

## BOOK REVIEWS

### **Defense Economics, by Gavin Kennedy, St. Martin's Press, New York, 1983, 248 pages.**

Gavin Kennedy (1940-2019) was an emeritus professor at Heriot-Watt University (Scotland). He is one of the few economists who wrote on the economics of wars and defense economics. The main objective of this book is to discuss 'how much defense is enough?' for any nation, which is based on the previous debate on the economic aspects of security. The book has nine chapters that are so well synced that a reader can understand the issue of the security and development of any nation and how military power has used their defense capability for economic development and to secure their nation.

Following is a review of some important chapters of the book, which will provide insight into the subject of the book.

In the introductory part, the author explained that defense is a necessary expenditure by the state to provide security against the possibility or threat of invasion. It requires sufficient resources. What is enough resource for security? It is a major issue for any economy. 'Too much' defense expenditure is a waste of resources (high opportunity cost), while 'too little' expenditure can be a security risk. It is a kind of simple trade-off between guns and butter. Therefore, the main issue in defense economics is the defense expenditure analysis to estimate the level of defense expenditure.

Various economists have addressed the issue of the defense of the country and its relationship with the cost and benefit of wars and their financing. The popular theories were developed by Adam Smith, David Ricardo, JB Says, and JM Keynes.

Adam Smith, in his book 'Wealth of Nations, Book V,' explained that the first duty of the state is to protect society from violence and invasion, which can only be done by military force. Their roles are different in peace and war. Defense cannot generate revenue to maintain itself, so this is to be maintained by the public. Adam's view on minimizing the role of government in the economy is consistent with efficiency. So, the central purpose of protection from external violence should be the establishment of a standing army, which society must pay for.

Smith views defense as a common good, and the entire society should meet its expense on the principle that everybody gains, so everybody should pay. Smith compromised on his free trade theory for security purposes. He supported the British Navigation Act, which ordered no transshipment of British vessels except on the British colonial coasts, as it was necessary for security.

David Ricardo believes restraining the government from costly wars is at the public's expense. He considered war disturbing everyday life as it forces capital from peace goods to war goods, which is a waste of productive capital. A country that has a comparative advantage in the production of industrial goods and trade for agricultural goods, but due to war, has to be self-sufficient in agriculture and requires moving capital in the production of agriculture. This makes the agriculture sector too large. It causes him to deviate from his free-trade principle.

Ricardo also concerns himself with war efficiency. He believes that war could be the result of the political self-interest of the leaders—for profit, for glory, for their version of national interest, etc. War can be financed through loans or by taxes. Ricardo believes the entire financing should be from taxes, thus the burden on the present only.

Jean-Baptiste Say has a similar point on war as Ricardo and is critical of war and its causes. He was from the French side, and Napoleon banned his book against wars. He wrote that the loss of human life is a loss of wealth. This wealth is composed of the total expenditures used up in the previous years in maintenance and education. The loss of life for a young man is also a loss of future earnings. He believed that war cost more than expense.

Smith and Ricardo considered actual expenses, which include costs to recruit, train, and form a military force. Say raised the issue of the cost of casualties. If a young man dies in a battle, he cannot replace his previous consumption nor provide for the consumption of a new generation, and his disability becomes a burden on society.

Keynes's views on war are explained in his book 'How to Pay for the War (1940). He considered two aspects of war: The fighting forces and the economy, which enabled the sharp end to the fight. It means that the enemy also attacks the economies in the rear. He says that if the economy is mobilized, 'nothing is more certain than that the wage bill of the country will increase. The working class will have a larger income than before. If workers at home tried to spend their increased incomes, there would be inflation because these workers were employed to produce war goods, not consumer goods.

Keynes rejected the Ricardo solution of war financing, i.e., current taxation without borrowing. He proposed that 'compulsory savings' (deferred income) be enacted, as this is to be repaid after the war. Another alternative is inflation, as no one has to take responsibility for it. The choice remains: 'compulsory savings' or 'compulsory inflation.' Inflation takes away the purchasing power of the working class and diverts it to the pockets of the entrepreneur class, and the Treasury obtains the money partly through excess profit and other taxes.

