based on the findings of this study, the following were recommended: The governments of the SANE nations should sustain the current policies on foreign direct investment since it is yielding the desired outcome. Furthermore, since the index of good governance hasn't had much of an impact on SANE countries' economic growth, those policies meant to address it should be revisited. Furthermore, in order to achieve economic progress, the government agencies tasked with combating corruption in SANE economies should make sure that corruption is reduced through measures that support the rule of law. Policies for guaranteeing the growth of the private sector through domestic financing must also be sustained. In a similar vein, sensible measures for ensuring political stability among others ought to be sustained to encourage the growth of the private sector.

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## References

- Abdelbaky, M. (2012). Governance and growth in MENA region: evidence from panel data analysis. *International Research Journal of Finance and Economics*, 4/2012. Retrieved on June 29, 2018 from file:///C:/Users/Adel/Downloads/IRJFE-FinalPaper.pdf
- Acemoglu, D., Johnson, S., & Robinson, J. (2004). Institutions as the fundamental cause of long-run growth. *Working Paper 10481, National Bureau of Economic Research: Cambridge*. [https://www.nber.org/system/files/working\\_papers/w10481/w10481.pdf](https://www.nber.org/system/files/working_papers/w10481/w10481.pdf)
- Adams, S. & Mengistu, B. (2008). Privatization, governance and economic development in developing countries. *Journal of Developing Societies*, 24(4), 415-438. <https://ideas.repec.org/a/sae/jodeso/v24y2008i4p415-438.html>

- Adefeso, H.A. & Abioro, T. (2016). Governance and Economic Development in Nigeria: Further Quantitative Evidence. *Benue Journal of Social Sciences*, 4(2), 12-28. [https://www.researchgate.net/publication/336104009\\_Governance\\_and\\_Economic\\_Development\\_in\\_Nigeria\\_Further\\_Quantitative\\_Evidence](https://www.researchgate.net/publication/336104009_Governance_and_Economic_Development_in_Nigeria_Further_Quantitative_Evidence)
- Adenuga, O. A., & Egbomwan, W. J. (2014). Dynamics of Governance, Investment and economic Growth in Nigeria. *The Botswana Journal of Economics*, 10(14), 81-97. <https://www.ajol.info/index.php/boje/article/view/85410/75335>
- African Capacity Building Foundation (2017). *Compendium of case studies on governance and economic development*. Zimbabwe: African Capacity Building Foundation. <https://elibrary.acbfpact.org/acbf/collect/acbf/index/assoc/HASH01ad/e44e7241/b749d69a/1a6c.dir/ACR2017%20English.pdf>
- Akpan, G. & Effiong, E. (2012). Governance and development performance: A Cross-Country analysis of Sub-Saharan Africa. *Journal of Economics and Sustainable Development*, 3(14), 54-65. <https://core.ac.uk/download/pdf/234645778.pdf>
- AlAdlani, A. H. (2019). *Governance and economic growth in the Arab World: Evidence from panel data analysis*. Ph.D Dissertation, Michigan: Western Michigan University. <https://scholarworks.wmich.edu/cgi/viewcontent.cgi?article=4452&context=dissertations>
- Alam, M., Kitege, E., & Bedane, B. (2017). Government effectiveness and economic growth. *Economics Bulletin*, 37(1), 222-227. [https://www.researchgate.net/publication/312945627\\_Government\\_Effectiveness\\_and\\_Economic\\_Growth](https://www.researchgate.net/publication/312945627_Government_Effectiveness_and_Economic_Growth)
- AlBassam, B. A. (2013). The relationship between governance and economic growth during times of crisis. *European Journal of Sustainable Development*, 2(4), 1-18. <https://ecsdev.org/images/V2N2/albassam%201-18.pdf>
- Almohammed, H., and Ekşi, İ. (2021). Is governance effective in economic growth? Evidence from MSCI countries. *Hitit Journal of Social Sciences*, 14(1), 40-55. <https://www.ceeol.com/content-files/document-994918.pdf>
- Alonso, J. A. (2010). colonisation, institutions and development: New evidence. *Journal of Development Studies*, 47(7), 937 – 958. <https://ideas.repec.org/a/taf/jdevst/v47y2011i7p937-958.html>
- Anoy, N.M. (2021). *An exploratory analysis of economic growth and governance indicators of Bangladesh, 1996-2018*. M.Sc Thesis, Brac: Brac University. [https://dspace.bracu.ac.bd/xmlui/bitstream/handle/10361/14912/18275001\\_ESS.pdf?sequence=1](https://dspace.bracu.ac.bd/xmlui/bitstream/handle/10361/14912/18275001_ESS.pdf?sequence=1)
- Anwar, S. & Cooray, A. (2012). Financial development, political rights, civil liberties and economic growth: Evidence from South Asia. *Economic Modelling*, 29(3), 974-981. <https://ideas.repec.org/a/eee/ecmode/v29y2012i3p974-981.html>
- Arndt, C., & Oman, C. (2006). *Uses and Abuses of Governance Indicators*. Paris, France: Development Centre Studies, OECD Publishing.
- Asharq Al-Awsat (2021, February 4). Egypt's unemployment falls to lowest levels in 14 years. Asharq Al-Awsat. Retrieved from <https://english.aawsat.com/home/article/2794696/egypt%E2%80%99s-unemployment-falls-lowest-levels-14-years>
- Assiotis, A. & Sylwester, K. (2012). Do the effects of corruption upon growth differ between democracies and autocracies? *Review of Development Economics*, 18(3), 581-594. <https://ideas.repec.org/a/bla/rdevoc/v18y2014i3p581-594.html>
- Asuquo, E.E. (2014). *The role of institutions and governance on economic performance in Selected sub-Saharan African Countries*. Master's Dissertation, Nigeria: University of Nigeria, Nsukka. <https://www.studocu.com/row/document/university-of-nigeria-nsukka/microeconomic-theory-intro/17743-the-role-of-institutions-and-governance-on-economic-performance-in-selected-sub-saharan-african-countries/61392186>
- Brinkerhoff, D. (2005). Rebuilding governance in failed states and post-conflict societies: Core concepts and cross-cutting themes. *Public Administration and Development*, 25(1), 3- 14. <https://doi.org/10.1002/pad.352>
- Browne, M. W. (2001). An overview of analytic rotation in exploratory factor analysis. *Multivariate Behavioral Research*, 36(1), 111-150. <http://www.statpower.net/Content/312/Handout/Browne2001.pdf>
- Busse, M. & Groizard, J. L. (2008). Foreign direct investment, regulations and growth. *World Economy*, 31(7), 861-886. <https://econpapers.repec.org/RePEc:bla:worlde:v:31:y:2008:i:7:p:861-886>
- Butkiewicz, J. L. & Yanikkaya, H. (2011). Institutions and the impact of government spending on growth. *Journal of Applied Economics*, 14(2), 319-341. <https://econpapers.repec.org/RePEc:cem:jaecon:v:14:y:2011:n:2:p:319-341>
- Chowdhury, A., & Sundaram, J. (2012). *Is Good Governance Good for Development?* New York: Bloomsbury Academic.
- Commander, S. & Nikoloski, Z. (2010). Institutions and economic performance: What can be explained? *European Bank for Reconstruction and Development Working Paper Number*, 21. <http://dx.doi.org/10.2139/ssrn.1696850>

- Ding, C., et al. (2018). Principal component analysis for addressing multicollinearity. *Journal of Applied Statistics*, 45(10), 1735-1748.
- Duru, I. U., & Ezenwe, U. (2020). Empirical investigation of the impact of exports on economic growth: Evidence from Nigeria, 1980-2016. *International Journal of Publication and Social Studies*, 5(1), 18-43. <https://ideas.repec.org/a/asi/ijopss/v5y2020i1p18-43id128.html>
- Easterly, W. (2002). How did heavily indebted poor countries become heavily indebted? Reviewing two decades of debt relief. *World Development*, 30(10), 1677-1696. <https://ideas.repec.org/a/eee/wdevel/v30y2002i10p1677-1696.html>
- Ekanayake, E. M. & Chatrna, D. (2010). The effect of foreign aid on economic growth in developing countries. *Journal of International Business and Cultural Studies*, 3(2), 1 – 13. <https://www.aabri.com/manuscripts/09359.pdf>
- Emara, N., & I-Ming, C. (2016). The Impact of Governance Environment on Economic Growth: The Case of Middle Eastern and North African Countries. *Journal of Economics Library*, 3(1), 24-37. <https://ideas.repec.org/a/ksp/journ5/v3y2016i1p24-37.html>
- Emara, N., & Jhonsa, E. (2014). Governance and economic growth: The case of Middle Eastern and North African countries. *Journal of Development and Economic Policies*, 16(1), 47-71. <https://ideas.repec.org/p/pramprapa/68683.html>
- Epaphra, M., & Kombe, A. (2017). Institutions and economic growth in Africa: Evidence from panel estimation. *Business and Economic Horizons*, 13(5), 570-590. <https://ideas.repec.org/a/pdc/jrnbeh/v13y2017i5p570-590.html>
- Evrensel, A. Y. (2010). Corruption, growth, and growth volatility. *International Review of Economics & Finance*, 19(3), 501-514. <https://ideas.repec.org/a/eee/reveco/v19y2010i3p501-514.html>
- Fayissa, B., & Nsiah, C. (2013). The Impact of governance on economic growth in Africa. *Journal of Developing Areas*, 47(1), 91-108. <https://ideas.repec.org/a/jda/journal/vol.47year2013issue1pp91-108.html>
- Feeny, S. & McGillivray, M. (2010). Aid and growth in Small Island developing states. *Journal of Development Studies*, 46(5), 897 – 917. <https://www.wider.unu.edu/publication/aid-and-growth-small-island-developing-states#>
- Gani, A. (2011). Governance and growth in developing countries. *Journal of Economic Issues*, 45(1), 19-40. <https://econpapers.repec.org/RePEc:mes:jeciss:v:45:y:2011:i:1:p:19-40>
- Goldsmith, A. A. (1995). Democracy, property rights and economic growth. The *Journal of Development Studies*, 32(2), 157 – 174. <https://econpapers.repec.org/RePEc:taf:jdevst:v:32:y:1995:i:2:p:157-174>
- Haggard, S., & Tiede, L. (2011). The rule of law and economic growth: where are we? *World Development*, 39(5), 673-685. <https://ideas.repec.org/a/eee/wdevel/v39y2011i5p673-685.html>
- Hair, J.F., Black, W.C., Babin, B.J. & Anderson, R.E. (2010). *Multivariate data analysis* (7th ed.). New York: Pearson.
- Hakimi, A., & Hamdi, H. (2017). Does corruption limit FDI and economic growth? Evidence from MENA countries. *International Journal of Emerging Markets*, 12(3), 550-571. <https://ideas.repec.org/a/eme/ijoemp/ijoem-06-2015-0118.html>
- Hamadi, F., Rihab, B.A. & Lotfi, B.J. (2009). Governance and economic growth in transition countries: A reading in the vision of the institutional theory', *International Journal of Economic Policy in Emerging Economies*, 2(1), 1-22. <https://ideas.repec.org/a/ids/ijepee/v2y2009i1p1-22.html>
- Han, X., Khan, H., & Zhuang, J. (2014). Do governance indicators explain development performance? A cross-country analysis. *ADB Economics Working Paper Series*, 417. <https://www.adb.org/sites/default/files/publication/149397/ewp-417.pdf>
- Hanson-Agumbah, T. (2019). *Bad governance “a threat to human wellbeing: A case study of bad governance during the Covid pandemic in Nigeria”*. Master's Thesis, Newfoundland: Memorial University of Newfoundland. <https://research.library.mun.ca/15381/1/thesis.pdf>
- Huynh, K. & Jacho-Chávez, D. (2009). Growth and governance: A nonparametric analysis. *Journal of Comparative Economics*, 37(1), 121-143. <https://ideas.repec.org/a/eee/jcecon/v37y2009i1p121-143.html>
- Jhingan, M. L. (1997). *The economics of development and planning*. New Delhi: Vrinda Publications.
- Johnson, R.A., & Wichern, D. W. (2007). *Applied multivariate statistical analysis* (6th ed.). Upper Saddle River, New Jersey: Pearson Prentice Hall.
- Jolliffe, I.T. (2002). *Principal Component Analysis Springer Series in Statistics* (2nd ed.). New York: Springer Science Business Media.
- Kaufmann, D., Kraay, A., & Mastruzzi, M. (2009). Governance matters viii: Aggregate and individual governance indicators 1996-2008. *World Bank Policy Research Working Paper Series* 4978. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1424591](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1424591)
- Kaufmann, D., Kraay, A., & Zoido-Lobaton, P. (1999). *Governance Matters. Policy Research Working Paper No. 2196*. Washington DC: World Bank. <https://ideas.repec.org/p/wbk/wbrwps/2196.html>

- Khamfula, Y. (2007). Foreign direct investment and economic growth in EP and IS countries: The role of corruption. *World Economy*, 30(12), 1843-1854. <https://ideas.repec.org/a/bla/worlde/v30y2007i12p1843-1854.html>
- Kim, D., Wu, Y. & Lin, S. (2018). Heterogeneity in the effects of government size and governance on economic growth. *Economic Modelling*, 68(C), 205-216. <https://ideas.repec.org/a/eee/ecmode/v68y2018icp205-216.html>
- Kong, T. (2007). A Selective review of recent developments in the economic growth literature. *Asian-Pacific Economic Literature*, 21(1), 1-33. <https://ideas.repec.org/a/bla/apacel/v21y2007i1p1-33.html>
- Kraipornsak, P. (2018). Good governance and economic growth: An investigation of Thailand and selected Asian countries. *Eurasian Journal of Economics and Finance*, 6(1), 93-106. <https://doi.org/10.15604/EJEF.2018.06.01.009>
- Kurtz, M., & Schrank, A. (2007). Growth and governance: Models, measures, and mechanisms. *The Journal of Politics*, 69(2), 538-554. <https://www.jstor.org/stable/10.1111/j.1468-2508.2007.00549.x>
- Lahouij, H. (2017). *Governance and Economic Growth in Developing Economies: A Comparative Study*. Master's Thesis, Eastern Illinois: Eastern Illinois University. <https://thekeep.eiu.edu/theses/2724/>
- Law, S. H. & Habibullah, M. S. (2006). Financial development, institutional quality and economic performance in East Asian Economies. *Review of Applied Economics*, 2(2), 201 – 216. <https://doi.org/10.22004/ag.econ.50150>
- Magnusson, L. (2015). *The Political Economy of Mercantilism*. Abingdon, Oxon; New York: Routledge.
- Manyinsa, A.O. (2014). *Governance and economic growth in East African Community Countries*. Master's Thesis, Nairobi: University of Nairobi. [http://erepository.uonbi.ac.ke/bitstream/handle/11295/82078/Manyinsa\\_Governance%20and%20economic%20growth%20in%20East%20African%20community%20countries.pdf?sequence=3](http://erepository.uonbi.ac.ke/bitstream/handle/11295/82078/Manyinsa_Governance%20and%20economic%20growth%20in%20East%20African%20community%20countries.pdf?sequence=3)
- Maral, H. (2009). The impact of the global recession on South Africa. *International Economy and Trade 114*. Retrieved from <https://www.realinstitutoelcano.org/en/analyses/the-impact-of-the-global-recession-on-south-africa-ari/>
- Mauro, P. (1995). Corruption and growth. *The Quarterly Journal of Economics*, 110(3), 681 – 712. <https://doi.org/10.2307/2946696>
- McDermott, J. (1999). Mercantilism and modern growth. *Journal of Economic Growth*, 4(1), 55- 80. <https://doi.org/10.1023/A:1009878625417>
- Mehanna, R., Yazbeck, Y., & Srieddine, L. (2010). Governance and economic development in MENA countries: Does oil affect the presence of a virtuous circle? *Journal of Transnational Management*, 15(2), 117-150. [https://www.researchgate.net/publication/233221086\\_Governance\\_and\\_Economic\\_Development\\_in\\_MEN\\_A\\_Countries\\_Does\\_Oil\\_Affect\\_the\\_Presence\\_of\\_a\\_Virtuous\\_Circle](https://www.researchgate.net/publication/233221086_Governance_and_Economic_Development_in_MEN_A_Countries_Does_Oil_Affect_the_Presence_of_a_Virtuous_Circle)
- Michele, A. & Michael, E.B. (2010). The trade specialization of SANE: Evidence from manufacturing industries. *The European Journal of Comparative Economics*, 7(1): 145-178. <https://ideas.repec.org/a/liu/liucej/v7y2010i1p145-178.html>
- Mira, R., & Hammadache, A. (2017). Good governance and economic growth: A contribution to the institutional debate about state failure in Middle East and North Africa. *Asian Journal of Middle Eastern and Islamic Studies*, 11(3), 107-120. <https://doi.org/10.1080/25765949.2017.12023313>
- Nducho, L. (2022). *The impact of governance on economic growth: A comparative analysis of Cameroon and Finland*. Thesis of Centria University of Applied Sciences. <https://www.theseus.fi/handle/10024/782354>
- North, D. (1990). *Institutions, institutional change, and economic performance*. Cambridge and New York: Cambridge University Press.
- Olson, M., Sarna, N., & Swamy, A. (2000). Governance and growth: A simple hypothesis explaining cross-country differences in productivity growth. *Public Choice*, 102(3), 341- 364. <https://ideas.repec.org/a/kap/pubcho/v102y2000i3-4p341-64.html>
- Omoteso, K., & Ishola, M.H. (2014). Corruption, governance and economic growth in Sub-Saharan Africa: A need for the prioritisation of reform policies. *Social Responsibility Journal*, 10(2), 316-330. <https://ideas.repec.org/a/eme/srjpps/v10y2014i2p316-330.html>
- Pere, E. (2015). The impact of good governance in the economic development of Western Balkan Countries. *European Journal of Government and Economics*, 14(1), 25-45. <https://ideas.repec.org/a/egr/ejge00/v4i1p25-45.html>
- Perkins, D.H., Radelet, S., & Lindauer, D.L. (2006). *Economic of Development* (6th ed). New York, United States of America: W.W. Norton & Company, Inc.
- Pesaran, M.H. & Shin, Y. (1996). Cointegration and speed of convergence to equilibrium. *Journal of Econometrics*, 71(1/2), 117-143. [https://doi.org/10.1016/0304-4076\(94\)01697-6](https://doi.org/10.1016/0304-4076(94)01697-6)
- Pesaran, M.H., Shin, Y. & Smith, R.P. (1999). Pooled mean group estimation of dynamic heterogeneous panels. *Journal of the American Statistical Association*, 94(446), 621-634. <https://doi.org/10.2307/2670182>

- Rachid M. & Ahmed, H. (2017). Good governance and economic growth: A contribution to the institutional debate about state failure in Middle East and North Africa, *Asian Journal of Middle Eastern and Islamic Studies*, 11(3), 107-120. <https://ideas.repec.org/p/hal/cepnwp/hal-01593290.html>
- Rodrik, D. (2008). Thinking about governance. governance, growth and development decision-making. Washington DC: World Bank.
- Salawu, M., Yusuff, A., Salman, K., Ogunniyi, A., & Rufa, A. (2018). Does governance influence economic growth in Sub-Saharan Africa? *Global Journal of Human-Social Science: Economics*, 18(1), 57-66. [https://globaljournals.org/GJHSS\\_Volume18/6-Does-Governance-Influence.pdf](https://globaljournals.org/GJHSS_Volume18/6-Does-Governance-Influence.pdf)
- Seldadyo, H., Nugroho, E. P. & De Haan, J. (2007). Governance and growth revisited. *Kyklos*, 60(2), 279-290. <https://doi.org/10.1111/j.1467-6435.2007.00372.x>
- Sen, K. (2014). Governance and development outcomes in Asia. *ADB Economics Working Paper Series No. 384*. <https://www.adb.org/sites/default/files/publication/31175/ewp-384-governance-development-outcomes-asia.pdf>
- Sharipov, I. (2015). Contemporary economic growth models and theories: A literature review. *CES Working Papers*, 7(3), 759-773. <https://ideas.repec.org/a/jes/wpaper/y2015v7i3p759-773.html>
- Shlens, J. (2014). A tutorial on principal component analysis. *ArXiv*, abs/1404.1100. <https://www.semanticscholar.org/paper/A-Tutorial-on-Principal-Component-Analysis-Shlens/562e7f497eff8363825abad8d0008a42ce00eb49>
- Smith, A. (1776). *The Wealth of Nations*. London, United Kingdom: Electric Book Company Ltd.
- Tharanga, S. (2018). Impact of governance on economic growth. *MPRA Paper No. 89834*. Available online at <https://mpra.ub.uni-muenchen.de/89834/>
- The World Bank Group (2023). The World Bank in South Africa. Retrieved from <https://www.worldbank.org/en/country/southafrica/overview>
- Wilson, R. (2016). Does governance cause growth? Evidence from China. *World Development*, 79(C), 138-151. <https://ideas.repec.org/a/eee/wdevel/v79y2016icp138-151.html>
- Wood, D. (2002). *Medieval Economic Thought*. Cambridge: Cambridge University Press.
- World Bank (1994). *Governance: The World Bank Experience*. Washington, D.C., United States of America: The World Bank.
- Yerrabati, S., & Hawkes, D. (2015). Economic Governance and Economic Growth in South and East Asia & Pacific Region: Evidence from systematic literature reviews and meta-analysis. *Advances in Economics and Business*, 3(1), 1-21. <https://doi.org/10.13189/aeb.2015.030101>.
- Younis, M., Lin, X.X., Sharahili, Y., & Selvarathinam, S. (2008). Political stability and economic growth in Asia. *American Journal of Applied Sciences*, 5(3), 2003-2008. <https://www.semanticscholar.org/paper/Political-Stability-and-Economic-Growth-in-Asia-Younis-Lin/35f0ae31a409b32b74da0364113b830e0e725f56>
- Zhu, L. (2013). Panel data analysis in public administration: substantive and statistical considerations. *Journal of Public Administration Research and Theory*, 23(2), 395-428. [https://www.researchgate.net/publication/274999708\\_Panel\\_Data\\_Analysis\\_in\\_Public\\_Administration\\_Substantive\\_and\\_Statistical\\_Considerations](https://www.researchgate.net/publication/274999708_Panel_Data_Analysis_in_Public_Administration_Substantive_and_Statistical_Considerations)
- Zhuang, J., de Dios, E., & Martin, A. L. (2010). Governance and institutional quality and the links with economic growth and income inequality: With special reference to Developing Asia. *Asian Development Bank Economics Working Paper Series 193*. <https://www.adb.org/sites/default/files/publication/28404/economics-wp193.pdf>

# Predicted Repayment Behaviour of Borrowers in Urban Cooperative Banks in Assam: A Case Study of Nagarik Samabay Bank

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## Abstract

The purpose of this study is to analyse the predicted repayment behavior of sample borrowers of Nagarik Samabay Bank, an Urban Cooperative Bank in Assam for the period 2023-24 by employing the Artificial Neural Network (ANN) model. The results indicate that eleven socio-economic factors were statistically significant in predicting the repayment behavior of sample borrowers, with the ANN model achieving a predicted default classification accuracy of 83.3%. However, in comparison, the logistic regression (LR) model demonstrated higher predictive performance, correctly classifying defaulters with an accuracy of 88.2%, thereby outperforming the ANN model. However, the ANN model predicted regular borrowers more accurately than logistic regression, achieving an accuracy of 98.9% compared to 97.6%. Based on these findings, it is suggested that financial institutions, particularly Urban Cooperative Banks, adopt robust risk assessment measures to strengthen their position in the banking sector.

**Keywords:** Repayment Behavior, Urban Cooperative Bank, Artificial Neural Network model (ANN), Logistic Regression (LR)

## 1. Introduction

For every productive activity, one of the important indicators of the economy is banking services and it is provided by the institutional and non-institutional sources of the economy. Cooperative banks are one of them which were established to cater to farmers, labourers, artisans, and small entrepreneurs of local communities. According to Master Direction on Priority Sector Lending, 2025 and Vision Document (2025–2030), the RBI emphasizes areas such as achieving a PSL target of 75%, at least 12% of credit to “weaker” sections, digitalization, recruitment of professional experts and DICGC insurance up to 5,00,000, etc., for more efficiency and productivity of UCBs. In this regard, repayment of loans plays an important role in assessing the efficiency and channelizing the deposits of financial institutions. In order to make rational decisions, borrowers ought to reduce the risk of default and

ensure the benefits of banking services over the period of time. Under the latest RBI (UCBs Credit Risk Management Amendment Directions, 2025–26), credit scoring has become more structured and aligned with other financial institutions. There are different regulatory frameworks for unsecured loan ceilings, concentration risk, priority sector lending and risk-based premiums. Analyzing and predicting credit default is important in UCBs as it reflects future banking activities. The core concept of credit risk occurs when a borrower fails to meet their obligations in accordance with agreed terms. In the taxonomy of defaulters, RBI distinguishes different defaulters according to their intent and impact on banking activities. In this regard, overdue refers to payment not being made on the due date as fixed by the bank, and it becomes a non-performing asset (NPA) when it remains for 90 days. According to Master Direction on Wilful Defaulters, a borrower may have the capacity to honor obligations but chooses not to, and due to that there are some key reasons like siphoning of funds, diversion of funds, disposal of assets without the bank's consent, etc. To control credit risk, the Early Warning Signals (EWS) framework has been introduced to identify “stress” before it turns into a “defaulter” status.

Traditional approaches like financial ratios, Z-score analysis, and regression analysis have been used to analyze credit risk in financial institutions (Altman, 1968; Beaver, 1966; Sinkey, 1975). In recent times, Artificial Neural Network (ANN) models have been used for bankruptcy prediction to obtain more accurate results (Kaski et al., 2004; Kim & Kang, 2010; Pramodh & Ravi, 2007).

The primary objectives of the study are:

1. To predict the repayment status of sample borrowers using Artificial Neural Network (ANN) in the Nagarik Samabay Bank (UCBs) in Guwahati city.
2. To compare the predicted results of ANN with logistic regression of repayment status of sample borrowers in the Nagarik Samabay Bank.

## 2. Review of literature

Artificial Neural Networks (ANN) offer several advantages over conventional analytical methods. According to Shachmurove (2002), ANN models have the ability to analyze complex patterns with a high degree of accuracy. Unlike traditional statistical models, ANN does not require strict assumptions regarding data distribution. Since time-series data are dynamic in nature, non-linear tools are essential to identify underlying relationships, and ANN is particularly effective in capturing such non-linear patterns.

Hu and Su (2022) empirically assessed and compared two traditional credit risk prediction models—cluster analysis and factor analysis—with three commonly used ANN models. Their study evaluated the predictive performance of these models to identify the most suitable approach for credit risk assessment of corporate customers in commercial banks.

Similarly, Mohammadi and Zangeneh (2016) evaluated a Multilayer Perceptron Neural Network (MLPNN) for customer credit risk assessment. Their findings indicate that neural networks possess strong predictive power and are highly effective in estimating non-linear relationships. The results demonstrated that the proposed model achieved high classification accuracy and outperformed other models in predicting customer credit risk.

Zhu et al. (2016) examined credit risk prediction for small and medium-sized enterprises (SMEs) in China using logistic regression (LR) and ANN models. The empirical results revealed that the ANN model achieved higher accuracy in predicting “negative signals” compared to the LR model.

Altunöz (2024) compared LR and ANN models and provided significant insights into their respective strengths and limitations. The study emphasized the importance of advanced analytical techniques in enhancing the prediction of financial risks, thereby improving banking decision-making processes and promoting financial stability.

## 3. Data and Methodology

### 3.1 Data source

The study is conducted on Nagarik Samabay bank limited (NSB), consisting five branches in Guwahati city and also listed in the RBI website in the section of scheduled Urban Cooperative Banks in India. From the five branches of NSB, 330 Sample benefices are used the estimation and the study uses data for the year 2023-24.

### 3.2 Sample frame

To determine the adequacy of the selected sample, the Cochran's sample size formula for finite populations was applied:

$$N_0 = Z^2 \cdot p \cdot q / e^2$$

Where:

- $N_0$  = required sample size
- $Z$  = Z-value (e.g., 1.96 for 95% confidence level, 2.58 for 99% confidence)
- $p$  = estimated proportion of the attribute present in the population (commonly 0.5 if unknown, as it gives maximum variability)
- $q = 1 - p$
- $e$  = desired margin of error (e.g., 0.05 for  $\pm 5\%$ )

Thus, the statistically required sample size is approximately 309. The study has used 330 respondents, which is slightly higher than the minimum requirement, ensuring adequacy and reliability of results.

### 3.3: Hypothesis of the study

Null Hypothesis ( $H_0$ ):

The ANN model has no significant ability to classify borrowers into "Regular" and "Defaulter" categories.

Alternative Hypothesis ( $H_1$ ):

The ANN model has a significant ability to correctly classify borrowers into "Regular" and "Defaulter" categories.

### 3.4 Variables and measurement:

In this study, a binary dependent variable, default (Y), was used to predict the repayment status of borrowers, following the approach adopted by Agbemava et al. (2016). Table 3.1 presents the descriptive analysis of the variables included in the study:

$$Y = \begin{cases} 1 & \text{, if borrower is classified as defaulter.} \\ 0 & \text{, if borrower is classified as regular.} \end{cases}$$

Table 3.1: Descriptive analysis:

| Variables                                       | Type    | Description                                                               |
|-------------------------------------------------|---------|---------------------------------------------------------------------------|
| Age                                             | Scale   | Age of the borrower (years)                                               |
| Gender                                          | Scale   | Gender of the borrower                                                    |
| Caste                                           | Scale   | Caste of the borrower                                                     |
| Education                                       | Scale   | Education status of the borrower                                          |
| Occupation                                      | Scale   | Current employment status                                                 |
| Aggregate income                                | Scale   | Total income of the borrower                                              |
| Purpose of loan                                 | Nominal | Use of loan applied: Priority sector=1, Non-Priority Sector =2            |
| Time to visit                                   | Nominal | Loan disbursement duration                                                |
| Sufficiency of loan amount                      | Binary  | Did the borrower have prior credit sufficiently; yes=1, No=0              |
| Total loan repaid/ total loan outstanding Ratio | Nominal | Efficiency ratio = total loan amount repaid/ total amount of outstanding. |
| Fund Utilization                                | Scale   | Utilization of loan amount.                                               |
| Overdue                                         | Binary  | Overdue status of the borrower                                            |

|                                        |        |                                                   |
|----------------------------------------|--------|---------------------------------------------------|
| Repayment status ( Dependent Variable) | Binary | Credit status of a loan; Regular =0, Defaulter=1. |
|----------------------------------------|--------|---------------------------------------------------|

### 3.5 Empirical Models

The study uses two models for predicting credit defaulters either they are defaulter or regular and then compared their performances of two models. Firstly, The ANN is the process where data are connected to a network by an associated value known as “weight” (Youn and Gu, 2010a). The common ANN model is the multilayer perceptron (MLP) network (Ciampi and Gordini, 2013a) that is made up of (1) an input layer, (2) an output layer, and (3) one or more hidden layers between the input and output layers. Referring to Zhang et al. (1999), this study developed a three-layer MLP network, as shown below (fig.3.1):

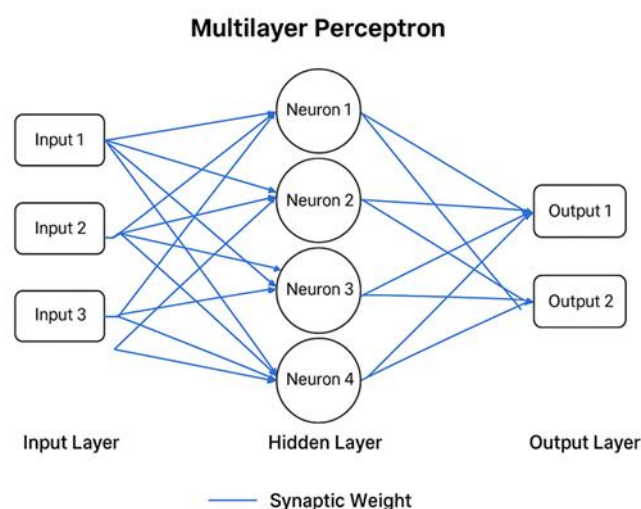


Figure 3.1: ANN model ( one hidden layer)

Artificial Neural Networks (ANNs) can be broadly defined as information processing systems that possess learning and generalization capabilities, enabling them to model complex patterns in data (Bahrammirzaee, 2010). According to Malhotra and Malhotra (2003), ANNs are non-linear models that utilize pattern recognition techniques for classification and prediction purposes. These models are particularly effective in capturing complex relationships between input and output variables, thereby facilitating pattern discovery and accurate forecasting. An ANN consists of a network of highly interconnected processing elements known as neurons or nodes (Malhotra & Malhotra, 2003; Lee & Chen, 2005). Typically, neural networks are structured into three main layers: an input layer, one or more hidden layers, and an output layer. This architecture is commonly referred to as a multilayer perceptron (MLP), which is widely applied in credit risk evaluation and classification problems (Tsai & Wu, 2008

Eftekhari (2005) has studied the performance of the ANN model and multivariate Logistic Regression (LR) model and found the accuracy of logistic model superior to ANN model. Len (2009), Ohlson (1980), Chen and Den (2009) and Geng et al., (2015) have used LR models for predicting financial difficulties in their studies. LR used in this study as :

**Repayment Status:**  $\beta_0 + \beta_1 \text{Age}_{it} + \beta_2 \text{Caste}_{it} + \beta_3 \text{Gender}_{it} + \beta_4 \text{Education}_{it} + \beta_5 \text{Occupation}_{it} + \beta_6 \text{AggregateIncome}_{it} + \beta_7 \text{Timetovisit}_{it} + \beta_8 \text{Sufficiency of loan}_{it} + \beta_8 \text{Total loan repaid/total outstanding ratio}_{it} + \beta_9 \text{Fundutilisation}_{it} + \beta_{10} \text{Purpose of Loan}_{it} + \beta_{11} \text{overdue}_{it}$ .

### 4. Empirical Result and Interpretation:

Before apply ANN model to analyse sample data, normality test of dependent variable (repayment Status) was conducted in the following table 4.1 (i)

#### 4.1. Tests of Normality for Repayment Status (Dependent Variable) of Borrowers

Table 4.1: (i) Result of Normality Test :  
Tests of Normality

|                  | Kolmogorov-Smirnov <sup>a</sup> |     |             | Shapiro-Wilk |     |             |
|------------------|---------------------------------|-----|-------------|--------------|-----|-------------|
|                  | Statistic                       | df  | Sig.        | Statistic    | df  | Sig.        |
| Repayment status | .529                            | 330 | <b>.000</b> | .348         | 330 | <b>.000</b> |

a. Lilliefors Significance Correction

Notes: Statistically significant values are in bold.

Table 4.1 (i) presents the results of the normality tests conducted on the variable Repayment Status using the Kolmogorov–Smirnov and Shapiro–Wilk tests. The Kolmogorov–Smirnov test result (Statistic = 0.529,  $p < 0.001$ ) and the Shapiro–Wilk test result (Statistic = 0.348,  $p < 0.001$ ) are both statistically significant. This indicates that the distribution of the repayment status variable significantly deviates from normality. Therefore, the data do not follow a normal distribution, and non-parametric statistical techniques are more appropriate for further analysis.

#### 4.2: Predicted Performance Analysis of sample borrowers using Artificial Neural Network Model (ANN)

Table 4.2 (i) represents that out of 330 valid borrower records, 230 cases (69.7%) were used for training the Artificial Neural Network (ANN), while 100 cases (30.3%) were used for testing the model. From a probability theory perspective, the training set is used to estimate the conditional probability distribution  $P(Y|X)$ , where Y is the repayment status and X represents borrower attributes such as income, age, education, and loan characteristics. The ANN learns these probabilities by adjusting its internal weights to minimize prediction error. The testing set acts as an independent random sample to evaluate how well the learned probability model generalizes to unseen data, ensuring that the model's predicted probabilities are reliable and not simply memorizing the training data.

Table 4.2: (i): Case Processing Summary for ANN Model (Training and Testing Samples)

| Case Processing Summary |          |     |         |
|-------------------------|----------|-----|---------|
|                         |          | N   | Percent |
| Sample                  | Training | 230 | 69.7%   |
|                         | Testing  | 100 | 30.3%   |
| Valid                   |          | 330 | 100.0%  |
| Excluded                |          | 0   |         |
| Total                   |          | 330 |         |

The following structure enables the ANN to learn patterns in socio-economic and loan-related variables and accurately classify the likelihood of regular or defaulter loan repayment status.

Table 4.2: (ii): Network Architecture and Learning Structure of the Artificial Neural Network (ANN)

| Input Layer     | Covariates                                     | 1                  | Age                                 |
|-----------------|------------------------------------------------|--------------------|-------------------------------------|
|                 |                                                | 2                  | Caste                               |
|                 |                                                | 3                  | Education                           |
|                 |                                                | 4                  | Occupation                          |
|                 |                                                | 5                  | Aggregate Income                    |
|                 |                                                | 6                  | Gender                              |
|                 |                                                | 7                  | Visit to bank                       |
|                 |                                                | 8                  | Fund Utilisation                    |
|                 |                                                | 9                  | Efficiency ratio                    |
|                 |                                                | 10                 | overdue                             |
|                 |                                                | 11                 | Purpose of loan                     |
|                 | Number of Units <sup>a</sup>                   | 11                 |                                     |
|                 | Rescaling Method for Covariates                | Standardized       |                                     |
| Hidden Layer(s) | Number of Hidden Layers                        | 1                  |                                     |
|                 | Number of Units in Hidden Layer 1 <sup>a</sup> | 7                  |                                     |
|                 | Activation Function                            | Hyperbolic tangent |                                     |
| Output Layer    | Dependent Variables                            | 1                  | Repayment status<br>(REPAYMNTSTSUS) |
|                 | Number of Units                                | 2                  |                                     |
|                 | Activation Function                            | Softmax            |                                     |
|                 | Error Function                                 | Cross-entropy      |                                     |

a. Excluding the bias unit

The following figure 4.1 shows the internal parameters (weights and biases) of a neural network model designed to predict repayment status. In this network, each input variable—such as age, caste, education and others—is connected to six neurons in a hidden layer. Each entry in the table under "Hidden Layer 1" represents the weight that links a specific input to a specific hidden neuron, indicating how much influence that input has on that neuron's activation. The bias values in this layer adjust the activation thresholds for each neuron. After processing through the hidden layer, each of the six neuron outputs is then passed to the final output layer, which has two output neurons representing repayment statuses (0.00 and 1.00). The weights connecting hidden neurons to output

neurons, as well as the output biases, determine the final prediction probabilities. In summary, the table quantitatively describes how each input feature and each hidden neuron contributes to the prediction of whether an individual will be categorized as having a repayment status of 0.00 or 1.00. Figure 4.1. Multilayer Perceptron (MLP) Neural Network Showing Input, Hidden, and Output Layers for the Prediction of Loan Repayment Status using socio-economic and loan related indicators:

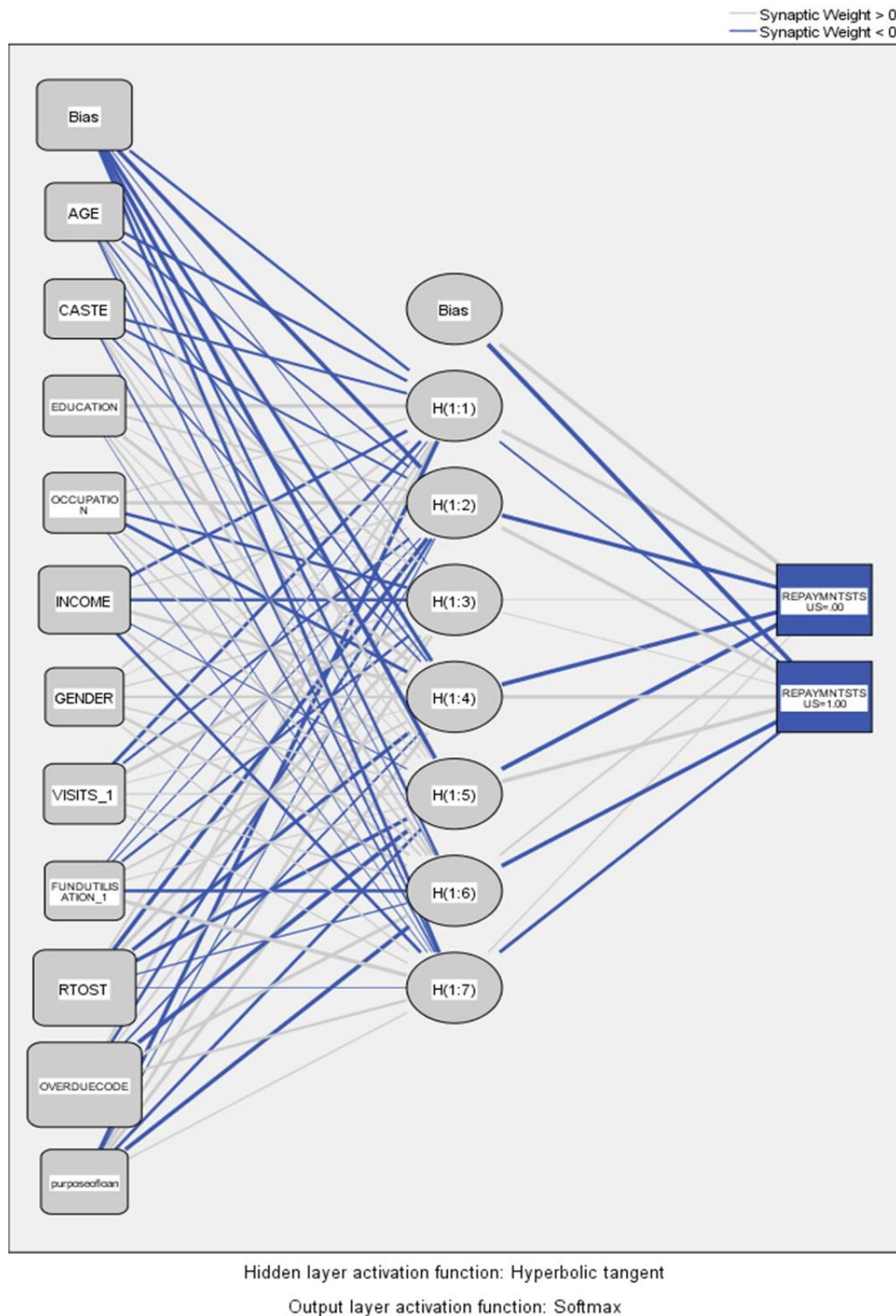


Figure 4.1: Neural network predicated repayment status model

Notes: RTOST= Total loan repaid/ total loan outstanding Ratio (Efficiency Ratio), OVERDUECODE= overdue amount.

The Artificial Neural Network (ANN) model was constructed using a multilayer perceptron architecture to classify the Repayment Status of borrowers. The model summary (Table 4.2 (iii)) indicates strong performance in both training and testing stages. During the training phase, the ANN achieved a Cross-Entropy Error of 11.281 with only 1.7% misclassification, demonstrating a high level of learning accuracy. The training process automatically halted after one consecutive step without a decrease in error, following the built-in early-stopping criteria designed to prevent over fitting (Haykin, 2009). The total training time recorded was 0.35 seconds, highlighting the computational efficiency of the model. When evaluated on the testing dataset, the ANN produced a Cross-Entropy Error of 13.283 and a misclassification rate of 3.0%, confirming its strong generalization capability to unseen data. Consistent with previous empirical studies that use ANN models for credit risk and repayment prediction (Zhang et al., 2019; West, 2000), the results reinforce the suitability of neural networks for classifying borrower Repayment Status.

Table 4.2: (iii).: Summary of the Artificial Neural Network for Predicting Borrowers' Repayment Status

| <b>Model Summary</b>                 |                               |                                                              |
|--------------------------------------|-------------------------------|--------------------------------------------------------------|
| Training                             | Cross Entropy Error           | 11.281                                                       |
|                                      | Percent Incorrect Predictions | 1.7%                                                         |
|                                      | Stopping Rule Used            | 1 consecutive step(s) with no decrease in error <sup>a</sup> |
|                                      | Training Time                 | 0:00:00.35                                                   |
| Testing                              | Cross Entropy Error           | 13.283                                                       |
|                                      | Percent Incorrect Predictions | 3.0%                                                         |
| Dependent Variable: Repayment Status |                               |                                                              |

a. Error computations are based on the testing sample.

Source: The Authors.

From table 4.2 (iv), the classification results demonstrate that the model performs well in predicting repayment status. In the training sample, the model correctly identified 98.6% of regular borrowers and 95.5% of defaulters, achieving an overall accuracy of 98.3%. While validation using the testing sample confirmed the robustness of the model, with 98.9% correct classification for regular borrowers and 83.3% for defaulters, and an overall accuracy of 97.0%.

Table 4.2: (iv) Classification results:

| <b>Classification</b> |                 |           |           |                 |
|-----------------------|-----------------|-----------|-----------|-----------------|
| Sample                | Observed        | Predicted |           |                 |
|                       |                 | Regular   | Defaulter | Percent Correct |
| Training              | Regular         | 205       | 3         | 98.6%           |
|                       | Defaulter       | 1         | 21        | 95.5%           |
|                       | Overall Percent | 89.6%     | 10.4%     | 98.3%           |
| Testing               | Regular         | 87        | 1         | 98.9%           |
|                       | Defaulter       | 2         | 10        | 83.3%           |

Overall Percent

89.0%

11.0%

97.0%

Dependent Variable: Repayment Status

Source: The Authors.

Figure 4.2 shows a diagram of the model's sensitivity and specificity (answers "Yes" and "No"), constructed based on training and testing of the network model. The 45-degree line from the upper right corner of the graph to the lower left represents a random guess of the answer. The more the curve deviates from the 45-degree reference line, the more accurate the classification. The measured area under the curve and the best score of 0.981 indicate that the MLP model has a very good ability to classify users depending on their answers ("Yes" and "No").

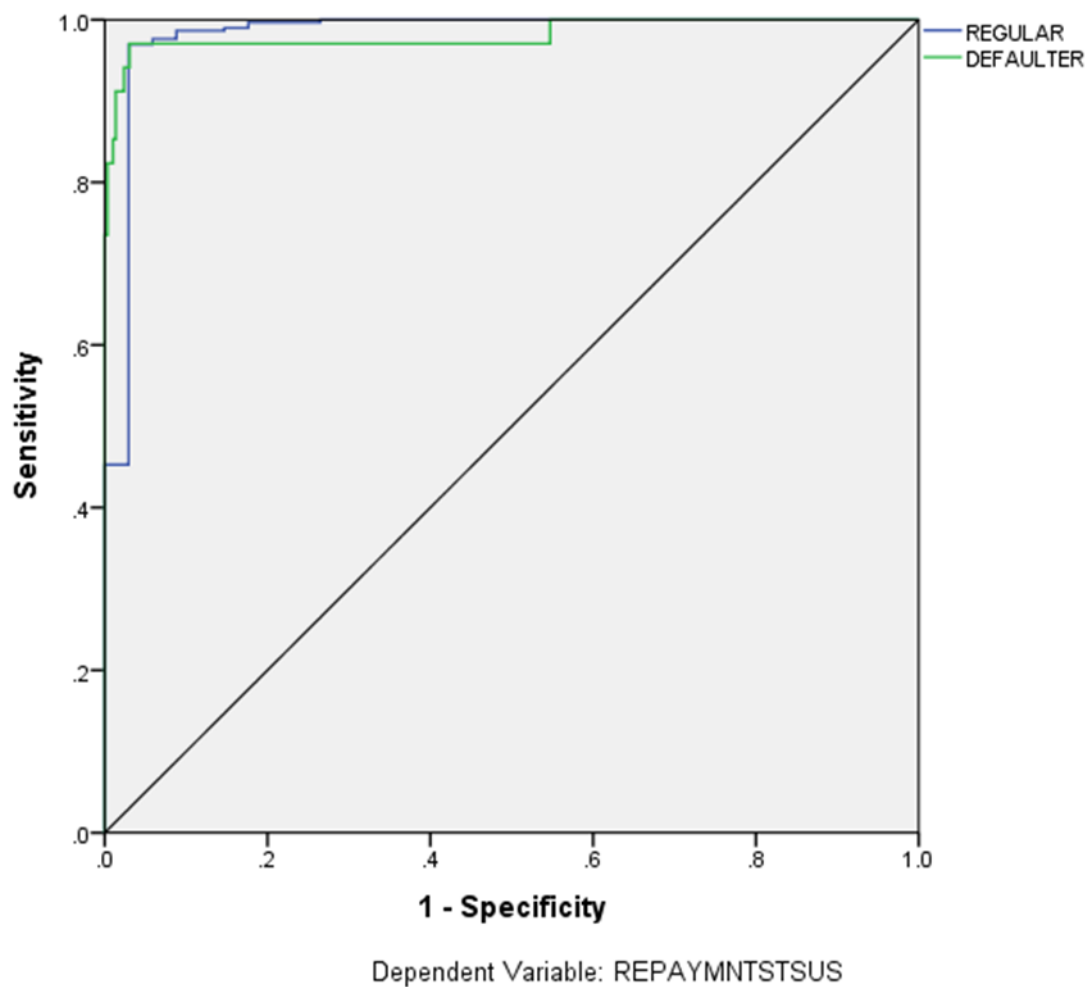


Figure 4.2: Area Under the Curve (AUC) for both *Regular* and *Defaulter* repayment status classifications: (0.981)

Note: REPAYMNTSTSUS= Repayment status of borrowers.

Source : The Authors.

Figure 4.2 reflects the sensitivity analysis of the observed predictors. Each of the input variables is ranked based on their degree of importance in predicting the output variable. An input variable was inferred to be a significant predictor if the variable's importance value was greater than 0.10 (Youn and Gu, 2010b).

#### 4.3. Comparison of Predicated results: Logistic Regression and ANN model

The data used to build the neural network model for predicting repayment status of borrowers was used for building a logistic regression model in order to verify the effectiveness of neural networks. Logistic regression has traditionally been one of the most widely used statistical models in banking and credit-risk analysis because of its interpretability, ability to handle categorical dependent variables, and robustness under minimal distributional assumptions (Menard, 2005; Flury, 1997). In recent years, however, machine-learning techniques—particularly the Multilayer Perceptron (MLP) form of Artificial Neural Networks (ANN)—have gained importance due to their capacity to learn complex, nonlinear relationships between borrower characteristics and loan-repayment outcomes. Unlike logistic regression, which assumes a linear association between predictors and the log-odds of default, MLP-ANN models use interconnected hidden layers to automatically capture nonlinearities and interaction effects without requiring prior specification (Haykin, 1999). Numerous studies have shown that ANN models often outperform traditional statistical methods in predicting credit default, classification accuracy, and risk segmentation because of their superior generalization and pattern-recognition ability (West, 2000; Kumar & Ravi, 2007). In the context of banking, combining logistic regression with MLP-ANN provides a complementary analytical framework: logistic regression offers interpretability and hypothesis testing of determinants of loan outcomes, while the ANN model enhances predictive performance, especially for complex borrower behaviour. Hence, using both approaches improves model reliability and strengthens decision-making in credit appraisal, loan-utilisation assessment, and repayment prediction. The predicted result of logistic regression is shown in Table 4.3 (i)

Table 4.3: (i) : Predicted Results of Logistic Regression :  
Classification Table<sup>a</sup>

|        |                  | Observed           |     | Predicted        |           |                    |  |
|--------|------------------|--------------------|-----|------------------|-----------|--------------------|--|
|        |                  |                    |     | Repayment status |           | Percentage Correct |  |
|        |                  |                    |     | Regular          | Defaulter |                    |  |
| Step 1 | Repayment Status | Regular            | 289 | 7                | 97.6      |                    |  |
|        |                  | Defaulter          | 4   | 30               | 88.2      |                    |  |
|        |                  |                    |     |                  |           |                    |  |
|        |                  | Overall Percentage |     |                  |           | 96.7               |  |

a. The cut value is .500

Source: The Authors.

From Table 4.3 (i) and table 4.2 (iv), it is evident that logistic regression is more accurate in predicting default loans than neural network model (88.2% vs. 83.3%). However, neural network performed better than logistic regression in classifying non default loans (98.9% vs. 97.6%). The results indicate that neural network is more powerful and accurate than logistic regression in screening non default loans.

## 5. Conclusion

In this paper it statistically proved that though the ANN model has predicated results of repayment status on the socio-economic indicators for sample Urban Cooperative Bank in Assam. It should be noted that in the training

sample, the model correctly identified 98.6% of regular borrowers and 95.5% of defaulters, achieving an overall accuracy of 98.3%. While validation using the testing sample confirmed the robustness of the model, with 98.9% correct classification for regular borrowers and 83.3% for defaulters, and an overall accuracy of 97.0%.

Again it is proved from the logistic regression, it is more accurate in predicting non default loans than neural network (88.2% vs. 83.3%) and neural network model performed better than logistic regression in classifying default loans (98.9% vs. 97.6%). The empirical findings support the alternative hypothesis ( $H_1$ ) and reject the null hypothesis ( $H_0$ ), indicating that the ANN model demonstrates a statistically significant and robust predictive capability in accurately classifying both regular and defaulter borrowers of Nagarik Samabay Bank.

In the context of limited number of Urban Cooperative Banks (UCBs) in Assam, it is important to analyze the predicted credit risk associated with borrowers' repayment behavior to ensure bank solvency and operational efficiency. In addition, advanced models such as Artificial Neural Networks (ANN) enhance the accuracy of prediction by effectively incorporating socio-economic indicators.

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## References

- Abdullah, N. A. H., Ahmad, A. H., Zainudin, N., & Md Rus, R. (2016a). Modelling small and medium-sized enterprises failure in Malaysia. *International Journal of Entrepreneurship and Small Business*, 28(1), 101–116.
- Abdullah, N. A. H., Ma'aji, M. M., & Khaw, K. L. H. (2016b). The value of governance variables in predicting financial distress among small and medium-sized enterprises in Malaysia. *Asian Academy of Management Journal of Accounting & Finance*, 12(Suppl. 1), 77–91.
- Agbemava, E., Nyarko, I. K., Adade, T. C., & Bediako, A. K. (2016). Logistic regression analysis of predictors of loan defaults by customers of non-traditional banks in Ghana. *European Scientific Journal*, 12(1).
- Alaka, H., Oyedele, L. O., Owolabi, H., Kumar, V., Ajayi, S. O., Akinadé, O. O., & Bilal, M. (2018). Systematic review of bankruptcy prediction models: Towards a framework for tool selection. *Expert Systems with Applications*, 94, 164–184.
- Altman, E. I. (1968). Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *The Journal of Finance*, 23(4), 589–609.
- Altman, E. I., Marco, G., & Varetto, F. (1994). Corporate distress diagnosis: Comparisons using linear discriminant analysis and neural networks. *Journal of Banking & Finance*, 18(3), 505–529.
- Altman, E. I., & Sabato, G. (2007). Modelling credit risk for SMEs: Evidence from the U.S. market. *Abacus*, 43(3), 332–357.
- Altman, E. I., Sabato, G., & Wilson, N. (2010). The value of non-financial information in SME risk management. *Journal of Credit Risk*, 6(2), 95–127.
- Altunöz, U. (2024). Prediction of banking credit risk using logistic regression and artificial neural network models: A case study of English banks. *Sosyal Araştırmalar ve Davranış Bilimleri*, 10(21), 862–887.
- Angelini, E., Di Tollo, G., & Roli, A. (2008). A neural network approach for credit risk evaluation. *The Quarterly Review of Economics and Finance*, 48(4), 733–755.
- Bahrammirzaee, A. (2010). A comparative survey of artificial intelligence applications in finance. *Neural Computing and Applications*, 19(8), 1165–1195.
- Baesens, B., Setiono, R., Mues, C., & Vanthienen, J. (2003). Using neural network rule extraction and decision tables for credit-risk evaluation. *Management Science*, 49(3), 312–329.
- Beaver, W. H. (1966). Financial ratios as predictors of failure. *Journal of Accounting Research*, 4, 71–111.

- Boguslauskas, V., & Mileris, R. (2009). Estimation of credit risk by artificial neural networks models. *Engineering Economics*, 64(4).
- Charitou, A., Neophytou, E., & Charalambous, C. (2004). Predicting corporate failure: Empirical evidence for the UK. *European Accounting Review*, 13(3), 465–497.
- Chen, W. S., & Du, Y. K. (2009). Using neural networks and data mining techniques for financial distress prediction. *Expert Systems with Applications*. <https://doi.org/10.1016/j.eswa.2008.03.020>
- Ciampi, F. (2015). Corporate governance characteristics and default prediction modeling for small enterprises. *Journal of Business Research*, 68(5), 1012–1025.
- Ciampi, F., & Gordini, N. (2013a). Small enterprise default prediction modeling through artificial neural networks. *Journal of Small Business Management*, 51(1), 23–45.
- Ciampi, F., & Gordini, N. (2013b). The potential of corporate governance variables for small enterprise default prediction modeling. *SSRN Electronic Journal*.
- Eftekhari, B., Mohammad, K., Ardebili, H. E., Ghodsi, M., & Ketabchi, E. (2005). Comparison of artificial neural network and logistic regression models for prediction of mortality. *BMC Medical Informatics and Decision Making*. <https://doi.org/10.1186/1472-6947-5-3>
- Gemar, G., Soler, I. P., & Guzman-Parra, V. F. (2019). Predicting bankruptcy in resort hotels. *International Journal of Contemporary Hospitality Management*, 31(4), 1546–1566.
- Gu, Z. (2002). Analyzing bankruptcy in the restaurant industry. *International Journal of Hospitality Management*, 21(1), 25–42.
- Haykin, S. (2009). *Neural networks and learning machines* (3rd ed.). Pearson.
- Hu, Y., & Su, J. (2022). Credit risk evaluation using ANN. *Procedia Computer Science*, 199, 1168–1176.
- Jackson, R. H. G., & Wood, A. (2013). The performance of insolvency prediction models. *The British Accounting Review*, 45(3), 183–202.
- Kaski, S., Sinkkonen, J., & Peltonen, J. (2001). Bankruptcy analysis with self-organizing maps. *IEEE Transactions on Neural Networks*, 12(4), 936–947.
- Khermkhan, J., & Chancharat, S. (2013). Failure forecasting in Thai SMEs. *Asian Business & Management Conference Proceedings*, 25–33.
- Kim, H., & Gu, Z. (2006). Logistic regression analysis for predicting bankruptcy. *Journal of Hospitality Financial Management*, 14(1), 17–34.
- Kim, M. J., & Kang, D. K. (2010). Ensemble with neural networks for bankruptcy prediction. *Expert Systems with Applications*, 37(4), 3373–3379.
- Kim, S. Y. (2011). Prediction of hotel bankruptcy. *The Service Industries Journal*, 31(3), 441–468.
- Kim, S. Y. (2018). Predicting hospitality financial distress. *Service Business*, 12(3), 483–503.
- Kitawa, Y. S., & Teriye, N. D. (2015). Loan repayment efficiency analysis. *American Journal of Theoretical and Applied Statistics*, 4(6), 562–575.
- Kubat, M. (1999). *Neural networks: a comprehensive foundation* by Simon Haykin, Macmillan, 1994, ISBN 0-02-352781-7. *The Knowledge Engineering Review*, 13(4), 409–412.
- Kumar, M., Goel, V., Jain, T., Singhal, S., & Goel, M. L. (2018). Neural network approach to loan default prediction. *IRJET*, 5(4), 4231–4234.
- Lee, T. S., & Chen, I. F. (2005). Hybrid credit scoring model using ANN. *Expert Systems with Applications*, 28(4), 743–752.
- Lin, T. H. (2009). A cross model study of corporate financial distress prediction in Taiwan: Multiple discriminant analysis, logit, probit and neural networks models. *Neurocomputing*, 72(16–18), 3507–3516.
- Malhotra, R., & Malhotra, D. K. (2003). Evaluating consumer loans using neural networks. *Omega*, 31(2), 83–96.
- Mohammadi, N., & Zangeneh, M. (2016). Customer credit risk assessment using ANN. *International Journal of Information Technology and Computer Science*, 8(3), 58–66.
- Ohlson, J. A. (1980). Financial ratios and bankruptcy prediction. *Journal of Accounting Research*, 18(1), 109–131.
- Pramodh, C., & Ravi, V. (2007). Neural network for bankruptcy prediction. *International Journal of Computational Intelligence Research*, 3(4), 363–371.
- Shachmurove, Y. (2002). Applying artificial neural networks to business. *Penn CARESS Working Papers*, 1–47.
- Singh, J., & Banerjee, R. (2019). Single and multilayer perceptron neural network study. *ICCMC Proceedings*, 35–40.
- Sinkey, J. F. (1975). Multivariate analysis of problem banks. *The Journal of Finance*, 30(1), 21–36.
- Sung, T. K., Chang, N., & Lee, G. (1999). Bankruptcy prediction modeling. *Journal of Management Information Systems*, 16(1), 63–85.
- Teles, G., Rodrigues, J. J. P. C., Rabê, R. A., & Kozlov, S. A. (2020). ANN and Bayesian models for credit risk. *Journal of Artificial Intelligence and Systems*, 2(1), 118–132.
- Terdpapong, K., & Mihret, D. G. (2011). SME credit risk modeling. *Small Enterprise Research*, 18(1), 63–79.
- West, D. (2000). Neural network credit scoring models. *Computers & Operations Research*, 27(11–12), 1131–1152.
- Wellalage, N. H., & Locke, S. (2012). SME bankruptcy factors. *Business Journal for Entrepreneurs*, 1–17.

