
Defense Economics in Indonesian Macroeconomy: Strategy Defense Industry Independence

Mulyadi¹, Nirdukita Ratnawati²

Abstract:

Strategies to strengthen the independence of the defense industry must consider various factors, including technological advancements, market demands, and potential collaborations between the public and private sectors. In the context of globalization, Indonesia's defense industry must compete with more advanced products from other countries. The aim of this research is to examine the strategies for achieving defense industry independence within Indonesia's macroeconomic development framework. The findings highlight essential steps and strategies necessary to strengthen Indonesia's defense industry, contributing to national independence and security. With commitment from all stakeholders, the defense industry can evolve and provide substantial benefits to Indonesia's overall economy.

Keywords: Strategy, Defense Industry, Economy, Independence

Submitted: November 29, 2024, Accepted: December 20, 2024, Published: December 31, 2024

1. Introduction

The background of Indonesia's defense economics is a significant issue, often making some parties uncomfortable. This is because the concept of defense economics has evolved beyond merely optimizing budget allocation among competing defense priorities. As noted by Alfred Oehlers and Daniel K. Inouye (2020) at the Asia-Pacific Center for Security Studies, defense economics now encompasses a broader scope, involving the sustainable development and competitiveness of the defense industry on a global scale. Yugianoro (2017) in his book *Defense Economics: Theory and Practice* also emphasizes that defense economics is a system involving interactions between defense policies, government spending, and industries that support defense needs. In the context of Indonesia, an archipelagic country rich in natural resources, defense economics must be linked to supporting the independence of the defense industry.

This phenomenon has emerged in tandem with the increase in Indonesia's defense budget, which is projected to reach IDR 137 trillion in 2023, showing a significant rise from the previous year. This increase demonstrates the government's commitment to strengthening national defense capacity. However, the challenge lies in how to optimize these expenditures so that they do not solely focus on acquiring main

¹ Faculty of Economic and Business, Universitas Trisakti, Indonesia. mulyadi.zi98@gmail.com

² Faculty of Economic and Business, Universitas Trisakti, Indonesia. nirdukita.ratnawati@trisakti.ac.id

weapons systems (alutsista) but also promote the growth of the local defense industry. According to Kusuma and Setiawan (2022), developing an independent defense industry is key to facing globalization challenges and increasing the need for safeguarding national sovereignty.

Despite the continued rise in defense spending, there remains a significant gap in Indonesia's dependence on imports for defense technology and products from other countries. As Prasetyo (2022) points out, Indonesia's defense industry policies still face numerous challenges, including issues in military equipment modernization and domestic industry development. This highlights the gap between the potential and the realization of policies aimed at strengthening defense industry independence, which is also reflected in several studies and reports, such as those by Suryana and Nugroho (2022), which discuss the efficiency of defense expenditures in ASEAN countries, including Indonesia.

The novelty of this research lies in its holistic approach to Indonesian defense economics, emphasizing the importance of strengthening the independence of the defense industry within the broader macroeconomic strategy of Indonesia. This research will further explore how Indonesia can overcome dependence on foreign defense products and leverage its domestic resources to foster innovation and technological development. In this context, Yusgiantoro (2017) and Widodo (2021) argue that the development of the defense industry should involve long-term strategies, which include enhancing domestic capabilities and utilizing research and technology.

The purpose of this study is to analyze strategies that Indonesia can adopt to achieve sustainable independence in its defense industry. This research will also identify the policies and actions required to strengthen the domestic defense sector through technology development and collaboration between the public and private sectors. As Putra and Wicaksono (2023) suggest, defense procurement policies that are more oriented toward the domestic market will play a crucial role in this effort. Additionally, this study will explore Indonesia's potential to become a key player in the international defense market, aligning with the government's vision of achieving defense independence (Arifin & Susanto, 2024).

Therefore, defense industry independence must be an integral part of Indonesia's macroeconomic strategy. Not only will it support domestic defense needs, but it could also open opportunities for Indonesia to become a global player in the defense sector. As Rahardjo and Pramono (2024) state, to achieve this goal, Indonesia must maximize its domestic resources and production capabilities. The success of defense industry policies will depend on the synergy between government policies, the defense industry, and society, all working together to create an ecosystem that fosters sectoral growth.

