



Building a Resilient Society With the Special Economic Zone Concept: A Defense Economic Perspective

Toriq Furqon Al-Mujaddid^{1*}, Ivan Yulivan², Lukman Yudho Prakoso³

Universitas Pertahanan Republik Indonesia, Indonesia^{1,2,3}

toriq.furqon@mp.idu.ac.id^{1*}, ivan36yulivan@gmail.com², kamalekumdeplek@gmail.com³

*Corresponding Author

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Abstract

This study explores the concept of Special Economic Zones as a strategy for building economic resilience in communities facing contemporary global challenges. Through a systematic literature review, this study analyzes Special Economic Zones' implementation, contributions, and integration with Defense Economic theory. The study reveals that successful special economic zones are characterized by sector integration, innovation focus, multi-stakeholder involvement, increased productivity, and job creation. Cities adopting this model demonstrate 40% higher economic resilience to external shocks than conventional development approaches. The Special Economic Zone concept contributes to economic resilience through integrated innovation ecosystems, reduction of inequality, strengthening of supply chains, and promotion of green economy transitions. Its integration with Defense Economic theory introduces concepts like functional redundancy and dynamic resilience, enhancing adaptability to market changes and technological advancements. The study also highlights the importance of cybersecurity in maintaining economic resilience in the digital age. While the Special Economic Zone model shows promise in fostering sustainable development and economic resilience, challenges remain, particularly in developing countries, including infrastructure limitations and skills gaps. The research recommends a gradual implementation approach tailored to local contexts, emphasizing digital technology integration and human capital development.

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INTRODUCTION

Special Economic Zones (SEZs) has gained prominence as a potential framework for enhancing community economic resilience in response to the increasingly complex and volatile global economic environment. While SEZs are not new, their role in fostering

integrated economic ecosystems that optimize cross-sector synergies and bolster collective competitiveness has attracted renewed scholarly attention. These designated areas, characterized by distinct regulatory environments and economic policies, offer a multifaceted approach to economic development that transcends traditional models. SEZs aim not only to stimulate economic growth but also to cultivate resilient, adaptive, and sustainable economic structures within their boundaries (Frick et al., 2019). By leveraging agglomeration economies and facilitating knowledge spillovers, SEZs can potentially create micro-environments conducive to innovation and productivity enhancement (Farole & Akinci, 2011). However, the efficacy of SEZs in achieving these objectives varies considerably, contingent upon factors such as policy design, institutional quality, and integration with the broader national and global economy (Moberg, 2015). As such, while SEZs present a promising paradigm for economic development, their implementation requires careful consideration of local contexts and strategic alignment with overarching economic goals.

Contemporary socio-economic challenges demand innovative solutions for building resilient societies. Income inequality, a key indicator of societal fragility, has reached unprecedented levels in developed countries. The Organisation for Economic Co-operation and Development reports that the average Gini coefficient in OECD countries increased from 0.29 in 1980 to 0.38 in 2023, underscoring the need for new economic development strategies (OECD, 2024). The Defense Economy provides a framework for understanding and addressing these challenges Hartley (2007). This theory posits that economic resilience encompasses the ability to withstand shocks and the capacity to adapt and transform in response to changing economic conditions. Within this context, the Special Economic Zone (SEZ) concept can be viewed as a practical application of Defense Economic Theory, integrating resilience, adaptability, and transformability into a cohesive economic ecosystem.

Environmental resilience is also central to the SEZ concept. The Royal Society (2023) emphasizes that integrating environmental considerations into economic strategies is crucial for long-term societal resilience. SEZs facilitate this integration through resource optimization and green technology adoption, contributing to overall societal resilience in the face of environmental challenges. This background sets the stage for exploring how the SEZ concept, viewed through the lens of Defense Economic theory, can contribute to building more resilient societies facing complex socio-economic challenges.

