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Strengthening National Competitiveness: The Evolution of Economic Clusters in Egypt

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ABSTRACT

Purpose: *This paper examines the evolution of clusters and economic zone policies in Egypt and assesses their role in improving national competitiveness. Further, it provides insights to developing countries like Egypt on how to strengthen their national competitiveness by effectively leveraging clusters and economic agglomeration policies, such as economic zones.*

Methodology: *The paper critically analyzes existing literature on modern cluster policies and economic zones, illustrating the evolution of economic cluster policies in Egypt. It also evaluates the contribution and impact of economic zones on improving national competitiveness.*

Findings: *Despite recent policy reforms in implementing an economic cluster-based strategy, particularly economic zones, several constraints prevent these economic zones from fully reaching their potential to attract foreign investment and address the national trade deficit in Egypt. While these economic zones increased exports, they didn't sufficiently reduce the national trade deficit. Moreover, the Egyptian Government faces an increasing challenge in maintaining Egypt's position as a leading investment destination in North Africa and the wider region, mainly in front of the face of the increased competition from other emerging economies.*

Implications: *Egypt's recent attempts to implement an economic cluster-based strategy for enhancing national competitiveness highlight the need for closer alignment between the country's economic national strategies, including Egypt's Vision 2030, National Investment Plan, Trade and Industry Development Strategy 2016-2020, and National SME and Export Development Strategies, with the objectives of the economic zone.*

Originality: *This study contributes to understanding how to strengthen national competitiveness in developing countries by examining the evolution of clusters and economic zones in Egypt. It provides valuable insights for academic researchers and policymakers seeking to enhance national competitiveness through strategic economic policies.*

Limitations and directions for future research: *Further research on the impact of economic clusters on leveraging national competitiveness in Egypt could significantly improve related policymaking. Comparative analyses of other countries' experiences could also provide valuable lessons for policy formulation.*

Keywords: *National competitiveness; Clusters; Economic agglomeration; Economic zones; Egypt; Economic reform; Developing countries; Emerging economies*

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INTRODUCTION

Different nations use clusters and economic zones as pivotal policy instruments for enhancing national and regional competitiveness, particularly in developing countries. Regional economic clusters play a vital role in formulating collective strategies to address shared economic and social challenges, thereby bolstering both national and regional competitiveness. Moreover, countries often find mutual benefit in pooling resources to cultivate robust clusters or facilitate cross-border cluster cooperation, exemplified by initiatives like the Arab League or Central Europe (Izsak & Meier zuKöcker, 2016).

Egypt has a rich history of implementing the concept of economic clusters, dating back to the era of Mohamed Ali during the first industrial revolution. Notably, Egypt emerged as a prominent global producer of cotton, to the extent that a dedicated stock market for the cotton sector was established (Karakoç *et al*., 2017). Egypt currently hosts various economic agglomeration areas, including organic clusters, free zones, qualified industrial zones, and investment and technology zones. The country has recently developed a series of mega special economic zones such as the Suez Canal Economic Zone, Golden Triangle Zone, and Land Reclamation of 1.5 million Acres.

This study aims to assess Egypt's cluster and economic zone strategies and illustrate how these policies can strengthen national competitiveness (Mori, 2017; Egyptian Industrial Development Authority, 2022). Through a critical analysis of Egypt's modern cluster policies and economic zones, the study seeks to identify the potential role of these policies as strategies for enhancing national competitiveness in Egypt. It endeavors to assist developing countries like Egypt in understanding the drivers of improving national competitiveness and effectively leverage clusters and economic agglomeration policies, such as economic zones (UNIDO, 2016; Fleig, 2000; Farole, 2011).

Consequently, these policies can serve as strategic economic development tools to enhance national competitiveness at various levels, including industry, country, or region. They have the potential to stimulate economic growth, address the escalating global competition for attracting foreign investment, augment the country's market share in global trade, and align with international competitiveness standards (Ketels *et al*., 2012; Berger, 2008; Garelli, 2005).

This paper comprises four sections, including an identification of the main concepts, definitions, and types of clusters and economic agglomeration, reviewing the evolution of clusters and economic zones in Egypt, assessing Egypt's modern economic zones, and providing recommendations for policymakers on how to effectively utilize clusters and economic zones to improve the development of national competitiveness.