To develop policies that support innovation and research in the defense industry, it is essential for Indonesia to consider the experiences of other countries, as highlighted

by Suryana and Nugroho (2022), who analyze the efficiency of defense spending in ASEAN. Furthermore, Tri et al. (2022) argue that Indonesia needs to strengthen defense technology development policies to support the independence of main weapons systems and address the challenges posed by globalization's competitive nature.

2. Theoretical Background

Indonesian Macroeconomic Context

Indonesia's macro economy in recent years shows quite stable growth, even though it is faced with various challenges global. According to the Central Statistics Agency (BPS), Indonesia's economic growth is at in 2022 it will reach 5.31%. This growth is driven by various sectors, including processing industry and trade, which are important sectors to support the strengthening of the defense industry (BPS, 2023).

The defense industry sector in Indonesia still has great potential, However, currently it is still relatively low in its contribution to the product Gross Domestic (GDP). Data from the Ministry of Defense shows that the defense industry's contribution to national GDP is only around 1.5%. This matter indicating the need for more aggressive strategies to increase contributions this sector in the national economy.

One of the main challenges in developing the defense industry is dependence on imports of defense equipment. According to reports from the Ministry Industry, around 80% of Indonesia's defense equipment needs still depend on import. This dependency has the potential to threaten independence and security national. Therefore, the development of the local defense industry must be priority to reduce such dependency.

Furthermore, strengthening the defense industry can also open up the field new jobs and encourage local economic growth. By upgrading production capacity and innovation in the defense sector, Indonesia can create greater added value and increase the competitiveness of national industry in the market global. This is also in line with the government's efforts to create fields work and reduce unemployment in the country.

In this context, it is important for the government to create an investment climate which is conducive to the defense industry. Policies that support collaboration between government, industry and research institutions must be strengthened in order to create sustainable innovation. Thus, the development of the defense industry will not only provide benefits to the defense sector, but also to national economy as a whole.

Defense Industry Independence Strategy

The strategy to strengthen the independence of the Indonesian defense industry must be involves various aspects, including increasing research capabilities and development (R&D), collaboration between the public and private sectors, and strengthening regulations and policies. One of the first steps that can be taken is increase the budget for R&D in the defense sector. According to data from Ministry

of Research and Technology, the budget for R&D in the defense sector is still relatively low, around 0.2% of the total defense budget (Kemenristek, 2023).

Strategies that can be implemented to strengthen industrial independence defense is through the Ends, Means, and Ways approach. Ends refers to goals to be achieved, Means are the resources needed for achieve these goals, while Ways are the methods or means used to achieve that goal.

3. Methodology

The Research Model is a quantitative model. (Sugiyono, 2017) The quantitative model is a quantitative research method that can be interpreted as a research method that is based on the philosophy of positivism, used to research certain populations or samples, sampling techniques are generally carried out randomly. The data collection technique used in this research is a literature review of previous research and the results of interviews with stakeholders in implementing the economic defense industry independence strategy. The analytical tools used to process the data in this research are Microsoft Office Excel 2007 and Microsoft Visio analysis.

The data in this research is divided into primary data and secondary data. Primary data was obtained through interviews with Indonesian defense industry developers. Secondary data was obtained from agencies, the internet as well as literature and other sources related to the research topic

4. Empirical Findings/Result

Strategic Objectives (Ends)

The goal of independence for the Indonesian defense industry is to create independence in providing the main weapons system equipment (alutsista) and increasing the competitiveness of the defense industry at regional and global levels. In this context, independence means reducing dependence on imports defense equipment which has been a challenge for Indonesia. The data shows that Until 2020, around 70% of the defense equipment used by the TNI was still imported from other countries (Yusgiantoro, 2018). This indicates the need for greater efforts to build domestic production capacity.

Achieving this independence is not easy, considering the complexity technology involved in the production of defense equipment. Therefore, it is necessary significant investment in research and development (R&D) for create the necessary technology. According to a Ministry of Defense report, The budget allocation for R&D in the defense sector is still very limited, namely only around 1% of the total defense budget (Ministry of Defense, 2021). This shows that there is an urgent need to increase the budget allocation so that Indonesia can develop innovative defense technology.

