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Welfare Enhancement through Social Innovation: Balancing State Direction and Grassroots Action*

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Abstract: This article advances the understanding of social innovation (SI) by examining how public policy frameworks support the development of robust SI ecosystems in dynamic contexts. Using a hybrid framework that integrates ecosystem theory—highlighting multi-actor interdependencies—and Mazzucato's entrepreneurial state theory—emphasizing the state's market-shaping capacities—the study offers a new lens to assess public interventions. It asks: How can public institutions address key challenges to expand and implement SI within growing ecosystems? The research design employs a systematic qualitative approach, bridging a content analysis of key international reports and policy documents with original qualitative field data from the author's doctoral research. This empirical foundation includes semi-structured interviews with 25 public officials across six ministries, conducted between July 17, 2015, and March 18, 2017, to explore institutional strategies and barriers within a growing ecosystem. The study identifies six core public sector roles: initiator, facilitator, resource provider, capacity builder, catalyser, and regulator. Findings show that public institutions operate not as passive enablers but as entrepreneurial actors that de-risk innovation, coordinate stakeholders, and embed SI principles in institutional structures. By combining collaborative ecosystem dynamics with entrepreneurial state functions, the article demonstrates how governments can strategically shape, scale, and sustain inclusive and transformative SI ecosystems while overcoming systemic barriers.

Keywords: welfare economics, social innovation, public policy design, ecosystem theory, entrepreneurial state, well-being

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Introduction

Social innovation (SI) has gained significant attention in innovation research (Moulaert et al., 2017; Nicholls & Murdock, 2012b; Rao-Nicholson et al., 2017; Tracey & Stott, 2017; Ziegler, 2017). Stakeholders at local, regional, and national levels acknowledge the importance of SI in effectively addressing the social, economic, political, and environmental challenges of the twenty-first century (Domanski et al., 2020). However, a sustained and systematic analysis of a thriving social innovation ecosystem, its underpinnings, characteristics, and requirements has been lacking.

The humanitarian and socioeconomic crisis triggered by COVID-19, coupled with current social and environmental challenges, has had impacts on a scale that have transformed, and will continue to transform, the economy and society across various contexts. Specific implications are already evident across areas of public health (e.g., pressure on primary care as well as social care and the social determinants of health); local and global economies (e.g., sector disruption, and the impact on global supply chains) and public budgets (e.g., greater health and welfare expenditure and the need to raise tax revenue)(Bozkurt, 2020; Daly, 2020; Montgomery & Mazzei, 2021). These developments compel policy makers at both the local and state levels to turn their attention to the innovative practices that citizens, in a bottom-up manner, undertake to meet their needs when state and market institutions fall short of meeting the population's requirements.

Although the term SI is a buzzword, its most common definition describes it as the introduction of new social relations that involve new ways of doing, organizing, framing, and knowing (Avelino et al., 2019). Beyond being a popular term, social innovation functions as a critical social policy tool for local, regional, and national governments to enhance citizen well-being and address unmet social needs (Ates, 2020). SI refers to a wide range of developments, including community currency, community-supported agriculture, maker spaces, time banks, and crowdfunding or new sharing schemes (Ates et al., 2019; Ates, 2020; Avelino et al., 2014; Moon & Hwang, 2018; Stiver et al., 2015). Thus, SI practices are embedded within these periods of economic and societal upheaval and form something of a nexus for understanding responses to periods of radical uncertainty about the future. For instance, a report by NESTA examines, along with innovative technologies, SI approaches ("disruptor"s) that already exist, are within our grasp, and have the potential to make a significant impact on reducing carbon emissions in the UK (Willis et al., 2007). These disruptors resemble social entrepreneurs that ultimately fulfill both a

social need —carbon reduction— and a consumer need. They provide a public good that is undersupplied by markets. In this sense, they resemble social entrepreneurs in other sectors, such as healthcare or education. .

Given that similar SI practices are in place around the world, governments face the challenge of fostering a supportive ecosystem where these bottom-up initiatives can fulfill their potential. This process is also associated with the emergence of new institutional forms involving economic and civil society stakeholders (Moulaert & Ailenei, 2005), —namely, a shift from the idea of "government" to that of "governance" (Shucksmith, 2012). Just as innovation ecosystems foster technological advancements, regional growth, and sustainability shifts, a supportive ecosystem for SI, comprising essential conditions and support structures, is vital for the flourishing of socially innovative initiatives (Oh et al., 2016; Pel et al., 2020). Accordingly, this article aims to illuminate the conditions under which a socially innovative governance can flourish.

In light of these strategic considerations, we address the following questions: how SI spreads, how it can be stimulated, and what a favorable SI ecosystem looks like. How can public institutions contribute to the proliferation and implementation of SI in growing ecosystems to overcome challenges and obstacles? To answer this, we examine data and best practices from actors involved in growth-stage SI ecosystems.

Enabling well-being and social progress: Recognizing the power of the SI ecosystem

With the emergence of new participatory and human-centered approaches to public policy and the renewal of existing approaches, embracing an SI approach has significant potential to solve "tackled" social problems at all levels (Joy et al., 2021). Particularly in some developing countries where the federal state is strong, there is considerable potential for scaling up SI. This requires a supportive SI ecosystem, the enhancement of public awareness regarding its successful applications, and the support of new ideas in various policy areas. The ecosystem concept takes into account the networked, and co-produced agency that characterizes contemporary innovation (Etzkowitz & Leydesdorff, 1995; Papaioannou et al., 2009; Rinkinen & Harmaakorpi, 2018). The SI ecosystem attracts increasing attention and expectations from civil society, governmental bodies, and non-profit organizations, all aiming to realize its full potential. The quest to understand how to increase the role of civil society, citizens, and public agents in solving social problems, sustaining and improving the well-being of people has triggered interest in the concept (Ates et al., 2019). For some developed countries, including the

EU, the United States, the UK, and Japan, SI and its ecosystem are considered essential for achieving sustainable and inclusive growth (Eriksson et al., 2014; Fujisawa et al., 2015).

SI is expected to become a mainstream concept in the politics of other governments considering heterogeneous policies and measures to support public goods provision or generally strengthen their countries' innovative capabilities through non-public sector means (Reinstaller, 2013). It is a widespread belief that SI is crucial to achieving maximum social inclusion and justice, as the current era requires new approaches to a variety of issues: the difficulties of the elderly; changes in working life; new risks and needs in households, especially families with children; the challenges of creating gender equality; and the sustainability of everyday quality of life within planetary boundaries (Esping-Andersen, 2002).

The emergence of multiple global challenges, including COVID-19 and environmental risks was underpinned by a widespread shift from government toward "governance". The failure of the state to promote an all-inclusive governance was one of the most significant factors that prompted this shift, as well as its ineffectiveness in regulating the processes and consequences of globalization (Shucksmith, 2010; Epp & Whitson, 2001). Traditional state forms have often been presented as hierarchical and bureaucratic in the face of these shortcomings, as well as inefficient in addressing the global and local challenges of the twenty-first century. These considerations led to redefinition of the state in building a thriving SI ecosystem as "coordinator, manager or facilitator, rather than as provider and director" (Shucksmith, 2010).

An appropriate ecosystem is a crucial prerequisite for the development and proliferation of socially innovative initiatives. Although some believe that the state's involvement might limit the competition of ideas among civil society and other actors (Caulier-Grice, 2010; MacCallum, 2009). It has also been argued that supporting and enabling a fertile ground for SI to achieve collective well-being is public responsibility (Moulaert & Nussbaumer, 2005; Novy et al., 2012). Previous studies revealed that policymakers are largely convinced that conventional approaches are falling short in providing solutions to the state-of-the-art challenges of the current era, including the difficulties of the elderly; changes in working life; new risks and needs that arise in households, especially families with children; the challenges of creating gender equality; and the sustainability of everyday quality of life within planetary boundaries (Ateş, 2017). In this framework, countries are expected to introduce new systems, processes, values, services, institutions, products, and po-

licies that overcome social challenges while simultaneously contributing to social and economic development. The need for innovative approaches, ideas, and practices, as well as SIs that guide these transformations in the right direction and create new opportunities, is greater than ever before.

Exploring the role and potential of public sector in fostering social innovation ecosystem

Today, the public policies implemented by countries are undergoing various transformations in line with multifaceted global developments.On the one hand, the existing models are insufficient in fulfilling social demands. On the other hand, the unprecedented challenges faced by countries with limited budgets, coupled with economic uncertainties, have revealed the need for civil society and the private sector to play a role in realizing these demands (Ates, 2020). In governance, SI relates to community participation and empowerment (Lindberg & Portinson Hylander, 2017) and mainly supports the community's capacity to participate in collective processes (Jungsberg et al., 2020). To achieve this, it expands the governing space by including non-traditional, marginalized actors with a view to establishing a supportive ecosystem for SI (Moulaert et al., 2007; Bock, 2012). The term "stakeholder" gains currency against this background, driven by a bio-political engineering of the social toward greater individualized responsibility (Maclean et al., 2013) . The inclusion of civil society relates to the use of modern governmental technology (Foucault, 2014).

An "innovation ecosystem" describes a cooperative endeavor involving various sectors, where organizations collaborate to generate value through shared innovation goals, utilizing strategies like co-creation, co-evolution, co-specialization, coopetition, ecosystem orchestration, and governance (Jütting, 2020). Tools employed to achieve this shared value creation include regulations, user practices, cultural meanings, infrastructure, maintenance, and supply networks (Silva-Flores & Murillo, 2022). However, the establishment process of a thriving SI ecosystem faces several key challenges that threaten its efficacy. As public policy is such a powerful tool to drive social change, the role of public policy in promoting the SI ecosystem is vital. By understanding the challenges that actors face in these innovation systems, policymakers can enact policies that most effectively spur positive change. The implementation of SI by different welfare regimes, the structure of political and local institutions, and their supporting tools have a significant impact on the emergence of the SI ecosystem and its sustainability. There are three features that distinguish SI insights from other approaches to public management.