CLUSTERS AND ECONOMIC ZONES

The introduction of clusters and economic zones dates back to the 18th century, undergoing frequent evolution as comprehensive strategies for fostering economic growth. Successful implementations in countries/regions like China, South Korea, the European Union, and the Asian Tigers underscore their importance. They represent a comprehensive approach to directing government policies toward creating the foundations for economic growth (Marshall, 1961; Porter, 1990; Korhonen & Snäkin, 2005).

Economic clusters and zones generally represent geographic concentrations of interconnected companies, specialized suppliers, service providers, and associated institutions in a particular field. Based on their specific characteristics and focus, these clusters are categorized into different types of economic zones (Andersson *et al*., 2004; Benner, 2012). Table 1 presents the main types of economic clusters.

1. **Industrial Park (IP):** The IPs are designated areas tailored for industrial development, providing infrastructure and support services to attract manufacturing and industrial businesses (World Bank, 2017; Falcke, 1999).

2. **Special Economic Zone (SEZ):** The SEZs are geographically delineated areas offering incentives and regulations to attract foreign investment and foster economic development (Mugano, 2021; Ishida, 2009).

3. **Eco-Industrial Park (EIP):** EIPs promote sustainable industrial development by integrating environmental considerations into industrial processes (UNIDO, 2017).

4. **Technology Park (TP):** TPs are specialized zones that foster innovation and technology-driven industries, facilitating collaboration and commercialization of R&D outcomes (Wessner, 2009).

5. **Innovation District (ID):** IDs are urban areas that promote innovation, entrepreneurship, and knowledge-based economic activities (UNIDO, 2015).

Table 1: Main Types of Economic Clusters

	Industrial Park (IP)	Special Economic Zone (SEZ)	Eco-Industrial Park (EIP)	Technology Park (TP)
Definition	An area developed to provide common facilities for the use of a group of industries	Designated estate where special regulations apply for trade laws, such as tariffs, quotas, or duties differ from the rest of the country	Seeking to enhance environmental and economic performance by collaborating in the management of environmental and reuse issues	Promoting the culture of innovation and the competitiveness of its associated businesses and knowledge-based institutions
Defined by	Alfred Marshall's (1893) and UNIDO (1997)	Farole & Akinci, 2011	United States Environmental Protection Agency (USEPA)	The International Association of Science Parks (IASP)
Concept emerged	1890	1960	1970	1990
Objectives	Industrial development	Export and trade	Sustainability and environment	Market lead
Stage	Factor driven	Efficiency driven	Efficiency driven	Innovation-driven
Approach	Top-down	Top-down	Top-down and/or Bottom-up	Top-down or Bottom-up
Aim	Basic	Development	Efficiency	Improvement
Markets	Domestic and export	Mainly export	Domestic and export	Domestic and export
Location	Non-urban areas	Port of entry	Nation-wide	Around cities
Developing countries	Basic mechanism for economic development	Main mechanism for attracting investment and FDI	Secondary importance for economic development	Few trials with fewer results
Examples	Industrial zones	Shenzhen, Singapore, Dubai	Kalundborg in Denmark	Silicon Valley
Need	Low stage of economic development	Looking for global trade	Stronger environmental regulations	Compete in the knowledge economy

Source: Author's interpretation

Each economic cluster serves a specific purpose and targets different industries or economic activities. By providing specialized infrastructure, incentives, and support services, these zones aim to attract investment, foster innovation, and drive economic development in their respective areas (Wolman & Hincapie, 2015; Brenner & Gildner, 2006).

Clusters and economic agglomeration policies, including economic zones, are recognized as important drivers for economic development, enhancing national competitiveness and economic performance (Marshall, 1961; Porter, 1990; Porter, 1996). These policies aim to develop specialized expertise, services, and resources within concentrated economic activities, creating competitive advantages for specific regions (Marshall, 1961; Porter, 1990; OECD, 2020; OECD, 2020). Countries and regions globally compete to provide the best clusters and economic zones to attract foreign investment and facilitate business growth (Innova & Inno, 2008; Porter, 1996; OECD, 2007).