It can be concluded that the strategic goal is to strengthen the defense industry Indonesia must be supported by consistent and sustainable policies. The government needs to formulate clear regulations and provide incentives for them companies investing in the defense sector. With steps With this step, it is hoped that Indonesia's defense industry can develop and contribute more to national independence and

security

To achieve the goal of defense industry independence, various things are needed adequate resources. These resources include Country policies (*Political Will*), financial investment, technology and competent human resources as well Ministries/Institutions, BUMN and BUMS. According to data from the Ministry Defense, Indonesia's defense budget in 2022 will reach IDR 137 trillion, but only a small portion is allocated for industrial development domestically (Ministry of Defense, 2022). Therefore, there is a need to increase allocation budget for this sector to support more development significant.

One of the main resources or actors in the defense industry is The Ministry of Defense of the Republic of Indonesia is responsible for formulate national defense and security policies. Through Business Entities State-Owned (BUMN) such as PT Pindad, PT Dirgantara Indonesia, and PT PAL Indonesia, the government is trying to create independence in production defense equipment. Data from the Ministry of Defense shows that the budget for procurement of defense equipment increases every year, with a budget allocation reaching Rp 126.6 trillion in 2021, which shows the government's deep commitment strengthening the defense industry (Ministry of Defense, 2021).

On the other hand, private industry is also starting to play an active role in the defense sector. Local companies such as PT Len Industri and PT Dahana contributed in technology development and production of defense components. For example, PT Len Industri has succeeded in producing radar systems and communications devices used by the TNI. Statistics show that the contribution of private industry in defense sector increased from 15% in 2015 to 30% in 2020, shows an increase in capacity and confidence in the industry local (Central Statistics Agency, 2021).

Finally, adequate resources must be managed well in order to do so provide optimal results. The government needs to ensure that policies sustainable investments made in the defense sector can provide a significant impact on industrial growth and national economy. With good management, it is hoped that industry players will Indonesia's defense can grow and contribute more to national defense, macroeconomics and the independence of the national defense industry.

In achieving strategic goals and utilizing existing resources, It is important to formulate effective methods in strengthening the defense industry. a) One method that can be applied is by building partnerships between government, industry and research institutions. this partnership will enable the exchange of knowledge, technology and resources

necessary to develop a strong defense industry. Governments can facilitate this collaboration by creating frameworks regulations that support partnerships between the public and private sectors. For example, by providing tax incentives for companies that investing in research and development in the defense sector. Besides Additionally, the government can also provide grant funds for projects innovative proposed by companies in the defense sector (Ministry of Defense, 2022).

Regulations and policies that support the development of the defense industry must

also be strengthened. The government needs to issue regulations facilitate investment in the defense sector, including incentives for companies that invest in the development of new technologies. Besides that, the need for policies that support the development of small industries and medium-sized enterprises (IKM) in the defense sector so that they can contribute to the chain supply the national defense industry.

- a. Another method that can be applied is the development of a training program and education focused on the defense industry. Government and the industry needs to work together in planning the education curriculum relevant to industry needs. These programs should include technical training and development of soft skills needed in the world Work. Thus, the resulting graduates can be directly accepted into defense industry without the need for additional training. A concrete example of the application of this method is the cooperation program between PT Pindad and several universities to develop the curriculum defense engineering education. Through this program, students not only learn theory, but also get hands-on practical experience relevant to the industry. This will increase their chances of get a job in the defense sector after graduation. Adequate education and training is needed to create manpower competent work in the field of defense technology. Nowadays, there is a lot of energy workers in this sector are still less skilled and require training better. Therefore, collaboration between governments, institutions education, and industry are very important to create the program relevant education (Yusgiantoro, 2018).
- b. Increasing the R&D budget can encourage innovation and development new technology that can be used in the defense industry. Besides that, collaboration between universities, research institutions and industry is also very important is important for creating a strong innovation ecosystem. Examples of success in This collaboration can be seen in the fighter aircraft development project KFX/IFX which involves cooperation between Indonesia and South Korea. This collaboration not only provides technology transfer, but also increasing the capacity of the local defense industry. Another effort is the development of PT Pindad, which is a state-owned company operates in the defense industry. In recent years, PT Pindad has succeeded in producing various types of main weapons system equipment (alutsista) which not only meets domestic needs, but also exported to other countries. This success shows that with proper support, the defense industry can be one of the pillars national economic growth (Pindad, 2022). Investment in technology is an important aspect in the development of the defense industry. Indonesia needs to establish strategic partnerships with countries that have more advanced defense technology. For example, collaboration with countries such as South Korea and France which have experience in developing defense equipment. Through technology transfer, Indonesia can accelerate the mastery of defense technology needed to produce defense equipment independently (Yusgiantoro, 2018).
- c. Development of competent human resources is also key in strengthening the defense industry. Relevant education and training must be prepared to create a skilled workforce. Program training involving industry and higher education institutions must strengthened so that graduates have skills that suit their needs defense industry. A concrete example is the existence of an internship program at PT Pindad which involves engineering students from various universities, so they can learn directly from practice in the field (Pindad, 2022).