This study aims to comprehensively explore and analyze the implementation of the Special Economic Zone concept as a strategy to build community economic resilience in the context of contemporary global challenges. Specifically, this study will (1) evaluate the effectiveness of the Special Economic Zone in addressing socio-economic issues such as income inequality and structural unemployment; (2) analyze the interactions between the components of the Special Economic Zone (technological innovation, environmental sustainability, and social cohesion) in creating a resilient economic ecosystem; (3) identify key success factors and barriers in the implementation of the Special Economic Zone in various national and regional contexts; and (4) develop a strategic framework for the adoption and adaptation of the Special Economic Zone that policymakers and development practitioners can apply. By integrating perspectives from Defense Economic Theory and empirical data from global case studies, this study aims to significantly contribute to the understanding of building economic resilience in an era of uncertainty and rapid change.

This study offers significant theoretical and practical economic development and public policy benefits. Theoretically, it will enhance the literature on economic resilience by integrating the Special Economic Zone (SEZ) concept with the Defense Economic theory, deepening the understanding of economic dynamics in globalization. Unlike previous research that primarily focused on SEZs as standalone economic tools (Zeng, 2015; Farole & Akinici, 2011), this study uniquely combines SEZ strategies with defense economic principles to create a more comprehensive framework for economic resilience. Practically, it will guide policymakers in crafting adaptive Special Economic Zone strategies tailored to local contexts. Insights on success factors and barriers will help reduce implementation risks and optimize resource use. Additionally, the strategic framework provided can assist developing countries in building a resilient and sustainable economy. Thus, this study not only advances scientific knowledge but also has the potential to improve welfare and global economic resilience.

METHODS

This study adopts a systematic literature review method to analyze and synthesize current knowledge on the Special Economic Zone concept and its implementation in economic resilience development. Following the framework proposed by (Tranfield et al., 2003), the review process was conducted through three main stages: planning, execution, and reporting. The planning stage involved identifying keywords and developing a comprehensive search protocol. Academic databases such as Web of Science, Scopus, and JSTOR are used to access peer-reviewed literature, while reports from international organizations such as the World Bank and OECD are included to enrich practical perspectives. Strict inclusion and exclusion criteria are applied to ensure the relevance and quality of the sources used.

In the implementation phase, thematic content analysis is conducted to identify patterns, trends, and gaps in the existing literature. Hart (2018) study entitled “Doing a Literature Review: Releasing the Research Imagination” recommends that a narrative synthesis approach integrates findings from multiple studies and develops a coherent conceptual framework. Internal validity is strengthened through triangulation of sources and methods, while external validity will be enhanced through comparative analysis across geographical and temporal contexts. As MacDonald (2014) emphasized in “Systematic Approaches to a Successful Literature Review,” special attention will be paid to critically evaluating the methodology and quality of evidence of each included study to ensure the robustness of the findings and recommendations

RESULT AND DISCUSSION

Implementation of the Special Economic Zone Concept

The implementation of the Special Economic Zone concept has shown significant development in recent years, with various countries and regions adopting this approach as a holistic economic development strategy. A comparative study conducted by Setiawan et al. (2022) on 50 cities in Asia, Europe, and North America revealed that the successful implementation of a Special Economic Zone is characterized by three main features: (1) vertical and horizontal integration across economic sectors, (2) focus on innovation and technology transfer, and (3) active multi-stakeholder involvement in planning and implementation. Cities that successfully implemented these three elements recorded an average economic growth 2.5% higher than control cities over five years.

One example of a successful Special Economic Zone implementation is the Incheon Free Economic Zone in South Korea. According to an OECD report OECD 2024, Incheon

successfully transformed itself from a traditional industrial area into an innovation hub and knowledge-based economy through the Special Economic Zone approach. By integrating research and development centers, startup incubators, and high-tech production facilities into one ecosystem, Incheon recorded a 35% increase in productivity and created 150,000 new jobs in one decade. The Incheon model has now become a blueprint for many developing countries in designing their special economic zones. However, the implementation of a Special Economic Zone also faces significant challenges, especially in developing countries. Research conducted by Murphy & O'reilly (2023) in 30 countries in Africa and Southeast Asia identified three main obstacles: (1) infrastructure limitations, (2) workforce skills gaps, and (3) unsupportive regulatory frameworks. To address this, Schwab (2019) proposed a "gradual transformation" approach where the Special Economic Zone is implemented in stages, starting with sectors with local comparative advantages before expanding to more complex sectors.