Kennedy concluded that in defense, where output is something called 'National Security,' meaningful measurement is difficult, and meeting security expenses is far stronger than the major spending program, where the outputs are more identifiable and measurable. For an economist, it is important to find out how to carry out this task efficiently.

Smith's view that defense is necessary and should be carried out efficiently is still mainstream. This is not necessarily inconsistent with the view that war is itself so wasteful and, in the nuclear age, so dangerous that alternative means of settling disputes must be found and funded.

Kennedy further elucidates that the defense is a public good and is consumed by all citizens equally, whether they pay taxes or not. It is usual practice that the benefits of defense are externalized, and the consumption of those benefits by one citizen is externalized in no way at the expense of another citizen. All members of society benefit from the deterrent effect of defense expenditures. The marginal cost of consumption by additional individuals is zero, but the marginal benefit is positive.

Kennedy mentioned two approaches: the benefit approach and the ability-to-pay approach. The Benefit Approach tells us that a person who gives high value to security will contribute high, and so on. If a person doesn't value security and contributes nothing but consumes the benefit, they are a free rider.

There are various studies that explain that the size of GNP is the relevant variable for the intensity of preference for defense (the larger the country's GNP, the more intense its defense performance), so the ratio of defense in GNP ( $d/GNP$ ) is widely used as a proxy for defense expenditure.

Kennedy showed serious doubts about this measure, as the countries' GNP sizes are unrelated to  $d/GNP$ . Data shows small countries have the highest  $d/GNP$ , like Israel, Egypt, Jordan, etc. He relates this measurement to the cost sharing of NATO and concludes that the benefit approach is not feasible for NATO.

He concluded that deterrence at the national level is a pure public good, but this cannot be extended to defense expenditures when deterrence fails without imposing ethical values about the survival of the state. The criterion of payment according to benefit falls down when applied to the real world.

What does defense produce for national security? This answer does not take us any closer to a valuation. The probability of a non-attack can measure its deterrence value. This opens up the 'how much is enough' debate and leads to the decision of the cost of reaching that particular value of defense spending in terms of security probability.

If the probability of a non-attack is 0.9 and our guess is that it cost \$100 billion, we could argue that \$100 billion is the value that the community places on a level of probability of a non-attack of 0.9.

But what happens if there is a disagreement at the level of security provided for any given sum of money? For example, if the President considered that \$50 billion is the cost of assuring the country of a 0.95 probability of non-attack, while the Defense Minister stuck otherwise, threat perception can now be considered a guide to defense spending. The central idea is that they are valued for what they cost.

There are some debates about the fact that defense expenditure is not a final output, therefore, something that ought not to be included in the final GNP. A ratio  $d/GNP$  implies that the burdening effect of defense is a measure of the intermediate

expense of producing the national product. In developing this idea, it is possible to calculate the burden implications of this ratio by estimating the growth rate of the civilian national product as a national product minus defense expenditure.

There is some disagreement among economists on whether to measure the GNP and the defense burden at market or factor prices and whether indirect taxes net of subsidies are excluded or not. For international defense expenditure comparison, various issues are highlighted by Kennedy, but the ratio remains the basis of every measurement or calculation of defense expenditure. Different series calculate different assumptions and will give different arithmetic conclusions, and without specifying assumptions, it is pointless to claim that country A is more or less of a burden than defense in country B.

Several studies use  $d/\text{GNP}$  as the measurement of military expenditure and establish a positive relationship between the size of the GNP and the size of defense expenditure. However, some studies use defense expenditure as a proportion to government spending ( $d/\text{GE}$ ). The main criticism is that there is more confusion; for example, a country with a high level of public outlays on education, welfare, health, and economic activities would tend to have a relatively smaller  $d/\text{GNP}$  than another country with exactly the same size of defense sector and total GNP but much smaller total public spending. This high ratio is usually the phenomenon of third-world countries subject to war or threats of war.