Despite their potential benefits, many countries have faced challenges in realizing the full potential of cluster and economic zone policies. Rapid and continuous changes in the global economic environment, coupled with rising global economic and social challenges, have made it difficult for developing countries to increase their share in global trade using traditional economic strategies (Amado, 1989; Akinci & Crittle, 2008; Farole, 2011; Koyama, 2011).

EGYPT'S ECONOMIC POLICY TRANSFORMATION: A HISTORICAL OVERVIEW

Egypt's economic policy evolution reflects a dynamic process influenced by changing political landscapes and global economic dynamics. While recent reforms hold promise for sustainable growth, ongoing commitment to structural reforms and institutional strengthening is essential for long-term economic stability and prosperity (OECD, 2021).

Evolvement of Egypt's Economic Policy

Since the establishment of the republic in 1952, Egypt has witnessed significant shifts in its economic policies under different political regimes. From the nationalist and socialist policies introduced by Gamal Abdel Nasser (1954-1970) to Anwar Sadat's (1970-1981) adoption of Western liberalization measures, and later Hosni Mubarak's (1981-2011) emphasis on

open trade with state control and privatization, Egypt's economic landscape has undergone notable (Waterbury, 2014; Galal, 2011).

The most recent phase of economic reforms began with the election of former army chief Abdel Fattah el-Sisi in 2014, following the political unrest of 2011-2013. President El-Sisi's economic agenda has prioritized reform and restructuring efforts, including reducing social subsidies, devaluing the Egyptian pound, and promoting investment (Dahshan, 2015; Shokr, 2017).

Additionally, the armed forces and their various affiliates played an important role in the economy during President El-Sisi's rule, particularly in infrastructure projects, roads, and railway systems. Therefore, the country's economy became the second largest in Africa after Nigeria in terms of nominal GDP, which is ranked 31st worldwide as of 2021 (Dahshan, 2015; Hanafy, 2015).

Egypt's Political System and Economic Authorities

Egypt's political system comprises three main branches of government: The Executive, Legislative, and Judicial authorities. The Executive authority, led by the President and the Egyptian Cabinet of Ministers, oversees economic policy formulation and implementation. The Cabinet of Ministers is responsible for various sectors, including finance, planning, infrastructure, and social development (Egyptian Cabinet, 2020).

Table 2: Egyptian Cabinet of Ministers 2020

Head of Cabinet	Economic Development	Social Development	Infrastructure & National Resources	National Security and International Affairs
Prime Minister	1. Finance 2. Planning and economic development 3. Central Bank of Egypt 4. Trade and industry 5. Public enterprise 6. Labor	7. Education 8. Higher education 9. Health & population 10. Social solidarity 11. Justice 12. Local development 13. Housing	14. Communications & Information Technology 15. Electricity and renewable energy 16. Transport 17. Civil aviation 18. Irrigation & water resources 19. Agriculture 20. Petroleum and mineral resources 21. Tourism and antiquities	22. Defense 23. Interior 24. Foreign affairs 25. Information affairs 26. International co-operation

Source: Author's interpretation

Egypt's Government has started to address long-standing market distortions, creating a significant potential for strong real economic growth in the long term. However, success will also depend on a commitment to structural reform and significant improvements to institutional effectiveness. These reforms and policies have strengthened Egypt's annual growth since the country now benefits from political stability, proximity to Europe, and increased exports (IMF, 2018).

INITIAL DEVELOPMENT OF ECONOMIC CLUSTERS IN EGYPT (1805 -1981)

Egypt's path toward economic industrialization can be traced back to Mohamed Ali's rule from 1805 to 1845. During this period, Egypt emerged as a global cotton producer, with Ali's government establishing factories for clothing, food, and other manufacturing sectors. However, this initial attempt at industrialization faltered due to overreliance on a single industry, mounting debt from foreign governments, and conflicts with major powers such as Britain, France, and the Ottoman Empire (Karakoç *et al.*, 2017; Panza, 2014).

The second wave of industrialization, spearheaded by President Gamal Abdel Nasser in the 1950s, was characterized by increased state intervention following the nationalization of the Suez Canal in 1956. Nasser's administration brought key sectors of the economy under state control, with public enterprises assuming responsibility for essential goods production, including steel, aluminum, and chemicals. However, the industrial complexes developed during this period struggled with inefficiency and low productivity, prompting the Mubarak regime to implement privatization programs in the 1990s to alleviate the burden (Waterbury, 2014).