- Youn, H., & Gu, Z. (2010a). ANN vs logistic regression. *Tourism and Hospitality Research*, 10(3), 171–187.
- Youn, H., & Gu, Z. (2010b). Predicting lodging firm failures. *International Journal of Hospitality Management*, 29(1), 120–127.
- Zhai, S. S., Choi, J. G., & Kwansa, F. (2015). Financial ratio-based prediction model. *Global Business and Finance Review*, 20(1), 71–86.
- Zhang, G., Hu, M. Y., Patuwo, B. E., & Indro, D. C. (1999). ANN in bankruptcy prediction. *European Journal of Operational Research*, 116(1), 16–32.
- Zhang, G. P. (1998). Forecasting with artificial neural networks. *International Journal of Forecasting*, 14, 35–62.
- Zhang, Y., Wang, S., & Phillips, P. (2019). Credit risk prediction using ANN. *Applied Soft Computing*, 78, 138–147.
- Zhu, Y., Xie, C., Sun, B., Wang, G. J., & Yan, X. G. (2016). SME credit risk prediction. *Sustainability*, 8(5), 433.

# Exploring the Motivation, Opportunity, and Ability Factors in Fostering Franchising Intention of SMEs in Oman

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## Abstract

**Background:** Franchising is considered one of the most significant mechanisms of unlimited investment in the modern era and has increasingly expanded across various countries worldwide. The franchising sector in the Sultanate of Oman is witnessing a rapid institutional movement aimed at empowering national brands under Vision 2040. However, a significant "practical gap" emerges between the scale of intensive technical support and the behavioral readiness of local entrepreneurs. **Objective:** This study aims to investigate the dynamics of the Omani institutional framework in the franchising sector, specifically identifying the "practical gap" between standardized technical empowerment (manuals and legal documentation) and the behavioral/leadership readiness of Omani SME owners as a fundamental pillar for long-term operational sustainability. **Methodology:** A descriptive methodology employing a cross-sectional design was adopted, with data collected via a structured questionnaire from a sample of 219 SME owners in Oman. Data were analyzed using SPSS (v. 27), utilizing descriptive statistics (means, standard deviations, RII) and inferential analyses (t-tests, ANOVA, and Bonferroni post-hoc tests). These findings were triangulated with a qualitative document analysis of the OCCI's "2026 5th Edition Tender" within the "Motivation, Ability, and Opportunity" (MOA) framework. **Results:** The findings revealed that participants' perceptions across the study axes were generally at a medium level, with the "Opportunities" axis recording the highest Relative Importance Index (RII = 0.592), followed by Ability (0.457) and Motivation (0.415). These results underscore a qualitative "practical gap"; despite the high perception of institutional opportunities (legislation and financing), the relatively lower scores for ability and motivation suggest that current "technical qualification" is not yet matched by sufficient "behavioral qualification." Statistically significant differences were found favoring males, older participants with prior experience, and the restaurants/cafes sector, indicating that behavioral readiness varies significantly across demographic and sectoral variables. **Conclusion:** The study concludes that Omani SMEs generally exhibit a neutral or slightly unfavorable perception toward franchising, with limited endorsement of its quantitative advantages such as increased profits and low-risk expansion. The analysis also highlights a notable influence of demographic characteristics, with males, experienced individuals, and those in the restaurants and cafés sector demonstrating more positive attitudes. Consequently, the study posits that bridging the "practical gap" requires the adoption of a strategic model prioritizing "behavioral qualification" as a proactive and essential prerequisite for achieving operational sustainability, emphasizing the need to develop behavioral readiness indicators prior to initiating technical support.

**Keywords:** Franchising, SME, Oman

## 1. Introduction

Small and Medium Enterprises (SMEs) represent the backbone and primary engine of growth in contemporary business communities, constituting the vast majority of active economic entities in global markets. The fundamental significance of these enterprises stems from their superior adaptability to economic fluctuations, low barriers to market entry due to flexible operational costs, and their precise specialization in filling niche service and product gaps often overlooked by large corporations. As noted by Al-Naas (2018), these attributes have motivated a broad segment of youth toward entrepreneurship as a strategic path for national economic development and financial independence. However, a persistent challenge remains: these enterprises operate as "open systems," highly sensitive to both internal and external environmental disruptions. This reality compels their leaders to seek innovative and sustainable managerial models that ensure not only survival but also accelerated growth and market penetration.

Faced with structural challenges that impede SME growth, franchising emerges as a sophisticated economic and engineering mechanism that integrates the institutional strength of large corporations with the field-level flexibility of smaller ventures. The International Franchise Association (IFA, 2001) defines this system as a legal license and agreement granting a party the right to utilize another's commercial identity and business system. This concept has evolved into an integrated package of technical knowledge transfer (Know-how) and legal obligations that ensure standardized quality (Aziz & Mohsen, 2024). The global momentum of franchising is attributed to its unique capacity for highly efficient capital allocation and the creation of extensive distribution networks that achieve competitive advantages difficult to attain individually (Jumadildayeva & Usanova, 2015). Consequently, franchising is not merely a distribution method but a strategic approach to extending the life cycle of successful enterprises and maximizing profitability through low-risk expansion.

The Sultanate of Oman places exceptional strategic emphasis on the franchising sector, which has undergone a fundamental institutional shift reflecting industrial maturity. While initiatives were previously centralized within the SMEs Development Authority (Riyada), the weight of regulatory leadership has now transitioned to the Oman Chamber of Commerce and Industry (OCCI), specifically through the Oman Franchise Center. Currently, the center leads this industrial transformation through ambitious programs and strategic tenders, most notably the 5th edition tender (2026), targeting the qualification of up to 30 national brands. Despite this momentum, institutional focus remains almost entirely on "technical and documentation qualification" through the preparation of operational manuals and contracts, with a clear oversight regarding the "behavioral qualification" of the entrepreneur. Parallel to this, independent initiatives are emerging in the Omani market, where brands develop their franchise packages through private consulting firms at their own expense, outside the institutional umbrella. This trend underscores the urgent need to standardize behavioral readiness criteria and ensure their alignment with technical qualification outcomes to guarantee the success of these investments.

The primary aim of this study is to explore and analyze the role of Motivation, Opportunity, and Ability (MOA) factors in shaping the franchising readiness and strategic orientation of SMEs in Oman, with a specific focus on bridging the gap between institutional support and behavioral practice.

This study derives its value from being a robust research response to the accelerating economic movement in the Sultanate of Oman. This study enriches both Arabic and international academic literature on the MOA framework by applying it to franchising in emerging markets. The scientific value lies in synthesizing a theoretical framework that integrates intrinsic motivations, environmental opportunities, and behavioral abilities (Quang & Truong-Thi, 2023; Kim & Lee, 2020). This addresses a research gap regarding the factors influencing the sustainability of national brands, moving beyond traditional statistical "intention to adopt" studies. The study provides a strategic "roadmap" for the Oman Chamber of Commerce and Industry (OCCI) and the Oman Franchise Center. The findings assist in redesigning qualification programs and government tenders (such as the 5th edition 2026). By highlighting the "practical gap," the study enables policymakers to design support initiatives focusing on the "behavioral and leadership qualification" of entrepreneurs alongside technical and legal support, ensuring the efficiency of government investment expenditure.

The significance of this research lies in its ability to analyze the variance in readiness and strategic orientations based on demographic variables (gender, age, experience) and sectoral factors (e.g., the restaurants and cafes sector). Understanding these nuances contributes to providing "tailored" recommendations that help stakeholders direct resources toward sectors most prepared for international expansion, rather than employing generic solutions that overlook the specificity of each business activity.

This research directly aligns with the objectives of "Oman Vision 2040," which aims to diversify income sources and increase the contribution of Small and Medium Enterprises (SMEs) to the GDP. By promoting a franchising culture built on behavioral readiness, the study facilitates transforming Omani enterprises into cross-border national assets, thereby reducing operational failure risks and enhancing In-Country Value (ICV) within the national economy.

Given that research on franchising intentions and readiness in Oman is still in its nascent stages, this study gains particular significance by highlighting the unique Omani cultural and economic context. Furthermore, it opens new avenues for future exploration of "moderating effects" of demographics and investigating post-franchising performance and its long-term impact on the local economy, thereby providing a comprehensive and qualitative understanding of the sector.

## 2. Literature Review & Theoretical Framework

In contemporary literature, the concept of franchising has traversed its role as a mere legal mechanism for product distribution, evolving into a comprehensive "Business Format Franchising" system based on the transfer of "Technical Know-how" and commercial reputation. Studies (Ali, 2022; Mustafa, 2022; Aziz & Mohsen, 2024) emphasize that the essence of this system lies in the "continuous contractual relationship" between the franchisor and the franchisee. The franchisor provides ongoing technical support and supervision, while the franchisee adheres to strict operational standards in exchange for specific fees. Within the Omani context, this model is pivotal for empowering national brands, facilitating their transformation from fragile individual ventures into sustainable value-chain enterprises capable of regional and international competition.

Existing literature (Timothy, 2018; Abdelkader et al., 2020) converges on the fact that franchising represents a low-risk growth strategy for SMEs, allowing expansion without the need for massive capital investments. This sector contributes between 4-5% of the GDP in advanced economies like the USA (IFA, 2025). For emerging markets, franchising functions as a mechanism for technology transfer, enhancing the efficiency of local supply chains, and generating sustainable employment. This makes it a fundamental pillar in economic diversification plans, such as Vision 2040, aimed at reducing reliance on traditional sectors.

This study adopts the Motivation, Ability, and Opportunity (MOA) framework as an integrated analytical system to explain the behavioral readiness of Omani entrepreneurs. The framework is based on the premise that "strategic action" (adopting franchising) is the result of the intersection of three dimensions: motivation, opportunity, and ability.

Motivation refers to the intrinsic and extrinsic drivers (e.g., expansion goals, profit maximization, or social prestige) that propel the entrepreneur toward franchising (Dant et al., 2021) while opportunity encompasses environmental factors, the regulatory landscape, and institutional support provided by the state (e.g., Oman Franchise Center initiatives), which lower market entry barriers (Carpenter & Nakamoto, 2020). Currently, SMEs have become indispensable in all economies, as they can be described as a driving force for business, growth, innovation and competitiveness. They are also very important employers, as SMEs create and provide new, high-quality job opportunities and help reduce unemployment and poverty rates (Brezinova, 2021). Improving the performance of SMEs companies is a crucial element in the continuity of the work of these companies, their growth, and their increasing ability to achieve prosperity and development.

Performance is considered one of the central concepts in modern administrative thought, as it represents the ultimate outcome of individual and collective efforts within an organization and reflects the actual level of achievement in relation to predetermined objectives. As noted by Zaadoud and Chbab (2021), performance is not limited to the outcome of human effort alone; rather, it reflects the effectiveness of the work system in transforming efforts into tangible results. From this perspective, performance is viewed as a cumulative product of the interaction among multiple elements, including operational efficiency, financial and human resources, leadership systems, and the organizational environment within which the institution operates. Furthermore, Alvi et al. (2020) argue that organizational performance constitutes the overall expression of an organization's ability to achieve its strategic and operational objectives through the effective utilization of its resources to attain a balanced combination of financial growth, service quality, beneficiary satisfaction, and organizational sustainability.

In addition to the original dimensions of the MOA framework (Motivation, Opportunity, and Ability), this study incorporates the variable of perceived performance enhancement. This variable was added because franchising intention among SMEs is not only influenced by internal motivation, available opportunities, and organizational abilities, but also by the extent to which business owners believe that franchising can improve organizational performance, profitability, market expansion, and long-term sustainability. Therefore, perceived performance enhancement serves as an important explanatory factor that strengthens the understanding of franchising intention within the Omani SME context.

Finally, ability is the core pillar of this research, including both technical competencies (contracts and manuals) and behavioral readiness (leadership and delegation). The study posits that an imbalance between these three dimensions explains the "practical gap" observed in the Omani market (Elango et al., 2019). **The Omani Context: Between Institutional Initiatives and the Behavioral Gap**

At the national level in the Sultanate of Oman, **to empower national brands** Small and Medium Enterprises (SMEs) have received extraordinary government attention since 2014, through the establishment of the Rafad fund and "Riyada" initiatives, culminating in the current strategic shift led by the Oman Chamber of Commerce and Industry (OCCI) via the Oman Franchise Center. The "Franchise Consultancy and Qualification Program Tender - 5th Edition 2026" (Tender No. 3/2026) aims to qualify a minimum of 26 brands, with an option to reach 30, reflecting a desire to create a "Critical Mass" of Omani companies ready for granting franchises. Allocating 70% of the weight to technical evaluation versus 30% for financial evaluation reflects an institutional awareness of the necessity for high-quality consultancy outputs and ensuring their alignment with international standards. The tender document obligates consultancy firms to undertake highly complex technical tasks, including: Building Operational Structures: Developing manuals covering all aspects of quality, health, safety, and operations, Legal Framework: Drafting franchise contracts to protect intellectual property rights and ensure compliance and, Designing Support Systems: Establishing ongoing support mechanisms for franchisees.

Despite the institutional momentum and technical support manifested in successive government tenders, a "developmental paradox" persists in the Omani context, where the actual expansion and regional growth of national brands remain modest relative to the scale of support provided. A critical gap exists between technical qualification and actual implementation. Although brands may possess well-developed operational manuals, effective execution often fails due to the absence of a corresponding behavioral culture of discipline within the franchisor. Thus, the core issue is not the quality of technical documentation, but the behavioral readiness of the individual managing it. Existing qualification processes emphasize the "tool" while neglecting the "user," implicitly assuming that the franchisor is capable of enforcing discipline, monitoring, and delegation. However, without this behavioral capacity, operational manuals remain ineffective, highlighting an overlooked dimension that this study seeks to address.

The core of the problem lies in the fact that institutional efforts focus heavily on "providing opportunities" (Opportunities) through legislation and financing, and "technical capabilities" (Technical Ability) through the preparation of manuals and contracts. However, they largely overlook the "Behavioral Readiness and Motivation" of the Omani entrepreneur. This imbalance within the (MOA) framework may lead to wasteful expenditure on

consultancy services for creating operational manuals that remain "ink on paper" due to the brand owners' inability or reluctance to shift from "individualized management" to "standardized leadership."

### **3. Methodology**

#### *3.1. Research Approach*

This study adopts a cross-sectional quantitative research design. A structured survey was employed as the primary data collection instrument to measure the key constructs derived from the Motivation, Opportunity, and Ability (MOA) framework. This approach enables the examination of relationships among variables and the assessment of differences across SME sectors in Oman. The quantitative design was deemed appropriate for capturing and analyzing measurable patterns related to franchising intention and its influencing factors within the Omani SME context.

#### *3.2. Study Population*

The target population of this study consists of small and medium-sized enterprises (SMEs) operating in Oman across various sectors, including retail trade, restaurants and cafés, services, and industry. The study focused on owners, managers, and key decision-makers within these SMEs, as they are the most knowledgeable individuals regarding strategic decisions such as franchising intention and organizational development. The selection of this population is justified by their direct involvement in business planning and performance-related decisions, which are central to the objectives of this study.

#### *3.3. Sample Procedures*

A purposive sampling technique was adopted to ensure that only relevant respondents who meet the study criteria were included. The survey was designed using Google Forms and distributed electronically to SME owners and managers through professional networks and business contacts across Oman. A total of 219 valid responses were collected and deemed sufficient for statistical analysis, as they meet the minimum requirement for conducting reliable quantitative analysis in cross-sectional survey research and allow for meaningful examination of relationships among variables. The use of online distribution facilitated wider geographical coverage and efficient data collection within a limited time frame.

#### *3.4. Measures*

The first section of the questionnaire focused on the demographic characteristics of the respondents, including gender, age, education level, business type, prior franchising experience, and years of experience. The measurement items used in this study were carefully developed based on relevant theoretical foundations and previous empirical studies in the field of SMEs and franchising intention, including (Truong-Thi, 2022), (Orgonáš et al., 2020), (Timothy, 2018), (Brezinova, 2021), (Abd Aziz et al., 2021), (Kamar & Alsetoohy, 2021), and (Ndonga, 2014).

The second section measured the main constructs of the study based on the Motivation, Opportunity, and Ability (MOA) framework, in addition to the perceived performance enhancement variable. Motivation was measured using 22 items, Opportunity using 21 items, Ability using 22 items, and Perceived Performance Enhancement using 15 items. A five-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree was used to capture respondents' perceptions and evaluate their level of agreement with each statement.

The questionnaire was initially developed in English and then translated into Arabic to ensure clarity and suitability for the target respondents in Oman. A back-translation procedure was subsequently applied to ensure linguistic and conceptual equivalence between the two versions. The translated questionnaire was carefully reviewed to ensure consistency and clarity of meaning, thereby enhancing its validity and reliability for data collection in the current study.

### 3.5. Data Analysis Procedures

Data were coded and analyzed using SPSS version 27. Descriptive statistics (frequencies, percentages, means, standard deviations, and Relative Importance Index - RII) were used to summarize the responses. t-tests to capture gender and franchising experience and One-Way ANOVA was conducted for age, qualification, business type, and experience, with Bonferroni post-hoc tests applied where significant differences emerged. Internal consistency was evaluated using Cronbach's Alpha and corrected item-total correlations.

### 3.6. Ethical Considerations

The study adhered to strict ethical standards, ensuring informed consent, voluntary participation, confidentiality, and secure data handling. Participants were fully briefed on the study's purpose and their rights, with all identifying data anonymized. Data were used solely for research purposes, and transparency was maintained throughout the process.

### 3.7. Validity and Reliability

The questionnaire's validity and reliability were systematically evaluated. Content validity was ensured through literature-based item development aligned with the MOA framework. Construct validity was confirmed via significant corrected item-total correlations, demonstrating strong internal consistency across all scales.

Table 1: Item-Total Correlations for Study Axes Items

| Motivational Factors |                         | Opportunities |                         | Ability   |                         | Performance Enhancement |                         |
|----------------------|-------------------------|---------------|-------------------------|-----------|-------------------------|-------------------------|-------------------------|
| Items No.            | Correlation Coefficient | Items No.     | Correlation Coefficient | Items No. | Correlation Coefficient | Items No.               | Correlation Coefficient |
| 1                    | .376**                  | 1             | .821**                  | 1         | .652**                  | 1                       | .632**                  |
| 2                    | .577**                  | 2             | .844**                  | 2         | .855**                  | 2                       | .830**                  |
| 3                    | .763**                  | 3             | .876**                  | 3         | .880**                  | 3                       | .877**                  |
| 4                    | .811**                  | 4             | .867**                  | 4         | .834**                  | 4                       | .811**                  |
| 5                    | .842**                  | 5             | .872**                  | 5         | .829**                  | 5                       | .808**                  |
| 6                    | .431**                  | 6             | .878**                  | 6         | .692**                  | 6                       | .807**                  |
| 7                    | .639**                  | 7             | .841**                  | 7         | .757**                  | 7                       | .787**                  |
| 8                    | .784**                  | 8             | .903**                  | 8         | .881**                  | 8                       | .841**                  |
| 9                    | .790**                  | 9             | .892**                  | 9         | .864**                  | 9                       | .879**                  |
| 10                   | .800**                  | 10            | .838**                  | 10        | .783**                  | 10                      | .781**                  |
| 11                   | .537**                  | 11            | .886**                  | 11        | .668**                  | 11                      | .753**                  |
| 12                   | .567**                  | 12            | .882**                  | 12        | .825**                  | 12                      | .850**                  |
| 13                   | .828**                  | 13            | .862**                  | 13        | .839**                  | 13                      | .838**                  |
| 14                   | .833**                  | 14            | .874**                  | 14        | .836**                  | 14                      | .855**                  |
| 15                   | .742**                  | 15            | .886**                  | 15        | .849**                  | 15                      | .856**                  |
| 16                   | .516**                  | 16            | .868**                  | 16        | .781**                  |                         |                         |
| 17                   | .745**                  | 17            | .880**                  | 17        | .830**                  |                         |                         |
| 18                   | .808**                  | 18            | .874**                  | 18        | .827**                  |                         |                         |
| 19                   | .775**                  | 19            | .865**                  | 19        | .802**                  |                         |                         |
| 20                   | .780**                  | 20            | .873**                  | 20        | .799**                  |                         |                         |
| 21                   | .695**                  | 21            | .868**                  | 21        | .826**                  |                         |                         |
| 22                   | .811**                  | 22            | .884**                  | 22        | .784**                  |                         |                         |

Note. \*\*  $p < .01$ .

Reliability, focusing on internal consistency, was assessed via Cronbach's Alpha coefficients. The results, detailed in Table 2, indicated excellent reliability for all scales ( $\alpha \geq .947$ ), confirming that the questionnaire provided consistent and dependable measurements of the intended constructs within this study's sample.

Table 2: Internal Consistency Reliability (Cronbach's Alpha) for Study Axes

| Axis                    | Number of items | Cronbach's Alpha | Reliability Level |
|-------------------------|-----------------|------------------|-------------------|
| Motivational Factors    | 22              | 0.950            | Excellent         |
| Opportunities           | 22              | 0.985            | Excellent         |
| Ability                 | 22              | 0.947            | Excellent         |
| Performance Enhancement | 15              | 0.963            | Excellent         |
| All items               | 81              | 0.978            | Excellent         |

Note. Reliability levels based on common interpretation guidelines (>.9=Excellent, >.8=Good, >.7=Acceptable).

#### 4. Results

The study sample (N = 219) was predominantly male (75.3%) and largely composed of individuals under the age of 40, with nearly half (49.3%) aged below 30. Most participants held a Bachelor's degree (48.9%) or a Higher Diploma (19.2%). In terms of business activity, the majority operated within the restaurant and café sector (64.8%), while smaller proportions represented retail, services, and industry. Notably, 93.6% of respondents had no prior experience in franchising, and nearly half reported less than five years of experience in their current field. Overall, the sample reflects a young, relatively inexperienced group of SME owners or managers who are largely new to the franchising model.

Table 3: Frequency Distribution of Participant Demographic Characteristics (Total No 219)

| Variable                        | Category                     | N   | %     |
|---------------------------------|------------------------------|-----|-------|
| Gender                          | Male                         | 165 | 75.3  |
|                                 | Female                       | 54  | 24.7  |
| Age                             | Less than 30 years old       | 108 | 49.3% |
|                                 | 30 to less than 40 years old | 73  | 33.3% |
|                                 | 40 to less than 50 years old | 26  | 11.9% |
|                                 | 50 years old and above       | 12  | 5.5%  |
| Qualification                   | General Diploma              | 35  | 16.0% |
|                                 | Higher Diploma               | 42  | 19.2% |
|                                 | Bachelor's Degree            | 107 | 48.9% |
|                                 | Postgraduate Studies         | 35  | 16.0% |
| Type of Business Activity       | Services                     | 21  | 9.6%  |
|                                 | Industry                     | 14  | 6.4%  |
|                                 | Restaurants and Cafés        | 142 | 64.8% |
|                                 | Retail Trade                 | 42  | 19.2% |
| Previous Franchising Experience | No                           | 205 | 93.6  |
|                                 | Yes                          | 14  | 6.4   |

| Variable                     | Category                 | N   | %     |
|------------------------------|--------------------------|-----|-------|
| Years of Experience in Field | Less than 5 years        | 108 | 49.3% |
|                              | 5 to less than 10 years  | 76  | 34.7% |
|                              | 10 to less than 15 years | 23  | 10.5% |
|                              | 15 years or more         | 12  | 5.5%  |

#### 4.1. Descriptive Statistics and Relative Importance Index (RII)

Descriptive analysis of the motivational factors influencing franchising intentions among Omani SMEs is presented in Table 4. Results revealed an overall moderate level of perceived importance ( $M = 2.08$ ,  $RII = 0.415$ ). Participants generally expressed neutrality or mild disagreement regarding the role of these factors as motivators. The highest-rated items—such as reducing financial risks, enabling regional/global expansion, and offering managerial support—were still within the medium range. In contrast, traditionally strong motivators like profitability, brand reputation, and long-term financial returns received the lowest ratings, categorized as medium-low. These findings suggest that motivational drivers are not strongly endorsed by the sample, indicating limited enthusiasm toward franchising as a strategic choice.

Table 4: Descriptive Statistics and Relative Importance Index for Motivational Factors

| Item No. | Statement                                                                             | M    | SD   | RII   | Important levels |
|----------|---------------------------------------------------------------------------------------|------|------|-------|------------------|
| 1        | Profits and financial returns are a key motivator.                                    | 1.75 | 0.61 | 0.351 | M-L              |
| 2        | Offers opportunities for growth and expansion with minimal risk.                      | 1.91 | 0.70 | 0.383 | M-L              |
| 3        | Helps in building a strong commercial reputation with ease.                           | 2.00 | 0.69 | 0.399 | M-L              |
| 4        | Existence of proven operational/management systems reduces difficulties.              | 2.08 | 0.89 | 0.416 | M                |
| 5        | Contributes to reducing financial risks when expanding operations.                    | 2.35 | 1.16 | 0.469 | M                |
| 6        | Provides opportunities for stable long-term financial returns.                        | 1.91 | 0.72 | 0.383 | M-L              |
| 7        | Helps accelerate market entry compared to starting a new business.                    | 2.01 | 0.72 | 0.402 | M                |
| 8        | Reduces marketing costs due to shared advertising campaigns.                          | 2.11 | 0.86 | 0.421 | M                |
| 9        | Allows access to a reliable and competitively priced supply network.                  | 2.11 | 0.9  | 0.422 | M                |
| 10       | Enables businesses to receive ongoing managerial support/training.                    | 2.25 | 1.12 | 0.450 | M                |
| 11       | Provides the opportunity to benefit from strong brand reputation.                     | 1.98 | 0.84 | 0.395 | M-L              |
| 12       | Reduces legal obstacles thanks to a clear regulatory framework.                       | 2.05 | 0.83 | 0.410 | M                |
| 13       | Omani market offers supportive environment due to economic stability.                 | 2.11 | 0.81 | 0.421 | M                |
| 14       | Contributes to the rapid expansion of SMEs in Oman.                                   | 2.22 | 0.93 | 0.445 | M                |
| 15       | Growing interest among Omani entrepreneurs in franchising as a successful investment. | 2.18 | 1.02 | 0.437 | M                |

| Item No. | Statement                                                                              | M           | SD           | RII          | Important levels |
|----------|----------------------------------------------------------------------------------------|-------------|--------------|--------------|------------------|
| 16       | Omani laws and regulations provide a suitable environment for franchise projects.      | 2.05        | 0.90         | 0.410        | M                |
| 17       | Helps improve the quality of services and products in the Omani market.                | 2.00        | 0.89         | 0.399        | M-L              |
| 18       | Omani consumers' preference for trusted brands enhances success potential.             | 2.09        | 0.89         | 0.417        | M                |
| 19       | Enables regional/global expansion, aligning with SME Development Authority objectives. | 2.27        | 1.0          | 0.454        | M                |
| 20       | Government support/initiatives contribute to strengthening franchise culture.          | 2.13        | 1.12         | 0.426        | M                |
| 21       | Facilitates access to funding from Omani banks/financial institutions.                 | 2.00        | 0.77         | 0.401        | M                |
| 22       | Contributes to transferring global knowledge and expertise into Oman.                  | 2.12        | 0.89         | 0.425        | M                |
|          | <b>Overall Axis 1</b>                                                                  | <b>2.08</b> | <b>0.618</b> | <b>0.415</b> | <b>M</b>         |

Note. M = Mean; SD = Standard Deviation; RII = Relative Importance Index. Means are based on a 5-point scale (1 = Strongly disagree, 5 = Strongly agree). Importance Levels based on RII: High (H) =  $0.8 < RII < 1.0$ ; High-Medium (H-M) =  $0.6 < RII < 0.8$ ; Medium (M) =  $0.4 < RII < 0.6$ ; Medium-Low (M-L) =  $0.2 < RII < 0.4$ ; Low (L) =  $0.0 < RII < 0.2$ . N = 219.

Descriptive analysis results for Opportunities revealed an overall mean of 2.96 (RII = 0.592), indicating a medium level of perceived importance regarding franchising opportunities among Omani SMEs (Table 5). While most items reflected neutral perceptions, a few—such as supportive laws and regulations, facilitated financing, and prospects for local/international expansion—were rated within the High-Medium range, suggesting relatively stronger confidence in the legal and financial environment. In contrast, traditional opportunity drivers like market supportiveness, infrastructure quality, tourism growth, and government initiatives were rated lower within the medium range, reflecting more moderate or uncertain views. Notably, the relatively high standard deviations across items point to divergent perceptions among respondents.

Table 5: Descriptive Statistics and Relative Importance Index for Opportunity Factors

| Item No. | Statement                                                                           | M    | SD   | RII   | Important levels |
|----------|-------------------------------------------------------------------------------------|------|------|-------|------------------|
| 1        | The Omani market provides a supportive environment for franchise growth.            | 2.65 | 1.32 | 0.531 | M                |
| 2        | Growing interest from SME Dev. Authority/Chamber of Commerce in supporting SMEs.    | 2.88 | 1.18 | 0.575 | M                |
| 3        | Current laws and regulations support franchising well.                              | 3.14 | 1.34 | 0.627 | H-M              |
| 4        | Consumers in Oman prefer well-known and established brands.                         | 2.91 | 1.22 | 0.582 | M                |
| 5        | Offers companies access and rapid expansion at low cost.                            | 3.04 | 1.33 | 0.608 | H-M              |
| 6        | Franchise contracts are characterized by low risk.                                  | 2.96 | 1.33 | 0.592 | M                |
| 7        | SME Dev. Authority/Chamber offer support programs to promote adoption.              | 2.98 | 1.26 | 0.596 | M                |
| 8        | Omani government initiatives (Franchise Program, "Nazdaher") facilitate procedures. | 2.83 | 1.32 | 0.565 | M                |
| 9        | Eased financing from supporting entities encourages investment.                     | 3.11 | 1.31 | 0.622 | H-M              |
| 10       | Franchising supports Vision 2040 by promoting economic diversification.             | 3.01 | 1.22 | 0.603 | H-M              |

| Item No. | Statement                                                                         | M           | SD          | RII          | Important levels |
|----------|-----------------------------------------------------------------------------------|-------------|-------------|--------------|------------------|
| 11       | Special economic zones and free zones offer ideal growth opportunities.           | 2.84        | 1.36        | 0.568        | M                |
| 12       | Training/qualification programs help empower entrepreneurs for management.        | 3.02        | 1.33        | 0.604        | H-M              |
| 13       | SME Dev. Authority/Chamber encourage entrepreneurs to adopt models.               | 2.99        | 1.28        | 0.598        | M                |
| 14       | Omani market offers opportunities due to increasing economic growth.              | 3.02        | 1.33        | 0.605        | H-M              |
| 15       | Provides Omani SMEs opportunities to expand locally and internationally.          | 3.11        | 1.35        | 0.622        | H-M              |
| 16       | Oman's strong infrastructure provides favorable conditions.                       | 2.82        | 1.29        | 0.564        | M                |
| 17       | Interest of SME Dev. Authority/Chamber in raising awareness of franchising.       | 3.00        | 1.27        | 0.600        | M                |
| 18       | Modern legislation offers legal protection, enhancing confidence.                 | 3.09        | 1.35        | 0.618        | H-M              |
| 19       | Partnerships between Omani companies and global brands facilitate adoption.       | 2.94        | 1.28        | 0.587        | M                |
| 20       | Digital transformation enhances opportunities via e-commerce/digital marketing.   | 3.03        | 1.34        | 0.606        | H-M              |
| 21       | Expansion in infrastructure projects creates attractive business environment.     | 2.93        | 1.39        | 0.585        | M                |
| 22       | The growing interest in tourism opens horizons for hospitality/restaurants/cafes. | 2.82        | 1.26        | 0.564        | M                |
|          | <b>Overall Axis 2</b>                                                             | <b>2.96</b> | <b>1.13</b> | <b>0.592</b> | <b>M</b>         |

Note. *M* = Mean; *SD* = Standard Deviation; *RII* = Relative Importance Index. Means are based on a 5-point scale (1 = *Strongly disagree*, 5 = *Strongly agree*). Importance Levels based on *RII*: High (H) = 0.8 < *RII* < 1.0; High-Medium (H-M) = 0.6 < *RII* < 0.8; Medium (M) = 0.4 < *RII* < 0.6; Medium-Low (M-L) = 0.2 < *RII* < 0.4; Low (L) = 0.0 < *RII* < 0.2. N = 219.

Analysis of Ability Factors (Table 6) indicated a moderate level of perceived ability among Omani SMEs to engage in franchising, with an overall mean of 2.28 and *RII* of 0.457. Respondents generally showed neutral or slightly negative perceptions regarding their readiness and the presence of enabling factors. Relatively higher-rated items included perceptions of economic stability, support from entrepreneurship centers, and the availability of trained local professionals. In contrast, foundational factors such as infrastructure quality, franchising knowledge, managerial skills, and entrepreneur awareness were rated lower within the same medium category. These findings suggest a lack of strong confidence among SME owners and managers in their ability or preparedness to adopt franchising, despite modest support from certain structural elements.

Table 6: Descriptive Statistics and Relative Importance Index for Ability Factors

| Item No. | Statement                                                             | M    | SD   | RII   | Important levels |
|----------|-----------------------------------------------------------------------|------|------|-------|------------------|
| 1        | Possess sufficient knowledge about the franchising system.            | 2.18 | 0.94 | 0.437 | M                |
| 2        | Have adequate capital to purchase franchise rights.                   | 2.25 | 0.94 | 0.450 | M                |
| 3        | Capable of adhering to standards and procedures imposed by the brand. | 2.31 | 1.12 | 0.462 | M                |
| 4        | Possess the managerial skills required to operate a franchise.        | 2.21 | 1.01 | 0.443 | M                |
| 5        | Omani market enjoys a stable economic environment.                    | 2.43 | 1.13 | 0.486 | M                |

| Item No. | Statement                                                                       | M           | SD          | RII          | Important levels |
|----------|---------------------------------------------------------------------------------|-------------|-------------|--------------|------------------|
| 6        | SME Dev. Authority/Chamber offer specialized programs to empower entrepreneurs. | 2.35        | 1.21        | 0.469        | M                |
| 7        | Oman's advanced infrastructure supports expansion.                              | 2.12        | 0.91        | 0.425        | M                |
| 8        | Trade agreements facilitate regional expansion.                                 | 2.27        | 0.98        | 0.454        | M                |
| 10       | Entrepreneurship centers/incubators strengthen skills.                          | 2.41        | 1.11        | 0.482        | M                |
| 9        | Government offers administrative facilitations/expedited licensing.             | 2.25        | 1.15        | 0.450        | M                |
| 11       | SME Dev. Authority/Chamber provide free consultations/guidance.                 | 2.26        | 1.04        | 0.451        | M                |
| 12       | Partnerships with international investors enhance success potential.            | 2.31        | 1.11        | 0.461        | M                |
| 13       | Rising awareness among Omani entrepreneurs promotes adoption.                   | 2.21        | 0.97        | 0.442        | M                |
| 14       | Public/private sector efforts contribute to spreading franchise culture.        | 2.30        | 1.02        | 0.459        | M                |
| 15       | Availability of trained Omani professionals supports management.                | 2.38        | 1.23        | 0.477        | M                |
| 16       | Innovation/entrepreneurship initiatives help develop new models.                | 2.20        | 1.0         | 0.439        | M                |
| 17       | Growing number of successful Omani brands motivates adoption.                   | 2.26        | 1           | 0.453        | M                |
| 18       | Government policies encourage FDI for global brand partnerships.                | 2.35        | 1.19        | 0.469        | M                |
| 19       | Moderately competitive environment facilitates expansion.                       | 2.27        | 1.04        | 0.454        | M                |
| 20       | Trade exhibitions/conferences provide ideal platform.                           | 2.32        | 1.1         | 0.465        | M                |
| 21       | Development of smart city projects creates digital environment.                 | 2.26        | 1.15        | 0.453        | M                |
| 22       | Omanization initiatives encourage engagement in franchising.                    | 2.36        | 1.05        | 0.471        | M                |
|          | <b>Overall Axis 3</b>                                                           | <b>2.28</b> | <b>0.86</b> | <b>0.457</b> | <b>M</b>         |

Note. *M* = Mean; *SD* = Standard Deviation; *RII* = Relative Importance Index. Means are based on a 5-point scale (1 = *Strongly disagree*, 5 = *Strongly agree*). Importance Levels based on *RII*: High (H) =  $0.8 < RII < 1.0$ ; High-Medium (H-M) =  $0.6 < RII < 0.8$ ; Medium (M) =  $0.4 < RII < 0.6$ ; Medium-Low (M-L) =  $0.2 < RII < 0.4$ ; Low (L) =  $0.0 < RII < 0.2$ . *N* = 219.

The findings for Perceived Performance Enhancement revealed a moderate level of agreement regarding the role of franchising in improving SME performance, with an overall mean of 2.23 and *RII* of 0.446 (Table 7). Respondents generally expressed neutral or reserved views, with relatively higher importance attributed to franchising's role in easing access to financing, reducing costs through supply networks, and improving product or service quality. Conversely, traditionally emphasized benefits—such as increased profits, innovation, effective management models, and standardization—received lower ratings at the medium level, suggesting limited conviction in franchising as a performance-enhancing strategy among the surveyed SMEs.

Table 7: Descriptive Statistics and Relative Importance Index for Perceived Performance Enhancement Factors

| Item No. | Statement                                       | M    | SD   | RII   | Important levels |
|----------|-------------------------------------------------|------|------|-------|------------------|
| 1        | Contributes to increasing profits and revenues. | 2.05 | 0.80 | 0.411 | M                |

|    |                                                                                     |             |             |              |          |
|----|-------------------------------------------------------------------------------------|-------------|-------------|--------------|----------|
| 2  | Helps reduce marketing and advertising costs via brand recognition.                 | 2.18        | 0.96        | 0.437        | M        |
| 3  | Contributes to enhancing the quality of products and services.                      | 2.32        | 1.06        | 0.463        | M        |
| 4  | Plays significant role in improving competitive ability.                            | 2.21        | 0.99        | 0.443        | M        |
| 5  | Enables SMEs to obtain financing more easily due to brand association.              | 2.39        | 1.08        | 0.478        | M        |
| 6  | Provides an effective management model that helps improve operational efficiency.   | 2.15        | 1.08        | 0.430        | M        |
| 7  | Assists SMEs in adopting standardized operational procedures.                       | 2.16        | 0.89        | 0.433        | M        |
| 8  | Helps SMEs effectively penetrate new markets (Oman/internationally).                | 2.30        | 0.94        | 0.459        | M        |
| 9  | Allows SMEs to benefit from extensive supply network, reducing operational costs.   | 2.37        | 1.15        | 0.473        | M        |
| 10 | Helps mitigate risk of failure when expanding (proven model).                       | 2.21        | 1.05        | 0.443        | M        |
| 11 | Training and support provided by franchisors help develop employee skills.          | 2.23        | 0.97        | 0.447        | M        |
| 12 | Offers opportunity to expand rapidly across governorates without large investments. | 2.21        | 1.14        | 0.443        | M        |
| 13 | Contributes to enhancing innovation and improving products.                         | 2.12        | 0.88        | 0.425        | M        |
| 14 | Can improve customer satisfaction and increase loyalty.                             | 2.27        | 1           | 0.454        | M        |
| 15 | Supports Oman's Vision 2040 by fostering entrepreneurship/SME contribution.         | 2.30        | 1.1         | 0.459        | M        |
|    | <b>Overall Axis 4</b>                                                               | <b>2.23</b> | <b>0.82</b> | <b>0.446</b> | <b>M</b> |

Note. M = Mean; SD = Standard Deviation; RII = Relative Importance Index. Means are based on a 5-point scale (1 = Strongly disagree, 5 = Strongly agree). Importance Levels based on RII: High (H) =  $0.8 < RII < 1.0$ ; High-Medium (H-M) =  $0.6 < RII < 0.8$ ; Medium (M) =  $0.4 < RII < 0.6$ ; Medium-Low (M-L) =  $0.2 < RII < 0.4$ ; Low (L) =  $0.0 < RII < 0.2$ . N = 219.

#### 4.2. Analysis results

Independent samples t-test results revealed that male participants perceived significantly higher levels of motivation ( $p < .001$ ), ability ( $p = .038$ ), and performance enhancement ( $p = .003$ ) related to franchising compared to female participants. However, no statistically significant gender difference was observed regarding perceived opportunities ( $p = .604$ ). These findings suggest that gender plays a role in shaping perceptions toward franchising, particularly in terms of internal motivation, perceived capacity, and expected performance benefits.

Table 8: Independent Samples T-test Results for Gender

| Axis                 | Gender | M    | SD   | t      | p       |
|----------------------|--------|------|------|--------|---------|
| Motivational Factors | Female | 1.77 | 0.45 | -5.10  | <.001** |
|                      | Male   | 2.18 | 0.63 |        |         |
| Opportunities        | Female | 2.94 | 1.08 | -0.520 | 0.604   |
|                      | Male   | 3.04 | 1.29 |        |         |
| Ability              | Female | 2.07 | 0.91 | -2.09  | .038*   |
|                      | Male   | 2.35 | 0.83 |        |         |

|                      |        |      |      |       |        |
|----------------------|--------|------|------|-------|--------|
| Performance Enhance. | Female | 1.95 | 0.77 | -3.09 | .003** |
|                      | Male   | 2.33 | 0.82 |       |        |

Note. *M* = Mean; *SD* = Standard Deviation. \* Significant at  $P \leq 0.05$ . \*\*Significant at  $P \leq 0.01$ .

T-test analysis results based on prior franchising experience showed that participants with such experience reported significantly higher perceptions of both Motivational Factors ( $p = .004$ ) and Perceived Performance Enhancement ( $p = .034$ ) compared to those without experience. However, differences in perceptions of Opportunities and Ability were not statistically significant. These findings suggest that previous exposure to franchising positively influences perceived motivation and expected performance outcomes, while perceptions of external opportunities and internal capabilities remain relatively unaffected.

Table 9: Independent Samples T-test Results for Previous Franchising Experience

| Axis                 | Previous Franchising Experience | M    | SD   | t    | p       |
|----------------------|---------------------------------|------|------|------|---------|
| Motivational Factors | Yes                             | 2.74 | 0.77 | 3.38 | 0.004** |
|                      | No                              | 2.03 | 0.58 |      |         |
| Opportunities        | Yes                             | 2.65 | 0.83 | 1.43 | 0.172   |
|                      | No                              | 2.67 | 0.96 |      |         |
| Ability              | Yes                             | 2.98 | 1.15 | 1.76 | 0.080   |
|                      | No                              | 2.26 | 0.84 |      |         |
| Performance Enhance. | Yes                             | 2.68 | 0.84 | 2.13 | 0.034*  |
|                      | No                              | 2.2  | 0.81 |      |         |

Note. *M* = Mean; *SD* = Standard Deviation. \* Significant at  $P \leq 0.05$ . \* Significant at  $P \leq 0.05$ .

#### 4.3. ANOVA results

Table 10 summarizes the results of one-way Analyses of Variance (ANOVAs) conducted to determine if there were statistically significant differences in the mean scores of the four study axes based on participants' age groups. Statistically significant differences were found among the age groups for all four axes: Motivational Factors ( $F = 8.00$ ,  $p < .001$ ), Opportunities ( $F = 6.91$ ,  $p < .001$ ), Ability ( $F = 4.07$ ,  $p = .008$ ), and Performance Enhancement ( $F = 3.67$ ,  $p = .013$ ).

Table 10: One-Way ANOVA Summary for Differences by Age Group

| Axis                 | Source / Group | M    | SD   | SS     | MS   | F    | p       |
|----------------------|----------------|------|------|--------|------|------|---------|
| Motivational Factors | Between Groups |      |      | 8.37   | 2.79 | 8    | <.001** |
|                      | Within Groups  |      |      | 74.99  | 0.35 |      |         |
|                      | Less than 30   | 1.99 | 0.5  |        |      |      |         |
|                      | 30 to <40      | 2.08 | 0.63 |        |      |      |         |
|                      | 40 to <50      | 2.07 | 0.74 |        |      |      |         |
|                      | 50 and above   | 2.87 | 0.73 |        |      |      |         |
| Opportunities        | Between Groups |      |      | 24.59  | 8.2  | 6.91 | <.001** |
|                      | Within Groups  |      |      | 255.19 | 1.19 |      |         |

|                      |                |      |      |        |      |      |         |
|----------------------|----------------|------|------|--------|------|------|---------|
|                      | Less than 30   | 2.83 | 1.14 |        |      |      |         |
|                      | 30 to <40      | 3.3  | 1.11 |        |      |      |         |
|                      | 40 to <50      | 2.32 | 0.95 |        |      |      |         |
|                      | 50 and above   | 3.49 | 0.68 |        |      |      |         |
| Ability              | Between Groups |      |      | 8.6    | 2.87 | 4.07 | 0.008** |
|                      | Within Groups  |      |      | 151.29 | 0.7  |      |         |
|                      | Less than 30   | 2.17 | 0.77 |        |      |      |         |
|                      | 30 to <40      | 2.39 | 0.89 |        |      |      |         |
|                      | 40 to <50      | 2.15 | 0.92 |        |      |      |         |
|                      | 50 and above   | 2.98 | 0.94 |        |      |      |         |
| Performance Enhance. | Between Groups |      |      | 7.17   | 2.39 | 3.67 | 0.013*  |
|                      | Within Groups  |      |      | 140.11 | 0.65 |      |         |
|                      | Less than 30   | 2.11 | 0.7  |        |      |      |         |
|                      | 30 to <40      | 2.35 | 0.86 |        |      |      |         |
|                      | 40 to <50      | 2.15 | 0.98 |        |      |      |         |
|                      | 50 and above   | 2.83 | 0.96 |        |      |      |         |

Note. SS = Sum of Squares; df = Degrees of Freedom; MS = Mean Square; M = Mean; SD = Standard Deviation. \* Significant at  $P \leq 0.05$ .

\* Significant at  $P \leq 0.05$

Table 11: Bonferroni Post-Hoc Comparisons for Significant Differences in Axis Scores by Age Group

| Axis                 | Age Group    |              | Mean Difference | Std. Error | p       |
|----------------------|--------------|--------------|-----------------|------------|---------|
| Motivational Factors | Less than 30 | 30 to <40    | -0.09           | 0.09       | 1.000   |
|                      |              | 40 to <50    | -0.08           | 0.13       | 1.000   |
|                      |              | 50 and above | -0.88           | 0.18       | <.001** |
|                      | 30 to <40    | 40 to <50    | 0.01            | 0.13       | 1.000   |
|                      |              | 50 and above | -0.79           | 0.18       | <.001** |
|                      | 40 to <50    | 50 and above | -0.80           | 0.21       | 0.001** |
| Opportunities        | Less than 30 | 30 to <40    | -0.48           | 0.17       | 0.026*  |
|                      |              | 40 to <50    | 0.51            | 0.24       | 0.202   |
|                      |              | 50 and above | -0.66           | 0.33       | 0.280   |
|                      | 30 to <40    | 40 to <50    | 0.98            | 0.25       | 0.001** |
|                      |              | 50 and above | -0.19           | 0.34       | 1.000   |
|                      | 40 to <50    | 50 and above | -1.17           | 0.38       | 0.014*  |
| Ability              | Less than 30 | 30 to <40    | -0.23           | 0.13       | 0.464   |
|                      |              | 40 to <50    | 0.02            | 0.18       | 1.000   |
|                      |              | 50 and above | -0.81           | 0.26       | 0.010*  |
|                      | 30 to <40    | 40 to <50    | 0.25            | 0.19       | 1.000   |
|                      |              | 50 and above | -0.58           | 0.26       | 0.159   |
|                      | 40 to <50    | 50 and above | -0.83           | 0.29       | 0.029*  |
| Performance Enhance. | Less than 30 | 30 to <40    | -0.24           | 0.12       | 0.285   |
|                      |              | 40 to <50    | -0.04           | 0.18       | 1.000   |

|  |           |              |       |      |               |
|--|-----------|--------------|-------|------|---------------|
|  |           | 50 and above | -0.72 | 0.25 | <b>0.022*</b> |
|  | 30 to <40 | 40 to <50    | 0.20  | 0.18 | 1.000         |
|  |           | 50 and above | -0.48 | 0.25 | 0.355         |
|  | 40 to <50 | 50 and above | -0.68 | 0.28 | 0.098         |

Note. Bonferroni adjustment is used for multiple comparisons. \* Significant at  $P \leq 0.05$ . \* Significant at  $P \leq 0.05$ .

Results based on prior franchising experience showed that participBonferroni post-hoc test results indicated that age significantly influenced perceptions toward franchising. Participants aged 50 years and above consistently reported higher scores across all axes—Motivation, Opportunities, Ability, and Performance Enhancement—compared to younger age groups, particularly those under 30 and 40 to <50. Additionally, individuals aged 30 to <40 showed significantly more positive perceptions of Opportunities compared to other age brackets. These findings suggest that older participants demonstrate greater motivation, confidence, and perceived benefit regarding franchising adoption than their younger counterparts.

Table 12 presents the results of one-way ANOVAs examining differences in mean scores on the four study variables across different levels of educational qualification. Statistically significant differences among qualification groups were found for Motivational Factors ( $F = 3.22$ ,  $p = .024$ ) and Opportunities ( $F = 10.85$ ,  $p < .001$ ). No statistically significant differences were found for Ability ( $F = 2.05$ ,  $p = .108$ ) or Performance Enhancement ( $F = 1.36$ ,  $p = .255$ ).

Table 12: One-Way ANOVA Summary for Differences in Axis Scores by qualification Group

| Axis                 | Source / Group    | M    | SD   | SS     | MS    | F     | p       |
|----------------------|-------------------|------|------|--------|-------|-------|---------|
| Motivational Factors | Between Groups    |      |      | 3.59   | 1.2   | 3.22  | 0.024*  |
|                      | Within Groups     |      |      | 79.77  | 0.37  |       |         |
|                      | General Diploma   | 1.93 | 0.65 |        |       |       |         |
|                      | Higher Diploma    | 2.22 | 0.66 |        |       |       |         |
|                      | Bachelor's Degree | 2.0  | 0.57 |        |       |       |         |
|                      | Postgraduate      | 2.27 | 0.62 |        |       |       |         |
| Opportunities        | Between Groups    |      |      | 36.77  | 12.26 | 10.85 | <.001** |
|                      | Within Groups     |      |      | 243.01 | 1.13  |       |         |
|                      | General Diploma   | 2.18 | 0.92 |        |       |       |         |
|                      | Higher Diploma    | 3.08 | 0.99 |        |       |       |         |
|                      | Bachelor's Degree | 3.28 | 1.2  |        |       |       |         |
|                      | Postgraduate      | 2.63 | 0.81 |        |       |       |         |
| Ability              | Between Groups    |      |      | 4.44   | 1.48  | 2.05  | 0.108   |
|                      | Within Groups     |      |      | 155.45 | 0.72  |       |         |
|                      | General Diploma   | 1.98 | 0.82 |        |       |       |         |
|                      | Higher Diploma    | 2.35 | 0.79 |        |       |       |         |
|                      | Bachelor's Degree | 2.3  | 0.89 |        |       |       |         |
|                      | Postgraduate      | 2.45 | 0.84 |        |       |       |         |
| Performance Enhance. | Between Groups    |      |      | 2.75   | 0.92  | 1.36  | 0.255   |

|  |                   |      |      |        |      |  |  |
|--|-------------------|------|------|--------|------|--|--|
|  | Within Groups     |      |      | 144.54 | 0.67 |  |  |
|  | General Diploma   | 2.01 | 0.85 |        |      |  |  |
|  | Higher Diploma    | 2.23 | 0.68 |        |      |  |  |
|  | Bachelor's Degree | 2.25 | 0.84 |        |      |  |  |
|  | Postgraduate      | 2.39 | 0.88 |        |      |  |  |

Note. *SS* = Sum of Squares; *df* = Degrees of Freedom; *MS* = Mean Square; *M* = Mean; *SD* = Standard Deviation. \* Significant at  $P \leq 0.05$ . \* Significant at  $P \leq 0.05$ .

Table 13: Bonferroni Post-Hoc Comparisons for Significant Differences in Axis Scores by qualification Group

| Axis                 | qualification Group |                      | Mean Difference | Std. Error | p                 |
|----------------------|---------------------|----------------------|-----------------|------------|-------------------|
| Motivational Factors | General Diploma     | Higher Diploma       | -0.29           | 0.14       | 0.240             |
|                      |                     | Bachelor's Degree    | -0.07           | 0.12       | 1.000             |
|                      |                     | Postgraduate Studies | -0.34           | 0.15       | <b>0.022*</b>     |
|                      | Higher Diploma      | Bachelor's Degree    | 0.22            | 0.11       | 0.283             |
|                      |                     | Postgraduate Studies | -0.05           | 0.14       | 1.000             |
|                      | Bachelor's Degree   | Postgraduate Studies | -0.27           | 0.12       | 0.132             |
| Opportunities        | General Diploma     | Higher Diploma       | <b>-0.91*</b>   | 0.24       | <b>0.001**</b>    |
|                      |                     | Bachelor's Degree    | <b>-1.10*</b>   | 0.21       | <b>&lt;.001**</b> |
|                      |                     | Postgraduate Studies | -0.45           | 0.25       | 0.471             |
|                      | Higher Diploma      | Bachelor's Degree    | -0.19           | 0.19       | 1.000             |
|                      |                     | Postgraduate Studies | 0.46            | 0.24       | 0.369             |
|                      | Bachelor's Degree   | Postgraduate Studies | <b>0.65*</b>    | 0.21       | <b>0.011*</b>     |

Note. Bonferroni adjustment is used for multiple comparisons.\* Significant at  $P \leq 0.05$ . \* Significant at  $P \leq 0.05$ .

Educational qualification was found to significantly influence perceptions of both Motivational Factors and Opportunities. Postgraduate participants reported higher motivation levels than those with only a General Diploma ( $p = .022$ ). Regarding Opportunities, Bachelor's Degree holders scored significantly higher than both General Diploma ( $p < .001$ ) and Postgraduate holders ( $p = .011$ ), while Higher Diploma holders also scored higher than those with a General Diploma ( $p = .001$ ). These results suggest that participants with higher educational attainment tend to perceive greater motivation and more favorable opportunities toward franchising than those with lower qualifications.

Table 14 presents the ANOVA results comparing mean scores based on the type of business activity. Statistically significant differences were found among the groups for all four axes: Motivational Factors ( $F = 5.76$ ,  $p = .001$ ), Opportunities ( $F = 3.07$ ,  $p = .029$ ), Ability ( $F = 3.73$ ,  $p = .012$ ), and Performance Enhancement ( $F = 2.92$ ,  $p = .035$ ).

Table 14: One-Way ANOVA Summary for Differences by Type of Business Activity Group

| Axis                 | Source / Group      | M    | SD   | SS    | MS   | F    | p      |
|----------------------|---------------------|------|------|-------|------|------|--------|
| Motivational Factors | Between Groups      |      |      | 6.2   | 2.07 | 5.76 | .001** |
|                      | Within Groups       |      |      | 77.15 | 0.36 |      |        |
|                      | Services            | 2.05 | 0.59 |       |      |      |        |
|                      | Industry            | 2.21 | 0.47 |       |      |      |        |
|                      | Restaurants & Cafés | 2.53 | 0.67 |       |      |      |        |

| Axis                 | Source / Group      | M    | SD    | SS     | MS   | F    | p     |
|----------------------|---------------------|------|-------|--------|------|------|-------|
|                      | Retail Trade        | 1.88 | 0.63  |        |      |      |       |
| Opportunities        | Between Groups      |      |       | 11.48  | 3.83 | 3.07 | .029* |
|                      | Within Groups       |      |       | 268.3  | 1.25 |      |       |
|                      | Services            | 2.84 | 1.12  |        |      |      |       |
|                      | Industry            | 2.83 | 1.01  |        |      |      |       |
|                      | Restaurants & Cafés | 3.43 | 1.25  |        |      |      |       |
|                      | Retail Trade        | 2.92 | 0.081 |        |      |      |       |
| Ability              | Between Groups      |      |       | 7.91   | 2.64 | 3.73 | .012* |
|                      | Within Groups       |      |       | 151.98 | 0.71 |      |       |
|                      | Services            | 2.17 | 0.76  |        |      |      |       |
|                      | Industry            | 2.39 | 0.84  |        |      |      |       |
|                      | Restaurants & Cafés | 2.81 | 0.82  |        |      |      |       |
|                      | Retail Trade        | 2.37 | 1.09  |        |      |      |       |
| Performance Enhance. | Between Groups      |      |       | 5.77   | 1.92 | 2.92 | .035* |
|                      | Within Groups       |      |       | 141.51 | 0.66 |      |       |
|                      | Services            | 2.15 | 0.74  |        |      |      |       |
|                      | Industry            | 2.34 | 0.79  |        |      |      |       |
|                      | Restaurants & Cafés | 2.70 | 0.80  |        |      |      |       |
|                      | Retail Trade        | 2.25 | 1.03  |        |      |      |       |

Note. SS = Sum of Squares; df = Degrees of Freedom; MS = Mean Square; M = Mean; SD = Standard Deviation. \* Significant at  $P \leq 0.05$ . \* Significant at  $P \leq 0.05$ .