Kennedy placed Mandel's 'laws' of capitalist economies. His arguments have two parts: (1)  $d/\text{GNP}$  is 'every greater'; if this is not true, then (2) defense is the 'chief factor' in the growing public expenditure of capitalist countries. Data showed that the share of defense was falling, but total spending was increasing. The time series data of the NATO members  $d/\text{GNP}$  shows a declining trend. The second part suggests that if  $d/\text{GNP}$  is steadily falling in the 'chief capitalist countries,' it can hardly be a cause of the growth in public expenditure. Indeed, falling defense spending as a share of total government expenditure means that total government expenditure itself has been rising. The decline in defense expenditures is due to the 'crowding out' effect of statutory welfare expenditures on other items in the public budget. Kennedy says that 'the implicit suggestion of Mandel's work is that the capitalist system cannot survive as an economic system without massive war preparation, acting as a prop to a tottering economy'.

Kennedy further stated that there is no support for the view that the defense burden is proportional neither to GNP nor to the idea that  $d/\text{GNP}$  rises with per capita income. Nor is it the case that the  $d/\text{GE}$  ratio is an improved comparative indicator of the defense burden; all the caveats that apply to the GNP measure apply with greater relevance to the non-standardized measurement of what constitutes a state budget. The argument that defense expenditures act as a prop for capitalist economies does not stand up to the evidence. Defense expenditures reflect the perception of threats to security by decision-makers who may or may not have enough influence in the state structure to secure sufficient resources for defense.

In chapter 4 of the book, the author explains defense planning. Kennedy states that defense planning is for that which cannot be seen but imagined. The present war is fought as a result of yesterday's analysis. If yesterday's analysis was deficient, a country must rely on luck or the enemy's past decisions for a successful outcome.

The major advances in the management of large-scale operations in the Second World were developed after 1945 in several ways. Operation Research and Analysis acquired its distinctive title towards the end of the war.

The term System Analysis (SA) is a broader development of Operation Research, which attempts to replace unorganized and possibly inconsistent decision-making with the systematic, explicit, and consistent presentation of alternative choices. Kennedy has given five basic steps for a systematic decision analysis program.

1. Setting or agreement on an objective: there may be only one or several objectives.
2. Searching for alternative ways (or systems) of achieving the objective: the available alternatives may not be adequate to achieve the stated objective, so they must be modified.
3. The cost of each alternative in terms of resource usage is the only thing that should be considered that is amenable to quantification.
4. To derive a model, link the first three steps: if the chosen modes may make predictions with so much uncertainty in them that they are meaningless.
5. Specifying a criterion to choose among the alternatives: a system preferred under one set of criteria may be less preferred under another set.

The SA process is largely iterative; if the initial results are unsatisfactory, the analyst begins again by questioning the assumptions, examining the objectives, trying new combinations of resources to achieve the objectives, rewriting the model, and selecting new or modified criteria. How can a decision be made economically with time and effort? It is not economical to make every decision by judgment alone but assisted by systems analysis, the bulk of the alternatives may be eliminated and the problem brought down to a manageable level. This in itself is a big step forward for defense planning.

It is generally considered that defense output cannot be measured. Although there is agreement or the same consideration for different reasons, The traditionalist Ministry of Deference (MOD), UK, prefers to make decisions about defense policy based on vague considerations, such as 'continuity of foreign policy'. According to Smith (1980), the Marxists prefer to make a political critique of Western defense institutions and the decisions they make as expressions of the collective mind of the 'capitalist' state, the bureaucracy in MOD, and the 'interests' of the 'capitalist system' as a whole. Smith denies the possibility of measuring defense output, which he defines as 'safety' prospects for survival and protection of a way of life, and it is a 'central element' that cannot be measured. According to him, these are 'a matter for argument and judgment, not measurement and proof'.

