

Blood and Treasure: On Military and Economic Thinking

Saul Bronfeld

In memory of Reserve Captain Avner Ben Eliezer, a brilliant economist in the Research Department of the Bank of Israel, who fell in defense of the Budapest outpost in the Yom Kippur War as a deputy company commander, Battalion 141, reserve Brigade 204

This article argues that there is little difference between military thinking and true economic thinking, which is different from accounting-budgetary thinking. Most of the substantive disagreements between military commanders and economists stem from objective difficulties in predicting the future and quantifying the important components of risk, cost, and benefit. Other disagreements result from vested interests or mere egotistical issues. The article will also explore the problematic manner in which the defense budget is drafted, specifically, the lack of clear directions from the cabinet regarding national security posture and priorities and the absence of significant military bodies outside the defense establishment. Reforms instituted in the United States during Robert McNamara's term as Secretary of Defense and as a result of the Goldwater-Nichols Act of 1986 are instructive in this regard. In 2007, the Brodet Committee attempted to change the process for drafting the defense budget, but was not successful.

Keywords: defense economics, defense budget, risks, cost-benefit, Robert McNamara, Pinhas (Siko) Sussman, Brodet Committee

Saul Bronfeld served as CEO and chairman of the Tel Aviv Stock Exchange from 1991-2013. He holds an MA in Security Studies (2005, summa cum laude) from Tel Aviv University and is an adjunct lecturer in the Faculty of Management at Tel Aviv University.

Background

An observer of the annual ritual of deliberations on the defense budget is liable to reach the conclusion that economic and military thinking are two parallel disciplines, and that never the twain shall meet. The military has been known to quip that “economists know the price of everything and the value of nothing,” and “Iran is the adversary, and the Ministry of Finance is the enemy.” In their unending dispute with economists, military leaders can draw on Professor Edward Luttwak, one of the greatest military thinkers, who contended that “in the realm of strategy...economic principles collide with the demands of war-effectiveness.”¹

In turn, economists retort that “the army is prepared to ruin the economy and society in order to maintain its beloved order of battle,” and that “a cut in the defense budget will only prevent waste and will not harm defense.”²

The debate between military commanders and economists is not merely academic or a question of semantics. It is a disagreement over allocation of resources and national priorities that stems from differing assessments of strategic risks, different world views, and also from parochial interests, as well as egotistical issues.

This article will attempt to present economic thinking in the proper light, arguing that when true economic thinking is applied, as opposed to accounting-budgetary thinking, there is almost no difference between the two disciplines – economic and military. The article will also show that a significant part of the substantive debate between military commanders and economists results from objective difficulties in predicting the future and in quantifying important components of cost and benefit. Finally, the article will argue that the main reason for the stormy nature of deliberations on the defense budget is the problematic process of drafting the budget: the lack of orderly cabinet deliberations and clear guidelines concerning national security posture, objectives, risks, and priorities, and the lack of civilian agencies that assist the government and the Knesset in drawing up the policies and budget. Reforms instituted in the United States during Robert McNamara’s term as Secretary of Defense and as a result of the Goldwater-Nichols Act of 1986 are instructive in this regard.³ In 2007 the Brodet Committee attempted to change the process in Israel, to no avail.

Fundamental Similarities between the Military and Economic Disciplines

On the face of it, there should be no difference between military thinking (by a “commander”) and economic thinking (by an “economist”). The military command echelon presents the required achievements to the commander and equips him with limited resources to carry out the mission. The commander is expected to use thinking processes (algorithms, as it were) to produce a plan of action that will achieve the desired objective, which is usually worded in terms of captured territory, lines reached, destroyed enemy forces, and timetables. The resources placed at his disposal are military units of various sizes and different types. A good example is the preparation of the Moked plan in the first half of the 1960s to attack Egypt’s military air fields; the Israeli Air Force used this plan to destroy the Egyptian Air Force on June 5, 1967, thus sealing the fate of the Six Day War. The plan was a good example of military thinking – a sophisticated algorithm that, with the help of a limited number of aircraft, led to great achievements, even exceeding expectations.

Economists are expected to use an algorithm to produce a profitable business plan. The investors (shareholders) provide the economist with a budget to set up a new factory or develop a new product, and they expect the economist to achieve a certain rate of return on investment within a pre-defined period. Thus, for example, Israel Corporation made hundreds of millions of dollars available to the CEO of Better Place in the hope that it would succeed in selling electric cars based on an innovative logistic system.

