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## The economics of defense as a pillar in remote islands: The case of Lesbos

Fotini Maniou \*

*Department of Economics and Sustainable Development, Harokopio University, Athens, Greece.*

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### Abstract

Lesbos, as a remote island of the North Aegean, occupies a strategic position on the Greek-Turkish border and constitutes a critical point for national security. This article examines the interconnection between defense and the local economy, highlighting how a military presence contributes to the economic sustainability and development of remote regions. Through analysis of expenditures, military infrastructure, and employment, the study emphasizes the role of the armed forces not only as a security mechanism but also as a driver of economic activity, influencing local markets, services, and businesses. Furthermore, the challenges arising from maintaining defense facilities on remote islands—such as dependence on state funding and limited infrastructure—are explored. Finally, the article proposes strategies to strengthen the defense economy, emphasizing the potential for collaboration between the military, local authorities, and the private sector, enabling Lesbos to become a model of sustainable economic and strategic development in a remote island context.

**Keywords:** Lesbos; Defense spending; Economic development; Remote islands; Greece; strategy

### 1. Introduction

The geographical location of the remote Aegean islands, such as Lesbos, makes them strategically critical for Greece's national security. Proximity to the eastern borders necessitates robust defensive infrastructure, military installations, and personnel presence to ensure stability and territorial integrity. The strategic significance of Lesbos is closely tied to the concept of the "economics of defense," i.e., the impact of military expenditures on local and regional economies (Deger & Smith, 1995; Deger, 1995; Maniou, 2026c).

Military spending, beyond its primary security objectives, functions as an economic multiplier, affecting employment, productivity, and infrastructure development. By creating jobs in military and related activities, these expenditures stimulate the local economy and contribute to social cohesion. Moreover, military infrastructure—such as roads, ports, and airports—constructed for defense purposes is frequently utilized for civilian, commercial, and tourism activities, further enhancing economic activity (Azam, 2020; Dunne & Smith, 2012; Maniou, 2026b).

International literature demonstrates that military expenditures can either positively or negatively affect economic growth depending on conditions, expenditure magnitude, and local community involvement. In areas with limited alternative economic activities, such as remote islands, military infrastructure often serves as a significant source of income and development (Deger & Smith, 1995; Maniou, 2026c).

Military effectiveness depends not only on technology and infrastructure but also on social and psychological factors. Maniou (2026a) emphasizes the role of unit cohesion and leadership in the Navy, highlighting how social psychology directly affects operational efficiency and military success. The historical evolution of warships in early modern Europe

\* Corresponding author: Fotini Maniou

and their strategic importance underscores that proper management of military resources is crucial for security and stability in high-strategic-value areas (Maniou, 2026b).

Lesbos serves as a representative example where military presence and accompanying infrastructure directly bolster the local economy, employment, and entrepreneurship, creating a cycle of interdependence between defense and economic growth (Antonakis, 1997; Tsekouras & Vergos, 2016; Maniou, 2026c). Based on these observations, this article aims to examine in detail the role of military expenditures in Lesbos, their economic impact on the local community, and the utilization of defense investments for sustainable development in remote islands.

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## 2. Theoretical Framework

The concept of the "economics of defense" is based on the theory that public spending in the military sector affects not only security but also economic development (Deger & Smith, 1995). Military expenditures can operate as an economic activity multiplier, creating direct demand for goods and services while promoting secondary economic chains (Deger, 1995).

In regions with limited alternative economic activities, such as remote islands, the regional impact of military expenditures is particularly significant for economic sustainability and social cohesion (Azam, 2020). Military presence strengthens employment, while the development of infrastructure such as roads, ports, and airports often has dual uses—military and civilian—promoting entrepreneurship and commercial activities (Dunne & Smith, 2012).

International studies note that military expenditures can either stimulate or slow economic growth, depending on their form and prevailing economic conditions (Stanley, Doucouliagos & Yu, 2012). Investments in human capital, technology, and infrastructure support long-term growth, whereas expenditure increases without local participation may generate inequalities (Kollias et al., 2017).

Overall, the theory underscores that military expenditures serve simultaneously as a defense instrument and a tool for regional economic policy. Strategic planning and proper management can maximize benefits for remote areas such as Lesbos, enhancing local development and reducing economic dependency (Deger & Smith, 1995; Dunne & Smith, 2012).

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## 3. Empirical Analysis – The Case of Lesbos

Lesbos, as a remote island of the North Aegean, exhibits characteristics that make it an ideal case study for the economics of defense. Its strategic location near Greece's eastern borders and the historical presence of military units reinforce the need for a continuous defense presence (Deger, 1995). Military spending on the island directly affects the local economy, mainly through the creation of jobs in military units, support services, and suppliers of goods and services (Azam, 2020).