According to Kennedy, in defense output, 'safety' is a subjective measure, and it is the differing estimates of this measure that influence decisions about 'how much is enough'. If a government or opposition believes that the probability of non-attachment is very high, it may decide to lower its defense capabilities in some way. If it believes it is very low (i.e., a continuation of the current level increases the probability of an attack), it will decide to increase its defense capabilities. This case clearly shows that the decision is not based on a subjective assessment of the risk involved.

Kennedy has given some simple decision problems and showed that economics could contribute to the solution.

For example, in analyzing a missile system, a whole range of factors will be relevant, including the missile systems and the missile defense systems of the potential enemy forces. Thus, assumptions are evident from the beginning, but analysis at least forces them to be specified. Relevant factors may or may not be quantifiable. After eliminating irrelevant factors, it is necessary to quantify the remaining ones. Immediate problems will arise over those factors that are extremely difficult to quantify. Sometimes these problems can be avoided by ignoring the factor concerned, but this is hardly satisfactory and may operationally invalidate the analysis.

In the next chapter, Kennedy discussed the principles of defense budgeting based on accountability in a capitalist system, which implies that the budget is approved by the parliament or legislators, which are accountable to voters. An audit of such a budget may keep a close check on every item of expenditure under each heading and add up all receipted expenditures to see the total approved budget.

Military Industrial Complexities is the most important chapter of the book. The chapter starts with the structure of the defense industry. The term defense industry implies greater cohesion among the suppliers of defense goods and services, which in fact exists. There is no industrial classification called 'defense industry'. This makes analysis of the effects of changes in the 'industry' on the economy extremely difficult. The input-output technique had some measure of broad success in this field.

However, Kennedy defines it as a market for identifiable products used in the provision of defense capability through an identifiable purchase by the defense agency. According to him, a narrow definition of the defense market would include all current and capital purchases of goods and services, including manpower, by the defense agencies for national security. Current expenditures include fuels, food, apparel, durables, pay and allowances, pensions, operating costs, and support facilities. Capital expenditures include weapon systems, ancillary equipment, base storage facilities, communications, and administrative buildings. The divisions between categories are subject in some cases to a blurring of the edges, and reliance is placed on convention or convenience and arbitrary allocation.

A broader definition of the defense market would include any services at all that contribute to national security. The most obvious of these are the law enforcement agencies. In some countries, particularly Communist and Third World countries, the

police force is a heavily armed paramilitary force. These kinds of forces are a little different from the armed forces proper, and their expenditures ought to be included in the national security budget. The situation is less clear in respect of the foreign policy agencies, such as embassies, intelligence services, and so on. These are all intended to contribute to national security. They are not generally included, however. Expenditures on welfare are also somewhat ambiguous. Welfare expenditures may reinforce community identity and loyalty, and in countering insurgency, they are explicitly recommended as being of direct assistance to military operations. A similar consideration could apply to education resources, as these can be used to generate feelings of national identity and solidarity. In Communist and Fascist regimes, where the mass party acts as both motivator and controller of the people, there is a case for including the costs of the party in the wider definition of defense expenditure, particularly when it takes the form of an armed party, for example, in the immediate aftermath of the seizure of power.

Kennedy further explains that defense goods and services are of two basic kinds: specialized and non-specialized. Tanks or interceptor aircraft have limited use in the civilian sector and are examples of specialized products. The components, raw materials and manpower may have a civil use. Non-specialized products are purchased from the civilian sector as ready-made outputs, such as oil, food, word processors, and so on. Some products, though specialized by the specifications imposed on the supplier by the defense agency, could, with a little adjustment, be transferred back to civilian use. Army surplus sectors are one manifestation of this process of returning goods to civilian use.

Those inputs that tend to have immediate civilian use, such as fuel, food, and manpower, can be rapidly appropriated in an emergency into defense activity. To some extent, capital goods, such as storage, transport, and land, can be taken over in these circumstances. Conversely, a military truck put into civilian use on modern roads instead of in combat conditions across the open country will mean a heavier cost in fuel and possibly loading facilities (the military truck being higher off the ground than a normal civilian truck to give it extra clearance for cross-country work). The more specialized the input, the more difficult it is to transfer it to other functions. An expansion or contraction in defense production leads to an adjustment in the civilian sector (assuming near full employment). This adjustment will take longer to accomplish because it must be further back into the production process before the new balance is made. It follows that the contracting of the defense effort may throw up considerable 'write-offs' of highly specialized capital.