Both examples involve the application of algorithms by the commander or the economist in order to delineate the optimal path towards a goal, be it a military objective or profitability target. In each discipline the algorithm, which represents the theory relating to the issue that must be addressed, combines with the personality of the executive, be it the commander or the economist.

For our purposes, it is important to underscore the similarity of the environments in which the commander and the economist operate. First and most important, both work in a hostile environment. By definition, the military operates against an adversary that seeks to prevent it from implementing its plans (and kill the commander and his men as well), while the commander never has all the intelligence required. Similarly, the

economist works in a hostile environment, which includes competitors who are sometimes very cruel (“cut-throat competition”). The more successful the economist is, the greater the competitors’ incentive to harm him. He must predict their response, even though some of them he does not know at all. Furthermore, large profits make the economist vulnerable to challenges from labor organizations, tax authorities, other regulators, social activist organizations, and class action lawsuits.

Second, the commander and the economist live with uncertainty and are constantly required to predict what their opponent and those around them will do. The commander has incomplete information but must still assess his opponent, including the opponent’s capabilities and methods of operation, and even variables such as the weather. Assessing the adversary’s intentions and the rationale for his actions is not a simple matter, as the history of the Yom Kippur War demonstrated: Israel paid a very heavy price for failing to understand the strategic rationale of President Sadat, even though it had good intelligence regarding the capabilities of the Egyptian military.

The need to cope with a hostile environment under conditions of uncertainty translates into a strong correlation between the military objective or the required return and the risk involved. This correlation is captured in the saying that a person who wants to eat well should invest in stocks, while a person who wishes to sleep well should invest in bonds.

Landing troops behind enemy lines is a clear example of the correlation between yield and risk: the IDF’s crossing of the Suez Canal in October 1973 was the most important success of the Yom Kippur War, even though initially there was a strong risk that the force crossing the canal would be cut off and encircled. (The IDF high command had concluded that the risk involved in attempting a crossing prior to October 14, 1973, before the Egyptian armored divisions had crossed into Sinai, was too great, and rejected recommendations that entailed crossing the canal earlier.) Also worth noting is the Entebbe operation to free the hostages of the Air France plane hijacked to Uganda in 1976, which was very risky but ended with unprecedented success (unlike Operation Eagle Claw, the US attempt to free the hostages in Tehran in 1980).

There are many familiar examples of the close economic correlation between risk and return. Investments in oil prospecting, hi tech, and foreign markets involve great risk, but when they succeed, they yield large profits.

However, for every company like Check Point, which became the global leader in cyberspace security, there are many companies like Better Place, which in effect consumed hundreds of millions of dollars and ultimately filed for bankruptcy.

Parenthetically one might add that for both disciplines, the close correlation between accomplishments and risks creates dizzying successes and resounding failures. Both are subject to the phenomenon of perfect hindsight, in the negative sense. In the military, perfect hindsight refers to the conclusions that should have been drawn from raw intelligence that can pinpoint precisely the adversary's first signs of breaking as well as the optimal moment to initiate the counterattack. Those with perfect hindsight are never surprised in retrospect. In economics, the after-the-fact geniuses always know the right time to enter or leave the stock market. They always know how to earn a profit, after the fact.

The Similar Toolboxes

Military and economic endeavors are human, intellectual tasks. In both, the operators must cope with limited resources and use algorithms that weigh the cost and benefit of alternative methods of operation and choose the best of them. The commander chooses a certain path in the hope that it will be optimal for conquering a target or thwarting an attack, and the economist chooses an option that he believes will improve the cost-benefit ratio. Given the similar processes described above, it is no wonder that the commander and economist have similar toolboxes, as the following examples illustrate.

The Combined Arms Battle and the Diversified Investment Portfolio

The military concept of integrating branches and corps on the battlefield has a long history, as does the concept in economics of not putting all your eggs in one basket. Diversification of investments and the integrated battle achieved sophisticated conceptualization in the twentieth century, but they have always been part of the old practice: "A man should always divide his wealth into three equal parts: one third for real estate, one third for commercial stock, and one third on liquid assets," according to the Talmudic sage Rabbi Isaac. Hundreds of years earlier, armies were already integrating their infantries with cavalry and chariots, the bow with the sword, the spear, and the stone, and the land forces with ships.