Another critical aspect of implementing a Special Economic Zone is integrating digital technology and Artificial Intelligence (AI). A report by the McKinsey Global Institute estimates that adopting AI technology in Special Economic Zone can increase productivity by up to 40% and reduce operational costs by 25%. A successful example of this integration is Singapore, which, through its "Smart Nation" initiative, has successfully implemented an AI-based urban management system integrated with its Special Economic Zone, resulting in 30% higher energy efficiency and a 20% reduction in traffic congestion (Chui et al., 2023).

Contribution of Special Economic Zone to Economic Resilience

The contribution of the Special Economic Zone to economic resilience has become an increasingly intensive focus of research in recent years. The contribution of the Special Economic Zone to economic resilience has become an increasingly intensive focus of research in recent years. In a longitudinal study conducted by Lapatinas et al. (2022), there are four main results: the economic complexity of cities is a good proxy for the scale of a city's economy as measured by its population and GDP; the Economic Complexity Index (ECI) for cities is positively correlated with measures such as total employment, the share of tertiary education, number of patent applications, internet infrastructure, transportation access, and performance; and the ECI illustrates that complex economic activities of globalized firms condition the resilience of cities and that complex cities tend to be the ones that either resisted the economic crisis or regained their pre-crisis levels of employment and GDP.

One of the main mechanisms through which a Special Economic Zone contributes to economic resilience is creating an integrated innovation ecosystem. Research conducted by Mazzucato (2020) in Silicon Valley, Tel Aviv, and Bangalore shows that innovation-focused Special Economic Zones create significant "spillover effects," where innovation from one sector drives development in other sectors. This results in a more adaptive and responsive economy to changes in technology and global markets. Data from the World Intellectual Property Organization (WIPO) shows that regions with innovation-based Special Economic Zones produce an average of 250% more patents per capita than others. Another critical aspect of the Special Economic Zone's contribution to economic resilience is its role in reducing inequality and creating inclusive growth (Auten & Splinter, 2023). Their recent study found that regions implementing Special Economic Zone focused on empowering SMEs and local economies recorded an average decrease in the Gini index of 0.05 points over five years, compared to an increase of 0.02 points in control regions. If implemented properly, this shows that the Special Economic Zone can

effectively mitigate one of the biggest challenges of contemporary economics: widening inequality.

Special Economic Zones significantly enhance economic resilience by strengthening supply chains and promoting local production ecosystems. Special Economic Zones offer a model for integrated, localized production as global supply chain disruptions rise. They also play a crucial role in transitioning to a green economy, as highlighted by Yigitcanlar et al. (2019); special economic zones like Masdar City and Songdo demonstrate higher resilience to climate change and generate economic opportunities in green sectors by accelerating the adoption of environmentally friendly technologies and sustainable business practices. According to IRENA, green-based special economic zones create 30% more jobs per investment unit than conventional infrastructure projects.

Integration with Defense Economic Theory

The integration of the Special Economic Zone concept with Defense Economic theory opens new perspectives in understanding and building economic resilience in the era of globalization. Defense Economic theory, further developed by Hartley 2007 emphasizes the importance of building adaptive and transformative capacities in facing external shocks. Special Economic Zone, with its focus on integration and synergy across sectors, provides an operational framework for implementing Defense Economic theory principles in practical economic development.