First, SI emerges from and develops innovation theory and management to achieve social and public policy objectives. Secondly, SI has a collaborative nature. The main role of public institutions is to cooperate with creative and productive social innovators (can also be a public manager) to identify current problems together and offer potential solutions. Thirdly, it aims to benefit from SI in order to increase society's innovation capacity and to enhance social welfare and well-being by creating new collaborations between the state and citizens (DeMille et al., 2018). Consequently, policymakers and public administrators are expected to support and encourage individuals, non-governmental organizations, universities, and private sector entrepreneurs financially and non-financially to increase awareness of SI ecosystem and foster its scaling at national and global levels.

A framework for the SI ecosystem incorporates the larger context within which organizations function. This framework is especially critical for SI agents who must navigate intricate systems involving various actors within swiftly changing political, economic, physical, and cultural landscapes (Bloom & Dees, 2008). The policy types and categories to support SI initiatives at the local, regional and national levels can be conceptualized as follows (see Figure 1).

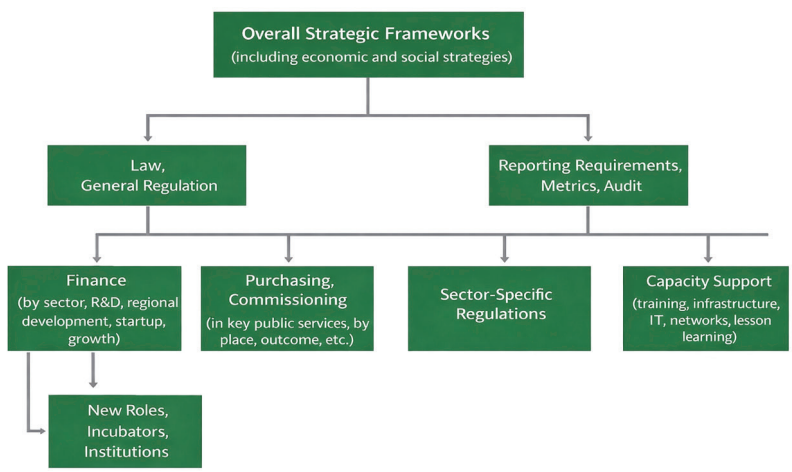

Figure 1: Policies To Support SI (Source: Own elaboration)

Each of the aforementioned categories is regarded as a tool that directly or indirectly promotes the SI ecosystem in terms of providing solutions to social problems and needs. Individual or participatory budgeting, social return on investment

(SROI), social entrepreneurs and incubation centers are examples of best innovative practices. Essentially, the development and growth of the SI ecosystem depend on the existence of effective supply and demand (Westley & Antadze, 2010). To create social value, countries can play an implementing role in fostering SI solutions through their public units. As a matter of fact, many innovation units and labs that contribute to designing innovative methods and instruments have been established in recent years to integrate them in policy-making processes. While some of these units and labs operate within the public sector, some others carry out their activities as independent centers supported by public institutions as stakeholders (Boelman & Heales, 2015). Therefore, horizontal, networked, and collaborative institutional structures between active agents are the socially innovative forms of governance that promise to resolve the major challenges of the twenty-first century, such as demographic aging, global security, climate change, and shortage of resources (Swyngedouw, 2005; Neumeier, 2017; Benneworth & Cunha, 2015).

Theoretical framework and methodology: A hybrid approach to social innovation ecosystems

This study employs a hybrid theoretical framework integrating ecosystem theory (ET) and Mazzucato's entrepreneurial state theory (EST) to analyze how public institutions foster SI ecosystems (Moore, 1993; Adner, 2017; Mazzucato, 2011). The research design follows a systematic qualitative approach, moving beyond a purely conceptual framework to analyze empirical policy instruments across diverse contexts. While ET emphasizes the interdependence of diverse actors—governments, NGOs, businesses, and civil society—in co-creating value through collaborative networks, EST redefines the state's role as a bold investor and risk-taker, positioning it not as a passive market fixer but as an active market shaper that drives systemic change. Together, these theories provide a nuanced analytical lens for understanding how policy frameworks can simultaneously orchestrate multi-stakeholder collaboration (ET) and advance mission-oriented innovation (EST).

The research design bridges a content analysis of key international reports and policy documents on the role of the state or government in promoting and implementing social innovation, including the OECD and EU perspectives on public sector innovation ecosystems, the Young Foundation/NESTA guides for policymakers, and the UNDP insights on social innovation for public service excellence. These sources provide empirically informed insights into effective institutional strategies and state roles worldwide. This empirical foundation is complemented by original field data from the author's doctoral research—which explored the state's role in supporting

social innovation in Türkiye through semi-structured interviews with 25 public officials across six ministries and a qualitative analysis of public sector practices. Prior research investigating the awareness of social innovation among Turkish policymakers has revealed that while innovative practices exist, the conceptual framework remains inadequately comprehended, often associated primarily with EU accession processes (Ates, 2019; Ateş, 2020). Through these systematic thematic analysis, this study critically examines the role of public institutions in advancing social innovation, highlighting how they strategically function as initiators (setting agendas and triggering early-stage momentum), catalysts (scaling high-impact innovations through targeted interventions), funders (de-risking social innovation via strategic resource allocation), facilitators (orchestrating stakeholder collaboration and governance), capacity builders (enhancing ecosystem resilience), and regulators (designing incentive structures and accountability mechanisms)(See Figure 2).

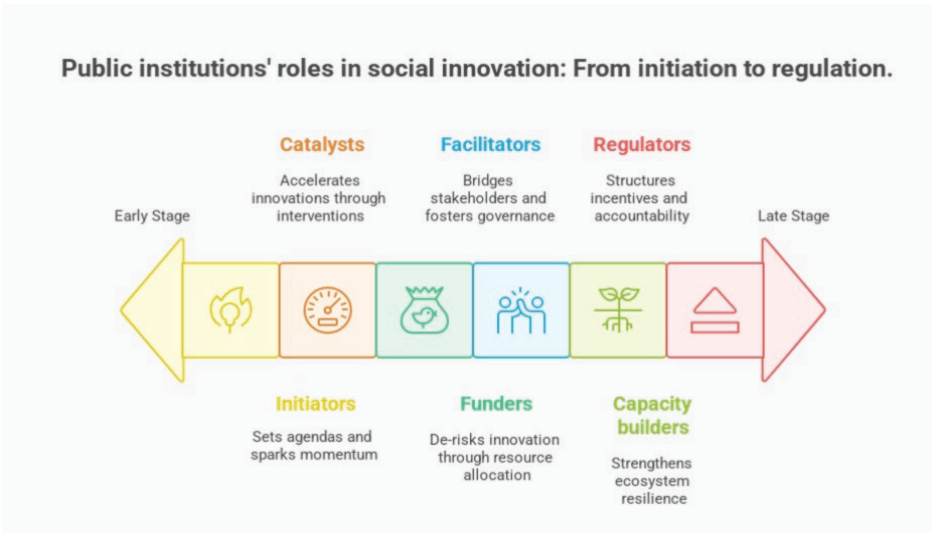

Figure 2: Public Institution's Roles in Supporting Social Innovation Ecosystem (Source: Own elaboration)

The systematic search and analysis were complemented by primary field data collected during the doctoral research period, with semi-structured interviews conducted with public officials between July 17, 2015, and March 18, 2017. By examining empirical cases and policy instruments from these high-growth contexts, this paper demonstrates how public institutions can balance top-down direction with grassroots empowerment, ultimately shaping SI ecosystems that are both inclusive and transformative.

The state as an implementer and initiator of SI

An ecosystem encompasses the necessary resources (financial, human, social, political, and intellectual capital) crucial for the prosperity of the SI ecosystem, as well as the external conditions (like public policy, media, economic and social factors, and related contexts) that may either bolster or hinder the advancement of socially innovative initiatives (Nicholls & Murdock, 2012a). There is no doubt that the public sector is one of the leading actors providing social benefit. The public sector is the main source and provider of public services in a country enabling all citizens to equally benefit from common services (Boelman & Heales, 2015). The public sector's large budget, organizational and administrative capacity, and ease of resource access—alongside the political infrastructure, regulatory institutions, and implementation networks—constitute tools that enable systemic change (Mguni et al., 2012). Thus, both in developed and developing countries, public sector is seen as one of the most influential actors for SI. Christian Bason, the director of the government-led innovation lab "Mindlab" in Denmark, points out the pivotal role of the public sector as follows (Bason, 2018):

- To manage human resources that will build innovation capacity at all levels of public bodies,
- To develop regulatory mechanisms that involve citizens in decision-making processes and create new solutions,
- To shift from ad hoc innovations to a conscious and systematic approach to renewing the public sector,
- To not only manage public institutions but also enable a shift toward pioneering innovation in other sectors.

Table 1 illustrates the cases in which public bodies are the source of SI.

Table 1

Public bodies as a source of SI

Institution / Initiative(-Country)	Funding / Affiliation	Core Objectives / State's Role as Initiator and Implementer of SI	Key Interventions and Contributions
Mind Lab **(Denmark)**	Different ministries of the state in Denmark	Established by ministries to generate key policy ideas, create a shared national vision, and model public sector innovation.	Focuses on producing systemic, co-created innovative solutions across central government levels.
Strategies with Kids – Information for Parents (SKIP) **(New Zealand)**	Funded and managed by the Ministry of Social Development (MSD)	This state-initiated family program (active since the early 2000s) enables positive parenting; the government acts as a direct initiator and implementer of preventive SI.	Initiates nationwide parenting seminars, training modules, and materials; integrates community ideas into state programs; and funds local NGOs for grassroots innovation.
Office of Social Innovation and Civic Participation **(USA)**	White House /and Domestic Policy Council (Obama Administration, 2009–2017; archived)	Designed (2009–2017) to optimize public resources and catalyze cross-sector solutions; positioned the state as a proactive initiator of systemic SI.	Initiated strategy development, cross-sector coordination, and resource mobilization; supervised SI projects and disseminated best practices.