The variety of weapons has increased over the course of history, as has the range of investment instruments, but the principle guiding the two disciplines has remained similar: integration in the army, like diversification of investments, turns the whole into more than the sum of its parts. The different types of integrated battle were intended to expose an adversary that was well prepared for one type of weapon system to a crushing blow from a different system. For example, a modern integrated air defense system appeared for the first time in the Vietnam War (and immediately afterwards, in the War of Attrition in Israel). It included various types of radar, ground-to-air missiles, anti-aircraft artillery, and fighter jets. American planes that attempted to attack targets in North Vietnam from a high altitude had difficulty coping with the missiles, and when they attempted to attack from a low altitude, they encountered deadly anti-aircraft fire. At the same time, the enemy's fighter jets intercepted the attack aircraft, forcing them to jettison their bombs. The combined engagement of all of North Vietnam's air defense assets resulted in a situation in which the benefit of the air strikes on North Vietnam was small while the costs, in terms of loss of American air crews and aircraft, was very high.

An investment portfolio containing assets with various risk-return profiles that offset each other's volatility, preventing a steep drop in the value of the portfolio during an economic downturn on the one hand, and a surge in its value during an upswing on the other, is of crucial importance. Although the fundamental logic underpinning the integrated battle is not the same as that of investment diversification, the result is the same: in both disciplines, the integration or diversification improves the ability to cope with the complexity and uncertainty of confronting a hostile environment.

Israeli history provides many examples in both fields: the lack of artillery and armored infantry in the Yom Kippur War caused heavy tank losses on the Suez Canal front. In contrast, the conquest of the Egyptian positions in Umm Katef in the Six Day War is a good example of a battle integrating infantry with armor, artillery, and a heliborne force. In economics, there is no lack of examples of unbalanced investment portfolios that inflicted a heavy blow on their owners. This is what happened in the crisis of the "regulated" bank shares in Israel during the late 1980s, in the hi tech stock crash in 2000, and in the burst of the real estate bubble in 2008. On the

other hand, an investor holding government bonds can always get cash even at the height of a crisis, by selling them without a loss.

Risk Management

Over the past generation advanced quantitative methodologies that use sophisticated statistical tools have been developed for risk management, but these methodologies are effective only in those few areas in which there are numerous observations. Because of the tremendous importance of risk management, for lack of an alternative it is often implemented using qualitative tools as well, even though these do not meet the strict definition of the concept. Non-quantitative risk management has assumed various forms in the military: scenario-based thinking, sensitivity analysis, “red teaming,” the devil’s advocate function, cases and responses, and more. On many subjects, especially in the realm of strategy, risk management is qualitative, since it is not possible to quantify the probabilities of the scenarios and the damages caused when negative scenarios come to pass.

The situation in economics is not much better, even though there are a number of areas in which quantitative risk management can be applied (for example, the world of insurance and the hedging of certain financial risks through the use of options and future contracts). In both disciplines, risk management involves on the one hand assessing the probability of various scenarios and the possible results in every scenario, and on the other hand, what is called “risk appetite” (that is, willingness to take a risk in order to achieve a certain goal). We can view the assessment of probabilities as a professional measure carried out by the military staff (or the management), and risk appetite as a decision by the political leaders who direct the commander or by the shareholders who guide the economist. Risk appetite determines the point where one wants to be, taking into account the close correlation between risk and returns.

An example from the military realm is the decision by the political leaders in 1976 to launch an operation to free the hostages at Entebbe in spite of the great risk involved in such a complex operation. An opposite example is the Israeli government’s decision not to respond to Egypt’s ceasefire violations in the Suez Canal in August 1970, among them Egypt’s positioning of its ground-to-air missile batteries near the canal. It would appear that after three years of the War of Attrition, Israel’s risk appetite was very small.

Risk appetite in economics is reflected, for example, in a real estate company's willingness to finance its activities through loans ("degree of leverage"). The greater the credit leverage, the greater the expected profitability from real estate investments. However, as evidenced in the crisis of 2008, high leverage led to bankruptcy for many companies.

The Principles of War and Economics

The conceptual similarity between the two disciplines and their common toolbox are reflected in the similarity of principles guiding commanders and economists, which differ only in semantics. The following examples illustrate this point:

- a. *Time to market* is an economic principle that emphasizes the importance of both initiative and speed, which introduce a new product into the market even if its development has not yet been completed. The benefit of being first is enormous, as it provides an advantage over competitors. Therefore, it is worth taking the risk that the first product to enter the market will be criticized for not being sufficiently developed. The parallel military principle is to take advantage of the fog of battle and strike quickly, even with one company, and achieve something that even a brigade would find difficult to achieve in a later, orderly battle. Here, too, there is a risk that if the assaulting force is too small, it will be destroyed.
- b. *The law of diminishing marginal returns* states that increasing input does not always increase output at a similar rate. As every student of economics knows, increasing the number of workers in a certain field does not increase the yield at the same rate (and could even reduce it – "negative marginal return"). A similar military principle prevents a commander from using his reserves for reinforcement in a battle that is deadlocked, and holds that he should consider using the reserves in a more effective way instead, with a different area or at a different time.
- c. *Reward and punishment*: Those who take the initiative and weigh the risks correctly are rewarded in economics by large profits and bonuses, and in the army, through citations and promotion. In contrast, economic failure leads to bankruptcy, and failure in the military leads to a demotion rather than a citation (and sometimes also to death in battle).

