

The Economics of Peace and Security Journal

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Editors

Jurgen Brauer, Augusta State University, Augusta, GA, USA
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Vol. 2, No. 1 (2007)

Symposium: On the organization of force in the modern world

Panu Poutvaara and Andreas Wagener on conscription
Jülide Yildirim and Bülent Erdiñ on conscription in Turkey
Curtis J. Simon and John T. Warner on the U.S. all-volunteer force
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Book review article

Jurgen Brauer on Vernon Ruttan's "Is War Necessary for Economic Growth?"

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Aims and scope

This journal raises and debates all issues related to the political economy of personal, communal, national, international, and global peace and security. The scope includes implications and ramifications of conventional and nonconventional conflict for all human and non-human life and for our common habitat. Special attention is paid to constructive proposals for conflict resolution and peacemaking. While open to non-economic approaches, most contributions emphasize economic analysis of causes, consequences, and possible solutions to mitigate conflict.

The journal is aimed at specialist and non-specialist readers, including policy analysts, policy and decisionmakers, national and international civil servants, members of the armed forces and of peacekeeping services, the business community, members of non-governmental organizations and religious institutions, and others. Contributions are scholarly or practitioner-based, but written in a general-interest style.

Articles in *The EPS Journal* generally are solicited by the editors and subject to peer review. Readers are, however, encouraged to submit proposals for articles or symposia (2 to 4 articles on a common theme), or to correspond with the editors over specific contributions they might wish to make. In addition, comments on published articles (<500 words) are welcome. Please write us at editors@epsjournal.org.uk or contact us via the journal's home page at www.epsjournal.org.uk.

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Introduction

Jurgen Brauer and J. Paul Dunne

This issue of the Journal opens with a symposium consisting of six articles on the organization of force in the modern world. The first three deal with the issue of the induction of youth into a state's armed service, either by conscription or by joining a volunteer, market-wage paid force. The other three articles concern various aspects of the increasing trend toward privatization and internationalization of violent conflict, including how post-9/11 terrorist organizations finance themselves.

In this issue, we also present three excellent overview articles. The first surveys accomplishments and challenges of research in defense economics, the second discusses recent developments in Russian military expenditure, and the third provides a very well-done, succinct summary of the academic literature on the economics of terrorism.

While we publish short **book notes** (<500 words) and **book reviews** (500-1,000 words) on our web site, we also wish to publish in the Journal itself in-depth **book review articles** on a particularly important book or set of books (3,000-5,000 words). This issue includes our first such piece. We invite readers to select a book or books for review from our web site book listing. For **book notes** and **book reviews**, please contact Bjørn Møller, our reviews editor (reviewseditor@epsjournal.org.uk). If you wish to write a **book review article**, please contact us beforehand at editors@epsjournal.org.uk.

Finally, we long to include in the Journal work on the history of thought regarding economic aspects of conflict, war, and peace. We are pleased to announce that Fanny Coulomb of the University of Pierre Mendez France, Grenoble, the world's foremost expert on the topic, has agreed to become our history of thought editor. If you wish to pen a piece on relevant contributions by, say, Keynes or Schmolter or Leontief or Wicksell or Veblen – just to pick a few pertinent names – please do send us an email outlining your idea.

Jurgen Brauer and **J. Paul Dunne** are the editors of this journal. Brauer is professor of economics at the James M. Hull College of Business at Augusta State University in Augusta, GA, U.S.A., and Dunne is professor of economics at the University of the West of England in Bristol, U.K.

Abstracts

Conscription: economic costs and political allure

Panu Poutvaara and Andreas Wagener

Since Adam Smith, most economists have held that a professional army is superior to a conscript army, thanks to benefitting from comparative advantage and specialization. We summarize recent literature on the benefits and costs of the military draft, with special emphasis on its dynamic effects on human capital formation. Empirical evidence refutes the claim that the economic costs of the draft would be balanced by increased democratic control or reduced likelihood of war. Rather, the political allure of conscription seems to arise from the possibility to concentrate the tax burden on a minority of voters in a way that is generally held to be unacceptable with normal taxation.

Conscription in Turkey

Jülide Yildirim and Bülent Erdinç

Following a brief account of the history and structure of Turkey's armed forces, the article reports on an effort to profile current conscripts using survey data. The samples suggest that over 50 percent of the conscripts believe that they would like to enlist beyond the conscription period, and 38 percent of those simply because they "like" the military, the highest percentage for any of the given reasons. It is, however, not known how many of the conscripts who say that they wish to reenlist will in fact reenlist once their term of conscription is fulfilled.

Managing the all-volunteer force in a time of war

Curtis J. Simon and John T. Warner

After a rocky start to the volunteer military in the late 1970s, since 1980 the United States military services have met or exceeded their recruiting and retention goals in most years and have done so at reasonable cost. The ongoing conflict in Iraq is the U.S. military's first protracted conflict since the inception of the volunteer force and raises questions about its impacts on recruiting, retention, and cost. This article briefly examines the effects of the war on recruiting, retention, and cost and studies ways of expanding the size of the active Army force, including a return to conscription.

Privatizing war and security in Afghanistan: future or dead end?

Antonio Giustozzi

An assessment of the employment of mercenaries in Afghanistan gives mixed results. U.S. armed forces appear to have been happy with the Afghan Security Forces and *ad*

hoc militias and only replaced them because of political reasons or because they felt that they were no longer needed. By contrast, the work of private security companies seems to have satisfied few. While in the short term no practical alternative to their use existed, it is not obvious that this option saves any money to the governments involved in the medium and long-term. Moreover, private security contractors are not subject to the control of military authorities, nor to military discipline. Their record of abusive behavior is indisputable and probably played a significant role in alienating the Afghan public. Unless much changes, the potential of private security companies in peacekeeping does not appear to be a bright one.

Privatizing and internationalizing violence

Herbert Wulf

Privatization of violence and international interventions to stop wars are two recent trends in wars. Both affect how the traditional state monopoly of force is exercised and on how armed forces operate. The concept of state monopoly of force is now questioned since the execution of force is increasingly delegated to armed non-state actors. Nationally organized armed forces are outdated, given the new international tasks. Since the role of the nation-state in security has changed so fundamentally, it is argued that changes in three political and legal fields are necessary: private military companies need to be regulated; the democratic deficit in international bodies which decide on international intervention needs to be overcome; and the monopoly of force needs to be re-conceptualized.

Terrorist financing beyond 9/11

Loretta Napoleoni

This article analyzes the impact of counter-terrorism policies, e.g., the Patriot Act and the war in Iraq, on the financial structure of European terror networks and argues that such policies, far from defeating Jihadist activities, ended up boosting them. In response to such measures, terror finances have been skillfully restructured, the main changes being the decentralization of funding activity in Europe and in the Middle East and the declining cost of terrorist attacks.

Defense economics: achievements and challenges

Keith Hartley

Defense economics is now an established part of economics. This article reviews its achievements as represented by papers published in the research journal *Defense and Peace Economics*. The range of topics in the journal is reviewed, especially since 2000, and major gaps in coverage are identified. A changing research agenda reflects new developments such as terrorism and international peacekeeping. Gaps remain

such as the need for good quality case studies of conflict (e.g., Iraq) and of major weapons projects (e.g., F-22 Raptor). Some challenges are outlined, namely, the choices resulting from the defense economics problem, the U.K.'s nuclear weapons policy, project case studies (e.g., Eurofighter Typhoon), military outsourcing, and data problems.

Russian military expenditure: what's behind the curtain?

Vasily Zatsedin

The article views the Russian defense budget as a representation of national strategic interests, priorities, and policies. Although Russia conforms to the United Nations' statistical standard for reporting military expenditure, several budget categories are hidden in other parts of the federal budget. Transparency in defense spending has been decreasing steadily. The budgeting process itself is cumbersome and opaque. Parliamentary control over the budget process and control over the execution of defense appropriations are limited. Importantly, frequent changes in the system of national accounting impede historical comparisons. The study finds that the low quality of defense management, dominated by members of the military-industrial complex, is a major problem locking Russian defense policy in an institutional trap.

The economics of terrorism: a synopsis

Fernanda Llusa and José Tavares

An overview of the economics literature on terrorism is presented. Papers are classified as to their macro versus micro and empirical versus theoretical emphasis. Although subjective, this classification makes clear where additional contributions can be made: most of the existing studies are of an empirical nature and examine the consequences of terrorist attacks at the aggregate level and in specific sectors of economic activity. In the case of the micro-based studies, the mix of papers is more balanced. The article concludes with a list of twelve papers that summarize what is now known about economics and terrorism. These twelve papers are suggestive of the broad range of questions addressed and the progress made, constituting a very useful introduction to the literature.

Review article: is war necessary for economic growth?

Jurgen Brauer

The article reviews Vernon Ruttan's new book, *Is Growth Necessary for Economic Growth? Military Procurement and Technological Development*. (Oxford University Press, 2006). The subject matter is limited to the post-World War II United States only. Studying six general-purpose technologies emerging from war environments, the book claims that much of the U.S. post-war growth experience can be attributed

to them. The reviewer finds that this is not Prof. Ruttan's best work, in part because the underlying research is too casual to support the conclusions drawn.