Public Services Innovation Lab (Design Thinking Unit) **(Singapore)**	Public Services Division (Prime Minister's Office); supported by the UNDP Global Centre for Public Service Excellence (established 2013; ongoing)	Dedicated to redesigning public services through human-centered design; embeds citizen-inclusive and SI-oriented approaches in policy formulation.	Provides consultancy, coaching, and design thinking workshops; promotes innovative mindsets and executes participatory public service reforms.
Helsinki Design Lab (HDL) **(Finland)**	Funded by the Finnish Innovation Fund SITRA (operated 2008–2013; closed 2013)	Designed to equip government leaders with holistic problem-framing tools; positioned the state as an initiator of systemic redesign.	Implemented strategic design interventions to reframe policy problems; provided decision-makers with guidance and produced actionable change frameworks.
Behavioural Insights Team (BIT) – "Nudge Unit" **(UK)**	Initially established by the UK government; partnership with Nesta, it is now a social purpose company owned by Nesta (established 2010; active and global in 2026)	Established in 2010 to translate evidence-based insights into policy design; positions the state as a foundational initiator and implementer of nudge-based SI.	Conducts randomized controlled trials and experiments; implements scalable interventions in public administration; and disseminates behavioral policy tools globally.
Centre for Social Impact (CSI) **(Australia)**	This university consortium includes UNSW Sydney, Swinburne, UWA, Flinders; it operates through cross-sector partnerships (established 2008; active in 2026)	Aims to build collective social impact capacity through research, education, and collaboration; the government acts as an indirect initiator via strategic partnerships.	Implements impact assessment tools, education programs, and research; facilitates collaborative knowledge production; and drives systemic change through cross-sector alliances.

Source: Authors own elaborations

It has been previously stated that the public authorities play different roles in the development, dissemination, and execution of the SI ecosystem, such as initiators, facilitators, resource providers, capacity builders, catalysts, and regulators. Furthermore, public institutions may assume a proactive role as an accelerator in the process of devising mechanisms to bolster the development of the SI ecosystem. Their multifaceted engagement in initiating, catalyzing, and supporting innovative endeavors is believed to exert a significant influence on the emergence, maturation, and dissemination of grassroots innovations. Recently, many states have turned to being the catalyst for innovative initiatives towards civil society, the private sector, third sector organizations, and citizens. In carrying out this approach, they also reshape public policies through professional support. This perspective, called design thinking, brings stakeholders into the SI process, and disseminates certain responsibilities to each stakeholder, and invites them to play an active and constructive role in shaping decisions. Public service innovation laboratories and design centers bring together different stakeholders and conduct hands-on analyses on how new public services or existing services can be provided or redesigned in more efficient and effective ways.

The role of the state as facilitator, accelerator and motivator

In addition to supporting social enterprises through public procurement, public bodies play a substantial role in providing financial, informational, and human resources to social innovators (social enterprises, cooperatives, and NGOs). Furthermore, there are examples around the world where states develop mechanisms to support and develop communication networks between actors generating SI, to encourage citizen participation and to establish the legal framework of social entrepreneurship to strengthen social ties. There are many structures that lead to capacity building and create synergies in the field of SI through cooperation at different levels and intensities around the world. These organizations play an undeniable role in the discovery, realization, funding, and sustainability of their social innovative ideas. Some of these initiatives are summarized in Table 2, which highlights mechanisms such as Innoweave, founded in Canada, which supports users and practitioners in the field of SI; Nesta in the UK, which develops various tools for applications that will benefit society; and the Rockefeller Foundation in the USA, which brings together alternative, innovative, effective, and practical instruments to address social challenges. These examples represent key structures that make capacity-building resources available to institutions and organizations.

Table 2

Capacity Building Supports to Social Entrepreneurs by Public Institutions

Name of the Mechanism	Country / Region	Type of Support
Innoweave	Canada	Initiating capacity building through collaborations, supporting users and practitioners operating in the field of SI.
NESTA	UK	Systematic knowledge production in the field of SI, conducting scientific research, developing prototypes, reporting SI examples, and providing access to funding sources.
Knowledge / Experience Sharing Platforms	General	Providing an open data flow on issues such as climate change, biodiversity, and poverty; bringing together different actors and components by playing a catalyst role in the field of SI.
Social Investment Cooperation Fund	General	It provides technical support to social entrepreneurs, advising on issues such as public service contracts and how to find new sources of finance.
Mi Chacra Emprendedora	Peru	Increasing income-generating activities by strengthening the capacities of households and entrepreneurs living in poverty, increasing product diversity, and encouraging farmers to introduce new products to the market.

Source: Authors own elaborations

Ensuring capacity building in terms of SI is primarily possible through access to information and the use of acquired knowledge. Knowledge sharing platforms, created to provide an open flow of information on twenty-first-century challenges—such as climate change, biodiversity loss, and poverty—offer cross-country knowledge and experience to address global problems for social benefit. Thus, innovative information and methods that meet the needs of societies serve all humanity with less energy consumption (Mulgan, 2018). Another example of capacity building for social enterprises is the Investment and Contract Readiness Fund, which operates

in the UK with a £10 million budget. This fund, developed through cross-sector participation, is managed by a third party board where representatives from relevant sectors come together. This initiative also provides social entrepreneurs with technical support, consultancy on public service contracts, and guidance on identifying new financial resources.

Financial support for SI by public bodies and leveraging public procurement

In many countries, public institutions provide indirect and/or direct financial resources, both through their own institutions and out-of-state actors, in various fields with the goal of improving the potential and capacity of the SI ecosystem and increasing the level of well-being of citizens. Organizations and innovators (such as social entrepreneurial individuals or firms, cooperatives, associations and foundations) that bring SI solutions to the field of application also produce and develop mechanisms to support them through various methods. In this context, it is important for the public institutions to provide some financial resources and/or take an active role in mobilizing other funder sectors in order to strengthen these organizations and facilitate more effective and quality services related to SI. In other words, the state, which is considered as the most reliable entity in many countries, can take a leading role in encouraging the private sector in supporting SIs. Examples of the state's role as a resource provider include the different forms of policy practices of the governments in the USA, UK, Slovakia, Portugal, Australia, China and Peru, especially in many EU countries. SI plays a transformative role in alleviating poverty, moving beyond traditional top-down methods to implement grassroots solutions such as the KIVA online crowdfunding microcredit platform, which creatively de-risks entrepreneurship for vulnerable groups (Ateş, 2023).

Table 3

The Role of the State as a Financial Resource for Social Innovators

Name of the Mechanism / Country	Type of Fund / Region	Explanation / Type of Support
EaSI and other EU Programs	EU (International)	It supports sustainable employment and fights social exclusion and poverty. The program is divided into three axes: PROGRESS (61%), EURES (18%), and Microfinance/Social Entrepreneurship (21%) with a total budget of €919,469,000.
Big Society Capital (BSC)	UK	It is an independent social investment company with £600 million in capital. It invests in projects that create social impact by using funds from dormant bank and building society accounts.
CEDIF	Canada	It was established with government support to provide local businesses and social enterprises with alternative funding from a pool created via corporate tax income.
SI Fund (SIF)	USA	SIF operates under the US Federal Government with a budget of over $800 million. It prioritizes economic opportunities, healthy living, and youth development through public-private cooperation and "What Works" models. The SIF has provided financial resources to 35 intermediary institutions and 290 non-governmental organizations across the USA for social needs and solutions.
Portuguese SI Fund	Portugal	It is financed by EU Structural Funds (€150 million) under the Ministry of Development. The fund aims to consolidate and expand social enterprises while supporting new forms of social innovation.

Source: Authors own elaborations

As shown in Table 3, state-funded financial mechanisms such as the EU *Employment and Social Innovation Programme (EaSI), The Big Social Capital* in the UK, the *Social Innovation Fund* in the US, the Investment Fund for the Economic Development of Society in Canada, the Portuguese Social Innovation Fund make up a few of the funds created to develop and spread social innovations. On the other hand, social impact bonds which were first implemented in the UK and then spread to countries such as America, Canada and Australia are considered as an alternative funding method. With an aim of providing financial resources to SI solutions, public authorities motivate private equities to support Social Impact Bonds through investment (Warner, 2013). Social Impact Bonds (SIBs) have found more application areas in recent years as an innovative financing model, which aims to reduce government spending on the social space in the long term and lead to positive social change. Furthermore, this method has the potential to improve targeted outputs, overcome barriers to SI and encourage investment in cost-saving protective services while also bringing together a performance-based payment system and professional market discipline (Azemati et al., 2013). This promising innovative approach to the financing of services for social welfare by the state can also attract interest from the private sector given that appropriate regulation and incentive mechanisms are in place.

Socially innovative public procurement

Public procurement is one of the main policy tools that will mobilize and nurture the local dynamics of countries (such as products, resources, and services). Public procurement, which was an important industrial policy tool used by developed countries such as the USA and Japan in the past, is now handled in a much broader context. Economic and human development are supported in many ways, especially through "innovation-based public procurement" policies (Yülek & Tiryakioğlu, 2013). In general, it is observed that the public procurement policies of many countries lack robust support for SI—a vital tool for advancing human development alongside economic progress (Boelman & Heales, 2015). Furthermore, due to the lack of a legally binding framework governing cooperation between the public sector and small enterprises in tender processes, government institutions remain reluctant to work with social enterprises.