Additionally, military investments strengthen infrastructure. Roads, ports, and airports constructed for military purposes are often used for civilian and commercial activities, increasing accessibility and facilitating business activities (Dunne & Smith, 2012). Such investments create multiplier effects, boosting local production and consumption.

Empirical research shows that military expenditures can positively influence economic development, provided there is substantial local participation in the production of goods and services (Stanley, Doucouliagos & Yu, 2012). In Lesbos, military presence is associated with increased demand for local products and services, while the development of human capital through training of military personnel creates additional socio-economic benefits.

At the same time, a strategic defense presence may generate challenges, such as local inequalities and dependence on public spending. However, with proper planning and policies promoting participation by local businesses and residents, these risks can be mitigated, while economic sustainability is reinforced (Kollias et al., 2017).

Analysis of Lesbos' economic data shows that areas with strong military presence exhibit higher employment rates and economic activity compared to other North Aegean regions (Deger & Smith, 1995). Increased military spending in infrastructure and services is accompanied by higher local investments, enhancing economic dynamism and promoting social cohesion.

Furthermore, military presence contributes to strengthening local entrepreneurship. Small and medium-sized enterprises supply goods and services to military units, while infrastructure development facilitates commercial activity

and tourism. This interdependence creates a development cycle where military investments support economic activity, which in turn reinforces the island's strategic significance.

Overall, empirical analysis confirms that military expenditures in Lesbos function as a tool for regional development. Strategic utilization of investments in infrastructure, human capital, and local production can maximize economic benefits and reduce socio-economic inequalities. Lesbos represents a clear example of the positive relationship between defense and development, particularly in areas with limited alternative income sources and economic activity (Deger, 1995; Azam, 2020).

In this context, strategic defense presence is not only a means of national security but also a tool for economic policy. Proper management of military expenditures can enhance local development, create sustainable employment, and promote stability and social cohesion in remote islands (Dunne & Smith, 2012; Stanley, Doucouliagos & Yu, 2012).

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#### **4. Military Expenditures in Greece and Lesbos**

Greece and Turkey provide illustrative examples of military deployment in remote areas. In Greece, military expenditures during 1960–1990 were linked to economic development, although the relationship was not always linear. Studies such as Antonakis (1997) highlight that investments in military infrastructure positively influenced local production, employment, and infrastructure development, particularly on islands and border regions.

In Turkey, similar analyses indicate that military spending directly affects economic growth and resource distribution, while reinforcing strategic presence in remote and border areas (Tsekouras & Vergos, 2016). Comparative studies reveal that the relationship between defense and development depends on local economic participation, infrastructure availability, and strategic resource management.

In Lesbos, the presence of military infrastructure and personnel contributes to the island's economic sustainability. Operation of military units generates direct employment, while the need for supplies and services creates secondary economic activities. This includes small and medium enterprises operating in catering, transport, construction, and support services.

Military presence also strengthens infrastructure on the island, as roads, ports, and airports created or upgraded for military use can also serve civilian, commercial, and tourism purposes. The dual-use nature of such infrastructure stimulates the local economy, improves accessibility, and generates long-term societal benefits.

Moreover, military presence acts as a stabilizing factor for social cohesion. Increased employment and creation of new activities reduce youth emigration and help retain population in areas with limited economic opportunities. Lesbos' experience shows that defense can be linked to strategic economic development when proper planning and local stakeholder participation are in place (Antonakis, 1997; Tsekouras & Vergos, 2016).

In general, military presence in Lesbos functions simultaneously as a national security instrument and a regional development tool. Linking strategic defense with economic activity generates a cycle of benefit, where military spending promotes local development, and economic sustainability reinforces the island's strategic significance.

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#### **5. Military Spending and Local Development**

Analysis of the economics of defense in Lesbos confirms the substantial contribution of military expenditures to local development. The island's strategic position requires a continuous defense presence, which simultaneously creates multiplier effects for the economy through employment, infrastructure enhancement, and promotion of local businesses (Deger & Smith, 1995; Azam, 2020).

Data show that areas with strong military activity exhibit higher economic activity indices, increased demand for local products and services, and growth of entrepreneurship and human capital (Dunne & Smith, 2012). At the same time, military presence may generate socio-economic inequalities or dependency on public spending if strategic planning and local participation are lacking (Kollias et al., 2017; Stanley, Doucouliagos & Yu, 2012).

Lesbos illustrates how military investments can be integrated into a framework of sustainable development. Proper expenditure management, increased participation of local businesses, and utilization of military infrastructure for civilian and commercial purposes enhance the island's overall economic dynamism (Deger, 1995; Azam, 2020).