President Sadat's tenure in the 1970s witnessed the emergence of economic zones as a pivotal strategy for driving foreign investment, exports, and employment. The establishment of Egypt's first free zone in Port Said in 1974 marked the initial step toward economic zone development. Subsequently, a variety of economic zones with diverse regulatory frameworks and incentives were introduced, resulting in a complex governance and management landscape. However, this complexity has also created competition

and rivalry between government institutions over expanding and managing new economic zones (OECD, 2020; Waterbury, 2014). Table 3 provides a comprehensive overview of the evolution of clusters and economic zones in Egypt, detailing key elements such as their types, creation years, sizes, and associated presidents.

Table 3: Evolvement Timeline of Clusters and Economic Zones in Egypt (1805-2020)

Zone type/ Element	Industrial Complex	Industrial Clusters	Public & private Free Zone	Special Economic Zone	Qualified Industrial Zone	Investment Zone	Suez Canal Economic Zone	Golden Triangle Zone	Land Reclamation (1.5 million Acres)
President	Mohamed Ali	Naser	Sadat	Mubarak			Sisi		
Year of creation	1805	1956	1971	2002	2004	2008	2015	2017	2017
Size	NA	NA	48.6 km2	9 km2	NA	12.7 km2	461 km2	2.2 million acres	1.5 million acres to extend to 4 million

Source: Author and OECD based on Central Bank of Egypt, QIZ Unit Bulletin, GAFI, and WTO (2018)

CLUSTER AND ECONOMIC ZONES UNDER PRESIDENT MUBARAK (1981-2011)

President Mubarak's administration focused on the development of different types of economic zones, including Special Economic Zones, Qualified Industrial Zones, and Investment Zones. However, despite these efforts, Egypt's economic zones did not reach their maximum potential in terms of generating value-added, fostering innovation, and supporting diversification and sustainable development in the overall economy. Challenges such as limited competition between firms inside and outside economic zones and reliance on government incentives that reduced the economic zones' returns hindered their effectiveness (IMF, 2018). Additionally, foreign investors often limited their reliance on local providers of goods and services, which could narrow ties between economic zones and the local economy, particularly in sectors such as textiles and clothing. Policymakers could enhance economic zone returns by relying on higher-skilled labor or joint R&D agreements (Azmeh, 2014; Galal, 2011; Sakr, Baas, El-Haggar & Huisingh, 2011).

Free Zones

Egypt introduced the free zones system in 1997 during President Mubarak's administration. The system comprises 10 public free zones primarily situated in and around Cairo and Alexandria. Supervised primarily by the General Authority for Investment and Free Zones (GAFI), these zones operate under the regulations outlined in Investment Law No. 72 of 2017 and its Executive Regulations (General Authority for Investment and Free Zones, 2022; Abdelaziz *et al*., 2018).

These zones are strategically located in specific areas to leverage advantages such as proximity to raw material sources, export markets, and necessary labor. Among them are the Public Free Zones, numbering nine across Egypt, equipped with essential infrastructure like roads, electricity, sewerage stations, water networks, and telecommunications facilities. The selection of these locations considers their prominence within major cities, ensuring access to labor and supporting facilities while also complementing nearby maritime ports and airports (General Authority for Investment and Free Zones, 2022; Abdelaziz *et al*., 2018).

The primary objective of free zones is to facilitate imports and exports, thereby stimulating trade and bolstering foreign currency reserves. This has been achieved through the exemption of customs duties, corporate income tax, and VAT, coupled with the provision of warehousing, storage, and related

services. Notably, recent amendments to investment laws have refined the scope of industries eligible for free zone status, excluding sectors such as petroleum refining, steel production, and high-energy-consuming industries (General Authority for Investment and Free Zones, 2022; Abdelaziz *et al*., 2018; OECD, 2020).

Qualified Industrial Zones

President Mubarak signed a protocol between Egypt, the United States, and Israel to establish Qualified Industrial Zones (QIZs) in 2004. These zones are designed to boost exports of processed manufacturing goods, particularly textiles and clothing, to the United States. By combining the privileges associated with QIZ status and those offered by special investment regimes, these zones aimed to contribute to bilateral cooperation and stability in the region (Minister of Trade and Industry, 2022; OECD, 2020).