The Town of Qualicum Beach, located within the borders of British Columbia, put into effect Canada's first "Social Public Procurement Policy" in June 2016. Previously, British Columbia had created the "Social Impact Procurement Guide", while the town of Cumberland created the "Social Public Procurement Draft" (Chandra

& Young, 2017). These steps taken on a regional basis are important in terms of providing the effect that will facilitate the emergence of SI. In England, the legally binding Social Value Act establishes a framework that requires social benefit to be taken into account at the beginning of the public tender process (Boelman & Heales, 2015). The guaranteed employment project implemented by the Istanbul Development Agency in 2022 is an example of innovative public procurement. The project aimed at training and employing a workforce possessing the knowledge, skills and abilities required by the software industry. Public procurement was based on performance rather than direct payments to the awarded companies. According to the framework of the program, €3,000 was paid for each young person who received software training and subsequently worked in a company for at least six months after the training.

Mechanisms of promoting SI infrastructure and capacity building

While the state plays a leading role in the development and dissemination of the SI ecosystem and its associated capacity, it also bears the responsibility of auditing whether related SI practices have fulfilled their desired functions. For this purpose, states employ various mechanisms, including funding initiatives operating in this field, conducting research, providing education and training, and supporting related academic studies. Among the most important issues at the global level are policy areas covering a wide spectrum such as health and social protection, fighting poverty, increasing social welfare, early intervention policies, aging, education, and regional economic growth (Alexander & Letwin, 2013). SI laboratories such as Mindlab (Denmark), LivingLab (EU), SI Generation (Canada), La 27e Region (France) are established within public institutions and serve as resources of SI. Additionally, some initiatives operate mostly independently of the state and focus on making evidence-based assessments using academic knowledge. Countries such as the USA, the UK, and Norway provide examples of such structures that operate on a regional, national, and international scale. Table 4, policy testing and evaluation centers based on evidence and scientific data, which are directly and/or indirectly supported by the state, are compared.

Table 4

Centres for Testing and Evaluating Evidence-Based Innovations

Institution/ Country	Area of Activity	Supporting Institutions
J-PAL, **USA**	Founded in 2003, The Abdul Latif Jameel Poverty Action Lab (J-PAL) was formed by the gathering of 131 academics from over 40 universities. The centre, which have six regional offices worldwide, carry out many studies in social policy including microcredit, public health, agricultural education and capacity building.	A wide variety of stakeholders—including governments, public institutions, the private sector, NGOs, universities—support the institution.
What Works Centres, **UK**	In these centres, analysis studies are carried out on the classification of social innovative initiatives, highlighting useful examples, and evaluate the impacts of these initiatives in their respective fields.	Relevant ministries, the UK National Lottery Public Administration, universities.
The Campell Collaboration, **Norway**	Within the scope of the Institute, worldwide examples in the fields of crime, justice, education, international development and social welfare are systematically followed and analyzed scientifically.	Various institutions, including both public and private sector affiliates, participate in this formation.

Source: Authors own elaborations

The above-mentioned organizations help support SI and create an ecosystem by providing the most effective interventions and practices that are known and measurable, especially in the fields of social policy.

Public Institutions as catalyzers: Promoting civic participation and amplifying social contribution

The growing importance of the SI ecosystem and SI practices highlights the need to foster citizen involvement in SI solutions and enhance social connections. First of all, it is necessary to understand social challenges thoroughly in order to devise and execute effective solutions. In traditional public institution models, citizens typically lack the "big picture" and often do not have a say in the development of new solutions (Boelman & Heales, 2015). Instead, policy makers, public servants and representatives or leaders of non-governmental organizations often prefer to address social issues without direct engagement with the affected communities. Therefore, it is vital to motivate, encourage and empower citizens to actively participate in developing and implementing SI solutions.

This situation often leads to applications that are far from responding to the social need in a real sense, causing a waste of resources and a loss of time. Regardless of the sector, the approach proposed by Davies et al. (2012) suggest that "social innovator citizens are experts in their own lives and no one can claim to take on this role" approach Therefore, it is vital that people in a region take an active role in solving the problem they face and be a part of the solution themselves. Another aspect that makes community participation necessary and valuable is that the individual is the source of the SI ideas (Boelman & Heales, 2015; Davies & Simon, 2013). Carstensen and Bason (2012) argue that citizens themselves are the source of innovation and "the driving force and source of inspiration for public sector innovation". In addition, Von Hippel (2005) emphasizes the importance of employing users with leadership capacity in generating new ideas. On the other hand, the people facing the problem have the potential to produce innovations with a different perspective than the state. Because the problems faced are so complex and transitory that producing a unique solution depends on the inclusion of different groups in the process, their diversity and the recombination of the parts of the whole (Westley et al., 2009). To exploit this resource, as illustrated in Table 5, the governments can support participatory co-design activities and competitions for generating innovative ideas, thereby maximizing the resulting social impact in various ways.

Table 5

Examples of Institutions Supporting Citizen Participation

Initiative	Country	Explanation
legislationlab.org	**Morocco**	This initiative, which took place in Morocco, contributed to the new constitution-making process undertaken by the King of Morocco, and the legislative proposals of the people were opened for discussion on the platform. Legal advisors appointed within the scope of the system informed the public about the potential outcomes of the proposed legislation. The draft constitution created through the system was submitted to the parliament, and approximately 40% of the final draft consisted of the articles submitted via LegislationLab.
Cheong-Chek (Policy by Listening) Forum (CCF)	**South Korea**	CCF, derived from the Korean words for "listening" and "policy", is a communication method aimed at public participation in the new policy development process for the city of Seoul. This entity supports citizen participation starting from the initial design phase of the policy-making process. Through town hall meetings, ideas and suggestions are collected, evaluated, and taken into account at the very beginning of the policy-making process (Kim et al., 2015).

Source: Authors own elaboration

All these methods are innovative SI practices that provide the fastest, easiest and most effective way to meet a need or solve an entrenched problem in a society.

Public Institutions as catalyzer: New legal regulations

When it comes to establishing a supportive ecosystem for SI, one of the integrative roles of the state is the preparation and implementation of new legal regulations that will produce social impact. In this context, it is important to legally recognize social enterprises whose primary objective is to produce innovative solutions that will benefit society. Today, countries such as the USA, the UK, Belgium, Canada and Slovenia recognize social enterprises as a new legal form. In the USA, 40 out of 52 states have developed varying policies to accelerate SI, among which Vermont, Massachusetts, Maryland, and Illinois states have proposed and created new legal forms (such as L3C, Benefit Corporation, SIBs) that will support SI compared to the others (Berzin et al., 2014). Legislation, policies, and programs for SI vary in different regions and provinces of Canada. Among these, the provinces of British Columbia, Quebec, Ontario, Manitoba, Nova Scotia, Alberta, and Saskatchewan have implemented practices that enhance the visibility of social enterprises at both legal and financial levels (Volynets, 2015). As stated before, social enterprises with similar or different characteristics on the basis of countries use their income to reach their social missions and reinvest almost all of their profits to spread this social mission again (Boelman & Heales, 2015). Examples of different forms of social enterprises whose primary goal is to provide social benefit are given in the Table 6.

Table 6

Examples of Countries with Legal Status of Social Enterprises

Country	Legal Status	Purpose of the Institution
USA	Low-Profit Limited Liability Companies (L3C)	The L3C structure was established in 2008 with an understanding that transcends the borders between the private and civil society sectors. Its primary goal is to create social benefit, unlike the classical company status. These taxable companies cannot be funded by tax-exempt donations.

USA	Benefit Corporations	This is a legal status that supports for-profit organizations with a defined social mission. This dual-purpose structure, which gained legal status in 2010, primarily works for the creation of social value and for the interests of investors and shareholders.
UK	Community Interest Company (CIC)	CICs are designed to carry out initiatives that will produce results for the public benefit and where the social benefit is defined by the regulatory authorities.
Belgium	Social Purpose Company	The profits made by these companies are not used for the profit maximization of the partners, but rather reinvested for social benefit purposes. Relevant conditions are determined by law.
Slovenia Social Entrepreneurship Law (2011)	Nonprofit Legal Entities	This includes cooperatives, companies, institutes, and foundations that carry out activities related to social assistance, family assistance, protection, and education.

Source: Authors own elaboration

In the UK, the government has strongly supported social entrepreneurship through a series of policy documents and established organizations since the late 1990s. In this sector, which has a highly developed institutionalized support structure, the number of entrepreneurs has increased rapidly. According to statistics, social enterprises in the UK, which were around 5,300 in 2003 (Healey, 2015), exceeded 100,000 as of 2025 (Social Enterprise UK, 2025). More than 11,000 Community Interest Companies (CICs) have been established since 2005, and the number of financial instruments to support the growth of this movement has increased significantly in the last five years. In this context, social enterprises are estimated to contribute approximately £78 billion to the economy while providing employment for 2.3 million people. An organization can operate as an NGO, cooperative, or company while carrying out social enterprise activities. The recognition of social enterprises as a separate legal form makes them more sustainable. As a result, social enterprises are becoming one of the key actors in the SI ecosystem.

Conclusion

This study employs a hybrid theoretical framework integrating Ecosystem Theory (ET) and Mazzucato's Entrepreneurial State Theory (EST) to analyze how public institutions foster SI ecosystems (Adner, 2017; Moore, 1993; Mazzucato, 2011). While ET emphasizes the interdependence of diverse actors—governments, NGOs, businesses, and civil society—in co-creating value through networked collaboration, EST redefines the state's role as a bold investor and risk-taker, positioning it not merely as a market fixer but as a proactive market-shaper that drives transformative change. Together, these theories provide a nuanced analytical lens, enabling an examination of how policy frameworks can simultaneously orchestrate multi-stakeholder collaboration (in line with ET) and drive mission-oriented innovation (according to EST). Building on this framework, the study investigates growth-stage SI ecosystems—contexts where nascent innovations transition toward systemic impact—through a combination of empirical case analysis and cross-regional best practices. Our research highlights six critical roles of the public sector in shaping resilient social innovation ecosystems, strategically functioning as initiators (setting visionary agendas and igniting early-stage momentum), facilitators (bridging silos and building trust among diverse stakeholders), resource providers (mobilizing financial, infrastructural, and knowledge-based capital), capacity builders (enhancing ecosystem actors' skills and institutional readiness), catalyzers (accelerating high-potential innovations through targeted interventions), and regulators (designing incentive structures and governance mechanisms to align public and private interests).