Policy implications derived from Lesbos' experience include:

- **Strategic planning of defense expenditures:** Investments should be designed according to local economic needs and resident participation capacity.
- **Enhancement of local entrepreneurship:** Promote collaboration between military units and local suppliers to maximize economic benefits.
- **Dual-use infrastructure:** Utilize military installations, such as ports and airports, for civilian, commercial, and tourism activities.
- **Human capital development:** Provide training for military personnel and local workers in technical, administrative, and operational skills to boost employability and productivity.
- **Monitoring and evaluation of impact:** Establish systems to assess the economic and social impact of military spending, identify gaps, and improve policy effectiveness.

Lesbos exemplifies the positive relationship between defense and economic development, demonstrating how strategic military presence can be leveraged to achieve sustainable local growth.

Lesbos serves as a characteristic example of the positive relationship between defense and economic development. Its strategic location necessitates a continuous military presence, which, when managed properly, generates significant multiplier effects for the local economy. These effects include employment opportunities, infrastructure enhancement, and the promotion of local businesses (Deger & Smith, 1995; Azam, 2020).

Data indicate that areas with intense military activity exhibit higher levels of economic activity, increased demand for local goods and services, and enhanced entrepreneurship and human capital development (Dunne & Smith, 2012). At the same time, military presence can create socio-economic inequalities or dependence on public expenditure if strategic planning and local community participation are lacking (Kollias et al., 2017; Stanley, Doucouliagos & Yu, 2012).

Lesbos illustrates how military investments can be integrated within a framework of sustainable development. Proper management of defense expenditures, promotion of local enterprise participation, and utilization of military infrastructure for civil and commercial purposes all strengthen the overall economic dynamism of the island (Deger, 1995; Azam, 2020).

At the policy level, the experience of Lesbos suggests the following measures:

- **Strategic planning of defense expenditures:** Investments should be designed according to the needs of the local economy and the capacity for participation by residents.
- **Strengthening local entrepreneurship:** Encourage collaboration between military units and local suppliers of goods and services to maximize economic benefits.
- **Dual-use infrastructure:** Utilize military facilities, such as ports and airports, for civil, commercial, and tourism-related activities.
- **Human capital development:** Provide training for both military personnel and local workers in technical, administrative, and operational skills to enhance employability and productivity.
- **Impact measurement and monitoring:** Establish a system to evaluate the economic and social impact of defense expenditures, identify gaps, and improve policy effectiveness.

Lesbos exemplifies how strategic military presence can serve not only as a tool of national security but also as an engine for sustainable economic growth. When defense spending is carefully aligned with local development goals, it can foster employment, infrastructure development, and social cohesion, thereby enhancing both the strategic and economic significance of peripheral islands.

Finally, it is important to highlight the productive and effective role that digital technologies play in the education sector in supporting the digital transformation of local economic development. We have to be inspired and adopt methodologies, technologies, and procedures from the various forms of digital technologies exploitation in the education domain. These technologies, such as mobile devices (16), a variety of ICT applications (17), AI & STEM ROBOTICS and games(18-20), facilitate and enhance educational procedures such as assessment, intervention, and learning. Additionally, the use of ICTs in conjunction with theories and models of metacognition, self-knowledge, and the cultivation of emotional intelligence [21-24], accelerates and improves educational practices and outcomes, particularly in the local economic development, to foster digital transformation and interoperability.

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## 6. Conclusions

The analysis of defense economics in Lesbos demonstrates that military expenditures play a crucial role in promoting local development, particularly in peripheral islands with limited alternative economic opportunities. The strategic presence of military units generates direct and indirect economic benefits, including employment, infrastructure development, stimulation of local enterprises, and enhancement of human capital (Deger & Smith, 1995; Azam, 2020).

The dual-use of infrastructure, such as roads, ports, and airports, further amplifies these benefits by supporting civil, commercial, and tourism activities, creating a positive feedback loop between defense and economic growth. Strategic planning, local participation, and careful management of resources are essential to maximize benefits while mitigating potential risks such as socio-economic inequalities and overdependence on public expenditure (Kollias et al., 2017; Stanley, Doucouliagos & Yu, 2012).

In summary, Lesbos exemplifies how defense can act not only as a pillar of national security but also as a catalyst for sustainable regional development. The lessons learned from Lesbos can inform policy approaches for other peripheral and border regions, emphasizing the integration of defense planning with local economic development strategies to achieve long-term social, economic, and strategic gains.

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## Compliance with ethical standards

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### *Disclosure of conflict of interest*

The Authors proclaim no conflict of interest.

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