- d. *The law of comparative advantage* holds that an entity should specialize in activities in which it has an advantage over the competition. The classic, long-standing example for Israel – though less applicable today – was the idea that Israel should focus on growing oranges and tourism and stay away from energy-intensive industries. The military application of the law is reflected in Israel's security concept, which dictates a doctrine based on a rapid maneuvers and advocates not becoming entangled in a war of attrition. This law became an important concept in planning force structures, as evidenced by an article by Maj. Gen. (ret.) Isaac Ben-Israel describing the tension between the desire to utilize comparative advantage to the fullest and the need to provide a response to the enemy's force structure and doctrine.⁴
- e. *Timing and location are everything*: The deliberations of a commander in a defensive battle are similar to those of an investment manager during a stock market crisis. An investment manager must decide when to enter the stock market and how to identify stocks whose price has dropped below what is reasonable. The deliberations of a commander concerning the timing and location of a counter-attack are very similar to those of the investment manager. In addition, a commander deliberates whether to beef up the attack force with reserves from other sectors and thus expose them to the attack. The same applies to the investment manager, who debates whether to use only the cash in his possession, or perhaps to take a loan in order to buy stocks that appear at that time to be very inexpensive. Leveraging can lead to large profits if decisions about the timing of entry into the stock market and the choice of stocks turn out to be correct. Otherwise, leveraging could lead to enormous losses.

The Difference between the Disciplines: "It Is Good to Die for Our Country"

Many commanders claim that the readiness to die for one's country and comrades-in-arms distinguishes military thinking from the rationales of other disciplines. In contrast, economic thinking assumes that human actions are guided by the desire for economic achievements (along with obedience to the law and normative behavior based on generally accepted social values), and in the world of economics there is no situation in which people sacrifice their lives for the good of the organization to which they

belong. According to this argument, the situation in the military is special: a considerable part of the training of soldiers is geared toward inculcating in them adherence to the combat mission, to the point of potentially sacrificing their lives.

Yet the very substantial difference between military culture and economic culture notwithstanding, this difference is significant mainly on a tactical level. Acts of heroism and sacrifice by individuals may change the results in a battle, but only infrequently can they change a military campaign, and they have even less influence on the outcome of a war. The Japanese army during the Second World War provided a powerful example of determination and willingness to sacrifice, but this sense of sacrifice did not lead Japan to victory and in fact only increased American casualties, and ultimately led President Truman to drop nuclear bombs on Japan. Willingness to sacrifice one's life is a very complex issue, and is a subject beyond the scope of this article.

What Are Economists Supposed to Do (Other than Cut Expenditures)?

The most common image of an economist is an expert at cost cutting who does not consider the damage to operational effectiveness caused by cuts. A senior infantry commander, in contrast, would claim that eliminating brigade-based training for soldiers and giving preference to corps-based training (such as that of the Armored Corps) will save money but cause serious harm to brigade cohesiveness and the fighting spirit of the infantry soldiers. Another example is provided by Professor Luttwak: he claims economists prefer that refueling tankers for US Navy task forces be as large as possible because one large ship is less expensive than two small refueling ships. According to Luttwak, this narrow approach ignores the risk of relying on one large ship: if it is damaged, the task force must return to base.⁵

The two examples offered above falsely accuse economists of not understanding that the yearning for efficiency and cost savings may harm operational effectiveness. Essentially, economists engage in optimization based on cost-benefit calculations, and economic analysis is intended to identify the full costs of the options examined and the full scope of benefits, and then compare them and select the optimal alternative. However, this is not sufficient: economic analysis must also consider the benefits and costs

that are not measurable, as well as the risks. There is an understandable tendency to criticize economists for how they address non-measurable variables. At the same time, there is insufficient appreciation of their contribution to defining and measuring the benefits, the costs, and the alternatives in the measurable areas. Defining and measuring these costs and benefits is often a very challenging task, subject to a variety of logical and empirical pitfalls, as will be described below.