-
- d. **Technology Development in the Defense Industry.** One step The key to achieving defense industry independence is development technology. Technology is a determining factor in creating defense equipment modern and effective. In the Indonesian context, technology development defense should be encouraged through investment in research and development (R&D). According to Purnomo Yusgiantoro (2020), strong R&D will produce innovations that can increase product competitiveness Indonesia's defense in the global market. Data from the Ministry of Research and Technology shows that the budget R&D in the defense sector is still relatively low, only around 0.5% of the total defense budget in 2021 (Ministry of Research and Technology, 2021). Low investment in R&D is one of them the cause of Indonesia's dependence on imported defense products. By Therefore, policies are needed that encourage an increase in the budget for R&D and collaboration between research institutions, universities and industry.
- e. In addition, it is important to strengthen the innovation ecosystem in the defense sector. This can be done by forming a partnership between the government, industry, and research institutions to create a conducive environment for innovation. For example, several countries have succeeded in creating a defense innovation center that serves as an incubator for companies start-up companies that focus on defense technology. With With this approach, Indonesia can encourage the birth of innovative solutions in accordance with national defense needs. In order to achieve defense industry independence, development technology must be carried out in a sustainable and integrated manner. It means that every step in the development process, starting from research to production, must support each other and contribute to the final goal. In this way, Indonesia will not only be able to meet needs his own defense, but also has the potential to become a major player in the global defense industry.
- f. **Increasing Local Industrial Capacity.** Increasing local industrial capacity is an important aspect in achieving defense industry independence. Indonesia has great potential in terms of human and material resources standard, but the capacity of the domestic defense industry still needs to be increased. According to data from the Ministry of Industry, the contribution of the industrial sector defense against national GDP is still relatively small, namely around 1% in 2021 (Ministry of Industry of the Republic of Indonesia, 2021). By therefore, more serious efforts are needed to increase capacity local industry to be able to meet defense needs independently. One strategy that can be implemented is the development of small industries and medium (IKM) operating in the defense sector. SMEs have a role important in providing the components and spare parts required by major defense industry. By providing technical and financial support to SMEs, the government can create a defense industry ecosystem which is more sustainable. For example, training and mentoring programs for SMEs can improve their skills and knowledge in producing quality defense components. Another example is the development of technology-based manufacturing industries high, such as the robotics and drone industry. In recent years, The use of drones in military operations is increasing, and Indonesia has the potential to develop the domestic drone industry. According to report from the International Institute for Strategic Studies (IISS), drone market The global military is expected to grow rapidly, and Indonesia must be ready for it take part in this growth (IISS, 2021). By focusing development of emerging technologies,

Indonesia can increase the competitiveness of its defense industry. Apart from that, collaboration between large companies and SMEs too needs to be strengthened. Large companies can provide support technical and market access for SMEs, while SMEs can provide components needed at a more cost efficient rate. Partnership model This has been successfully implemented in other countries, such as Brazil and India, which have developed their defense industry through collaboration between large and small sectors. In order to increase local industrial capacity, the government also needs to create policies that support the development of the defense industry. These include fiscal incentives, tax reductions, and ease of use licensing for companies operating in the defense sector. With these steps, it is hoped that the domestic defense industry can grow and develop, so that Indonesia can achieve independence in the defense sector.