Conscription: economic costs and political allure

Panu Poutvaara and Andreas Wagener

With the notable exception of the military draft and its unarmed corollaries such as civil, national, or social service, today's non-totalitarian states no longer rely on forced labor. In high-intensity wartimes of the 19th and 20th centuries, most countries, whether democratic or authoritarian, drafted their citizens into the army.¹ But during the past four decades, and especially after the end of the Cold War, many democracies have (re)abolished the military draft and its substitutes in favor of a professional army, i.e., an all-volunteer force, and other states are debating the issue. Yet, eight out of the 26 NATO members are still firmly running their armies with conscripts.² At the time of writing (Fall 2006), Latvia and Bulgaria still relied on military conscription, but they have decided to abolish it in 2007 or 2008. As Figure 1 shows, the draft still heavily intrudes into the lives of young men in many Asian countries (including China), in virtually all successor states of the Soviet Union, as well as throughout Latin America, the Arab world, and the Middle East.³

Figure 1 shows that the draft still heavily intrudes into the lives of young men in many Asian countries, in virtually all successor states of the former Soviet Union, as well as throughout Latin America, the Arab world, and the Middle East.

While the duration of military service is one year or less in many European countries, it typically lies between 18 and 24 months in many other states around the globe, in some longer than that.⁴ If available at all, unarmed, "alternative" service lasts even longer than military service. At the other extreme – a purely market-based solution for

hiring military personnel – Saudi-Arabia relies heavily on foreign mercenaries, mainly from Pakistan and India, to staff its armed forces. The Vatican's Swiss Guard also falls into the category of a professional army exclusively hired from abroad.

Even in countries without military draft, the possibility of reintroducing the military draft or other, more general compulsory labor service surfaces from time to time. In 2004, when during the war in Iraq stop-loss orders were issued in the U.S. that kept thousands of reservists and National Guard members in the military past their agreed terms, critics of President Bush, including prominent economist Paul Krugman,⁵ argued that this amounted to a back-door draft, and that the U.S. doctrine of pre-emptive war foreshadowed larger requirements for military personnel than could possibly be filled with volunteers. U.S. Congressman Charles Rangel has repeatedly proposed that the United States reinstate the military draft or a universal national service requirement. He motivates his proposal as a reminder of the unequal

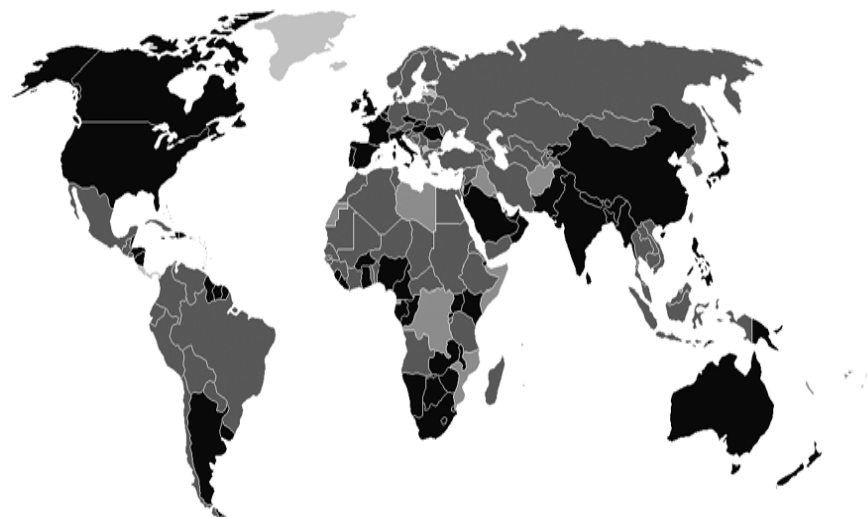


Figure 1: Conscription throughout the world, 2006

Source: Wikipedia (2006a)

Notes: Black: no conscription; dark gray: conscription; light gray: no official information; except for Costa Rica, Greenland, Haiti, Iceland, Panama (no own armed forces) and Latvia, Macedonia (plan to abolish conscription within three years).

sharing of sacrifice during recent American-led wars.⁶

After week-long street riots in November 2005, French President Chirac proposed a voluntary civil service for France, where military conscription has been abolished since 1996. The idea is to give youths from disadvantaged backgrounds access to training and employment and, thereby, better integrate them into society. Both the Socialist Party and the centre-right UDF criticized Chirac's proposal because of its voluntariness. Instead, they advocate a compulsory and universal civil service as "un investissement républicain" hoping to reinforce national and social cohesion.⁷

Compulsory service has also been defended (and criticized) as a way to educate young citizens, to teach them national and civic values, and to foster nation building. For example, the official objectives of Malaysia's National Service Program, started in 2003, are "i. instilling spirit of patriotism among the young generation or youths of Malaysia; ii. fostering unity amongst races and national integration; and iii. building positive characters through noble values."⁸ In the United States, a universal and compulsory military service has been advocated by political theorists with the main argument that the market solution of a professional army leads to a degradation and unwarranted commodification of social and civic life.⁹ In a manifesto from 1930, entitled *Against Conscription and the Military Training of Youth*, the opposite

conclusion was reached by, among others, Albert Einstein, Sigmund Freud, and Bertrand Russell. They write: “[Conscription] is a form of servitude. That nations routinely tolerate it, is just one more proof of its debilitating influence.”¹⁰

In this article, we survey some recent literature on the benefits and costs of the military draft. The following sections cover aspects of static inefficiency, dynamic costs, non-economic and thus allegedly “higher” values, and mercenaries. In the final section, we summarize our conclusions and argue that military conscription derives its political allure from the specific statutory incidence on young males.

An economist’s perspective

Specialization, opportunity costs, and production efficiency

The relative merits of the military draft and the professional army have been debated for centuries by military strategists, historians, philosophers, and political scientists – but also by economists.¹¹ Economically, the draft is a tax in the form of coerced and typically underpaid labor services whereas its alternative, the professional army, recruits its staff from the labor market and compensates it out of the revenues from fiscal (i.e., money) taxes. Professional armies and conscript forces thus represent two different tax modes: in-kind taxes and fiscal taxes. Economists generally ascertain that the draft is the inferior means to raise an army. Already Adam Smith made a clear case against conscription and found an “irresistible superiority which a well-regulated standing [all-volunteer] army has over a militia [conscription].”¹²

Forcing everybody to serve in the military is no more sensible than forcing all citizens to work as nurses, heart surgeons, or teachers.

Smith’s arguments, as well as those of most other economists who wrote on the topic, focus on comparative advantage and the benefits from specialization. Different people are good at different tasks, implying that not everyone is equally good at being a soldier. Forcing everybody to serve in the military is no more sensible than forcing all citizens to work as nurses, heart surgeons, or teachers. By ignoring the principle of comparative advantage, the draft leads to an inefficient match between people and jobs and thus to output losses that could otherwise be avoided. Moreover, already in Smith’s times – but even more so today – warfare requires a degree of experience, training, and mastery in handling complex weapons that drafted, short-term soldiers may never reach. A society that relies on conscription would forego the productivity gains that specialized professional soldiers bring to the production of military output.

Proponents of military draft and compulsory labor services usually evoke the high budgetary costs of manning a voluntary army or staffing the social sector. They argue that the government needs access to cheap labor provided by draftees in the military

or in welfare-related civilian sectors – and especially in the face of war, demographic transition, terrorist attacks, and other crises of society. But this argument confuses budgetary costs with opportunity costs. The cost to society of drafting someone to be a soldier or a nurse is not what government chooses to pay him or her. Rather, it is the value of his or her lost production elsewhere, as well as the potential disutility arising from any inconveniences related to the service. Conceptually, the cost of drafting someone is the amount for which he or she would be willing to join the army voluntarily. These opportunity costs – the costs to the economy at large, the costs of opportunities foregone – are substantial. For instance, Kerstens and Meyermans estimate that the cost of the (now abolished) Belgian draft system amounted to twice its budgetary cost.¹³

Compulsory service is likely to lead into an inefficient organization within the military or the welfare sector. If military commanders or social sector managers view draftees as cheap labor, they are tempted to use too much labor and too little capital. The often lamented tedium of service, the over-manning of army units, and the excessive maintenance devoted to weapons and material in conscript armies well reflect this distorted labor-to-capital price ratio. According to Straubhaar, the share of personnel costs in total expenditure in conscript armies is significantly higher than in professional armies, in spite of the common underpayment of draftees.¹⁴

As teaching sophisticated weapon systems or medical techniques to short-term draftees might just take too much time to be feasible or efficient, an organization staffed with draftees is likely to use less advanced technology. Moreover, an army of inexperienced and poorly trained draftees is bound to suffer more casualties and inflict more human suffering than a professional army in hostile environments.¹⁵ The larger number of injuries or deaths could even become financially more costly than a professional army would have been in the first place. The humanitarian toll of the cheap-labor fallacy in warfare was already criticized by the German, 19th-century economist J.H. von Thunen when observing the carnage of Napoleon’s poorly prepared winter campaigns to conquer Russia. He argued that this could only have begun after soldiers became “cheaply” available through the system of conscription introduced after the French Revolution.¹⁶

The draft as a tax

The draft is an in-kind tax collected in the form of forced work in the military or social sector. It permits government to collect less in other, fiscal taxes.¹⁷ This might make the military draft attractive for less developed countries where governments face difficulties in raising revenues from fiscal taxes,¹⁸ but also for those in developed nations who are convinced that fiscal taxation ought not to be increased.