Table 15: Bonferroni Post-Hoc Comparisons for Significant Differences in Axis Scores by Type of Business Activity Group

| Axis                 | Type of Business Activity Groups |                     | Mean Difference | Std. Error | p                 |
|----------------------|----------------------------------|---------------------|-----------------|------------|-------------------|
| Motivational Factors | Services                         | Industry            | 0.32            | 0.21       | 0.721             |
|                      |                                  | Restaurants & Cafés | -0.48           | 0.14       | <b>0.005**</b>    |
|                      |                                  | Retail Trade        | 0.17            | 0.11       | 0.667             |
|                      | Industry                         | Restaurants & Cafés | 0.16            | 0.17       | 1.000             |
|                      |                                  | Retail Trade        | 0.32            | 0.18       | 0.489             |
|                      | Restaurants & Cafés              | Retail Trade        | 0.65            | 0.16       | <b>&lt;.001**</b> |
| Opportunities        | Services                         | Industry            | 0.09            | 0.39       | 1.000             |
|                      |                                  | Restaurants & Cafés | -0.59           | 0.29       | <b>0.019*</b>     |
|                      |                                  | Retail Trade        | 0.08            | 0.26       | 1.000             |
|                      | Industry                         | Restaurants & Cafés | -0.01           | 0.31       | 1.000             |
|                      |                                  | Retail Trade        | -0.6            | 0.34       | 0.501             |
|                      | Restaurants & Cafés              | Retail Trade        | -0.51           | 0.20       | 0.535             |
| Ability              | Services                         | Industry            | 0.42            | 0.29       | 0.889             |

| Axis                 | Type of Business Activity Groups |                     | Mean Difference | Std. Error | p              |
|----------------------|----------------------------------|---------------------|-----------------|------------|----------------|
|                      |                                  | Restaurants & Cafés | -0.63           | 0.2        | <b>0.009**</b> |
|                      |                                  | Retail Trade        | 0.44            | 0.22       | 0.304          |
|                      | Industry                         | Restaurants & Cafés | 0.21            | 0.24       | 1.000          |
|                      |                                  | Retail Trade        | 0.02            | 0.26       | 1.000          |
|                      | Restaurants & Cafés              | Retail Trade        | -0.19           | 0.15       | 1.000          |
| Performance Enhance. | Services                         | Industry            | 0.36            | 0.28       | 1.000          |
|                      |                                  | Restaurants & Cafés | -0.55           | 0.19       | <b>0.024*</b>  |
|                      |                                  | Retail Trade        | 0.45            | 0.22       | 0.245          |
|                      | Industry                         | Restaurants & Cafés | 0.19            | 0.23       | 1.000          |
|                      |                                  | Retail Trade        | 0.09            | 0.25       | 1.000          |
|                      | Restaurants & Cafés              | Retail Trade        | -0.11           | 0.14       | 1.000          |

Note. Bonferroni adjustment is used for multiple comparisons.\* Significant at  $P \leq 0.05$ . \* Significant at  $P \leq 0.05$ .

Business activity type significantly influenced perceptions across all four study axes. Participants from the Restaurants & Cafés sector consistently reported higher levels of motivation, perceived opportunities, ability, and performance enhancement compared to those in Services and Retail Trade. Notably, Restaurants & Cafés scored significantly higher than Services in all four domains, and higher than Retail in motivation. These findings suggest that SMEs in the food and beverage sector hold more favorable views toward franchising than those in other industries.

Table 16 summarizes the one-way ANOVA results comparing mean scores on the four study axes based on participants' years of experience. Statistically significant differences were found among the experience groups for all four axes: Motivational Factors ( $F = 9.12$ ,  $p < .001$ ), Opportunities ( $F = 6.60$ ,  $p < .001$ ), Ability ( $F = 3.45$ ,  $p = .017$ ), and Performance Enhancement ( $F = 4.38$ ,  $p = .005$ ).

Table 16: One-Way ANOVA Summary for Differences in Axis Scores by Years of Experience Group

| Axis                 | Source / Group  | M    | SD   | SS     | MS   | F    | p       |
|----------------------|-----------------|------|------|--------|------|------|---------|
| Motivational Factors | Between Groups  |      |      | 9.41   | 3.14 | 9.12 | <.001** |
|                      | Within Groups   |      |      | 73.95  | 0.34 |      |         |
|                      | < 5 years       | 1.95 | 0.45 |        |      |      |         |
|                      | 5 to <10 years  | 2.11 | 0.67 |        |      |      |         |
|                      | 10 to <15 years | 2.13 | 0.77 |        |      |      |         |
|                      | 15+ years       | 2.87 | 0.73 |        |      |      |         |
| Opportunities        | Between Groups  |      |      | 23.61  | 7.87 | 6.6  | <.001** |
|                      | Within Groups   |      |      | 256.17 | 1.19 |      |         |
|                      | < 5 years       | 2.76 | 1.16 |        |      |      |         |
|                      | 5 to <10 years  | 3.32 | 1.09 |        |      |      |         |
|                      | 10 to <15 years | 2.45 | 0.94 |        |      |      |         |
|                      | 15+ years       | 3.49 | 0.68 |        |      |      |         |
| Ability              | Between Groups  |      |      | 7.35   | 2.45 | 3.45 | 0.017*  |
|                      | Within Groups   |      |      | 152.54 | 0.71 |      |         |

| Axis                 | Source / Group  | M    | SD   | SS     | MS   | F    | p       |
|----------------------|-----------------|------|------|--------|------|------|---------|
|                      | < 5 years       | 2.18 | 0.81 |        |      |      |         |
|                      | 5 to <10 years  | 2.35 | 0.84 |        |      |      |         |
|                      | 10 to <15 years | 2.23 | 0.95 |        |      |      |         |
|                      | 15+ years       | 2.98 | 0.94 |        |      |      |         |
| Performance Enhance. | Between Groups  |      |      | 8.48   | 2.83 | 4.38 | 0.005** |
|                      | Within Groups   |      |      | 138.81 | 0.65 |      |         |
|                      | < 5 years       | 2.07 | 0.69 |        |      |      |         |
|                      | 5 to <10 years  | 2.37 | 0.86 |        |      |      |         |
|                      | 10 to <15 years | 2.23 | 1    |        |      |      |         |
|                      | 15+ years       | 2.83 | 0.96 |        |      |      |         |

Note. SS = Sum of Squares; df = Degrees of Freedom; MS = Mean Square; M = Mean; SD = Standard Deviation. \* Significant at  $P \leq 0.05$ . \* Significant at  $P \leq 0.05$ .

Table 17: Bonferroni Post-Hoc Comparisons for Significant Differences in Axis Scores by Years of Experience Group

| Axis                 | Years of Experience Group |                         | Mean Difference | Std. Error | p       |
|----------------------|---------------------------|-------------------------|-----------------|------------|---------|
| Motivational Factors | Less than 5               | From 5 to less than 10  | -0.16           | 0.09       | 0.370   |
|                      |                           | From 10 to less than 15 | -0.18           | 0.13       | 1.000   |
|                      |                           | 15 years or more        | -0.92*          | 0.18       | <.001** |
|                      | From 5 to less than 10    | From 10 to less than 15 | -0.01           | 0.14       | 1.000   |
|                      |                           | 15 years or more        | -0.75*          | 0.18       | <.001** |
|                      | From 10 to less than 15   | 15 years or more        | -0.74*          | 0.21       | 0.003** |
| Opportunities        | Less than 5               | From 5 to less than 10  | -0.56*          | 0.16       | 0.004** |
|                      |                           | From 10 to less than 15 | 0.31            | 0.25       | 1.000   |
|                      |                           | 15 years or more        | -0.73           | 0.33       | 0.173   |
|                      | From 5 to less than 10    | From 10 to less than 15 | 0.87*           | 0.26       | 0.006** |
|                      |                           | 15 years or more        | -0.17           | 0.34       | 1.000   |
|                      | From 10 to less than 15   | 15 years or more        | -1.04*          | 0.39       | 0.048*  |
| Ability              | Less than 5               | From 5 to less than 10  | -0.17           | 0.13       | 1.000   |
|                      |                           | From 10 to less than 15 | -0.05           | 0.19       | 1.000   |
|                      |                           | 15 years or more        | -0.80*          | 0.26       | 0.012*  |
|                      | From 5 to less than 10    | From 10 to less than 15 | 0.12            | 0.2        | 1.000   |
|                      |                           | 15 years or more        | -0.63           | 0.26       | 0.099   |
|                      | From 10 to less than 15   | 15 years or more        | -0.75           | 0.3        | 0.079   |
| Performance Enhance. | Less than 5               | From 5 to less than 10  | -0.3            | 0.12       | 0.086   |
|                      |                           | From 10 to less than 15 | -0.16           | 0.18       | 1.000   |
|                      |                           | 15 years or more        | -0.76*          | 0.24       | 0.013*  |
|                      | From 5 to less than 10    | From 10 to less than 15 | 0.13            | 0.19       | 1.000   |
|                      |                           | 15 years or more        | -0.46           | 0.25       | 0.399   |
|                      | From 10 to less than 15   | 15 years or more        | -0.59           | 0.29       | 0.236   |

Note. Bonferroni adjustment is used for multiple comparisons. \* Significant at  $P \leq 0.05$ . \* Significant at  $P \leq 0.05$ .

Years of experience were found to significantly influence perceptions across all four dimensions of the study. Participants with 15 or more years of experience consistently reported higher scores for Motivation, Opportunities, Ability, and Performance Enhancement compared to those with less than 5 years or 10 to <15 years. Additionally, those with 5 to <10 years of experience showed significantly more positive perceptions of Opportunities than less experienced groups. These findings highlight that greater professional experience is associated with more favorable attitudes toward franchising among SME participants.

## 5. Discussion

Quantitative analysis using the Relative Importance Index (RII) revealed that participants' perceptions were at a "Medium" level across all dimensions. Notably, Opportunities (RII = 0.592) scored the highest, followed by Ability (RII= 0.457) and Motivation (RII= 0.415). This result is the "cornerstone" of understanding the Omani landscape; the high score for opportunities reflects the success of the OCCI and the Franchise Center in creating a supportive regulatory and institutional environment (Ozkaya et al., 2018). However, the lower scores for motivation and ability signal a state of "apprehension or lack of self-readiness" among entrepreneurs to transition toward this model.

These findings align partially with Kabeel (2016), who noted that franchise projects in emerging markets operate at moderate efficiency levels. They also support Truong-Thi's (2022) view that "Opportunity" is the strongest driver of franchising intention. Yet, the paradox remains: in Oman, "Available Opportunity" is not matched by a strong "Strategic Motivation" (such as global expansion). Instead, motivation remains tied to limited profitability, explaining the reluctance to bear the burdens of "modeling and monitoring" required by franchising.

On the demographic and sectoral front, findings showed statistically significant differences favoring males, older age groups, and the restaurants and cafés sector. The researcher interprets this as the restaurant sector being the most exposed to global franchising culture in Oman, making its owners more "behaviorally mature" and prepared for standardization compared to other sectors. Furthermore, the cumulative experience of older individuals helps reduce "psychological barriers" to delegation, reinforcing the study's hypothesis that "Ability" within the MOA framework is not merely a technical skill but a result of cognitive and behavioral accumulation linked to field experience.

The behavioral gap evident in the "Ability" scores (0.457) reinforces Ndonga's (2014) assertion that entrepreneurial drive must be polished with internal capabilities and managerial expertise before granting franchises. In the Omani context, entrepreneurs perceive the existence of government support (Opportunities) but feel a lack of "Behavioral Ability" to manage complex networks. This explains their neutral or skeptical stance regarding franchising's capacity to drive competitive advantage, contrasting with findings in more mature markets like Sun & Lee (2018).

## 6. Conclusions

The study concludes that the perception of Omani SMEs toward franchising is characterized by "Strategic Caution and Neutrality," as the findings do not reflect strong enthusiasm for traditional franchising benefits such as profit maximization or low-risk expansion. The conclusions highlight fundamental behavioral and cognitive barriers, including a lack of process awareness, financial constraints, leadership capability gaps, and concerns regarding legal frameworks and IP protection. Furthermore, the results confirm that demographic factors (gender, age, prior experience) and the type of business activity significantly shape these perceptions, with the "Restaurants and Cafés" sector emerging as the most mature and ready for adoption. Consequently, the core conclusion is that bridging the "practical gap" in Oman will not be achieved through "intensive documentation" but rather through "human qualification" capable of transforming these documents into a sustainable operational reality.

## 8. Recommendations

Based on the findings of the study and the extrapolation of the practical gap in the Omani market, the researcher offers the following strategic recommendations addressed to decision-makers at the Oman Chamber of Commerce and Industry (OCCI) and the Small and Medium Enterprises Development Authority (Riyada):

1. **Enhancing Behavioral Awareness and Education:** Launch targeted awareness campaigns and specialized workshops that move beyond "what franchising is" to "how to behaviorally prepare for franchising." Entrepreneurs must understand the actual processes, obligations, and the shift from centralized management to standardized modeling to bridge the observed motivation gap.
2. **Re-engineering Financial Support for Readiness:** Develop specialized financial support programs (loans or grants) exclusively for setup costs and franchise fees, provided that disbursement is linked to passing "readiness assessment" phases, ensuring financial opportunities are directed to those with the behavioral ability to execute.
3. **Strengthening the Legal Framework and IP Protection:** Review and improve franchising regulations in Oman to ensure clarity and simplified procedures, with an intensive focus on protecting intellectual property rights for national franchisors, thereby enhancing the "Opportunity factor" and encouraging brand owners to expand securely.
4. **Building Capabilities via Leadership Mentorship:** Replace traditional training with "Leadership and Behavioral Coaching" programs focused on delegation, monitoring, and quality control. We recommend requiring consultancy firms to allocate 40% of their billable hours to this specific mentorship instead of focusing exclusively on documentation.
5. **Institutional Integration and Effectiveness:** Restructure coordination between the Oman Franchise Center and Riyada to ensure integrated support that extends beyond paperwork to direct field assistance addressing the practical needs of SMEs seeking to grant franchises.
6. **Developing a Sector-Specific Franchising Strategy:** Given the superiority of the "Restaurants and Cafes" sector in readiness and interest, the researcher recommends using this sector as a "simulation lab" for a national franchising strategy, later expanding the model to other promising sectors based on their unique characteristics.

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## References

- Abd Aziz, N.A. Ramdan, M.R. Nik Hussin, N.S. Abdul Aziz, Z. Osman, J. Hasbollah, H.R. (2021). The Determinants of Global Expansion: A Study on Food and Beverage Franchisors in Malaysia. *Sustainability*, 13(18), 10328.
- Abdelkader, A. M. H., Mohamed, W. A., & Ali, I. M. H. (2020). Barriers to the implementation of franchising in youth centers in Beni Suef Governorate. *Beni Suef Journal for Physical Education and Sports Sciences*, 3(6), 169–190.
- Abu Shanab, S. (2015). The role of small enterprises in addressing unemployment and poverty in Jordan. *The Jordanian Journal of Islamic Studies*, 12.(2)
- Aguiar, H., Consoni, F., & Bernardes, R. C. (2014). Networks of Brazilian Franchises Internationalized: Evolution of Method of Entry Abroad. *Revista Ibero-Americana de Estratégia*, 13(1), 34-48.
- Ali, W. M. R. I. (2022). Legal effects of franchise contracts: A comparative study between Egyptian and Saudi laws. *Journal of Legal and Economic Studies*, 8(4), 1–36.
- Al-Naas, S. (2018). The role of CSR in supporting business ethics in SMEs. *Journal of Law and Human Sciences*, 11.

- Alvi, G.F. Bibi, N. Safder, M. (2020). The Development of a Questionnaire to Measure the Institutional Performance in Higher Education Institutions. *Journal of Business and Social Review in Emerging Economies*, 6(4), 1653-1663.
- Al-Yahyai, H. B. S. B. H. (2023). The impact of digital marketing on achieving competitive advantage: A case study of SMEs in Oman (Master's thesis). Modern College of Business and Science, Oman.
- Aziz, Z. I., & Mohsen, A. H. (2024). Disputes arising from franchise contracts under Iraqi private international law. *Journal of Sustainable Studies*, 6(2), 987-1022.
- Brezinova, M. (2021). Basic Characteristics of Small and Medium-sized Enterprises in Terms of Their Strategic Management. *International Journal of Systems Applications Engineering & Development*, 15, 84-87.
- Carpenter, G. S., & Nakamoto, K. (2020). Consumer Preference and Market Environment in Franchising. *Journal of Marketing Research*.
- Dant, R. P., et al. (2021). The decision to embark on franchising: Intrinsic and extrinsic motivations. *Journal of Business Venturing*.
- Elango, B., et al. (2019). Franchising as a growth strategy in emerging markets. *Journal of Small Business Management*.
- Ibrahim, A. A. A. (2018). The legal characterization of the franchise contract in light of the state's commercial activity: A comparative study (Master's thesis). Omdurman Islamic University, Sudan.
- IFA. (2025). FRANCHISING ECONOMIC OUTLOOK. Availability at: <https://indd.adobe.com/view/publication/41aaf895-c7f7-43ff-9004-9455305199f3/k3id/publication-web-resources/pdf/2025-Franchising-Economic-Outlook.pdf?utm>
- IFA. (2026). IFA Predicts Steady Growth For Franchising In 2026 Economic Outlook. Availability at: <https://www.franchise.org/2026/02/ifa-predicts-steady-growth-for-franchising-in-2026-economic-outlook/?utm>
- International Franchise Association (IFA). (2001). Annual Journals: The State of Franchising. IFA Education and Research Foundation.
- Jumadildayeva, Z., & Uspanova, M. (2015). Franchising as a Tool for Small and Medium Business Development. *Mediterranean Journal of Social Sciences*, 6(5), 429-434.
- Kabeel, M. A. H. (2016). Toward economic standards for evaluating franchise projects and their role in attracting foreign investment to Egypt. *Journal of Administrative Research*, 34(4), 1-95.
- Kamar, M.S.A.K. & Alsetoohy, O.A. (2021). Franchisee-Franchisor Relationship Quality and Its Impact on Restaurants' Operational and Financial Performance: An Application of Leader-Member Exchange Theory. *Journal of Association of Arab Universities for Tourism and Hospitality*, 20(4), 293-316.
- Khalil, A. H. S., & Zaher, A. M. H. (2022). A proposed model for applying franchising in sports institutions. *Assiut Journal of Physical Education Sciences and Arts*, (60), 503-532.
- Kim, B. & Lee, S. (2020). The impact of material and immaterial sustainability on firm performance: The moderating role of franchising strategy. *Tourism Management*, 77, 103999.
- Mustafa, O. A. I. (2022). Legal protection for parties in franchise contracts. *College of Law Journal for Legal and Political Sciences*, 11(43), 335-353.
- Ndonga, S. M. (2014). An Exploratory study of franchising as a small and medium enterprises development strategy in Kenya (Master's thesis). Strathmore University, Nairobi, Kenya.
- Oman Authority for Small and Medium Enterprises Development (Riyada). (2022). Franchising for SMEs. Retrieved from <https://www.sme.gov.om/ar/service-details/smes-franchise/>
- Orgonáš, J. Paholková, B. Drábik, P. (2020). Franchising Modern Form of Business for Small and Medium Sized Enterprises in the 21st Century. *Management Studies*, 8(1), 69-73.
- Ozkaya, E., et al. (2018). The role of motivation, opportunity, and ability in entrepreneurship. *Journal of Business Research*.
- Quang, N.V. & Truong-Thi, N.T. (2023). Research on Factors Affecting the Intention to Maintain a Long-Term Relationship in Franchising in Vietnam. *International Journal of Professional Business Review*, 8(11), e03413.
- Saleh, I. J. (2023). The role of franchise contracts in expanding global brand reach. *Global Journal of Islamic Marketing*, 12(1), 113-145.
- Stefanović, S., & Stanković, M. (2014). The Role of ICT and the Internet in the Development of Franchise Systems. *Economic Themes*, 52(4), 409-435.
- Sun, K-A., & Lee, S. (2018). Competitive advantages of franchising firms and the moderating role of organizational characteristics: Evidence from the restaurant industry. *International Journal of Hospitality Management*, 77.(3)
- Timothy, A. S. (2018). Franchise as a Tool for Business Growth and Employment Generation in Nigeria. *Bingham Journal of Economics and Allied Studies*, 1.(1)
- Truong-Thi, N. T. (2022). Fostering Franchising Intention of SMEs in Vietnam: A Motivation-Opportunity-Ability Perspective. *Journal of Asian Finance, Economics and Business*, 9(4), 99-107.

Zaadoud, B. & Chbab, Y. (2021). The Performance Measurement Frameworks in Health Care: Appropriateness Criteria for Measuring and Evaluating the Quality-of-Care Performance through a Systematic Review. *Management Issues in Healthcare System*, 7, 11-34.

# From Static Stages to Non-Linear States: Rethinking SME Growth

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## Abstract

Small and medium-sized enterprises (SMEs) are commonly discussed through stage-based models that describe firm development as movement from start-up and survival toward growth, expansion, and maturity. These models remain useful because they offer a simple language for classifying firm development and identifying common managerial challenges. However, they become limited when SME growth is treated as a linear, predictable, and universal process. Many SMEs do not follow a smooth path from early stage to maturity. They may progress, stagnate, regress, restructure, renew, or exit depending on internal capacity and external pressure. This review paper examines the transition from static stage models toward a non-linear state-based view of SME development. It argues that SME development should be understood through current developmental conditions rather than fixed chronological stages. Five non-linear states are proposed: foundational viability, coordinated expansion, strain and misalignment, retrenchment and reconfiguration, and renewal and adaptive competitiveness. The paper also explains how SMEs may move forward, backward, circularly, or discontinuously across these states. By shifting attention from fixed stage progression to dynamic developmental conditions, this review provides a more flexible foundation for understanding SME growth, instability, decline, recovery, and renewal.

**Keywords:** SME Growth, Static Stages, Developmental States, Non-Linear Development, Small Business Growth, Renewal, Retrenchment

## 1. Introduction

### 1.1. Importance of Understanding SME Development

Small and medium-sized enterprises (SMEs) occupy a central position in economic development because they contribute to employment generation, entrepreneurial activity, innovation, market dynamism, and local resilience. Their development is therefore not only a firm-level concern but also a broader economic and social issue. However, despite their importance, SME development remains difficult to explain because small firms rarely grow in a uniform, predictable, or continuous manner. Some SMEs expand rapidly, some remain stable and small, some

stagnate for long periods, and others decline, recover, restructure, or exit the market. This diversity suggests that SME growth should be understood as a complex developmental process rather than as a simple movement from one fixed phase to another (Davidsson et al., 2010; McKelvie & Wiklund, 2010).

Understanding SME development is also important because growth is not only a matter of increasing sales, assets, or employment. Growth may involve changes in managerial capacity, organizational structure, resource use, operational systems, market positioning, learning, and adaptation. A firm may increase its sales while simultaneously experiencing weak coordination, cash-flow pressure, leadership overload, or internal fragility. Conversely, a firm may reduce its activities temporarily while rebuilding the basis for future survival and renewal. These possibilities show that SME development cannot be fully captured through simple indicators of expansion or maturity. It requires a broader understanding of how firms move through different developmental conditions over time (Garnsey, 1998; Delmar et al., 2003).

### *1.2. The Dominance of Stage-Based Explanations*

Much of the early and influential literature on SME growth has relied on stage-based or life-cycle explanations. These models commonly assume that firms move through a sequence of developmental phases, often beginning with existence or start-up, then moving toward survival, growth, expansion, and maturity. Churchill and Lewis (1983), for example, proposed one of the most widely cited small-business growth models, identifying five stages: existence, survival, success, take-off, and resource maturity. Scott and Bruce (1987) similarly presented small-business growth as a staged process with different crises and strategic issues at each phase.

These models have made an important contribution because they simplify a complex phenomenon and provide a practical language for identifying common growth problems. They also show that the challenges faced by a new venture are not the same as those faced by an expanding or more established firm. Yet the dominance of stage-based explanations has also shaped the way SME growth is understood. By presenting development as a sequence of stages, these models often imply that firms move forward in an ordered and relatively predictable way. This assumption becomes problematic when it is applied too rigidly to SMEs, whose growth patterns are often unstable, discontinuous, and reversible (Phelps et al., 2007; Levie & Lichtenstein, 2010).

### *1.3. The Problem with Linear Assumptions*

The main limitation of traditional stage-based thinking is not that it is entirely wrong, but that it can create a linearity trap. This trap occurs when SME development is interpreted as a predictable progression from one stage to the next rather than as a dynamic process involving movement, interruption, reversal, and adaptation. Phelps et al. (2007) argue that many life-cycle models rely on assumptions of linearity, sequentiality, determinism, and invariance, even though these assumptions may not adequately reflect how organizations actually grow and change.

For SMEs, this problem is especially important because development is shaped by uncertainty, resource constraints, managerial limitations, market shifts, competitive pressure, and external shocks. SMEs may not simply move from start-up to growth and then maturity. Instead, they may experience progress, stagnation, regression, retrenchment, recovery, renewal, or exit. A young firm may show advanced capability, while an older firm may remain fragile or poorly structured. A growing firm may appear successful externally while internally struggling with weak systems or financial pressure. Such cases challenge the assumption that growth automatically represents advancement or that firm age and size accurately indicate developmental maturity (Hanks et al., 1993; Davidsson et al., 2010).

### *1.4. Aim of the Paper*

This paper reviews the shift in SME growth research from static stage-based models toward non-linear developmental state perspectives. It aims to clarify the limitations of linear growth assumptions and explain how a state-based view can better capture the diverse trajectories of SMEs. Specifically, the paper argues that SME development should not be understood only as movement through fixed stages such as start-up, growth, and

maturity. Instead, it should be examined as a dynamic process in which firms may experience different developmental states, including viability, expansion, strain, retrenchment, renewal, and exit.

By focusing on the transition from static stages to non-linear states, this review contributes to SME growth literature in three ways. First, it revisits the usefulness and limitations of traditional stage-based models. Second, it explains why linear assumptions are insufficient for capturing the complexity of SME development. Third, it advances a state-based perspective that recognizes multiple possible trajectories, including progression, stagnation, regression, restructuring, renewal, and failure. The review therefore provides a more flexible foundation for understanding SME development as a dynamic, reversible, and context-sensitive process.

## **2. The Static Stage View of SME Growth**

### *2.1. Meaning of Stage-Based SME Growth Models*

Stage-based models of SME growth refer to frameworks that explain firm development as movement through a series of identifiable phases. These phases are often described using terms such as existence, survival, growth, expansion, take-off, maturity, or resource maturity. The central idea is that firms face different managerial, structural, financial, and strategic challenges as they develop over time. In this view, the development of an SME is not random; it can be understood as a sequence of growth stages, each with its own dominant problems and priorities (Churchill & Lewis, 1983; Scott & Bruce, 1987).

Classical stage models became influential because they offered a systematic way to classify the development of small firms. Churchill and Lewis (1983) suggested that the problems faced by small businesses change as firms move from owner-dependent survival toward more formalized managerial and organizational structures. Scott and Bruce (1987) also emphasized that each stage has distinctive characteristics, potential crises, and strategic issues that managers need to address. Broader organizational life-cycle theories influenced this thinking by presenting firm development as movement from simple, informal, and entrepreneurial forms toward more complex, formalized, and structured organizations (Greiner, 1972; Quinn & Cameron, 1983).

### *2.2. Core Assumptions of Stage Models*

The first major assumption of stage-based SME growth models is that growth follows a relatively predictable path. Although different models use different labels, they commonly suggest that firms move from early survival concerns toward expansion, formalization, and maturity. The second assumption is that firms move from simple to more complex structures. In early stages, SMEs are usually described as informal, owner-managed, resource-constrained, and highly dependent on the founder or owner-manager. As the firm grows, stage models assume that it requires more formal systems, professional management, delegation, planning, and control mechanisms (Churchill & Lewis, 1983; Hanks et al., 1993).

A third assumption is that each stage has typical managerial and organizational problems. For example, the central problem in an early state may be acquiring customers and proving viability, while later challenges may involve delegation, cash-flow control, professional management, coordination, and renewal. Greiner's model is influential in this regard because it shows that managerial practices suitable for one phase may create problems in another, leading to crises that must be resolved before further development can occur (Greiner, 1972). A fourth assumption is that later stages are often treated as more advanced than earlier ones. Later stages are usually associated with greater stability, stronger systems, broader markets, and more professional management.

### *2.3. Contributions of Stage Models*

Despite later criticism, stage-based models have made important contributions to SME growth research. Their first contribution is that they provide a simple and accessible language for explaining firm development. SME growth is complex, and without some form of classification it can be difficult to compare firms or identify recurring

patterns. Stage models help organize this complexity by showing that firms at different points of development may face different priorities.

Second, stage models help explain why managerial problems change over time. A newly established SME may be mainly concerned with survival, customer acquisition, and cash flow. A growing SME may face different challenges, such as delegation, operational control, financing expansion, and building management systems. A more established firm may need to focus on maintaining competitiveness, professionalizing management, or preventing rigidity. Churchill and Lewis (1983) remain influential partly because they link each stage of small-business growth to changing managerial demands and resource requirements.

Third, stage models are useful for practitioners because they help owner-managers anticipate future challenges. Scott and Bruce (1987) presented their model as a practical tool for helping small-business managers plan for future growth, identify potential crises, and select appropriate strategies. In this way, stage models are not only theoretical frameworks; they also function as diagnostic tools that help managers think about what may be required as the firm becomes larger and more complex.

#### *2.4. Limitations of Stage Models*

Although stage-based models provide useful insights, they may overstate the predictability and sequence of SME development. By presenting growth as movement from one stage to another, these models may imply that firms naturally progress from start-up to survival, growth, expansion, and maturity. However, real SME development is often less orderly. Firms may remain small by choice, grow and then decline, restructure after crisis, return to earlier survival problems, or renew themselves after periods of stagnation.

Levie and Lichtenstein (2010) offered one of the strongest critiques of stage theory. Their review of 104 stages-of-growth models found no strong consensus on the basic constructs of the stage approach and no clear empirical confirmation of stage theory. They argued that a dynamic states approach may offer greater explanatory power because it allows firms to move between conditions rather than forcing them into a fixed sequence of stages. Therefore, the static stage view provides an important foundation, but it is insufficient for explaining the full complexity of SME development. This limitation creates the need to examine the linearity trap in SME growth research.

### **3. The Linearity Trap in SME Growth Research**

#### *3.1. Sequential Progression as an Oversimplification*

The main problem with stage-based SME growth models is not that they are irrelevant, but that they can oversimplify the developmental realities of small and medium-sized enterprises. Classical stage models often present SME development as movement from start-up to survival, growth, expansion, and maturity. This logic is useful for organizing growth problems, but it becomes problematic when it assumes that firms naturally move from one stage to the next in an ordered and predictable way. In practice, SMEs do not always follow such a neat developmental path. Their growth may be delayed, interrupted, reversed, accelerated, or reshaped by internal and external conditions.

This limitation can be described as the linearity trap. The linearity trap occurs when SME development is interpreted as a fixed and sequential process rather than as a dynamic and uncertain trajectory. Phelps et al. (2007) argue that many life-cycle models are based on assumptions of linearity, sequentiality, determinism, and invariance. Levie and Lichtenstein (2010) similarly found that stages-of-growth models are widely used but lack strong consensus and empirical confirmation. Therefore, the weakness of stage models lies not in their descriptive value, but in their tendency to imply that SME development follows a universal path.

#### *3.2. Growth as Unstable and Reversible*

SME growth is often unstable because small firms operate under conditions of uncertainty, limited resources, market pressure, and managerial constraint. Unlike large firms, SMEs usually have fewer financial reserves, less formalized management, and greater dependence on the owner-manager. These characteristics make their development more vulnerable to disruption. As a result, growth may not continue smoothly once it begins. A firm may expand for a period, then experience stagnation, decline, retrenchment, or recovery.

This instability challenges the traditional assumption that growth represents continuous progress. Delmar et al. (2003) showed that high-growth firms do not follow a single uniform pattern; instead, they achieve growth in different ways and through heterogeneous trajectories. McKelvie and Wiklund (2010) similarly argue that growth research should pay more attention to how firms grow, not only to how much they grow. This shifts attention from growth rate to growth mode, process, and pattern. Growth can also be reversible. Garnsey (1998) explains that early firm growth involves the matching of resources and opportunities, but solutions to one growth problem may create new problems, and later development may involve both growth-reinforcing and growth-reversing forces.

### *3.3. Firm Age and Size Are Insufficient Indicators*

Another weakness of linear stage thinking is that it often relies on firm age, size, or structural complexity as indicators of developmental progress. In traditional models, young and small firms are usually associated with early stages, while older and larger firms are associated with more advanced stages. However, this assumption does not always reflect the actual developmental condition of SMEs. A firm may be old but still fragile, informal, and highly dependent on the owner. Another firm may be young but already possess strong systems, professional management, advanced technology, or a clear market position.

This problem shows why age and size are insufficient indicators of SME development. Davidsson et al. (2010) emphasize that small firm growth is conceptually and methodologically complex, with significant variation in how growth is measured and interpreted. Hanks et al. (1993) also argued that life-cycle stages should be understood as configurations of organizational characteristics rather than simple chronological categories. A non-linear view therefore asks a different question. Instead of asking how old or large the SME is, it asks what condition the SME is currently experiencing.

### *3.4. The Hidden Problems Behind Apparent Growth*

A further limitation of linear growth assumptions is that they may treat visible expansion as evidence of healthy development. In practice, apparent growth can hide serious internal problems. An SME may experience rising sales, increased customers, or market expansion while simultaneously suffering from weak systems, poor coordination, cash-flow pressure, leadership overload, or declining strategic fit. In such cases, growth does not necessarily mean that the firm is becoming stronger. It may instead create new pressures that the organization is not yet able to manage.

This issue is partly recognized in classical growth models. Greiner (1972) shows that growth can produce crises because the management practices that work in one period may become inadequate in another. However, the problem is that many simplified applications of stage models still treat growth as forward movement rather than as a process that may generate instability. For SMEs, growth can create organizational complexity faster than the firm can develop systems, leadership capacity, and financial discipline. The linearity trap therefore hides the possibility that expansion can be developmentally unhealthy when it is not supported by sufficient internal capacity.

### *3.5. The Problem of Treating Maturity as the Final Destination*

Traditional stage models often imply that maturity is the final or most advanced stage of firm development. Maturity is usually associated with stability, formalization, resource control, managerial systems, and organizational sophistication. While these features are important, treating maturity as the final destination can be

misleading. It suggests that once firms reach maturity, their developmental challenge is largely complete. A non-linear view rejects this assumption because SMEs must continue adapting even after they become established. Maturity can also create rigidity. Established firms may become less flexible, less innovative, or less responsive to changing market conditions. Miller and Friesen's (1984) corporate life-cycle model recognized this complexity by including not only birth, growth, and maturity, but also revival and decline. This shows that development does not end with maturity. Firms may need renewal after maturity, and they may also experience decline if they fail to adapt. For SMEs, survival, adaptation, and renewal are continuous challenges.

#### **4. Why SME Development Is Non-Linear**

##### *4.1. Internal Complexity*

SME development is non-linear partly because firms become more complex as they operate, grow, and respond to changing conditions. In early periods, many SMEs depend heavily on the owner-manager, informal routines, direct supervision, and flexible decision-making. However, as the firm expands, these informal arrangements may become insufficient. Growth can increase the need for clearer roles, stronger managerial capacity, better financial control, reliable operational systems, and more structured decision-making. Internal complexity therefore does not simply increase smoothly; it often emerges through pressure, crisis, adjustment, and learning (Garnsey, 1998; Greiner, 1972).

This internal complexity explains why SME growth should not be measured only by the amount of growth achieved. McKelvie and Wiklund (2010) argue that firm growth research should pay greater attention to how firms grow rather than focusing only on how much they grow. Two SMEs may show similar growth rates but experience very different internal conditions. One may grow through stable and well-managed expansion, while another may grow in a way that produces strain, weak coordination, or managerial overload. SME development becomes non-linear when internal systems, leadership capacity, financial discipline, and organizational structure do not develop at the same speed as market demand or sales growth.

##### *4.2. External Uncertainty*

SME development is also non-linear because firms operate in uncertain and changing environments. Market demand may shift, customer preferences may change, new competitors may enter, technologies may disrupt existing business models, regulations may alter operating conditions, and economic crises may reduce purchasing power or access to finance. These external conditions can interrupt growth, redirect strategic priorities, or force SMEs to restructure.

The dynamic capabilities literature helps explain why firms need to adapt, integrate, and reconfigure resources in changing environments. Teece et al. (1997) argue that firms operating in environments of rapid technological change need dynamic capabilities to create and capture value. Eisenhardt and Martin (2000) similarly describe dynamic capabilities as identifiable processes such as product development, strategic decision-making, and alliancing that help firms respond to dynamic markets. Although these works are not limited to SMEs, the argument is relevant because SMEs often face changing environments with fewer buffers than larger firms.

##### *4.3. Resource Constraints and Vulnerability*

SMEs are especially vulnerable to non-linear development because they often operate with limited financial, human, managerial, and organizational resources. Resource constraints make it difficult for SMEs to absorb shocks, invest in new capabilities, hire specialized staff, adopt new technologies, or survive long periods of weak demand. As a result, even a relatively small disruption can produce significant developmental consequences.

Garnsey (1998) emphasizes that firms must access, mobilize, and deploy resources before they can generate further resources for growth. This is especially important for SMEs because they frequently face a gap between what they need to grow and what they currently possess. If the firm cannot mobilize the necessary resources at the right time,

growth may slow, reverse, or become unstable. Limited resources increase the possibility of interruption, reversal, and retrenchment, which explains why SME growth does not always follow a smooth line from start-up to maturity.

#### *4.4. Discontinuous Growth Patterns*

SME growth is non-linear because growth patterns are often discontinuous. Some firms grow gradually, some grow suddenly, some remain stable, and others grow for a period before declining or restructuring. Growth may occur in bursts rather than through continuous expansion. Periods of progress may be followed by stagnation, contraction, or renewal.

Delmar et al. (2003) provide important evidence for this argument. Their study of high-growth firms found that organizational growth can be achieved in different ways and that growth patterns over time can vary significantly across firms. This challenges the idea that growth firms follow one common path. McKelvie and Wiklund (2010) also argue that growth research should move beyond growth rate and pay attention to growth mode. Different growth modes may produce different developmental consequences. Organic growth may gradually increase complexity, while rapid expansion or acquisition-based growth may create immediate coordination and integration problems.

#### *4.5. Multiple Possible Trajectories*

Because SME development is shaped by internal complexity, external uncertainty, resource constraints, and discontinuous growth patterns, SMEs may follow multiple possible trajectories. Development may involve progression, but it may also involve stagnation, regression, retrenchment, renewal, or exit. This is the strongest reason why SME development should be understood as non-linear.

A progression trajectory occurs when the SME strengthens its market position, improves internal systems, and moves toward more coordinated development. A stagnation trajectory occurs when the firm remains active but does not significantly improve its capabilities, market position, or organizational condition. A regression trajectory occurs when the firm loses capabilities, market share, financial stability, or organizational coherence. Retrenchment occurs when the firm deliberately reduces activity, cuts costs, withdraws from markets, or restructures in response to pressure. Renewal occurs when the firm adapts, reconfigures, innovates, or rebuilds its competitiveness after difficulty. Exit occurs when the firm can no longer continue or when the owner chooses to close, sell, or leave the market (DeTienne, 2010; Levie & Lichtenstein, 2010).

### **5. From Static Stages to Developmental States**

#### *5.1. Defining Developmental States*

The shift from static stages to developmental states represents a major conceptual movement in SME growth research. Traditional stage models usually classify SMEs according to a presumed developmental position, such as start-up, survival, growth, expansion, or maturity. A developmental state, however, refers to the current condition of the firm rather than its age, size, or assumed place in a fixed growth sequence. In this sense, the question changes from 'Which stage is the SME in?' to 'What developmental condition is the SME currently experiencing?' (Levie & Lichtenstein, 2010).

Developmental states are temporary and changeable conditions. They may reflect the firm's level of viability, internal stability, resource pressure, organizational strain, adaptive capacity, or need for renewal. This means that an SME is not permanently locked into one stage. It may move from expansion into strain, from strain into retrenchment, from retrenchment into renewal, or from viability into exit if it cannot survive. A state-based view is therefore important because it focuses on the firm's actual condition, not only on visible indicators such as size, age, or growth rate.

#### *5.2. Difference Between Stages and States*

The difference between stages and states can be understood through their underlying assumptions. Static stages are usually sequential, while non-linear states are multi-directional. Stage models often assume that firms move forward from one phase to another, whereas state-based thinking allows firms to move forward, backward, sideways, circularly, or through interrupted patterns. This distinction is essential because SMEs may not follow a clean path from start-up to growth and maturity. Instead, they may experience stagnation, decline, renewal, or exit at different points in their development.

Table 1: Difference between static stages and non-linear states

| <b>Static stages</b>               | <b>Non-linear states</b>                                    |
|------------------------------------|-------------------------------------------------------------|
| <b>Sequential</b>                  | Multi-directional                                           |
| <b>Predictable</b>                 | Uncertain                                                   |
| <b>Based on growth phases</b>      | Based on current developmental condition                    |
| <b>Implies progress over time</b>  | Allows progress, decline, renewal, or exit                  |
| <b>Often linked to age or size</b> | Linked to capability, pressure, and adaptation              |
| <b>Movement is mainly forward</b>  | Movement can be forward, backward, circular, or interrupted |

The static stage view is useful because it organizes SME development into recognizable phases. However, its weakness is that it may imply too much order and predictability. Phelps et al. (2007) argue that many life-cycle models rely on assumptions of linearity, sequentiality, determinism, and invariance. In contrast, developmental states are not fixed steps in a universal sequence. They are conditions that can appear, disappear, repeat, or overlap depending on the firm's internal capacity and external environment.

### 5.3. States Explain SMEs Better Than Stages

Developmental states explain SMEs better than static stages because they can capture the diversity of real SME trajectories. Stage models tend to emphasize progression, while states allow for several possible directions: growth, stagnation, decline, restructuring, recovery, renewal, or exit. This is important because SME development is not always a story of continuous expansion. Some firms grow rapidly and then collapse. Others remain small but stable. Some experience crisis and later recover. Others appear mature but become rigid and vulnerable to decline. The state-based view also avoids the problem of using age and size as simple proxies for development. Two firms of the same age and size may face very different developmental realities. One may be moving toward expansion, another may be experiencing internal strain, and another may be preparing for renewal after decline. Hanks et al. (1993) support this idea by arguing that life-cycle stages should be understood as configurations of organizational context and structure rather than simple chronological categories.

### 5.4. State-Based Thinking as a Response to the Linearity Trap

State-based thinking should not be understood as a complete rejection of stage models. Stage models remain useful because they identify common developmental challenges and provide a simple language for describing firm growth. Their limitation appears when they are treated as universal, fixed, or predictive pathways. State-based thinking improves stage-based thinking by adding movement, uncertainty, reversal, and adaptation.

A state-based view responds to the linearity trap by allowing SME development to be understood as a dynamic process. It recognizes that SMEs may progress, stagnate, regress, retrench, renew, or exit. It also recognizes that movement between conditions may be caused by internal pressure, external uncertainty, resource limitations, managerial responses, or strategic adaptation. In this view, SME development is not a ladder that firms climb step by step; it is a changing trajectory shaped by the interaction between the firm and its environment.

## 6. Proposed Non-Linear States of SME Development

The previous sections argued that SME development cannot be fully explained through fixed, sequential stages. Instead, SMEs should be understood as moving through different developmental states. These states are not universal steps that all firms must pass through. They are temporary conditions that reflect the firm's current situation, internal capacity, external pressure, and ability to adapt. This section proposes five non-linear states of SME development: foundational viability, coordinated expansion, strain and misalignment, retrenchment and reconfiguration, and renewal and adaptive competitiveness.

### *6.1. Foundational Viability*

Foundational viability refers to the condition in which an SME is trying to establish basic survival and operational existence. At this state, the central question is whether the firm can create enough value to continue operating. The SME must validate its product or service, attract customers, generate revenue, control basic costs, and determine whether its business model is workable. This state is close to what classical growth models describe as the early existence or survival phase, but the state-based view does not treat it as only the first step in a fixed sequence. A firm may return to foundational viability after crisis, market loss, restructuring, or strategic failure (Churchill & Lewis, 1983; Garnsey, 1998).

The foundational viability state is characterized by high uncertainty, limited resources, informal systems, and strong dependence on the owner or founder. The firm's main challenge is not expansion but survival and validation. It may still be searching for a stable customer base, testing product-market fit, developing basic routines, and learning how to manage cash flow. Because systems are usually informal, decision-making is often centralized around the owner-manager. This gives the firm flexibility, but it also increases vulnerability if the owner lacks managerial capacity, financial discipline, or market knowledge.

### *6.2. Coordinated Expansion*

Coordinated expansion refers to the condition in which an SME is growing and must manage that growth more systematically. The firm is no longer only concerned with basic survival. Instead, it must handle increasing sales, more customers, more employees, broader operations, and greater managerial complexity. This state requires stronger coordination because growth creates new demands that informal systems may no longer be able to manage.

Classical growth models often recognize this problem. Churchill and Lewis (1983) describe later stages of small-business growth as involving increasing complexity, delegation, managerial systems, and financial control. Greiner (1972) also shows that organizational growth creates new managerial problems, where practices that once supported growth may later produce crises of leadership, autonomy, control, or coordination. In a non-linear state-based view, coordinated expansion is not treated as a guaranteed stage after survival. It is a condition that emerges when growth is supported by sufficient internal coordination.

### *6.3. Strain and Misalignment*

Strain and misalignment refers to the condition in which an SME may be operating or even growing, but its internal capacity does not match the demands placed upon it. This is one of the most important states in a non-linear view because it shows that growth is not always healthy development. A firm may appear successful because sales are increasing, but internally it may suffer from cash-flow pressure, leadership overload, weak coordination, operational bottlenecks, or declining strategic fit.

This state is supported by the critique of linear growth assumptions. Garnsey (1998) argues that solutions to one growth problem may create new problems later, which means that growth can generate new tensions rather than simply produce progress. McKelvie and Wiklund (2010) also argue that growth research should pay attention to how firms grow, not only how much they grow. Strain and misalignment may occur when market demand increases faster than the firm's internal systems. It may also occur when the owner-manager cannot delegate, when financial

control is weak, when employees lack clear responsibilities, or when the firm's strategy no longer fits market conditions.

#### 6.4. Retrenchment and Reconfiguration

Retrenchment and reconfiguration refers to the condition in which an SME reduces, restructures, or reorganizes its activities in response to pressure. This may involve cost reduction, downsizing, market withdrawal, debt control, operational restructuring, business model adjustment, or reallocation of resources. In a linear view, contraction may be interpreted mainly as decline or failure. In a non-linear view, however, retrenchment may also become a pathway to recovery and renewal.

Turnaround research supports this interpretation. Pearce and Robbins (1993) explain how firms respond to decline and recover from poor performance. Barker and Mone (1994) discuss the relationship between retrenchment and turnaround, showing that retrenchment can be understood either as part of recovery or as a consequence of decline, depending on the firm's strategic condition and response. For SMEs, retrenchment and reconfiguration may be especially important because small firms often lack the financial reserves to absorb long periods prolonged strain. Contraction may therefore help stabilize the firm and create space for future adaptation.

#### 6.5. Renewal and Adaptive Competitiveness

Renewal and adaptive competitiveness refers to the condition in which an SME adapts, recovers, innovates, or repositions itself after pressure, stagnation, or decline. This state is important because it shows that SME development does not end with maturity, nor does difficulty necessarily lead to failure. An SME may use crisis, retrenchment, or stagnation as a trigger for learning, reconfiguration, and strategic renewal.

This state is supported by dynamic capability theory, which emphasizes the firm's ability to adapt, integrate, build, and reconfigure resources in changing environments. Teece et al. (1997) argue that dynamic capabilities allow firms to adapt and reconfigure competences under conditions of technological and market change. Eisenhardt and Martin (2000) similarly describe dynamic capabilities as identifiable processes that help firms respond to dynamic markets. Renewal and adaptive competitiveness may involve innovation, new market direction, improved organizational learning, digital adoption, product or service redesign, strategic repositioning, or new partnerships.

Table 2: Proposed non-linear states of SME development

| State                                       | Core meaning                                                                         | Key characteristics                                                                        | Main risk                                     |
|---------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------------------------|
| <b>Foundational viability</b>               | The SME is trying to establish basic survival and business model viability.          | Customer search; market validation; limited resources; owner dependence; informal systems. | Failure to establish a viable business model. |
| <b>Coordinated expansion</b>                | The SME is growing and must manage increasing complexity.                            | Increasing sales; need for delegation; stronger systems; operational control.              | Growth becomes faster than internal capacity. |
| <b>Strain and misalignment</b>              | The SME is under pressure because internal capacity does not match external demands. | Leadership overload; cash-flow pressure; weak coordination; bottlenecks.                   | Growth becomes internally unsustainable.      |
| <b>Retrenchment and reconfiguration</b>     | The SME reduces or restructures activities in response to pressure.                  | Cost reduction; market withdrawal; restructuring; business model adjustment.               | Retrenchment becomes unmanaged decline.       |
| <b>Renewal and adaptive competitiveness</b> | The SME adapts, innovates, or repositions                                            | Strategic renewal; innovation; new market                                                  | Renewal remains superficial or temporary.     |

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|                                      |                                     |
|--------------------------------------|-------------------------------------|
| itself after pressure or stagnation. | direction; organizational learning. |
|--------------------------------------|-------------------------------------|

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## 7. Transitions Between SME States

The proposed non-linear states should not be understood as fixed categories in which SMEs remain permanently. Rather, they represent temporary developmental conditions that firms may enter, leave, revisit, or move across over time. This is the central difference between a static stage view and a non-linear state-based view. In traditional stage models, movement is often presented as sequential progression from one stage to the next. In contrast, a state-based view recognizes that SMEs may move forward, backward, circularly, or discontinuously depending on internal conditions and external pressures (Levie & Lichtenstein, 2010).

### 7.1. Movement Between States

Movement between SME states is caused by the interaction between internal conditions and external pressures. Internally, transitions may be triggered by changes in managerial capacity, leadership quality, financial control, operational systems, resource availability, coordination, and strategic decision-making. Externally, movement may be shaped by market change, competition, technological disruption, regulation, crisis, economic instability, and shifts in customer demand. Therefore, SME development cannot be explained only by the passage of time or by firm size.

Garnsey (1998) argues that firm growth involves matching resources and opportunities, but also notes that solutions to one growth problem may create new problems later. This means that SME transitions are not always smooth. A firm may solve an early survival problem by attracting customers, but this success may later create new problems related to production capacity, cash-flow control, coordination, or leadership overload. Phelps et al. (2007) similarly suggest that growth is better understood as a response to changing problems and learning challenges than as automatic progression through predetermined stages.

### 7.2. Forward Movement

Forward movement occurs when an SME improves its developmental condition. This does not necessarily mean that the firm becomes larger in size. Rather, forward movement means that the firm becomes more viable, coordinated, adaptive, or competitive. For example, an SME may move from foundational viability to coordinated expansion when it secures a stable customer base, improves cash flow, develops basic routines, and begins to manage growth more systematically.

A possible forward movement is foundational viability → coordinated expansion → renewal and adaptive competitiveness. This movement shows that SME development can involve progress, but not in the rigid sense assumed by classical stage models. The firm does not simply move from start-up to maturity because time passes. It moves forward because its internal capacity becomes better aligned with external opportunities. Forward movement may also occur after difficulty. An SME may experience strain, restructure its activities, and then enter a stronger renewal state.

### 7.3. Backward Movement

Backward movement occurs when an SME shifts into a weaker or more pressured developmental condition. This may happen when internal capacity fails to keep pace with growth, when financial pressure increases, when leadership becomes overloaded, when systems remain informal despite increasing complexity, or when market conditions deteriorate. In such cases, a firm that appears to be growing may actually move into a state of strain and misalignment.

A possible backward movement is coordinated expansion -> strain and misalignment -> retrenchment and reconfiguration. This movement is important because it challenges the assumption that growth automatically represents progress. An SME may expand sales and operations, but if it cannot manage cash flow, delegation, quality control, employee coordination, or customer demand, expansion may produce instability. Backward movement may also occur because of external shock, such as a sudden market downturn, regulation, supply disruption, or technological change.

#### 7.4. Circular or Repeated Movement

A non-linear state-based view also recognizes circular or repeated movement. SMEs may repeatedly move between expansion, strain, retrenchment, and renewal. This pattern is especially likely when firms operate in uncertain environments, have limited resources, or face recurring market and financial pressures. Rather than progressing once through a fixed sequence, the SME may experience repeated cycles of growth, pressure, adjustment, and recovery.

A possible circular movement is coordinated expansion -> strain and misalignment -> retrenchment and reconfiguration -> renewal and adaptive competitiveness -> coordinated expansion. This circular logic is important because it shows that SME development is not a straight path. A firm may expand, become overstretched, restructure, recover, and later expand again. This repeated movement reflects the reality that SMEs often learn through experience, crisis, and adaptation.

#### 7.5. Exit as a Possible Outcome

Exit should not be treated as a developmental state in the same way as viability, expansion, strain, retrenchment, or renewal. Instead, exit is better understood as a possible outcome when the SME cannot recover, adapt, or continue. Exit may occur after prolonged financial pressure, loss of market demand, failure to restructure, owner withdrawal, succession problems, or inability to respond to external change.

DeTienne (2010) defines entrepreneurial exit as the process by which founders leave the firms they helped create, removing themselves to varying degrees from ownership and decision-making. This definition is useful because it shows that exit is not always identical to failure. Exit may involve closure, sale, transfer, succession, merger, or other forms of withdrawal. In the context of SME developmental states, exit becomes especially relevant when the firm is unable to move from strain or retrenchment toward renewal.

Table 3: Transition patterns between SME states

| Transition pattern       | Example movement                                                                        | Meaning                                                  |
|--------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------|
| <b>Forward movement</b>  | Foundational viability -> coordinated expansion -> renewal and adaptive competitiveness | The SME improves its developmental condition.            |
| <b>Backward movement</b> | Coordinated expansion -> strain and misalignment -> retrenchment and reconfiguration    | The SME moves into pressure, weakness, or restructuring. |
| <b>Circular movement</b> | Expansion -> strain -> retrenchment -> renewal -> expansion                             | The SME repeatedly adjusts, recovers, and grows.         |
| <b>Exit outcome</b>      | Strain -> retrenchment -> exit                                                          | The SME cannot recover or chooses to leave the market.   |

## 8. A Non-Linear View of SME Development

The previous sections can now be brought together into a review-based framework. The framework begins from the idea that SME development should not be understood as a fixed stage position. Instead, SME development begins from the firm's current developmental condition. This condition may reflect foundational viability, coordinated expansion, strain and misalignment, retrenchment and reconfiguration, or renewal and adaptive competitiveness. Each of these conditions captures a different way in which the firm may be surviving, growing, struggling, restructuring, or adapting.

The framework is built on three linked ideas. First, the SME's current state is shaped by internal capacity and external pressure. Internal capacity includes managerial ability, leadership, finance, systems, routines, coordination, and strategic decision-making. External pressure includes market change, competition, technological disruption, regulation, crisis, and broader economic uncertainty. Second, the SME may move between developmental states rather than remain permanently in one position. Movement may be forward, backward, circular, or interrupted. Third, the outcome of this movement may include progression, stagnation, regression, retrenchment, renewal, or exit.

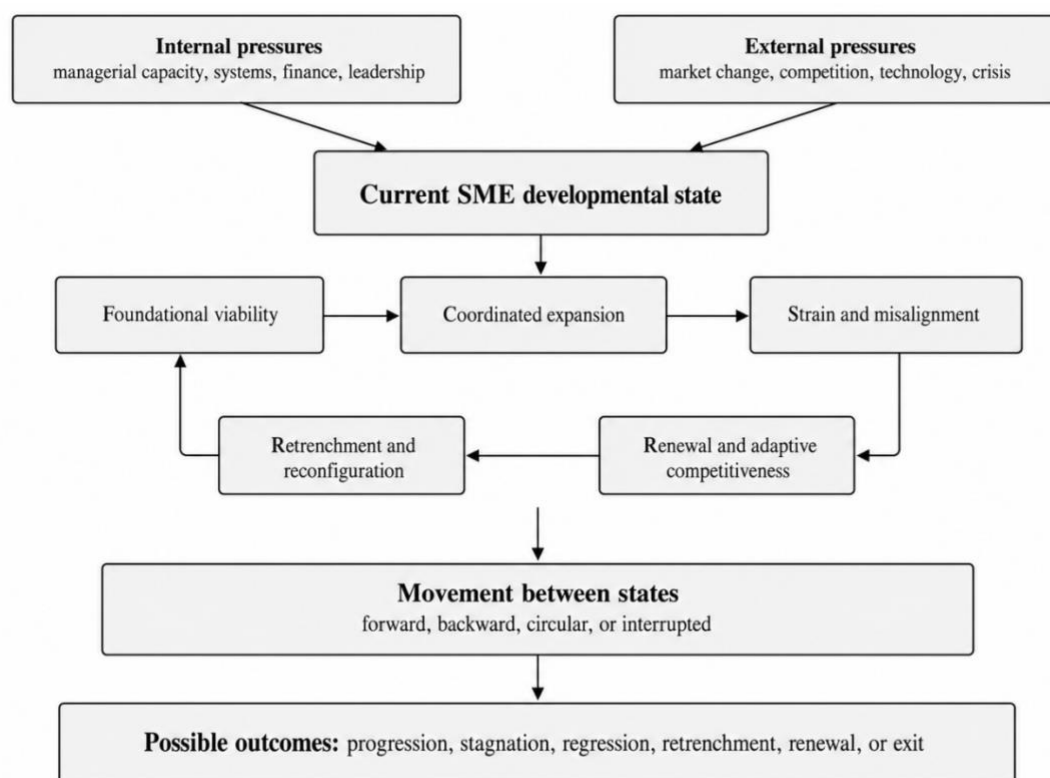


Figure 1: A non-linear state-based view of SME development

Figure 1 summarizes the core logic of the non-linear state-based view. Internal and external pressures shape the firm's current developmental state. This state may represent viability, expansion, strain, retrenchment, or renewal. The SME may then move between these states depending on whether its internal capacity can respond to external demands. As a result, the firm may progress, stagnate, regress, restructure, renew, or exit. The framework therefore shifts attention from fixed stage progression to changing developmental conditions.

This view does not reject the contribution of stage-based models. Instead, it extends them. Stage models help identify recurring developmental problems, but the non-linear state-based view explains why SMEs may not move through those problems in a single ordered path. It recognizes that a firm can move from viability to expansion, from expansion to strain, from strain to retrenchment, and from retrenchment to renewal. It also recognizes that an SME may repeat the same movement several times or exit when recovery is no longer possible.

## Illustrative Transition Pathways Between SME States

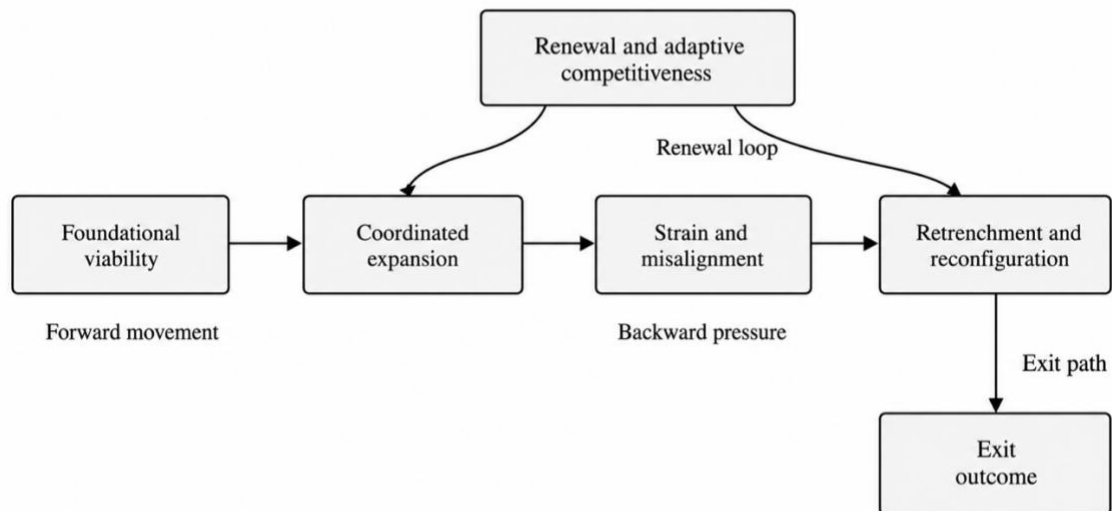


Figure 2: transition pathways between SME states

The framework also clarifies why growth should not be equated automatically with development. Growth may represent progress when it is supported by coordination and adaptive capacity. However, growth may also create strain when internal systems do not keep pace with demand. Similarly, contraction should not be equated automatically with failure. Retrenchment may lead to exit, but it may also support reconfiguration and renewal. This logic gives the review paper its central contribution: SME development is best understood as movement across changing states rather than as progression through universal stages.