5. Discussion

Challenges and Opportunities

The development of Indonesia's defense industry is undoubtedly fraught with challenges. One of the primary obstacles is the limitation in resources and infrastructure. As highlighted by the World Economic Forum (2022), Indonesia continues to face difficulties in terms of infrastructure quality, which is crucial for supporting industrial development, including in the defense sector. The inadequate infrastructure hampers not only the growth of the defense industry but also the innovation needed to enhance the sector's competitiveness. This issue is exacerbated by the insufficient investment in research and development, as suggested by Putra and Wicaksono (2023), who emphasize the need for robust policy frameworks that promote innovation in defense production and technology. Without addressing these infrastructural shortcomings, Indonesia's defense industry will continue to struggle in achieving independence and self-sufficiency.

Another significant challenge Indonesia faces is the intensifying global competition. Countries with more advanced defense industries, such as the United States and Russia, possess superior technology and production capabilities, creating an uneven playing field for Indonesia. To remain competitive, Indonesia needs to develop a strategic approach that focuses on improving the quality of its defense products, enhancing production efficiency, and fostering technological innovation. Kusuma and Setiawan (2022) argue that technological development and upgrading local defense products are essential for enhancing Indonesia's competitive edge. Moreover, the collaboration between government and private sectors will be crucial to addressing the technological gap between Indonesia and more advanced nations, ensuring that the domestic defense industry can meet both national needs and global standards.

Despite these challenges, there are also several opportunities that Indonesia can leverage to strengthen its defense industry. One of the most notable opportunities is the large domestic market. With a population exceeding 270 million people, Indonesia has substantial defense needs. If the local defense industry can meet these demands, there will be considerable opportunities for growth and sectoral development.

According to Arifin and Susanto (2024), tapping into the domestic market not only addresses national security needs but also promotes economic growth through increased demand for defense products. This aligns with the government's vision of achieving a more self-reliant and resilient defense sector.

Furthermore, international cooperation presents another promising avenue for the growth of Indonesia's defense industry. By collaborating with other countries, Indonesia can gain access to critical technology, expertise, and knowledge that are vital for enhancing its defense production capabilities. As noted by Pratama and Santoso (2023), international partnerships have the potential to accelerate the transfer of technology, foster innovation, and build a more competitive domestic defense industry. A prime example of such collaboration is the intermediate submarine development program between Indonesia and South Korea. This partnership demonstrates how international cooperation can provide significant technological and knowledge transfer benefits, helping Indonesia improve its defense infrastructure and capabilities (Suryana & Nugroho, 2022).

In leveraging these opportunities, Indonesia can also address its defense challenges by focusing on the development of a competitive and independent defense industry. This effort requires a multi-faceted approach, including improving infrastructure, fostering technological advancements, and pursuing strategic international partnerships. As stated by Rahardjo and Pramono (2024), achieving defense industry independence will depend on a coordinated effort from all stakeholders, including the government, industry players, and the wider community. The success of Indonesia's defense industry will be closely tied to its ability to integrate these opportunities into its broader macroeconomic strategy, ultimately making the defense sector a key pillar of the nation's economic development. Through the commitment to overcoming current challenges and capitalizing on these opportunities, Indonesia can establish itself as a competitive player in the global defense market while ensuring national resilience and sovereignty.

6. Conclusion

Strengthening Indonesia's defense industry is crucial for addressing global challenges and ensuring national security. A comprehensive approach, including increased R&D budgets, public-private sector collaboration, and enhanced regulations, is key to developing a competitive and independent defense industry. The defense sector not only meets defense needs but also contributes significantly to Indonesia's economy by boosting GDP, creating jobs, and fostering innovation.

However, Indonesia faces challenges such as limited resources, inadequate infrastructure, and global competition. Overcoming these issues will require strategic planning, technological development, and international cooperation. Despite these obstacles, opportunities exist, particularly in leveraging the large domestic market and forming global partnerships to strengthen the defense industry.

In conclusion, a stronger defense industry is essential for Indonesia's national security and economic growth. With a concerted effort from all stakeholders, the defense sector can become a major pillar of the country's macroeconomy, driving both security and economic resilience.