As any other (feasible) tax, the military draft is not of a lump-sum type. It induces substantial avoidance activities and economic distortions. As exemplified in the vitae of the two most recent U.S. presidents and of many other Americans during the

Vietnam era (when the United States still used the draft), compulsory conscription goes along with various ways of “dodging,” inefficient employment, preemptive emigration, pretended schooling, hasty marriages, and other “substitution effects” which render conscription a socially costly (and arguably unfair) tax. Russia’s statutory two-year draft is avoided by more than 90 percent of eligible men, using means such as fake medical certificates, university studies, bribery, or simply avoiding going to drafting stations.¹⁹ In many countries, Internet-savvy opponents to the draft provide potential recruits with ample advice on how to effectively circumvent being drafted.²⁰

The draft is a tax on the young. Since the age-cohort required to serve ordinarily exceeds the personnel needs of the military, a selection must be made, often – to be “fair” – by means of a draft lottery. But to determine one’s tax liability by lottery would be deemed intolerable in any other realm of taxation.

Yet the alternative – the all-volunteer force – also inflicts distortionary effects through the taxes needed to finance it. Optimal-tax theory calls for minimization of such tax-induced distortions, and a number of economists have demonstrated that at some (high) level of recruitment the distortionary cost of an all-volunteer force could exceed that of a draft army.²¹ Hence, the case for a

professional army may strengthen when the demand for defense services is relatively low.²² The perception of decreasing threats to national security may help to explain why a number of European countries chose to abolish the draft in the 1990s, and why the recent promiscuity of the United States in its military adventures encourages advocates of conscription to raise their voices.

The burden of a draft tax primarily falls on young males. While the unequal treatment of genders is a frequent topic in the debate about the draft,²³ the age issue has not found much attention. It definitely raises equality concerns,²⁴ but also has an efficiency dimension. Levy has estimated which enlistment age would maximize social welfare when taking into account the effect of enlistment age on army size, the probability of war, military performance, and potential costs arising from war, including lost output due to casualties and the costs of readjusting to civilian life.²⁵ His numerical simulations suggest that it would be socially better to draft the middle-aged, rather than the young, especially in the case in which psychological scars arising from war would be more severe on the young.

Unlike a professional army that is financed out of the general budget, a draft system passes an important part of the costs of the military or the social sector to young draftees rather than spreading them more evenly across all cohorts of taxpayers. Those in favor of conscription for reasons of budgetary cheapness implicitly argue that the costs of military security or social services – which they deem too high to be borne by everyone via normal taxes – should be shifted to

conscripted teenagers and people in their early twenties.

The draft tax generally goes along with an unequal treatment even within its original target group. As cohort sizes outnumber requirements for military personnel, typically only a fraction of the physically and mentally able young men who are legally subject to the draft is actually called to service.²⁶ In some countries, the selection of draftees from the age-cohort supplied seems to be more or less arbitrary; in others (e.g., Bermuda, Denmark, Mexico, and Thailand) it is based on a formal lottery. For either case, randomization would be an intolerable method to determine one’s liabilities in any other realm of taxation.

For conscripts, the draft comes as a double burden. Not only are they paid below-market wages, but most are compelled to defer their education (human capital investment). The individual and long-term social costs of this deferment are sizeable.

Military reserves

Compulsory military service is often considered beneficial as it can provide sufficient manpower reserves to augment an army in case of a military emergency. As all states retain the right to issue a wartime draft, the validity of this argument depends on whether mobilized reservists are suitably trained for their assignments. Given the concerns about the adequacy of conscripts’ training for the requirements in modern armies even during peacetime, this is highly questionable. Moreover, establishing a volunteer army need not mean giving up reserves,²⁷ provided that reservists are paid sufficient compensation. Paid reservists could (and, in order to maintain their military skills, probably should) be induced to participate in regular exercises, thus replacing quantity by quality also in reserves. Furthermore, along the same line of reasoning as for the case of professional soldiers versus draftees, contracted (as contrasted to conscripted) reservists would render the full opportunity costs of alternative military strategies visible and help to allocate resources more efficiently between personnel and material.

Intertemporal aspects of the draft

Dynamic costs of the draft

When attributing the blood toll of Napoleon’s campaigns to the ready availability of conscripted soldiers, von Thuenen also reasoned that the scandalous misperception in military recruitment of those times was to view human life as a commodity, and not as a capital good. He argued that the economic costs of a crippled or dead soldier encompass “not only all the (now devalued) capital devoted to his education but also

its forgone lifetime returns.”²⁸ This argument points at the intertemporal and human capital aspects involved in military recruitment. While von Thuenen’s statement equally applies to professional and conscripted soldiers, all-volunteer and conscription schemes nevertheless differ in their dynamic impact, especially with regard to human capital.²⁹

In a recent paper with Lau, we argue that the military draft inflicts dynamic costs beyond those generated by a professional army.³⁰ Not visible at the time of draft, these dynamic costs hit society only several years after its introduction, and they pose a burden on society even long after the draft has been abolished. For conscripts, the draft comes as a double burden. First, it means losing discretion over one’s use of time which, for people in their late teens or early twenties, to a substantial extent means having to work in the army or social sector rather than spending time on education, studies, or gathering experiences on their normal job. Second, draftees are generally paid less than the market value of their productivity (which makes them cheap from an accounting perspective). Both the constraint on time usage and the underpayment contribute to a reduction of long-run GDP and economic growth. The channel for the first effect is that draftees are forced to work in the military or the social sector at a time that they would normally be investing in their human capital. Draftees have to postpone or interrupt college or university education or see human capital accumulated before being drafted depreciate during military service. On the individual level, a draft system tends to result in a lower lifetime wage profile, an effect that has been documented empirically. For Dutch draftees in the 1980s and early 1990s, a pair of researchers found losses of up to 5 percent of lifetime earnings as compared to the earnings of non-conscripts.³¹ Wartime seems to aggravate this effect: in the early 1980s, the earnings of white Vietnam War veterans were 15 percent lower than the earnings of comparable non-veterans.³² On the macroeconomic level, the disruption of human capital investments by military conscription translates into lower stocks of human capital, reduced labor productivity, and substantial losses in GDP.

The mechanism of how underpayment of draftees results in a dynamic output loss is linked to individuals’ desire to smooth their life-cycle consumption. The lower the compensation that government pays its draftees, the more they wish to borrow early in their life, implying that their wealth accumulation is postponed. This depresses the long-run stock of capital and thus output and its growth. Naturally, with less-than-perfect capital markets where draftees cannot borrow against future incomes to accommodate low pay during their conscription spell, the long-run effect is to lower the nation’s capital stock even more. Our simulations for a stylized model economy with 60 overlapping generations show that these long-run costs of the draft are sizable: if everybody was subject to a one-year draft early in his life-cycle, long-run GDP would be depressed by up to one percent every year, depending on the extent to which draftees are underpaid.³³

In another recent empirical study with Keller, we corroborate the dynamic costs

of military conscription in a neoclassical growth framework.³⁴ For OECD countries for the period from 1960 to 2000, this study shows that conscription and its length have a considerable negative impact on GDP and its growth. Replacing conscription by an all-volunteer force would increase the GDP growth rate of around a quarter percent or more. This surprisingly large effect is not only suggestive of a negative dynamic feedback from the draft to general productivity growth but clearly repudiates the sometimes claimed positive externalities of conscription on human capital. It is remarkable also against the backdrop that military expenditure or the size of the military labor force *per se* do not seem to exert any systematic effect on GDP and its growth.³⁵

Intertemporal tax incidence of the draft

As parts of its opportunity costs become visible only in the long run, the military draft resembles government debt. But unlike ordinary government borrowing, the economic burden that the draft generates cannot be repaid after a few years. Rather, it will be present long after the draft itself has been abolished, namely until the last generation of draftees has caught up with the productivity level it would have had without the draft. The military draft shares some features with a pay-as-you-go intergenerational transfer scheme. Like the introduction of an unfunded pension scheme, starting a draft scheme amounts to the young giving a “present,” in the form of a reduced fiscal tax burden, to the parent generation. Such a gift may be revolved, but it can never be designed to make everybody in the future equally well off as would have been the case without the gift. Despite this analogy, the military draft differs from a pay-as-you-go social security scheme in one important aspect. While with normal forms of debt there is some hope and evidence that citizens anticipate and already today neutralize, e.g., by additional bequests, the repayment burden which debt imposes on the future (the so-called “Ricardian equivalence”), there is no scope for such an effect in case of the draft: human capital cannot be transferred between generations and over time. The dynamic costs of the draft in the form of lower investment in human capital will persist even if government would repay draftees afterwards the value of resources it has confiscated from them. For the same reason, the negative impact that replacing wage taxes by conscription has on the young and all subsequent generations cannot be undone even if today’s generations behaved entirely altruistically with respect to the burdened future cohorts.

Non-economic arguments

Apart from economic issues, the debate on military conscription entails a number of other aspects: political, moral, and military. The proponents of the military draft sometimes argue that even if the draft suffered from the inefficiencies identified by economists, such costs should be weighted against alleged civic virtues, democratic

controls, or other benefits arising from citizen-armies.