Difficulties in Predicting the Future

Decisions about the future require an assessment of future costs and benefits, sometimes for periods of many years. It is difficult to predict the future. Thus, for example, the history of development and purchase of hi-tech aircraft, missiles, and ships in the United States is an ongoing story of enormous cost and schedule overruns. Israel is loth to disclose information on the development costs of weapon systems, and only the story of the Lavi fighter jet has become public knowledge. On this issue, the State Comptroller's report paints a picture that was similar to the situation in the United States.

Economic "True" Cost vs. Budgetary Cost

Until 1995, manpower costs in the IDF were calculated incorrectly: the cost of conscripts was calculated on the basis of their salaries and subsistence (food, clothing, and the like). This method of calculation underestimated manpower costs, as the budgetary cost was much lower than the economic cost, which is defined as the loss of civilian GNP, as a result of military conscription. There was a similar but less serious problem in calculating the cost of reserve duty. This cost was computed on the basis of payments received by reservists from the National Insurance Institute, which in many cases were lower than the amounts they earned and reflected the value of their GNP contribution ("economic cost").⁶

Likewise, for many years, until the 1990s, economists focused on the economic cost of foreign currency, as opposed to the official exchange rate. Thus, for example, every time the profitability of local production of weapons was examined, it was necessary to emphasize that the effective rate of exchange was significantly higher than the official exchange rate (this increased profitability of domestic production).

After the Second Lebanon War, a debate took place on the future of Iron Dome, the anti-short range rockets defense system. Opponents, most of them air force commanders, argued that it did not make sense to strike a rocket that costs about one hundred dollars with an interceptor missile that costs fifty thousand dollars (in addition to the high cost of the batteries themselves). Economists saw the issue from another angle. In their opinion, the relevant question was not how much it costs to manufacture a rocket, but what damages to property and human life and what loss of GNP result from rockets striking a built-up area. Data from the Second Lebanon War indicates that the use of Iron Dome can save several times the cost of the batteries and interceptor missiles in relation to the expenses and damages that would accrue without its deployment.

A Cost that Includes Expenditures on Operation and Maintenance

A comparison of the costs of weapon systems must take into account not only the cost of the equipment (aircraft, tanks, missiles, and the like), but also its life cycle costs (which includes development, maintenance, and wear), and spread them across the entire period of its service. As time passes, maintenance costs for the equipment rise. Therefore, it is very important to correctly calculate the cost of manpower and spare parts. (If maintenance costs are high, this means that the equipment has a low level of readiness, which makes it necessary to acquire more and thus presents as another expense.)

The Operational Benefit

Since the 1970s, there has been extensive literature in the United States on operational benefit which, among other things, includes criticism of the relentlessly rising costs of fighter jets and other advanced weaponry. The Military Reform Movement established at that time (for which Professor Luttwak is one of the most articulate spokesmen) advocated comprehensive reform in doctrine, force structure, and procurement methods. Its slogan was “more bang for the buck,” a demand to maximize the operational effectiveness of every dollar in the defense budget.⁷

Cost-benefit calculations of this kind, of themselves difficult, require the help of economists and performance researchers, even though in many fields it is very difficult to quantify the operational benefit. For example, it is difficult to quantify the benefit of a small and expensive brigade

training depot, as opposed to a bigger and cheaper corps training depot. But as noted previously, economists must take the operational benefit into account, even though it is difficult to quantify.

External Economies

Economic theory conceptualizes the need to address all the results of choosing a particular alternative, taking into account their effects on third parties. This conceptualization is called external economies and external costs.

The starkest examples of external disadvantages come from environmental science. For example, the full economic cost of using internal combustion engines is not only the cost of the fuel, but also the damages from air pollution, traffic jams, accidents, and the like. Another example is the economic cost of smoking, which is not only the cost of manufacturing cigarettes, but also the damage to the health of smokers (active and passive), which leads to lost work days and an increased health budget.

A good example of external advantages in the economic-military realm can be seen in the development of unmanned aerial vehicles (UAVs), which provided the IDF with an original, innovative weapon system that has promoted many operational capabilities since the late 1970s. In addition, UAVs have become a major export. Another example is the great success in exporting precision weapons and various types of missiles, command and control systems, electronic warfare systems, advanced shells, aircraft upgrades, and armored combat vehicles. All of these are byproducts of Israeli investment in Israeli hi-tech.