## 9. Discussion

### 9.1. Rethinking SME Growth Beyond Sequential Models

This review contributes to SME growth literature by challenging the assumption that SME development should be understood mainly as movement through sequential stages. Traditional stage-based models have been valuable because they identify common developmental challenges associated with firm survival, growth, expansion, and maturity (Churchill & Lewis, 1983; Scott & Bruce, 1987). However, when these models are interpreted too rigidly, they risk presenting SME growth as more predictable and orderly than it actually is.

The central argument of this review is that SME development is better understood as a dynamic and non-linear process. SMEs do not necessarily move from start-up to growth and then maturity in a smooth sequence. Instead, they may progress, stagnate, regress, retrench, renew, or exit depending on their internal condition and external environment. This argument aligns with Phelps et al. (2007), who criticize life-cycle models for relying too heavily on assumptions of linearity, sequentiality, determinism, and invariance. It also follows Levie and Lichtenstein's (2010) critique of stages-of-growth theory.

### 9.2. Theoretical Value of Non-Linear States

The theoretical value of non-linear developmental states lies in their ability to explain SME development as movement across changing conditions rather than progression through fixed phases. Stage models usually describe firms according to categories such as existence, survival, growth, expansion, and maturity. However, developmental states describe the firm's actual condition, such as foundational viability, coordinated expansion, strain and misalignment, retrenchment and reconfiguration, or renewal and adaptive competitiveness.

This state-based view provides a more flexible explanation of SME development because it allows for movement in multiple directions. An SME may move from viability to expansion, from expansion to strain, from strain to retrenchment, or from retrenchment to renewal. The view also helps explain why growth does not always indicate healthy development and why decline does not always represent final failure. Retrenchment may create the conditions for reconfiguration and renewal when firms use contraction to stabilize operations, redirect resources, or rebuild strategic focus (Barker & Mone, 1994; Pearce & Robbins, 1993).

### *9.3. Implications for SME Research*

This review suggests that SME research should move beyond the simple question of whether firms grow or do not grow. Instead, future research should examine the different developmental conditions that SMEs experience and the transitions between them. This requires more attention to instability, reversibility, stagnation, retrenchment, recovery, and renewal.

First, SME researchers should avoid treating age, size, or growth rate as sufficient indicators of development. A young firm may already be strategically capable, while an older firm may remain fragile and owner-dependent. Similarly, a growing firm may be internally strained, while a contracting firm may be reconfiguring for future renewal. Second, SME research should examine transition patterns more carefully. Instead of assuming a universal path from start-up to maturity, researchers should study how and why SMEs move between viability, expansion, strain, retrenchment, renewal, and exit. Third, future SME research should pay more attention to discontinuity and reversal. Longitudinal research is especially important because cross-sectional studies may capture only one moment in a much longer developmental trajectory (Delmar et al., 2003; McKelvie & Wiklund, 2010).

### *9.4. Implications for SME Practice and Policy*

The non-linear state-based view also has implications for SME practice and policy. Policymakers, business development agencies, and SME support programs should not assume that all SMEs follow the same growth path or require the same type of support. SMEs may be similar in size or sector but differ significantly in their developmental condition. One SME may need support for basic survival, another may need help managing expansion, another may need restructuring support, and another may require assistance with renewal and adaptation.

For policy, the key implication is that SME development should be treated as diverse and non-linear. Programs that assume a universal growth pathway may fail to address the real problems firms face. A more effective approach would classify SMEs according to their developmental condition and transition risk. This would allow support systems to distinguish between firms that are ready to expand, firms that are under pressure, firms that need restructuring, and firms that have potential for renewal. In this way, the non-linear state-based view can support more realistic and responsive SME policy.

## **10. Future Research Directions**

Although this review provides a conceptual explanation of the shift from static stages to non-linear states, further research is needed to develop and test this perspective empirically. Five future research directions are particularly important. First, future studies can empirically test different SME developmental states. Researchers can examine whether states such as foundational viability, coordinated expansion, strain and misalignment, retrenchment and reconfiguration, and renewal and adaptive competitiveness can be identified across different SME contexts. This would help determine whether the proposed states are conceptually useful and empirically observable.

Second, longitudinal research is needed to examine how SMEs move between states over time. Since SME development is dynamic, studies that follow firms across several years would be especially valuable. Such research could show whether SMEs move in forward, backward, circular, or interrupted patterns, and what conditions trigger these movements. Third, case studies can explore how SMEs recover from strain or retrenchment. Qualitative case research would be useful for understanding the mechanisms through which firms move from pressure to recovery, or from decline to renewal. This is important because the process of recovery may not be visible through quantitative growth indicators alone.

Fourth, quantitative studies can develop indicators for identifying developmental states. Future researchers could create measurement tools to assess whether an SME is in a condition of viability, expansion, strain, retrenchment, or renewal. These indicators may include measures of financial stability, managerial capacity, operational coordination, strategic fit, adaptability, and external pressure. Fifth, comparative studies can examine whether SME developmental states differ across industries, countries, and institutional contexts. SMEs in technology sectors may experience different transition patterns from those in traditional manufacturing, retail, or services. Similarly, SMEs in emerging economies may face stronger institutional uncertainty, financial constraints, or market instability than those in more developed contexts.

## 11. Conclusion

Stage-based models have played an important role in SME growth research by offering a simple and structured way to explain firm development. They help identify common challenges associated with survival, growth, expansion, and maturity, and they remain useful as descriptive frameworks (Churchill & Lewis, 1983; Scott & Bruce, 1987). However, their explanatory power becomes limited when SME growth is treated as linear, predictable, and universal.

This review has argued that SME development is better understood as a non-linear process shaped by changing internal conditions and external pressures. SMEs may grow, stagnate, regress, restructure, renew, or exit. Growth does not always indicate healthy development, and decline does not always indicate final failure. A firm may appear to be expanding while internally experiencing strain, or it may contract temporarily as part of a process of reconfiguration and renewal.

The proposed non-linear state-based view provides a stronger explanation because it focuses on the actual developmental condition of the firm. Instead of asking only which stage the SME occupies, it asks what condition the SME is currently experiencing and how that condition may change over time. By recognizing states such as foundational viability, coordinated expansion, strain and misalignment, retrenchment and reconfiguration, and renewal and adaptive competitiveness, this review offers a more flexible way to understand SME trajectories.

Overall, the movement from static stages to non-linear states does not completely reject stage-based models. Rather, it extends and improves them by allowing for instability, reversal, adaptation, and multiple possible outcomes. This perspective provides a more realistic foundation for understanding SME development as a dynamic process in which firms may progress, stall, decline, recover, renew, or exit.

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## References

- Bakhtiari, S., Breunig, R., Magnani, L., & Zhang, J. (2020). *Financial Constraints and Small and Medium Enterprises* (IZA Discussion Paper, Issue).
- Barker, V. L., & Mone, M. A. (1994). Retrenchment: Cause of Turnaround or Consequence of Decline? *Strategic Management Journal*, 15(5), 395-405.
- Churchill, N. C., & Lewis, V. L. (1983). The Five Stages of Small Business Growth. *Harvard Business Review*, 61(3), 30-50.
- Davidsson, P., Achtenhagen, L., & Naldi, L. (2010). Small Firm Growth. *Foundations and Trends in Entrepreneurship*, 6(2), 69-166.
- Delmar, F., Davidsson, P., & Gartner, W. B. (2003). Arriving at the High-Growth Firm. *Journal of Business Venturing*, 18(2), 189-216.
- DeTienne, D. R. (2010). Entrepreneurial Exit as a Critical Component of the Entrepreneurial Process: Theoretical Development. *Journal of Business Venturing*, 25(2), 203-215.
- Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic Capabilities: What Are They? *Strategic Management Journal*, 21(10-11), 1105-1121.
- Garnsey, E. (1998). A Theory of the Early Growth of the Firm. *Industrial and Corporate Change*, 7(3), 523-556.
- Greiner, L. E. (1972). Evolution and Revolution as Organizations Grow. *Harvard Business Review*, 50(4), 37-46.
- Greiner, L. E. (1998). Evolution and Revolution as Organizations Grow. *Harvard Business Review*, 76(3), 55-68.
- Hanks, S. H., Watson, C. J., Jansen, E., & Chandler, G. N. (1994). Tightening the Life-Cycle Construct: A Taxonomic Study of Growth-Stage Configurations in High-Technology Organizations. *Entrepreneurship Theory and Practice*, 18(2), 5-30.
- Levie, J., & Lichtenstein, B. B. (2010). A Terminal Assessment of Stages Theory: Introducing a Dynamic States Approach to Entrepreneurship. *Entrepreneurship Theory and Practice*, 34(2), 317-350.
- McKelvie, A., & Wiklund, J. (2010). Advancing Firm Growth Research: A Focus on Growth Mode Instead of Growth Rate. *Entrepreneurship Theory and Practice*, 34(2), 261-288.
- Miller, D., & Friesen, P. H. (1984). A Longitudinal Study of the Corporate Life Cycle. *Management Science*, 30(10), 1161-1183.
- Pearce, J. A., & Robbins, K. (1993). Toward Improved Theory and Research on Business Turnaround. *Journal of Management*, 19(3), 613-636.
- Phelps, R., Adams, R., & Bessant, J. (2007). Life Cycles of Growing Organizations: A Review with Implications for Knowledge and Learning. *International Journal of Management Reviews*, 9(1), 1-30.
- Quinn, R. E., & Cameron, K. (1983). Organizational Life Cycles and Shifting Criteria of Effectiveness: Some Preliminary Evidence. *Management Science*, 29(1), 33-51.
- Scott, M., & Bruce, R. (1987). Five Stages of Growth in Small Business. *Long Range Planning*, 20(3), 45-52.
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal*, 18(7), 509-533.
- Welter, F., & Smallbone, D. (2011). Institutional Perspectives on Entrepreneurial Behavior in Challenging Environments. *Journal of Small Business Management*, 49(1), 107-125.
- World, B. (2024). *Small and Medium Enterprises Finance*.

# Social Media Experience as a Behavioral Driver in Culture-Based Music Tourism: A Comparative Study of Two Heritage Festivals in Indonesia

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## Abstract

This study advances Pine and Gilmore's (1999) experience economy framework by empirically testing a 4E+1E model in the under-researched context of culture-based music tourism in Southeast Asia. While the classical 4E framework (entertainment, education, escapism, esthetics) has been widely validated, the rise of digital-social platforms has fundamentally transformed how festival experiences are constructed, sustained, and converted into behavior—a phenomenon insufficiently theorized in existing models. We address three interrelated gaps: (1) the absence of social media as a structural dimension within experience economy, (2) the limited empirical evidence on heritage-based music festivals in emerging Asian markets, and (3) the lack of comparative studies examining how heritage type (tangible vs. intangible) shapes experiential configurations. Using Structural Equation Modeling–Partial Least Squares (SEM-PLS) on data from 366 visitors to Prambanan Jazz Festival (PJF; UNESCO tangible heritage site) and 98 visitors to Ngayogjazz (community-based intangible heritage festival), both held in Yogyakarta in 2025, we test ten hypotheses linking five experience economy dimensions to revisit intention and word of mouth. Three findings stand out. First, a dominant bifurcation pattern emerges: Entertainment and Extended Experience through Social Media (EESCM) consistently and significantly predict behavioral outcomes across both festivals (H1, H2, H9, H10 supported in both), while Education, Escapism, and Esthetics do not drive revisit intention in either context and show no consistent effect on word of mouth (one context-specific exception: H4 in PJF,  $\beta=0.115$ ,  $p=0.009$ ,  $f^2=0.023$ , does not replicate in Ngayogjazz). Second, EESCM emerges as the dominant predictor in both contexts, with  $f^2$  values up to 0.251 for word of mouth in Ngayogjazz, surpassing the classical entertainment effect. Third, while the structural pattern is consistent, the underlying mechanisms differ: tangible heritage amplifies an emotional-digital pathway, whereas intangible heritage amplifies a relational-tradition pathway. We contribute (a) empirical validation of EESCM as a fifth, behaviorally-dominant experience dimension, (b) a refined theorization separating behavioral triggers from meaning-making layers within the experience economy, and (c) heritage type as a configuration moderator. Implications for festival design, destination branding, and digital-cultural strategy are discussed.

**Keywords:** Experience Economy, Music Tourism, Extended Experience Through Social Media, Cultural Heritage, SEM-PLS, Revisit Intention, Word of Mouth, Indonesia

## 1. Introduction

Music tourism has rapidly emerged as one of the most dynamic and economically consequential niches of contemporary tourism. The global music tourism market, valued at USD 6.6 billion in 2023, is projected to reach USD 13.8 billion by 2032—a compound annual growth rate driven by post-pandemic event revival, the cultural turn in tourism consumption, and the digitalization of audience engagement (Custom Market Insights, 2023). Music festivals, in particular, have transcended their role as entertainment spectacles to become strategic instruments of cultural preservation, destination branding, regional identity construction, and economic multiplier generation (Mazlan et al., 2025; Onn et al., 2024; Peng, 2023; Skandalis et al., 2024).

Within this global landscape, Indonesia offers a particularly compelling empirical setting. Following the pandemic, domestic tourist movements rebounded to an estimated 1.02 billion trips in 2024 (BPS, 2025), with music festivals serving as significant travel motivators that intersect with the country's rich cultural heritage. Two festivals in Yogyakarta exemplify contrasting models of how music tourism integrates with cultural heritage: Prambanan Jazz Festival (PJF), staged within the UNESCO World Heritage Site of Prambanan Temple, and Ngayogjazz, distributed across the living *kampung* (urban village) spaces of Javanese community life. The former embodies tangible heritage tourism—curated, institutionally governed, and architecturally framed; the latter embodies intangible heritage tourism—organic, community-driven, and socially embedded. Together, they constitute a natural cross-contextual setting for examining how heritage type shapes experiential dynamics.

Despite growing scholarship on experience economy in tourism (Pine & Gilmore, 1999; Oh et al., 2007; Quadri-Felitti & Fiore, 2012) and an emerging stream of music tourism research (Gibson & Connell, 2005; Bolderman, 2020; Onn et al., 2024), three interrelated gaps remain. First, the classical 4E framework (entertainment, education, escapism, esthetics) was conceptualized in a pre-digital era and has not been systematically updated to account for the role of social media in extending the festival experience across time (Hudson et al., 2015; Bu et al., 2020). While scholars have begun to acknowledge social media's role in post-event engagement, it has rarely been operationalized as a structural experience dimension on equal footing with the original 4E. Second, empirical investigations of music tourism in Southeast Asian emerging-market contexts—where heritage, religion, and community structures shape experiential consumption in distinctive ways—are scarce relative to the dominance of European and North American studies in the field. Third, comparative studies examining how the type of cultural heritage (tangible vs. intangible) configures experience economy dimensions are virtually absent from the literature, despite UNESCO's longstanding distinction between these two heritage modalities.

This study addresses these gaps by formulating and empirically testing a 4E+1E model in which Extended Experience through Social Media (EESCM) is treated as a fifth, structurally co-equal experience economy dimension. Using SEM-PLS analysis on data from two contrasting heritage festivals in Yogyakarta, Indonesia, we examine how each dimension—classical and digital—influences revisit intention and word of mouth, and we systematically compare the experiential configurations across the two contexts.

### *1.1 Research Contributions*

This study makes four contributions to the experience economy and music tourism literatures. First, theoretically, it advances the experience economy framework by empirically establishing Extended Experience through Social Media (EESCM) as a structurally co-equal—and behaviorally dominant—fifth dimension, moving beyond Pine and Gilmore's (1999) original four realms. Second, it introduces and validates a novel bifurcation pattern within the experience economy: a separation between behavioral triggers (entertainment and EESCM) and meaning-making layers (education, escapism, esthetics), which has implications for both theory and festival design. Third, methodologically and contextually, it provides one of the first comparative SEM-PLS analyses of music tourism across tangible and intangible heritage settings, demonstrating that heritage type functions as a configuration moderator—shaping the qualitative character and mechanisms of experience dimensions while leaving the structural pattern of behavioral significance largely intact. Fourth, empirically, it contributes much-needed evidence on culture-based music tourism in Indonesia, expanding the geographic and cultural scope of experience economy research.

## 2. Literature Review and Hypotheses Development

### 2.1 Music Tourism in Culture-Based Destinations

Music tourism—travel motivated wholly or partly by music-related events, performances, and experiences—has been increasingly recognized as a growing niche of contemporary tourism (Gibson & Connell, 2005; Bolderman, 2020). Its rise reflects broader shifts in tourist behavior toward experiential consumption, authenticity-seeking, identity construction, and meaning-making through travel (Richards, 2020; Skandalis et al., 2024). Within this niche, music festivals occupy a particularly important position: they aggregate large audiences, generate intense affective engagement, and provide rich settings for cultural and commercial exchange (Wood & Kinnunen, 2020). Culture-based destinations introduce additional complexity. When music festivals are situated within sites of heritage significance, the experiential value of the event is intertwined with the symbolic, historical, and communal meaning of the place. Empirical research has shown that such contexts enhance the perceived authenticity of tourist experiences (Wang, 1999; Lee et al., 2024), strengthen place attachment (Iversen, 2022), and contribute to durable behavioral loyalty. Yet the precise mechanisms by which heritage contexts amplify, transform, or differentiate experience economy dimensions—and their downstream behavioral effects—remain underspecified. Moreover, the literature has not adequately distinguished between music tourism situated in tangible heritage settings (e.g., monumental sites, archaeological landscapes) and in intangible heritage settings (e.g., living community practices, oral traditions, ritual spaces), even though UNESCO conventions have long recognized these as analytically distinct.

### 2.2 Experience Economy: The 4E Framework and Its Limits

Pine and Gilmore's (1999) experience economy framework remains a foundational paradigm for understanding consumer engagement in service and tourism settings. The framework conceptualizes experience along two axes—participation (active vs. passive) and connection (absorption vs. immersion)—yielding four experiential realms: entertainment (passive absorption), education (active absorption), escapism (active immersion), and esthetics (passive immersion). Empirical applications have widely confirmed the explanatory power of this 4E model in cultural tourism (Quadri-Felitti & Fiore, 2012; Manthiou et al., 2014), festival research (Rivera et al., 2015; Aşan et al., 2020), and heritage tourism (Li et al., 2022; Culha, 2020).

However, the 4E framework was theorized in a pre-social-media era, and its capacity to account for contemporary, digitally-mediated tourist experiences is increasingly questioned. Festival experiences today are no longer confined to the on-site moment of consumption; they begin with pre-event anticipation generated through social media, intensify on-site through real-time content production and sharing, and continue long after the event through reflection, content recirculation, and community memory (Hudson et al., 2015; Ibrahim et al., 2021). This temporal stretching and digital embedding of experience has prompted scholars to call for expanded experience frameworks (Bu et al., 2020; Wood & Kinnunen, 2020), but few studies have yet formalized social media as a fifth structural dimension and tested its relative behavioral influence vis-à-vis the original four.

### 2.3 Extending the Framework: Extended Experience through Social Media (+1E)

In this study, we introduce Extended Experience through Social Media (EESCM) as a fifth experience economy dimension positioned alongside, not subordinate to, the original 4E. EESCM is conceptualized as the digitally-mediated continuation, reproduction, and amplification of the festival experience across the temporal arc of pre-event anticipation, on-site engagement, and post-event reflection. Drawing on Hudson et al. (2015), Bu et al. (2020), Wood and Kinnunen (2020), and Ibrahim et al. (2021), EESCM encompasses four sub-mechanisms: (a) digital engagement—active interaction with festival-related content and accounts; (b) emotional reinforcement—reliving and intensifying experiential memory through digital content; (c) social co-creation—producing and sharing content that contributes to a collective festival narrative; and (d) behavioral extension—translating digital interaction into offline action.

The theoretical case for treating EESCM as a structural experience dimension—not merely a marketing channel—rests on three observations. First, in contemporary festivals, the digital experience precedes, parallels, and outlives the on-site experience, structurally altering the temporal architecture of consumption. Second, social media does not merely transmit experience; it actively reconstructs it through user-generated content, peer interaction, and algorithmic amplification (Skandalis et al., 2024). Third, the affective and behavioral consequences of digital experience extension—particularly word of mouth and revisit intention—have been shown to exceed those of several classical 4E dimensions in some festival contexts (Tan & Lin, 2021). Together, these observations justify EESCM's elevation from supplementary variable to structural co-equal.

#### *2.4 Behavioral Consequences: Revisit Intention and Word of Mouth*

Two behavioral consequences anchor our model. Revisit intention represents the retentive tendency—the propensity to return and repeat an experience—and has been linked to satisfaction, emotional attachment, and perceived value in festival contexts (Khoo, 2022; Molina-Gómez et al., 2021). Word of mouth (WOM) represents the expressive tendency—the willingness to recommend an experience to others—and functions as a critical driver of destination reputation, new visitor acquisition, and digitally-mediated brand reach (Tan & Lin, 2021; Chou et al., 2025). Together, RI and WOM capture both the intrinsic (return) and extrinsic (advocacy) dimensions of festival loyalty, making them appropriate dependent variables for testing the behavioral consequences of experience economy dimensions.

#### *2.5 Hypotheses Development*

Entertainment, the core of festival consumption, generates emotional responses—joy, nostalgia, collective energy—that are easily articulated and shared. Consistent with Rivera et al. (2015) and Tan and Lin (2021), entertainment is expected to positively influence both behavioral outcomes.

H1: Entertainment Experience positively influences Revisit Intention.

H2: Entertainment Experience positively influences Word of Mouth.

Education experience, encompassing cultural learning and heritage interpretation, enriches the meaningfulness of festival attendance. Although its behavioral effect may be less direct than entertainment, it contributes to cognitive value capable of motivating return visits and recommendations (Li et al., 2022; Armbrecht, 2021).

H3: Education Experience positively influences Revisit Intention.

H4: Education Experience positively influences Word of Mouth.

Escapism, the experience of active immersion that breaks routine, fosters strong emotional memories and psychological recovery. Although its behavioral effects may be situational (Baldick & Jang, 2025), the construct is hypothesized to predict both outcomes.

H5: Escapism Experience positively influences Revisit Intention.

H6: Escapism Experience positively influences Word of Mouth.

Esthetics—the beauty of setting, design, and ambience—creates place-based memories and sensory richness that differentiate culture-based festivals from generic events (Iversen, 2022; Chou et al., 2025). Both behavioral outcomes are hypothesized to be influenced by esthetics.

H7: Esthetics Experience positively influences Revisit Intention.

H8: Esthetics Experience positively influences Word of Mouth.

EESCM is hypothesized to influence both behavioral outcomes through its capacity to amplify, sustain, and transmit experience across the temporal arc of the festival. Drawing on Hudson et al. (2015), Bu et al. (2020), and Ibrahim et al. (2021), EESCM is expected to be particularly powerful for word of mouth (through social amplification) and for revisit intention (through sustained emotional attachment).

H9: Extended Experience through Social Media positively influences Revisit Intention.

H10: Extended Experience through Social Media positively influences Word of Mouth.

## 2.6 Conceptual Framework

Figure 1 presents the conceptual model. Five experience economy dimensions—four classical (entertainment, education, escapism, esthetics) and one newly proposed (extended experience through social media)—are positioned as exogenous constructs predicting two behavioral outcomes: revisit intention and word of mouth. The model is tested separately in two culturally distinct music festival contexts, enabling cross-contextual comparison of both structural significance patterns and underlying mechanisms.

Figure 1: Conceptual Model — The 4E+1E Framework Linking Experience Economy Dimensions to Behavioral Consequences

| EXPERIENCE ECONOMY (4E + 1E)                                     | →         | BEHAVIORAL CONSEQUENCES |
|------------------------------------------------------------------|-----------|-------------------------|
| Entertainment Experience (ENT)                                   | H1, H2 →  | Revisit Intention (RI)  |
| Education Experience (EDU)                                       | H3, H4 →  |                         |
| Escapism Experience (ESC)                                        | H5, H6 →  | Word of Mouth (WOM)     |
| Esthetics Experience (EST)                                       | H7, H8 →  |                         |
| Extended Experience through Social Media (EESCM) [+1E extension] | H9, H10 → |                         |

Note: Arrows indicate hypothesized positive relationships (H1–H10). The +1E (EESCM) is presented as a structural co-equal to the classical 4E, not as a supplementary or moderator construct. The model is tested in two festival contexts (PJF and Ngayogjazz) to enable cross-contextual comparison.

## 3. Method

### 3.1 Research Design and Study Sites

This study employs a quantitative cross-sectional design using Structural Equation Modeling–Partial Least Squares (SEM-PLS). The quantitative analysis presented here forms a standalone empirical investigation, while drawing interpretive depth from a broader concurrent embedded mixed-methods project (Creswell & Plano Clark, 2018) of which it is part. SEM-PLS was chosen over covariance-based SEM (CB-SEM) for three reasons: (a) the model is predictive and exploratory in extending the 4E framework with a new dimension; (b) PLS handles smaller and unevenly-sized samples more robustly, which is critical given the contrasting respondent pools across the two festivals; and (c) PLS does not require multivariate normality assumptions, which is appropriate for Likert-scale festival survey data (Hair et al., 2019; 2022). Two research sites were purposively selected to represent contrasting heritage configurations within a single cultural-geographic region (Yogyakarta, Indonesia):

Prambanan Jazz Festival (PJF), an annual multi-day festival staged at the UNESCO World Heritage Site of Prambanan Temple. PJF represents the tangible-heritage tourism context: institutionally governed by a commercial promoter in coordination with the state heritage authority, with curated programming staged within a formally managed conservation zone. The 2025 edition recorded approximately 76,000 attendees over three days (Antara News, 2025; Injourney Destination, 2025).

Ngayogjazz, an annual one-day jazz festival distributed across the living spaces of a Javanese kampung. Ngayogjazz represents the intangible-heritage tourism context: community-driven, co-created across multiple makeshift stages embedded in everyday community life, with attendance free of charge and audience-performer boundaries deliberately blurred.

This contrast is theoretically motivated: PJF's tangible-heritage, institution-driven model and Ngayogjazz's intangible-heritage, community-driven model permit examination of whether—and how—heritage type configures experience economy dimensions and their behavioral consequences.

### 3.2 Sampling and Data Collection

Convenience sampling was employed at both sites, targeting visitors attending the 2025 festival editions. Data were collected through structured questionnaires administered on-site during the festivals and online via official festival community channels post-event, to maximize reach across visitor segments. After data screening (removing incomplete and inconsistent responses), 366 valid responses were retained for PJF and 98 for Ngayogjazz. Both samples meet the SEM-PLS 10-times rule minimum threshold (Hair et al., 2022), given that the model has five paths converging on each dependent variable (requiring  $n \geq 50$  per site). The sample size asymmetry reflects the substantially larger scale of PJF (~76,000 attendees) compared to Ngayogjazz (community-scale, intimate gathering) and is treated as a feature of contextual variation rather than a methodological limitation.

### 3.3 Measurement Instrument

A structured questionnaire measured seven latent constructs using a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree). Indicators were adapted from validated instruments in the music tourism and experience economy literatures: entertainment (Rivera et al., 2015; Aşan et al., 2020), education (Li et al., 2022; Manthiou et al., 2014), escapism (Baldick & Jang, 2025; Molina-Gómez et al., 2021), esthetics (Iversen, 2022; Chou et al., 2025), and EESCM (Hudson et al., 2015; Ibrahim et al., 2021; Bu et al., 2020). Revisit intention and word of mouth items were adapted from Khoo (2022) and Tan and Lin (2021), respectively. Item wording was contextually adapted to the Indonesian music festival setting through expert review and a pilot test on 30 visitors prior to full deployment, leading to minor refinements for clarity.

### 3.4 Data Analysis

SEM-PLS analysis was conducted using SmartPLS 4. The analysis proceeded in two stages. First, the outer (measurement) model was evaluated for convergent validity (outer loadings  $> 0.70$ ; AVE  $> 0.50$ ), internal consistency reliability (Composite Reliability  $> 0.70$ ; Cronbach's  $\alpha > 0.70$ ), and discriminant validity (Fornell-Larcker criterion and HTMT ratios  $< 0.85$ ), following Hair et al. (2022). Second, the inner (structural) model was evaluated through path coefficients ( $\beta$ ), R-square ( $R^2$ ) values, effect sizes ( $f^2$ ), and significance testing via bootstrapping with 5,000 resamples. To address potential common method bias arising from single-source self-report data, Harman's single-factor test was conducted, with the largest factor explaining less than 50% of total variance, suggesting that common method bias is unlikely to confound the findings (Podsakoff et al., 2003).

## 4. Results

### 4.1 Respondent Profile

Table 1 presents respondent characteristics for both festivals. The two samples differ substantially in profile, reflecting the contrasting nature of the festivals. PJF visitors are predominantly female (80.9%), largely first-time attendees (67.5%), and travel from across Java and beyond (59.6% non-local), reflecting an audience drawn by the prestige and novelty of the UNESCO heritage setting. Ngayogjazz visitors, by contrast, are predominantly female (61.2%), predominantly repeat visitors (41.8% attended four or more times), and heavily concentrated in the Yogyakarta region (72.4%), reflecting a loyal, community-rooted audience for whom the festival is part of an annual social tradition.

Table 1: Respondent Demographic and Visit Profile

| Variable | Category    | PJF<br>(n=366) | %    | Ngayogjazz<br>(n=98) | %    |
|----------|-------------|----------------|------|----------------------|------|
| Gender   | Female      | 296            | 80.9 | 60                   | 61.2 |
|          | Male        | 70             | 19.1 | 38                   | 38.8 |
| Age      | 18–24 years | 74             | 20.2 | 18                   | 18.4 |
|          | 25–34 years | 198            | 54.1 | 42                   | 42.9 |

| Variable               | Category               | PJF<br>(n=366) | %    | Ngayogjazz<br>(n=98) | %    |
|------------------------|------------------------|----------------|------|----------------------|------|
|                        | 35–44 years            | 62             | 16.9 | 28                   | 28.6 |
|                        | ≥ 45 years             | 32             | 8.7  | 10                   | 10.2 |
| <b>Education</b>       | Diploma/Bachelor's     | 209            | 57.1 | 58                   | 59.2 |
|                        | Master's/Doctoral      | 112            | 30.6 | 32                   | 32.7 |
|                        | Other                  | 45             | 12.3 | 8                    | 8.2  |
| <b>Visit Frequency</b> | First time             | 247            | 67.5 | 22                   | 22.4 |
|                        | 2–3 times              | 82             | 22.4 | 35                   | 35.7 |
|                        | ≥ 4 times              | 37             | 10.1 | 41                   | 41.8 |
| <b>Domicile</b>        | Yogyakarta & surrounds | 148            | 40.4 | 71                   | 72.4 |
|                        | Other Java             | 162            | 44.3 | 21                   | 21.4 |
|                        | Outside Java           | 56             | 15.3 | 6                    | 6.1  |

Note: PJF = Prambanan Jazz Festival; NGJ = Ngayogjazz. Source: Primary data, 2025.

#### 4.2 Measurement Model

All constructs in both datasets demonstrated satisfactory psychometric properties. Outer loadings for all retained items exceeded 0.70, indicating adequate item reliability. Average Variance Extracted (AVE) values were above 0.50 for all constructs, confirming convergent validity. Composite Reliability and Cronbach's Alpha exceeded 0.70 for all constructs, establishing internal consistency reliability. Discriminant validity was confirmed through both Fornell-Larcker criterion (square root of AVE for each construct exceeded its correlations with other constructs) and HTMT ratios below the 0.85 threshold (Henseler et al., 2015). These results confirm that the measurement model is valid and reliable across both festival contexts, establishing a sound basis for structural model interpretation.

#### 4.3 Structural Model and Hypothesis Testing

Table 2 presents the structural model results for both festivals, including hypothesis decisions, significance levels, and R<sup>2</sup> values.

Table 2: Structural Model Results and Hypothesis Testing

| Construct                       | H  | Path                    | $\beta$<br>(PJF) | T<br>(PJF) | Decision<br>(PJF)  | $\beta$<br>(NGJ) | T<br>(NGJ) | Decision<br>(NGJ) |
|---------------------------------|----|-------------------------|------------------|------------|--------------------|------------------|------------|-------------------|
| <b>Entertainment Experience</b> | H1 | ENT → Revisit Intention | 0.159            | 2.247      | <b>Supported</b>   | 0.343            | 2.892      | <b>Supported</b>  |
|                                 | H2 | ENT → Word of Mouth     | 0.234            | 3.637      | <b>Supported</b>   | 0.315            | 3.110      | <b>Supported</b>  |
| <b>Education Experience</b>     | H3 | EDU → Revisit Intention | 0.096            | 1.773      | Not Supported      | -0.088           | 0.757      | Not Supported     |
|                                 | H4 | EDU → Word of Mouth     | 0.115            | 2.620      | <b>Supported**</b> | -0.064           | 0.549      | Not Supported     |

| Construct                                                | H   | Path                      | $\beta$<br>(PJF)     | T<br>(PJF) | Decision<br>(PJF)    | $\beta$<br>(NGJ) | T<br>(NGJ) | Decision<br>(NGJ) |
|----------------------------------------------------------|-----|---------------------------|----------------------|------------|----------------------|------------------|------------|-------------------|
| Escapism Experience                                      | H5  | ESC → Revisit Intention   | 0.065                | 1.055      | Not Supported        | 0.130            | 1.077      | Not Supported     |
|                                                          | H6  | ESC → Word of Mouth       | 0.040                | 0.736      | Not Supported        | 0.108            | 0.999      | Not Supported     |
| Esthetics Experience                                     | H7  | EST → Revisit Intention   | 0.114                | 1.695      | Not Supported        | 0.148            | 1.403      | Not Supported     |
|                                                          | H8  | EST → Word of Mouth       | 0.082                | 1.276      | Not Supported        | 0.076            | 0.764      | Not Supported     |
| Extended Exp. (Social Media)                             | H9  | EESCM → Revisit Intention | 0.347                | 5.434      | Supported            | 0.300            | 3.341      | Supported         |
|                                                          | H10 | EESCM → Word of Mouth     | 0.473                | 8.349      | Supported            | 0.439            | 4.215      | Supported         |
| <b>R<sup>2</sup> (Revisit Intention / Word of Mouth)</b> |     |                           | <b>0.426 / 0.637</b> |            | <b>0.497 / 0.559</b> |                  |            |                   |

Note: \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ ; †  $p < 0.05$  (two-tailed, bootstrapping 5,000 resamples). ENT=Entertainment Experience; EDU=Education Experience; ESC=Escapism Experience; EST=Esthetics Experience; EESCM=Extended Experience through Social Media; RI=Revisit Intention; WOM=Word of Mouth. H4 PJF (EDU→WOM):  $\beta=0.115$ ,  $T=2.620$ ,  $p=0.009$  — statistically significant but with negligible effect size ( $f^2=0.023$ ); interpreted as a context-specific nuance rather than a general pattern. Source: SmartPLS 4 analysis, 2026.

The structural model reveals a striking and consistent pattern across both festival contexts. Of the ten hypotheses tested, nine show consistent results across both festivals. Entertainment (H1, H2) and EESCM (H9, H10) significantly predict both behavioral outcomes in both settings. Education, escapism, and esthetics do not predict revisit intention in either festival (H3, H5, H7 not supported); nor do they predict word of mouth in Ngayogjazz (H4, H6, H8 not supported). A context-specific nuance emerges for H4 in PJF: education exerts a statistically significant but negligible-effect influence on word of mouth ( $\beta=0.115$ ,  $T=2.620$ ,  $p=0.009$ ,  $f^2=0.023$ ), an isolated finding that does not replicate in Ngayogjazz ( $\beta=-0.064$ ,  $p=0.583$ ) and thus does not constitute a general pattern. The dominant pattern remains a bifurcation: entertainment and EESCM function as behavioral triggers, while education, escapism, and esthetics operate as meaning-making layers without consistent direct behavioral impact. Effect size ( $f^2$ ) analysis reinforces this: the non-significant dimensions show very small effect sizes ( $f^2 < 0.025$  across both festivals), while the supported paths range from small-to-moderate for entertainment (PJF:  $f^2=0.017$  for RI, 0.058 for WOM; NGJ:  $f^2=0.100$  for RI, 0.096 for WOM) to moderate-to-large for EESCM (PJF:  $f^2=0.104$  for RI, 0.305 for WOM; NGJ:  $f^2=0.103$  for RI, 0.251 for WOM).

EESCM emerges as the dominant predictor in both contexts, particularly for word of mouth. In PJF, the path EESCM→WOM yields the highest coefficient in the entire model ( $\beta=0.473$ ,  $T=8.349$ ,  $p<0.001$ ), followed by EESCM→RI ( $\beta=0.347$ ,  $T=5.434$ ,  $p<0.001$ ). In Ngayogjazz, EESCM similarly dominates: EESCM→WOM ( $\beta=0.439$ ,  $T=4.215$ ,  $p<0.001$ ) and EESCM→RI ( $\beta=0.300$ ,  $T=3.341$ ,  $p=0.001$ ). Entertainment, while consistently significant, shows comparatively smaller coefficients: ENT→RI at  $\beta=0.159$  ( $T=2.247$ ,  $p=0.025$ ) in PJF and  $\beta=0.343$  ( $T=2.892$ ,  $p=0.004$ ) in Ngayogjazz; ENT→WOM at  $\beta=0.234$  ( $T=3.637$ ,  $p<0.001$ ) in PJF and  $\beta=0.315$  ( $T=3.110$ ,  $p=0.002$ ) in Ngayogjazz. This is a striking empirical result: a dimension absent from Pine and Gilmore's original framework now exerts the strongest behavioral influence in contemporary culture-based music tourism, surpassing the classical entertainment effect in both heritage contexts.

The  $R^2$  values indicate that the model explains a substantial proportion of variance in behavioral outcomes. For PJF:  $R^2 = 0.426$  for revisit intention and  $R^2 = 0.637$  for word of mouth. For Ngayogjazz:  $R^2 = 0.497$  for revisit intention and  $R^2 = 0.559$  for word of mouth. Notably, PJF shows a higher  $R^2$  for WOM while Ngayogjazz shows

a higher  $R^2$  for RI—an asymmetry that aligns with the visitor profiles (first-time, spectacle-oriented audience at PJF; loyal, community-rooted audience at Ngayogjazz) and is discussed further in Section 5.

## 5. Discussion

### 5.1 *The Bifurcation Finding: Behavioral Triggers vs. Meaning-Making Layers*

The most theoretically consequential finding of this study is what we term the bifurcation pattern: of the five experience economy dimensions tested, only entertainment and EESCM exhibit statistically significant behavioral effects, while education, escapism, and esthetics consistently do not. Critically, this is not because the latter three dimensions are absent or unimportant in visitor experience. Companion qualitative evidence from the same research project (analyzed in the broader dissertation) confirms that visitors experience these dimensions richly and articulately. The puzzle is that experienced meaning does not translate into measurable behavior.

We propose that this divergence reflects a fundamental and previously underappreciated functional differentiation within the experience economy framework itself. Education, escapism, and esthetics operate as meaning-making layers—they enrich the cognitive, emotional, and symbolic depth of the festival experience but do so in ways that are internalized, implicit, and ambient rather than action-generating. Entertainment and EESCM, by contrast, function as behavioral triggers—they generate explicit, articulable, and digitally-shareable affective and social states that translate directly into the decision to recommend and return. This bifurcation has roots in the absorption-immersion-participation logic of Pine and Gilmore's original framework but moves beyond it by introducing a functional asymmetry: not all experience dimensions are equally action-generating, and the distinction between meaning-making and behavior-triggering may be more fundamental than the active-passive or absorption-immersion axes.

This finding aligns with and extends previous observations. Molina-Gómez et al. (2021) noted that escapism's behavioral effects are situational and personal; Iversen (2022) observed that aesthetic value is often internalized as ambient quality rather than salient decision input. Our results suggest that these are not isolated observations about specific dimensions but instances of a broader structural pattern that warrants explicit theoretical recognition.

### 5.2 *The EESCM Dominance: A Necessary Extension to the 4E Framework*

EESCM emerges as the dominant predictor of both behavioral outcomes in both festivals—a result that has significant implications for experience economy theory. While Pine and Gilmore's (1999) original framework positioned entertainment as the foundational realm and the locus of experiential value, our findings show that, in contemporary culture-based music tourism, a digitally-mediated experiential dimension exerts greater behavioral force than the classical entertainment realm itself. This is not merely an additive finding (i.e., that social media is also influential); it is a structural finding: EESCM cannot be relegated to a supplementary marketing channel or a moderator variable—it must be theorized as a structural co-equal to the 4E.

Three mechanisms underlie EESCM's dominance. First, temporal extension: by spanning pre-event anticipation, on-site engagement, and post-event reflection, EESCM accumulates and sustains experiential value over a much longer arc than the festival itself. Second, social amplification: digital content production is inherently social, embedding the festival experience within visitors' broader social networks and identities, which makes it more easily translated into word of mouth (Hudson et al., 2015; Tan & Lin, 2021). Third, memorial reconstruction: digital content allows visitors to relive, reframe, and intensify their festival memories, sustaining emotional attachment that drives revisit intention. Together, these mechanisms make EESCM particularly potent—especially for WOM, which is itself a fundamentally social-expressive behavior.

This finding necessitates a reconceptualization of the experience economy in the digital age. The 4E framework remains valid as a typology of experience modalities, but it is now empirically incomplete as a model of behavioral influence. We propose that the 4E+1E formulation, with EESCM positioned as a structural co-equal, is more appropriate for contemporary tourism research and practice.

### 5.3 Heritage Type as a Configuration Moderator

Although the structural significance pattern is consistent across both festivals—entertainment and EESCM dominate; education, escapism, and esthetics do not directly drive behavior—the qualitative character and underlying mechanisms of these dimensions differ systematically between the two contexts. Table 3 synthesizes this configuration.

Table 3: Cross-Festival Comparison of Experience Economy Configuration and Mechanisms

| Dimension                                 | PJF (Tangible Heritage)                                                       | Ngayogjazz (Intangible Heritage)                                       |
|-------------------------------------------|-------------------------------------------------------------------------------|------------------------------------------------------------------------|
| <b>Entertainment</b>                      | Emotional engagement; nostalgia; curated stage experience                     | Social engagement; community intimacy; inclusive atmosphere            |
| <b>Education</b>                          | Interpretive cultural learning; heritage-contextual; implicit                 | Organic community learning; experiential; collective capacity building |
| <b>Escapism</b>                           | Individual psychological withdrawal; selective immersion                      | Social reconnection; relational reframing of everyday space            |
| <b>Esthetics</b>                          | Sense of place driven by UNESCO heritage setting; staged visual spectacle     | Embedded lived aesthetics; everyday space reframed as festive          |
| <b>Extended Experience (Social Media)</b> | Digital engagement & emotional reinforcement dominant; fan-artist interaction | Behavioral extension & social co-creation dominant; tradition-building |
| <b>Dominant Behavioral Driver</b>         | EESCM (largest $f^2$ for WOM); Entertainment significant                      | EESCM ( $f^2=0.103$ RI; 0.251 WOM); Entertainment significant          |
| <b>R<sup>2</sup> (RI / WOM)</b>           | 0.426 / 0.637                                                                 | 0.497 / 0.559                                                          |
| <b>Underlying Mechanism</b>               | Institutional-driven; bridging social capital; spectacle-emotion pathway      | Community-driven; bonding social capital; relational-tradition pathway |

Note: PJF = Prambanan Jazz Festival (tangible heritage, institutional governance); NGJ = Ngayogjazz (intangible heritage, community governance). Source: Synthesis of quantitative findings and complementary qualitative interpretation, 2025–2026.

Three observations stand out. First, although EESCM is dominant in both contexts, its sub-mechanisms differ. In PJF, EESCM operates primarily through digital engagement and emotional reinforcement—fan content sharing and artist interaction—consistent with the technologically connected, novelty-oriented audience of a large commercial festival. In Ngayogjazz, EESCM operates primarily through behavioral extension and social co-creation—repeated attendance as social tradition, transmitted through community networks. Thus, EESCM is not monolithic; its internal sub-mechanisms are themselves context-contingent, shaped by the social capital structure of the destination community (bonding capital in Ngayogjazz; bridging capital in PJF, in Putnam's, 2000 terms). Second, entertainment also shifts in character: it manifests as emotional engagement (nostalgia, spectacle, heritage-amplified affect) in PJF, but as social engagement (community intimacy, audience-performer fluidity) in Ngayogjazz. Although the structural effect of entertainment on behavior is consistent across both contexts, what entertainment means and how it functions is shaped by heritage type.

Third, the asymmetric R<sup>2</sup> pattern—higher WOM-R<sup>2</sup> in PJF (0.637) and higher RI-R<sup>2</sup> in Ngayogjazz (0.497)—reflects the audience-context fit. PJF's first-time, novelty-seeking audience is highly motivated to share their experience (high WOM-relevance), while Ngayogjazz's loyal, repeat-visitor audience has return decisions driven more cleanly by accumulated experience quality (high RI-relevance). This asymmetry strengthens the case that heritage type configures not only experience dimensions but also the dominant behavioral pathways through which they operate.

Taken together, these findings support our proposal that heritage type (tangible vs. intangible) functions as a configuration moderator in culture-based music tourism: it does not flip the structural significance pattern, but it systematically shapes the qualitative character and operational mechanisms of experience economy dimensions.

#### *5.4 Theoretical Contributions*

This study advances the experience economy and music tourism literatures in four specific ways. First, it extends Pine and Gilmore's (1999) 4E framework by empirically validating Extended Experience through Social Media (EESCM) as a fifth, structurally co-equal—and behaviorally dominant—experience dimension. To our knowledge, this is among the first empirical studies to formalize and test EESCM as a structural construct rather than as a moderator or supplementary marketing channel. Second, it introduces the bifurcation pattern as a theoretically novel refinement of the experience economy framework: experience dimensions cleave into behavioral triggers (entertainment, EESCM) and meaning-making layers (education, escapism, esthetics), suggesting that the framework needs a functional asymmetry layer in addition to its participation-immersion typology. Third, it advances heritage-tourism scholarship by introducing heritage type (tangible vs. intangible) as a configuration moderator that shapes the qualitative character and mechanisms of experience economy dimensions, even when the structural significance pattern is held constant. Fourth, it provides one of the first empirical investigations of music tourism in the Southeast Asian cultural context, broadening the geographic and cultural reach of experience economy research beyond its predominantly Euro-American empirical base.

#### *5.5 Managerial Implications*

For festival organizers and destination marketers, the findings suggest a clear strategic priority ordering. First, investments in digital-social ecosystem building—platform presence, artist-audience engagement, community channels, content amplification strategies, and pre-/post-event digital storytelling—yield the highest returns in behavioral outcomes. Festival marketers should not treat social media as a downstream promotion channel but as a structural component of the experiential product itself, integrated into the design of the festival across its full temporal arc. Second, investments in entertainment quality—programming, talent curation, stage production—remain essential as the second-most-influential behavioral driver. Third, while education, escapism, and esthetics do not directly drive behavior, they should not be deprioritized: they constitute the meaning-making substrate that gives entertainment and EESCM their depth and authenticity. Cutting cultural programming or heritage integration to focus solely on entertainment and digital marketing would impoverish the experiential foundation on which behavioral triggers act.

For policymakers and destination managers in heritage cities like Yogyakarta, the cross-contextual findings suggest a portfolio strategy: tangible-heritage festivals such as PJF are particularly effective for new visitor acquisition (high WOM- $R^2$ ), while intangible-heritage festivals such as Ngayogjazz are effective for community embedment and loyalty cultivation (high RI- $R^2$ ). The two models are complementary, not substitutable, and a destination strategy that nurtures both can serve different functions in the broader cultural tourism ecosystem. Heritage-based music tourism thus offers a model of how heritage preservation, community participation, and economic generation can co-evolve—provided that festival governance is sensitive to the distinctive logic of each heritage type.

### **6. Conclusion**

This study contributes to the experience economy and music tourism literatures by advancing four interconnected findings. First, Extended Experience through Social Media (EESCM) operates as a structurally co-equal—and behaviorally dominant—fifth dimension of the experience economy, justifying its formal incorporation into a 4E+1E framework. Second, experience economy dimensions cleave into two functional categories: behavioral triggers (entertainment, EESCM) and meaning-making layers (education, escapism, esthetics), with implications for both theory and festival design. Third, heritage type (tangible vs. intangible) functions as a configuration moderator that shapes the qualitative character and operational mechanisms of experience dimensions, even when

their structural significance pattern is consistent. Fourth, empirically, the study expands experience economy research into the under-studied context of Southeast Asian heritage tourism.

These contributions are grounded in SEM-PLS analysis of 366 visitors to Prambanan Jazz Festival and 98 visitors to Ngayogjazz—two music festivals in Yogyakarta, Indonesia, that represent contrasting tangible and intangible heritage configurations. The consistency of structural findings across these two highly different contexts strengthens confidence in the generalizability of the core results, while the contextual differences in mechanism enrich the theoretical interpretation.

Several limitations should be acknowledged. First, the cross-sectional design precludes causal inference about the temporal dynamics through which EESCM influences behavior. Future longitudinal designs could examine how digital engagement evolves across pre-/during-/post-event phases. Second, the asymmetric sample sizes (366 vs. 98) reflect the natural scale differences between the two festivals; while both meet SEM-PLS adequacy thresholds, future research with more balanced samples could enable stronger formal comparative testing through multi-group analysis. Third, the focus on two festivals in a single cultural region (Yogyakarta, Indonesia) constrains generalizability; extension to other heritage music festivals across Asia and globally would test the configuration-moderator role of heritage type more thoroughly. Fourth, the convenience sampling approach, while practical for festival contexts, limits population-level inference. Future studies could employ probabilistic sampling at festivals where attendee lists permit.

Future research could productively extend this work in several directions. First, EESCM's mediating role between meaning-making dimensions and behavioral outcomes deserves explicit investigation—does social media convert latent education/aesthetics value into measurable behavior? Second, multi-group SEM analysis across more festival pairs could formally test the heritage-type-as-moderator proposition. Third, examining the four EESCM sub-mechanisms (digital engagement, emotional reinforcement, social co-creation, behavioral extension) as separate constructs could yield finer-grained theoretical insights. Finally, the bifurcation pattern itself invites cross-domain replication: does the behavioral-trigger/meaning-making-layer distinction hold in non-music, non-festival, or non-tourism experience economy contexts?

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## References

Antara News. (2025). Prambanan Jazz Festival 2025 raih rekor pengunjung 76.000 penonton [Prambanan Jazz Festival 2025 achieves record 76,000 attendees]. Antara News.

- Armbrrecht, J. (2021). Experience economy and cultural events. In M. Foley & G. McPherson (Eds.), *Cultural Events and the Visitor Economy* (pp. 47–63). Routledge.
- Aşan, K., Güzel, Ö., & Varnacı Uzun, F. (2020). Understanding festival experiences and intentions: Experience economy approach. *International Journal of Contemporary Hospitality Management*, 32(9), 2947–2964. <https://doi.org/10.1108/IJCHM-12-2019-1016>
- Baldick, R., & Jang, J. (2025). Immersive escapism and behavioral outcomes in festival tourism. *Tourism Management Perspectives*, 54, Article 101092.
- Bolderman, L. (2020). *Pilgrimage to the music city: Popular music tourism in Hamburg, Liverpool, Nashville and New Orleans*. Routledge.
- BPS – Statistics Indonesia. (2025). Statistik kunjungan wisatawan nusantara 2024 [Statistics of domestic tourist visits 2024]. Badan Pusat Statistik.
- Bu, N., Liu, H., & Guo, L. (2020). How social media use influences tourist revisit intention and WOM: A SEM analysis. *Journal of Hospitality and Tourism Management*, 43, 55–64. <https://doi.org/10.1016/j.jhtm.2020.01.005>
- Chou, H.-J., Huang, S., & Lin, C.-H. (2025). Aesthetic value and tourist loyalty: An experience economy perspective. *Tourism Management*, 104, Article 104915.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.
- Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE.
- Culha, O. (2020). The effects of educational and cultural travel experiences on tourist behavior. *Journal of Hospitality & Tourism Research*, 44(6), 935–961. <https://doi.org/10.1177/1096348020924522>
- Custom Market Insights. (2023). *Music tourism market size, share, growth analysis report, forecast 2023–2032*. Custom Market Insights.
- Gibson, C., & Connell, J. (2005). *Music and tourism: On the road again*. Channel View Publications.
- Hair, J. F., Henseler, J., Dijkstra, T. K., & Sarstedt, M. (2019). Common beliefs and reality about PLS: Comments on Rönkkö and Evermann (2013). *Organizational Research Methods*, 17(2), 182–209.
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2022). When to use and how to report the results of PLS-SEM (2nd ed.). *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135. <https://doi.org/10.1007/s11747-014-0403-8>
- Hudson, S., Roth, M. S., Madden, T. J., & Hudson, R. (2015). The effects of social media on emotions, brand relationship quality, and word of mouth. *Tourism Management*, 47, 68–76. <https://doi.org/10.1016/j.tourman.2014.09.010>
- Ibrahim, I., Wahab, S. N. A., Wahid, N. A., & Omar, K. (2021). Social media engagement and festival tourists' revisit intention. *Jurnal Pengurusan*, 61, 1–14.
- Injourney Destination. (2025). *Laporan penyelenggaraan Prambanan Jazz Festival 2025* [Implementation report of Prambanan Jazz Festival 2025]. PT Taman Wisata Candi Borobudur, Prambanan & Ratu Boko.
- Iversen, M. H. (2022). The aesthetics of place: Heritage experience and tourism behavior. *International Journal of Tourism Research*, 24(3), 352–363. <https://doi.org/10.1002/jtr.2504>
- Khoo, K. L. (2022). A review of the role of revisit intention in tourism studies. *Asia Pacific Journal of Tourism Research*, 27(3), 315–338. <https://doi.org/10.1080/10941665.2022.2059444>
- Lee, S., Jeong, E., & Kim, H. (2024). Authenticity, place attachment, and behavioral intentions in cultural tourism. *Tourism Management Perspectives*, 50, Article 101227.
- Li, X., Gu, B., & Wang, T. (2022). Educational tourism experiences and behavioral outcomes: A systematic review. *Journal of Hospitality & Tourism Research*, 46(7), 1265–1291.
- Manthiou, A., Lee, S., Tang, L., & Chiang, L. (2014). The experience economy approach to festival marketing: Vivid memory and attendee loyalty. *Journal of Services Marketing*, 28(1), 22–35. <https://doi.org/10.1108/JSM-06-2012-0105>
- Mazlan, R., Abdullah, N. H. N., Nor Hashim, A. S., & Saad, S. (2025). Music tourism as a cultural strategic force: Post-pandemic trajectories. *Tourism Recreation Research*, 50(1), 89–103.
- Molina-Gómez, J., Aranda, E., & Laguna-García, M. (2021). Escapism and memorable tourist experiences in music festivals. *Tourism Management Perspectives*, 40, Article 100900.
- Oh, H., Fiore, A. M., & Jeoung, M. (2007). Measuring experience economy concepts: Tourism applications. *Journal of Travel Research*, 46(2), 119–132. <https://doi.org/10.1177/0047287507304039>
- Onn, Z., Ali, M., & Othman, N. H. (2024). Music tourism as a growing niche: Patterns, potentials, and perspectives. *Tourism and Hospitality Management*, 30(2), 211–228.
- Peng, X. (2023). Contemporary niche tourism and the music destination nexus. *Journal of Tourism and Cultural Change*, 21(4), 435–450.
- Pine, B. J., & Gilmore, J. H. (1999). *The experience economy: Work is theatre and every business a stage*. Harvard Business School Press.

- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. Simon & Schuster.
- Quadri-Felitti, D., & Fiore, A. M. (2012). Experience economy constructs as a framework for understanding wine tourism. *Journal of Vacation Marketing*, 18(1), 3–15. <https://doi.org/10.1177/1356766711423879>
- Richards, G. (2020). Designing creative places: The role of creative tourism. *Annals of Tourism Research*, 85, Article 102922. <https://doi.org/10.1016/j.annals.2020.102922>
- Rivera, M., Semrad, K., & Croes, R. (2015). The five E's in festival experience in the context of Gen Y: Evidence from a music festival. *Turizam: Međunarodni Znanstveno-Stručni Časopis*, 63(1), 35–50.
- Skandalis, A., Byrom, J., & Banister, E. (2024). Place identity and music tourism. *Tourism Management*, 101, Article 104864.
- Tan, W. K., & Lin, T. C. (2021). Word-of-mouth and revisit intention in festival tourism: Mediating role of fan identification. *International Journal of Event and Festival Management*, 12(2), 128–147.
- UNESCO World Heritage Centre. (2024). Prambanan Temple compounds. <https://whc.unesco.org/en/list/642>
- Wang, N. (1999). Rethinking authenticity in tourism experience. *Annals of Tourism Research*, 26(2), 349–370. [https://doi.org/10.1016/S0160-7383\(98\)00103-0](https://doi.org/10.1016/S0160-7383(98)00103-0)
- Wood, E. H., & Kinnunen, M. (2020). The role of music events in tourist destination development. *International Journal of Event and Festival Management*, 11(3), 271–289. <https://doi.org/10.1108/IJEFM-11-2019-0054>

# Harnessing Collective Power: Federation of Agricultural Commodity Associations and the Economic Empowerment of Nigerian Farmers

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## Abstract

This study was carried out to ascertain the impact of FACAN on the economic empowerment of its members. The study used structured questionnaire administered to 400 purposively and randomly selected FACAN members to collect data for the study in the six geopolitical zones of Nigeria, which was analysed using descriptive statistics and estimation of the specified model using logistic regression. The results of the study suggest that FACAN facilitates members' access to; improve input for increase in yield per hectare, extension services for technical assistance for increase in output, training and skills acquisition for capacity building, more access to domestic and international markets for increase in sale and income, thereby impacting positively on their economic empowerment. The study also revealed that membership of FACAN does not facilitate access to grants and loans and this is due to the stringent collateral requirements and conditions attached to available grants and loans. The study advocated the need for government to formulate appropriate policy to encourage stakeholders in the agricultural commodity sub-sector to participate in FACAN and other agricultural commodity cooperatives as it would have multiplier effects on productivity, economic empowerment of members and growth of Nigeria economy

**Keywords:** Collective Power, Farmers, Economic Empowerment, Nigeria

## 1. Introduction

The United Nations adopted the 2030 Agenda for Sustainable Development Goals in 2015 to ensure peace and prosperity for current and future generations worldwide. The United Nations noted that achieving goals 1 and 2, which are ending poverty and achieving zero hunger, were crucial for the success of the other 16 goals (Carlsen & Bruggemann, 2022). This assigns a critical role for agriculture to play in ensuring zero hunger and contributing to the eradication of poverty through the empowerment of stakeholders in the sector. In this regard, Agricultural cooperative societies have emerged to empower farmers and other stakeholders in the agricultural value chain. They seek to help improve the lives of millions of smallholder farmers. The United Nations Food and Agriculture Organisation (UNFAO), International Fund for Agricultural Development (IFAD) and World Food Programme

(WFP) acknowledge the model in which Agricultural cooperative societies are leveraged to promote economic empowerment.