Likelihood of war

Advocates of conscription often contend that a draft breaks militaristic ideologies of societies and limits the inducement for aggressive foreign interventions. By imposing casualties on all groups of society, military adventurism is politically less sustainable and faces greater public resistance with a draft system. However, this perception is empirically wrong. Between 1800 and 1945, basically all wars in Europe were fought with conscript armies, and democratic countries like the U.S. and France even later used conscript military in unpopular colonial wars in Vietnam and Algeria. Systematically analyzing militarized interstate disputes from 1886 to 1992, Choi and James find that a military manpower system with conscripted soldiers is associated with more military disputes than one with professional or volunteer armies.³⁶ And based on cross-sectional data from 1980, Anderson, *et al.* conclude that “warlike” states are more likely to rely on conscription.³⁷ From these studies, the abolition of conscription would not only deliver economic gains but would also pay a peace dividend.

Social cohesion

Advocates of the military draft sometimes argue that a conscript military is more “representative” of society than a professional army that (allegedly) draws its staff disproportionately from the poorly educated, the lower classes, ethnic minorities, or otherwise marginal(ized) strata of society. Conscription, it is said, is not only more egalitarian but may even serve as a “melting pot” for diverse ethnic or social groups that would otherwise have little mutual contact, thereby forging national identity, loyalty to the nation, or social respect.³⁸

Between 1800 and 1945, virtually all wars in Europe were fought with conscript armies. Post-World War II, France and the United States fought highly unpopular wars in Algeria and Vietnam, also with conscripts. Conscription may fuel, rather than constrain militaristic ideologies and aggressive foreign policy stances.

expected relative to their representation in the overall population.³⁹ For Germany, a study showed that males with higher school degrees are more likely to be called to

service than their peers with lower educational status.⁴⁰ A similar bias prevails in the Philippines where military training is compulsory for male college and university students while conscription for other groups in the population does *de facto* not exist.⁴¹ By contrast, enlistment practices favoring the exemption of wealthy, urban, and well-educated have been identified for states such as Russia and Honduras.⁴²

From an economic perspective, tasks in society should be assigned to those with the lowest opportunity costs to fulfill them. Even if it sounds cynical, an army’s “representativeness” is not at all warranted, but rather is indicative of waste. It may well be questioned whether forced labor in a military environment is an appropriate means to promote social cohesion, even when combined with deliberate civic instruction. Other options, such as primary and secondary schooling, integration of minorities, and policies targeted at underprivileged groups in society, appear to be far more promising, in particular as they approach the root of the problem.

Democratic control

Compulsory military service is sometimes held to have greater affinity with democracy than an all-volunteer force. Operating on the basis of order and command rather than voting, army structures are inherently non-democratic. In such set-ups, conscripts act as mediators between society and its army, while a professional military tends to alienate from society and form a “state within a state”.

Yet the “isolation” of the military from the rest society may just as well be regarded as the result of an increased division of labor. In a certain sense, employees in bakeries, courts of justice, and universities are also alienated in their work from the rest of society, but calls for compulsory internships of all members of society in such sectors have so far been unheard of. Even if one views the alienation of the military from the rest of society as particularly undesirable, conscription does not offer a solution. First, praetorian tendencies are most likely to emerge from the officers’ corps (the “warrior caste”) which in any case consists of professional soldiers. Second, the democratic controls arising from draft are open to debate, to say the least. Not only were conscript forces used by totalitarian regimes (e.g., Nazi-Germany, the Soviet Union, Fascist Italy) without noticeable resistance from within the army, but also democratic countries like Argentina (in 1976), Brazil (in 1963), Chile (in 1973), Greece (in 1967), and Turkey (in 1980) relied on conscription during the time of their military coups. Combined with the fact that many democracies have long since adopted the all-volunteer system without being endangered by military plots, these observations, as well as econometric evidence established by Mulligan and Shleifer, indicate that no causality in either direction exists between the form of government and the structure of armed forces.⁴³ Also, a civilizing effect of conscription on the military is not guaranteed: in Russia, the army is plagued by a culture of cruel violence against draftees, resulting even according to official reports in hundreds of deaths annually. Furthermore, conscripts are used as illicit forced labor for the private

benefit of corrupt superiors.⁴⁴

Civic duty

Proponents of the draft posit that conscription instills a sense of the moral duties of citizenship. According to that line of reasoning (which is hard to reconcile with the “contractarian” view economists typically take on the relationship between citizens and the state), all citizens have an obligation to serve their state, including the duty to defend one’s country. A draft scheme ensures such an overall participation in the burden-sharing whereas a volunteer force confines and outsources this patriotic duty to professional soldiers.⁴⁵

The argument that a conscript army distributes the burden of war more “equally” than an all-volunteer army is superficial. With the latter, the fiscal bill is sent to every taxpayer. In contrast, for a conscript army the “bill” is sent exclusively to those who happen to be drafted.

This line of reasoning is superficial for several reasons. First, as argued above, the military draft is far from a burden that is equally shared; it is highly discriminatory with respect to age, sex, and possibly social status. Not very surprisingly, it is thus typically people well beyond draft age who pontificate about everybody’s duty to serve. Second, the burden sharing

is exactly the other way around as claimed. It is with a professional army that the defense burden is distributed across all citizens: the fiscal bill is sent to every taxpayer, independently of age and sex. Calls to service are, however, exclusively sent to draftees. Third, the existence of a civic duty does not imply that the burden from that duty be shared equally. Arguably, contributing to the financing of government is also a civic duty – but the idea that everybody pays the same amount of taxes is neither a logical nor probably a socially desirable implication of that duty.

Why not mercenaries?

On a more abstract level, a professional army can be viewed as a commodification scheme whereby some individuals (the “normal” taxpayers) buy their way out of the military while others (the soldiers) buy their way into it.⁴⁶ To many, such a market-like solution appears inappropriate in the context of national security. The commodification of military service (i.e., the view that defending one’s state is just another job) is considered as evidence for a decline in civic morale and a corruption of the republican conception of citizenship. Defending one’s country should not be a matter of consent.

One might view such an appeal to moral values and civic duties as anachronistic and point at the huge opportunity costs which military conscription entails. However,

as pointed out by Sandel,⁴⁷ this then triggers the question: “[I]f the market is an appropriate way of allocating military service, what is wrong with mercenaries?” Why should one restrict access to an army to nationals only – as most countries currently do? Indeed, private military companies that operate internationally have been booming recently,⁴⁸ France traditionally has relied on its *légion étrangère*, and in its war on Iraq the U.S. army is increasingly employing “greencard recruits,”⁴⁹ hired mostly from Latin America and promised citizenship after service (if they survive). Even by advocates of professional armies, such tendencies of outsourcing or privatizing warfare are often considered objectionable and as a step back to medieval traditions.

Military service entails more than only an economic dimension. As this review indicates, relative to the market-based approach of an all-volunteer force, the military draft seems to be an inferior arrangement. Yet, in spite of globalization, recruiting soldiers on world markets for mercenaries meets skepticism. For the employing governments, hiring (foreign) mercenaries might not only be cheap in budgetary terms but it also reduces the political costs of war casualties, and also of committing atrocities. After all, it is not a citizen and fellow countryman but “only” a contracted agent who loses his health or life or who “misbehaves.” However, governments might be reluctant to employ mercenaries on a large scale for reasons of reliability and enforcement: while defection of mercenaries merely amounts to non-compliance with the terms of a labor contract, desertion from one’s army is typically more heavily penalized and stigmatized. Mercenaries might display high work ethics and military staunchness, but can hardly be expected to exhibit any virtues of citizenship or loyalty to a constitution. Hirelings will change sides in conflict whenever better deals are available; for a citizen-soldier changing sides goes along with abandoning one’s home country. Their higher exit costs and, arguably, their higher idealistic motivation make national soldiers the better military agents.

For a government, hiring mercenaries means outsourcing parts of its monopoly over (armed) violence. In low-intensity conflicts and temporarily, this might be hardly noticeable. Referring to numerous historical examples, military historian Martin van Creveld argues, however, that over time selling away the monopoly of power inevitably threatens sovereignty and the existence of the state as such.⁵⁰ He posits that the concept of the modern state cannot survive when non-governmental agents are allowed to exert violence. At least, mercenaries put into question the (modern and Western) view that wars are a matter only among states.

The political allure of draft

This survey adds several variations to the classical tenet that military conscription and its appendices like national or alternative service ought not to be utilized and, if in practice, ought to be replaced by a professional army or regular workforces. In spite of its apparent cheapness in budgetary terms, the military draft is replete with static

inefficiencies and dynamic distortions. The “front-loading” of the draft tax in a phase of the life-cycle that is crucial for human capital accumulation reduces levels and growth rates of national incomes. The restriction of the military draft to young males raises serious distributional concerns, ranging from gender discrimination to equal treatment of nationals and foreigners to intergenerational fairness. Also many of the alleged non-economic virtues of the military draft disappear into thin air upon empirical scrutiny.

The political allure of the draft tax stems from its statutory incidence: its prime victims are young males.

Even in spite of the economic costs of military conscription and in spite of its dubious record on moral, social, or civic virtues, political leadership might nevertheless maintain or reestablish the draft as it

may be politically more appealing than a professional army. The political allure of the draft as a tax originates from its specific statutory incidence: its prime victims are young males. This implies that those directly burdened by the draft (namely, males at and below draft age) are largely outnumbered by those who do not view themselves as being affected by the draft (all males above draft age and all females). By contrast, the higher tax burden involved with a professional army would visibly affect all taxpayers. In a simple majority vote among selfish taxpayers, the military draft is a winning alternative over a professional army.