The QIZ Unit, operating under the supervision of the Ministry of Trade and Industry, plays a pivotal role in overseeing and supporting activities within these zones. Serving as both an executive and technical support unit and an information center for local and foreign businesses interested in investing under the terms of the QIZ protocol, it facilitates the implementation and management of QIZ-related initiatives (Minister of Trade and Industry, 2022; OECD, 2020).

Investment Zones and Technology Zones

Investment Zones and Technology Zones were introduced in 2008 and 2017, respectively, under the regulations of the 2017 Investment Law and Prime Minister decree No. 2310/2017. These zones are designed to foster the development of sector-specific clusters and promote activities in technology-related fields (General Authority for Investment and Free Zones, 2022).

Investment Zones encompass service clusters that Free Zones, such as Education, scientific research, and tourism infrastructure, do not prioritize. Examples include Cairo University and Cairo Airport, which operate under this regime. Technology Zones offer additional incentives, such as tax exemptions and waivers on customs duties for imported machinery and tools necessary for project establishment. The Ministry of Communications, Information, and Technology oversees the establishment of Technology Zones to promote technological activities, including electronics manufacturing, programming, and technological Education (Abdelaziz *et al*., 2018; General Authority for Investment and Free Zones, 2022).

Informal Clusters

Informal clusters have long been a part of Egypt's economic landscape, with their prominence growing notably during President Mubarak's tenure. These clusters, characterized by minimal government intervention, have become significant contributors to the economy. Examples include the El-Mahalla El-Kubra textile cluster, the Damietta furniture cluster, and the Fayoum and Beni Suef medicinal and aromatic plant cluster (Krafft *et al*., 2024; Social Fund for Development, 2015).

The continued expansion of informal clusters in Egypt can be attributed to various factors, including government focus on large enterprises at the expense of small and medium-sized enterprises (SMEs), a complex tax system, and a high proportion of unproductive firms (Abdelaziz *et al*., 2018). In 2018, the informal economy accounted for approximately 31.6 percent of GDP and 63.4 percent of total employment, highlighting its significant presence (Elgin *et al*., 2021; Abdelaziz *et al*., 2018).

Greater attention and support from the Egyptian Government are needed to address the challenges faced by informal clusters, such as governmental neglect and tax complexity. Integrating these informal clusters into the formal economy could unlock their potential and enhance their value propositions, contributing to overall economic development (Abdelaziz *et al*., 2018; Social Fund for Development, 2015).

SPECIAL ECONOMIC ZONES UNDER PRESIDENT SISI (SINCE 2015)

President Sisi, who assumed office in 2014, has prioritized political and economic stability, seeking to address social unrest following the political upheavals of 2011-2013. In pursuit of this goal, his administration has initiated a comprehensive effort to

revitalize the Egyptian economy. This endeavor includes the establishment of specialized economic zones such as the Suez Canal Economic Zone, Golden Triangle Zone, and Land Reclamation of 1.5 million Acres, forming a key component of a broader structural economic reform agenda (Miehe & Roll, 2019; Dahshan, 2015; Shokr, 2017).

Furthermore, in support of these economic revitalization efforts, the International Monetary Fund (IMF) approved a US$12 billion Extended Fund Facility for Egypt in 2016. This financial assistance is aimed at promoting macroeconomic stability and fostering inclusive growth. To address various economic challenges, measures such as currency devaluation, enhanced monetary policy, and fiscal consolidation have been implemented (IMF, 2018; European Commission, 2022).

President Sisi's government has endeavored to restore political and economic stability in Egypt, particularly following the unrest between 2011 and 2013. Through the development of specialized economic zones, the administration seeks to stimulate economic growth and enact structural reforms aimed at fostering long-term prosperity (Miehe & Roll, 2019; Dahshan, 2015; Shokr, 2017).