Evidence shows that smallholder farmers who are members of agricultural cooperative societies are empowered by being part of a larger group (FAO, 2012). The International Labour Organisation (ILO) has also noted that cooperative societies are platforms for members to negotiate better terms in contract farming and lower prices for agricultural inputs like seeds, fertiliser and equipment, and offer prospects such as securing land rights and better markets that they would not be able to achieve individually (Schwettmann, 2011). Sifa (2014) found that in Africa, the primary reason for establishing agricultural cooperative societies is to enhance production. However, the study reveals that agricultural cooperatives have provided rural and smallholder farmers with the opportunity to access various services that they would not be able to obtain individually. These services range from improved access to markets, grants, credits, and support in terms of improved seedlings, access to information, extension services, better training, technologies, and innovations, among others.

A large number of poor Africans in rural areas depend on Agriculture for their livelihoods (Aluko & Magaji, 2020). Therefore, any intervention aimed at increasing productivity, promoting a sustainable agricultural sector, and enhancing profitability has a positive impact on them, assisting in their empowerment and poverty alleviation (Magaji, Musa, Abdulmalik, & Eke, 2022). The Agricultural sector has remained a strategic and critical sector for the sustainability of many countries' economies worldwide; Nigeria is no exception. Agricultural resources have been a significant contributor to Nigeria's economic growth. Prior to the oil boom in Nigeria, agriculture had been a strategic sector and remained significant despite the oil boom. It provides employment opportunities for over 70% of the population, reduces poverty and contributes to economic growth. (Oji-Okoro, 2011; Oyinbo & Rekwot, 2014).

Furthermore, agriculture was the mainstay of Nigeria's economy, providing the largest share of foreign exchange inflows into the country before the discovery and exploration of crude oil in Nigeria (Kamil, Sevin & Bekun, 2017). However, there had been little or no progress in the Agricultural sector as a result of poor investment in modern and improved farming technologies. This birthed the consensus about the importance and impact of collective action over and above individual action, and hence, encouraged and supported cooperative societies as essential critical tools for the development, improvement and sustainability of the agricultural sector in Nigeria. This is reflected in the establishment of agricultural promotion programmes, such as the Agricultural Development Programme (ADP) and River Basin and Rural Development Authorities (RBRDAs), which have not yielded the much-desired impact in the sector.

This may not be unrelated to issues such as poor remuneration of agricultural workers, low prices for agricultural products, low investment in the agricultural sector, non-mechanisation of production, high costs of inputs, and a near absence of extension services to bring farmers up to date with best practices for optimal productivity. It has become imperative to increase the return on farmers' productive economic activities, to improve their well-being and to empower them economically. These challenges have necessitated the formation of the Federation of Agricultural Commodity Associations of Nigeria (FACAN). It is a cooperative society established by the government for private sector stakeholders in the agricultural commodity value chains. Although the private sector drives FACAN, it reports to the government through the Commodities and Export Department of the Federal Ministry of Industry.

Trade and Investment. It is fully monitored and supported, both directly and indirectly, by the government to ensure it performs optimally. However, the impact of FACAN on stakeholders in the agricultural commodities sub-sector, particularly its members, concerning their empowerment or otherwise, needs to be assessed to determine whether its formation is making the desired positive impact in empowering these members. Thus, has FACAN addressed the issue of access to improved inputs by its members? Have extension services been made available to FACAN members? Do FACAN members have access to grants and loans for expanding their agricultural businesses? What about the capacity enhancement of FACAN members? Does FACAN assist members in accessing domestic and international markets for their products?. This is a unique study because FACAN, though a private sector owned and driven, is in partnership with the public sector.

To the best of the knowledge of this study, there is no literature as to whether stakeholders along various commodity value chains nationwide are empowered or not by being members of cooperative societies established on a public private partnership, particularly FACAN. Also, this study that is national in scope, FACAN members are stakeholders from all the States in Nigeria covering over Seventy-Nine (79) national commodity value chains, comprising farmers, aggregators, processors, marketers, exporters and promoters of agricultural commodities constitute the membership of FACAN. Whereas, existing studies focus mostly on specific cooperative societies or associations comprising members of a particular stage of the agricultural commodity value chain, such as farmers, processors, aggregators, or marketers. This paper is organised into five sections, the introduction being the first, followed by Section Two, which reviews the literature. The third section covers data and method, while the fourth section deals with estimation. The fifth section concludes the paper.

## 2. Review of Literature

According to Effiom (2014), the first documented activities of a cooperative society in human history were those of the Essenes at Qumran, located on the coast of the Dead Sea in the United Kingdom. Inhabitants of that coast were all free and jointly owned everything they had. He also revealed that cooperative societies significantly impacted the Industrial Revolution, as the organisation of cooperative societies by British and French workers helped to coordinate and motivate workers. He informed that the idea of establishing cooperative organisations in England was proposed and strengthened by Robert Owen in collaboration with others who had similar thoughts. The organisation began in Road Lane, Rochdale, a large town in Greater Manchester, England, at the foothills of the South Pennines in the dale on the River Roch, in 1844. They discussed ways to improve their working conditions and those of less privileged workers, such as artisans, consumers, traders, and farmers, who were often relegated to the background by the capitalist economic system in place during that period.

After the industrial revolution, the proponents of Rochdale principles which guided the early cooperative organization agreed on their ideologies and established operational guidelines as follows; first, membership to be open and voluntary, no gender restrictions of membership, no race or social status restrictions of membership, second, member have control over the organization through democratic means where every member have one vote; third, members must be politically and religiously neutral, the interest rate on capital must be minimal, dividends proportional to their purchases, fourth, regular education training of their members, fifth, they are autonomous and controlled by members, sixth, structures are put in place to ensure that they work together and strengthen the cooperation, seventh, concern for sustainable community development. The central values of Cooperatives are equality, democracy, equity, solidarity, self-help, self-responsibility, honesty, caring for others, openness, and social responsibility.

According to Gersch (2018), farmers' and producers' organisations exist in various forms. It could be cooperatives, producer associations, farmer/producer groups, communal land groups, unions, and federations. They enhance the production of farmers who work together and help them to achieve what they could not have achieved individually. Farmers' producers' organisations assist farmers in many ways, including collective production, post-harvest handling, quality control, access to markets, premium prices, building their capacity in business management, empowering them to engage in policy dialogue, and positioning them to improve food security and their income levels (Mwesigwa, 2018). Latynskiy & Berger (2016) found that Agricultural cooperatives also contribute to rural transformation by facilitating consultation between stakeholders, governments, Non-Governmental organisations and other partners. In Nigeria, before modern cooperatives were established.

These Indigenous cooperative organisations existed in the form of labour clubs, Indigenous and traditional farmers' societies, and contribution clubs, and they functioned at nearly all village and community levels. The colonial administration introduced cooperative societies in Nigeria between 1933 and 1934, when C. F. Strickland was appointed to conduct a feasibility study on the possibility of introducing cooperative organisations into Nigeria. He submitted a report in favour of establishing cooperative organisations in Nigeria (Effiom, 2014). The literature defines empowerment as a process of enabling or imparting power from one individual or group to another. For instance, while Chandler (1991) sees empowerment as when a person is empowered to enable the

person who could not act before, to be able to act, on the other hand, Bredeson (1989) posits that empowerment is a process of providing people with opportunities and resources needed to understand and impact the world.

Furthermore, Malhotra, Schuler, and Boender (2002) define empowerment as the enhancement of the assets and capabilities of individuals and groups to engage with those they could not previously engage with. They also see empowerment as the capability to influence and hold accountable the institutions that affect them. Malhotra et. al. (2002) reveal that the empowerment process has different components which differ depending on the orientation and agenda of the writer. They also found that one of the ways empowerment takes place is through a participatory development approach and the growth of civil society, which is similar to cooperatives and associations of individuals aiming to achieve the same objectives. According to Karubi (2006), economic empowerment refers to the capacity of women and men to recognise, participate in, and contribute to the growth of an economy, while also benefiting from it. Their participation and contribution are such that their dignity is respected, and they can negotiate a fairer distribution of the benefits of economic growth. In other words, economic empowerment epitomises the alteration of power relations throughout society, such that there is an increase in the well-being of its members, the community grows and develops, the individual is freed from servitude and has access to a larger opportunity to make choices, thereby enhancing capacities for self-reliance.

### 3. Materials and Methods

The study employed a descriptive research design to analyse the Federation of Agricultural Commodity Associations of Nigeria and the economic empowerment of its members. The study used primary data sourced through the administration of questionnaires. Both purposive non-random and random sampling techniques were utilised for this study. Purposive sampling was employed to ensure that the executive members of FACAN and the executive members of the National Commodity Associations that comprise FACAN were part of the sample. The choice of purposive sampling method was necessitated by the fact that the researcher is targeting respondents (executive members of FACAN) who will be able to provide relevant and appropriate data, bringing out the best information possible from the samples. Additionally, the respondents are readily available and close, making it convenient for the researcher.

The binary logistic regression model was employed to establish the relationship between the dependent and independent variables and to examine whether FACAN members are economically empowered or not. The binary logistic regression model was employed to achieve the study's objectives. This is because it helps to test the hypotheses when the dependent variable has a dichotomous nature. Pre-estimation and post-estimation tests were carried out to ensure that the results obtained were not spurious. The Cronbach's Alpha test was conducted to ensure the reliability of the data. Descriptive statistics, such as percentages, frequencies, and graphs, were employed for the analysis of the data. The International Business Machines Corp (IBM) Statistical Package for the Social Sciences (SPSS) was used for coding and data analysis. Personally administered structured questionnaires were employed to gather information from 400 (members of FACAN) respondents across the Six States, each from the Six Geopolitical Zones in Nigeria and the Federal Capital Territory, on demographic characteristics, the impact of the Federation of Agricultural Commodity Associations of Nigeria (FACAN) on the economic empowerment of its members.

Other data were collected from internal documents in the office of the Federation of Agricultural Commodity Associations of Nigeria, located in the Old Federal Secretariat, Area 1, Garki, Abuja, Nigeria. According to the leadership of FACAN members, the entire population of FACAN was 15,003,248 as of January 2023. However, the population for this study is (2,800,514) Two Million, Eight Hundred Thousand, Five Hundred and Fourteen members, it comprises FACAN members from the 6 Six States selected from the Six Geopolitical zones in Nigeria and the Federal Capital Territory (FCT). The Six States chosen for the study include Kogi, Taraba, Cross River, Kaduna, Imo, and Ogun States, representing the North-Central, North-East, South-South, North-West, South-East and South-West, respectively. The six States and FCT were chosen because the researcher could easily access respondents, collect appropriate data, and it was also convenient for the researcher.

The National Commodity Associations were selected because they represent the membership of FACAN and cut across stakeholders in the value chains of various agricultural commodities, including farmers, commodities aggregators, local buying agents, processors, marketers, exporters and promoters of commodities and are actively participating in economic activities in the commodity subsector in the selected Six States of Nigeria and the Federal Capital Territory (FCT). The population of this study is homogeneous because members of FACAN cut across various aspects of the agricultural value chains and are comprised of men, women, youths and the elderly involved in similar economic activities. Therefore, the sample size selected for this study was based on the fact that members of FACAN are residents of all the States in Nigeria and the Federal Capital Territory. Hence, Two Million Eight Hundred Thousand, Five Hundred and fourteen (2,800,514) members of FACAN across Nigeria represent the study population adequately.

The Yamane (1967) formula was employed to determine the sample size with a 95% confidence level as follows:

$$n = \frac{N}{1+N(e)^2}$$

Where:

$n$  = sample size

$N$  = population

$e$  = allowable error (%)

Substituting into the formula:

$$n = \frac{2,800,514}{1+2,800,514(0.05)^2}$$

$$n = 399.94$$

Thus, a sample size of approximately 400 respondents was determined. The study utilised both purposive and simple random sampling techniques. The sample size for each of the selected States is determined by proportionally sharing the entire sample size (400) among the States and the FCT, as shown in Table 3.2 below. The study applied the sample size determination formula (Israel, 1992) to determine the sample size from each geopolitical zone (State) and FCT. This formula was used by Didana (2019) in a study on the determinants of rural women's economic empowerment in agricultural activities: The case of Damot Gale Woreda, Wolaita Zone, SNNPRS, Ethiopia.

Table 1: Proportionate sampling design for administration of questionnaires

| State       | Population size | Formula           | Calculation                 | Sample size |
|-------------|-----------------|-------------------|-----------------------------|-------------|
| Kogi        | 398,426         | $Ss = (Ps/Pas)*n$ | $(398,426/2,800,514)*400$   | 56          |
| Taraba      | 512,021         | $Ss = (Ps/Pas)*n$ | $(512,021/2,800,514)*400$   | 73          |
| Cross River | 405,204         | $Ss = (Ps/Pas)*n$ | $(405,204/2,800,514)*400$   | 58          |
| Kaduna      | 586,892         | $Ss = (Ps/Pas)*n$ | $(586,892/2,800,514)*400$   | 84          |
| Imo         | 284,010         | $Ss = (Ps/Pas)*n$ | $(284,010/2,800,514)*400$   | 41          |
| Ogun        | 506,724         | $Ss = (Ps/Pas)*n$ | $(506,724/2,800,514)*400$   | 72          |
| FCT         | 107,234         | $Ss = (Ps/Pas)*n$ | $(107,234/2,800,514)*400$   | 15          |
| Total       | 2,800,514       | $Ss = (Ps/Pas)*n$ | $(2,800,514/2,800,514)*400$ | 400         |

Source: Author's Compilation (2023)

Questionnaires were administered to the respondents (members of FACAN) during their various official meetings, which they usually hold in their State offices and attend, with FACAN members from those States Present. Questionnaires were also administered to some respondents from the selected States when they attended workshops and seminars organised for stakeholders in their respective agricultural value chains. Some questionnaires were also administered during FACAN's regular meetings at the Federal Ministry of Industry,

Trade, and Investment in Abuja, Nigeria, as well as at the FACAN administrative office, located on the premises of the Federal Ministry of Industry, Trade, and Investment, Area 1, Garki, Abuja, Nigeria. At the time of administering the questionnaire, respondents were informed not to participate if they had already responded to the questions.

A *pre-test* of the questionnaire was conducted to ensure that the instrument captured the pertinent data needed for the analysis. This was to guarantee that the research questions were answered by information gathered from the questions in the questionnaire. The goal was to develop reliability and validity in the questionnaire to ensure that the data collected and the results are not spurious, and also ensure that appropriate data were extracted from the respondent. Cronbach's alpha was used to assess the reliability of the data. Nunnally (1978) observed that the minimum acceptable range for Cronbach's alpha, as reported by most studies, was 0.70. This aligns with Ndiyo (2005), who posited that question items are internally consistent with each other and considered reliable if the Cronbach's Alpha is 0.70 and above. However, other scholars (Sekaran, 1992; Slater, 1995) proposed that a reliability gauge should possess a minimum value of 0.60, which is suitable for testing the hypothesis.

The variable for economic empowerment in this study is dichotomous, measuring whether rural women are economically empowered through rural agricultural activities or not. That was the theoretical basis on which his study developed the model, with the economic empowerment of rural women as the dependent variable, assuming a value of one (1) for economic empowerment and zero (0) otherwise. The independent variables are both continuous and dummy. This study adapted the model of Adejo, Adejo, and Shaibu (2017), who examined the assessment of gender access to Agricultural loans from cooperative societies in the Dekina Local Government Area of Kogi State, Nigeria. The logistic regression model was used to estimate the determinants of loan acquisition in the cooperative societies. The logistic regression model explains the effect of the explanatory variables (income, household size, age, educational status, and years of membership) on the dependent variable (access to a loan by male or female cooperator).

In this study, we assessed the association between membership in FACAN and empowerment variables, which include an increase in income from agricultural commodities value chain activities, increased market access, access to loans and grants, contact with extension service agents, training and skills acquisition, and access to improved inputs. These variables can influence the dependent variable (empowerment of FACAN members, proxied by an increase in output and income, respectively). According to Salisu (2016), when dealing with Logistic regressions, the odds ratios, log odds, marginal effects, and conditional probability are the parameters that are usually estimated. He notes that the odds ratio is the ratio of the probability of  $Y = 1$  to the probability that  $Y = 0$ . The log odds are obtained by taking the natural log of the odds ratio. He states that the marginal effect is of interest because it measures the change in the probability of  $Y=1$  resulting from a unit change in a particular independent variable. Thus, this study specified the following models.

$$\ln \text{OPT} = \ln(\text{Pi}/1\text{Pi}) = \beta_0 + \beta_1 \text{MKTACCESS} + \beta_2 \text{LOAN} + \beta_3 \text{EXTEN} + \beta_4 \text{TRAINING} + \beta_5 \text{INPUT} + U_i \quad (1)$$

$$\ln Y = \ln(\text{Pi}/1-\text{Pi}) = \beta_0 + \beta_1 \text{MKTACCESS} + \beta_2 \text{LOAN} + \beta_3 \text{EXTEN} + \beta_4 \text{TRAINING} + \beta_5 \text{INPUT} + U_i \quad (2)$$

Where:

Output (OPT) and Income (Y) are proxies for the economic empowerment of FACAN Members and the dependent variable of the study (Otsupius & Kabuoh, 2015).

The explanatory variables for both equations are as follows:

MKTACCESS = Access to domestic and international markets

LOANS = Access to loans and grants

EXTEN = Access to extension services

TRAINING = Access to Training and Skill Acquisition

INPUT = Access to improved high-yielding inputs

The dependent variables are:

OPT = Increase in Output = a binary variable, with one if there is an increase in Output of a member of FACAN (economically empowered) and zero if there is no increase in Output of a member of FACAN (not economically empowered).

Similarly, Y = Income = a binary variable, with one if there is an increase in output of a member of FACAN (economically empowered) and zero if there is no increase (not economically empowered).

$\beta_0$  = Constant term

$\beta_1$  to  $\beta_5$  = Coefficients of the independent variables

P = Probability of a member of FACAN being economically empowered

Ln = Natural Logarithm function

$U_i$  = Error term

The a priori expectations are as follows:

$$\beta_0 > 0, \beta_1 > 0, \beta_2 > 0, \beta_3 > 0, \beta_4 > 0, \beta_5 > 0.$$

#### 4. Results and Discussion

##### Socio-Economic Characteristics of Respondents

The socioeconomic data, such as the education and occupational status of respondents, were collected. The data were analysed to understand the socio-economic standing of the respondents. The data is presented in Table 2 below.

Table 2: Distribution of Respondents based on Socio-Economic Characteristics

| Variables                 | Number Of Respondents | Percentage |
|---------------------------|-----------------------|------------|
| Formal Education          | 308                   | 77         |
| Primary                   | 42                    | 14         |
| Secondary                 | 118                   | 38         |
| Tertiary                  | 148                   | 48         |
| Informal Education        | 92                    | 23         |
| Vocational                | 70                    | 76         |
| Job Training              | 17                    | 19         |
| Special Training          | 5                     | 5          |
| Occupation of Respondents |                       |            |
| Farmers                   | 207                   | 51         |
| Processors                | 83                    | 20         |
| Marketers/Exporters       | 78                    | 19         |
| Others                    | 42                    | 10         |

Source: Authors' compilation

Table 2 presents the distribution of respondents by socioeconomic characteristics, specifically education and occupation. It shows that 308 respondents, representing 77% of the respondents, have formal education, and 92 respondents, representing 23% have informal education. The data indicate that most FACAN members have a formal education, which implies that they possess the educational capacity to understand and respond appropriately to the questionnaires. The data for respondents with formal education is presented in Table 4.2 above. It shows that 42 respondents, representing 14% of the total, have formal primary education, 118 respondents, representing

38%, have formal secondary education, and 148 respondents, representing 48%, have formal tertiary education. The data for respondents with informal education is presented in Table 4.2 above. It shows that 70 of the respondents, representing 76% of those with informal education, have vocational education.

Seventeen of them, representing 19%, have job training through informal education, and 5 of them, representing 5%, have special training. FACAN members with informal education have acquired the knowledge and skills that help them be more effective and efficient in carrying out their business, particularly economic activities along the agricultural commodity value chains. The data on the respondents' occupations are presented in Table 4.2 above. The data show that 207 respondents, representing 51% of the total, are farmers, 83 respondents, representing 20%, are processors, 78 respondents, representing 19%, are marketers, and 42 respondents, representing 10%, engage in other economic activities within the agricultural commodity value chains, including commodities aggregators and commodities promoters.

#### 4.1. Reliability Test

The study assessed reliability before proceeding to the field, which was done via a pilot survey. Cronbach's Alpha was used. It is used to measure how much of the variability in the observed score represents variability in the underlying actual score. It is used to indicate the extent to which scores are consistent with one another and the extent to which the data are free from error. If the test shows low reliability, the instrument is adjudged as weak. Reliability indicates the internal consistency of multiple-item scales, and Cronbach's alpha coefficient is the most commonly used measure. The expectation is that alpha should be greater than 0.70, as the higher the alpha, the higher the reliability. However, when alpha is greater than 0.90, it could be an indication that the items are repeated or that there are more items in the scale than are necessary.

Table 3: Reliability Statistics

|  | <b>Cronbach's Alpha</b> | <b>Cronbach's Alpha Based on Standardised Items</b> | <b>No of Items</b> |
|--|-------------------------|-----------------------------------------------------|--------------------|
|  | .882                    | .883                                                | 6                  |
|  | .880                    | .881                                                | 6                  |

Source: SPSS Output

The Cronbach's alpha statistic result from the pilot survey is shown in Table 4.17, which is approximately 0.88, indicating an acceptable level of internal consistency reliability for the instrument used in the study.

Table 4: Variables in Equation 3.6

|                     |           | <b>B</b> | <b>S.E.</b> | <b>Wald</b> | <b>Df</b> | <b>Sig.</b> | <b>Exp(B)</b> | <b>95% C.I. for EXP(B)</b> |              |
|---------------------|-----------|----------|-------------|-------------|-----------|-------------|---------------|----------------------------|--------------|
|                     |           |          |             |             |           |             |               | <b>Lower</b>               | <b>Upper</b> |
| Step 1 <sup>a</sup> | Input     | 1.100    | .545        | 4.075       | 1         | .044        | 3.004         | 1.032                      | 8.739        |
|                     | Exten     | 2.557    | .542        | 22.291      | 1         | .000        | 12.903        | 4.463                      | 37.307       |
|                     | Loan      | 1.128    | .812        | 1.930       | 1         | .165        | 3.090         | .629                       | 15.181       |
|                     | Traning   | 1.428    | .616        | 5.371       | 1         | .020        | 4.172         | 1.247                      | 13.963       |
|                     | MktAccess | 3.681    | .700        | 27.666      | 1         | .000        | 39.695        | 10.069                     | 156.485      |
|                     | Constant  | -3.577   | .538        | 44.230      | 1         | .000        | .028          |                            |              |

Source: SPSS Output

The variables in equation (1) show the relationship between the predictors and the outcome. The B (Beta) is the predicted change in the log odds. This means that for a unit change in the predictor, there is an exponential change (Exp (B)) in the probability of the outcome. The concept of odds relates to the likelihood of one outcome over another; in other words, the ratio of the probability that a particular outcome (FACAN member is empowered) will occur, to the chance that another outcome (FACAN member is not empowered) occurs. The results in Table 4.32 above show that access to improved inputs, extension services, training, and skills acquisition, as well as access to more domestic and international markets, contributed significantly to the increase in output and, hence, the model.

When B is positive, it indicates that as the independent variable increases, there is a higher probability of having an increased output. Therefore, we say that for every one-unit improvement in input, there is a predicted increase of 1.100 in the Log odds of falling at a higher level of output.

Similarly, a unit improvement in access to extension services is predicted to result in a 2.557 increase in the Log odds of falling at a higher output. Additionally, a unit improvement in access to training and skills acquisition is predicted to result in a 1.428 increase in the Log odds of falling into a higher output category. The result suggests that a unit improvement in access to domestic and international markets is associated with a predicted increase of 3.681 in the Log odds of falling at a higher output. However, access to grants and loans is not statistically significant; therefore, it did not add significantly to the model.

The Exp (B) is the odds ratio reflecting the multiplicative change in the odds of being in a higher category on the dependent variable for a unit increase in the independent variable, when all the other independent variables are held constant. In other words, the odds represent the ratio of the probability of success to the probability of failure. The logarithm is introduced to ensure a normal distribution and to shrink the values of the odds that are extremely large, thereby making them log odds. The results of Exp (B) for the variables that are statistically significant in the model are access to improved inputs (0.044), access to extension services (0.000), access to training and skills acquisition (0.020), and access to domestic and international markets (0.000), are 3.004, 12.903, 4.172, and 39.695 respectively, the proportion increase of the odds caused by access to improved inputs is  $(3.004 - 1)$  which is 2.004.

In percentage terms, a unit of access to improved input increases the odds of an increase in output by 2.004 times, which is equivalent to 200.4 per cent. Similarly, access to extension services increases the odds of an increase in outputs by  $(12.903 - 1)$  or 11.903. In percentage terms, a unit increase in access to extension services increases the odds of an increase in outputs by  $11.903 \times 100$  or 1,190.3 per cent. Additionally, the proportionate increase in odds caused by access to training and skills acquisition  $(4.172 - 1)$  is 3.172. In percentage terms, a unit of access to training and skills acquisition increases the odds of an increase in output by 3.172 times, or 317.2%. The proportion increase in the odds caused by access to domestic and international markets  $(39.695 - 1)$ , which is 38.695, implies that a unit increase in access to domestic and international markets increases the odds of an increase in output by  $38.695 \times 100$  per cent, or 3,869.5 per cent.

Table 5: Variables in Equation 2

|                     |           | B      | S.E. | Wald   | Df | Sig. | Exp(B) | 95% C.I. for EXP(B) |        |
|---------------------|-----------|--------|------|--------|----|------|--------|---------------------|--------|
|                     |           |        |      |        |    |      |        | Lower               | Upper  |
| Step 1 <sup>a</sup> | MktAccess | 3.187  | .485 | 43.188 | 1  | .000 | 24.224 | 9.363               | 62.674 |
|                     | Input     | .460   | .558 | .679   | 1  | .410 | 1.583  | .530                | 4.726  |
|                     | Traning   | 2.998  | .622 | 23.248 | 1  | .000 | 20.041 | 5.925               | 67.787 |
|                     | Exten     | 1.333  | .502 | 7.052  | 1  | .008 | 3.794  | 1.418               | 10.151 |
|                     | Loan      | .555   | .583 | .907   | 1  | .341 | 1.742  | .556                | 5.455  |
|                     | Constant  | -4.278 | .680 | 39.515 | 1  | .000 | .014   |                     |        |

Source: SPSS Output

The variables in Table 4.41 above show the relationship between the predictors and the outcome. The results show that access to extension services, training, and skills acquisition, as well as access to more domestic and international markets, are statistically significant contributors to the increase in income of FACAN members, and hence significantly added to the model. The results suggest that for a unit improvement in access to extension service, there is a predicted increase of 1.333 in the Log odds of falling at a higher income level. Additionally, a unit improvement in access to training and skills acquisition is predicted to result in a 2.998 increase in the Log odds of falling into a higher income level. The result further shows that a unit improvement in access to domestic and international markets is associated with a predicted increase of 3.187 in the Log odds of falling at a higher income level. However, access to grants and loans, as well as access to improved inputs, was not statistically significant and therefore did not significantly contribute to the model.

The results of Exp(B) for the variables that are statistically significant with less than 0.05 p-values in the model which are, access to extension services (0.008), access to training and skills acquisition (0.000), and access to domestic and international markets (0.000), are 3.794, 20.041, and 24.224 respectively, the proportion increase of the odds caused by access to access to extension services increases the odds of increase in income by (3.794-1) or 2.794. In percentage terms, a unit increase in access to extension services increases the odds of an increase in their income by (2.794x100) percent or 279.4 per cent. Also, the proportion increase of the odds caused by access to training and skills acquisition is (20.041- 1), or 19.041. In percentage terms, a unit of access to training and skills acquisition increases the odds of an income increase by 19.041 x 100 per cent, or 1904.1 per cent.

Also, the proportionate increase in the odds caused by access to domestic and international markets is 23.224, which is (24.224 - 1). In percentage terms, it implies that a unit increase in access to domestic and international markets increases the odds of an income increase by 2322.4 per cent. The **first null hypothesis** of the study, which states that there is no significant relationship between membership of FACAN and access to improved inputs, was tested using Table 4.32. The results (B1 = 1.100) indicate a positive relationship between membership in FACAN and access to improved inputs. Results also show a statistically significant level of 0.044 for improved input; this falls within the acceptable level of 0.05. Therefore, we can reject the null hypothesis that there is no significant relationship between membership in FACAN and access to improved inputs, leading to an increase in output. This indicates a significant relationship between membership in FACAN and access to improved inputs.

The **second null hypothesis** of the study which states that there is no significant relationship between membership of FACAN and access to extension services was tested using Table 4.32, which shows a statistically significant level of 0.000 for access to extension services which falls within the acceptable level of 0.005 and also has a positive influence on output as reflected by the odds ratio (B2 =2.557) therefore, we can reject the null hypothesis that there is no significant relationship between membership of FACAN and access to extension services for an increase in output. This suggests that membership in FACAN facilitates access to extension services. The **third null hypothesis** of the study, that there is no significant relationship between membership in FACAN and access to grants and loans for agricultural business expansion, was tested using Table 4.32, which shows a statistically significant level of 0.165 for access to grants and loans among FACAN members.

The result implies that it is not statistically significant at a 0.05 level of significance for the study. Therefore, we can accept the null hypothesis that there is no significant relationship between membership in FACAN and access to grants and loans for increased output. It suggests that being a member of FACAN does not give any advantage when accessing grants and loans for stakeholders in the agricultural commodities value chain. The **fourth hypothesis** was tested regarding FACAN members' access to training and skill acquisition, as shown in Table 4.32. A statistically significant level of 0.020 for access to training and skill acquisition by FACAN members falls within the 0.05 level of significance of the study. It is an indication that membership of FACAN impacts access to training and skills acquisition which in turn positively influence output as reflected by the odds ratio (B4 =1.428) thus, we can reject the fourth null hypothesis of the study, that there is no significant relationship between membership of FACAN and access to training and skills acquisition for increase in output and conclude that based on the results, membership of FACAN helps to access training and skill acquisition for capacity building of FACAN members.

The **fifth null hypothesis**, that there is no significant relationship between membership in FACAN and access to domestic and international markets, was tested using Table 4.32. The result revealed a statistically significant level of 0.000, which falls within the acceptable level of 0.05, and a positive influence on output, as reflected by the odds ratio (B5 = 3.681). Thus, we can reject the null hypothesis that there is no significant relationship between membership of FACAN and access to domestic and international markets. This indicates that membership in FACAN gives access to more domestic and international markets. The estimated results of the binary logistic regression analysis in Tables 2 and 3 indicate that membership in FACAN facilitates access to improved inputs compared to those prior to joining the association. This result suggests that FACAN being the umbrella body for all the National Commodity Associations in Nigeria leverages the platform to reach out and get various support, including the provision of improved high-yield and short-time fruiting seedlings and other planting materials from

government agencies such as the Ministry of Agriculture and Food Security, Raw Material Research and Development Council and other Local and International Development Partners.

The results also show that access to improved inputs contributed significantly to an increase in output, thereby empowering FACAN members. However, access to inputs is not a significant contributor to increased income for FACAN members, as further revealed by the results. This may be explained by the fact that not all the increase in output recorded by FACAN members is sold to earn more income. In other words, although the increase in outputs did not translate to increased incomes for FACAN members, it nonetheless made them better off and empowered them. The results of the study are consistent with the findings of the study by Attah, Mba, and Okeke (2018) on the prospects of cooperative society for sustainable agriculture among smallholder farmers in Benue State, which revealed that the primary reasons for joining cooperative societies were access to credit facilities and greater access to farm inputs.

The results of this study also correlate with the study by Emmanuel, Hajime, Matsumura, Mohamed, and Siddighi (2015), which examines the economic analysis of the role of farmer organisations in enhancing the income of smallholder potato farmers in Middle Guinea. The findings of their study showed that in Guinea, farmers' organisations are critical in facilitating farm production and income (when produce is sold) of smallholder farmers and that providing support to farmers' organisations in terms of farm input extension services and market access would facilitate the growth and development of smallholder farmers in Guinea. Similarly, the results indicate that membership in FACAN has facilitated access to extension services, and that access to these services has contributed significantly to the increase in output, thereby empowering FACAN members. These findings suggest that membership in FACAN provided greater access to extension services compared to before becoming a member.

This may have been achieved through collective action as an association, and a request was made to relevant government Ministries, Departments, and Agencies to provide extension services, offering technical support to FACAN members. This aim is to increase output, contribute to food security, and enhance non-oil exports, in line with the federal government's diversification drive. The result could also be due to FACAN's engagements with big players in the agricultural commodities sub-sector, which sometimes necessitate the signing of a Memorandum of Understanding (MoU), wherein partners are required to give technical support for FACAN members, including the provision of extension services and in return, FACAN will sell their produce to them at competitive market-driven prices. The results are similar to those of the study by Ekepu, Tirivanhu, and Nampala (2017), which suggests that in Uganda, farmers' associations are a significant form of collective action, and that gender and extension contacts are important factors influencing membership in these associations.

It articulated the need for improved access to extension services in Uganda. Likewise, the results of this study revealed that membership in FACAN facilitates access to extension services, which also helps to increase outputs. This revelation aligns with the findings of Abamagal (2017), who reported that income and savings were higher for agricultural cooperative participants compared to non-participants, partly due to access to good extension services. The study recommends that extension services continue to be an effective strategy for encouraging farmers to join cooperatives. Furthermore, the results of this study suggest that membership of FACAN did not impact access to grants and loans and that grants and loans did not significantly contribute to an increase in the output of FACAN members. Additionally, the grants and loans accessed by a few members of FACAN, which may not be directly attributable to their membership in FACAN, did not significantly contribute to their output and, by extension, their empowerment.

This result could be due to the limited and highly competitive grants available to stakeholders in the agricultural commodities subsector, which are primarily targeted at specific crops (commodities) with stringent requirements that must be met before accessing them. This makes it very difficult for many stakeholders in the sub-sector to benefit from them. Similarly, the high cost of money due to high interest rates for available loans, together with stringent conditions such as collateral, makes it difficult for stakeholders in the agricultural commodity sub-sector, including FACAN, to access loans for their members. There are cases where FACAN grants and loans to its members, but the funds are insufficient to be shared among all association members. Therefore, only those

members who meet the conditions that FACAN may establish have access to such grants and loans. This is to ensure that members who benefit from such loans repay them in line with the lender's terms and conditions.

This result is inconsistent with the findings by Akerele & Adekunmbi (2018), which show that cooperative members benefited from loans and that these loans were significant contributors to the increase in their businesses. The authors recommended facilitation to ensure quick access to loans. The inconsistency in the results may be due to differences in the structure of management and regulation. Unlike other agricultural cooperative societies, FACAN is not a regular cooperative society but a National Commodities Association, run by private sector members but regulated and monitored by the public sector, under a public-private partnership arrangement initiated by the government. The results of our study, as presented in Tables 4.32 and 4.41, also revealed that membership in FACAN facilitated access to training and skill acquisition, which significantly contributed to members' increased output and, by implication, their empowerment.

The analysis suggests that membership in FACAN facilitates access to training and skills acquisition, which is connected to the fact that FACAN can utilise its platforms to access various existing government training and skills acquisition programmes for stakeholders in the agricultural commodities sub-sectors, benefiting its members. Additionally, FACAN leverages its collective strength to negotiate training and skill acquisition programmes with major companies. FACAN has signed a Memorandum of Understanding to ensure that members acquire current knowledge of global best practices along the commodity value chains and deliver outputs that meet international quality and standards. The results of this study corroborate the findings of Thaker, Bhatt, and Trivedi (2020) on the impact of socioeconomic factors on women's empowerment, which show that training and skills acquisition contribute positively and significantly to women's empowerment.

It also aligns with the findings of a study (Didana, 2019), which suggests that training significantly contributes to women's economic empowerment. Additionally, a study by Sebhatu & Mekelle (2015) found that training was one of the most influential factors enhancing women's empowerment. The results of the study, as presented in Tables 4.32 and 4.41, further reveal that membership in FACAN provides access to both domestic and international markets, contributing to an increase in income and thereby empowering its members. The results suggest that membership in FACAN facilitates access to both domestic and international markets. This may be attributable to the fact that FACAN membership is drawn from stakeholders across the entire agricultural value chain, including farmers, aggregators, processors, marketers, exporters, and agricultural commodity promoters.

This composition facilitates linkages that promote transactions and sales at the domestic and international markets. The resultant impact of the presence of the various players in the stages of the agricultural commodity value chains in FACAN is that members of the association interact with each other and do business amongst themselves, thereby giving the farmers in FACAN the opportunity to sell their produce to ready buyers (aggregators, processors and marketers) and minimise wastage. The processors, marketers, and exporters can easily purchase from farmers, which helps them meet the demand from their business partners. This increase in economic activity among FACAN members facilitates more sales in both domestic and international markets, which in turn increases the income of FACAN members. The result of our study is similar to the findings of the study by (Habiyaemye, Mtimet, Ouma, & Obare, 2023) that cooperative membership of milk marketing channels helped to increase the probability and likelihood of selling their milk. It also supports findings by (Mhagama, Mmasa & Ismail, 2021) in their study to examine the marketing services for choice of market channels among Sesame smallholder farmers in Tanzania, that agricultural marketing cooperatives impact member positively.

## 5. Conclusion

The study was conducted to analyse the impact of the Federation of Agricultural Commodity Associations of Nigeria on the economic empowerment of its members and fill the knowledge gap therein. Based on the findings of the study, it concludes that the Federation of Agricultural Commodity Association of Nigeria facilitate members' access to; improve input for increase in yield per hectare, extension services for technical assistance for increase in output, training and skills acquisition for capacity building, more access to domestic and international

markets for increase in sale and income, thereby impacting positively on their economic empowerment. The study also revealed that membership in FACAN does not facilitate access to grants and loans, which may be due to the stringent collateral requirements and conditions attached to available grants and loans.

It is therefore in the best interest of the Nigerian agricultural commodity sub-sector, and by extension, the non-oil sector and the Nigerian economy, for the government to take practical and urgent steps to address the problem, enabling FACAN members and other stakeholders in the sub-sector to access grants and loans to expand their businesses. Overall, the study's findings underscore the need for the government to formulate an effective policy that encourages stakeholders in the agricultural commodity sub-sector to participate in FACAN and other agricultural commodity cooperatives, as this would have a multiplier effect on productivity, the economic empowerment of members, and economic growth in Nigeria. The government should increase its support by providing inputs for agricultural cultivation. The support should be channelled through cooperative societies and FACAN to encourage private sector stakeholders in the agricultural commodity sub-sector to form cooperative societies from existing ones.

The provision of improved, high-yielding, and short-time fruiting seedlings through FACAN will help the government overcome the problem of diversion of such support and ensure that only genuine farmers and stakeholders in the sector receive the inputs. The government should employ more extension service workers and initiate policies that provide FACAN members and other agricultural cooperatives with greater access to extension services. This will undoubtedly encourage more stakeholders to join FACAN and contribute to an increase in output, in line with the government's food security initiative. The government should introduce innovative financing instruments and measures to facilitate access to financial grants and loans for FACAN members and other stakeholders in the agricultural commodity subsector. The government should also make a deliberate effort to provide more grants and low-interest-rate loans, and remove stringent collateral requirements for accessing these grants and loans.

The study shows that being a member of FACAN helped to access training and skills acquisition for capacity building, which contributed to an increase in output. Therefore, the government should prioritise training and skills acquisition programmes for capacity building for stakeholders in the agricultural commodity sector. The training should be organised for FACAN members and other cooperative societies to ensure that it has an impact on the targeted and relevant groups. To enhance the access of FACAN members' products and other stakeholders in the agricultural commodities sub-sector to domestic and international markets, the government should implement measures to build their capacity in marketing strategies, export documentation, and procedures. This will enable them to increase their sales in the domestic markets and export more to the international markets.

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## References

- Abamagal, A.W. (2017). *Impact of Cooperatives on Poverty Reduction: The Case of Licha Hadiya Farmers' Cooperative Union in Lemo Woreda, Hadiya Zone, SNNPR, Ethiopia*. *Journal of Poverty, Investment and Development*, 35, 1–7.
- Adejo, P. E., Adejo. E. G. & Shaibu, U. M. (2017). Assessment of gender access to Agricultural loans from cooperative societies in Dekina Local Government Area of Kogi State, Nigeria, *Journal of Asian Rural Studies*, 1(2), 123–133.

- Akerele, E. O., & Adekunmbi, S. A. (2018). Impacts of cooperative thrift and credit facilities on members' business output in Ogun State, Nigeria. *Sustainable Agriculture Research*, 7(526-2020-481), 28–38
- Aluko, O. O., & Magaji, S. (2020). Stagflation and Poverty Indices in West Africa Sub-Region: A perspective. *International Journal of Advanced Research in Social Science, Environmental Studies and Technology*, 5(1), 38–59.
- Attah, A. J., Mba, E. N., & Okeke, M. N., (2018). Prospects of cooperative society for sustainable Agriculture among smallholder farmers in Benue State, Nigeria, *International Journal of Applied Agricultural Science*, 4(5), 103-109.
- Bredeson, P. V., (1989). Redefining leadership and the roles of school principals: Responses to changes in the professional work life of teachers. *The High School Journal*, 73(1), 9-20.
- Carlsen, L., & Bruggemann, R. (2022). The 17 United Nations' Sustainable Development Goals: A Status by 2020. *International Journal of Sustainable Development & World Ecology*, 29(3), 219–229.
- Chandler, G. E. (1991). Creating an environment to empower nurses. *Nursing Management*, 22(8), 20–23.
- Didana, A. C. (2019). Determinants of rural women's economic empowerment in agricultural activities: The case of Damot Gale Woreda of Wolaita Zone, SNNPR, Ethiopia. *Journal of Economics and Sustainable Development*, 10(3), 30–49.
- Effiom, R. A. (2014). The Impact of Cooperative Societies on National Development and the Nigerian Economy. *Global Journal of Social Sciences*, 13(1), 19–29.
- Ekepu, D., Tirivanhu, P., & Nampala P. (2017). Assessing farmer involvement in collective action for enhancing the sorghum value chain in Soroti, Uganda. *South African Journal of Agricultural Extension*, 45(1), 118-130.
- Emmanuel, T., Hajime, K., Matsumura, I., M., E., & Siddighi, B. B. (2015). Economic Analysis of the Role of Farmer Organisations in Enhancing Smallholder Potato Farmers' Income in Middle Guinea, *Journal of Agricultural Science*, 7(3). URL:<http://dx.doi.org/10.5539/jas.v7n3p123>
- Food and Agriculture Organisation (2012). Agricultural Cooperatives and Gender Equality. International Year of Cooperatives, Issue Brief Series. 1-6. [www.fao.org/gender/landrights.en](http://www.fao.org/gender/landrights.en)
- Gersch, I. (2018). Producer organisations and contract farming: a comparative study of smallholders' market strategies in South India. *Zeitschrift für Wirtschaftsgeographie*, 62(1), 14–29. <https://doi.org/10.1515/zfw-2017-0026>
- Habiyaremye, N., Mtimet, N., Ouma, E. A., & Obare, G. A. (2023). Cooperative membership effects on farmers' milk marketing channel choices in Rwanda. *Food Policy*, 118, 102499.
- Israel G. (1992). Sampling the evidence of extension program impact, Program evaluation and organizational Development', *Institution of Food and Agricultural Science (IFAS)*.
- Kamil, S., Sevin, U. & Bekun, F.V. (2017). The contribution of the agricultural sector to the economic growth of Nigeria. *International Journal of Economics and Financial Issues*, 7(1), 547 – 552.
- Karubi, N. P. (2006). Development, Micro-credit and Women's Empowerment: A Case Study of Market and Rural Women in Southern Nigeria. *New Zealand: University of Canterbury*.
- Latynskiy, E., & Berger, T. (2016). Networks of rural producer organisations in Uganda: What can be done to make them work better?. *World Development*, 78, 572-586.
- Magaji, S., Musa, I., Abdulmaliq, O. Y., & Eke, C. I. (2022). Poverty and Its Intractability: Courses and Consequences. *Inclusive Society and Sustainability Studies*, 2(2), 48–58.
- Malhotra, A., Schuler, S. R., & Boender, C. (2002). Measuring women's empowerment as a variable in international development. In *background paper prepared for the World Bank Workshop on Poverty and Gender: New Perspectives* (Vol. 28). Washington, DC: The World Bank.
- Mhagama, J. K., Mmasa, J. J., & Ismail, I. J. (2021). Marketing Services for Choice of Market Channels Among Sesame Smallholder Farmers in Tanzania: The Moderating Effect of Agricultural Marketing Co-Operative Societies. *East African Journal of Social and Applied Sciences (Eaj-Sas)*, 3(1), 151–159.
- Mwesigwa D. (2018). Using farmer groups to empower smallholder rural farmers in Hoima District, Mid-Western Uganda. *International Journal of Development Sustainability*, 7(3), 917–933.
- Nunnally, J. C. (1978). *Psychometric Theory*. 2nd Ed. McGraw-Hill, New York.
- Ndiyo, N. A. (2005). *Fundamentals of Research in Behavioural Sciences and Humanities*.
- Oji-Okoro, I. (2011). Analysis of the contribution of the agricultural sector to Nigerian economic development. *World review of business research*, 1(1), 191-200.
- Oyinbo, O. & Rekwot, G. Z. (2014). Agricultural Production and Economic Growth in Nigeria: Implications for Alleviating Rural Poverty. *Journal of International Agriculture*, 53(3), 207 – 223.
- Salisu, A. (2016). Analyses of logit and probit models. Retrieved from [https://www.researchgate.net/publication/315786201\\_Analyses\\_of\\_logit\\_and\\_probit\\_models](https://www.researchgate.net/publication/315786201_Analyses_of_logit_and_probit_models).
- Schwettmann, J. (2011). Capacity Building for Africa's Cooperatives and Social Economy Organisations. A contribution to the expert group meeting cooperatives in social development: Beyond 2012. 3-6 May, 2011, Ulaanbaatar, Mongolia by Jurgen Schwettmann. ILO. Deputy Regional Director for Africa.

- Sebhatu, K. T., & Mekelle, E. (2015). Determinants of women's empowerment in cooperative societies: A survey in the southeastern zone of Tigray Region of Ethiopia. *Journal of Economics and Sustainable Development*, 6(3), 18-25.
- Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill-building approach*. John Wiley & Sons, New York.
- Sifa, C. B. (2014). The Role of Cooperatives in Agricultural Development and Food Security in Africa. *The Role of Cooperatives in Agriculture in Africa*. Un. Org/esa/socdev/documents/2014/coopsegm/Sifa--Coops%20and%20Agriculture
- Slater, S. F. (1995). Issues in conducting marketing strategy research. *Journal of Strategic Marketing*, 3(4), 257–270.
- Thaker, N. M., Bhatt, J. D., & Trivedi, S. M. (2020). Women's Empowerment through Milk Producers Cooperative Societies. *Gujarat J. Exten. Edu*, 31(2), 84-91.
- Yamane, T. (1967). *Statistics: An Introductory Analysis* (No. HA29 Y2 1967), 2nd Ed., Harper and Row, New York, 1967.

# Developing a Green Hydrogen Economy in Oman: Investment Appraisal and Economic Feasibility

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## Abstract

Green hydrogen economy formation is a key element of Oman's strategy of economic diversification and decarbonisation in the context of Vision 2040. This study is a combined techno-economic and investment analysis of the green hydrogen production on a large scale in Oman through an alkaline electrolysis system that operates on solar energy within a 23-year project life. The financial model is designed in such a way that it can be used to estimate the levelized cost of hydrogen (LCOH) and determine the viability of the project based on discounted cash flow metrics, such as the net present value (NPV) and the internal rate of return (IRR). In contrast to traditional deterministic evaluations, time-based cost estimates, and an extended sensitivity model including discount rates, capital expenditure overruns, electricity, and water prices are included in the analysis as the main indicators of economic uncertainty in the Omani setting. Findings show that the LCOH will reduce significantly, with 6.37 USD/kg in 2025 decreasing to 2.85 USD/kg in 2050, which will be mainly due to the decrease in capital costs and the increase in the efficiency of operations. Financial viability is, however, very sensitive to financing assumptions and electricity prices, and IRR values are never greater than the assumed cost of capital under the base-case conditions. Commercial attractiveness would be very low without the support of policy. The findings indicate that although Oman has high potential of resource to develop green hydrogen, economic competitiveness will be attained through maximised financing regimes, variable electricity pricing systems, and supportive policy tools. This research adds to the body of literature by giving a clear, Oman-specific investment appraisal model that relates the techno-economic performance to the financial viability, providing practical implications to policymakers and investors.

**Keywords:** Green Hydrogen, Techno-Economic Analysis, Investment Appraisal, Levelized Cost of Hydrogen (LCOH), Oman Energy Transition

## 1. Introduction

Green hydrogen is being viewed more and more as a key facilitator of deep decarbonisation, especially in hard-to-abate sectors, including heavy industry and long-distance transport. It can be manufactured with the help of renewable energy by the process of electrolysis, providing a way to incorporate variable renewable sources and contributing to long-term energy storage and the industrial systems of the low-carbon nature (Bolard et al., 2023; Liu, 2023). Hydrogen is also becoming a strategic commodity in the face of the growing international demand for clean energy carriers, and it has the potential to redefine international energy trade (Oramulu & Machmudi, 2025).

MENA and Oman in particular have an excellent opportunity to join this transition because the region has a high solar irradiance, good wind sources, and good export location to Europe and Asia (International Energy Agency, 2023; Rokabi, 2024). The national plans of Oman, such as Vision 2040, and its roadmap on green hydrogen, underline hydrogen as one of their main economic diversification and sustainable development pillars (Hydrom, 2024; Oman Vision 2040, 2024).

The large-scale production of green hydrogen is not yet economically viable, even though this is possible. The literature tends to make generalised assumptions or deterministic models that fail to capture the financial risks of capital-intensive hydrogen projects, especially in the new economy (Sadighi, 2025; Sadiq, 2024). Moreover, little focus has been placed on integrated investment appraisal models to associate techno-economic performance and financial viability in the Omani context.

This study evaluates the economic feasibility of green hydrogen production in Oman through an integrated techno-economic and investment appraisal framework, aiming to identify key cost drivers and assess the conditions under which such projects can achieve financial viability.

## 2. Literature Review

The increasing literature on green hydrogen indicates its primary role in the global decarbonisation strategies, but there is still much variance in the assessment of its economic viability and its deployment strategies. The early diagnosis assessments were mainly based on techno-economic performance, where the emphasis was laid on cost structures and system efficiencies, and the more recent studies were making increasing inclinations on policy, market, and geopolitical aspects.

Some of the studies have concurred that electricity prices, cost of capital spending and system efficiency are the key factors that determine the cost of green hydrogen. Bolard et al. (2023) stated that there is a rapid change in the technologies of electrolysis, and reducing the cost of capital is one of the main enablers to deploy at a large scale. Similarly, Liu (2023) said that the adoption of renewable electricity coupled with the use of electrolysis systems has a considerable impact on lowering the cost of production in areas where there are great amounts of renewable resources. Nonetheless, most of these studies are based on global data and general assumptions, which restrict their credibility to a particular regional setting.

By contrast, regional-based studies have tried to put hydrogen implementation into its context in particular economic and policy contexts. In the article by Sadiq (2024), the author investigated the production pathways of hydrogen in the MENA region and decided that, despite the region possessing significant competitive advantages, the financial viability of the field is incredibly dependent on electricity tariffs and financing models. Almazeedi (2024) also added that strategic positioning in the world hydrogen markets is not only based on the costs of production, but also on investment structures and global trade forces. All these studies imply that techno-economic competitiveness is not enough to make successful implementation without favourable financial and policy mechanisms.

Research work that is policy-based has also been critical in helping to create the discourse on hydrogen economies. Alam et al. (2024) discussed the issue of accelerating hydrogen adoption by emphasising the importance of integrative policy structures, which the authors believe can obstruct investment flows in the case of fragmented or disjointed policies. Likewise, Islam and Ali (2024) studied policy interdependencies in energy changes, and they highlighted the fact that to scale hydrogen technologies, it is crucial to be able to regulate them. Although these studies offer useful information on the structure of governance, they do not have sufficient financial quantification, and thus, they do not provide much information on the viability of projects.

Strategically, there are a number of authors who have discussed the role of hydrogen in the emerging economies and the energy-exporting regions. Bacil et al. (2025) stated that green hydrogen is a rare chance that emerging economies may jump over the old system of energy and build new chains of industrial value. Krane (2025) and Hamed (2025) also reiterated the strategic value of hydrogen to GCC countries, in that it has the potential to

support the energy export revenues of the decarbonising world market. These studies are, however, inclined to take a macro-level approach, and they are not rigorous in the assessment of the financial viability of certain projects.

The work to do with infrastructure and system integration has created new dimensions of hydrogen deployment. Notteboom and Haralambides (2023) reviewed the perspective on seaports as the hydrogen hubs and proposed that infrastructure preparedness is essential in facilitating the major export-oriented hydrogen economies. Gil-Garcia et al. (2024) also touched upon hybrid renewable systems and proved that the relation of wind and solar resources could improve the efficiency of a system and decrease the costs. Although these studies are very important in considering the system level, they usually presume that operating conditions are ideal and fail to take into consideration the financial uncertainties or operational risks.

There has been an increasing body of research that has tried to combine techno-economic and financial analysis, but gaps still exist. Sadighi (2025) has applied an economic analysis of the deployment of hydrogen and highlighted the significance of financial metrics like net present value and internal rate of return in analysing the feasibility of a project. Priovolos (2024) compared the economics of hydrogen production in the European regions and emphasised the differences in the cost formation based on the regional differences in resource availability and the policy support. Nonetheless, such studies tend to be based on deterministic models, and they fail to reflect well the uncertainties regarding financing, market dynamics, or long-term cost development.

The literature in the context of Oman is relatively limited and mainly qualitative in the context of the particular country. Al-Mamari et al. (2024) discussed the future perspectives of the use of hydrogen in Oman and highlighted the high base of renewable resources and the possibilities of strategic export of the country. The International Energy Agency (2023) also pointed out that Oman has great potential to produce renewable hydrogen, as it is also competitive in terms of its solar and wind resources. Although these studies are informative on the strategic level, they do not include specific techno-economic and financial modelling according to the conditions in Oman.

Moreover, it is the current literature that usually ignores such crucial aspects as the nature of financing, variation of costs and operational risks. As an example, discount rates, capital costs, and system lifetimes assumptions are often based on the global standards and are not justified in terms of the local economy. Also, lack of sensitivity analysis in most researches restricts drawing conclusions with a lot of strength, especially in the emerging market, where the economic uncertainties are high.

Overall, the literature shows that there is an evident development of the techno-economic evaluations to the more comprehensive analyses that would include policy and strategic implications. Nevertheless, one of the missing links is the creation of open, contextual constructs that integrate the use of techno-economic models with a strict financial analysis. Specifically, the research that focuses on uncertainty, financing setups, and the dynamics of costs in a particular regional setting, like Oman, is needed.

The study attempts to fill these gaps by offering a combined techno-economic and investment appraisal model of the production of green hydrogen in Oman. It will provide a more detailed view of the viability of the project by integrating the model of costs with the financial analysis and sensitivity analysis, and help to better understand the hydrogen economics in the new energy markets.

### **3. Methodology**

#### *3.1 System Description*

The study examines the economic viability of an alkaline water electrolysis (AWE) system operated by a renewable energy source to produce green hydrogen in Oman. Electricity supply, water input, electrolysis, hydrogen drying, compression, and storage are defined as the system boundary, and it is costed at the plant gate. The reason alkaline electrolysis is chosen is that it is technologically mature, capital-intensive is lower, and has been demonstrated to be scalable relative to other types of electrolysis (Bolard et al., 2023). Its applicability to

large-scale implementation of areas with high renewable sources has been commonly highlighted in recent techno-economic research (Liu, 2023).

This process begins with renewable electricity as an input, and electrochemical separation of water into hydrogen and oxygen is triggered. The hydrogen is then dried and pressurised to either be stored or utilised downstream. The analysis presupposes the work in the steady-state mode, where the production of hydrogen is carried out during the whole period of the project. The country of Oman has all the above, which offers an optimal location to such systems due to the solar irradiance and the developing renewable energy infrastructure, which further supports its strategic positioning in global hydrogen markets (International Energy Agency, 2023; Hydrom, 2024).

The model of the system is based on a production basis in kilograms of hydrogen, which can be directly compared to the current literature and market standards. The study provides uniformity in terms of technical performance and economic analysis, which is required in investment-based analyses by concentrating on one integrated production system (Sadighi, 2025).

The production capacity applied in the paper embodies a consolidated annual output of running the plant instead of the size of an electrolyser unit. This method permits the model to represent the large-scale industrial deployment situations that are congruent with the export-oriented hydrogen production systems. The analysis is also a representation of system-wide performance as opposed to unit capacity, which presents uniformity between economic analysis and production output.

### 3.2. Assumptions and Input Parameters

The techno-economic model is created on a group of standardised assumptions that demonstrate realistic operating and financial situations. The projected project life of the project is 23 years, which includes construction, ramp-up and operation periods. It uses a discount rate of 5%, which is a moderate finance rate normally used in infrastructural projects in new energy markets (Patsatsia, 2024).

Some of the major technical parameters are electrolyser energy consumption of 57.5 kWh/kg H<sub>2</sub>, 15 L/kg H<sub>2</sub> water consumption and an annual continuous operation of 8000 hours. These values agree with reported ranges of performance in alkaline electrolysis systems in the industrial environment (Bolard et al., 2023). It is assumed that the electricity is acquired through renewable generation, which highlights the strategic orientation of Oman towards the development of solar and wind energy (International Energy Agency, 2024).

Table 1: Key Input Parameters

| Parameter               | Value | Unit                  |
|-------------------------|-------|-----------------------|
| Project lifetime        | 23    | years                 |
| Discount rate           | 5     | %                     |
| Electricity consumption | 57.5  | kWh/kg H <sub>2</sub> |
| Water consumption       | 15    | L/kg H <sub>2</sub>   |

Constant production of hydrogen per annum and performance of the system being constant with time are some of the operating assumptions. The cost is expressed in terms of a functional unit, namely, 1 kg of hydrogen, which guarantees the comparability of the cost in different situations and its alignment with the existing techno-economic models (Priovolos, 2024). The financial parameters, such as the capital cost factors and operating cost structures, are obtained with the combination of the project-specific data and literature benchmarks.

These assumptions give a systematic basis in which to assess the cost competitiveness and investment feasibility, as well as remain in line with the operating conditions in the real world of the emerging hydrogen sector in Oman.