Not only economically, but also from a political perspective the draft shares many features of government debt: its introduction is a way around higher taxes, the static inefficiency costs will remain largely unnoticed, and its dynamic costs will at the earliest start to become visible after the first cohort of draftees has finished its (postponed) education, i.e., after a time lag that exceeds the usual presidential or parliamentary terms in most countries. And the peak of the costs of the draft will be reached even later, when the low-productivity spell of the draft has hit a large series of cohorts.

The draft can be (mis)used for intergenerational redistribution, as it one-sidedly levies parts of the costs for the provision of government services on young generations. This is politically especially appealing in ageing societies where older cohorts gain in political weight. Ironically, however, it is ageing societies for which the military draft is a particularly bad idea (despite its potential to deliver a large number of conscientious objectors who are cheaply employable in old-age homes and similar welfare institutions). Not only are the distortions in the allocation of human and physical capital more damaging when young people become relatively scarcer; but in ageing societies that already load the lion’s share of the burden of demographic transitions on younger generations via pay-as-you-go financing of pensions and health care, draft systems unduly exacerbate intergenerational imbalances.

Both the introduction and the continuance of the military draft garner widespread political support – despite their inefficiency and questionable societal performance.

Yet quite a number of countries have abolished the military draft in recent years. However, these decisions paralleled other changes in the military, geopolitical, and social environment. Standing armies for territorial defense have become increasingly obsolete, technological changes have rendered warfare less labor-intensive, and many countries have reduced their military expenditure since the end of the Cold War. The ageing of societies has increased the awareness that high levels of human capital and labor productivity are key factors for keeping intergenerational transfer schemes from young to old (pensions, health care, etc.) sustainable. Together, these changes and insights have made the transition from draft to professional army less costly for those opposing it – and certainly helped the countries that abolished the military draft to realize a nice peace dividend.

Notes

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1. India and Ireland have never utilized military conscription. In Canada conscription has never taken place in peacetime.
2. They are: Denmark, Estonia, Germany, Greece, Norway, Lithuania, Poland, and Turkey. The Danish and Norwegian systems of conscription are largely selective.
3. Unlike the rest of the world, Egypt, Eritrea, Israel, Malaysia, North Korea, Peru, Taiwan, and Tunisia also draw women into compulsory military service or its equivalents.
4. Most notably North Korea (three to ten years of compulsory military service), Kazakhstan (31 months), South Korea (26-30 months), and Syria (30 months). See Globaldefence.net (2005).
5. Krugman (2004).
6. In the U.S., reintroducing the draft or an even more general “national service” requirement was already discussed in the wake of the terrorist attacks of 11 September 2001. See Dionne, *et al.* (2003).
7. *Libération* (2005).

8. See Malaysia (2006). The achievement of at least the third objective may be questioned. Whereas in 2004, part of the training for draftees was held in universities and sports complexes, in 2005 the whole program was held in special camps since all the universities previously involved suffered losses due to trainee vandalism. See Wikipedia (2006b).
9. Sandel (1998); Galston (2004).
10. <http://www.peace.ca/manifestoagainstconscription.htm> [accessed 9 May 2006].
11. For recent surveys, see, e.g., Sandler and Hartley (1995, chapter 6) and Warner and Asch (2001).
12. Smith (1976, p. 701).
13. Kerstens and Meyermans (1993).
14. Straubhaar (1996).
15. Qualitatively, the same argument holds for civil service. In Germany, for instance, some welfare agencies no longer have ambulance cars driven by draftees doing their civil service: draftee-drivers caused a much larger number of accidents than did experienced professional drivers (Drieschner, 2004).
16. von Thuenen (1875, pp. 145-146).
17. According to Oneal (1992), the size of budgetary savings from conscription in NATO states was on average 9.2 percent of national military expenditure in 1974, but decreased to only 5.7 percent in 1987. Conversely, Warner and Asch (2001) report that the budgetary costs of moving to a volunteer force in the U.S. in 1973 came to 10 to 15 percent of the 1965 military budget (which was chosen as a reference point in the study to exclude the effect of the Vietnam War).
18. See Anderson, *et al.* (1996).
19. Lokshin and Yemtsov (2005).
20. For a primer on various techniques, see Wikipedia (2006d). For Germany see, e.g., <http://www.ausmusterung.net/>.
21. See, e.g., Lee and McKenzie (1992), Warner and Asch (1995), and Gordon, *et al.* (1999).
22. See, already, Friedman (1967).
23. For example, the European Court of Justice (Case C-186/01[Dory]; 11 March 2003) recently turned down the suit of a German (male) conscript who had argued that compulsory military service being reserved to men is contrary to the principle of equality and constitutes an unlawful discrimination against men, in particular as performance of military service delayed access by men to employment and vocational training. The court did not decide on the matter itself but reasoned that regulations concerning compulsory military service do not fall under European Community law.
24. Oi (1967).
25. Levy (2004).
26. Moreover, unequal treatment of those actually called to service also is pervasive. The Texas National Guard unit where U.S. president George W. Bush served during the Vietnam war is just one example of so-called “champagne units,” stationed at risk-free distance to combat zones and staffed by wealthy or politically connected people (Wikipedia, 2006c). The German Bundeswehr hosts “sport companies” that provide generous training facilities for drafted athletes; by contrast, less athletically capable draftees are compelled to interrupt their careers by serving in regular army units.
27. Take the U.S. as an example: there, the reserve component consists of the Army and Air National Guards and the Army, Navy, Marine Corps, and Air Force Reserves. It totals 1.1m men and women (about 45 percent of the nation’s available military forces) and in 2006 is forecast to consume 7 percent of the national defense budget. See <http://www.defenselink.mil/ra/documents/IntrotoRAFY06.pdf> [accessed 18 April 2006].
28. von Thuenen (1875, p. 147).
29. Spencer and Woroniak (1969); Knapp (1973).
30. Lau, *et al.* (2004).
31. Imbens and van der Klaauw (1995).
32. Angrist (1990).
33. Lau, *et al.* (2004).
34. Keller, *et al.* (2006).

35. For a survey, see Dunne, *et al.* (2005).
36. Choi and James (2003).
37. Anderson, *et al.* (1996).
38. See the opening example of Malaysia's National Service Program. An often-heard example is the role of the Israeli Defence Force in integrating diverse strata of Israel's society, including immigrants from the scattered Jewish diaspora. In post-unification Germany, conscription is defended as a way to bring males from the eastern and the western part of the country together.
39. Angrist (1990).
40. Schneider (2003).
41. WRI (2005).
42. Russia: Lokshin and Yemtsov (2005). Honduras: Cameron, *et al.* (2000). Many countries using conscription offer deferment or other forms of preferential treatment to university students. Several countries (including Albania, Iran, and Turkey) even have legal buy-out options. For comprehensive country reports, see WRI (2005).
43. Mulligan and Shleifer (2005).
44. Economist (2005).
45. It is along this line of reasoning that U.S. Congressman Rangel motivates his constant request for conscription: "As the President speaks of a national response involving the military option, military service should be a shared sacrifice. Right now the only people being asked to sacrifice in any way are those men and women who with limited options chose military service and now find themselves in harm's way in Iraq. A draft would ensure that every economic group would have to do their share, and not allow some to stay behind while other people's children do the fighting." See http://www.house.gov/apps/list/press/ny15_rangel/CBRStatementonDraft02142006.html [accessed 9 May 2006].
46. Sandel (1998).
47. Sandel (1998, p. 113).

48. See Singer (2003). Perhaps the best-known private military company is the now-defunct Sandline which was involved in conflicts in Papua New Guinea (1997) and Sierra Leone (1998).
49. Krikorian (2003).
50. van Creveld (1991).

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Conscription in Turkey

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Turkey's armed forces enjoy strong public support. The military's lasting presence in Turkish society and politics dates back to the country's early history. "In the Ottoman-Turkish policy, the military had always occupied a privileged place and played a crucial role in the political system. Not only was the Ottoman state organized as a warrior state, but the military was also both an object and (especially in the nineteenth century) a primary agent of the modernization process."¹ Conscription was introduced in the late nineteenth century, during the Ottoman Empire, and, despite its gradual disappearance elsewhere, continues to be important to Turkey today. Following a brief historical account of Turkey's armed forces and its structure, we describe suvery-based demographics of Turkish conscripts as well as their perceptions of military service. The great majority of the conscripts in our sample are in their 20s, stem from middle-income families, and have earned a high school degree. When asked if they would like to pursue a military career, over 50 percent of them expressed their wish to remain in the army beyond the conscription period. In addition to pecuniary and non-pecuniary benefits, the main reason for the expected decision of continued service is an expressed "liking" of the military which may support the view that Turkey's armed force is a highly esteemed organization in Turkish society.