Suez Canal Economic Zone (SCZONE)

Established in 2015 under President Sisi's leadership, the Suez Canal Economic Zone (SCZONE) is Egypt's newest and most expansive cluster-based economic zone. Governed by Law No. 83/2002 and subsequently amended by Law No. 27/2015, SCZONE represents a significant component of the government's multi-billion-dollar investment into the Suez Canal and its surrounding areas. Covering a vast expanse of 461 sq km across both sides of the expanded Suez Canal, SCZONE distinguishes itself through its scale, level of investment, and incentives offered to investors (Oxford Business Group, 2017; SCZone, 2022).

Governed by the General Authority for the Suez Canal Economic Zone, reporting directly to the Prime Minister, SCZONE operates as a centralized hub for investors. This authority oversees licensing, tax collection, dispute resolution, and utilities provision, aiming to create a framework that provides investors with enhanced protections against political and legislative instability. The primary objective of SCZONE is to act as a pivotal catalyst for economic advancement in Egypt, promoting diversified economic growth and enhancing national competitiveness (Oxford Business Group, 2017; SCZone, 2022).

With a vision to harness the vast potential of the Suez Canal Gulf and its surrounding areas, SCZONE aims to develop an efficient, competitive, and eco-friendly business environment. This includes generating employment opportunities, establishing a global center for maritime transport and logistics services, and positioning Egypt as a pivotal gateway for trade between East and West (SCZone, 2022). SCZONE endeavors to attract businesses from across the region by offering value-added supply chain services, world-class industrial parks, and improved access to regional markets and talent pools (Oxford Business Group, 2017; SCZone, 2022).

The SCZONE adopts a cluster-based approach, comprising four main industrial zones strategically distributed across Port Said, Qantara, Ismailia, and Ain Sokhna. These zones cater to a diverse range of sectors, including logistics, agri-business, textiles, ICT, heavy industry, and renewable energy manufacturing. Additionally, SCZONE features six ports and two airports to facilitate efficient operations within these industrial zones (SCZone, 2022).

Furthermore, SCZONE provides a host of incentives under various international trade agreements and financial schemes, including simplified labor cost options, VAT exemptions, and tailored customs regimes. Already, SCZONE has attracted substantial foreign investment, with notable commitments from entities such as China's Tianjin Economic-Technical Development Area (TEDA) Corporation and the Russian government-led initiatives near East Port Said. These investments span a wide array of sectors, including engineering, machinery, shipbuilding, and food (General Authority for Investment and Free Zones, 2021; 2022).

Golden Triangle Zone (GTZONE)

The Golden Triangle Zone (GTZONE), situated between Qena, Safaga, and Al Qusair, is another specialized economic zone that attracts foreign direct investment (FDI). Rich in natural resources and mining, the region is expected to host various

industries, including cement, glass, silicon, chemicals, and computer chips. Additionally, the GTZONE will serve as a trade route linking Upper Egypt with the Safaga seaport, benefiting from the Safaga solar energy project, a key component of Egypt's Vision 2030 (General Authority for Investment and Free Zones, 2022).

Land Reclamation of 1.5 Million Acres Agricultural Project

The Land Reclamation of 1.5 million Acres project primarily targets the agricultural sector, aiming to increase arable land by 20 percent, enhance Egypt's food security, and accelerate economic development in rural communities. In addition to strengthening Egypt's food exports, it currently accounts for nearly 18 percent of the total exports. The project is in Tosheka and West Minyah in Upper Egypt, Farafrah in the New Valley governorate, and El Magraa in the West Delta. This project is the first stage of a plan to reclaim 4 million acres, providing raw materials for industries such as textile manufacturing, leather production, and food processing while strengthening Egypt's food exports (General Authority for Investment and Free Zones, 2022).

CONCLUSION AND POLICY RECOMMENDATIONS

This study presents the evolution of clusters and economic zones in Egypt and emphasizes the significant role economic clusters play in enhancing a country's national competitiveness. Egypt's historical efforts in implementing economic clusters, which began with Mohamed Ali in the 18th century, underscore the country's longstanding commitment to industrialization and economic development. Despite these historical precedents, challenges persist in fully harnessing the potential of economic zones, as evidenced by limitations encountered during President Mubarak's administration, including inefficiencies and regulatory constraints.

Under President Sisi's administration, cluster-based development and the establishment of mega special economic zones demonstrate a renewed commitment to fostering economic growth, attracting investments, and creating employment opportunities. However, realizing the full potential of these initiatives requires alignment with national objectives, such as Egypt Vision 2030 and the National Investment Plan. Strategic alignment will ensure coherence and maximize the impact of Economic Clusters on overall development goals.