### 3.3 Capital Cost Estimation (CAPEX)

The estimation of capital expenditure (CAPEX) is done by a scaling method, which is based on the reference plant data, and this provides the ability to adjust the cost to other levels of production. The relationship between scaling is determined to be:

$$C_2 = C_1 \left( \frac{Q_2}{Q_1} \right)^2$$

where  $C_1$  and  $C_2$  represent the capital cost of the scaled and reference systems,  $Q_1$  and  $Q_2$  designate their respective abilities, and  $n$  represents the scaling exponent. This technique is commonly used in the process engineering field, as well as in hydrogen project analysis, to approximate the capital cost of large systems (Junnala, 2024).

$$C_{\text{adjusted}} = C_{\text{base}} \times \frac{\text{CEPCI}_{\text{current}}}{\text{CEPCI}_{\text{base}}}$$

The total CAPEX is considered, including the direct costs (electrolyser system and balance of plant) and the indirect costs (installation, engineering, and contingency). Installation and EPC aspects are also included to show the actual project development realities.

Studies pointed out that the capital costs continue to be one of the most important factors of hydrogen economics, especially when it comes to the initial deployment phases (Sadighi, 2025; Sadiq, 2024). Thus, proper estimation of CAPEX is necessary to determine the viability of the project and the cost effectiveness in the long-term.

### 3.4 Operating cost estimation (OPEX)

Operation expenditure (OPEX) is further subdivided into variable and fixed costs to cover the operational costs, as well as the maintenance costs. Variable operating costs consist of electricity, water and consumables like potassium hydroxide and catalysts. Of these, the most significant cost factor is electricity because the process of electrolysis is energy-intensive, and this observation has also been confirmed in the literature of techno-economic studies (Liu, 2023).

The sum of the variable costs is obtained as:

$$C_{\text{variable}} = \sum (\text{Consumption}_i \times \text{Price}_i)$$

where every element is calculated with regard to unit consumption and the market prices. Electricity consumption in this study is directly related to the production of hydrogen; thus, it is a major cause of cost fluctuation.

There are fixed operating costs that comprise the labour, maintenance, and administrative costs. These have been estimated as a percentage of capital investment:

$$C_{\text{fixed}} = 0.04 \times \text{CAPEX}$$

This assumption is in line with the hydrogen cost models that have been applied in recent studies (Sadighi, 2025).

The overall OPEX is calculated on the basis of per kilogram hydrogen to make a direct comparison with LCOH outcomes. It has been stressed in the previous research that CAPEX prevails in the early stages of the expenses, but OPEX, especially electricity, plays a larger role in the long-term competitiveness (Priovolos, 2024).

### 3.5 Levelised Cost of Hydrogen (LCOH)

The levelised cost of hydrogen (LCOH) is the most common measure of the cost of production. It is the average unit cost of the hydrogen generated over the life of the project that includes both capital and operating costs. The LCOH is determined as:

$$LCOH = \frac{CAPEX \times CRF + OPEX}{H_2}$$

where  $CRF$  is the factor of capital recovery, which is defined as:

$$CRF = \frac{r(1+r)^n}{(1+r)^n - 1}$$

Here,  $r$  is the discount rate, and  $n$  represents the lifetime of the project. This formulation will make sure that there is an annualisation of capital costs in proportion to the period of operation.

LCOH has found extensive application in hydrogen research because it allows one to combine technical and economic variables into a single measure (Liu, 2023). In this study, LCOH is considered over various time horizons (20252050) in order to capture the cost reductions related to the technological advancement and economies of scale.

### 3.6 Financial Evaluation

In order to determine the feasibility of the investments to be made, the research uses discounted cash flow analysis based on Net Present Value (NPV) and Internal Rate of Return (IRR). The NPV can be computed as follows:

$$NPV = t = \sum_{t=0}^N \frac{CF_t}{(1+r)^t}$$

where  $CF_t$  represents the net cash flow during the year.  $t$ ,  $r$  is the discount rate, and  $N$  is the time at which the project is going to be undertaken.

The IRR is the rate at which the discount rate is given  $NPV = 0$ , which is the break-even payment of the investment. They are commonly applied indicators when assessing energy projects and investment decisions of large scale (Patsatsia, 2024).

The calculation of revenue is also done on the basis of hydrogen sales, whereas CAPEX and OPEX are the elements of costs. This combined financial model allows measuring not only the profitability but also the risk, which is crucial when determining the feasibility of hydrogen projects that are capital-intensive (Almazeedi, 2024).

### 3.7 Sensitivity Analysis

The sensitivity analysis is carried out to determine how the major parameters influence the economics of the project. It uses a single-variable methodology, in which one of the variables is changed, and the rest remain constant. The approach allows for determining the key cost drivers and assessing economic resiliency in the presence of uncertainty.

The parameters under analysis are:

- Discount rate
- Capital expenditure (CAPEX)
- Operation and maintenance expenses (OPEX).
- Water price
- Electricity tariff

All the parameters are manipulated within a specific range to depict realistic market movements. As an illustration, the discount rates will be tested between 0 and 15% with the base rate of 5%, and cost parameters will be tested within a range between  $\pm 10\%$ .

Sensitivity analysis plays a critical role in hydrogen projects evaluation because the costs of technologies, energy prices and the terms of financing can be highly uncertain (Sadiq, 2024). The research offers a thorough evaluation

of financial risk and sensitivity of investment in the green hydrogen industry of Oman by measuring the effects of these variables on NPV and IRR.

### 3.8 Financing Assumptions and Limitations

The financial analysis of the case study is anchored on a simplistic discount rate methodology, according to which a fixed 5% discount shall be used throughout the project lifetime. Although this assumption is consistent enough to make comparative analysis, it does not explicitly represent the capital structure generally observed in large-scale hydrogen projects, which tend to be a mix of debt capital financing and equity capital financing. Practically, the funding of projects is established using a weighted average cost of capital (WACC), which integrates financing risk, market conditions and expectations of the investor (Patsatsia, 2024).

The financing framework is a sensitive area of hydrogen projects in emerging economies, especially because it is very capital-intensive and has a long payback period. In other past analyses, it has been highlighted that concessional finance, blended finance systems, and public-private financiers can greatly enhance the viability of projects by lowering the true cost of capital (Almazeedi, 2024). Thus, the consideration of a unified discount rate in the study can be seen as the simplification of the model and not the true financing operation.

This limitation is mitigated partially by sensitivity analysis concerning the discount rate, but in future research, the dynamic nature of the financing structure and scenario modelling of the WACC would be employed to more effectively reflect the reality of the conditions of investment in a real-life hydrogen project.

## 4. Results and discussion

### 4.1 Cost Structure Analysis

The green hydrogen production cost structure in Oman is distinguished by a clear segregation between components, which are capital-intensive and those which are energy-intensive. The findings show that capital expenditure (CAPEX) and electricity-based operating expenditure (OPEX) represent the highest costs of hydrogen production, and this is in line with research results available in the world and regional techno-economic literature (Bolard et al., 2023; Sadiq, 2024). Table 2 shows the capital costs divided into normalised forms.

Table 2: Capital Cost Structure

| Component                      | Value (USD/kW) | Contribution (%) |
|--------------------------------|----------------|------------------|
| Direct cost (installed system) | 862.25         | 89.7             |
| Indirect cost (EPC)            | 99.02          | 10.3             |
| <b>Total CAPEX</b>             | <b>961.28</b>  | <b>100</b>       |

The findings indicate that direct costs, especially costs on electrolyser systems and balance-of-plant cost predominate in the investment of capital. This is consistent with the earlier research that has stressed the initial high price of the electrolysis technologies, particularly in the initial stages of implementation (Sadighi, 2025). Indirect costs that would be comparatively less still are crucial because of the engineering, procurement, and construction (EPC) needs.

On the contrary, electricity consumption has a significant effect on operating costs. Table 3 shows the breakdown of operating expenditure on a per-kilogram basis of hydrogen.

Table 3: Operating Cost Breakdown

| Component            | Value (USD/kg H <sub>2</sub> ) | Contribution (%) |
|----------------------|--------------------------------|------------------|
| Electricity          | 1.3225                         | 99.1             |
| Water                | 0.00645                        | 0.48             |
| Chemicals & catalyst | 0.00559                        | 0.42             |
| Fixed O&M            | 0.19367                        | —                |
| <b>Total OPEX</b>    | <b>1.52821</b>                 | <b>100</b>       |

More than 99% of variable operating costs are covered by electricity, which substantiates the fact that electricity is the major cost driver in the production of hydrogen using electrolysis. This result is aligned with the earlier report that has suggested that the variability of electricity prices is the most influential factor of hydrogen price competitiveness (Liu, 2023; Priovolos, 2024).

In economic terms, the electricity cost hegemony will mean that the competitiveness of Oman in the production of hydrogen will be largely dependent on its capacity to produce renewable electricity at low prices. On the one hand, Oman is characterised by a high level of solar irradiance, and the outcomes imply that with the lack of competitiveness of pricing mechanisms in the electricity sector, a reduction in cost in CAPEX might be insufficient to ensure hydrogen costs are competitive.

#### 4.2 Levelised Cost of Hydrogen (LCOH)

Levelised cost of hydrogen (LCOH) gives a holistic measure of the cost of production as it combines capital recovery as well as operating costs throughout the duration of the project. Its findings indicate that LCOH decreases significantly between 2025 and 2050, which is a positive sign of technological advancement, reduction in costs, and economies of scale. Table 4 is a summary of the LCOH values and the cost components.

Table 4: LCOH and Cost Composition (USD/kg H<sub>2</sub>)

| Year | LCOH | CAPEX | Variable OPEX | Fixed OPEX |
|------|------|-------|---------------|------------|
| 2025 | 6.37 | 4.84  | 1.33          | 0.19       |
| 2030 | 5.22 | 3.87  | 1.19          | 0.15       |
| 2040 | 3.36 | 2.32  | 0.95          | 0.09       |
| 2050 | 2.85 | 2.01  | 0.75          | 0.08       |

These findings suggest that the LCOH has decreased by 55% during the course of study, mainly this has been as a result of reduced capital costs and higher system efficiencies. This follow-up is in line with the estimates observed in the world hydrogen literature, indicating cost savings as a factor of technological learning and scale effect (Bolard et al., 2023; Liu, 2023).

The noticeable observation is that CAPEX is predominant in the initial years(2025), with about 76% contribution to the total cost. It declines with time, however, in the proportion of its contribution to capital costs. On the other hand, the proportion of operating expenses, especially electricity, increases with advancing age, which represents the transition towards the energy-based cost structure rather than the capital-based.

Although the costs are observed to be reduced, the estimated values of LCOH still stand above the low-cost range that highly optimised hydrogen systems have been reported to possess throughout the world. Comparative studies indicate that the low cost of electricity is not the only factor needed to achieve LCOH at an amount lower than 2 USD/kg, but also specific conditions of financing and the encouragement of policies (Priovolos, 2024; Sadighi, 2025). Oman thus has a good potential, but coordinated technological, financial, and policy interventions are needed to be able to achieve global competitiveness.

In order to confirm the strength of the findings, the calculated values of LCOH are determined in accordance with the existing literature. The past research demonstrated that the cost of producing green hydrogen is generally 2-6 USD/kg according to the price of electricity, the level of technology development, and the investment terms (Priovolos, 2024; Sadighi, 2025). The findings of this study are not outside this bracket, where it is seen that early years are characterised by high costs and towards 2050, the rates approach competitive levels. Such an agreement with published standards contributes to the reliability of the model and ensures that the cost assumptions employed in it are consistent with international trends in techno-economics.

#### 4.3 Financial Feasibility Analysis

Net Present Value (NPV) and Internal Rate of Return (IRR) are used to determine the financial feasibility of the green hydrogen project. The findings indicate that financial assumptions, specifically discount rates and capital costs, are very sensitive to the project's feasibility. With the discount rate of 5% (base case), the project will produce a positive NPV, but as the discount rate increases in value, the profitability decreases drastically.

Table 5: Financial Performance under Discount Rate Variation

| Discount Rate | NPV (USD)    | IRR (%) |
|---------------|--------------|---------|
| 0%            | 533,892,975  | 9.75    |
| 5% (base)     | 172,875,746  | 9.75    |
| 10%           | -6,422,573   | 9.75    |
| 15%           | -103,827,862 | 9.75    |

The outcomes in Table 5 reveal that the project is no longer a viable economic project at a discount rate exceeding 10%, which makes the financing conditions vital. This is consistent with the past studies that highlight the fact that hydrogen projects are massively capital-intensive and marginal to the cost of capital (Almazeedi, 2024).

As IRR does not change in this analysis because of model assumptions, it is still lower than the expected IRR by average investors when dealing with high-risk energy projects. This implies that, given the prevailing circumstances, policy support mechanisms to attract private investment in Oman through green hydrogen investments may include subsidies or concessional funding.

Relatively, research in the other parts of the world has revealed that positive financing setups may greatly enhance project feasibility even when production expenses are relatively elevated (Sadighi, 2025). Accordingly, the reduction of costs is not the only factor of financial viability, but the overall investment climate.

#### 4.4 Sensitivity Analysis

Table 6: Sensitivity Analysis

| Parameter     | Base Value | Range Tested | NPV Range (USD)                      | IRR Range (%)   |
|---------------|------------|--------------|--------------------------------------|-----------------|
| Discount Rate | 5%         | 0–15%        | 533,892,975.52 →<br>(103,827,862.76) | 9.75 (constant) |

|                                |         |                 |                                    |                 |
|--------------------------------|---------|-----------------|------------------------------------|-----------------|
| <b>CAPEX Overrun</b>           | 0%      | -10% to +10%    | 205,116,499.21 →<br>147,601,897.19 | 5.91 → 3.76     |
| <b>O&amp;M Overrun</b>         | 0%      | Limited data    | 176,359,198.20 (at base)           | 4.76            |
| <b>Water Price<br/>(USD/L)</b> | 0.00043 | 0.00039–0.00047 | 176,356,880.25 →<br>176,361,516.15 | 4.76 (constant) |
| <b>Electricity Tariff</b>      | 0.02799 | ±10%            | 3,633,870.00 → 1,270,446.00        | 14 → 11         |

As shown in Table 6, the results of the sensitivity analysis indicate the relative impact of the essential economic parameters on the viability of the project. Discount rate stands out as such a factor when among the variables discussed and therefore seen to be the most critical in financial performance. When the discount rate is set at the base case of 5, the project can lead to a positive NPV of 172,875,746.57 USD; however, the NPV becomes negative with the increase of the discount rate to 10% and 15%, which shows that the project undergoes a transition to financial infeasibility. This validates the fact that hydrogen projects are extremely sensitive to the financing environment, as it is also highlighted in hydrogen investment studies (Almazeedi, 2024).

Capital expenditure is the other area of high impact on the returns of the project. Any fluctuation of CAPEX that is approximately -10% will cause large changes in both the NPV and the IRR, where an increase in costs will lead to a reduction of 5.91 per cent. to 3.76 per cent. This is symptomatic of how capital-intensive electrolysis systems are, and it coincides with conclusions that CAPEX is a major impediment to the widespread implementation of hydrogen (Sadighi, 2025). These findings imply that it is important to control the cost of the development process in a project to ensure an attractive investment.

Conversely, the water price changes do not affect the financial performance significantly, and there is a slight change in the NPV, but no change in the IRR. It means that the water expenditure is not a decisive factor in the hydrogen manufacturing economics, which aligns with the existing studies (Liu, 2023). Likewise, the data on the sensitivity of operating and maintenance costs is not extensive; however, the data given in the case of the base-case indicates that it has a medium influence in comparison with other values.

The fact that electricity tariffs change considerably proves the impact of electricity tariffs on the economics of projects validates this fact since it is the primary cost of operation. Electricity pricing changes cause observable changes in both NPV and IRR, which makes access to renewable, low-cost electricity important. This result can be aligned with comparative techno-economic analyses, which found electricity cost as the most significant variable to produce hydrogen (Priovolos, 2024).

Overall, the sensitivity analysis shows that a combination of the appropriate financing conditions, managed capital costs, and competitive price of electricity has to be achieved to provide economic viability. The findings emphasise the role of a combined policy and investment approach to help in the evolution of a green hydrogen economy in Oman (Al-Mamari et al., 2024; Hydrom, 2024).

## 5. Discussion and Policy Implications

Data presented in this paper proves that although Oman has good techno-economic potential to produce green hydrogen, the economic viability of such an endeavour can only materialise under the influence of financial and market forces instead of just reducing the costs. The future decreasing value of LCOH is an indicator of expected technological learning and cost of scale, but the financial analysis has shown that lower costs of production are not directly equated to investment feasibility. This difference is critical because various researches have also expressed the same claim where they state that the techno-economic competitiveness should be judged together with financing structures and market conditions to make real-life judgments (Sadighi, 2025).

One of the key conclusions of this research is the prevalence of the financing conditions on project viability. The elasticity of NPV to changes in the discount rate implies that the cost of capital is a decisive factor in the evaluation of the outcome of an investment. Moderate hikes in the discount rate also lead to a shift from positive to negative

NPV, which indicates how risky hydrogen projects are to be financed. This phenomenon can be aligned with the larger body of literature on energy investments, as it highlights that capital-intensive projects are very much reliant on the availability of low-cost financing mechanisms (Patsatsia, 2024). Here, assuming a homogeneous discount rate makes the real world of financing much simpler, as blended finance models, concessional financing, and state-owned ventures are frequently needed to minimise the risk of an investment (Almazeedi, 2024).

The second most important factor that defines economic performance is electricity pricing. Since electricity represents most of the operating costs, changes in tariff structures have a tremendous impact on both LCOH and financial indicators. Even though Oman is advantaged by the abundance of solar irradiance, the outcomes indicate that such a natural resource would not suffice without the underpinning measures. The results correspond with the regional studies, which state the cost of electricity as the key factor in defining the competitiveness of hydrogen (Sadiq, 2024). Moreover, hydrogen in the future cannot be run on fixed tariffs since the growth in the use of renewable energy will probably create dynamic pricing and power purchase agreements (PPAs). These mechanisms can be used to enhance efficiency in costs and decrease the price fluctuations, especially in combination with the hybrid renewable systems (Gil-García et al., 2024).

Capital expenditure is also a major limitation, especially at the initial stages of deployment. The sensitivity analysis outcomes indicate that any small improvement in CAPEX causes significant decreases in IRR, thus the capital intensity of electrolysis technology. This result is in agreement with international forecasts that the prices of electrolyzers will fall as mass use and mass production rise (Bolard et al., 2023). Nonetheless, the findings also indicate that early-stage projects might be exposed to additional financial risk prior to these cost reductions, true to reality, whereby there exists a disconnect between technological potential and commercial viability.

The costs and financing issues are not the only essential aspects in the study, as it implicates operational and technological uncertainties. The existing model presupposes stable work of the system, but in reality, degradation of the electrolyser, the intermittency of the renewable energy, and downtime of the system can determine the efficiency of the production process and the cost-efficiency. These are the aspects that are often disregarded in deterministic techno-economic models but have been found to be important factors to consider when assessing hydrogen systems (Priovolos, 2024). Due to the unpredictability of these and other uncertainties, introducing them into the future modelling structures would enhance the validity of investment analyses and offer a better representation of project performance.

Strategically, the geographic positioning of Oman and the base of renewable sources make it a potential exporter of green hydrogen. The geographic closeness to major markets in Europe and Asia is what gives it a competitive advantage in the area of logistics and trade integration (International Energy Agency, 2023). Nevertheless, the findings indicate that this may be limited by competition with other areas which have equally good renewable potential but have much better financing facilities or are policy-favourable. This implies that the availability of resources is not enough to guarantee competitiveness and that it will be necessary to have a coordinated development of the infrastructure, supply chains and export strategies.

Policy frameworks, thus, are important in bridging the gap between technical and economic feasibility. Although the national plans of Oman have a solid basis on which to develop hydrogen, the findings of this research have shown that more policy tools would be needed to facilitate investment. These are concessional financing, carbon pricing mechanism, and long term offtake or commitment, and regulatory mechanisms that minimise uncertainty of the investor. As experience on the global level suggests, this type of policy backing is needed to scale up to hydrogen economies, especially at the first stage of market building (Alam et al., 2024).

Even though the economic feasibility is the main theme of this research, the environmental effects of the production of green hydrogen give one more reason why it should be developed. Hydrogen, which is generated using renewable energy, can play a huge role in the carbon emissions of hard-to-abate sectors, which can help in the decarbonisation efforts of the world. Earlier studies have revealed that renewable hydrogen systems are capable of being instrumental when it comes to emissions reduction pathways, especially in places where fossil fuel has been extremely important (Oyewo et al., 2024). The benefit of this transition within the framework of Oman is

that it can coordinate with the national sustainability goals and provide a chance to decrease the intensity of carbon content of energy exports.

Overall, the results indicate that the green hydrogen economy development in Oman needs to be a multidimensional process incorporating technical progress, financial optimisation, and policy assistance. As much as the nation has definite resource strengths, economic feasibility will revolve around its capacity to deal with financing limitations, dealing with uncertainties about costs, and supportive policy frameworks. In the absence of these enablers, there is only a slight possibility that large scale roll out would be commercially viable in the short run.

## 6. Conclusion

The study has analysed the economic viability of the production of green hydrogen in Oman using a combined techno-economic as well as investment appraisal model. The study offers a full review of the costs of production as well as the viability of the investment under real conditions by using the cost modelling, the financial analysis and sensitivity analysis covering the 23-year project life.

The findings reveal that green hydrogen generation in Oman has a good potential regarding the cost aspect because the levelised cost of hydrogen in Oman will reduce considerably in the year 2025 to 6.37 USD/kg and by 2050 to 2.85 USD/kg. The main contributors to this decrease include lowering the costs of capital and increased efficiency of the system, which align with the tendencies in the development of electrolysis technology in the world (Bolard et al., 2023). Nevertheless, even with this cost reduction, the financial analysis shows that the viability of investments is difficult to produce under the present assumptions.

The first outstanding aspect that this study has uncovered is that financial feasibility is very sensitive to the discount rate, capital expenditure and electricity tariff. Sensitivity analysis proves that despite the reduction in the cost of production, an increase in the cost of capital can make the project economically non-viable. On the same note, capital cost overruns have a substantial impact on decreasing the internal rates of return and electricity pricing has a strong impact on operating costs. Conversely, the effects of water price changes on total project economics are insignificant. These results prove that economic feasibility cannot be calculated alone based on technological performance, but rather combined with financing conditions and energy pricing structure.

Strategically, Oman has numerous strengths, such as a great diversity of renewable energy and a favourable geographical location in which to export hydrogen. Nevertheless, the current potential should be translated into a competitive hydrogen economy through combined efforts to mitigate the financial and market hindrances. These findings indicate that the policy support mechanisms, including concessional financing, stable regulatory systems, and long-term offtake schemes, will play an important role in investment attraction and risk minimisation of projects.

Overall, this research study helps in the literature by presenting a clear and Oman-specific framework of investment appraisal that connects the techno-economic performance with financial reasonableness. The results help to note that even though green hydrogen may be cost-competitive in the long run, its extensive implementation in Oman will require the coordination of technological advances, financing opportunities, and policy measures. Further studies are recommended on this analysis through the integration of marketing dynamics, export logistical and policy scenarios, to further narrow the evaluation of the development of the hydrogen economy in Oman. In Oman, due to the absence of specific financial and policy modifications, the implementation of green hydrogen is not likely to realise large-scale commercial viability in the near future.

## 7. Limitations and Future Research

The study is a structured techno-economic and financial assessment of the green hydrogen production in Oman, but a number of limitations must be mentioned. First, the analysis is carried out in a deterministic modelling framework, in which important parameters are supposed not to vary with time unless within the specified ranges

of sensitivity. Although sensitivity analysis is used as a method to deal with uncertainty, it does not exhaust stochastic changes in market conditions, financing structures and technology performance.

Second, the financial model uses a simplified rate of discount as compared to a more detailed financing structure using the weighted average cost of capital(WACC). Since hydrogen projects are often characterised by complicated financing schemes, blended finance models, and investment structures that are based on scenarios should be used in future research.

Third, the impact of the environment, e.g., the carbon emissions of the lifecycle, or the water sustainability, is not explicitly mentioned in the research. Whereas green hydrogen is generally well known as a low-carbon solution, including environmental metrics would give a more detailed analysis of the benefits of projects.

Finally, the analysis is based on production economics and fails to look at downstream issues like hydrogen transport, hydrogen storage systems, or export logistics. These aspects should be incorporated in future research to come up with a more detailed evaluation of the development of the hydrogen economy in Oman.

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## References

- Ait, B. (2026). Hydrogen economy (2015–2026): Mapping global research trends through bibliometric analysis. *Journal of Legal and Economic Research*, 9(1), 89-125. <https://asjp.cerist.dz/en/article/285725>
- Alam, S. N., Khalid, Z., & Singh, B. (2024). Integration of government policies on the global level for green hydrogen production. In *Green Hydrogen Economy and Policy Development* (pp. 1-34). ACS Publications. <https://doi.org/10.1021/bk-2024-1473.ch001>
- Al-Mamari, I., Al Ruhaili, S., Al Naamani, E., & Al-Hinai, A. (2024). Insight into future directions for the utilisation of green hydrogen in Oman. *Proceedings of the International Conference on Industrial Engineering and Operations Management*, Muscat, Oman. <https://ieomsociety.org/proceedings/oman2024/45.pdf>
- Almazeedi, W. (2024). Hydrogen investment: Carving out a competitive position for the MENA region in the energy transition. In *The Clean Hydrogen Economy and Saudi Arabia* (pp. 145-178). Routledge. <https://doi.org/10.4324/9781003294290-9>

- Bacil, F., Black, A. H., Domingues, M., Jin, J., Lema, R., & Fu, X. (2025). Development strategies for the green hydrogen economy in emerging economies. *UNU-MERIT Working Study Series*, 2025-001. <https://unu-merit.nl/publications/wppdf/2025/wp2025-001.pdf>
- Basuwaid, S. K. (2024). Energy transition in the UAE road freight transportation sector using the hydrogen approach [Doctoral dissertation, Khalifa University]. <https://khazna.ku.ac.ae/ws/portalfiles/portal/32097372/file>
- Boie, I., Dütschke, E., Kantel, A., Müller, V., & Scherrer, A. (2024). Towards a green H2 economy: Türkiye country report. *Fraunhofer Institute Technical Notes*. <https://public-rest.fraunhofer.de/server/api/core/bitstreams/9afc628e-c44c-45f0-af5e-2c8cb2bef52a/content>
- Bolard, J., Dolci, F., Weidner, E., Gryc, K., Georgakaki, A., & Letout, S. (2023). Clean energy technology observatory: Water electrolysis and hydrogen in the European Union—2025 status report on technology development, trends, value chains and markets. *Publications Office of the European Union*. <https://doi.org/10.2760/855599>
- Bouramdane, A. A. (2026). Natural gas transit from West Africa to Europe (Africa Atlantic Gas Pipeline) to maximise energy security and transit revenues by 2050. *Environment and Development Economics*, 31(2), 234-267. <https://doi.org/10.1017/S1355770X26000156>
- Gil-García, I. C., Fernández-Guillamón, A., & Molina-García, Á. (2024). Optimised wind power plant repowering and green hydrogen production: Synergies based on renewable hybrid solutions. *IEEE Access*, 12, 145678-145695. <https://doi.org/10.1109/ACCESS.2024.3467890>
- Goel, S., & Sharma, R. (2026). Green hydrogen production from hybrid renewable energy systems: A techno-economic analysis in rural India. *International Journal of Sustainable Energy*, 45(3), 412-431. <https://doi.org/10.1080/14786451.2026.2630464>
- Green Hydrogen Organisation. (2024). *Oman: Green hydrogen vision and strategy*. Retrieved March 30, 2026, from <http://gh2.org/countries/oman>
- Hamed, M. (2025). Strategic opportunities for hydrogen energy in Saudi Arabia and the GCC countries. In *Hydrogen Energy Deployment in the Middle East* (pp. 23-56). Academia Press. [https://www.academia.edu/download/124211863/01\\_Hydrogen\\_Energy\\_and\\_Its\\_Deployment\\_Pathways\\_in\\_the\\_Middle\\_East.pdf](https://www.academia.edu/download/124211863/01_Hydrogen_Energy_and_Its_Deployment_Pathways_in_the_Middle_East.pdf)
- Hydrom (Hydrogen Oman). (2024). *Oman green hydrogen strategy 2024*. Ministry of Energy and Minerals, Sultanate of Oman. Retrieved March 30, 2026, from <https://hydrom.om/Media/Pdf/Oman-Green-Hydrogen-Strategy-2024.pdf>
- International Energy Agency. (2023). Renewable hydrogen from Oman: Country report. *IEA Publications*. <https://iea.blob.core.windows.net/assets/338820b9-702a-48bd-b732-b0a43cda641b/RenewableHydrogenfromOman.pdf>
- International Energy Agency. (2024). *Oman's huge renewable hydrogen potential can bring multiple benefits in its journey to net-zero emissions*. Retrieved March 30, 2026, from <https://www.iea.org/news/omans-huge-renewable-hydrogen-potential-can-bring-multiple-benefits-in-its-journey-to-net-zero-emissions>
- Islam, M. T., & Ali, A. (2024). Sustainable green energy transition in Saudi Arabia: Characterising policy framework interrelations and future research directions. *Next Energy*, 2(4), 100089. <https://doi.org/10.1016/j.nxener.2024.100089>
- Junnila, J. (2024). Fixed asset accounting guide: For hydrogen CapEx investments [Master's thesis, JAMK University of Applied Sciences]. <https://www.theseus.fi/handle/10024/862616>
- Kozhanov, N., & Kardas, S. (2025). Between Brussels and Beijing: Strategic choices for the GCC member states in the era of fourth energy transition. *Alternatives: Global, Local, Political*, 50(1), 45-71. <https://doi.org/10.1177/03043754251409476>
- Krane, J. (2025). The GCC energy diversification efforts: Policy paths for clean hydrogen. *Abu Dhabi Global Development Accelerator Policy Study*. [https://www.agda.ac.ae/docs/default-source/2025/publications/adga\\_krane\\_h2-insight\\_draft-mb\\_13feb-\(1\).pdf](https://www.agda.ac.ae/docs/default-source/2025/publications/adga_krane_h2-insight_draft-mb_13feb-(1).pdf)
- Liu, Q. (2023). Unlocking the potential of hydrogen in intermittent electricity systems: A global assessment of levelized cost of hydrogen and low carbon industrial hub development [Doctoral dissertation, ProQuest]. <https://search.proquest.com/openview/c923601fcb02f02ea55e9b08ac618caa/1>
- Mathew, A. P. (2025). Strategic dynamics of energy security and economic impact: Assessing the Middle East's role in global energy markets. *Energy Economics Review*, 42(1), 78-112. [https://www.academia.edu/download/124325433/Strategic\\_Dynamics\\_of\\_Energy\\_Security\\_and\\_Economic\\_Impact.pdf](https://www.academia.edu/download/124325433/Strategic_Dynamics_of_Energy_Security_and_Economic_Impact.pdf)
- Mills, R., Salman, M., Wang, M., & Chen, L. (2026). China and the GCC: Prospects for globalising hydrogen markets. In *China-Gulf Cooperation Council Relations* (pp. 187-215). Routledge. <https://doi.org/10.4324/9781003610625-11>
- Ministry of Energy and Minerals, Oman. (2024). *Renewable energy and hydrogen projects*. Retrieved March 30, 2026, from <https://dev.mem.gov.om/en-us/Our-Business/Renewable-Energy-and-Hydrogen/Renewable-Energy-and-Hydrogen-Projects>

- Notteboom, T., & Haralambides, H. (2023). Seaports as green hydrogen hubs: Advances, opportunities and challenges in Europe. *Maritime Economics & Logistics*, 25(4), 905-931. <https://doi.org/10.1057/s41278-023-00253-1>
- Olifant, G. E., Ngubevana, L., & Mathetsa, S. (2025). Navigating the current landscape of green hydrogen, its potential, and challenges: A South African perspective. *Progress in Energy*, 7(1), 012001. <https://doi.org/10.1088/2516-1083/add2cb>
- Oman Vision 2040. (2024). *Sustainable environment priority: Green hydrogen initiatives*. Retrieved March 30, 2026, from <https://www.oman2040.om/priority/12?lang=en>
- Oramulu, I., & Paglioni, V. P. (2026). The hydrogen economy: Progress and challenges to future growth. *Preprints*, 2026021505. <https://doi.org/10.20944/preprints202602.1505.v1>
- Oyewo, A. S., Lopez, G., ElSayed, M., Galimova, T., & Breyer, C. (2024). Power-to-X economy: Green e-hydrogen, e-fuels, e-chemicals and e-materials opportunities in Africa. *Energy Reports*, 11, 4567-4589. <https://doi.org/10.1016/j.egyr.2024.04.023>
- Patsatsia, A. (2024). Capital investment planning in renewable energy in the hospitality sector: Strategy and evaluation [Master's thesis, Haaga-Helia University]. <https://www.theseus.fi/handle/10024/855837>
- Pinto, M. C. (2024). Opportunities and challenges of green hydrogen in the energy transition framework: Analysis of potential cross-border cooperations through a multi-dimensional approach [Doctoral dissertation, Politecnico di Torino]. <https://tesidottorato.depositolegale.it/handle/20.500.14242/170578>
- Priovolos, A. (2024). Comparative techno-economic and policy analysis of green hydrogen production in Nordic and Southern Europe [Master's thesis, Aalto University]. <https://aaltodoc.aalto.fi/handle/123456789/127456>
- Rikabi, R. (2024). Green hydrogen imports into Europe: An assessment of potential sources. *EconStor Working Papers*, 296657. <https://www.econstor.eu/handle/10419/296657>
- Sadighi, M. (2025). Essays on the economic assessment of green hydrogen deployment for industrial carbon-neutrality [Doctoral dissertation, Université Paris-Saclay]. <https://theses.hal.science/tel-05184237>
- Sadiq, M. (2024). Techno-economic analysis of H2@Scale production pathways in the Middle East and North Africa (MENA) [Master's thesis, Khalifa University]. <https://khazna.ku.ac.ae/ws/portalfiles/portal/25845043>
- Saeid, M. F., Abdulkadir, B. A., & Ismail, M. (2025). A bibliometric analysis of metal-based catalysts for efficient hydrogen production. *Environmental Quality Management*, 34(3), e70046. <https://doi.org/10.1002/tqem.70046>
- Sathakathulla, A. A. (2024). Governance framework in strategic operations management of renewable energy in the UAE: A case study. *Journal of Renewable Energy Management*, 8(2), 145-178. <https://www.researchgate.net/publication/386171478>
- Scano, C. (2024). Hydrogen: Technologies, policies and strategies [Master's thesis, University of Padua]. <https://thesis.unipd.it/handle/20.500.12608/80448>
- Ulya, N., & Machmudi, Y. (2025). Geopolitics of renewable energy in the Middle East and North Africa region. In *Proceedings of ICSGS Conference on Strategic and Global Studies* (pp. 57-89). Atlantis Press. [https://doi.org/10.2991/978-94-6463-672-5\\_5](https://doi.org/10.2991/978-94-6463-672-5_5)
- Vakulenko, I., & Rekunen, I. (2025). Clean energy projects for European integration and cooperation. *The Academic Monograph Series*, 1(1), 45-89. <https://armgpublishing.com/wp-content/uploads/2025/07/monograph-1-2025.pdf>

# E-Commerce Challenges and Opportunities in Turkey: The Cases of Getir and Trendyol

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## Abstract

This article explores the challenges and opportunities of e-commerce in Turkey through inducing a comparison between Getir and Trendyol cases. With the fast expansion of digital technologies, e-commerce has reformed consumer habits, business strategies, and the retail landscape. based on secondary data from company reports, industry analysis, and academic studies, this research follows a qualitative case study approach to evaluate how both companies achieved market growth while dealing with operational and regulatory pressures and challenges. Findings reveal that e-commerce platforms create essential opportunities, including consumer convenience, market expansion, and innovation-driven growth. At the same time, they face significant challenges such as high operational costs, supply chain issues, legal and regulatory issues, and economic instability due to current conditions. The analysis shows that Getir's ultra-fast delivery model enabled early growth but came with sustainability concerns, while Trendyol's marketplace model ensured greater scalability but faced increasing competition. Overall, the study contributes to understanding how e-commerce businesses in emerging markets adapt strategies to sustain growth within dynamic conditions. It further provides practical insights for policymakers, businesses, and startups on building sustainable, competitive, and consumer-centered e-commerce ecosystems.

**Keywords:** Digital Transformation, E-Commerce, Getir, Retail, Trendyol, Online Marketplace

## 1. Introduction

The global retailing sector has gone through many transformations as a result for the rise of e-commerce, these changes has reshaped the way how businesses and consumers interact. During the last few years, online shopping has experienced a high growth, followed by changings in consumer behavior, widespread of internet and mobile phones, and constant technological developments. Businesses increasingly depend on digital tools and modern business models to meet the unbalanced customer expectations. However, e-commerce landscape remains active, forcing companies to adapt always to logistical difficulties, high competition, and developed regulatory agendas. E-commerce has also made a transformation in how people do shop today by offering the flexibility to browse and purchase products from almost anywhere at any time. This extra convenience has been further enhanced by

developments in logistics, enabling many customers to receive their orders on the same day of making the purchase. Such adeptness and accessibility are features that make it harder to compete with, making e-commerce an increasingly preferred option for modern consumers (Benchmark, 2023).

The origins of e-commerce are back to the 1960s, when businesses began to use an electronic system known as Electronic Data Interchange (EDI) to make it easier in document transfers. However, it was not before 1994, when the first online transaction took place- when a CD was sold between friends through an online shopping platform called “NetMarket” (Laudon & Traver, 2021: p. 9).

Since then, the sector has developed rapidly, and global players such as Amazon and Alibaba have become household names. The rise of free shipping has also played a significant role in encouraging the growth of e-commerce by lowering perceived customer costs, at least on the surface of online shopping (Bloomenthal, 2024: p.1).

Through the experiences of Getir and Trendyol, this study seeks to analyze the opportunities and difficulties faced by e-commerce businesses. The research aims to offer important insights into how e-commerce companies can prosper in a competitive and changing environment by examining their operations, strategies, and market environments. The study focuses on Getir and Trendyol's main challenges, how they take advantage of the e-commerce industry's opportunities, and what tactics can be suggested to help these businesses succeed in the long run in this quickly changing sector.

By comparing two different successful e-commerce models, the study provides useful information on how companies can achieve success through a strategic flexibility and innovation, as well as a strong focus on consumer needs. It also takes a deeper look at how external factors such as economic instability, changing consumer expectations, and new regulations can impact the results that companies gain in the e-commerce world.

To explore these questions, the study is adopting a qualitative approach, combining case studies of both Getir and Trendyol with an analysis of secondary data sources such as academic research, industry and governmental reports, and online data. This approach helps us understand how e-commerce impacts companies' strategies, operations and the overall customer behavior. By examining both the day-to-day operational aspects and the strategies employed by these companies, the study can provide a comprehensive and clear view of the digital commerce landscape.

In this regard, the study of Getir and Trendyol provides important insights into how regional and local companies are adapting to the global expansion of e-commerce, while they are addressing specific market challenges in logistics, operations, and production at the same time. Their different strategies, (Getir's focus on ultra-fast delivery while Trendyol focuses on wide marketplace model), highlight how businesses can innovate in their own ways to stay competitive. The insights and lessons learned from this study aim to add a real value to the academic debate around digital transformation in retail sector, while also offering practical guidance to help them achieve sustainable growth in the e-commerce environment.

## **2. Literature Review**

The literature section highlights the role of technological advances, mobile commerce, and global digitalization. In Turkey. E-commerce development has been influenced by urbanization, capital accumulation, and pandemic-driven demand shifts.

### *2.1 Technological drivers of E-commerce*

E-commerce has gone through a remarkable transformation since it began in the latter half of the 20th century. Since we now live in a digital society, it's critical to consider how far e-commerce has come from the early days of direct online transactions to the more intricate, customized shopping experiences we currently enjoy (Forbes magazine, 2024).

A number of basic developments greatly aided in the development and widespread application of e-commerce before to the inclusion of contemporary technologies like artificial intelligence. The increasing number of mobile devices, the expansion of internet access globally, and investments in digital infrastructure were some of the most significant.

In order to create the digital environment required for online commerce, internet infrastructure had to expand quickly in the late 1990s and early 2000s. Wider broadband internet accessibility allowed customers to access online platforms more quickly and reliably, resulting in faster transaction times and more simple browsing. The foundation for EC's growing popularity among companies and customers was laid by this expansion (Amazon, 2025).

The widespread use of smartphones and mobile internet at the same time increased this shift. Mobile devices greatly increased the frequency and convenience of transactions by enabling consumers to access online marketplaces at any time and from any location.

Mobile apps and responsive websites that improve the user experience have made online shopping more convenient and customized. Remarkably, mobile commerce now holds approximately 73% of the worldwide e-commerce market share, proving its significant influence on consumer buying patterns (Dey, 2025).

Along with advancements in internet and mobile technology, delivery and logistics system improvements were essential. GPS tracking, warehouse automation, and real-time inventory management technologies have all helped to improve supply chain efficiency and reduce delivery times. These advancements enabled online businesses to satisfy consumers' increasing demands for dependable and quick shipping, boosting client confidence and promoting repeat business (Ecommerce Fastlane, 2024). Furthermore, the emergence of digital wallets and secure online payment methods has not only addressed safety concerns but also made online shopping easier and encouraged customers. Overall shopping experiences were improved during this period by the sharp rise in service-oriented platforms such as chatbots for customer support and user review systems (Tekler, 2022: p.104). The flow of products from manufacturers to consumers has been impacted by these advancements in technology and services. E-commerce upward key supply chain phases, such as sourcing, inventory management, and delivery, while allowing manufacturers to avoid traditional retail brokers and interact with customers directly.

E-commerce has gone through a revolution thanks to artificial intelligence and machine learning, which analyze huge amounts of data and offer insightful information that greatly enhances the shopping experience for customers. Applications for these technologies range from optimizing supply chain processes to personalizing product recommendations. For example, AI algorithms are used by e-commerce sites just like Amazon to recommend products based on a visitor's searching history and previous purchases. AI-powered chatbots enhance customer service by providing timely responses to requests and assisting with product promotion (Patpatia, 2023).

Virtual reality and augmented reality are two other innovations that are significantly altering the e-commerce landscape. These technologies have a big influence on how consumers shop because they produce interactive and realistic experiences. By including digital elements into the physical world, augmented reality provides users with additional data or visuals. This enables customers to view products in their actual settings before making a purchase in e-commerce. Customers can virtually arrange furniture in their homes to see how it fits and looks, for instance, using IKEA's augmented reality app, IKEA Place. This increases customer satisfaction and decreases returns by giving them greater confidence in their purchases (Patpatia, 2023).

Blockchain technology also has the potential to change e-commerce by adding transparency, security, and trust to transactions. Every transaction is recorded on a shared, permanent system that is impossible for anyone to alter. This reduces fraud and cheating and makes mobile payments safer. Smart contracts are another tool that blockchain uses to automate safe transactions without the need for middlemen. Customers can feel more secure about their purchases by using it to verify the true nature and place of origin of luxury goods (Patpatia, 2023).

## 2.2 Turkish E-commerce Landscape

With an important percentage of people making purchases online, e-commerce in Turkey is growing quickly. 50% of Turkish citizens are e-commerce clients, meaning that one in two individuals between the ages of 16 and 74 use e-commerce, according to TURKSTAT data from 2023.

However, about 87 percent of the population has internet access (Saitoğlu, 2023: p. 12). Additionally, the development of modern technologies and the extensive use of the internet have greatly aided in the growth of the e-commerce industry. The fact that e-commerce made up 16.5% of all retail sales in 2022 suggests that consumer behavior is changing. Additionally, the country's e-commerce transaction volume has grown rapidly in recent years, reaching a record high of 656.4 million transactions in the fourth quarter of 2023 (Dierks, 2025). Considering earlier data and the information provided by Statista, the e-commerce industry in Turkey has expanded greatly, especially since 2018. After accounting for inflation, the market size grew by more than three times between 2016 and 2020. The market expanded to approximately 1.86 trillion Turkish lira by 2023. The market is projected to have a value of approximately 3.4 trillion Turkish lira by the end of 2024.

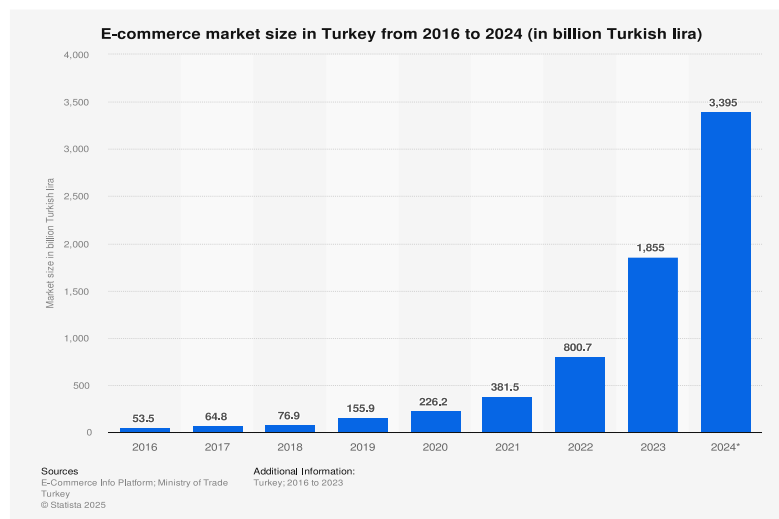


Figure 1. Market size of E-commerce in Turkey (2016-2024).  
 Statista, (2024)

According to current forecasts, Turkey will soon catch up with countries like the Netherlands in the e-commerce sector and rank as the 19th largest e-commerce market globally by the end of 2024, with an impressive revenue of US\$26 569.7 million (ECDB, 2024: p. 8). Furthermore, the e-commerce sector in Turkey grew rapidly and is important to the Turkish economy, as evidenced by the astounding 53 billion euros in online sales in 2023 (Pleuni, 2025).

## 2.3 Capital accumulation in Turkey and its impact on e-commerce

The basic definition of capital accumulation is the growth of assets through earnings or investments; in other words, it concentrates on the expansion of current wealth through the investment of savings and earned profits. Through interest, capital gains, rent, or appreciation, the objective is to increase the initial investment's value as a return on investment (Tuovila, 2020: p. 45).

Historical context: With the "January 24th Decisions," Turkey changed its import-substitution model in the 1980s and adopted an export-oriented approach in an effort to become more integrated with the world economy. This neoliberal shift promoted private sector participation, especially in urban development, while decreasing state-led investments. Cities became places for capital accumulation and speculative investment, but this also made social

inequality worse. Deregulation, privatization, and the transfer of public land to private ownership were the state's new priorities, putting profit and land value ahead of social justice (Bahçeci, 2016).

**Urban development and construction:** After these reforms, building and urban development took center stage in Turkey's growth strategy. Public-private partnerships and foreign investment were frequently used to realize large-scale projects, such as shopping malls, highways, airports, and residential complexes, particularly in major cities. Although this model increased economic growth, it also reduced green spaces, displaced low-income communities, commodified urban land, and caused worries about weak transparency and regulation. Despite these problems, construction is still a key component of economic policy and is often used to boost the economy during economic downturns, supporting a growth model that relies more on real estate than inclusive planning (Balaban, 2008).

**Financial System Development:** By enhancing banking, capital markets, and foreign investment, economic liberalization also changed Turkey's financial system (Öniş & Şenses, 2005). Urban and industrial growth was encouraged by easier access to credit, but dependence on foreign funding made people more open to external factors like currency crises. In order to draw in long-term investment, the state responded by privatizing and reforming regulations, linking Turkey's economic development to international financial patterns.

The role of the state in capital accumulation has been important, particularly in the commercialization of urban land and the privatization of public assets (The Economic Times, 2025). These policies concentrated wealth and moved the focus from public welfare to private capital, but they also encouraged growth and investment in important sectors. State-society relations were reshaped by infrastructure projects and the attraction of foreign investment, which turned into instruments for long-term accumulation (Gülöksüz, 2024).

the growth of Turkey's financial system improved credit availability and promoted entrepreneurship, allowing for the success of new business models like e-commerce platforms. The integration of Turkey into global financial and economic trends, as noted by Öniş & Şenses (2005), pushed businesses toward digitalization and global competitiveness, which accelerated the modernization of industries, including retail, and exposed the economy to external shocks. E-commerce was positioned along this trajectory as a product and an encouragement for Turkey's capital accumulation process.

#### *2.4 Impact of Covid-19 pandemic on Turkish e-commerce*

Turkey's e-commerce platforms proved exceptionally adaptable during the COVID-19 pandemic, addressing the difficulties associated with lockdown processes and safety concerns. More customers are turning to online platforms for their shopping needs as a result of the limitations placed on physical retail and the requirement for social distancing. Due to the rapid adoption of digital technology during the pandemic, e-commerce-based purchases in Turkey have increased by an impressive 125% (Kamaşak et al., 2024: p. 56). E-commerce platforms used modern technologies like artificial intelligence (AI), data analytics, and contactless delivery systems to meet this unexpected increase in demand. A strong logistics network that guaranteed timely and efficient delivery even in the face of unexpected situations further supported these innovations.

82.7% of e-commerce platforms in Turkey operated as marketplaces in 2022, developing an ecosystem that drew substantial foreign investment in addition to satisfying local demand. As the 18th largest e-commerce market globally, such efforts strengthened Turkey's standing as a major participant in the global e-commerce industry (Şahin, 2023: p. 42). In just the third quarter of 2023, the industry recorded almost 665.8 million e-commerce transactions, setting a new record. Compared to the 607.1 million transactions that were recorded during the same period last year, this was the highest number ever achieved in Turkey and a 10% increase (Statista, 2024).

Looking at specific cases, Trendyol stood out during the pandemic. As evidence of its rapid rise to success on a global scale, Trendyol.com climbed to the fifth-most-visited e-commerce website in the world (Berghout, 2020: p. 42). Trendyol joined Nike and Macy's as one of the most popular websites in the fashion industry globally, but big retailers like Amazon, eBay, and Rakuten continued to dominate as the most popular e-commerce platforms.

In the same way, Getir saw huge growth during the COVID-19 pandemic due to the rise in demand for quick commerce solutions. With 2 million active users, Salur (Milliyet, 2020) reported a 60% increase in Getir app downloads in March 2020. Additionally, the user base grew wider, reaching people in their 60s and 70s in addition to those in the 18-45 age range. Getir's user base increased by 169% from 1.3 million to 3.5 million by 2021. The total number of app downloads during that period was 34 million. Getir became officially Turkey's second "decacorn" in March 2022 after its impressive growth brought it to \$12 billion (Kamaşak et al., 2024: p. 57).

### 3. Getir and Trendyol Cases

This section explores the study within the perspective of both Getir and Trendyol as they represent a giant leader in the Turkish e-commerce environment. Together, these two companies provide a balanced perspective on different but matching aspects of e-commerce growth, challenges, and opportunities in the Turkish market.

#### 3.1 The Case of Getir

Getir, which was founded in 2015 by Nazım Salur, focused on groceries and basic needs and offered an incredibly quick delivery service in Turkey. The business became a leader in Turkish quick commerce by 2019 after reaching 1.5 million monthly orders and generating \$120 million in revenue annually. Building on this success, Getir went global, acquiring Weezy in the UK and BLOK in Spain in 2021. In 2022, it raised its valuation to \$12 billion with a \$768 million investment round led by Mubadala. Its European presence was further enhanced in December 2022 when it paid \$1.25 billion to acquire Berlin-based Gorillas (Wikipedia contributors, 2024).

##### Opportunities:

Getir's capacity to invest in large investments and take advantage of shifting market conditions has greatly influenced its growth. After receiving first institutional backing in 2018, the business was able to secure \$38 million in 2020, which allowed it to expand throughout Turkey. Getir's earnings doubled and its first international expansion into London was made possible by the COVID-19 pandemic, which further increased demand for ultrafast grocery delivery (Kamaşak et al., 2024: p.58). Its valuation increased to \$11.8 billion after subsequent funding rounds, which included a \$128 million Series B, \$300 million Series C, and \$768 million Series E. This fueled the company's aggressive expansion into 56 cities in eight countries, including the US, UK, and Germany, as well as 81 Turkish cities (Kamaşak et al., 2024: p.58).

Another important factor contributing to Getir's competitive advantage has been technological innovation. By providing a smooth ordering experience, its user-friendly mobile app sets it apart from conventional grocery stores (CanvasBusinessModel, 2024). Modern technologies like artificial intelligence (AI) and machine learning improve customer satisfaction, forecast customer preferences, and optimize delivery routes (Üner et al., 2021). Additionally, blockchain-based encryption protects client information, promoting trust and enabling quick and easy services (CanvasBusinessModel, 2024).

Trends in consumer behavior have also benefited Getir, as retail markets continue to change due to consumer demands for speed, convenience, and personalization (Faster Capital, 2025). With its ten-minute delivery guarantee, real-time tracking, and customer service—75% of users rely on live chat support—Getir takes advantage of this change (Team, 2025a). Motivations like referral bonuses and the "Getir Student Club," which gives students up to 50% off, are two ways Getir builds loyalty in addition to speed (FinansMedia, 2022). These tactics increase customer retention and word-of-mouth advertising by growing deep emotional bonds with clients (Rane et al., 2023).

##### Challenges:

Getir's high operating costs have been one of its biggest problems. The business relied on expensive "dark stores" in urban areas and large courier fleets to sustain its lightning-fast delivery model, which put a strain on profit margins. Local competitors as well as international firms like Uber Eats and Deliveroo increased the cost of acquiring new customers. At first, the \$1.2 billion purchase of German rival Gorillas in 2022 seemed to improve its market position, but it also brought significant operational and financial challenges (Hacıalioglu, 2024).

Particularly after the COVID-19 boom, when regional companies like Trendyol Go and Yemeksepeti Banabi aggressively expanded, pressures increased due to increased competition and market saturation. Getir's profitability suffered as a result of having to constantly lower prices and enhance services (Hacialioglu, 2024b). In the meantime, problems with ownership and governance made matters worse. According to the Turkish Competition Authority, Mubadala's associate MIC Capital Management wanted more authority over Getir's main subsidiaries, which led to conflict between Mubadala and Getir's founders during a period of unstable finances (Newsroom, 2025).

Getir has also been greatly impacted by the macroeconomic instability in Turkey. After peaking at 85% in late 2022 and dropping to 47% in November 2024, inflation reduced consumer purchasing power and raised labor and fuel expenses (Erkoyun & Toksabay, 2024; Blokhin, 2022). Getir was forced reconsider its pricing and retention strategies as consumers moved to less expensive options, such as supermarkets (PYMNTS, 2024).

### 3.2 The Case of Trendyol

Demet Mutlu and his co-founders established Trendyol in Istanbul as a small online fashion retailer. It quickly grew into one of the top online shopping platforms in Turkey, providing an extensive variety of products ranging from electronics and clothing to groceries and household clothing (Laudon & Traver, 2021). An important turning point was reached in 2018 when Alibaba purchased an 86.5% stake, giving it access to modern technology and logistics as well as financial support, greatly increasing its competitiveness (Turban et al., 2020). In 2021, Trendyol raised its valuation to \$16.5 billion and became Turkey's first "decacorn" after securing \$1.5 billion from international investors such as SoftBank, ADQ, and Qatar Investment Authority (Kotler & Keller, 2020).

Opportunities:

Trendyol's determined international expansion strategy provides a solid base for its growth. Building on its success at home, the business has expanded into the Arabian Gulf and Eastern Europe, with Saudi Arabia becoming its second-largest international market. With the help of partnerships with more than 200 local sellers and strategic support from Alibaba, which offers knowledge of international e-commerce, logistics, and mobile payments, the company's expansion into Eastern European nations like the Czech Republic, Greece, Romania, and Hungary is expected to produce \$350 million in trade volume by the end of 2024 (Alomar, 2024; Azevedo, 2021).

Trendyol's competitive advantage is largely fueled by technological innovation. Its platform manages more than 260,000 inquiries every day and optimizes user experience, logistics, and customized recommendations by integrating AI, machine learning, and Turkey's first large language model (LLM). Trendyol Tech's focus on research and development in artificial intelligence (AI), big data, deep learning, and real-time data analysis reflects the company's passion to technological advancement, while Looker and other advanced data analytics tools improve dynamic sales strategies, inventory management, and quick operational decisions (Google Cloud, n.d.; Wikipedia contributors, 2025).

Programs for customer loyalty and retention strengthen Trendyol's position in the market. While AI-driven personalized discounts, promotions, cashback, and installment options enhance accessibility and engagement, especially in price-sensitive markets, programs such as Trendyol Elite provide free delivery, early sale access, and premium support. These programs promote long-term profitability and repeat business in addition to raising customer satisfaction (Kotler et al., 2021; Deloitte, 2023).

Challenges:

Trendyol's extensive e-commerce operations present serious operational and financial difficulties. Labor, logistics, and technology investments are the main causes of high operating costs. Trendyol's strategic focus on technological innovation is evident in the fact that R&D alone accounts for over 28% of total operating costs, which is significantly higher than the national average. Costs such as facility maintenance, transportation, and employee salaries are further increased by maintaining more than 1,000 warehouses and distribution centers for quick delivery (PAL, 2023; CanvasBusinessModel, n.d.).

Another problem is market saturation and competition. Strong competitors like N11, which employs aggressive pricing and marketplace tactics to bring in sellers and customers, are common in Turkey's e-commerce market. Limited opportunities for differentiation were highlighted by the fact that 61% of net sales among the top 100 online stores in 2022 came from the top five platforms alone (ECDB, 2024). To keep its market share, Trendyol needs to constantly innovate in the areas of pricing, logistics, customer service, and technology.

Trendyol is also impacted by legal and regulatory restrictions. For unfair practices that prioritized its own products and took advantage of seller data, the Turkish Competition Authority fined the company approximately 61 million TRY in 2023 (Gürkaynak, 2023). Legal review has been further heightened by allegations regarding obeying Turkey's 2023 e-commerce Law (Wikipedia contributors, 2025).

Sustainability and profitability are still issues. Due to high operating costs and pressure from competitors, Trendyol has continued to turn a loss despite strong sales. The conflict between quick growth and long-term financial viability is highlighted by the company's aggressive goal to attract more than \$1 billion in new investment to finance expansion and stabilize operations (Bhoora, 2024; Hüseyinzade, 2024).

#### 4. Methodology

With a focus on the Getir and Trendyol cases, this study uses a qualitative research approach to investigate the primary research topic: the opportunities and challenges in e-commerce in Turkey. When examining complex organizational, social, and sector-specific problems that are difficult to fully represent using only numerical data, qualitative approaches are especially well-suited. By taking this approach, the research can gain a deeper understanding of how these businesses function within the Turkish e-commerce landscape by revealing insights into customer behavior, logistical innovation, competitive strategies, digital transformation, and decision-making processes.

This research is supported by a case study methodology, which uses Getir and Trendyol as illustrative examples of Turkish e-commerce platforms. By examining these two businesses, the study provides useful insights into the industry by demonstrating how companies adjust to shifting market conditions, deal with pressure from competitors, and pass through the digital economy (The Open University, 2025).

The study mostly uses secondary data, such as reports from the government and industry, academic journal articles, local media coverage, and official Getir and Trendyol company information. The selection of this data was based on its reliability, accessibility, and capacity to offer thorough insights into consumer behavior, market trends, technology developments, and business strategies. To enable a comparative analysis of the companies' operational challenges and growth prospects, pre-existing case studies and consulting analyses were also incorporated.

A triangulation method, which integrates multiple data sources and perspectives to reduce bias and strengthen conclusions, was used to conduct data analysis (The Open University, 2025). Theoretical bases were provided by academic literature, industry trends were provided by market reports, and insights into strategic and operational changes were provided by company reports and media coverage. By combining these sources, a deeper, more accurate understanding of Getir and Trendyol's opportunities—like growth, innovation, and investor attraction - as well as supply chain problems, competition, and customer retention was made possible.