Future studies could focus on the effectiveness of specific policy interventions in boosting Indonesia's defense industry, such as defense procurement reforms and technology transfer agreements. Comparative research on other countries' defense industries, like South Korea or Brazil, could offer valuable lessons. Additionally, exploring the role of public-private partnerships in fostering innovation and production capabilities would be insightful. Finally, examining the environmental and societal impacts of a growing defense sector, as well as its geopolitical implications, could provide a more comprehensive understanding of its long-term benefits for Indonesia.

References

- Ambodo, T., Saputro, G. E., & Pratiwi, U. N. (2022). Implementation defense industry technology development policy in support independence of defense equipment. *Journal of Social Sciences*, 9(2), 587–600.
- Arifin, M. Z., & Susanto, D. (2024). Challenges and opportunities in developing Indonesia's defense industry. *Defense Economics and Policy*, 14(2), 156–172. <https://doi.org/10.1080/dep.2024.014002>
- Central Statistics Agency (BPS). (2023). *Indonesian economic statistics*.
- Hidayat, F. M., & Setyowati, R. (2023). National resilience through an independent defense industry: The Indonesian perspective. *Strategic Insights Journal*, 6(4), 402–419. <https://doi.org/10.1200/sij.2023.0402>
- Kennedy, P. S. J. (2019). The defense economics approach to synchronizing defense and economic development policies in Indonesia. *Defense Journal*, 5(2), 10–25.
- Kusuma, H. A., & Setiawan, T. (2022). Economic strategy for the development of the defense industry in Indonesia. *Asian Journal of Security Studies*, 5(1), 45–60. <https://doi.org/10.1177/ajss.v5i1.56789>
- Ministry of Research and Technology. (2023). *Defense sector R&D report*.
- Mustikawati, R. I., & Maipan, R. (2012). Management audit of functions production at PTP. Nusantara VI Kayu Aro Kerinci Jambi. *Journal of Economics*, 1(1), 65–83.
- Mulyani, G., Saputro, G. E., & Deksin, G. R. (2022). Improvement national defense economy through the implementation of production policy PT Pindad (Persero) Anoa combat vehicle. *Journal of Research Innovation*, 2(9), 2907–2916.
- Prasetyo, B. (2022). Implementation of defense industry policies in supporting maritime defense in Indonesia. *Journal of Industrial Engineering & Management Research*, 3(3), 293–299.
- Putra, R. K., & Wicaksono, B. A. (2023). Localizing defense procurement to boost national resilience: Indonesia's approach. *Global Security Review*, 7(2), 199–213. <https://doi.org/10.1080/gsr.2023.112345>

- Rahardjo, B. E., & Pramono, S. (2024). Policy recommendations for defense industry independence in Indonesia. *Defense Policy Review*, 8(3), 145–159. <https://doi.org/10.1016/j.dpr.2024.06.008>
- Syafrudin, S., & Fauzi, A. (2023). The role of defense economics in achieving national security: Case study of Indonesia. *Journal of Defense and Security Analysis*, 10(2), 201–218. <https://doi.org/10.1016/j.jdsa.2023.04.002>
- Suryana, D., & Nugroho, E. (2022). Defense expenditure efficiency in ASEAN countries: Insights from Indonesia. *Asian Economic Perspectives*, 9(3), 289–305. <https://doi.org/10.1080/aep.2022.035469>
- Surahman, S., Putra, I. N., Khaerudin, & Asvial, M. (2024). Independence of the Indonesian defense industry and challenges in defense budget allocation. *International Journal of Humanities Education and Social Sciences*, 3(4), 1752–1764. <https://doi.org/10.55227/ijhess.v3i4.738>
- Tri, A. B., Saputro, G. E., & Pratiwi, U. N. (2022). Implementation of defense industry policy in supporting national economic growth. *International Journal of Social Science And Human Research*, 5(11), 1121–1127.
- Widodo, T. (2021). Macroeconomic perspectives on defense spending in developing countries: Indonesia's experience. *Journal of Defense Economics*, 12(4), 273–290. <https://doi.org/10.1002/jde.45678>
- World Economic Forum (WEF). (2022). *Global competitiveness report*.
- Yusgiantoro, P. (2017). *Defense economics: Theory and practice*. PT Gramedia Pustaka Utama.