Kennedy is of the view that we cannot conclude from this evidence that the military-industrial complex is dominant in American industry, though particular defense contractors may dominate particular industries, such as aircraft and missiles. But it would be stretching credulity too far to insist that some large firms in a particular industry (aircraft) are so dominant that they can direct government policy in their own interests on this slender economic base.

As defense projects have increased in size through technological complexity, the firms that manufacture for these projects inevitably must be relatively large. The data confirms that as we move away from high-technology items (missiles, aircraft, and ships) to lower-technology items (subsistence, construction, textiles, clothing, and equipment), the share of small businesses in the available contracts increases from less than 10 per cent to more than 50 per cent.

Kennedy explains that the salient features of the defense market are not like those of a perfectly competitive market through the concepts of economic theories. Kennedy pointed out the following characteristics of the defense market of Western liberal economies: The structure of the defense markets is

1. A single buyer (a monopsony)—the defence agency
2. A few relatively large suppliers (oligopoly)
3. Extensive barriers to entry and exit reduce competition.
4. Highly specialized products (heterogeneity)
5. Prices are determined by negotiation, not cost (security of payment versus profitable risks).
6. Extremely long lead times for products (dependence on the buyer for progress payments)
7. A high proportion of specialized capital equipment does not have alternative civilian uses; 'locking in contractors'
8. Strong preference for domestic purchases (national security)
9. Market size 'is' determined by the government budget (no speculative production to meet 'demand').
10. Technological imperatives dominate policies (innovate or perish!).

According to Kennedy, the practical considerations suggest that defense suppliers, working at the frontiers of technology on projects many years from fruition, must be assured of progress payments by the defense authorities if they are to undertake such assignments, and the authority (MOD) must insist on the right to closely monitor what is being done with its money if it is to avoid the possibility of malpractice. This implies that the monopsonist defense buyer has a closer-than-normal relationship with the management of the contracting company. This shows that the relationship between MOD and its suppliers has some special features.

Firstly, the relationship between government and supplier is monopolistic and restrictive. The government has a monopoly on war and is the exclusive purchaser of defense equipment. Exports of weapons are essentially sales to foreign governments. Hence, we require special licenses to ensure the activity is consistent with foreign policy objectives.

Secondly, defense products are normally subject to national security restrictions. Oligopolistic industries are characterized by differentiated products. The products of



other firms are not just differentiated; they are also not normally available to competitors for examination and analysis. It requires government permission to inspect officially approved defense equipment. This adds to the monopsonistic powers of MoD.

Thirdly, a decision to order particular defense products may have to be taken when the product does not yet exist. This opens the door to exaggerated claims by manufacturers for the intended performance of their products, complemented by an understatement of the eventual costs. It does not necessarily imply fraudulent intent on the part of the supplier, even though he may be expected to profit by gaining a contract.

Finally, Kennedy discusses the impact of defense spending. After a review of the various intellectual viewpoints and research analyses, which have been mixedly viewed as favouring and opposing defense spending for economic development, Kennedy gave a very balanced view on the issue. He pointed out that while defense expenditures include personnel and arms procurement costs for budgetary purposes, it did not follow that expenditure on defense as a whole would have the role of a 'fast-wasting end-use in an investable surplus theory. The research did not find evidence that reducing defense spending would automatically raise any economy's growth rate. He derived the concept from Adam Smith's theory that economies are producing and consuming for both market and non-market sectors; therefore, investment is also required for market and non-market sectors. Defense expenditures are in the non-market sector. Kennedy concludes the chapter with the words that when countries feel that their security is threatened, it is not an economic question. The right to survive is not subject to the economist's calculus. Finally, Kennedy discussed the economics of disarmament and did not agree with this idea for economic development.

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