Our findings reveal that public institutions act not merely as passive enablers but as entrepreneurial accelerators, leveraging policy tools—such as challenge grants, innovation hubs, and participatory governance models—to de-risk experimentation, coordinate fragmented stakeholders, and embed SI principles into institutional structures. Crucially, this study bridges Ecosystem Theory's focus on organic, bottom-up collaboration with the Entrepreneurial State's top-down strategic direction, demonstrating how public institutions can balance centralized leadership with distributed agency. By doing so, the paper contributes a policymaking blueprint for transforming the SI ecosystems from fragmented initiatives into scalable, systemic solutions—offering valuable insights for scholars and practitioners navigating the intersection of public policy, innovation economics, and social change.

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Economic Complexity and Institutional Quality in OIC Countries: Evidence from a Panel Fourier Causality Analysis

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Abstract: This study examined the relationship between economic complexity and institutional quality indicators in the member states of the Organization of Islamic Cooperation. A balanced panel dataset covering the period 2002-2023 was constructed using the Economic Complexity Index and the indicators of Rule of Law, Control of Corruption, and Efficiency of Public Administration. The analysis employed the Panel Fourier Toda-Yamamoto causality approach, which allowed structural breaks and institutional fluctuations to be considered within the panel framework. The findings indicated a statistically significant one-way causality running from economic complexity to Rule of Law and Control of Corruption. However, no statistically significant causality was identified from institutional quality indicators to economic complexity in the short term. These results suggest that, in Organization of Islamic Cooperation countries, the development of economic structures plays an important role in shaping institutional mechanisms.

Keywords: Economic complexity, Rule of law, Control of corruption, Government effectiveness, Panel Fourier causality test

JEL Codes: O43, O57, C23

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Introduction

A country's long-term prosperity and growth potential depend not only on the accumulation of physical and human capital, but also on the knowledge intensity embedded in its production structure. Hidalgo and Hausmann (2009) developed the economic complexity framework as the most systematic expression of this approach. For them, the fundamental factor determining a country's productive capacity is "non-tradable capabilities", which are not directly observable but are integrated into production processes. Since these implicit capabilities cannot be measured directly, the method of reflections, based on the network structure between countries and the products they export, was developed. This method evaluates a country's export basket through the dimensions of diversity and ubiquity. Economies that export a diverse range of products, especially products produced by relatively few other countries, are considered to possess more complex productive capabilities (Hidalgo & Hausmann, 2009: 10570). Put differently, the production of high value-added and technologically advanced goods generally requires the integration of specialized and scarce capabilities. Accordingly, a country's capacity to manufacture and export relatively uncommon products can be interpreted as an indirect indicator of knowledge-based productive capacity. From this perspective, economically complex countries are those capable of exporting a wide array of sophisticated products, reflecting high diversification and limited product ubiquity. In contrast, economies concentrated on producing a narrow set of widely available goods tend to display lower economic complexity, indicating constrained productive capabilities (Vu, 2022: 1577).

Drawing on these conceptual foundations, economic complexity can be understood as a composite criterion that captures both the skill intensity and productive capacity of national economies, while simultaneously incorporating the ubiquity of exported goods and the range of countries involved in their production (Karanfil & Kılıç, 2022: 38). At its core, the concept rests on the premise that manufacturing any given good or service necessitates the integration of diverse and often tacit forms of knowledge. This integration creates the conditions for innovation and increasingly sophisticated production, making the economy a complex and continuously evolving system (Pérez Balsalobre et al., 2017: 2). The Economic Complexity Index, constructed in accordance with this reasoning, serves as a measure of the relative knowledge intensity embedded within a given economy (OEC, 2026). Notably, Hidalgo and Hausmann (2009) argued that economic complexity carries greater explanatory leverage than per capita income — not merely for accounting

for prevailing income disparities, but more critically for anticipating future trajectories of economic growth. In line with this view, Pérez Balsalobre et al. (2019: 4) and Khan et al. (2020: 374) argue that complexity-based economic indicators provide a more precise analytical lens for examining the long-term determinants of economic growth.

Economic complexity is both a technological-industrial phenomenon and a process fundamentally intertwined with institutional arrangements. Acemoğlu et al. (2010: 1370-1371) emphasize that a "cluster of institutions" –consisting of effective constraints on the state's power to expropriate, an independent and impartial judiciary, reliable protection of property rights, institutional arrangements ensuring equal access to education, and structures guaranteeing civil liberties – is a primary determinant that incentivizes investment decisions and supports long-term growth. Effective institutional frameworks enhance incentives for innovation-driven entrepreneurship, facilitate the development of human capital, and promote the allocation of labor toward the acquisition of productive competencies. This process fosters a structural transformation toward productive activities, enabling the emergence of more complex and knowledge-intensive production structures, thereby contributing to higher levels of economic complexity (Vu, 2022: 1571). Thus, economic complexity is an indicator that indirectly reflects both the technical content of the productive structure and the institutional infrastructure that sustains it. Research by Nawaz et al. (2014), Şahin (2018), Vu (2022), Hoang and Chu (2023), Şanlı et al. (2024), Shahabadi and Pouran (2024), D'Ingiullo et al. (2024), and Yay et al. (2025) demonstrates that institutional quality has a statistically significant and positive effect on economic indicators. However, economic complexity should therefore be understood as an outcome marked by institutional quality and, at the same time, as a structural force that may transform institutional arrangements over time. Hartmann et al. (2017: 77) similarly argue that the relationship between institutions and economic complexity develops through mutual interaction and co-evolution, rather than through a single direction of influence.

According to North's approach, institutions are the fundamental structures that define the framework of political, economic, and social interactions and guide individual behavior. North (1990: 3) defines institutions as the "rules of the game" that reduce uncertainty and shape incentive structures in human interactions. Simultaneously, institutions represent a broad ensemble of organizations encompassing political, economic, social, and educational spheres. In this framework, political institutions consist of political parties, parliaments, municipal councils, and regulatory agencies, whereas economic institutions comprise firms, trade unions, family busi-

nesses, and cooperatives. Social institutions include places of worship, NGOs, clubs, and sports associations; on the other hand, educational institutions cover schools, universities, and vocational training centers. These institutions are collective entities formed by individuals coming together around common rules and norms to achieve specific objectives (North, 1990: 5). In recent years, the concept of institutions has expanded to include numerous elements such as transaction costs, property rights protection, the rule of law, and political stability; as such, institutions have become a core analytical framework for analyzing relationships among economic actors and explaining how economic activities are shaped (Yamak, 2017: 66).

Institutions have a multi-layered structure composed of formal norms, such as legal regulations and official rules, alongside informal norms, customs, social beliefs, and established patterns of behavior. These formal and informal elements integrate around a common institutional core that determines how economic and political activities are conducted, guiding individual decision-making processes (North, 1990: 3). Consequently, institutions emerge as a fundamental determinant shaping economic performance and long-term development dynamics. Indeed, institutional structures can positively impact economic performance by reducing transaction and transformation costs, making interactions between economic units more predictable and secure, and limiting market failures. Effective institutions lower unnecessary transaction costs arising from asymmetric information and bureaucratic hurdles, enabling resources to be procured at lower costs and directed toward productive areas. Simultaneously, they enhance the reliability of economic transactions, contributing to the development of savings and investment channels, productivity gains in production, and the expansion of trade. The alignment of institutional stability with economic and political stability supports sustainable long-term growth by reducing the misallocation of resources. Furthermore, institutions allow for more effective oversight of economic activities by reducing informality, increasing transparency, and limiting corruption (Yaprakl ı, 2008: 303-304). Shahabadi and Pouran (2024: 8080-8081) also emphasize that an effective institutional structure facilitates participation in economic activities, creating appropriate incentives for adopting new technologies, skill acquisition, and investment in productive capacity development. This mechanism supports the "self-discovery" processes of individuals and firms, which contributes to a more knowledge-intensive and diversified production structure. In contrast, Khan et al. (2020: 378) state that weak institutional quality increases the perceived distance between host and home countries, leading to higher transaction costs that negatively affect investment and production decisions.

Despite the extensive scholarly attention devoted to the nexus between economic performance indicators and institutional quality, no definitive agreement has emerged regarding the precise conditions and transmission channels through which this relationship unfolds. The preponderance of available research has approached institutional quality as an explanatory variable for economic outcomes, whereas the converse possibility – namely, that rising knowledge and technology intensity within productive structures may gradually reshape institutional configurations – has attracted only marginal empirical scrutiny. The present study is motivated by this lacuna and undertakes an empirical investigation of the directional dynamics linking economic complexity with a set of institutional quality indicators. The empirical analysis draws on a balanced panel dataset encompassing the Organization of Islamic Cooperation (OIC) member states over the 2002–2023 timeframe. On the institutional side, the study employs three governance dimensions, including Rule of Law, Control of Corruption, and Government Effectiveness, and operationalizes the knowledge intensity of productive structures through the Economic Complexity Index. Given the pronounced institutional volatility and structural discontinuities characteristic of OIC economies, the Panel Fourier Toda–Yamamoto (PFTY) causality procedure is adopted, as this technique is capable of accommodating both abrupt and gradual structural transitions within the estimation framework. Through this approach, the study endeavors to clarify the causal structure underlying the interaction between economic complexity and institutional quality.