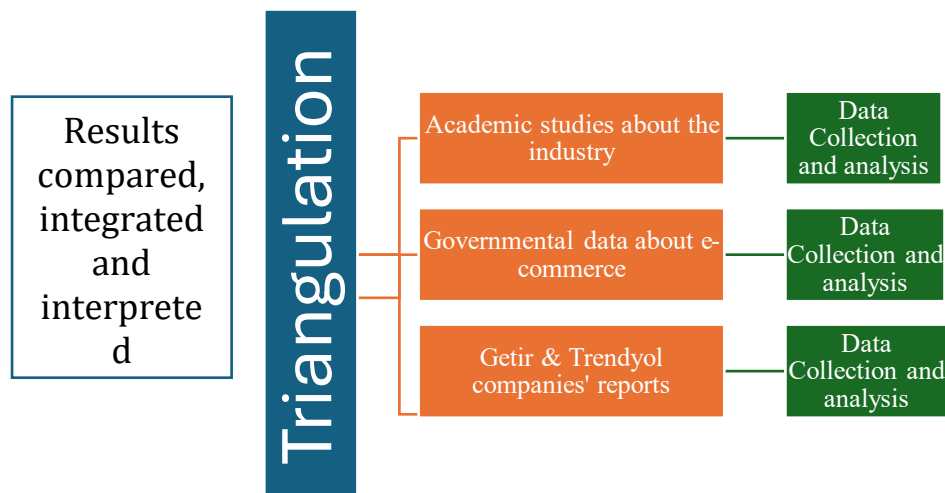


Figure 2. Triangulation method.

*Prepared by the researcher*

By using this methodological framework, the study guarantees transparency, dependability, and depth, allowing for a thorough investigation of how these top e-commerce platforms handle the rapidly changing digital commerce landscape in Turkey and how they take advantage of opportunities while reducing risks.

## 5. Results

Despite working in the same Turkish e-commerce sector and focusing on innovation and quick expansion, Getir and Trendyol have very different strategies, operational frameworks, and market results, which offers important insights into the strengths and weaknesses of the Turkish e-commerce industry. Getir's primary focus is on lightning-fast delivery, which is backed by a vertically integrated logistics network of specialized couriers and well-placed dark stores. During the COVID-19 pandemic, this model proved to be very appealing, allowing the business to keep its 10-minute delivery guarantee. Getir increased its yearly revenue from \$220 million in 2020 to \$1.15 billion by 2022 thanks to strong demand and significant foreign investment, especially from Mubadala Investment Company (Business of Apps, 2025). Rapid global expansion did, however, come at a high cost, including competition in crowded markets, acquisition integration, and operating costs. Getir withdrew from international markets by 2024, concentrating only on Turkey, and internal conflicts between the founders and Mubadala turned into court cases, which finally led to Mubadala gaining complete control (Business of Apps, 2025).

Trendyol, on the other hand, enables a larger customer reach with less cost by combining direct sales with a third-party marketplace model. With financial and technological support from partnerships, most notably with Alibaba in 2018, Trendyol was able to rank among the top 50 e-commerce platforms globally by 2023, with net sales of \$4.26 billion (ECDB, 2024). Despite this expansion, Trendyol's high operating costs from logistics and technology investments make it difficult for the company to become profitable in the long run. The company's operations are also struggled by regulatory issues, such as the 2021 fine imposed by the Turkish Competition Authority for favoring its own products, and fierce competition from platforms like N11, which necessitate frequent promotions (Rekabet, 2021).

Overall, Trendyol's platform-based strategy offers scalability but is continuously challenged by issues with financial stability, product quality, and market competition, while Getir's asset-based model prioritizes speed and control at the expense of flexibility. These different strategies demonstrate how, in order to maintain long-term success, e-commerce companies in Turkey must find a balance between their desires for expansion, operational effectiveness, regulatory compliance, and market responsiveness.

## 5. Discussion

Getir must reevaluate its ultra-fast delivery model because, despite its effectiveness during the pandemic, the 10-minute promise has demonstrated long-term financial instability. To balance speed and profitability and calm operational stress from its vast dark store and courier network, the company should implement more adaptable and economical delivery options addressed to various customer segments and geographical areas. Getir should put a higher priority on enhancing its position in the domestic market after 2024 by enhancing customer satisfaction, reestablishing brand loyalty, and improving logistics. This will also recover the trust of stakeholders and investors for possible future growth.

For Trendyol, addressing issues with profitability is crucial. Even with large profits, operating expenses are still high, especially for delivery and R&D. Without sacrificing service quality, profitability could be raised by streamlining operations, renegotiating with suppliers, and improving delivery systems. To regain the trust of authorities and partners, Trendyol must also improve transparency in regulatory compliance and guarantee fairness for third-party sellers. Long-term engagement in an extremely competitive marketplace can be sustained by further enhancing customer retention through specific marketing, loyalty plans, and special benefits.

The lessons learned from Getir and Trendyol's experiences are crucial for Turkish e-commerce platforms in general. Rapid expansion should be followed by a strong operational infrastructure, which includes reliable distribution, logistics, and customer service. Early adoption of legal awareness is necessary to avoid consequences or regulatory disruptions. In order to maintain competitiveness over the long term, businesses must offer services like digital financial solutions, instant returns, premium support, or exclusive digital content to boost customer loyalty and brand image.

## 6. Conclusion

In order to investigate how e-commerce is developing in Turkey, this study compared Getir and Trendyol, focusing on how these businesses deal with opportunities and difficulties in a changing market. An in-depth understanding of each company's growth, strategies, and operational performance was made possible by employing a qualitative case study approach that only relied on secondary data, such as financial records, market reports, academic papers, and company data (Laudon & Traver, 2021; Turban et al., 2020). This method made it easier to draw insightful comparisons between the two businesses, focusing on the patterns, differences, and unique aspects of their business strategies.

The results suggest two opposing business ways. Revenues increased from \$220 million to \$1.15 billion between 2020 and 2022 thanks to Getir's lightning-fast delivery model and quick international expansion during COVID-19 (Business of Apps, 2025). However, its financial stability was undermined by high operating costs, challenges with global expansion, and investor conflicts; as a result, it withdrew from international markets by 2024 and refocused on Turkey under new ownership. In contrast, Trendyol used a hybrid business strategy that combined direct sales with a large third-party marketplace to allow for constant scalable growth. In addition to technology investments in AI and big data analytics, partnerships, particularly with Alibaba, improved operational efficiency and regional expansion, improving dominance in Turkey and growth in the Gulf and Eastern Europe (ECDB, 2024; Alomar, 2024).

Trendyol had to deal with regulatory pressures and financial sustainability, while Getir's problems were primarily related to internal instability, high costs, and aggressive international expansion (Rekabet, 2021). Both took advantage of e-commerce growth: Trendyol through platform scalability, product diversification, and strategic expansion, and Getir through investor support and customer-focused innovation. According to the cases, sustainability, flexibility, and effective management are essential for long-term success, with a focus on conformity to regulations, customer needs, and economic conditions.

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## References

- Amazon (2025). What To Know About Project Kuiper, Amazon's Satellite Internet Venture. Business Insider. Retrieved From <https://www.businessinsider.com/project-kuiper>
- Arat, B. (2025). Presentation Of N11 – Türkiye's E-Commerce Giant. SlideShare. <https://www.slideshare.net/slideshow/presentation-of-n11-Türkiyes-ecommerce-giant/232505811>
- Azevedo, M. A. (2021). Türkiye's First Decacorn: Trendyol Raises \$1.5B At a \$16.5B Valuation. TechCrunch. <https://techcrunch.com/2021/08/09/Türkiyes-first-decacorn-trendyol-raises-1-5b-at-a-16-5b-valuation/>
- Bahçeci, N. H. I. (2016). Capital Accumulation as a Tool for Urban Rent in Türkiye. Journal Of US-China Public Administration, 13(2). Doi: 10.17265/1548-6591/2016.02.004
- Balaban, O. (2008). Capital Accumulation, The State And The Production of Built Environment: The Case of Türkiye. Ph.D. Dissertation, Middle East Technical University.
- Benchmark. (2023, May 16). The Impact of E-commerce on Traditional Retail. <https://www.benchmarkemail.com/blog/impact-of-ecommerce-on-traditional-retail/>
- Berghout, E. (2020). COVID and Opportunities for Information Systems Management Research. Information Systems Management, 1–4. <https://doi.org/10.1080/10580530.2020.1820640>
- Bhoora, R. (2024, June 12). Trendyol: What We Know About The \$10bn E-commerce Business Backed by Alibaba. Retail Week. <https://www.retail-week.com/fashion/trendyol-what-we-know-about-the-10bn-ecommerce-business-backed-by-alibaba/7043876>
- Blokhin, A. (2022, March 31). External Factors That Influence EBITDA Margins. Investopedia. <https://www.investopedia.com/ask/answers/062315/what-external-factors-can-influence-ebitda-margins.asp>
- Bloomenthal, A. (2024, September 24). E-commerce Defined: Types, History, And Examples. Investopedia. <https://www.investopedia.com/terms/e/ecommerce.asp>
- Business Of Apps (2025). Getir Revenue and Usage Statistics (2025). <https://www.businessofapps.com/data/getir-statistics/>
- Canvasbusinessmodel (2024). Growth Strategy and Future Prospects of Getir. <https://canvasbusinessmodel.com/blogs/growth-strategy/getir-growth-strategy>
- Chaffey, D., & Ellis-Chadwick, F. (2019). Digital Marketing: Strategy, Implementation, And Practice (7th ed.). Pearson.
- Deloitte (2023). E-Commerce Market Trends in Emerging Economies.
- Dey, A. (2025, April 21). Mobile E-commerce Trends: Adapting Small Businesses for Smartphones. Social Media Magazine. [https://www.socialmediamagazine.org/mobile-e-commerce-trends#google\\_vignette](https://www.socialmediamagazine.org/mobile-e-commerce-trends#google_vignette)
- Dierks, Z. (2025, April 12). E-commerce Ecosystem in Türkiye. <https://media.iyzico.com/b/2024/08/e-commerce-ecosystem-in-turkiye-2023-Report.pdf>
- ECDB (2024). ECommerce Market Türkiye – Data, Trends, Top Stores. <https://ecommercedb.com/markets/tr/all>
- Ecommerce Fastlane. (2024, July 30). How Logistics Technology Can Boost Your E-Commerce Supply Chain. <https://ecommercefastlane.com/how-logistics-technology-can-boost-your-e-commerce-supply-chain/>

- Erkoyun, E., and Toksabay, E. (2024). Türkiye Begins Cutting Rates After Inflation-Fighting Drive. Reuters. <https://www.reuters.com/markets/rates-bonds/turkish-central-bank-cuts-rates-after-18-month-tightening-drive-2024-12-26/>
- Faster Capital (2025). The Rise of On-Demand Services in Disrupting Markets. <https://fastercapital.com/content/The-Rise-of-On-Demand-Services-in-Disrupting-Markets>
- FinansMedia. (2022, April 22). What is Getir University Club? How to Become a member? <https://www.finansmedia.com/getir-universite-kulubu-nedir-nasil-uye-olunur/>
- Forbes Magazine (2024). The Evolution of E-Commerce. <https://councils.forbes.com/blog/evolution-of-e-commerce-in-retail>
- Google Cloud (n.d.). Trendyol Case Study. <https://cloud.google.com/customers/trendyol?utm>
- Gürkaynak, G. (2023). Self-Preferencing in Türkiye: The Trendyol Decision. Mondaq. <https://www.mondaq.com/Türkiye/antitrust-eu-competition-/1365846/self-preferencing-in-Türkiye-the-trendyol-decision>
- Gülöksüz, E. (2024). Transformation of the State-Capital Relationship Over Public Land in Türkiye. European Urban and Regional Studies. Doi: 10.1177/09697764231196100
- Hacıaloglu, S. (2024). Getir's Rise and Retreat Explained. Türkiye Today. <https://www.turkiyetoday.com/business/getirs-rise-and-retreat-explained-turkish-startup-shook-global-markets-48004>
- Hüseyinzade, C. (2024). Trendyol Seeks \$1 Billion Investment. <https://tech.az/en/posts/trendyol-seeks-1-billion-investment-4413>
- Kamaşak, R., Alkan, D. P., Kucukaltan, B., & Özbilgin, M. F. (2024). A decacorn in On-demand Delivery: The Case of Getir from Turkey. In Edward Elgar Publishing eBooks (pp. 56–73). <https://doi.org/10.4337/9781803924410.00013>
- Kotler, P., Keller, K. L., and Chernev, A. (2021). Marketing Management. London, Pearson.
- Laudon, K. C., & Traver, C. G. (2021). E-commerce 2021: Business, Technology, And Society (16th ed.). Pearson.
- Milliyet (2020). It was a lot of Getir, he won well! <https://www.milliyet.com.tr/ekonomi/cok-getirdi-iyi-kazandi-6215280>
- Newsroom (2025). Mubadala Seeks Regulatory Approval for Acquisition of Getir. Türkiye Today. <https://www.turkiyetoday.com/business/mubadala-seeks-regulatory-approval-for-acquisition-of-getir-subsidiaries-129816>
- Öniş, Z., and Şenses, F. (2005). Rethinking The Emerging Post-Washington Consensus: A Critical Appraisal. Development And Change, 36(2), 263–290. Doi: 10.1111/j.0012-155X.2005.00411.x
- PAL (2023). Trendyol's Impact on The Turkish Economy. <https://cdn.dsmdn.com/web/production/en-impact-report-2021.pdf>
- Patpatia, N. (2023). The Future of E-Commerce Technology. Forbes. <https://www.forbes.com/councils/forbesagencycouncil/2023/08/25/the-future-of-e-commerce-technology>
- Pleuni, P. (2025, September 23). Ecommerce in Türkiye - Ecommerce News. <https://ecommercenews.eu/ecommerce-in-europe/ecommerce-turkey/>
- PYMNTS (2024). Report: Getir Faces Investor Pressure to Cut Costs and Restructure. <https://www.pymnts.com/news/delivery/2024/report-getir-faces-investor-pressure-to-cut-costs-and-restructure>
- Rane, N. L., Achari, A., & Choudhary, S. (2023). Enhancing Customer Loyalty Through Quality of SERVICE: Effective Strategies to Improve Customer Satisfaction, Experience, Relationship, And Engagement. International Research Journal of Modernization in Engineering Technology and Science. <https://doi.org/10.56726/irjmets38104>
- Rekabet (2021). The investigation carried out against DSM Grup Danışmanlık İletişim ve Satış Ticaret AŞ. <https://www.rekabet.gov.tr/Dosya/dsm-nihai-karar-duyuru.pdf>
- Saitoğlu, O. (2023). E-Commerce Ecosystem in Türkiye. <https://media.iyzico.com/b/2024/08/e-commerce-ecosystem-in-turkiye-2023-Report.pdf>
- Statista (2024). Number Of E-Commerce Transactions in Türkiye. <https://www.statista.com/statistics/881105>
- Şahin, B. (2023). A SWOT Analysis of Turkish E-commerce. bmij, 11(4), 1308-1320.
- Teker, S. (2022). Evolution of Digital Payment Systems. Journal of Economics, Management and Trade, 28(10), 100–108. <https://doi.org/10.9734/jemt/2022/v28i1030452>
- The Economic Times (2025). Privatization. <https://economictimes.indiatimes.com/definition/privatization?from=mdr>
- The Open University (2025). Scholarship Of Teaching and Learning In STEM. Open Learning. <https://www.open.edu/openlearn/mod/oucontent/view.php?id=109325ion=2.2.3>
- Tuovila, A. (2020). Capital Accumulation. Investopedia. <https://www.investopedia.com/terms/c/capitalaccumulation.asp>

- TURKSTAT (2023). Retail Sales Indices – December 2023. <https://data.tuik.gov.tr/Bulten/Index?p=Retail-Sales-Indices-December-2023->
- Turban, E., et al. (2020). Electronic Commerce 2020: A Managerial and Social Networks Perspective. Cham, Springer.
- Üner, M. M., Evirgen, T. C., & Cavusgil, S. T. (2021, September 13). Getir: A Remarkable Example of a Digital Disrupter from an Emerging Market. California Management Review. <https://cmr.berkeley.edu/2021/09/getir-a-remarkable-example-of-a-digital-disrupter-from-an-emerging-market/>
- Wikipedia Contributors (2024a). Getir. <https://en.wikipedia.org/wiki/Getir>
- Wikipedia Contributors (2024b). Trendyol. <https://en.wikipedia.org/wiki/Trendyol>

# Analyzing the Impact of Eco-Friendly Production Practices on Consumers' Purchasing Behavior in the Modern Marketplace in Tehran: A Study Using Theory of Planned Behavior

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## Abstract

This study examines the impact of eco-friendly production practices on consumer purchasing behavior by applying the Theory of Planned Behavior (TPB). The research investigates how attitudes, subjective norms, and perceived behavioral control influence consumers' intentions to purchase environmentally friendly products. A structured questionnaire was distributed among 235 consumers in Tehran, and statistical analysis was conducted to evaluate the predictive power of psychological constructs on green purchase intention. The findings reveal that while consumer attitudes toward eco-friendly products are strongly positive, structural barriers such as price and accessibility significantly limit the translation of intention into actual behavior. Regression analysis shows that attitude is the strongest predictor of purchase intention, followed by subjective norms and perceived behavioral control. These results emphasize the importance of transparent green marketing strategies, affordability, and accessibility in converting consumer motivation into sustainable consumption practices. The study further highlights the role of social influence, policy interventions, and institutional support in bridging the intention behavior gap. Overall, the research contributes to the understanding of consumer psychology in emerging markets and provides actionable insights for businesses and policymakers to foster eco-conscious consumerism.

**Keywords:** Sustainability, Consumer Behavior, Green Marketing, Purchase Intention

## 1. Introduction

The interaction between society and the natural environment has undergone significant transformation over the past century, particularly in the areas of production and consumption. As the volume and diversity of goods produced have expanded, the demand for labor, capital, and natural resources has simultaneously increased. However, the ecological limits of the planet have raised fundamental concerns about whether future generations will be able to satisfy their needs under current consumption patterns (Velenturf & Purnell, 2021).

At the same time, the waste generated as a byproduct of growing consumption, exacerbated by rising global populations, underscores the urgent necessity to reconsider humanity's relationship with nature and the implications of capitalist-driven economic expansion (Acuti et al., 2022). There is a growing consensus among scholars and policymakers that the prevailing trajectory of global production and consumption is unsustainable. Evidence of environmental degradation has prompted action in areas such as improving resource efficiency, reducing waste, lowering greenhouse gas emissions, and integrating renewable energy sources into production processes (Bocken & Short, 2021).

On the consumer side, various initiatives have been introduced to influence preferences and encourage more sustainable behaviors. This reflects the recognition that systemic change requires both producer- and consumer-level engagement (Moshood et al., 2022). Pressing environmental challenges, including global warming, biodiversity loss, and resource depletion, have intensified consumer demand for sustainable products (Sharma & Iyer, 2021). Businesses are increasingly responding by incorporating environmentally responsible methods into their production cycles and branding strategies (Kim & Lee, 2023).

However, not all sustainability claims are credible. The rise of "greenwashing," where firms exaggerate or misrepresent their environmental commitments, has created skepticism among consumers and weakened public trust (Adamkiewicz et al., 2022). This highlights the importance of identifying the factors that genuinely motivate consumers to adopt environmentally friendly purchasing behaviors and of designing strategies that can facilitate long-term behavioral change.

To analyze these dynamics, this study applies the Theory of Planned Behavior (TPB), a well-established framework in psychology and consumer behavior research (Ajzen, 1991). TPB posits that attitudes, subjective norms, and perceived behavioral control jointly shape individual intentions and behaviors. This makes it particularly useful in examining sustainable consumption patterns, especially in complex and rapidly changing marketplaces such as Tehran. Historically, environmental protection was not prioritized during industrial and economic development, resulting in significant ecological damage (Luna-Nemecio et al., 2020).

However, increasing awareness of the effects of climate change, air and water pollution, and desertification has placed sustainability at the forefront of global development agendas (Sharma et al., 2020). Public education, environmental campaigns, and regulatory frameworks now play a crucial role in shaping consumer values and preparing societies to manage resources more responsibly. At the business level, firms are rethinking production systems by adopting green technologies and environmental innovations. Research demonstrates that these transformations can significantly affect consumer preferences, guiding purchasing behavior toward sustainable options (Niromand et al., 2025). At the same time, consumers themselves are becoming more divided. While some segments prioritize environmental impacts in their purchasing decisions, others continue to base choices primarily on price and convenience (Sandali & Ehteshami, 2018).

In this context, the present study focuses on Tehran, Iran's largest metropolitan area and economic hub, where diverse socio-economic groups and rapid urbanization create a unique environment for analyzing green consumption. By applying the TPB model, the study seeks to explain how attitudes, subjective norms, and perceived behavioral control influence consumers' eco-friendly purchase intentions, and to provide insights into the structural and psychological barriers that shape the gap between intention and actual behavior.

## *1.1 Literature Review*

### *1.1.1 Understanding the Concept of Sustainability*

Sustainability has increasingly become a central concern for both organizations and consumers, reflecting growing awareness of the environmental, social, and economic challenges facing modern societies. At its core, sustainability is defined as the responsible use and management of resources to ensure that current needs are met without compromising the ability of future generations to meet their own needs (Velenturf & Purnell, 2021). The three pillars of sustainability environmental, social, and economic illustrate its multidimensional nature (Bocken

& Short, 2021). Environmental sustainability involves preserving ecosystems, conserving resources, reducing pollution, and promoting renewable energy. Social sustainability emphasizes equity, human rights, and the improvement of quality of life through access to healthcare, education, and housing (Amorim-Maia et al., 2022). Economic sustainability refers to achieving long-term stability and growth while ensuring efficient and fair distribution of resources. In 2015, the United Nations introduced the Sustainable Development Goals (SDGs) as a global framework to guide sustainability efforts. Goals such as Responsible Consumption and Production (SDG 12) and Climate Action (SDG 13) are particularly relevant, as they stress reducing waste, promoting renewable energy, and encouraging businesses to adopt eco-friendly practices (United Nations, 2015). These global benchmarks highlight the urgency of aligning production and consumption behaviors with sustainability objectives.

#### 1.1.2 Sustainable Marketing

Sustainable marketing is a business approach that integrates environmental and social concerns into marketing strategies, aiming to meet consumer needs without compromising the ability of future generations to fulfill theirs (Chatzopoulou & de Jong, 2021). It focuses on promoting eco-friendly products, sustainable production methods, and ethical business practices. Central to this approach is transparency, as misleading or vague claims can provoke skepticism and erode trust (Tanveer et al., 2021). Previous research highlights the importance of corporate social responsibility (CSR) initiatives, which address social and environmental issues beyond profit-making (Wirba, 2023). For instance, eco-labeling and environmentally friendly packaging have been shown to improve consumer satisfaction and trust (Apaolaza et al., 2021). Similarly, companies that engage in fair trade and ethical labor practices strengthen their social credibility (Sharma & Iyer, 2021). However, the effectiveness of sustainable marketing depends heavily on consumer perceptions. When green initiatives are communicated credibly, they foster loyalty and positively influence purchase intentions (Melović et al., 2020). Conversely, greenwashing the practice of overstating environmental benefits creates consumer distrust and weakens the effectiveness of green campaigns (Adamkiewicz et al., 2022). Thus, transparency, accountability, and consumer education are essential to the success of sustainable marketing.

#### 1.1.3 Eco-Friendly Products

Eco-friendly products are those designed to minimize environmental impact throughout their life cycle from raw material extraction and production to consumption and disposal (Ayompe et al., 2021). Key attributes of green products include the use of renewable and recyclable materials (Moshood et al., 2022), non-toxic components (Manongsong, 2023), and energy-efficient processes (Hafez et al., 2023). Consumers often rely on visual and symbolic cues such as eco-labels, packaging, and color schemes to assess a product's environmental credentials (Anonymous, 2024). Research shows that packaging materials like paper and glass are often perceived as more sustainable than plastics or metals, even when such judgments are not always scientifically accurate (Gnatta, 2021). This indicates that perceptions, rather than objective assessments, play a central role in how consumers evaluate eco-friendly products (Huang et al., 2022).

#### 1.1.4 Consumer Behavior and Purchase Intention

Consumer behavior is a psychological process through which individuals identify their needs, search for solutions, evaluate alternatives, and make purchasing decisions (Hashemi et al., 2019). Within this process, attitudes, beliefs, and social norms strongly shape purchase intentions. According to Fishbein and Ajzen's theory, behavioral intention is a critical predictor of actual behavior (Martin et al., 2018). Several studies highlight the role of consumer attitudes in shaping green purchase behavior. Positive perceptions of eco-friendly products such as viewing them as healthier or higher quality significantly enhance purchase intentions (Truelove & Gillis, 2018). Social norms, including peer and community influence, also play a major role in shaping eco-conscious consumption (Kim & Choi, 2005; Nyborg et al., 2016). Nonetheless, an intention-behavior gap often emerges. While many consumers express willingness to buy green products, actual purchasing is constrained by factors such as limited availability, higher costs, and lack of trust in sustainability claims (Sandali & Ehteshami, 2018). This

demonstrates that while awareness and attitudes are important, structural and contextual barriers must also be addressed to translate intention into consistent action.

## *1.2 Theory of Planned Behavior (TPB)*

### 1.2.1 Theoretical Foundations

The Theory of Planned Behavior (TPB), developed by Ajzen (1991), is one of the most widely applied psychological models for predicting and understanding human behavior. It extends the earlier Theory of Reasoned Action (TRA) by introducing an additional construct perceived behavioral control which accounts for external and internal constraints influencing an individual's capacity to perform a behavior.

According to TPB, the most immediate predictor of behavior is behavioral intention, which is shaped by three interrelated components:

- Attitude toward the behavior – the individual's positive or negative evaluation of performing the action.
- Subjective norms – the perceived social pressures to engage in or avoid the behavior.
- Perceived behavioral control (PBC) – the individual's belief in their ability to perform the behavior, considering resources, opportunities, and obstacles.

The theory assumes that individuals act rationally, systematically processing available information before engaging in behaviors. Thus, when attitudes, social pressures, and perceived control are favorable, behavioral intentions strengthen, increasing the likelihood of actual behavior (Ajzen, 2020).

### 1.2.2 Application to Green Consumer Behavior

TPB has been extensively applied to understand pro-environmental actions such as recycling, energy conservation, and green purchasing (Liu et al., 2020). In consumer research, the framework is particularly relevant for analyzing eco-friendly purchasing because these decisions often involve both personal motivation and external constraints.

- Attitudes: In the context of green purchasing, attitudes are shaped by consumer beliefs about the benefits of eco-friendly products, such as their impact on health, the environment, and society (Truelove & Gillis, 2018). A positive attitude is associated with stronger purchasing intentions.
- Subjective Norms: Social expectations and peer influence are central drivers of sustainable consumption. Consumers are more likely to adopt eco-friendly behaviors when family, friends, or society place value on sustainability (Kim & Choi, 2005; Nyborg et al., 2016).
- Perceived Behavioral Control (PBC): Even when attitudes and norms are favorable, structural barriers such as high prices, limited product availability, or lack of trust in environmental claims may prevent consumers from acting (Young et al., 2010; Gleim et al., 2013). Therefore, PBC plays a critical role in determining whether intentions translate into real-world purchasing behavior.

### 1.2.3 Extensions of The TPB Framework

While TPB provides a robust foundation, scholars have proposed extensions to improve its explanatory power in the context of sustainability.

- Emotional Brand Loyalty: Pahlavi and Suhartanto (2020) found that strong customer loyalty toward brands adopting sustainability practices can reinforce long-term eco-friendly behaviors, moderating the relationship between intention and behavior.
- Theory of Perceived Market Influence (TPMI): Dell et al. (2021) introduced this concept to highlight how consumers' perceptions of collective market expectations influence their purchasing decisions. When consumers believe their actions contribute to broader environmental outcomes, they are more likely to engage in green behaviors.

Incorporating these dimensions enriches the TPB framework by acknowledging that consumer decisions are not only rational and individual but also shaped by emotional attachment and collective social expectations.

## 2. Methodology and Conceptual Framework

### 2.1 Research Background

Previous studies have emphasized the importance of sustainability in shaping both organizational practices and consumer behavior. For instance, Niromand et al. (2025) examined the impact of environmental orientation on sustainable performance in the Sepahan Battery Industrial Complex. Their findings demonstrated that environmental orientation, combined with green supply chain management and green innovation, significantly enhanced sustainability outcomes. Similarly, Bagheri Ghareh Bolagh and Mohammadi (2024) highlighted the role of green innovativeness in shaping consumer attitudes toward eco-friendly products, showing that environmental knowledge and health consciousness are significant predictors of pro-environmental behavior. Another study by Hendijani et al. (2023) examined the influence of eco-labels on purchase intentions. Their results indicated that while consumers recognize the importance of eco-labels, only the perceived credibility and significance of these labels positively influenced purchasing behavior. These findings collectively highlight the relevance of integrating both organizational and consumer perspectives in understanding green consumption.

### 2.2 Research Design

This study is classified as applied research in terms of its purpose and as descriptive-survey research in terms of methodology and data collection technique. The main objective is to analyze how attitudes, subjective norms, and perceived behavioral control influence consumers' eco-friendly purchasing intentions in Tehran, with the Theory of Planned Behavior (TPB) serving as the guiding theoretical framework. The study employs both library research (secondary sources) to build the theoretical foundation and field research (primary data collection) through structured questionnaires. This approach ensures that the study is both conceptually grounded and empirically validated.

### 2.3 Theoretical Framework and Hypothesis Development

The conceptual framework is derived from TPB, which posits that behavioral intention is shaped by attitudes, subjective norms, and perceived behavioral control. Based on this framework, three hypotheses were formulated:

- Hypothesis 1: Positive consumer attitudes toward green production practices are associated with higher eco-friendly purchasing intentions.
  - o Empirical Support: Truelove and Gillis (2018) demonstrated that favorable attitudes significantly enhance environmentally responsible consumption.
- Hypothesis 2: Social norms positively influence eco-friendly purchasing intentions.
  - o Empirical Support: Research by Kim and Choi (2005) and Nyborg et al. (2016) underscored the importance of peer and community influence on sustainable consumption.
- Hypothesis 3: Greater perceived behavioral control increases the likelihood of eco-friendly purchasing.
  - o Empirical Support: Young et al. (2010) and Gleim et al. (2013) showed that affordability, accessibility, and product availability strongly shape sustainable consumer choices.

This conceptual model allows for hypothesis testing using multivariate regression analysis, enabling the identification of the strongest predictors of green purchase intention in Tehran.

### 2.4 Data Collection

#### 2.4.1 Population and Sample

The statistical population consists of consumers in Tehran. Based on Morgan's table, the minimum required sample size for a population of 300 was determined as 235 participants. A simple random sampling method was applied to ensure representativeness.

#### 2.4.2 Data Collection Instruments

The primary instrument for data collection was a structured questionnaire, developed based on validated scales from previous studies and reviewed by subject-matter experts to ensure content validity. The questionnaire measured:

- Attitude toward eco-friendly products
- Subjective norms
- Perceived behavioral control
- Purchase intention

#### 2.4.3 Data Collection Approach

*A mixed-mode strategy was employed:*

- Online surveys distributed through platforms such as Instagram, WhatsApp, and Telegram.
- Offline surveys conducted in public locations including shopping malls, metro stations, university campuses, and community centers.

This dual approach minimized digital access barriers and ensured diversity in the sample. Ethical considerations such as informed consent, confidentiality, and voluntary participation were strictly observed.

### 3. Findings

#### 3.1. Attitudes Toward Eco-Friendly Products

The results of the survey reveal a generally positive attitude toward eco-friendly products among Tehran consumers. Specifically:

- 65% of respondents agreed that environmentally friendly products are made with higher-quality materials than conventional alternatives. Many believed that sustainable brands invest more in raw materials and comply with stricter production standards.
- 70% stated that the eco-friendliness of a product's production process directly influences their purchase decisions, highlighting a shift from purely price-based evaluation to ethical and environmental considerations.
- 55% expressed a willingness to pay more for environmentally friendly products, reflecting the existence of a premium segment that values sustainability over price.

These findings demonstrate that consumers increasingly perceive sustainability as an integral component of product value rather than as a temporary trend.

#### 3.2. Subjective Norms and Social Influence

Subjective norms were found to play a critical role in shaping purchasing decisions. Respondents acknowledged that friends, family, and broader community expectations influenced their choices.

- Peer recommendations significantly increased eco-friendly purchase intentions.
- Social media content on environmental issues was reported to impact consumer awareness and product preferences.
- Community campaigns and educational programs reinforced social pressure to engage in sustainable consumption.

This aligns with previous research emphasizing the importance of social context in consumer decision-making (Kim & Choi, 2005; Nyborg et al., 2016).

#### 3.3. Subjective Norms and Social Influence

Perceived behavioral control (PBC) was another significant factor:

- About 65% of respondents reported feeling more confident in their purchasing decisions when eco-friendly products were easily accessible.

- Barriers such as high prices and limited product availability were frequently cited as constraints preventing intentions from being translated into actual purchases.

These results suggest that improving affordability and accessibility is essential for fostering consistent eco-friendly behavior (Gleim et al., 2013).

### *3.4. Purchase Intention and the Intention–Behavior Gap*

While 68% of respondents indicated strong intentions to purchase environmentally friendly products in the future, actual purchasing patterns revealed a gap:

- 45% reported occasional purchases of green products.
- 25% reported frequent or consistent purchases.

This discrepancy highlights the persistence of the intention–behavior gap, primarily due to structural limitations such as product cost and accessibility.

### *3.5. Correlation Analysis*

Pearson correlation analysis was conducted to assess the relationships between the independent variables (attitude, subjective norms, PBC) and purchase intention. Results were as follows:

- Attitude and Purchase Intention: Strong positive correlation ( $r = 0.62$ ), indicating that favorable perceptions significantly increase purchase intention.
- Subjective Norms and Purchase Intention: Moderate positive correlation ( $r = 0.55$ ), confirming that social influence shapes green purchasing behavior.
- Perceived Behavioral Control and Purchase Intention: Positive correlation ( $r = 0.50$ ), showing that consumer empowerment is a relevant factor but weaker compared to attitudes.

### *3.6. Regression Analysis*

Multiple regression analysis was applied to determine the predictive power of the three constructs on purchase intention. Results indicated that:

- Attitude was the strongest predictor ( $\beta = 0.42$ ).
- Subjective norms also had a significant effect ( $\beta = 0.30$ ).
- Perceived behavioral control contributed positively but at a lower level ( $\beta = 0.28$ ).

The model explained 54% of the variance ( $R^2 = 0.54$ ) in purchase intention, demonstrating substantial explanatory power.

## **4. Discussion**

### *4.1. Interpretation Of Findings*

The findings of this study provide strong empirical support for the Theory of Planned Behavior (TPB). Consistent with the framework, consumer attitudes, subjective norms, and perceived behavioral control all had significant positive effects on eco-friendly purchase intentions. Among these, attitude emerged as the strongest predictor, highlighting that consumers' beliefs about the quality, benefits, and ethical value of eco-friendly products are the primary drivers of green purchasing in Tehran. This aligns with Truelove and Gillis (2018), who found that favorable perceptions significantly enhance environmentally responsible consumption. The role of subjective norms was also important, with social expectations, peer recommendations, and community values influencing consumers' sustainable behaviors. This finding echoes the work of Kim and Choi (2005) and Nyborg et al. (2016), which emphasize the central role of social context in shaping pro-environmental behavior. Perceived behavioral control, while weaker than the other two predictors, remained a significant factor. Structural constraints such as high costs and limited accessibility were found to hinder the conversion of positive intentions into consistent behavior. This supports earlier findings by Gleim et al. (2013), who noted that barriers in affordability and availability prevent consumers from acting on their sustainable intentions.

#### *4.2. The Intention–Behavior Gap*

Although 68% of respondents expressed strong intentions to purchase eco-friendly products, actual purchasing levels were much lower, with only 25% reporting frequent purchases. This intention–behavior gap reflects the persistence of structural barriers in Tehran’s consumer market. Similar gaps have been identified in other studies of sustainable consumption (Sandali & Ehteshami, 2018), where consumer willingness does not consistently translate into real-world action. Bridging this gap requires systemic interventions that go beyond consumer awareness. Efforts such as improving supply chains, subsidizing eco-friendly products, and ensuring greater product visibility in mainstream markets are necessary to empower consumers to act on their sustainable intentions.

#### *4.3. Tehran’s Socio-Economic Context*

The socio-economic diversity of Tehran offers important insights into sustainable consumer behavior. The findings revealed that affluent districts in northern Tehran characterized by higher income, greater educational attainment, and broader exposure to international trends demonstrated stronger alignment with eco-friendly behaviors. Residents in these areas were more willing to pay premiums for sustainable products and showed higher levels of environmental awareness. In contrast, southern and central districts exhibited more price-sensitive consumer behavior, where basic needs often outweighed environmental considerations. While awareness of sustainability issues exists, actual participation in green consumption is constrained by affordability and limited product availability. These findings are consistent with the broader literature on the influence of socio-economic inequality on consumer behavior (Statistical Center of Iran, 2023).

#### *4.4. Implications For TPB and Extensions*

The results not only validate the TPB framework but also suggest potential extensions. Emotional brand loyalty, as emphasized by Pahlavi and Suhartanto (2020), may strengthen consumer commitment to eco-friendly practices over time. Likewise, collective perceptions of market influence (Dell et al., 2021) can enhance pro-environmental behavior by fostering a sense of shared responsibility. For Tehran, where cultural norms and community belonging are strong, leveraging collective identity and peer-based influence can be especially effective in normalizing sustainable behavior. Social media campaigns, influencer endorsements, and community-driven initiatives can amplify subjective norms, thereby reinforcing pro-environmental consumption patterns.

### **5. Conclusion**

This study analyzed the impact of eco-friendly production practices on consumer purchasing behavior in Tehran by applying the Theory of Planned Behavior (TPB). The findings confirm that attitudes, subjective norms, and perceived behavioral control significantly influence consumers’ intentions to purchase environmentally friendly products. Among these, attitude was found to be the strongest predictor, followed by subjective norms and perceived behavioral control. The research also highlighted a clear intention–behavior gap. While many consumers expressed strong intentions to purchase eco-friendly products, actual purchasing behavior was constrained by structural barriers such as high prices, limited product availability, and lack of trust in environmental claims.

These results underscore that awareness alone is insufficient; supportive structures and systemic interventions are necessary to convert positive intentions into consistent sustainable behaviors. From a theoretical perspective, the study reinforces the validity of TPB in explaining pro-environmental consumption while also pointing to the relevance of extending the model to include factors such as emotional brand loyalty and perceived market influence. These additions could strengthen the explanatory power of TPB in contexts where cultural identity and collective social norms are highly influential.

From a practical perspective, the findings provide several implications:

- For businesses: Companies must invest in transparent green marketing strategies, verifiable sustainability claims, and accessible product offerings. Educational campaigns, influencer collaborations, and loyalty programs

tailored toward eco-conscious consumers can enhance both trust and brand credibility. Making sustainable options financially viable and widely available is critical to bridging the intention–behavior gap.

- For policymakers: Government interventions such as subsidies, tax incentives, and standardized eco-labeling schemes are necessary to reduce affordability barriers and empower consumers to act sustainably. Educational initiatives and community-based campaigns can further normalize sustainable consumption across diverse socio-economic groups in Tehran.

Tehran's socio-economic diversity makes it a valuable case study for understanding the dynamics of sustainable consumption in urban environments. The findings highlight the intersection of environmental awareness, social identity, and structural barriers, offering insights that extend beyond Iran to other rapidly developing cities facing similar sustainability challenges.

In conclusion, eco-friendly production practices and consumer behavior are deeply interdependent. Businesses and policymakers must work collaboratively to create enabling environments where consumer intentions can be realized through accessible, affordable, and trustworthy green options. By doing so, sustainable consumption can move from aspiration to reality, contributing meaningfully to both local and global environmental goals.

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## References

- Acuti, D., Pizzetti, M., & Dolnicar, S. (2022). When sustainability backfires: A review on the unintended negative side-effects of product and service sustainability on consumer behaviours. *Psychology & Marketing*, 39(5), 1234–1256. <https://doi.org/10.1002/mar.XXXXX>
- Adamkiewicz, J., Bartkowiak, P., & Dyczkowska, J. (2022). Greenwashing and sustainable fashion industry. *Current Opinion in Green and Sustainable Chemistry*, 38, 100710. <https://doi.org/10.1016/j.cogsc.2022.100710>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Ajzen, I. (2020). The theory of planned behaviour: Frequently asked questions. *Human Behavior and Emerging Technologies*, 2(4), 314–324. <https://doi.org/10.1002/hbe2.195>
- Apaolaza, V., Hartmann, P., D'Souza, C., & López, C. M. (2021). CSR, eco-friendly packaging, and consumer satisfaction: The mediating role of perceived value. *Journal of Business Research*, 131, 164–176. <https://doi.org/10.1016/j.jbusres.2021.01.034>
- Ayompe, L. M., Schaafsma, M., & Egoh, B. N. (2021). Towards sustainable consumption: Life cycle thinking in product evaluation. *Journal of Environmental Management*, 288, 112404. <https://doi.org/10.1016/j.jenvman.2021.112404>
- Bagheri Ghareh Bolagh, A., & Mohammadi, S. (2024). The role of green innovativeness in shaping consumer attitudes toward environmentally friendly products. [Journal name], [volume(issue)], [page range]. [https://doi.org/\[XXXX\]](https://doi.org/[XXXX])
- Bocken, N. M. P., & Short, S. W. (2021). Sustainable business models and circular economy: Reviewing theory and practice. *Journal of Industrial Ecology*, 25(2), 338–357. <https://doi.org/10.1111/jiec.13045>

- Chatzopoulou, E., & de Jong, M. (2021). Sustainable marketing: Drivers and challenges. *Journal of Strategic Marketing*, 29(7), 529–548. <https://doi.org/10.1080/0965254X.2020.1715312>
- Dell, C., Johnson, A., & Lee, M. (2021). Theory of perceived market influence (TPMI): Understanding collective behavior in sustainable consumption. *Journal of Consumer Behaviour*, 20(4), 897–911. <https://doi.org/10.1002/cb.1917>
- Gleim, M. R., Smith, J. S., Andrews, D., & Cronin, J. J. (2013). Against the green: A multi-method examination of the barriers to green consumption. *Journal of Retailing*, 89(1), 44–61. <https://doi.org/10.1016/j.jretai.2012.10.001>
- Gnatta, T. (2021). From trend to ethos: The evolution of sustainability in consumer markets. *Sustainability Review*, 9(2), 56–72.
- Hafez, H., Rabczak, T., & Kim, D. (2023). Energy efficiency and eco-product development: Trends and implications. *Renewable Energy*, 205, 37–48. <https://doi.org/10.1016/j.renene.2023.01.059>
- Hashemi, S. M., Ebrahimi, M., & Yadollahi, M. (2019). Consumer behavior and marketing strategies: A comprehensive review. *Journal of Marketing Perspectives*, 11(3), 122–137.
- Hendijani, R., Karimi, M., & Shafiei, A. (2023). Consumer perceptions of eco-labels and their impact on purchase intentions. *Journal of Business Ethics*, 189(2), 455–472. <https://doi.org/10.1007/s10551-021-05014-5>
- Huang, Y., Birney, J., & Cooper, S. (2022). Sustainability perceptions and eco-friendly preferences among global consumers. *International Journal of Consumer Studies*, 46(1), 89–105. <https://doi.org/10.1111/ijcs.12681>
- Kim, H. Y., & Lee, S. H. (2023). Green branding and consumer response: Evidence from emerging markets. *Journal of Brand Management*, 30(3), 215–229. <https://doi.org/10.1057/s41262-023-00319-y>
- Kim, Y., & Choi, S. M. (2005). Antecedents of green purchase behavior: An examination of collectivism, environmental concern, and PCE. *Advances in Consumer Research*, 32, 592–599.
- Liu, T., Qu, Y., Lei, Z., & Jia, H. (2020). Understanding consumers' green purchase behavior: Application of the TPB framework. *Sustainability*, 12(10), 4093. <https://doi.org/10.3390/su12104093>
- Luna-Nemecio, J., Hernández, C., & Gutiérrez, L. (2020). Sustainability and human development: Historical perspectives. *Ecological Economics*, 178, 106789. <https://doi.org/10.1016/j.ecolecon.2020.106789>
- Manongsong, J. (2023). Non-toxic components in green product design: Implications for health and sustainability. *Journal of Cleaner Production*, 386, 135981. <https://doi.org/10.1016/j.jclepro.2023.135981>
- Martin, S., Ajzen, I., & Fishbein, M. (2018). Behavioral intention and actual behavior: A meta-analysis. *Journal of Applied Social Psychology*, 48(2), 90–105. <https://doi.org/10.1111/jasp.12499>
- Melović, B., Jocović, M., Dabić, M., & Ćirović, D. (2020). Sustainable marketing and consumer loyalty: Insights from transitional economies. *Sustainability*, 12(17), 7018. <https://doi.org/10.3390/su12177018>
- Moshood, T. D., Adeleke, A. Q., Nawanir, G., Ajibike, W. A., & Shittu, R. (2022). Sustainable consumption and production: A systematic review. *Journal of Cleaner Production*, 368, 132993. <https://doi.org/10.1016/j.jclepro.2022.132993>
- Niromand, A., Tavakoli, H., & Rezaei, M. (2025). Environmental orientation, innovation, and sustainable performance: Evidence from Iran. *Journal of Environmental Management*, 345, 118552. <https://doi.org/10.1016/j.jenvman.2025.118552>
- Nyborg, K., Anderies, J. M., Dannenberg, A., Lindahl, T., Schill, C., Schlüter, M., ... Weitzman, M. L. (2016). Social norms as solutions. *Science*, 354(6308), 42–43. <https://doi.org/10.1126/science.aaf8317>
- Pahlavi, F., & Suhartanto, D. (2020). Brand loyalty and sustainable consumption: The moderating role of environmental values. *Journal of Retailing and Consumer Services*, 54, 102024. <https://doi.org/10.1016/j.jretconser.2020.102024>
- Sandali, M., & Ehteshami, M. (2018). Consumer decision-making in emerging markets: Green products and intention-behavior gaps. *International Journal of Consumer Studies*, 42(4), 456–465. <https://doi.org/10.1111/ijcs.12438>
- Sharma, A., & Iyer, E. (2021). Consumer perception of green products in the Indian market. *Journal of Retailing and Consumer Services*, 58, 102292. <https://doi.org/10.1016/j.jretconser.2020.102292>
- Sharma, R., Verma, P., & Gupta, S. (2020). Environmental education and sustainable development: Preparing future generations. *Journal of Environmental Education*, 51(5), 321–335. <https://doi.org/10.1080/00958964.2020.1741015>
- Statistical Center of Iran. (2023). Household income and expenditure survey: Tehran region report. Government of Iran.
- Tanveer, M., Hassan, S., & Ali, A. (2021). Transparency in green marketing: Building consumer trust through ethical practices. *Journal of Business Ethics*, 173(2), 273–285. <https://doi.org/10.1007/s10551-020-04568-0>
- Truelove, H. B., & Gillis, A. J. (2018). Perceptions of green product quality and consumer behavior. *Environment and Behavior*, 50(9), 1039–1066. <https://doi.org/10.1177/0013916517725372>
- United Nations. (2015). Transforming our world: The 2030 agenda for sustainable development. UN Publishing.
- Velenturf, A. P. M., & Purnell, P. (2021). Principles for a sustainable circular economy. *Sustainable Production and Consumption*, 27, 143–157. <https://doi.org/10.1016/j.spc.2020.11.001>

- Wirba, A. (2023). Corporate social responsibility and sustainable development: A critical review. *Sustainability*, 15(3), 1251. <https://doi.org/10.3390/su15031251>
- Young, W., Hwang, K., McDonald, S., & Oates, C. J. (2010). Sustainable consumption: Barriers and drivers. *Sustainable Development*, 18(6), 417–429. <https://doi.org/10.1002/sd.394>

## Appendix A

### Questionnaire

#### Impact of Eco-Friendly Production Practices on Consumer Purchasing Behavior

The aim of this study, part of a "Master Thesis" in Halic University Business Administration Faculty, is to understand the impact of eco-friendly production practices on consumer purchasing behavior. Participation is voluntary, and no identifying information is requested. Thank you for your time and valuable contribution to this study.

#### Section 1: Demographics

##### 1.Age Group:

- ☐ 18–24
- ☐ 25–34
- ☐ 35–44
- ☐ 45–54
- ☐ 55 and above

##### 2.Gender:

- ☐ Male
- ☐ Female
- ☐ Other/Prefer not to say

##### 3.Education Level:

- ☐ Less than high school
- ☐ High school diploma
- ☐ Bachelor's degree
- ☐ Master's degree
- ☐ Doctorate

##### 4.Income Level (monthly):

- ☐ Less than \$500
- ☐ \$500–\$999
- ☐ \$1,000–\$1,499
- ☐ \$1,500–\$1,999
- ☐ \$2,000 and above

##### 5.Region of Residence:

- ☐ North Tehran
- ☐ South Tehran
- ☐ East Tehran
- ☐ West Tehran
- ☐ Other

#### Section 2: Attitudes Toward Green Production Practices

##### 6.Eco-Friendly Products are of High Quality.

- ☐ Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

##### 7.It's Important to Buy Eco-Friendly Products.

- ☐ Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

##### 8.Willingness to Pay More for Eco-Friendly Products.

- ☐ Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

#### Section 3: Subjective Norms

##### 9.People Important to Me Encourage Green Purchases.

- ☐ Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

##### 10.Family and Friends Support Eco-Friendly Shopping.

- ☐ Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

#### Section 4: Perceived Behavioral Control

##### 11.I Find Eco-Friendly Products Accessible.

- ☐ Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

##### 12.Cost/Availability Prevent Me from Buying Eco-Friendly Products.

- Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

Section 5: Purchase Intention

13.I Intend to Buy Eco-Friendly Products in the Future.

- Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree

14.I Frequently Buy Eco-Friendly Products.

- Never | Rarely | Sometimes | Often | Always

# Determinants of Financial Resilience and Its Impact on Economic Well-Being of Young Adults Aged 20–29 in Mexico

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## Abstract

This study examines the influence of financial resilience on the financial well-being of young adults aged 20 to 29 in Mexico. The objective is to determine how adaptive financial behaviors, structural financial soundness, and credit management strategies contribute to overall financial well-being in this transitional stage of economic independence. A non-experimental, cross-sectional design was used, with a convenience sample of 169 participants. Data were collected via a structured survey assessing perceptions of financial health, lived financial experiences, and actions taken to address financial challenges. Exploratory and confirmatory factor analyses were conducted within a structural equation modeling framework, complemented by reliability and model fit assessments. Results indicate that financial resilience is multidimensional and contextually sensitive in young adults, integrating active management strategies, financial soundness, credit discipline, and structural sustainability of indebtedness. Unlike previous validations in established worker populations, normative beliefs about financial prudence were integrated within behavioral dimensions rather than forming an independent factor. Findings suggest that lived experiences and active strategies are stronger predictors of financial well-being than abstract beliefs, supporting a behavioral and action-oriented conceptualization of financial resilience. Limitations include the cross-sectional design, non-probabilistic sampling, and reliance on self-reported measures, which restrict causal inference and generalizability. Future research should examine longitudinal designs, evaluate factorial invariance across age groups, and explore the interplay of financial education, self-efficacy, and adaptive behaviors over the life cycle. Practical implications highlight the importance of interventions that promote strategic financial behaviors and applied financial education to strengthen resilience in young adults.

**Keywords:** Financial Resilience, Economic Well-Being, Mexico

## 1. Introduction

The financial well-being of young adults is determined by a complex interaction of contextual and personal factors that influence their ability to manage their finances effectively. In this regard, She, Waheed, Lim, and E-Vahdati (2022) highlight that, in contextual terms, changes in the macroeconomic environment, market fluctuations, technological advances, and social comparisons about finances play a crucial role. At the personal level, factors

such as socio-demographics, personality traits and values, money skills and attitudes, financial practices, financial socialization, lifestyles, and early life experiences are also determinants. Furthermore, the influence of mental health and subjective financial situation cannot be overlooked, as financial stress directly impacts the emotional well-being of young people.

With regard to how younger generations manage these influences, She, Ma, Sharif, and Karim (2024) emphasize that Millennials tend to adopt a perspective that is more focused on the present than on the future, which influences their financial decision-making. This present-oriented mindset can lead to financial decisions that do not consider long-term implications, which could result in irresponsible financial practices and, ultimately, lower economic well-being. This behavior highlights the urgent need to foster a more strategic and future-oriented financial mindset in young adults. García-Santillán, Escalera-Chávez, and Santana (2024) also emphasize the importance of preparing young people to face not only personal adversities but also the economic challenges that may arise throughout their lives. According to these authors, the current economic context, characterized by its volatility, makes financial education essential to enable young people to better manage their resources and make informed decisions.

Regarding people's ability to cope with unforeseen events, Bhutta, Blair, and Dettling (2021) assert that financial knowledge is crucial for families to prepare for unexpected expenses or interruptions in their income. This knowledge not only contributes to economic security but also plays an essential role in financial resilience, allowing for a faster recovery from any financial shock. For their part, Kamble, Mehta, and Rani (2024) highlight that, in response to past financial crises, financial well-being has gained significant attention in both academic research and public policy.

The focus has gone beyond mere economic stability to incorporate financial inclusion as a priority, especially in developing countries. Financial inclusion has the potential to reduce poverty and provide vulnerable populations with greater participation in the formal financial system, which is essential for their long-term economic well-being. In terms of resilience, the Bank of Mexico (2021) defines it as the ability of a system to recover after an economic shock, highlighting the importance of having mechanisms and instruments in place to adjust the system in an orderly manner in the face of adverse situations. Therefore, people should focus on the ability to manage basic needs and prepare for unforeseen events that may affect economic security. Liu and Chen (2024), in their study, redefine financial resilience as a comprehensive concept that encompasses both static and dynamic situations within human and environmental processes. This definition broadens previous perspectives, allowing us to understand how people cope with and adapt to economic adversity, emphasizing their resilience as a continuous process.

## **2. Problem description**

Young people between the ages of 20 and 29 face a complex financial situation, characterized by the transition from economic dependence to independence. At this stage, financial decisions are influenced by limited starting salaries and social pressures to acquire goods, combined with insufficient financial education. According to BBVA's analysis (2020) based on the National Survey of Financial Inclusion (ENIF), more than 65% of respondents do not prepare a budget or formally record their income and expenses, and among those who do, nearly 60% keep such records only in their heads.

Despite growing academic interest in economic well-being and financial health, there is still a theoretical gap in understanding how young people develop and sustain financial resilience in the face of adverse situations, as well as how this resilience interacts with their financial capabilities and economic well-being. Evidence indicates that financial literacy remains insufficient in various contexts, especially among young people and groups with lower levels of education, which limits their ability to plan, cope with economic contingencies, and achieve sustainable financial well-being (Samuelsson, Levinsson, & Ahlström, 2024). Recent studies show that those with greater financial knowledge tend to manage their debt better, plan for retirement, and show greater resilience to economic shocks than individuals with lower financial literacy (Samuelsson et al., 2024).

On the other hand, financial resilience, defined as the ability to withstand, recover from, and adapt to unexpected financial events, is recognized as a critical component of financial health. However, its exploration in the literature has been fragmented and is not always integrated with financial behavior indicators that reflect actual management practices (Xiao, Tang, & Shim, 2025). A systematic review of financial resilience in individuals and households highlights the importance of multiple components and coping strategies, but also highlights the heterogeneity of studies and the need for more robust conceptual and empirical development (Xiao et al., 2025).

Financial health indicators, such as spending less than one earns, paying bills on time, having sufficient liquid savings, owning long-term assets, maintaining a manageable level of debt, and maintaining a positive credit history, provide quantifiable tools for assessing personal economic stability (Lusardi & Mitchell, 2024). However, research linking these indicators to financial resilience, financial capabilities, and economic well-being in young people remains limited, making it difficult to identify which practices and behaviors significantly influence youth financial resilience and, therefore, sustainable financial well-being.

The relevance of this approach is reinforced by studies suggesting that greater financial resilience is associated with better economic outcomes and greater financial satisfaction, even when controlling for demographic and economic variables, implying that financial resilience not only acts as an adaptive response to shocks but can also be a key determinant of medium- and long-term financial well-being (García-Santillán, 2025).

In this regard, there is a clear need to develop integrative models that examine how financial health indicators relate to financial capabilities and financial resilience in young people, and how these interactions affect their economic well-being. Addressing this gap would not only advance the theory of financial health, but also offer practical inputs for public policies and financial education programs aimed at strengthening the economic stability and resilience of new generations (Samuelsson et al., 2024; Xiao et al., 2025; Lusardi & Mitchell, 2024; García-Santillán, 2025). With these arguments previously presented, the following question now arises: How does financial resilience influence the financial well-being of young people aged 20 to 29? Therefore, the objective is set as follows: To determine the influence of financial resilience on the financial well-being of young people aged 20 to 29. A priori, the following hypotheses are established:

H<sub>1</sub>: Financial resilience has a significant influence on the financial well-being of young people aged 20 to 29.

H<sub>0</sub>: Financial resilience does not have a significant influence on the financial well-being of young people aged 20 to 29.

## 2. Literature Review

Financial health in adolescents is defined as the ability to manage economic resources, make decisions about saving and spending, and deal with unforeseen situations in a responsible manner. Studies on adults and businesses suggest that prior financial preparation is crucial for resilience in the face of external shocks (Tascón, Castro & Valdunciel, 2024), which in adolescents translates into the importance of early saving and planning habits. In the words of Angsten, Davies, Owen, & Williams (2024), financial resilience is widely used to assess people's ability to cope with financial disruptions, such as sudden expenses or loss of income, and is linked to indicators such as financial knowledge, savings levels, and indebtedness. According to these authors, financial resilience consists of three capacities: (1) absorption, i.e., the ability to mitigate or prevent negative impacts; (2) adaptation, the ability to adjust and change in the face of future shocks; and (3) transformation, the ability to create new opportunities or systems in the face of shocks that are too large to cope with.

Complementarily, Hrishikesh (2024) highlights that financial resilience includes money control, expense management, creating a financial cushion, managing deficits and stress, as well as financial planning; while Adam, Panjaitan, Sumarlin, & Adriana (2021) point out that stress is one of the main obstacles to financial difficulties. Carton, Xiong, and McCarthy (2024) identify two methods of measuring financial resilience: objective, using ratios such as savings-to-income, debt-to-income, or financial assets-to-debt, and subjective, through perceptions of the ability to manage money and cope with unexpected financial disruptions, including financial knowledge and skills. Financial self-efficacy also has a significant influence on adolescents: Tahir & Richards (2025) and Hernández-Perez & Cruz-Rambaud (2025) show that those who are confident in their financial abilities tend to

budget, save, and invest, promoting economic stability, while low self-efficacy reduces the ability to plan and cope with difficulties. On the other hand, Bialowolski, Cwynar & Weziak-Bialowolska (2022) highlight that financial education protects financial resilience, although its effect is greater in preserving it than in increasing it.