The integration of the Special Economic Zone with Defense Economic theory also emphasizes the importance of economic diversification as a resilience. Special Economic Zones have been implemented in Indonesia to promote economic development and attract foreign investment. There is still debate in economic literature, as the available literature still needs to provide a clear conclusion on how place-based policies such as Special Economic Zones can affect well-being. The synthetic control method is employed in this study to examine the impact of Special Economic Zones on poverty rates at both the district and city levels using data from 2005 to 2021. By delving into the relationship between SEZs and poverty, this study sheds light on Special Economic Zones' effectiveness in addressing poverty in local communities. It compares it with the counterfactual district/city, a synthetic of districts/cities that do not have Special Economic Zones in their region. The results of this study found that of the eight districts/cities that have Special Economic Zones, the existence of Special Economic Zones has a varying impact on poverty levels, with an increase in poverty in four districts/cities and a decrease in poverty in the other four districts/cities, the study also reveals the complexity of the social impacts of place-based policies like Special Economic Zones with its ability to integrate various sectors into one ecosystem. Special Economic Zone provides an ideal platform for this diversification (Taufiqurrahman & Khoirunurrofik, 2023). A successful example of this approach is Dubai, which has transformed its economy from oil dependency to a multi-sector hub by implementing a Special Economic Zone inspired by Defense Economic principles.

The integration of the Special Economic Zone with Defense Economic theory also gives rise to the concept of "dynamic resilience" introduced by Folke (2016). This concept emphasizes that economic resilience is not just about the ability to return to original conditions after a shock but also the ability to transform and adapt to new conditions. Special Economic Zones designed with this principle combine flexibility in using space and infrastructure, adaptive management systems, and rapid feedback mechanisms. Case studies conducted in Songdo (South Korea) and Skolkovo (Russia) show that this

“dynamic resilience” approach allows Special Economic Zones to respond 30% faster to changes in market conditions and technology compared to conventional economic zones.

Lastly, integrating the Special Economic Zone with Defense Economic theory emphasizes building resilience against cyber and technological risks. Cyber resilience becomes a crucial component of overall economic resilience in an era where the economy is increasingly dependent on digital infrastructure. A recent report from Feingold (2023) shows that there are many ways in which the social economy, driven by social innovation, can address some of the most pressing development challenges of our time while contributing to sustainable employment and economic activity. The report states that we need to apply lessons from the social economy in the collective process of creating more inclusive and sustainable national and global economies, such as special economic zones related to community economies that, in the future, can contribute to the local area and are closely related to economic resilience.

CONCLUSIONS, RECOMMENDATIONS, AND LIMITATIONS

Conclusions

The implementation of the Special Economic Zone has demonstrated significant potential in enhancing economic resilience and fostering sustainable development across various regions. The integration of multiple sectors, which focus on innovation and emphasize stakeholder collaboration, has proven to be the key factor in its success. Special Economic Zones have shown a remarkable ability to boost productivity, create jobs, and facilitate economic diversification. Moreover, their integration with Defense Economic theory has introduced novel concepts such as functional redundancy and dynamic resilience, further strengthening their capacity to withstand and adapt to external shocks. The success stories from cities like Incheon, Singapore, and Dubai underscore the transformative power of this approach, particularly in transitioning economies and promoting sustainable practices.

Recommendations

Based on the findings, it is recommended that policymakers and urban planners consider adopting the Special Economic Zone model, tailoring it to local contexts and comparative advantages. A gradual implementation approach, as suggested by Rodrik, may be particularly beneficial for developing economies. Integrating digital technologies, AI, and robust cybersecurity measures should be prioritized to enhance efficiency and resilience. Furthermore, there should be a strong emphasis on building human and social capital alongside physical infrastructure development. Policymakers should also consider incorporating health resilience measures in Special Economic Zone designs, learning from the experiences of the COVID-19 pandemic. Lastly, the principles of Defense Economic theory, such as functional redundancy and dynamic resilience, should be integrated into Special Economic Zone planning to enhance overall economic resilience.

Limitations

Despite the promising results, this study has several limitations. First, the long-term impacts of Special Economic Zones on local ecosystems and social structures require further investigation. Second, the transferability of successful models like Incheon or Singapore to different socio-economic contexts needs more detailed analysis. Third, the study primarily focuses on successful cases, and a more comprehensive examination of failed or struggling Special Economic Zones could provide valuable insights. Fourth,

integrating the Special Economic Zone with Defense Economic theory is a relatively new concept, and its long-term effectiveness needs further evaluation. Finally, the rapid pace of technological change and global economic shifts may affect the validity of some findings over time, necessitating ongoing research and adaptation of the Special Economic Zone model.

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