The rest of the paper is structured as follows: initially, prior empirical studies examining the nexus between economic indicators and institutional quality are reviewed, with particular emphasis on identifying prevailing patterns and common conclusions in the literature. Next, the dataset and the econometric methodology are presented in detail. Subsequently, the empirical findings from the PFTY causality test are provided. Finally, a general evaluation is conducted in light of the findings, with policy implications and recommendations discussed in the concluding section.

Literature

Empirical inquiry into the interplay between economic performance and institutional quality has expanded considerably over time, spanning an increasingly heterogeneous range of country samples, analytical periods, and estimation techniques. The studies falling within this domain seek to illuminate the functional role of

institutional arrangements by examining their association with a variety of macroeconomic outcomes, with economic growth and economic complexity featuring most prominently among them. What follows is a structured overview of this literature, organized around the samples employed, the methodological approaches adopted, and the principal findings reported.

Table 1

Summary of the Empirical Findings in the Literature Review

Author(s)	**Country**	**Period**	**Methodology**	**Findings**
Butkiewicz and Yanıkkaya (2006)	100 countries	1970-1999	Seemingly Unrelated Regression (SUR) and Three-Stage Least Squares (3SLS)	The rule of law exerted a statistically significant and positive influence on economic growth. Although voice and accountability appeared statistically insignificant in the SUR estimations, their effects turned positive and significant when IV estimation was applied.
Yapraklı (2008)	36 upper- and middle-income countries	2002-2005	Panel Data Analysis	Economic growth was positively and significantly shaped by government effectiveness and control of corruption. In contrast, other governance dimensions, including voice and accountability, political stability and absence of violence, regulatory quality, and the rule of law, demonstrated a negative association with growth.
Nawaz et al. (2014)	35 Asian countries	1996-2012	Fixed-effects and System GMM	The findings reveal that institutional quality constitutes a significant positive determinant of economic growth.
Alsharif and Bhattacharyya (2016)	157 countries	1962-2012	Fixed-effects Panel Data Analysis	Large-scale oil discoveries delay export diversification, but democratic political institutions mitigate this negative effect.

Hartmann et al. (2017)	Global sample	1963-2008	Pooled OLS and Fixed-effects Panel Data Analysis	Income inequality is significantly and negatively influenced by economic complexity, pointing to the equalizing potential of knowledge-intensive productive structures.
Kočenda and Poghosyan (2017)	101 countries	2001-2015	System GMM	Inadequacies in the rule of law had a negative impact on economic complexity.
Şahin (2018)	12 MENA countries	2002-2015	Random-effects Panel Data Analysis	Economic growth was significantly enhanced by governance quality, whereas political freedoms remained statistically insignificant as a determinant of growth.
Khan et al. (2020)	China	1985-2017	ARDL and VECM Granger Causal Relationships	One-way causal relationship from economic sophistication to foreign direct investment in the short term and a two-way relationship in the long term.
Vu (2022)	115 countries	2000-2010	OLS, Instrument Variables (IV), and System GMM	Higher institutional quality is found to exert a statistically significant and favorable influence on economic complexity.
Shahzad et al. (2022)	28 OECD countries	1990-2019	Quantile Regression, FMOLS, and DOLS	Export quality, economic complexity, and renewable energy have positive and significant effects on growth.
Aygün and Şahbaz Kılınç (2023)	38 OECD countries	2002-2020	Augmented Mean Group (AMG) Panel Data Analysis	While political stability, regulatory quality, and the rule of law were identified as significant contributors to growth, the positive effects of corruption control, government effectiveness, and voice and accountability fell short of statistical significance.

Hoang and Chu (2023)	98 countries	2002-2017	System GMM	Economic complexity is positively shaped by institutional quality, with middle-income countries benefiting more substantially from this relationship compared to high-income economies.
Şanlı et al. (2024)	97 countries	1995-2020	Two-step System GMM	Institutional quality significantly boosted economic complexity across all groups, while education's effect was only positive in the high-income group.
Shahabadi and Pouran (2024)	D-8 countries	1995-2019	FMOLS	Interaction of the active population, institutional quality, and globalization significantly increases economic complexity.
Özgün (2024)	New Fragile Five	2002-2022	Panel ARDL	Economic indicators were positively influenced by regulatory quality and the rule of law in the long term, whereas government effectiveness and corruption control emerged as negative determinants over the same period.
D'Ingiullo et al. (2024)	103 Italian provinces	2004-2016	System GMM	Economic complexity is path-dependent and that institutional quality at the local level is a key determinant.
Yay et al. (2025)	G20 countries	2002-2022	Two-step System GMM	Institutional quality positively impacts economic growth, especially in emerging economies.

A considerable share of the available evidence points to a constructive role for institutional quality and sound governance in sustaining economic growth. Aygün and Şahbaz Kılınç (2023) established that political stability, regulatory quality, and adherence to the rule of law each exert statistically meaningful and growth-enhancing effects. In a similar vein, Butkiewicz and Yanıkkaya (2006) documented that rule of law provisions are conducive to growth acceleration, whereas Şahin (2018) drew attention to a favorable association between governance standards and growth performance. Nawaz et al. (2014), meanwhile, concluded that institu-

tional arrangements yield net positive effects on growth, though the magnitude of this effect proves considerably more pronounced in advanced economies than in their developing counterparts – an observation that underscores the mediating role of development stage in shaping institutional returns.

The relationship between institutional quality and economic growth varies across governance dimensions. Yamak (2017) found that freedom of expression and control of corruption have growth-enhancing effects, whereas the rule of law and regulatory quality are associated with negative outcomes. Yapraklı (2008) reached a similar conclusion, showing that government effectiveness and corruption control support growth, while political stability, regulatory quality, the rule of law, and freedom of expression are negatively related to economic performance.

Academic scholarship has reached a general agreement that well-functioning institutional environments tend to foster higher levels of economic complexity and more sophisticated export structures. Among the contributing studies, Vu (2022) established institutional quality as a primary determinant of economic complexity, and this relationship was subsequently refined by Hoang and Chu (2023), whose analysis revealed that the effect in question is considerably stronger among middle-income countries compared to their high-income counterparts. Building on this trajectory, Şanlı et al. (2024) argued that institutional quality functions as a meaningful predictor of complexity irrespective of a country's income classification. Indirect corroboration comes from Kočenda and Poghosyan (2017), who found that deficiencies in institutional structures – the rule of law in particular – erode the sophistication of export portfolios. Shahabadi and Pouran (2024) drew attention to the compounded effect of institutional quality when combined with globalization and labor force participation, showing that their interaction substantially elevates economic complexity. At the subnational scale, D'Ingiullo et al. (2024) similarly established that local institutional conditions carry decisive weight in determining export complexity patterns. Approaching the matter from a resource endowment perspective, Alsharif and Bhattacharyya (2016) demonstrated that robust democratic governance can counterbalance the adverse effects that significant oil discoveries tend to exert on export diversification.

The literature further suggests that increasing economic complexity generates positive or corrective outcomes for various macroeconomic indicators. Shahzad et al. (2022) demonstrated that economic complexity positively and significantly contributes to economic growth, while Hartmann et al. (2017) showed that higher levels of complexity are associated with lower income inequality, implying that eco-

nomic complexity acts as a negative (improving) predictor of inequality. Khan et al. (2020) emphasized a bidirectional long-run causality relationship between economic complexity and foreign direct investment (FDI). However, studies examining the institutional determinants of FDI reveal mixed findings. Özgün (2024) found that regulatory quality, rule of law, political stability, and freedom of expression positively affect FDI in the long run, whereas government effectiveness and control of corruption unexpectedly exert negative effects.

Although the existing literature provides considerable evidence regarding the relationship between institutional quality, economic growth, and economic complexity, some issues remain open to further discussion. First, a large part of the empirical literature primarily focuses on the relationship between institutional quality and economic growth, whereas studies directly examining the interaction between economic complexity and institutional quality are relatively limited. Second, previous studies generally concentrate on OECD countries, high-income economies, or broad global samples, while OIC countries have received comparatively less attention despite their diverse institutional and economic structures. Third, many existing studies employ conventional panel data techniques that may not fully capture structural changes and institutional fluctuations observed over time. In this context, the consideration of structural shifts may contribute to a more comprehensive evaluation of the causal relationships between the variables.

The present study makes several contributions to this debate. First, it focuses specifically on OIC member states and provides new empirical evidence on a country group that remains relatively underexamined in the economic complexity literature. Second, it uses the Economic Complexity Index as the main measure of productive sophistication, as the index captures the knowledge intensity and technological depth of national production structures beyond conventional output-based indicators. Third, the study applies the PFTY causality framework, which is particularly suitable for analyzing gradual structural transitions and institutional volatility without relying on restrictive break assumptions. These geographical, conceptual, and methodological choices allow the study to offer a more nuanced empirical account of the interaction between institutional quality and economic complexity in OIC countries.

Data and Methodology

This study, which aims to examine the causal relationship between economic complexity and institutional quality in OIC member countries, utilizes indicators for the Rule of Law, Control of Corruption, and Government Effectiveness as proxies for institutional quality, alongside the Economic Complexity Index to reflect the economic structure. In constructing the dataset, countries providing complete observations for all variables during the 2002–2023 period were included in the sample, while those with missing data were excluded. Consequently, the analysis covers 44 OIC member countries[1] where data integrity could be ensured.