**Evidence also indicates that financial resilience contributes** directly to economic well-being (Hamid, Loke & Chin, 2023) by enabling people to cope with unexpected shocks, such as illness, job loss, or family emergencies, by using savings, family loans, or financial loans. Prideaux, Vaughn, Chuisano, Thrower, & DeJonckheere (2024) add that resources, personal perspective, and social relationships are essential for building and maintaining resilience, although this is difficult to practice when individuals feel out of control. Applying these concepts to adolescents, strengthening their financial education, savings habits, self-efficacy, and exposure to a supportive environment contributes to strong and resilient financial health, laying the foundation for responsible decisions and future economic stability (Fang, Hao & Reyers, 2022; Zhou, Lu, Liu & Gan, 2024; Bragoli et al., 2026; Brana, Bro de Comères & Vaubourg, 2025; Chen, Yang & Liu, 2025; Zhou, He, Eggleston & Liu, 2022).

### *2.1. Financial resilience*

Financial resilience has established itself as a key concept for understanding how individuals, organizations, and economic systems can respond, adapt, and recover from adverse situations. Several recent studies show that this resilience is multidimensional and dynamic, depending on the context and the interaction between financial resources, behavioral capacities, and social support. At the individual level, financial resilience is related to the ability to save, plan, manage debt, and financial education, factors that not only enable individuals to cope with economic emergencies but also have a direct impact on mental health and life satisfaction (Liu & Chen, 2025; Tahir, Ullah & Umar, 2025; García-Santillán & Santana, 2025). Research in different contexts, from young people in Pakistan to refugees in Malaysia, highlights how financial inclusion and the adoption of active saving behaviors strengthen this resilience, reducing financial anxiety and improving perceptions of well-being (Abd Sukor, Che Hashim & Mahdzan, 2025; Belayeth Hussain et al., 2019; Sjam & Kuang, 2025).

At the organizational level, financial resilience depends both on internal resources and on the ability to adapt to external changes. Digitalization and FinTech innovation have been identified as essential tools for improving operational efficiency, fostering innovation, and sustaining business competitiveness (Al-Okaily & Al-Okaily, 2025). Intellectual capital also contributes to financial performance stability, although its effect varies depending on the level of leverage and the financial health of the company (Okon, Atanda & Ozele, 2026). Studies of human service organizations during the pandemic show that the combination of strategic resource mobilization, stakeholder collaboration, and adaptive leadership enables organizations to maintain or even increase their resilience in crisis contexts (Kang, Lim & Hwang, 2025). The position of companies within supply networks also influences their resilience, revealing that structural gaps can limit operational efficiency and create financial constraints (Wang, Yang & Liu, 2025).

At the macroeconomic level, financial resilience is linked to market structure, banking regulation, and sectoral interconnection. Countries with more concentrated banking systems and strict regulations are better able to withstand shocks such as the COVID-19 pandemic, while markets with complex sectoral networks show how shocks can spread or be absorbed collectively (Danisman, Demir & Zaremba, 2021; Ouyang, Deng & Zhu, 2025). Digitalization and financial inclusion strengthen systemic resilience by improving the quality of accounting information, cooperation in supply chains, and the ability of economic systems to absorb shocks (Shahid, Ahmar, Ali & Islam, 2025).

Evidence indicates that financial resilience is a multilevel phenomenon that integrates individual, organizational, and systemic factors. Savings skills and behaviors protect individuals; innovation, intellectual capital, and adaptive strategies sustain the competitiveness of organizations; and regulation, market structure, and cross-sector connectivity ensure the financial stability of the system (Liu, Chen & Xiao, 2025; Tahir & Richards, 2025; Singh, Moid & Kumar, 2026). In addition, there are mediation and moderation mechanisms: financial education and savings mediate the relationship between access to financial services and resilience; digitization mediates the relationship between innovation and organizational performance; and regulation moderates the relationship

between financial inclusion and systemic resilience (Sjam & Kuang, 2025; Al-Okaily & Al-Okaily, 2025; Liu & Chen, 2025).

In summary, the literature suggests that investing in financial resilience is not only crucial for coping with crises, but also for improving well-being, competitiveness, and long-term economic stability. This integrated vision provides a useful framework for designing public policies, organizational strategies, and educational programs that strengthen the ability of individuals, businesses, and financial systems to adapt and thrive in the face of adverse situations, consolidating resilience as a central component of sustainable economic development.

### **3. Methodology**

Using a non-experimental design with a deductive and cross-sectional approach, we seek to evaluate the influence of financial resilience on financial well-being. To this end, young adults aged between 20 and 29 were established as the participating population. This age group was selected because of its transition to economic independence, which represents a key period for the formation of financial habits and the consolidation of financial resilience. Participants of various genders (women, men, and other genders) and different marital statuses were included. Likewise, the category of current employment status was considered: working, studying, working and studying, and not applicable (N/A).

The sample was selected using non-probability convenience sampling, given that participation was voluntary and not random. This type of sampling consists of selecting the subjects who are most accessible or available to the researcher, rather than using a complete sampling frame with known selection probabilities (Creswell, 2014). In exploratory research and studies that seek to understand emerging phenomena in specific populations—such as financial resilience in young adults—convenience sampling is methodologically acceptable, as it allows relevant data to be obtained efficiently in the face of practical limitations of time and resources (Patton, 2002).

Although probabilistic designs allow for broader generalizations, non-probability sampling is useful for generating initial knowledge and identifying patterns that guide further research (Marshall & Rossman, 2016; Teddlie & Tashakkori, 2009). In this study, convenience sampling was used to access participants who met the established criteria, without affecting the quality of the exploratory analysis. The sample consisted of 169 young adults between the ages of 20 and 29, who voluntarily participated in a structured survey on financial resilience and economic well-being. No restrictions were placed on gender, marital status, or socioeconomic status, with the aim of including diverse profiles within the age group. Although this approach does not allow for probabilistic generalizations, it is consistent with the objective of exploring theoretical relationships in a specific cohort and providing evidence on financial management at a key stage of adulthood.

#### **3.1. Instruments**

The instrument used in this study is the scale proposed by Flores-Bañuelos et al. (2024), which includes both indicators of the participants' sociodemographic profile and 24 items distributed across three broad dimensions: perceptions of financial health indicators, experiences related to these indicators, and actions taken to cope with adverse economic and financial situations. Each of these three blocks consists of eight items, and responses are collected using a five-point Likert scale, ranging from “strongly disagree” to “strongly agree.”

The first dimension, perception of financial health, consists of eight items that assess how participants rate their economic well-being. Based on BBVA (2020) and the CFSI, these questions address aspects such as savings, debt management, and financial planning, considering both the current situation and future expectations. The second dimension, experiences related to financial health, explores the economic situations that participants have faced, such as crises, difficulties in meeting basic needs, or unforeseen events that affected their stability. The third dimension, also consisting of eight items, assesses the actions taken in response to adverse economic situations, including seeking advice, adjusting expenses, taking on debt, and reorganizing personal finances.

For data collection, the questionnaire was designed using the Google Forms platform, which allowed for efficient digital distribution. The questionnaire was shared through various social networks, including Facebook, LinkedIn, Instagram, and WhatsApp, which facilitated access to a diverse sample of participants. Before completing the questionnaire, all prospects were explained the purpose of the research and assured of the confidentiality of their responses. The responses obtained were compiled into an Excel database, which was subsequently used for data analysis.

### 3.2. Measurement procedure

The procedure for measuring the data begins by evaluating the reliability of the instrument using Cronbach's alpha ( $\alpha$ ) and McDonald's omega ( $\omega$ ), with values above 0.70 considered adequate. The normality of the data is verified using the Kolmogorov-Smirnov (KS) and Shapiro-Wilk (SW) tests, in addition to the asymmetry and kurtosis criteria proposed by Kim (2013). If the data do not follow a normal distribution, polychoric correlation matrices are used. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) are then performed using SEM, evaluating the model fit indicators. For the mediation hypothesis, Hayes' (2022) PROCESS macro is used with a regression and bootstrap resampling approach, estimating the direct and indirect effects with confidence intervals.

## 4. Data analysis and interpretation

The internal consistency of the instrument was high, with a Cronbach's alpha of .934 and a McDonald's omega of .932. Both coefficients exceed the criterion of .90, indicating excellent reliability and adequate consistency among the items. The similarity between  $\alpha$  and  $\omega$  confirms the stability of the estimate. The item analysis showed corrected item-total correlations in adequate ranges and showed that the removal of any item does not significantly increase the reliability coefficients. Therefore, all items contribute consistently to the measured construct. The detailed values (mean and variance of the scale if the item is deleted, multiple correlation squared,  $\alpha$  and  $\omega$  if the item is deleted) are presented in Table A1 of the Appendices.

Normality was assessed using the Kolmogorov–Smirnov (with Lilliefors correction) and Shapiro–Wilk tests. In all items ( $N = 169$ ), both tests were significant ( $p < .001$ ), indicating deviations from normality. However, the values for skewness (between  $-0.470$  and  $1.092$ ) and kurtosis (between  $-1.085$  and  $0.312$ ) are within acceptable ranges, suggesting that the deviations are not severe (see Table 2). Overall, although formal tests indicate non-normality, the distribution of the data can be considered reasonably adequate for robust statistical analysis, according to criteria set forth by Kim (2013).

Table 2: Normality test

| Item | KS    | Sig. (KS) | SW   | Sig. (SW) | Skewness | Kurtosis |
|------|-------|-----------|------|-----------|----------|----------|
| PE1  | 0.198 | < .001    | 0.86 | < .001    | 0.538    | -0.465   |
| PE2  | 0.28  | < .001    | 0.79 | < .001    | 1.092    | 0.312    |
| PE3  | 0.206 | < .001    | 0.9  | < .001    | 0.136    | -0.575   |
| PE4  | 0.18  | < .001    | 0.9  | < .001    | -0.344   | -0.558   |
| PE5  | 0.186 | < .001    | 0.91 | < .001    | -0.076   | -0.734   |
| PE6  | 0.165 | < .001    | 0.89 | < .001    | 0.342    | -0.954   |
| PE7  | 0.167 | < .001    | 0.88 | < .001    | -0.352   | -1.035   |
| PE8  | 0.155 | < .001    | 0.91 | < .001    | 0.126    | -0.933   |
| EX9  | 0.206 | < .001    | 0.9  | < .001    | -0.158   | -0.772   |
| EX10 | 0.212 | < .001    | 0.86 | < .001    | 0.513    | -0.786   |
| EX11 | 0.192 | < .001    | 0.9  | < .001    | -0.377   | -0.63    |
| EX12 | 0.193 | < .001    | 0.9  | < .001    | -0.372   | -0.612   |
| EX13 | 0.163 | < .001    | 0.91 | < .001    | -0.126   | -0.927   |
| EX14 | 0.161 | < .001    | 0.89 | < .001    | 0.238    | -1.064   |
| EX15 | 0.179 | < .001    | 0.88 | < .001    | -0.47    | -0.86    |
| EX16 | 0.168 | < .001    | 0.9  | < .001    | 0.068    | -0.995   |
| DU17 | 0.18  | < .001    | 0.91 | < .001    | -0.066   | -0.861   |
| DU18 | 0.156 | < .001    | 0.9  | < .001    | 0.127    | -1.085   |

|      |       |        |      |        |        |        |
|------|-------|--------|------|--------|--------|--------|
| DU19 | 0.18  | < .001 | 0.91 | < .001 | -0.149 | -0.743 |
| DU20 | 0.194 | < .001 | 0.91 | < .001 | -0.08  | -0.667 |
| DU21 | 0.163 | < .001 | 0.91 | < .001 | 0.067  | -0.9   |
| DU22 | 0.175 | < .001 | 0.9  | < .001 | -0.04  | -0.967 |
| DU23 | 0.165 | < .001 | 0.89 | < .001 | -0.342 | -0.881 |
| DU24 | 0.176 | < .001 | 0.91 | < .001 | -0.201 | -0.847 |

#### 4.1. Descriptive analysis of sociodemographic variables

Various sociodemographic characteristics are described in the sample of 169 participants (see Table 3). In terms of gender, the majority of participants are men ( $n = 91$ , 53.8%), followed by women ( $n = 76$ , 45.0%). A small percentage identified as “other” ( $n = 2$ , 1.2%). This pattern indicates a slight male predominance in the sample, although female representation remains significant. Regarding age, the distribution shows that the most represented group is 27-29 years old ( $n = 81$ , 47.9%), followed by participants aged 24-26 ( $n = 51$ , 30.2%). To a lesser extent, there are young people aged 20-23 ( $n = 37$ , 21.9%). This suggests that the sample is predominantly composed of young adults, with fewer participants in the younger age groups. In terms of who influenced their knowledge, the mother figure is the most relevant, with 34.3% of participants ( $n = 58$ ) indicating that she was the main source of influence. She is followed by the father ( $n = 37$ , 21.9%) and “other” ( $n = 34$ , 20.1%). To a lesser extent, siblings had an influence ( $n = 9$ , 5.3%), and 18.3% ( $n = 31$ ) mentioned that there was no one in particular who influenced their knowledge. This reflects a general tendency to recognize parents as the main agents of influence, with a strong presence of the mother figure.

In terms of marital status, most participants are single ( $n = 110$ , 65.1%), followed by those living in a domestic partnership ( $n = 33$ , 19.5%) and those who are married ( $n = 21$ , 12.4%). Cases of separation ( $n = 1$ , 0.6%) and divorce ( $n = 4$ , 2.4%) are very few. This pattern suggests that the sample is mostly composed of single people, with a low representation of those in situations of separation or divorce. Finally, with regard to employment status, it can be seen that the majority of participants work exclusively ( $n = 114$ , 67.5%), followed by those who combine study and work ( $n = 36$ , 21.3%). A smaller percentage study without working ( $n = 14$ , 8.3%), and 3.0% ( $n = 5$ ) selected “none of the above.” This indicates that the majority of the sample is made up of people who are actively employed, with a significant proportion of individuals who also combine study with work. In summary, the sample is mainly composed of men, aged between 24 and 29. Most are single and employed, and mothers are the most influential figures in the participants' knowledge.

Table 3: Sociodemographic Profile

| Dimension              | Category             | n   | %    |
|------------------------|----------------------|-----|------|
| Gender                 | Male                 | 91  | 53.8 |
|                        | Female               | 76  | 45.0 |
|                        | Other                | 2   | 1.2  |
| Age                    | 20–23                | 37  | 21.9 |
|                        | 24–26                | 51  | 30.2 |
|                        | 27–29                | 81  | 47.9 |
| Influence on Knowledge | Mother               | 58  | 34.3 |
|                        | Father               | 37  | 21.9 |
|                        | Siblings             | 9   | 5.3  |
|                        | None                 | 31  | 18.3 |
|                        | Other                | 34  | 20.1 |
| Marital Status         | Single               | 110 | 65.1 |
|                        | Married              | 21  | 12.4 |
|                        | Domestic Partnership | 33  | 19.5 |
|                        | Separated            | 1   | 0.6  |
|                        | Divorced             | 4   | 2.4  |
| Employment Status      | Working Only         | 114 | 67.5 |

|                      |    |      |
|----------------------|----|------|
| Studying Only        | 14 | 8.3  |
| Working and Studying | 36 | 21.3 |
| None of the above    | 5  | 3.0  |

The suitability of the data for factor analysis was confirmed using the Kaiser–Meyer–Olkin measure (KMO = 0.889), indicating adequate sample adequacy. Likewise, Bartlett's sphericity test was statistically significant ( $\chi^2 = 2533.813$ ;  $df = 276$ ;  $p < .001$ ), confirming that the correlation matrix is factorizable. Likewise, the MSA values of the anti-image matrix ranged from .793 to .957, exceeding the minimum recommended criterion (.50), which supports the individual adequacy of the items for factor analysis. Component extraction, with Varimax orthogonal rotation, identified five components that together explain 67% of the total variance (see Table 4), evidence of a solid factorial structure. Subsequently, the solution obtained was subjected to confirmation using Structural Equation Models (SEM) in order to evaluate the fit of the measurement model. Complementarily, Appendix A2 presents the matrix of components rotated under different cut-off points for factor loadings ( $>.10$ ,  $>.40$ , and  $>.50$ ), with the purpose of showing the process of refining and purifying the model until reaching the final solution reported in Table 5.

Table 4: Total Variance Explained

| Component | Sums of Squared Loadings (Extraction) |               |              | Rotation Sums of Squared Loadings |               |              |
|-----------|---------------------------------------|---------------|--------------|-----------------------------------|---------------|--------------|
|           | Initial eigenvalue                    | % de variance | Cumulative % | Total                             | % de variance | Cumulative % |
| 1         | 9.816                                 | 40.899        | 40.899       | 4.947                             | 20.612        | 20.612       |
| 2         | 2.420                                 | 10.085        | 50.983       | 4.026                             | 16.776        | 37.388       |
| 3         | 1.695                                 | 7.063         | 58.046       | 3.508                             | 14.615        | 52.003       |
| 4         | 1.246                                 | 5.192         | 63.238       | 2.258                             | 9.407         | 61.410       |
| 5         | 1.015                                 | 4.229         | 67.467       | 1.454                             | 6.056         | 67.467       |

Table 5: Rotated Component Matrix of the Measurement Model

| Items | Indicator                                                                                                                    | Component |       |       |   |   |
|-------|------------------------------------------------------------------------------------------------------------------------------|-----------|-------|-------|---|---|
|       |                                                                                                                              | 1         | 2     | 3     | 4 | 5 |
| DU19  | Have you implemented any plan to increase your savings in liquid financial products?                                         | 0.769     |       |       |   |   |
| DU22  | If you did not have a healthy credit history, have you carried out any plan?                                                 | 0.733     |       |       |   |   |
| DU24  | If not in your personal life, have you implemented a strategy to plan your expenses for the immediate and short-term future? | 0.733     |       |       |   |   |
| DU17  | Personally, have you taken any measures to spend less than you earn?                                                         | 0.724     |       |       |   |   |
| DU20  | Have you taken any measures to have sufficient long-term savings or assets?                                                  | 0.713     |       |       |   |   |
| DU21  | Have you defined any strategy to maintain your debts in a sustainable manner, payable at maturity?                           | 0.702     |       |       |   |   |
| DU23  | If you do not have adequate insurance, or if you do, have you implemented any plan to modify it?                             | 0.650     |       |       |   |   |
| DU18  | If you had pending payments and did not pay on time: did you take measures to settle your bills fully and on time?           | 0.617     |       | 0.524 |   |   |
| EX12  | Do you have sufficient long-term savings or assets?                                                                          |           | 0.770 |       |   |   |
| PE7   | Do you have adequate insurance coverage?                                                                                     |           | 0.769 |       |   |   |
| EX11  | Do you have sufficient savings in liquid financial products?                                                                 |           | 0.728 |       |   |   |
| EX15  | Do you currently have valid insurance coverage?                                                                              |           | 0.727 |       |   |   |

|      |                                                                                      |       |
|------|--------------------------------------------------------------------------------------|-------|
| PE4  | Do you have sufficient long-term savings or assets?                                  | 0.683 |
| PE8  | Do you plan your future expenses?                                                    | 0.529 |
| EX14 | Do you currently have a healthy credit history?                                      | 0.748 |
| PE6  | Do you have a good credit history?                                                   | 0.701 |
| EX10 | If you had pending payments, did you pay your bills fully and on time?               | 0.692 |
| EX9  | Personally, have you experienced a situation where you spent less than you earned?   | 0.645 |
| EX16 | In your personal life, do you plan expenses for the immediate and short-term future? |       |
| PE3  | Is it important to have sufficient savings in liquid financial products?             | 0.777 |
| PE1  | Do you think you should spend less than you earn?                                    | 0.733 |
| PE2  | Should bills be paid fully and on time?                                              | 0.680 |
| EX13 | Do you currently have a sustainable level of debt?                                   | 0.672 |
| PE5  | Do you have a sustainable level of debt?                                             | 0.606 |

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. <sup>a</sup>. Rotation converged in 8 iterations.

#### 4.2. Interpretation of the underlying structure

The component matrix yields five components, which are interpreted as follows according to their structure: Component 1, referred to as “Active financial management strategies,” exclusively groups items DU17, DU18, DU19, DU20, DU21, DU22, DU23, and DU24, all associated with the implementation of specific measures aimed at improving personal financial situations. The items reflect actions such as increasing liquid savings, establishing plans to clean up credit history, planning future expenses, reducing spending relative to income, strengthening long-term assets, maintaining sustainable debt, adjusting insurance coverage, and regularizing outstanding payments. Taken together, this component represents the strategic behavioral dimension of financial resilience, that is, the ability to make deliberate decisions to strengthen economic stability. Component 2, called “Financial soundness and asset protection,” which is made up of EX12, PE7, EX11, EX15, PE4, and PE8, brings together indicators related to the availability of savings, long-term assets, insurance coverage, and financial planning. Unlike the first component, here the emphasis is not on corrective action, but on the current or perceived financial condition. Conceptually, it represents the individual's level of stability and economic foresight.

Component 3, “Credit discipline and compliance,” groups together EX14, PE6, EX10, and EX9, all related to credit history and timely fulfillment of financial obligations. It reflects behavior associated with timely debt repayment, maintaining a good credit history, and controlling spending. It represents the dimension of formal financial responsibility. Component 4, called “Normative beliefs about financial prudence,” which is made up of PE3, PE1, and PE2, integrates normative items that express judgments about what “should” be done in financial matters, such as saving, spending less than one earns, or paying bills on time. This dimension reflects the cognitive framework or belief system that guides financial behavior. Finally, component 5, called “Debt sustainability,” is composed of indicators EX13 and PE5, both of which focus on the level of sustainable debt. Unlike timely payment compliance (Component 3), this component evaluates the structural balance between debt and payment capacity. It represents a specific dimension of financial stability related to debt management.

Following this interpretation, and based on the factor structure identified through exploratory factor analysis, the measurement model was validated using the Structural Equation Modeling (SEM) methodology. This confirmatory phase allowed for empirical testing of the five-component solution under a previously defined theoretical specification, assigning each item to the corresponding factor according to its highest factor loading. The model fit was evaluated using different types of indices. First, absolute fit indicators were considered, such as the chi-square statistic ( $\chi^2$ ) and its ratio with degrees of freedom ( $\chi^2/\text{df}$ ), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR). Second, incremental or

comparative fit indices were examined, including the Comparative Fit Index (CFI) and the Tucker-Lewis Index (TLI), which allow for the evaluation of the improvement of the proposed model with respect to a null model. Finally, parsimony and model comparison criteria were incorporated, such as the Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC), in order to evaluate the efficiency of the model in terms of the balance between fit and complexity. In short, these indicators allow us to determine the overall adequacy of the measurement model, as well as its structural stability and empirical consistency within the confirmatory framework.

### 5. Analysis of the measurement model

In order to empirically test the factor structure derived from the exploratory analysis, two measurement models were specified using the Structural Equation Modeling (SEM) approach: (a) the initial five-factor model and (b) the refined model after indicator purification. Figures 1 and 2 present the standardized trajectories corresponding to each specification. Next, the absolute, incremental, and parsimony fit indices are reported and compared, as well as the evidence of convergent and discriminant validity.

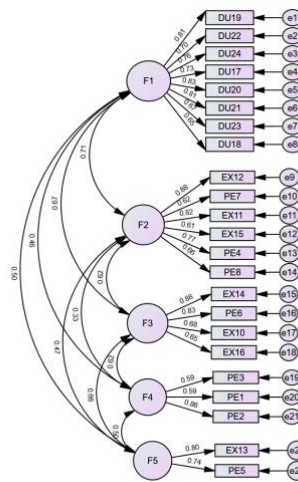


Figure 1: Initial measurement model

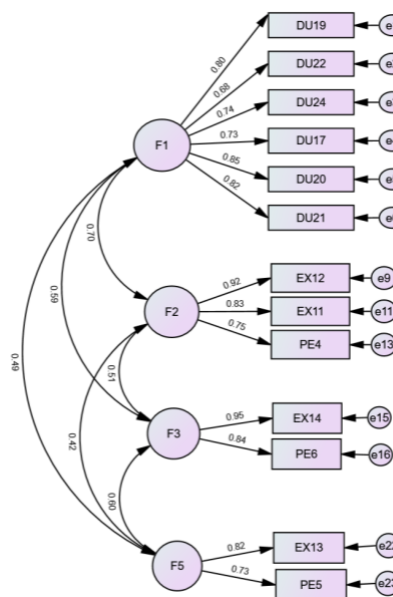


Figure 2: Final measurement model

In order to evaluate the structural validity of the instrument originally validated by Flores et al. (2024) in workers in the industrial security industry in Mexico, a confirmatory factor analysis (CFA) was performed using the Maximum Likelihood (ML) method. This estimator is widely recommended in structural equation models due to its consistency, efficiency, and asymptotic normal distribution properties, particularly in moderate to large sample sizes (Hair et al., 2022; Kline, 2023). The initial model was specified with the factor structure derived from exploratory factor analysis with Varimax rotation. However, the fit indices showed insufficient performance on several key indicators, which led to a refinement process based on theoretical and statistical criteria.

### 5.1 Adjustment of the initial model

The initial model had a  $\chi^2/df$  ratio of 2.993, a value within the acceptable upper limit ( $< 3$ ), but with incremental indices below the recommended threshold of .90 (CFI = .814; TLI = .786). The RMSEA was .109 (90% CI [.099–.119]), indicating a high approximation error. Likewise, the PCLOSE = .000 confirmed that the model did not achieve an acceptable close fit. These results suggest that the originally validated structure was not adequately replicated in the sample of young adults.

### 5.2 Model refinement process

Following the recommendations of Hair et al. (2022), indicators with standardized factor loadings below .70 were eliminated, a conservative criterion that ensures adequate explained variance of the construct. This decision was also based on conceptual consistency, avoiding modifications based solely on modification indices so as not to compromise the theoretical validity of the model (Kline, 2023). It is important to note that correlations between errors were not incorporated, even though some modification indices suggested marginal improvements, because such adjustments require explicit theoretical justification and can artificially inflate the fit (Brown, 2015).

### 5.3 Adjustment of the final model

After refinement, the final model showed a substantial and consistent improvement in all fit indices (Table 6):

Table 6: Comparison of the fit of the initial model and the final model

| Index        | Recommended Criterion           | Initial Model | Final Model |
|--------------|---------------------------------|---------------|-------------|
| $\chi^2/df$  | $< 3.00$                        | 2.993         | 1.789       |
| CFI          | $\geq .90 / \geq .95$ excellent | 0.814         | 0.964       |
| TLI          | $\geq .90 / \geq .95$ excellent | 0.786         | 0.952       |
| IFI          | $\geq .90$                      | 0.816         | 0.964       |
| RMSEA        | $\leq .08 / \leq .06$ optimal   | 0.109         | 0.069       |
| RMSEA 90% CI | Upper limit $< .08$             | 0.119         | 0.089       |
| PCLOSE       | $> .05$                         | 0             | 0.077       |
| GFI          | $\geq .90$                      | 0.756         | 0.914       |
| RMR          | $< .08$                         | 0.137         | 0.06        |
| AIC          | Lower = better                  | 770.469       | 169.561     |
| BIC          | Lower = better                  | 945.743       | 269.718     |
| ECVI         | Lower = better                  | 4.586         | 1.009       |

The final model achieved values considered excellent in incremental indices (CFI = .964; TLI = .952) and an RMSEA = .069, within the acceptable range ( $< .08$ ). The PCLOSE (.077) indicated a close fit, strengthening the evidence of structural adequacy. The substantial reduction in AIC, BIC, and ECVI confirms that the refined model is more parsimonious and has better replicability in similar samples.

### 5.4 Convergent validity

Standardized factor loadings ranged from .728 to .951, mostly exceeding the recommended threshold of .70 (Hair et al., 2022). All were statistically significant ( $p < .001$ ). Compound reliability (CR) was above .70 in all constructs, and the average extracted variance (AVE) exceeded .50, confirming adequate convergent validity (Fornell & Larcker, 1981).

### *5.5 Discriminant validity*

Discriminant validity was assessed using the Fornell-Larcker criterion and HTMT (Henseler et al., 2015). Interfactor correlations remained below .85, and the square root of AVE was higher than the correlations between constructs. Likewise, HTMT values were below .85, indicating adequate conceptual differentiation between dimensions.

### *5.6 Contextual discussion and structural stability*

The instrument was originally validated in a working population with consolidated experience. The present research applied it to young adults aged 20 to 29, a stage characterized by career transition and professional identity consolidation. The insufficient initial fit suggests that some items exhibit contextual sensitivity. However, the underlying factor structure remained after refinement, demonstrating the conceptual stability of the construct within the same cultural context (Mexico), but at a different stage of development. This expands the evidence of the instrument's external validity and contributes to its population generalization.

### *5.7. Structural reconfiguration of the instrument in the young population*

The initial exploratory factor analysis identified a five-component solution consistent with the original validation of the instrument by Flores et al. (2024) in workers in the industrial safety industry in Mexico. However, when this structure was subjected to confirmatory factor analysis using structural equation modeling, it was observed that one of the factors—corresponding to normative beliefs about financial prudence—did not achieve factorial stability in the sample of young adults. After refinement based on standardized loadings  $\geq .70$  and conceptual consistency criteria, the final model was configured in four empirically robust dimensions: (1) Active financial management strategies, (2) Financial soundness and wealth planning, (3) Credit discipline and compliance, and (4) Structural sustainability of indebtedness. Far from being interpreted as a structural loss, this reconfiguration suggests a process of dimensional integration characteristic of the evolutionary stage analyzed.

In the case of Factor 1, which has been termed “Active financial management strategies,” this factor is composed of items DU17, DU19, DU20, DU21, DU22, and DU24, representing the strategic behavioral dimension of financial resilience. The items reflect deliberate actions aimed at strengthening economic stability, such as increasing savings, planning expenses, regularizing obligations, and maintaining sustainable debt levels. In conceptual terms, this dimension captures the capacity for active intervention in the face of adverse financial scenarios, constituting the operational core of the construct.

Factor 2, entitled “Financial soundness and asset forecasting,” comprises items EX12, EX11, and PE4. This component describes the structural condition of economic stability as perceived by the study participants. Unlike the first factor, here the emphasis is not on corrective action but on accumulated financial backing, planning, and the availability of resources. This dimension represents the equity base that allows contingencies to be addressed without the need for immediate adjustments. In the case of Factor 3, “Credit discipline and compliance,” which consists of items EX14 and PE6, this factor reflects the timely fulfillment of financial obligations and the responsibility associated with maintaining a credit history. It represents the formal-normative dimension of financial behavior, linked to the contractual reliability of the individual. Finally, there is Factor 4, called “Structural Sustainability of Indebtedness,” which is made up of items EX13 and PE5. This dimension assesses the balance between debt and repayment capacity. It is not limited to timely payment, but captures the structural proportionality of indebtedness relative to income. It represents a more systemic assessment of personal financial risk.

Theoretical integration of the finding. In the original validation, the factor “Normative beliefs about financial prudence” emerged as an independent dimension, which is consistent with working populations where internalized norms can constitute a cognitive framework that is distinct from observable behavior. However, in the sample of young adults (20–29 years old), these beliefs were not structured as an autonomous construct in the confirmatory model. This can be interpreted from an evolutionary perspective: in the early stages of career consolidation, financial beliefs tend to manifest themselves directly through behaviors, rather than as distinct normative systems. In other words, in this population, prudential beliefs appear to be functionally integrated into behavioral dimensions, particularly in active financial management strategies and credit discipline. This result does not weaken the instrument; on the contrary, it broadens its contextual understanding and provides evidence of structural sensitivity to generational changes.

Psychometric implications. The transition from five to four factors is not due to statistical overfitting or ad hoc modifications, but rather to a refinement process based on: Standardized factor loadings  $\geq .70$ ; Consistent improvement in absolute and incremental fit indices; Substantial reduction in AIC and BIC, as well as the maintenance of conceptual coherence. This suggests that the underlying structure of the construct maintains its theoretical core, but with a more parsimonious and empirically stable dimensional configuration in the young population.

Theoretical implications. This finding opens up a relevant line of research: the possible structural variability of financial resilience according to life stage. Future research could formally evaluate factor invariance between established working populations and young people in labor transition, which would allow us to determine whether the observed difference responds to evolutionary changes or contextual dynamics.

## 6. Discussion

The results obtained show a structural reconfiguration of the instrument when applied to a young population (20–29 years old), compared to the original validation carried out by Flores et al. (2024) on workers in the industrial safety industry. While the original model considered five distinct dimensions—including an independent factor of normative beliefs about financial prudence—in the present sample, this component did not emerge as an autonomous construct within the confirmatory model. This finding should not be interpreted as a psychometric weakness, but rather as evidence of the construct's contextual sensitivity. Recent literature has pointed out that financial resilience is a dynamic phenomenon that depends on the life cycle (Liu & Chen, 2025; Tahir & Richards, 2025).

In the early stages of career consolidation, financial beliefs tend to manifest themselves directly through observable behaviors, rather than as differentiated normative systems. In other words, in young adults, financial “oughtness” seems to be functionally integrated into action. From the perspective of Angsten et al. (2024), financial resilience consists of absorption, adaptation, and transformation capacities. In this sense, the dimensions identified in the final model can be interpreted as operational expressions of these capacities: financial soundness and wealth foresight represent the capacity for absorption; active financial management strategies reflect deliberate adaptation; and the structural sustainability of indebtedness expresses a form of strategic regulation in the face of future constraints.

In contrast, the normative component observed in workers by Flores et al. (2024) could be linked to established career paths, where internalized norms of financial prudence constitute relatively stable cognitive frameworks. In young adults, however, financial behavior is in the process of consolidation, which is consistent with studies showing that financial self-efficacy operates as a direct mediator between knowledge and action (Hernández-Perez & Cruz-Rambaud, 2025; Tahir & Richards, 2025). In this context, beliefs are not structurally separate from behavior, but rather drive it immediately.

### 6.1. Consistency with the literature on financial resilience

The final structure obtained is consistent with the multidimensional conceptualization of financial resilience proposed in recent studies. Carton, Xiong, and McCarthy (2024) distinguish between objective (financial ratios) and subjective (perception of coping ability) measurements. In the model validated here, both dimensions coexist: financial soundness captures the structural perception of economic support, while active strategies reflect specific coping behaviors. Likewise, Hrishikesh (2024) emphasizes that financial resilience involves money control, expense management, creation of financial buffers, and strategic planning. These elements are directly represented in Factor 1 of the final model, which supports its conceptual validity.

Furthermore, the observed relationship between credit discipline and debt sustainability is consistent with research linking responsible credit management with financial well-being and lower economic anxiety (Abd Sukor et al., 2025; Liu & Chen, 2025). The literature has also pointed out that sustainable indebtedness does not depend solely on timely payment, but on the structural balance between obligations and income-generating capacity (Hamid, Loke & Chin, 2023), an aspect captured in the fourth factor identified. Taken together, the four-dimensional structure found in young adults does not contradict the previous literature, but rather reorganizes its components into a more integrated and behaviorally oriented configuration.

### *6.2. Differences from the original validation*

Flores et al. (2024) found that contextual experiences—particularly those arising from COVID-19 lockdown—significantly determined financial resilience actions. Among established workers, perceptions of financial health indicators did not directly translate into action, whereas lived experiences did. In contrast, the present research does not incorporate a specific disruptive event as an explanatory variable, but rather analyzes the internal structure of the construct in young adults. The integration of the normative component within behavioral dimensions suggests that, in this population, financial resilience operates more immediately and is less mediated by differentiated cognitive structures. This difference can be interpreted in light of theories of financial development, where the transition to adulthood is characterized by experiential learning and continuous adaptive adjustment (Fang, Hao & Reyers, 2022; Zhou et al., 2024). Consequently, financial resilience in young people may exhibit greater structural plasticity than in established working populations.

### *6.3. Theoretical implications and future directions*

The findings suggest that financial resilience is not an immutable structure, but rather a construct that is sensitive to generational and contextual conditions. This opens up the possibility of formally evaluating factor invariance between young populations and established workers in order to determine whether the observed differences respond to life cycle effects or socioeconomic variations. Likewise, the integration of beliefs into behaviors could be linked to models of self-efficacy and financial learning, where the cognitive component acts as a direct driver of action (Bialowolski, Cwynar & Weziak-Bialowolska, 2022). Evaluating mediations between financial education, self-efficacy, and active management strategies would be a promising line of inquiry. Finally, the results reinforce the multilevel view of financial resilience (Liu, Chen & Xiao, 2025), suggesting that individual configurations may vary according to developmental stage, while remaining consistent with the overall conceptual framework.

## **7. Conclusion**

This study provides empirical evidence on the structural configuration of financial resilience in young Mexican adults, showing that, although the instrument originally validated by Flores et al. (2024) maintains its conceptual core, its dimensional organization undergoes a significant reconfiguration when applied to a population of young adults aged 20 to 29. The final structure of four dimensions—active financial management strategies, financial soundness and wealth planning, credit discipline and compliance, and structural sustainability of indebtedness—showed better statistical fit, greater parsimony, and empirical consistency compared to the initial five-factor model.

From a theoretical point of view, the findings reinforce the concept of financial resilience as a dynamic and contextual construct, sensitive to the stage of the life cycle. The integration of the normative component within

behavioral dimensions suggests that, in young adults, prudential beliefs do not operate as independent cognitive structures, but as direct drivers of financial action. This evidence broadens the understanding of the construct by showing that its internal architecture can vary without losing conceptual coherence, which adds an important nuance to the multidimensional models proposed in recent literature. In practical terms, the results indicate that interventions aimed at strengthening financial resilience in young people should prioritize the development of active strategies for debt management, planning, and sustainability, rather than focusing exclusively on the transmission of abstract norms of financial prudence. The promotion of strategic behaviors, supported by self-efficacy and applied financial education, could generate more consistent effects at this stage of transition toward job consolidation.

Finally, we can point out that the study opens up future lines of research aimed at evaluating the factorial invariance of the instrument among populations of different ages and work histories, as well as exploring longitudinal models that allow for the analysis of the structural evolution of financial resilience throughout the life cycle. Understanding these variations will contribute to consolidating a more flexible and robust theoretical framework capable of integrating individual, contextual, and generational dimensions into the analysis of financial health.

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**Declaration of Generative AI and AI-assisted Technologies:** This study has not used any generative AI tools or technologies in the preparation of this manuscript.

## References

- Abd Sukor, M. E., Che Hashim, R., & Mahdzan, N. S. (2025). Exploring the Financial Resilience of Refugees in Malaysia: A Qualitative Study. *Journal of Immigrant & Refugee Studies*, 1–23. <https://doi.org/10.1080/15562948.2025.2523271>
- Adam, Echan., Panjaitan, Roymon., Sumarlin, Tantie., & Adriana, Myra. (2021). Financial Well-Being Resilience: Financial Literacy and Financial Inclusion Toward Financial Attitude. *Majalah Ilmiah Bijak*, 18. <https://doi.org/10.31334/bijak.v18i1.1346>
- Al-Okaily A, Al-Okaily M (2025;), "Financial digitalization: how does FinTech innovation enhance financial resilience and competitiveness? An empirical study". *Competitiveness Review*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/CR-04-2025-0119>

- Al-Okaily M, Al-Okaily A (2025;), "Digital transformation and financial innovation as drivers of firm resilience: evidence from Jordanian financial market". *International Journal of Innovation Science*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/IJIS-03-2025-0155>
- Angsten Clark, A., Davies, S., Owen, R., & Williams, K. (2024). Beyond individual responsibility – towards a relational understanding of financial resilience through participatory research and design. *Journal of Social Policy*, 1–18. <https://doi.org/10.1017/S0047279423000685>
- Banco de México. (2021, diciembre 8). La importancia de procurar un sistema financiero resiliente (Recuadro 3, pp. 32–33). En *Reporte de Estabilidad Financiera – Diciembre de 2021*. <https://www.banxico.org.mx/publicaciones-y-prensa/reportes-sobre-el-sistema-financiero/recuadros/%7BA0D265E8-CCAD-11C8-BDF2-394119B6AE6C%7D.pdf>
- BBVA México. (2020). Los jóvenes y la educación financiera en México. <https://www.bbva.com/es/mx/los-jovenes-y-la-educacion-financiera-en-mexico/>
- Belayeth Hussain, A. H. M., Endut, N., Das, S., Chowdhury, M. T. A., Haque, N., Sultana, S., & Ahmed, K. J. (2019). Does financial inclusion increase financial resilience? Evidence from Bangladesh. *Development in Practice*, 29(6), 798–807. <https://doi.org/10.1080/09614524.2019.1607256>
- Bhutta, N., Blair, J., & Dettling, L. (2021). The Smart Money is in Cash? Financial Literacy and Liquid Savings Among U.S. Families. *Finance and Economics Discussion Series 2021-076*. Washington: Board of Governors of the Federal Reserve System. <https://doi.org/10.17016/FEDS.2021.076>
- Bialowolski, P., Cwynar, A., & Weziak-Bialowolska, D. (2022). The role of financial literacy for financial resilience in middle-age and older adulthood. *International Journal of Bank Marketing*, 40(7), 1718–1748. <https://doi.org/10.1108/IJBM-10-2021-0453>
- Bragoli, D., Corbellini, A., Fedreghini, D., Ganugi, T., Marseguer, G., & Morelli, G. (2026). Financial stability and the transition: integrating environmental and social factors into a solvency model for SMEs. *Applied Economics*, 1–19. <https://doi.org/10.1080/00036846.2025.2610516>
- Brana, S., Bro de Comères, Q., & Vaubourg, A. G. (2025). How do analyst recommendations on banks respond to monetary policy news? An application to the Eurozone. *Applied Economics*, 57(56), 9573–9590. <https://doi.org/10.1080/00036846.2024.2422110>
- Brown, T. A. (2015). *Confirmatory factor analysis for applied research* (2nd ed.). Guilford Press.
- Cárdenas, S., Cuadros, P., Estrada, C., & Mejía, D. (2020, julio 23). Determinantes del bienestar financiero: evidencia para América Latina (Serie Políticas Públicas y Transformación Productiva No. 36). CAF - Banco de Desarrollo de América Latina. <https://scioteca.caf.com/handle/123456789/1617>
- Carton, F., Xiong, H., & McCarthy, J. B. (2024). Human-centred factors of decision-making for financial resilience. *Journal of Decision Systems*, 33(sup1), 311–321. <https://doi.org/10.1080/12460125.2024.2354644>
- Chen, Y., Yang, Y., & Liu, J. (2025). The 'siphoning effect' of equity financing. *Applied Economics*, 57(60), 11242–11256. <https://doi.org/10.1080/00036846.2025.2450386>
- Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (4<sup>a</sup> ed.). Sage Publications.
- Danisman, G. O., Demir, E., & Zaremba, A. (2021). FINANCIAL RESILIENCE TO THE COVID-19 PANDEMIC: THE ROLE OF BANKING MARKET STRUCTURE. *Applied Economics*, 53(39), 4481–4504. <https://doi.org/10.1080/00036846.2021.1904118>
- Fang, J., Hao, W., & Reyers, M. (2022). Financial advice, financial literacy and social interaction: what matters to retirement saving decisions? *Applied Economics*, 54(50), 5827–5850. <https://doi.org/10.1080/00036846.2022.2053654>
- Flores, M., Zamora-Lobato, T. & García-Santillán, A. (2024). Three-dimensional model of financial resilience in workers: Structural equation modeling and bayesian analysis. *Economics and Sociology*, 17(1), 69-88. doi:10.14254/2071- 789X.2024/17-1/5
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50.
- García-Santillán A, Santana JC (2025;), "Exploring financial resilience and well-being in college students: a mixed-method analysis using orthogonal and oblique rotation techniques". *Journal of Humanities and Applied Social Sciences*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/JHASS-06-2025-0105>
- García-Santillán, A. (2025). *Financial capabilities and financial well-being: The mediating role of financial resilience*. [https://www.preprints.org/manuscript/202601.1363?utm\\_source=chatgpt.com](https://www.preprints.org/manuscript/202601.1363?utm_source=chatgpt.com)
- García-Santillán, A., Escalera-Chávez, M. E., & Santana, J. C. (2024). Exploring resilience: a Bayesian study of psychological and financial factors across gender. *Cogent Economics & Finance*, 12(1). <https://doi.org/10.1080/23322039.2024.2431544>
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2022). *Multivariate data analysis* (8th ed.). Cengage.

- Hamid, F. S., Loke, Y. J., & Chin, P. N. (2023). Determinants of financial resilience: insights from an emerging economy. *Journal of Social and Economic Development*, 25, 479–499. <https://doi.org/10.1007/s40847-023-00239-y>
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based SEM. *Journal of the Academy of Marketing Science*, 43, 115–135.
- Hernandez-Perez, & Cruz Rambaud. (2025). *Future Business Journal*, 11, 70. <https://doi.org/10.1186/s43093-025-00498-7>
- Kakde, H. (2024). Fostering Financial Resilience: A Pathway Through Financial Wellness. *Educational Administration: Theory and Practice*, 30, 5777–5783. <https://doi.org/10.53555/kuey.v30i5.3854>
- Kamble, P. A., Mehta, A., & Rani, N. (2024). Financial Inclusion and Digital Financial Literacy: Do they Matter for Financial Well-being?. *Social Indicators Research*, 171, 777–807. <https://doi.org/10.1007/s11205-023-03264-w>
- Kang, C., Lim, J., & Hwang, I. (2025). Financial Resilience Trajectories and Adaptive Strategies of Korean Human Service Organizations (HSOs) During the COVID-19 Pandemic: Beyond Reliance on Government Subsidies for Private Sector Support. *Human Service Organizations: Management, Leadership & Governance*, 1–18. <https://doi.org/10.1080/23303131.2025.2603906>
- Kline, R. B. (2023). *Principles and practice of structural equation modeling* (5th ed.). Guilford Press.
- Lee, S., & Chen, G. (2022). Understanding financial resilience from a resource-based view: Evidence from US state governments. *Public Management Review*, 24(12), 1980–2003. <https://doi.org/10.1080/14719037.2021.1955951>
- Liu Z, Chen J (2025;), "Financial resilience alleviates financial anxiety in a global context: multilevel modeling on cross-national socioeconomic development indicators". *International Journal of Bank Marketing*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/IJBM-11-2024-0708>
- Liu Z, Chen J, Xiao JJ (2025), "Financial resilience: a scoping review, conceptual synthesis and theoretical framework". *International Journal of Bank Marketing*, Vol. 43 No. 7 pp. 1541–1576, doi: <https://doi.org/10.1108/IJBM-12-2024-0735>
- Liu, Z., & Chen, J. K. (2024). Financial Resilience and Adolescent Development: Exploring a Construct of Family Socioeconomic Determinants and Its Associated Psychological and School Outcomes. *Child Indicators Research*, 17, 2283–2318. <https://doi.org/10.1007/s12187-024-10164-z>
- Liu, Z., & Chen, J. K. (2025). Mediating Effects of Financial Resilience Between Family Economic Adversity and Mental Health: Population Heterogeneity in Multiple Subgroups. *Psychology Research and Behavior Management*, 18, 1371–1389. <https://doi.org/10.2147/PRBM.S517706>
- Lusardi, A., & Mitchell, O. S. (2024). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 62(1), 1–44. <https://doi.org/10.1257/jel.20211399>
- Marshall, C., & Rossman, G. B. (2016). *Designing Qualitative Research* (6.<sup>a</sup> ed.). Sage Publications.
- Okon IJ, Atanda O, Ozele C (2026;), "Quantile effects of intellectual capital on financial distress: panel threshold insights into capital structure regimes". *International Journal of Productivity and Performance Management*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/IJPPM-07-2025-0757>
- Ouyang Z, Deng Y, Zhu T (2025;), "Collective risk resonance behavior and network resilience in Chinese stock sectors: evidence from higher-order financial network". *China Finance Review International*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/CFRI-06-2025-0394>
- Patton, M. Q. (2002). *Qualitative Research & Evaluation Methods* (3.<sup>a</sup> ed.). Sage Publications.
- Prideaux, J., Vaughn, L. M., Chuisano, S. A., Thrower, D., & DeJonckheere, M. (2024). "Being Open About Struggle": Youth Practices and Perspectives on Resilience. *Youth & Society*, 57(1), 3–29. <https://doi.org/10.1177/0044118X241231813> (Original work published 2025)
- Samuelsson E, Levinsson H, Ahlström R. (2023). Financial literacy, personal financial situation, and mental health among young adults in Sweden. *Journal of Financial Literacy and Wellbeing*. 1(3):541-564. doi:10.1017/flw.2024.3
- Shahid MN, Ahmar M, Ali H, Islam MU (2025;), "Accounting information quality and digital financial inclusion enhance the supply chain resilience: a perspective of goodwill and financial regulations". *Journal of Electronic Business & Digital Economics*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/JEBDE-01-2025-0001>
- She, L., Ma, L., Pahlevan Sharif, S., et al. (2024). Millennials' financial behaviour and financial well-being: the moderating role of future orientation. *Journal of Financial Services Marketing*, 29, 1207–1224. <https://doi.org/10.1057/s41264-024-00281-9>
- She, L., Waheed, H., Lim, W. M., & E-Vahdati, S. (2022). Young adults' financial well-being: current insights and future directions. *International Journal of Bank Marketing*. <https://doi.org/10.1108/IJBM-04-2022-0147>
- Singh S, Moid S, Kumar N (2026;), "Unpacking antecedents of financial resilience: CARAPACE framework". *South Asian Journal of Business Studies*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/SAJBS-03-2025-0116>

- Sjam AA, Kuang TM (2025;), "Save big, stress less: how account ownership builds financial resilience". *Journal of Financial Economic Policy*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/JFEP-08-2024-0233>
- Striseo-Martínez, D. A. (2024). Finanzas personales y bienestar: Investigación sobre la relación entre las finanzas personales y el bienestar, y cómo las personas pueden mejorar su bienestar financiero. *Sapiens International Multidisciplinary Journal*, 1(1), 93–108. <https://doi.org/10.71068/tkr8as41>
- Syed AA (2025;), "Resilience of artificial intelligence index against conventional financial market shocks: evidence from NARDL". *Journal of Economic and Administrative Sciences*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/JEAS-06-2025-0381>
- Tahir MS, Richards DW (2025), "A systematic literature review of financial resilience: antecedents, consequences and future research agenda". *Journal of Financial Regulation and Compliance*, Vol. 33 No. 4 pp. 592–615, doi: <https://doi.org/10.1108/JFRC-10-2024-0204>
- Tahir MS, Ullah S, Umar M (2025), "Financial resilience and life satisfaction of youth: the serial mediation of financial well-being and mental well-being". *International Journal of Sociology and Social Policy*, Vol. 45 No. 11-12 pp. 1232–1245, doi: <https://doi.org/10.1108/IJSSP-01-2025-0055>
- Tahir, M. S., & Richards, D. W. (2025). A systematic literature review of financial resilience: antecedents, consequences and future research agenda. *Journal of Financial Regulation and Compliance*, ahead-of-print. <https://doi.org/10.1108/JFRC-10-2024-0204>
- Tascón, M. T., Castro, P., & Valdunciel, L. (2024). Effects of financial restrictions on firms' financial resilience against the COVID-19 pandemic: evidence from the European hospitality industry. *Applied Economics*, 56(58), 8226–8241. <https://doi.org/10.1080/00036846.2023.2289951>.
- Teddlie, C., & Tashakkori, A. (2009). *Foundations of Mixed Methods Research: Integrating Quantitative and Qualitative Approaches*. Sage Publications.
- Torres, Y. (2023, septiembre 6). Resiliencia financiera fortalece productividad de trabajadores. *El Economista*. <https://www.eleconomista.com.mx/finanzaspersonales/Resiliencia-financiera-fortalece-productividad-de-trabajadores-20230906-0116.html>
- Wang Y, Yang X, Liu H (2025;), "The impact of structural holes on financial resilience: evidence from China". *Journal of Accounting Literature*, Vol. ahead-of-print No. ahead-of-print. <https://doi.org/10.1108/JAL-11-2024-0323>
- Xiao, J. J., Tang, C., & Shim, S. (2025). *Behavioral and psychological aspects of financial resilience*. *Journal of Consumer Affairs*, 59(1), 112-140. <https://doi.org/10.1111/joca.12356>.
- Zhou, Q., He, Q., Eggleston, K., & Liu, G. G. (2022). Urban-rural health insurance integration in China: impact on health care utilization, financial risk protection, and health status. *Applied Economics*, 54(22), 2491–2509. <https://doi.org/10.1080/00036846.2021.1998323>
- Zhou, Y., Lu, W., Liu, C., & Gan, H. (2024). The gender gap in financial distress. *Applied Economics*, 56(51), 6375–6390. <https://doi.org/10.1080/00036846.2023.2273241>

## Appendices

**Table A1. Item-Total Statistics**

| Item | Scale Mean if<br>Item Deleted | Scale Variance<br>if Item Deleted | Corrected<br>Item–Total<br>Correlation | Squared<br>Multiple<br>Correlation | Cronbach’s<br>Alpha if Item<br>Deleted | McDonald’s<br>Omega if Item<br>Deleted |
|------|-------------------------------|-----------------------------------|----------------------------------------|------------------------------------|----------------------------------------|----------------------------------------|
| PE1  | 67.78                         | 332.160                           | .288                                   | .358                               | .935                                   | .933                                   |
| PE2  | 68.14                         | 323.666                           | .501                                   | .606                               | .932                                   | .931                                   |
| PE3  | 67.51                         | 327.597                           | .446                                   | .453                               | .933                                   | .931                                   |
| PE4  | 66.72                         | 318.062                           | .644                                   | .666                               | .930                                   | .928                                   |
| PE5  | 67.11                         | 324.084                           | .481                                   | .485                               | .933                                   | .930                                   |
| PE6  | 67.51                         | 314.823                           | .635                                   | .754                               | .930                                   | .928                                   |
| PE7  | 66.72                         | 320.357                           | .480                                   | .664                               | .933                                   | .931                                   |
| PE8  | 67.26                         | 314.194                           | .680                                   | .642                               | .930                                   | .927                                   |
| EX9  | 67.11                         | 326.279                           | .415                                   | .328                               | .934                                   | .931                                   |
| EX10 | 67.75                         | 317.700                           | .596                                   | .580                               | .931                                   | .929                                   |
| EX11 | 66.71                         | 317.909                           | .632                                   | .718                               | .931                                   | .928                                   |
| EX12 | 66.75                         | 317.140                           | .654                                   | .761                               | .930                                   | .928                                   |
| EX13 | 66.98                         | 319.511                           | .543                                   | .544                               | .932                                   | .930                                   |
| EX14 | 67.48                         | 313.061                           | .684                                   | .784                               | .930                                   | .927                                   |
| EX15 | 66.63                         | 320.948                           | .485                                   | .657                               | .933                                   | .931                                   |
| EX16 | 67.28                         | 311.464                           | .724                                   | .699                               | .929                                   | .926                                   |
| DU17 | 67.24                         | 318.280                           | .634                                   | .618                               | .931                                   | .928                                   |
| DU18 | 67.40                         | 317.647                           | .591                                   | .592                               | .931                                   | .929                                   |
| DU19 | 67.04                         | 315.630                           | .691                                   | .647                               | .930                                   | .927                                   |
| DU20 | 67.09                         | 314.420                           | .730                                   | .684                               | .929                                   | .926                                   |
| DU21 | 67.20                         | 311.983                           | .732                                   | .674                               | .929                                   | .926                                   |
| DU22 | 66.97                         | 316.719                           | .596                                   | .582                               | .931                                   | .929                                   |
| DU23 | 66.69                         | 317.300                           | .592                                   | .608                               | .931                                   | .929                                   |
| DU24 | 66.96                         | 314.737                           | .667                                   | .631                               | .930                                   | .927                                   |

**Table A2.** Rotated Component Matrix with Factor Loadings >.10; >.40 y >.50

| Items | Factor loadings >.10 |        |        |            |        | Factor loadings >.40 |       |       |       |       | Factor loadings >.50 |       |       |       |       |
|-------|----------------------|--------|--------|------------|--------|----------------------|-------|-------|-------|-------|----------------------|-------|-------|-------|-------|
|       | 1                    | 2      | 3      | 4          | 5      | 1                    | 2     | 3     | 4     | 5     | 1                    | 2     | 3     | 4     | 5     |
| DU20  | 0.781                | -0.193 | -0.252 | 0.102      |        | 0.769                |       |       |       |       | 0.769                |       |       |       |       |
| DU21  | 0.778                |        | -0.275 |            |        | 0.733                |       |       |       |       | 0.733                |       |       |       |       |
| EX16  | 0.768                |        |        |            | -0.283 | 0.733                |       |       |       |       | 0.733                |       |       |       |       |
| DU19  | 0.741                | -0.130 | -0.339 |            | 0.136  | 0.724                |       |       |       |       | 0.724                |       |       |       |       |
| DU24  | 0.720                | -0.155 | -0.321 |            |        | 0.713                |       |       |       |       | 0.713                |       |       |       |       |
| PE8   | 0.720                |        | 0.193  | 0.225      | -0.212 | 0.702                |       |       |       |       | 0.702                |       |       |       |       |
| EX14  | 0.716                | 0.271  | 0.123  | -<br>0.253 | -0.268 | 0.650                |       |       |       |       | 0.650                |       |       |       |       |
| EX12  | 0.704                | -0.378 | 0.239  | 0.147      | -0.176 | 0.617                |       | 0.524 |       |       | 0.617                |       | 0.524 |       |       |
| PE4   | 0.697                | -0.302 | 0.164  | 0.163      | -0.199 |                      | 0.770 |       |       |       |                      | 0.770 |       |       |       |
| DU17  | 0.690                |        | -0.420 | 0.110      |        |                      | 0.769 |       |       |       |                      | 0.769 |       |       |       |
| EX11  | 0.680                | -0.373 | 0.239  |            |        |                      | 0.728 |       |       |       |                      | 0.728 |       |       |       |
| PE6   | 0.662                | 0.344  | 0.234  | -<br>0.163 | -0.208 |                      | 0.727 |       |       |       |                      | 0.727 |       |       |       |
| DU22  | 0.651                | -0.264 | -0.287 |            | 0.347  |                      | 0.683 |       |       |       |                      | 0.683 |       |       |       |
| DU23  | 0.643                | -0.391 | -0.173 | -<br>0.143 | 0.254  |                      | 0.529 |       |       |       |                      | 0.529 |       |       |       |
| DU18  | 0.636                | 0.295  | -0.411 | -<br>0.174 |        |                      |       | 0.748 |       |       |                      |       | 0.748 |       |       |
| EX10  | 0.626                | 0.407  |        | -<br>0.137 | -0.198 |                      |       | 0.701 |       |       |                      |       | 0.701 |       |       |
| EX13  | 0.568                | 0.235  | 0.248  | -<br>0.368 | 0.359  |                      |       | 0.692 |       |       |                      |       | 0.692 |       |       |
| EX15  | 0.527                | -0.446 | 0.375  | -<br>0.224 |        |                      |       | 0.645 |       |       |                      |       | 0.645 |       |       |
| PE7   | 0.517                | -0.413 | 0.488  |            |        | 0.479                |       | 0.497 |       |       |                      |       |       |       |       |
| PE5   | 0.508                | 0.309  | 0.271  | -<br>0.214 | 0.377  |                      |       |       | 0.777 |       |                      |       |       | 0.777 |       |
| EX9   | 0.446                | 0.366  |        | -<br>0.431 |        |                      |       |       | 0.733 |       |                      |       |       | 0.733 |       |
| PE2   | 0.525                | 0.572  |        | 0.295      |        |                      |       | 0.450 | 0.680 |       |                      |       |       | 0.680 |       |
| PE1   | 0.309                | 0.519  | 0.156  | 0.403      | 0.179  |                      |       |       |       | 0.672 |                      |       |       |       | 0.672 |
| PE3   | 0.475                | 0.220  | 0.283  | 0.508      | 0.347  |                      |       |       |       | 0.606 |                      |       |       |       | 0.606 |