These and many other examples indicate that estimates of the “defense burden” are exaggerated. The costs of military research and development appear as part of the defense budget, whereas the many economic benefits in employment and export are not reflected in the data used in discussions of this budget. In addition, the many expenses for training commanders, soldiers, and a large number of professionals improve Israeli manpower. This is also an investment that yields great returns, and it is not reflected in calculations of the burden.⁸

Smart bombs are, of course, much more expensive than “stupid” bombs, but they make it possible to save on platforms and munitions. Smart bombs have another important advantage: they greatly reduce the harm

to uninvolved civilians (third parties or innocent bystanders). Israel has faced this problem since it began to confront terrorist organizations, but it was seared into consciousness as a result of the IDF's lethal artillery fire in Kafr Qana and the Goldstone Report, which investigated IDF conduct in Operation Cast Lead. The ability to hit a pinpoint target without hurting uninvolved civilians has in recent years become a force multiplier, because it allows the IDF to employ weapon systems without becoming entangled in delegitimization, which in turn makes it difficult to use the army's full capabilities.

Quantification of Risk

How can the risk associated with two alternatives be represented? How can the probability of negative scenarios, and the possible harm they might inflict, be quantified? These are the most difficult issues that an economist must examine. As the discussion above indicates, the economist must address the risk even when it cannot be quantified.

Business uses rules of thumb that are simple but not necessarily precise in order to express risks. For example, the interest that banks charge for loans is a function of a number of economic variables associated with the purpose for which the loans are taken and the risk involved in granting the loan: the product the borrower is producing, the borrower's industry, economic history, experience in the field, and the like. Another example is the common use of extreme scenarios (stress tests) for assessing the capital adequacy of financial institutions (reminiscent of the "all of them," scenario, an important planning scenario used in the years prior to the Six Day War, which imagined a coordinated attack on Israel by all the Arab armies). Over the last generation, financial-mathematical risk management tools have been developed, but this is still a narrow field within economics and therefore concrete achievements to date in conceptualizing and quantifying business risks are still modest.

Accordingly, an economist, like a commander, must think in terms of risk. The benefits and costs calculated must also express the risks associated with the various alternatives. It is very difficult to quantify the risks, but they must be addressed and not swept under the rug.

Economic thinking, therefore, focuses not only on the cutting of expenses; it is meant to take into account the impact of savings on operational effectiveness and express it in calculations of cost and benefit.

Do economists always work this way? Not necessarily. They are liable to err because they use bad data and because of many other errors characteristic of human endeavor. Simply put, not all economists are geniuses, but neither are all commanders. Both economists and commanders must exercise judgment and use experience and intuition when they cannot obtain data or when the data is partial and includes a great deal of “noise.”

What Economists Have Achieved in Practice: The United States and Israel

It is common to see the tenure of Defense Secretary Robert McNamara (1961-68) as the golden age of defense economists. McNamara and his whiz kids brought a fresh spirit to military-economic thinking, aiming to avoid redundancy and waste, introduce rationalization into development and procurement processes, and extract more defense from every dollar. One of the most famous examples of the work of McNamara and his whiz kids is the cancellation of the B-70 supersonic bomber project. This was a very expensive bomber that the Strategic Air Command wanted, even though the need for it was significantly reduced after the transition to intercontinental ballistic missiles. McNamara’s economists also forced the Tactical Air Command to buy US Navy A-7 and Phantom jets fighter jets. The Phantoms were originally developed for the Navy in the 1950s and were found to be excellent planes (the Israeli Air Force continued to use them until 2005). Those same economists also contributed to the development of the F-111 light bomber, which was controversial but has stood the test of time.⁹

The basis of these and other examples was McNamara’s approach to defense economics:

It cannot be assumed that a new weapon would really add to our national security, no matter how attractive the weapon can be made to seem, looked at by itself. . . . You have to consider a very wide range of issues – the missions our forces must be prepared to perform, the effects of a proposed system on the stability of the military situation in the world, the alternatives open to us for performing the missions required.

You cannot make decisions simply by asking yourself whether something might be nice to have. You have to make a judgment on how much is enough.

I emphasize judgment because you can't even be sure yourself, much less prove to others, that your decision was precisely right to the last dollar – even to the last billion dollars. But the decision has to be made.

McNamara pointed out the considerable difference between the way in which decisions were made on these issues in his day and the way in which they had been made previously:

Formerly, an arbitrary budget ceiling was fixed for national defense, and funds were then apportioned among the Services. Today we examine all our military needs, and then decide at what point our military strength is in balance with the requirements of our foreign policy.