Table 2

Variables Used in the Analysis

Variables	Abbreviation	Unit of Measurement	Source
Economic Complexity Index	ECI	ECI values are generally observed within a range of approximately –3 to +3	Growth Lab at Harvard University (2025)
Rule of Law	RL	RL, CC and GE values are observed within a range of approximately –2.5 to +2.5	World Bank (2025)
Control of Corruption	CC		World Bank (2025)
Government Effectiveness	GE		World Bank (2025)

As shown in Table 2, the ECI variable was obtained from the database published by the Growth Lab at Harvard University (2025). The ECI indicator offers structural insights into the development capacity of countries by measuring the knowledge intensity of their production and export structures. In contrast, the RL, CC, and GE variables were sourced from the World Bank's (2025) Worldwide Governance Indicators (WGI) database. These three indicators were specifically selected as proxies for institutional quality because they directly measure the "executive-implementation" axis of the governance system and exert stronger micro-institutional effects on the sustainability of economic activities compared to other WGI components. Furthermore, these selected indicators focus on core instituti-

1 The following countries have been excluded: Brunei Darussalam, Comoros, Djibouti, Gambia, Guinea-Bissau, Guyana, Iraq, Maldives, Palestine, Sierra Leone, Somalia, Suriname, and Syria.

onal mechanisms that directly shape economic decisions, such as market functionality, contract enforcement capacity, public administration performance, and the mitigation of corruption risks. Therefore, these three indicators were preferred for empirically testing the impact of economic complexity on institutional quality[2].

Table 3

Descriptive Statistics of the Dataset

	ECI	**RL**	**CC**	**GE**
Mean	-0.6302	-0.5940	-0.6325	-0.5226
Maximum	1.2870	0.9807	1.5587	1.6043
Minimum	-2.8900	-1.9225	-1.7126	-2.3624
Standard Deviation	0.6922	0.6403	0.6275	0.6682
Skewness	0.0270	0.3490	0.8200	0.5196
Kurtosis	2.9936	2.4496	3.2789	3.3586
Jarque Berra (JB)	0.1192	31.8644	111.6139	48.7449
JB Probability	0.942	0.000	0.000	0.000
Observations	968	968	968	968

The descriptive statistics for the variables are presented in Table 3. The fact that all mean values are below zero indicates that ECI, along with RL, CC, and GE indicators, generally follow low levels in OIC countries. The wide range between minimum and maximum values points toward significant country heterogeneity in terms of both economic structure and institutional quality. Standard deviations ranging approximately between 0.62 and 0.69 suggest a moderate dispersion in the variables. Skewness coefficients are observed to be positive and low, indicating that the distributions are concentrated toward lower values, with a few high-performing countries causing a limited rightward pull. Kurtosis values between 2.45 and 3.36 reveal that the distributions are close to normal. According to the JB test results, while the assumption of normal distribution is rejected for RL, CC, and GE, a structure close to normal distribution is observed for the ECI series. This can be considered a natural reflection of political fluctuations and structural breaks in institutional indicators. The balanced panel structure consisting of 968 observations

2 All empirical analyses were conducted using EViews 13 and GAUSS 25 software packages. The GAUSS codes used for the PFTY causality analysis were obtained from the corresponding author of Yılancı and Görüş (2020). Since the study draws on publicly accessible databases and the relevant GAUSS codes are available upon request, the empirical findings are reproducible by other researchers.

for all variables provides a significant advantage for the Fourier-based method to be applied in the subsequent stage.

In this study, the PFTY causality test, developed by Yılancı and Görüş (2020), is utilized as it offers the most methodologically suitable framework for OIC countries, where institutional fluctuations, abrupt policy breaks, and gradual regime changes are frequently observed. This approach is built upon the synthesis of four fundamental contributions to causality analysis in the empirical literature. The theoretical foundation of the method rests on the works of Toda and Yamamoto (1995), Emirmahmutoğlu and Köse (2011), Enders and Jones (2016), and Nazlıoğlu et al. (2016).

The method proposed by Toda and Yamamoto (1995) highlights the excessive sensitivity of the traditional Granger causality test to pre-tests (unit root, cointegration, lag selection, etc.) and suggests estimating a VAR model of order *(k + dmax)* to overcome this issue. Here, *k* represents the optimal lag length ensuring stability, while *dmax* denotes the maximum degree of integration of the series in the model. This feature allows for the testing of reliable causal relationships among series with different integration levels. The extension of the Toda–Yamamoto approach to a panel data framework was achieved by Emirmahmutoğlu and Köse (2011). This developed panel causality test enables the investigation of causality regardless of the stationary levels of the units or the potential cointegration relationships between them. Bootstrap-based probability values calculated for each unit are aggregated to the panel level using a Fisher-type meta-analysis method. However, since the Fisher statistic loses its validity under cross-sectional dependence, Emirmahmutoğlu and Köse (2011) addressed this issue through bootstrap simulations.

Structural breaks can significantly affect the results of causality analysis, particularly in developing country groups where institutional fluctuations are intense. While sharp breaks are relatively easy to detect, gradual regime shifts are difficult to capture with traditional tests. Therefore, Enders and Jones (2016) developed a causality test that incorporates the Fourier function into VAR models, enabling the simultaneous capture of both abrupt and gradual structural changes. The Fourier approach increases the model's sensitivity to structural changes as it does not require prior specification of the number, dates, or form of the breaks. Accordingly, Nazlıoğlu et al. (2016) integrated the Fourier approach into the Toda–Yamamoto framework, proposing a more flexible and robust time-series causality test. Finally, Yılancı and Görüş (2020) brought these two developments to the panel level, introducing the PFTY causality test to the literature. The PFTY approach combines the

advantages of panel data structure with Fourier flexibility, which provides a causality analysis sensitive to structural breaks and independent of integration degrees. The equations for this test are as follows:

$$y_{i,t} = \mu_i + \sum_{j=1}^{k_i+dmax_i} A_{11,ij} y_{i,t-j} + \sum_{j=1}^{k_i+dmax_i} A_{12,ij} x_{i,t-j} + A_{13} sin\left(\frac{2\pi t f_i}{T}\right) + A_{14} cos\left(\frac{2\pi t f_i}{T}\right) + u_{i,t} \quad (1)$$

$$x_{i,t} = \mu_i + \sum_{j=1}^{k_i+dmax_i} A_{21,ij} x_{i,t-j} + \sum_{j=1}^{k_i+dmax_i} A_{22,ij} y_{i,t-j} + A_{23} sin\left(\frac{2\pi t f_i}{T}\right) + A_{24} cos\left(\frac{2\pi t f_i}{T}\right) + u_{i,t} \quad (2)$$

Equation 1 and Equation 2 represent the two-variable panel VAR structure that forms the basis of the PFTY causality test. This structure models the dynamic relationships between the $y_{i,t}$ and $x_{i,t}$ variables for each country through lagged values and also offers a flexible form that includes Fourier terms. Thus, the model can capture both sudden and gradual structural changes within a single functional framework. The expressions $\sum_{j=1}^{k_i+dmax_i}$ in the equations represent the extended VAR structure obtained by adding the maximum integration degree (dmax) to the optimal lag length (k), as required by the Toda–Yamamoto approach. Thanks to this feature, the fact that the series have different integration levels does not affect the validity of the causality analysis. The terms representing the Fourier components, $sin\left(\frac{2\pi t f_i}{T}\right)$ and $cos\left(\frac{2\pi t f_i}{T}\right)$, incorporate soft and hard regime shifts into the model without requiring prior knowledge about the form, timing, or number of structural breaks. Thus, the non-linear changes in the institutional and economic structure over time are flexibly reflected in the VAR system. In this context, Equation 1 shows how $y_{i,t}$ is determined based on its own lagged values, the lags of $x_{i,t}$, and Fourier terms. Equation 2 expresses the corresponding model established for $x_{i,t}$ within the same structure. When both equations are evaluated together, the presence or absence of a directional relationship between the variables is tested through the statistical significance of the lagged coefficients.

The PFTY approach offers important methodological advantages for panel causality analysis. Since it is based on the Toda-Yamamoto framework, the analysis remains valid even when the series have different orders of integration. This is achieved by augmenting the lag structure with the maximum integration order, allowing causality to be tested independently of stationarity properties. The method also removes the need for preliminary cointegration testing among the variables, thereby reducing the risk of errors arising from pre-test procedures. Another advantage of the method is that it takes into account the cross-sectional dependence frequently encountered in panel data structures through bootstrap-based critical

values. This feature increases the reliability of the method, especially for countries whose economic and institutional structures are affected by similar shocks (Yılancı and Görüş, 2020: 40557).

Empirical Results

This section presents the empirical findings of the analysis. It first tests for cross-sectional dependence in order to identify whether common shocks or similar institutional dynamics exist among the countries in the panel dataset. This assessment guided the subsequent stages of the analysis, including the selection of the appropriate panel unit root test and the configuration of the PFTY approach. The stationarity properties of the series were then examined, and the results obtained from the Im, Pesaran, and Shin (IPS) and Cross-Sectionally Augmented IPS (CIPS) unit root tests were evaluated comparatively. In the final stage, the PFTY causality test was applied to identify the directional relationships between the variables, with the findings interpreted in relation to the structural characteristics of the series. Cross-sectional dependence was assessed using the Cross-Section Dependence (CD) test developed by Pesaran (2004), and the results are presented in Table 4.

Table 4

Findings of the CD Test

Variables	CD Test	Probability
ECI	0.230	0.818
RL	**2.030****	**0.042**
CC	0.440	0.658
GE	0.450	0.650

Note: ** indicates 5% significance level.

The cross-sectional dependence results reported in Table 4 showed no statistically significant dependence for the ECI, CC, and GE variables ($p > 0.05$). By contrast, the CD statistic for the RL variable was significant at the 5% level, indicating the presence of cross-sectional dependence. This result suggests that the Rule of Law indicator was more sensitive to common institutional shocks or similar governance dynamics across the countries in the panel. Overall, the absence of cross-sectional dependence in most variables points to the predominance of country-specific heterogeneity within the dataset. However, the detected dependence in the RL variable required the CIPS results to be taken into account when interpreting the unit root findings. Table 5 presents the results of the IPS test developed by Im et

al. (2003) and the CIPS test developed by Pesaran (2007).