Historical background

The roots of full-time professional Turkish armed forces can be traced back more than five centuries. Traditionally, the Ottoman army consisted of a medieval cavalry unit, the *Timarli Sipahis*, and permanent salaried troops, the *Kapikulus*. Feudal lords or tribal chiefs were exempt from taxes in exchange for training a certain number of cavalymen (the *Timarli Sipahis*), the number depending on the income the landlord received. *Sipahis* fought under their own commanders, took care of their own armor, and were stationed locally to maintain order and to collect taxes for the central treasury. Raising *Sipahis* was one of the main recruitment instruments in the central provinces until the seventeenth century. In contrast, *Kapikulus* were stationed in the capital and provincial garrisons and included infantry regiments (the famous Janissary army), cavalry, cannoners, grenadiers, and other supporting groups. *Kapikulu* corps were not as numerous as the *Timarli Sipahis*, but they obtained the best military training and equipment.² The Janissary army was the core of the Ottoman military organization. Its members were conscripted as youths from among the empire's non-Muslim subjects, converted to Islam, and given military training.

By the early nineteenth century, this arrangement had lost its military value and led to the abolition of the Janissary system in 1826. One of the main reasons for this

was Janissaries' resistance to reform which prevented restoration of their fading military effectiveness. For example, few of the men whose names were on its muster rolls showed up on the battlefield. A great number of Janissary corps were concentrating on commercial activities and therefore were unable and unwilling to provide adequate service during campaign. Similarly, *Kapikulu* and *Timarli* cavalry, sent to the provinces to suppress Anatolian rebellions, emerged – with the support of local merchants and guild members – as provincial war lords by acquiring control of state-owned lands and various tax-farms. Thus the various branches of the Ottoman army lost their professionalism, discipline, and proper military training.³

Meanwhile, European armies had gradually changed from a model in which officers were drawn solely from the nobility to supervise and direct armies cobbled together for the occasion from other (supposedly "lower") classes of men to a model of the mass army from which officers could arise by merit and which used conscription of a state's male citizens, a model that became and remained the standard for military mobilization until well after the end of the second world war.⁴ Introduction of conscription in the Ottoman empire followed the European example, although it does not strictly coincide with it. The census of 1844 was specifically designed to ensure efficient conscription within the Ottoman empire. Based on it, conscription by lottery was instituted on Muslim male subjects as from 1846. Recruitment age varied between 15 and 30, and the minimum term of service was twelve years, after which soldiers could opt for civilian life. But to qualify for a military pension, recruits would have to serve until overtaken by old age. Conscription of children, the physically weak, and those who lacked limbs or were suffering from disease was forbidden by law. The system was altered by new army regulations proclaimed in 1869, dividing the army into three categories: the regulars, the reserve, and the guards. The new conscription law of 1870 reviewed and codified the whole system of conscription and served as the basic set of regulations until after the constitutional revolution of 1908.⁵ The service period in areas with particularly unhealthy climate, such as Iraq and Yemen, was reduced to two years in 1909. Then, in 1914, the service period was reduced to two years for all conscripts.

Many of the Ottoman officers came from the lower middle class. They regarded conscripts as mere peasant soldiers.⁶ Even though there is no reliable data, it is generally agreed that the literacy rate in the Ottoman empire was around five to seven percent in the nineteenth century. Thus almost all of the peasant soldiers surely were illiterate. Conscripts with any sort of education were promoted to corporal or sergeant. Many Ottoman officers regarded military service as an educational opportunity and

In our samples, over fifty percent of Turkish conscripts expressed a desire to remain in military service beyond the conscription period. The primary reason given is that they "like" the military.

experience, bringing conscripts into contact with a world beyond their villages. “While the number of peasant soldiers who actually became literate during their normal military service must have been minuscule, the lectures and readings given by the officers went a long way in instilling a common culture and knowledge of ethics, morals, history, religion, and patriotism.”⁷ Military service contributed to awareness-building through which it was possible for conscripts to identify themselves with the Turkish state. This tradition of educating conscripts continued in the Republican era of the Turkish army as well.

The structure of the Turkish army

Turkey’s armed forces, with a combined troop strength of nearly 800,000 soldiers or around 1.1 percent of the population (according to 2005 Ministry of Defense figures), form the second largest standing force in NATO after the United States. Each year 0.1 percent of the population reaches military age. In addition to a strong national defense system, the armed forces contributed in recent years to U.N. peacekeeping operations in Kosovo, Bosnia-Herzegovina, and Afghanistan. Additionally, the armed forces perform disaster relief operations, for example in the 1999 Marmara earthquake in Turkey. They also conduct peace-support operations anywhere in the world with a four battalion task force. Conscript soldiers make up nearly 70 percent of Turkey’s forces, and the remaining 30 percent is constituted by career officers and officials.

Traditionally, the Turkish military service system has been a mix of a large core of professionals and a main body of conscripts.⁸ Every male citizen between twenty to forty-one years of age is required to complete compulsory military service, a requirement stipulated in the constitution of the Turkish Republic. Even though women are not required to serve, they are allowed to become officers. The onset, duration, and the service category are determined by the education level of the recruits. Those who pursue higher education may postpone service until they have completed the program of study or reach a certain age (29 for a university degree; 33 for a master’s level degree; 37 for a doctorate). The duration of the basic military service, as of July 2003, is twelve months for high school graduates serving as privates (previously sixteen months); university graduates fulfill their military obligation as reserve officers with a fifteen-months period (previously eighteen months) of active service. University graduates not enlisted as reserve officers are expected to serve six months (previously eight months) as short-term privates.⁹ After an initial three months of basic training, conscripts are posted to assigned bases. Those physically unfit to serve are exempt from military service.

The army, navy, air force, and gendarmerie form the four branches of the armed forces. The two main personnel categories are professionals (commissioned officers, non-commissioned officers, specialists, and civilian officials and workers) and conscripts (non-professional reserve officers, short-term conscripts, and long-term conscripts). Officers make up the core command structure and come mainly from

military academies and from military students in civilian universities. Outstanding NCOs may also be drawn upon. The remainder are contract officers. NCOs come from the NCO branch schools and serve as the intermediate command level between officers and the enlisted. Specialists are re-enlisted conscripts who have previously shown outstanding qualifications and are employed at critical positions requiring continuity such as Squad Leader, Tank Driver, Tank Gunner, Repairer, and Artillery Sergeant. Finally, civilians employed by Turkish Ministry of Defense are composed of state officials and workers who are employed according to educational proficiency.

A profile of Turkish conscripts

To profile Turkish conscripts, we carried out two separate surveys among recruits at the Ankara Armored Divisions School, to our knowledge the first time that the taking of such surveys has been permitted by the armed forces. At the time of the surveys, all subjects were undergoing the initial three months military training period before being posted to their bases. The first survey was carried out on 4 August 2003 with 682 participants, the second on 27 December 2003 with 595 participants, for a total of 1,277.¹⁰ Table 1 presents some of the basic descriptive findings. For example, most conscripts are in their 20s and have earned a high school degree. Those who hold a university degree or higher constitute only 10.7 percent of the sample. The majority of the conscripts stem from the Marmara region. Even though the remaining regions’ share in conscripts are close to each other, southeast Anatolia constitutes only 5.1 percent of the conscripts, quite low considering the region’s population share in Turkey’s overall population. One reason for this could be the high number of draft evasion for that region or migration to wealthy cities.¹¹

A great majority of conscripts are from the middle class. Monthly total incomes range from \$200 to \$700. More than half of the conscripts are eligible for some sort of social security.¹² However, many already have experienced extended bouts of unemployment in their (young) lives, and 13.1 percent have been unemployed for more than three years. Around 70 percent report that they possess specific skills, and about 45 percent plan to acquire further education. Almost one third have dependants to provide for.

One of the questions in the survey asked whether the recruits would like to join the army as Specialist for at least 36 months. In Turkey’s recruitment system, only conscripts can enlist for further service after completion of the initial service period (“re-enlistment”). It is not possible for civilians to join the armed forces unless they are graduates of military academies or schools where commissioned officers and NCOs are educated and trained. In our surveys, more than half of the conscripts expressed a wish to reenlist for continued service. When asked about the reasons, nearly 38 percent indicated that they like the military and enjoy military life.¹³ Around 33 percent saw military service as providing a secure job with stable pay. 18.2 percent gave non-pecuniary benefits as a reason to join the military. Only 2.1 percent

Table 1: Descriptive statistics for Turkish conscripts

Variable	Percentage	Variable	Percentage
Age		Duration of unemployment	
- Less than 20	7.8	- Less than 6 months	41.8
- Between 20-25	83.6	- Less than a year	22.4
- Between 25-30	8.4	- Less than 3 years	22.7
		- More than 3 years	13.1
Region		Desiring further education	
- Black Sea	14.2	- Yes	44.8
- Aegean	12.6	- No	55.2
- Marmara	33.4		
- East Anatolia	8.5	Dependents	
- Southeast Anatolia	5.1	- Yes	34.6
- Mediterranean	12.8	- No	65.4
- Central Anatolia	13.4		
Education		Skill	
- High school degree	89.3	- Yes	70.1
- University degree	10.7	- No	29.9
		Expected re-enlistment	
Monthly income		- Yes	53.1
- Less than US\$200	15.4	- No	46.8
- Between US\$200-400	42.6		
- Between US\$400-700	31.3	Reason for expected re-enlistment	
- More than US\$700	10.4	- Secure job	33.3
		- Like military	38.2
Social Security		- Salary	8.2
- Yes	39.0	- Non-pecuniary benefits	18.2
- No	61.0	- Possibility to see places	2.1
Ever unemployed			
- Yes	45.3		
- No	54.7		

indicated that possibility of seeing new places as a appealing reason to join the military. The relatively high percentage of conscripts who “like” the military and thus would like to reenlist surprised us. This finding may reflect the generally positive perceptions of the military in Turkish society. Rather than regarding conscription as somehow “odious” compulsory service, the majority of the Turkish public refers to military service as a duty for the motherland. Military service is one of the main

events in a young man’s life, even to such extent that in rural areas young men are frequently not allowed to marry unless and until they have completed military service. Moreover, anytime a man or a group of youngsters are conscripted, they are sent from their hometowns with celebrations and festivities. Indeed, the imprint of the military is lifelong: in rural areas people are given nicknames derived from their rank in the military such as Sergeant Ahmet or Corporal Berke.¹⁴

Conclusion

The traditionally westward-looking Turkish armed forces have generally maintained an image of being one of the state’s most reliable institutions. Indeed, even in spite of repeated interventions in civilian politics, the armed forces have maintained an unusually positive and strong relationship with Turkish society. High support for the armed forces may explain the general perception of conscription as a duty rather than as an obligation.