There are, of course, sharp differences of opinion on where we should spend our marginal defense dollars. And here is where the responsibility most clearly falls on the Secretary of Defense, because here is where it must fall not only constitutionally but under any rational system. For these decisions can only be made from the point of view of the defense establishment as a whole, not from the point of view of the individual Services. Indeed the very biggest decisions – such as the basic kinds of forces we need, and the occasions on which we might want to commit these forces – must be made at an even higher level: for they involve basic questions of national policy which transcend the interest of the Defense Department, or the State Department, or indeed any part of the government, and must be made at the Presidential level.¹⁰

McNamara's resignation and the weakening of the Defense Department in the wake of the failures of the Vietnam War, as well as the military and industrial establishment's opposition to centralized management of the department, led to a decline in the influence of economists in defense decision making in the United States. However, the tools introduced by McNamara for defense budget preparation are used to this day: a multi-year planning system, the Planning, Programming, and Budgeting System (PPBS), and systems analysis.

To be sure, the quantitative approach introduced by McNamara and his whiz kids had negative aspects as well. In many cases, the Department of Defense applied statistical indices that had no operational meaning, which

resulted in wasted resources and growing alienation between Washington and US forces in Vietnam.

And what about Israel? As far back as 1963, the Ministry of Defense established an economic consulting unit, headed by Dr. Eitan Berglas, which worked separately from the unit of the chief of staff's financial advisor. Berglas resigned in 1966, and was only replaced in 1969 by Professor Pinhas (Siko) Sussman. The economic advisor attempted to operate in a way that was similar to McNamara's whiz kids in Washington, but he had much less influence. One of the important projects undertaken during Sussman's time pointed to the feasibility of developing and manufacturing the Merkava tank, as opposed to purchasing the American M-60. Sussman's report on this issue was prepared in 1970 after Great Britain reneged on its agreement to supply Israel with modern Chieftain tanks, when the IDF was trying to decide which tank would replace its Centurions and Pattons.¹¹ Unlike Sussman, Zvi Tropp, the Defense Ministry's economic advisor in the mid-1980s, did not play a significant part in the stormy debates around the decisions on developing the Lavi jet fighter or, later, on terminating the project.

Economists in Israel dreamed of having a defense minister like Robert McNamara, who was assisted by economists and systems analysts in setting policy. This did not happen. In fact, to this day, it is the financial advisor to the chief of staff, the Planning Branch in the General Staff, and the Administration for Research and Development of Weapons and Technological Infrastructure in the Ministry of Defense that play the key roles in economic analysis of defense systems, not professional economists in the Prime Minister's Office, the Defense Ministry, or the Knesset.

Conclusion

This article has attempted to bridge between military thinking and economic thinking and show that the two disciplines are similar in their conceptual basis and that commanders and economists work in a similar manner. How is it possible, then, to explain the annual stormy deliberations on the defense budget? The main explanation is that commanders wish to achieve a large and sophisticated order of battle and that they aspire to provide Israel with the maximum possible defense output at minimum risk. On the other side are the economists, who represent the need to save on expenses – to reduce redundancy, eliminate superfluous activities,

and simply become more efficient. Every organization has this need, and certainly a large defense establishment such as Israel's. In addition, it is necessary to meet other state needs – those that contribute directly to national strength as well as those that are important to quality of life.

The two sides in the debate generally have a positive starting point. However, it is difficult for them to reach understandings and agreements because of an inability to predict and quantitatively assess the full costs and benefits (including the risks) of the various alternatives of national defense policy and the budgets derived from them. There is no dispute that Israel is exposed to threats in a number of fronts and that defense needs are both substantial and expensive. The budgetary disputes that arise every year are mainly a result of the absence of clear guidelines concerning national defense objectives, the ranking of threats, and the levels of risk on the one hand, and the needs of civil society on the other.

The description above does not tell us much that is new. During the last decades, a great deal of ink has been spilled on attempts to upgrade the process of the defense budgeting, and there is still a long way to go. The last of these attempts was the May 2007 report of the Brodet Committee, most of which is devoted to proposals for reform of procedural and administrative aspects of the budget. Essentially, the committee recommended that mediation between the budgetary demands of the military and the economic affordability “must be carried out at the political-military cabinet level after setting clear and distinct priorities for the tasks, in accordance with the possible size of the trained order of battle subject to budgetary constraints, including full responsibility for the risks of failing to provide a response, or providing only a partial response only, to the threat being analyzed and the scenario that was adopted.”¹²

In order for the political-military leadership to be able to work as the committee suggests, it needs professional bodies – that are not part of the IDF or the defense establishment – to carry out staff work. The Brodet Committee also recommended that the National Security Council be the main body to coordinate the staff work on the defense budget. It repeated similar recommendations made previously by the state comptroller and the Meridor Committee from 2006.¹³

It is reasonable to assume that implementation of the Brodet Committee's recommendations would significantly reduce the decibel

level of the disputes between commanders and economists. Unfortunately, the committee's recommendations relating to the key processes for setting the defense budget were not implemented.