Establishing strong partnerships and connections between foreign companies in economic zones and local businesses is essential for facilitating the exchange of knowledge, technology, and skills. This integration of local industries into global value chains will significantly enhance national competitiveness. Moreover, addressing challenges such as unfair competition and regulatory constraints demands the implementation of robust regulatory frameworks and measures to promote transparency and accountability. Additionally, by improving data collection methods and analysis, policymakers can design targeted interventions to steer economic zone development toward sustainable and inclusive growth (Christensen et al., 2012; Farole, 2011).

Therefore, effectively leveraging clusters and economic agglomeration policies to strengthen national competitiveness will require integrating strategic alignment with national objectives, fostering collaboration and linkages, and addressing challenges through robust regulatory frameworks and data-driven policymaking. Through concerted efforts and strategic interventions, Egypt can unlock the full potential of its Economic Clusters to improve national competitiveness and position itself as a leading player in the global economy (Christensen et al., 2012; Farole, 2011).

Based on the findings of this study, a few economic policy recommendations can be suggested to effectively utilize economic clusters to enhance national competitiveness in developing countries like Egypt. These policy recommendations include:

- Alignment of Economic Strategies: The government should ensure closer alignment between economic national strategies, mainly Egypt’s Vision 2030 and National Investment Plan, and the objectives of economic clusters. In addition, policy formulation and implementation should be better coordinated to maximize the impact of economic clusters and enhance national competitiveness (Cho et al., 2006).

- Enhanced Regulatory Frameworks: Improving regulatory frameworks and enhancing

transparency in licensing, tax collection, and dispute resolution processes within economic zones can improve the investment climate and attract foreign investors (Farole & Kweka, 2011).

- Stakeholder Engagement: Effectively addressing the complexity of stakeholder relationships within economic zones necessitates fostering trust, transparency, and active engagement of the private sector, local governorates, and other relevant stakeholders (Freeman & McVea, 2001; Cho & Moon, 2005).

- Implementation of Strategic Monitoring and Evaluation Systems: Establishing robust monitoring and evaluation mechanisms is crucial for tracking the performance and impact of economic clusters over time. By regularly assessing key performance indicators within these clusters, policymakers can identify areas for improvement (Pellegrin et al., 2020; United Nations Development Group, 2011).

- Emphasis on Data-Driven Monitoring: It is essential to prioritize collecting, analyzing, and utilizing relevant data in monitoring the performance of economic clusters. By leveraging advanced analytics and data visualization techniques, policymakers can gain valuable insights into each cluster's strengths and weaknesses, enabling targeted interventions and resource allocation to maximize their contribution to national competitiveness (Pellegrin et al., 2020; United Nations Development Group, 2011).

- Investment in Infrastructure: Continued investment in infrastructure, including transportation, logistics, and utilities, is crucial for the success of economic zones (Christensen et al., 2012; Farole & Akinci, 2011).

- Promotion of Technology-Driven Industries: Promoting innovation through technology-driven industries within economic zones can contribute to sustainable economic development and enhance national competitiveness (Gerasymchuk & Sakalosh, 2007; Castells & Hall, 1994).

- Sustainability and Social Responsibility: Adopting environmentally friendly practices, promoting social inclusion, and investing in workforce development programs can create shared value for all stakeholders involved (Balkyte & Tvaronavičiene, 2010).

Hence, by implementing these policy recommendations, Egypt can leverage its economic clusters as a strategic tool for improving national competitiveness. By successfully implementing these policies, Egypt will have a better opportunity to position itself as a leading investment destination and a hub for innovation and economic growth in the region and its peers.

Further research on the impact of economic clusters on leveraging national competitiveness in Egypt could significantly improve related policymaking in developing countries. Additionally, Comparative analyses of other countries' experiences could provide valuable lessons for policy formulation, while exploring the role of technology and innovation in cluster development within economic zones would offer valuable insights into the competitiveness of industries and their potential for driving economic growth. Finally, evaluating the effectiveness of existing economic policies and regulatory frameworks governing economic clusters would contribute to evidence-based policymaking in Egypt.

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