Following a brief account of the history and structure of Turkey’s armed forces, we reported on an effort to profile current conscripts using survey data. The samples suggest that over 50 percent of the conscripts believe that they would like to enlist beyond the conscription period, and 38 percent of those simply because they “like” the military, the highest percentage for any of the given reasons. It is, however, not known how many of the conscripts who say that they wish to reenlist will in fact reenlist once their term of conscription is fulfilled.

Notes

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1. Varoğlu and Biçaksız (2005, p. 583).
2. For a brief account of the Ottoman military system, see Ömür (2005).
3. Ömür (2005, p. 14).
4. Olivetta (2005).
5. Zürcher (1999).
6. Yanıkdag (2004).
7. Yanıkdag (2002, p. 100).

8. For a brief account of the Turkish military service and a debate on the military service system, see Varo-İa and Biçaksiz (2003).

9. University graduates who like to serve a longer term as officers are paid wages and are entitled to privileges such as social security benefits. Others do not so benefit, and hence serve shorter terms.

10. To ensure that these are representative samples, we compared the survey data to the 2002 population data, where male population between 20-29 years of age is grouped according to region and education level. The comparison indicates that our samples match male population characteristics in Turkey and thus may be taken as representative samples.

11. The exact number of draft evaders is known to the Turkish National Conscription Board but has never been disclosed publicly. The main reason for draft evasion is economic in nature.

12. All employees must belong to a social security plan that includes insurance for work-related accidents and illness, sickness, pregnancy, old age, and death. Contributions as a percentage of gross salary are payable by individual employees and employers.

13. Ninety percent of those wishing to reenlist are high-school graduates. Among university graduates the rate is only ten percent. This may reflect the fact that the latter have better post-military service employment opportunities.

14. For a brief survey of the social embeddedness of military service in Turkish culture, see Varo-İa and Biçaksiz (2005).

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Managing the all-volunteer force in a time of war

Curtis J. Simon and John T. Warner

In September of 2003, the U.S. Department of Defense (DoD) sponsored a conference celebrating the 30th anniversary of the modern all-volunteer force (AVF) in the United States. As a reading of the conference papers attests, speakers at this conference uniformly pronounced the AVF a success.¹ After a rocky start to the AVF in the late 1970s, since 1980 the U.S. military services have met or exceeded their recruiting and retention goals in most years as measured by either the quantity or quality of personnel, and have done so at reasonable cost.

The ongoing conflict in Iraq is the U.S. military's first protracted conflict since the inception of the AVF.² At the time of the conference, Operation Iraqi Freedom (OIF) was only six months old. The speakers were well aware that a protracted war might affect recruiting and retention adversely, and that recruiting and retention goals might be achievable only at very high cost. The first Gulf War was a major conflict in which over 400,000 U.S. military personnel were deployed to the Gulf region, but the war was short, beginning in August 1990 and ending in March 1991, a period too short to have any perceptible impact on recruiting or retention. From late 2002, the time that military personnel and prospective recruits could have begun to expect deployment to Iraq, until late 2006, the conflict is already four years old.

The long duration of this conflict raises a number of important questions. What impact has it had on U.S. military recruiting, retention, and manpower costs? Does the prolonged nature of the conflict make a return to the draft in the U.S. necessary or desirable? Is the cost of the volunteer force acceptable? This article provides brief answers to these questions as a starting point for the fuller discussions that will follow among economists, policymakers, and others interested in the state of the AVF in the United States.

Overview of U.S. military forces

It is useful to begin with some facts about the current size and geographic distribution of U.S. military forces and how they have changed over the past five years. Table 1 indicates that about 1.4 million personnel served on active duty in the U.S. military over the period 2001-2005.³ Over the period 2001-2004, the U.S. Army active duty force expanded by almost 20,000 personnel, but then fell by 8,000 in 2005. Congress authorized an increase in the Army's 2006 end strength to 512,000, and to 520,000 by the end of the decade.⁴ The Marine Corps also expanded, by 6,000, over the period. By contrast, the active Navy force fell by 16,000 over the period and will continue to contract in the future, as will the Air Force.⁵

About 850,000 Selected Reserve personnel – reservists who are attached to active

Table 1: U.S. military force levels, FY2001-2005 (in thousands)

	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>
Total active duty personnel	1,385	1,412	1,434	1,427	1,389
Army	481	487	499	500	492
Navy	378	383	382	373	362
Marine Corps	173	174	178	178	180
Air Force	354	368	375	377	352
Total abroad non-OIF* force	255	231	253	288	291
Total OIF force**	0	0	184	171	193
Total abroad as % of active force	18.4	16.4	30.5	32.2	34.8
Army abroad non-OIF force	103	104	104	101	82
Army OIF force**	0	0	153	102	132
Army abroad as % of active force	21.4	21.4	51.5	40.6	43.4
Reserve and Guard mobilized***	43.0	67.7	170.5	170.1	157.0
Selected Reserve personnel	867.4	874.3	875.0	851.4	826.0
Percent of Selected Reserve mobilized	5.0	7.8	19.5	19.4	19.0

* OIF: Operation Iraqi Freedom.

**Includes Reserve and National Guard personnel stationed in Iraq.

***Based on DoD press reports of number mobilized on dates closest to end of fiscal year.

Source: Directorate for Information, Operations and Reports, Washington Headquarters Services, U.S. Department of Defense (annual reports, 2001-2005).

reserve or National Guard units – supplement the 1.4 million active duty personnel. Another 300,000 individuals serve in the Individual Ready Reserve (IRR), individuals who have prior military service and are not associated with active reserve units, but who are available for call-up during a national emergency.

As a result of U.S. operations in Iraq, the number of personnel stationed abroad has expanded considerably since 2001. In 2001, the number stationed abroad was 18.4 percent of the active duty force. By 2005 this percentage had increased to about 35 percent. The U.S. Army has borne the brunt of U.S. deployments; the number of its personnel stationed abroad, including both active duty personnel and reservists, expanded from a number equal to 21 percent of the active force in 2001 to 43 percent in 2005. Almost 20 percent of the Guard and Reserve forces are now mobilized, compared with just 5 percent in 2001.

One of the big changes from the draft to the AVF in the United States has been a significant increase in the experience level of the force.⁶ The services use a variety of

policy tools to manage and maintain the experience distribution of their forces. As U.S. military forces adjust to changes in size and losses from combat and normal turnover, they attempt to maintain balance with respect to experience. Inexperienced personnel tend to be less costly, but are less productive than experienced personnel. The optimal mix of personnel by experience varies by service and by occupation. Due to its technical nature, the Air Force staffs a more experienced force than the Army and Navy while the Marine Corps, with its emphasis on combat missions, prefers a younger force comprised largely of personnel in their first enlistment. Thus, in 2005 Air Force enlisted personnel averaged 8.6 years of experience, Marine Corps 4.8 years, the Army 6.3 years, and the Navy 6.8 years.⁷

Overview of factors affecting recruiting and retention in the U.S. military

Staffing a volunteer military force of the size and geographic distribution of the U.S. military is a daunting challenge. In a volunteer system, successful recruitment and retention must attract the requisite number and quality of individuals away from competing civilian alternatives. This means offering sufficiently attractive pecuniary returns such as current and deferred monetary compensation and benefits such as health care, and non-pecuniary returns such as working conditions and pride of service. In the case of the U.S. military, direct current compensation includes basic pay, allowances for food and housing, special and incentive (S&I) pays such as enlistment and re-enlistment bonuses, sea pay, and hazardous duty pay. The primary components of deferred compensation are retirement and health care benefits (in the United States, limited to those with 20 or more years of service) and education benefits, which are available for virtually all veterans.⁸

To give readers an indication of how well U.S. military personnel are paid, Table 2 shows Regular Military Compensation (RMC) for 2000 and 2006, stated in 2006 dollars. RMC is the salary equivalent of military compensation and includes basic pay, allowances for food and housing, and a tax advantage resulting from the non-taxability of the allowances. In 2006, enlisted RMC averaged \$44,300 while officer RMC averaged \$87,500. RMC grew substantially in real terms, 13.1 percent overall, from 2000 to 2006 for reasons discussed below. In both 2000 and 2006, S&I pays averaged about 10 percent of basic pay.