In conclusion, there are thus no conceptual differences between military thinking and economic thinking, but there can be professional differences of opinion in confronting specific issues because of the difficulty in quantifying costs and benefits, particularly the aspect of risk management. The raucous, nerve-racking debate during annual deliberations on the defense budget does not result from a fundamental gap between the two disciplines. It may be attributed, first and foremost, to the political-defense leadership's management of the process, which is not orderly, and to the lack of independent military staff that does not come from the defense establishment to help the government and the Knesset. It is unfortunate that the Brodet Committee's report, which was the latest attempt at a revolution on this important issue, did not succeed in changing the situation.

Notes

The author wishes to thank Dr. Gabi Siboni, Dr. Oded Eran, and Imri Tov for their constructive comments and suggestions, which contributed greatly to the article.

- 1 Edward Luttwak, *Strategy: The Logic of War and Peace* (Ma'arachot Publishing, 2012), pp. 18, 62-65.
- 2 Aviezer Ya'ari, *Civilian Oversight of the Military in Israel* (Tel Aviv: Jaffee Center for Strategic Studies, Tel Aviv University, October 2004), pp. 46-50; Imri Tov, "The Economic Aspect of Relations between Economic and Military Officials," in *Relations between the Civilian and Military Leadership in Israel: Reciprocal Relations and Control Mechanisms*, ed. Ram Erez (Tel Aviv: Jaffee Center for Strategic Studies, Tel Aviv University, November 2003), pp. 56-60; *Report of the Committee to Examine the Defense Budget* (Brodet Committee), Jerusalem, May 2007; State Comptroller, *Annual Report 56A*, Jerusalem, 2005, p. 5.
- 3 Saul Bronfeld, "Reform in the Wake of Military Failures," *Ma'arachot* No. 412, May 2007.
- 4 Isaac Ben-Israel, "The Theory of Relativity of Force Building," *Ma'arachot* No. 352-353, August 1997, No. 354, November 1997.
- 5 In many of Luttwak's works, he accuses economists of failing to understand that standardization (in equipment, in manpower, and in other aspects of military activity), which contributes a great deal to efficiency, also undermines effectiveness. Edward N. Luttwak, *The Pentagon and the Art of War* (New York: Touchstone, 1985), ch. 5.

- 6 Saul Bronfeld, "Reserve Duty: The Difference between Economists and Army Personnel," *Ma'arachot* No. 390, July 2003. A detailed and precise presentation of ways of calculating the economic cost of military manpower can be found in Ya'acov Lifshitz, *Defense Economics* (Ministry of Defense Publishing, 2000), chs. 7, 8.
- 7 Dina Rasor, ed., *More Bucks, Less Bang: How the Pentagon Buys Ineffective Weapons* (Washington, DC: The Fund for Constitutional Government, 1983).
- 8 Eitan Berglas, "The Defense Burden and the Israeli Economy," in *The Israeli Economy: Growth Pains*, ed. Yoram Ben Porat (Tel Aviv: Am Oved, 1989), pp. 213-15.
- 9 Alain C. Enthoven and K. Wayne Smith, *How Much Is Enough: Shaping the Defense Program, 1961-1969* (Ma'arachot Publishing, 1974), pp. 177-94. See also a detailed description of the incident in which the Department of Defense imposed its opinion on the Tactical Air Command: Richard G. Head, "Doctrinal Innovation and the A-7 Attack Aircraft Decision," in *American Defense Policy*, eds. Richard G. Head and Erwin J. Rokke (Baltimore: Johns Hopkins University Press, 1973).
- 10 Enthoven and Smith, *How Much Is Enough*, pp. 151-52.
- 11 See the description of the establishment of the economic advisor's bureau in Yossi Argaman, *Pale Was the Night: Siko's Version* (Tel Aviv: Yediot Ahronot, Sifrei Hemed, 2002), pp. 97, 318-44.
- 12 *Report of the Committee to Examine the Defense Budget*, p. 18.
- 13 *Ibid.*, pp. 77-79.