Table 5

Results of Panel Unit Root Tests

Variables	**IPS Test**	**Probability**
ECI	**-6.166*** **	**0.000**
RL	-0.802	0.212
ΔRL	**-13.682*** **	**0.000**
CC	**-1.699** **	**0.045**
GE	0.182	0.572
ΔGE	**-14.256*** **	**0.000**
Variables	**CIPS Test (Constant)**	**Probability**
ECI	**-2.237*** **	**0.001**
RL	-1.630	0.813
ΔRL	**-3.079*** **	**0.000**
CC	-1.570	0.903
ΔCC	**-3.163*** **	**0.000**
GE	-1.514	0.953
ΔGE	**-2.996*** **	**0.000**
Variables	**CIPS Test (Constant and Trend)**	**Probability**
ECI	**-2.615** **	**0.015**
RL	-2.124	0.907
ΔRL	**-3.171*** **	**0.000**
CC	-2.117	0.916
ΔCC	**-3.220*** **	**0.000**
GE	-1.985	0.990
ΔGE	**-3.127*** **	**0.000**

Note: *** and ** indicate 1% and 5% significance levels, respectively.

Table 5 reports the results of the IPS and CIPS unit root tests, providing a comparative assessment of the stationarity characteristics of the variables. The IPS test results indicate that the ECI and CC series are stationary in their level form. However, the RL and GE series exhibit non-stationarity at levels and attain stationarity after first differencing, suggesting the presence of heterogeneous integration orders within the panel dataset. In light of the CD test results, the CIPS test outco-

mes are particularly relevant for interpreting the stationarity properties of the RL variable. The CIPS results confirmed that the ECI series was stationary in both the fixed and fixed-trend specifications. By contrast, the RL, CC, and GE variables were non-stationary at level and became stationary after first differencing. The strong statistical significance of the ΔRL, ΔCC, and ΔGE statistics further supported this result. Taken together, the IPS and CIPS findings indicated a mixed order of integration across the panel, with the series displaying both I(0) and I(1) properties. This structure provided a suitable basis for applying the Toda-Yamamoto-based causality framework, in which the maximum integration order is incorporated into the model. Table 6 presents the findings of the PFTY causality test.

Table 6

Findings of the PFTY Causality Test

Null Hypothesis	Panel Fisher Test	Bootstrap Probability
ECI ↛ RL	**135.8223*** **	**0.001**
RL ↛ ECI	94.7463	0.293
ECI ↛ CC	**127.4670*** **	**0.004**
CC ↛ ECI	94.1170	0.308
ECI ↛ GE	84.1820	0.595
GE ↛ ECI	103.9246	0.118

Note: *** indicates 1% significance level.

When the Panel Fisher statistics and bootstrap probability values shown in Table 6 are evaluated together, a strong causal relationship at the 1% significance level was found from ECI to RL. In contrast, no causality was found from RL to ECI. This finding indicates that as the knowledge intensity of the economic structure increases, the institutional and legal framework tends to strengthen, while the legal-institutional structure alone does not appear to drive economic complexity in the short term, offering a distinct perspective on the dominant arguments in the literature. Indeed, studies by Butkiewicz and Yanıkkaya (2006), Kočenda and Poghosyan (2017), Aygün and Şahbaz Kılınç (2023), and Özgün (2024) argue that the rule of law is a fundamental institutional input that supports economic performance. However, current research findings indicate that the qualitative transformation of the economic structure triggers institutional quality, suggesting that institutional development may be an outcome of economic complexity. On the other hand, the direction of the effect of the rule of law on economic performan-

ce is a subject of debate in the literature. For example, Yapraklı (2008) reached a counterintuitive finding that the rule of law may negatively affect economic performance. The unidirectional causality identified in this study supports the view that developed and complex production structures raise legal and institutional standards, while legal and institutional arrangements do not directly increase economic complexity in the short term.

Table 6 also shows a statistically significant causal relationship at the 1% level from ECI to CC. However, no causality was found from CC to ECI. This result shows that increasing the sophistication level of the production and export structure strengthens the capacity to combat corruption, but that institutional control of corruption does not directly determine economic complexity, adding a new dimension to the ongoing debate in the literature on the relationship between institutional quality and economic performance. A review of the literature reveals that there is no consensus on the effect of corruption control on economic performance. Yapraklı (2008) argues that combating corruption is a critical factor in improving economic performance, whereas Özgün (2024) suggests that controlling corruption can paradoxically have negative effects on economic performance. On the other hand, Aygün and Şahbaz Kılınç (2023) have not found a statistically significant relationship between these two variables. The one-sided causality relationship presented in the study supports the hypothesis that institutional development may be a result of the economic structure becoming more sophisticated.

Furthermore, Table 6 shows that there is no bidirectional causality relationship between ECI and GE. The statistical insignificance of both ECI $\nrightarrow$ GE and GE $\nrightarrow$ ECI relationships indicates that the government effectiveness indicator may be a more static and structural institutional element that does not reflect economic complexity dynamics in OIC countries in the short term. This result reflects the divergent views in the literature and the continuing empirical uncertainty surrounding the role of government effectiveness, one of the core components of institutional quality, in shaping economic performance. In the literature, Yapraklı (2008), who approaches the relationship between government effectiveness and economic performance from a positive perspective, argues that the quality of public bureaucracy and the capacity for service delivery directly improve economic performance. In contrast, Özgün (2024) identifies a negative relationship between government effectiveness and economic performance, indicating that institutional interventions or bureaucratic structures may have restrictive effects on economic performance. On the other hand, the finding by Aygün and Şahbaz Kılınç (2023) that no

significant relationship exists is consistent with the results of this study. This lack of a two-way relationship indicates that the information-intensive and sophisticated structure of economic complexity may follow a development path independent of the government's operational efficiency. Similarly, it reveals that an increase in the government's administrative capacity is not always a sufficient driving force for transforming the technological depth and product diversity of the production structure. In the context of OIC countries, this finding may also be associated with the relatively gradual and structural nature of bureaucratic transformation processes. Government effectiveness generally reflects long-term administrative capacity, public service quality, and institutional coordination mechanisms that may not respond rapidly to changes in production sophistication and technological diversification. In several OIC economies, economic complexity may evolve through external trade integration, natural resource revenues, or private-sector dynamics without generating an immediate transformation in bureaucratic effectiveness. Therefore, the absence of statistically significant causality may indicate that changes in production complexity and changes in administrative effectiveness do not necessarily occur simultaneously in the short run.

Overall, the findings in Table 6 show that economic complexity has a guiding effect on certain components of institutional quality, while the same effect is not observed from institutions to economic complexity. This suggests that, in OIC countries, increases in the knowledge intensity of the production structure are associated with improvements in specific governance dimensions, whereas institutional development alone does not appear to generate economic complexity.

Conclusion

The relationship between economic complexity and institutional quality shows that development cannot be assessed solely through quantitative growth indicators, as it also requires attention to the quality of the productive structure and the capacity of governance mechanisms. The emergence of more knowledge-intensive and diversified production structures depends on technological progress and capital accumulation, while remaining closely connected to the historical formation of institutional functioning. In this sense, economic complexity goes beyond measuring the knowledge embedded in production and export structures and points to the transformative capacity of the social and institutional order. Institutional quality, in turn, provides the framework through which resource allocation, investment decisions, and production choices are shaped by reducing the uncertainties faced

by economic actors. The interaction between these two phenomena is therefore central to understanding development as a dynamic and multidimensional process.

During the analysis, a methodological framework was adopted that moved beyond conventional causality approaches by taking into account the heterogeneity, time-dependent fluctuations, and non-linear breaks observed in the economic and institutional structures of OIC countries. The PFTY causality test used in this study made it possible to test causal relationships regardless of the integration order of the variables and allowed structural changes, whether abrupt or gradual, to be incorporated flexibly into the model. This methodological choice strengthened the reliability of the results, particularly for country groups in which institutional indicators may respond non-linearly to policy shifts, governance reforms, and external shocks.

The empirical findings showed that economic complexity exerted a guiding influence on specific dimensions of institutional quality. Increases in the knowledge intensity of production and export structures were found to strengthen institutional mechanisms related to the Rule of Law and Control of Corruption. No statistically significant causality was detected from institutional quality indicators to economic complexity. The absence of a significant directional relationship between Efficiency of Public Administration and economic complexity may reflect the fact that this indicator captures more stable and long-term institutional characteristics. Overall, the results indicated that rising levels of knowledge and technology in the economic structures of OIC countries can encourage improvements in certain dimensions of institutional functioning, although institutional development does not appear to operate as a direct determinant of economic complexity in the short term. These findings suggest that policies focused on the quality of the productive structure may generate indirect yet meaningful effects on institutional transformation.

The findings also indicated that development policies built solely around institutional reform may produce limited results. For this reason, policies aimed at strengthening institutional quality in OIC countries should be coordinated with industrial, innovation, and education policies designed to increase the knowledge and technology content of production and export structures. Strategies that encourage the production of more sophisticated and less ubiquitous goods may raise levels of economic complexity and, through this channel, produce corrective effects on the functioning of the legal order and the capacity to control corruption. Within this framework, priority should be given to selective industrial policies that

support productive diversification, human capital investments directed toward skill-intensive sectors, and institutional arrangements that facilitate technology transfer.

Since the findings showed that institutional reforms do not automatically increase economic complexity in the short term, improvements in governance should be approached through a long-term and gradual perspective. Regulations concerning the Rule of Law, Control of Corruption, and Efficiency of Public Administration should be integrated with concrete practices that directly support productive activity, as this could strengthen the effect of institutional change on the economic structure. Given the structural differences among OIC countries, flexible strategies should also be developed in line with country-specific production profiles and institutional capacities, instead of relying on uniform policy prescriptions. Such an approach would support more sustainable and realistic policy frameworks aimed at improving institutional functioning through the enhancement of economic complexity.

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