Military service, by its nature, is not just another job. The work is arduous in peace and exhausting and dangerous in war. Beyond physical danger, military work is often mentally stressful, both on the military member and the military member's family, particularly when the service member is posted abroad. Encouraging enlistments in such an environment requires not only making potential recruits aware of opportunities in the military but, perhaps more importantly, shaping the attitudes of youth and their parents about the importance and value of military service. To provide information about military career opportunities and shape attitudes about military service, the military services spent \$450 million on enlisted advertising in 2005. Over

Table 2: Elements of direct military compensation, 2000 and 2006

	<i>Enlisted</i>		<i>Officer</i>		<i>Total</i>	
	<u>2000</u>	<u>2006</u>	<u>2000</u>	<u>2006</u>	<u>2000</u>	<u>2006</u>
Basic pay (\$)	23,671	26,100	56,881	61,500	28,853	31,800
Allowances (\$)	13,207	15,600	15,775	20,500	13,640	16,300
<u>Tax advantage (\$)</u>	<u>2,426</u>	<u>2,600</u>	<u>4,769</u>	<u>5,500</u>	<u>2,781</u>	<u>3,100</u>
RMC (\$)	39,304	44,300	77,425	87,500	45,273	51,200
Real BP growth (%)		10.3		8.1		10.2
Real RMC growth (%)		12.7		13.0		13.1
Incentives as % of BP	7.6	9.4	12.3	10.8	9.9	9.8
Avg. incentive amount (\$)	1,799	2,453	6,996	6,642	2,856	3,116

Note: BP – basic pay; RMC – regular military compensation.

Source: see Table 1.

the past five years, the total DoD enlisted recruiting budget, including advertising, recruiter costs, and enlistment incentives such as bonuses and college benefits, has averaged about \$2.5 billion per year.⁹

The compensation bundle will naturally need to vary as the supply of manpower to the military changes relative to the demand. For example, for any given bundle of compensation and other amenities, recruitment and retention are easier during civilian business cycle downturns. Recruiting and retention become more difficult during cyclical upswings due to the wider availability of civilian jobs and higher civilian wages. The sensitivity of recruitment and retention to the state of the civilian economy has been a constant source of concern to U.S. military manpower planners over the course of the AVF period.

Since the advent of the AVF, the U.S. military has placed great importance on attracting high-quality recruits. Operationally, this means youth who have graduated from high school and score better than average on the Armed Forces Qualification Test (AFQT).¹⁰ Long-term trends and short-term business cycle fluctuations affect the supply of such recruits. Two key long-term trends have been the rising return to a college degree and the decline in military veterans in the U.S. population. The former has increased the fraction of high school graduates who attend college, and hence reduced the supply of high-quality military recruits. The latter form an important component of so-called “influencers.” The decline in their numbers – those from World War II formed the largest contingent – has negatively affected recruiting.¹¹ Another long-term trend factor is the changing demographic composition of the U.S. youth population. In particular, Hispanics are the fastest-growing component of the

youth population. This trend has both positive and negative implications for military recruiting. On the positive side, surveys indicate that Hispanics are more inclined than other groups to join the military. On the negative side, Hispanics are less likely to meet entry standards.

U.S. military recruiting, 1995-2005

In the late 1980s, the U.S. military recruited about 280,000 youth per year for the enlisted ranks. Between 1990 and 1994, the U.S. military forces were reduced by about one-third, from about 2.1 to 1.4 million active-duty personnel, and annual recruiting goals declined to about 180,000. High-quality youth, as defined above, form the target population. This section examines the success of U.S. military recruiting in this period.

To interpret recruiting trends, it is necessary to understand the size and characteristics of the recruiting market in the United States. There are about 30.7 million youth, both male and female, in the United States between the ages of 18 and 24, the prime age range for military recruiting. Not all of these youth are eligible to serve in the U.S. military. In fact, only about 26 percent of them meet current entry standards.¹² Reasons for failure to meet minimum entry standards (with their percentages in the youth population in parentheses) include alcohol or drug abuse (17), medical or physical disqualification (39), moral reasons (9), dependents (6), and a score of less than 15 on the AFQT (3).

The population meeting minimum standards is around 8 million. This population consists of four groups, namely college graduates (2 percent of the youth population), those enrolled in college (11 percent), high-school degree graduates not enrolled in college and who would score 50 or above on the AFQT (3 percent), and high school non-graduates and those who would not score above 50 on the AFQT (10 percent). The “high-quality” market consists of the first three groups of youth meeting minimum entrance standards, about 4.9 million youth, while the “low-quality” market is comprised of those in the fourth group, about 3.1 million.

How well have the military services recruited over the decade 1995-2005? Enlistments of roughly 180,000 per year correspond to about 4 percent of the qualified population of 4.9 million. Figure 1 shows non-prior service high-quality enlistments – high school diploma graduates who score 50 or above on the AFQT – as a fraction of total enlistments for the period 1995-2005.¹³ Since roughly 63 percent of recruits over this period were high-quality (about 113,000 per year), high-quality enlistments comprised about 2.3 percent of the high-quality youth population while low-quality enlistments (about 67,000 per year) comprised about 2.2 percent of the low-quality qualified population. High-quality enlistments are about 7.4 percent of the high-quality non-college population. However, males account for over 80 percent of enlistments; therefore, DoD must recruit about 12 percent of qualified high-quality, non-college males, compared with just 3 percent of females.

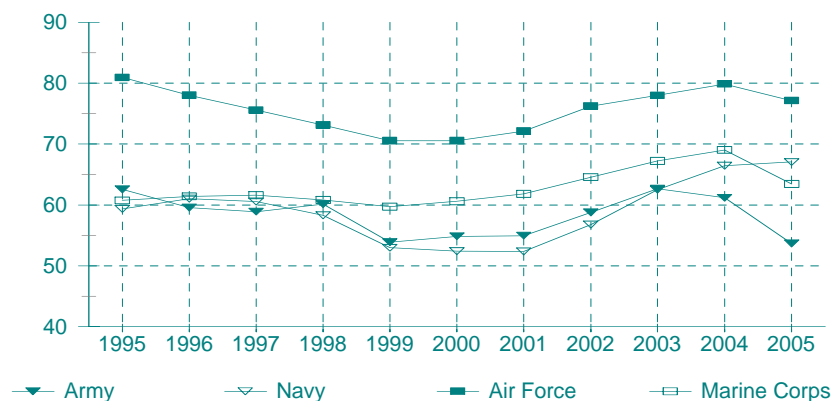


Figure 1: High-quality enlistments as percent of total enlistments, FY1995-2005.

While DoD uses the terms high-quality and low-quality to describe its recruits, it should be borne in mind that all recruits must meet stringent moral, physical, and education standards. Since 1985, over 90 percent of recruits in every year possessed a high school degree, compared with 81 percent in the population of youth aged 18-24. Most recruits who are defined to be low quality possess a high school degree. The military services take very few recruits who neither possess a high-school degree nor score 50 (average) or better on the AFQT.

Figure 1 reveals significant differences in high-quality intake across services as well as differences over time within services. The Air Force has historically attracted more high-quality recruits with fewer recruiting resources than the other services.¹⁴ Percent high-quality in the Air Force over the 1995-2005 period ranged between 70 and 80 percent followed by, for most of the period, the Marine Corps. Prior to 2003, the Army and Navy exhibit similar high-quality percentages by year, and similar fluctuations in this percentage over time.

The Army has experienced significant swings in the number of enlistment contracts signed over the decade. In 1995, 71,000 individuals signed enlistment contracts, of which 44,400 were high-quality. Total enlistments grew for several years, and then fell in the late 1990s before peaking at 92,600 in 2002. Total enlistments contracted to just 68,400 in 2005. In some periods, such as 2000-2002, high and low-quality enlistments moved together. But in periods of recruiting difficulty, such as the late 1990s and 2004-2005, the Army substituted low-quality recruits for high-quality recruits when high-quality recruits became more difficult to attract. Most of the quality substitution over time has come from substituting recruits who possess high-school degrees but do not score above 50 on the AFQT for high-school graduates who score above 50. In fact, over 90 percent of Army recruits

possessed a high-school degree in every year between 1985 and 2004. But that percentage dipped to 87 percent in 2005.

Figure 1 illustrates the sensitivity of U.S. military recruiting to the state of the economy. The U.S. economy expanded sharply in the mid-to-late 1990s, and by 2000 the civilian unemployment rate was 30 percent lower than in 1995, falling from 5.6 percent to 3.9 percent. As is evident in Figure 1, this expansion was associated with declining recruit quality in all four services. But the U.S. economy dipped into recession in 2001, and the unemployment rate rose by 50 percent over the period 2000-2003 (3.9 percent to 6 percent). Not unexpectedly, recruiting in all four services improved during this period. The increase might also reflect a supply response to the events of 9/11 and their aftermath. Between 2004 and 2005, quality levels dropped in three of the four Services. The percent high-quality also fell in the Army between 2003 and 2004 as well, to a level not seen since 1989, and before that, 1985. The most recent quality declines reflect, at least in part, a recovering civilian economy, with unemployment declining from 6.0 percent in 2003 to 5.1 percent in 2005.¹⁵

It is tempting to blame the Iraq war for the recent drop in quality in the Army and Marine Corps, which have borne disproportionate casualty burdens. More will be said about the effects of the war on the Army below. But the Army's high-quality decline occurred prior to the Marine Corps decline and begs the question why. One reason may lie in management of the Army's recruiter force. At the start of FY2002, the Army had about 6,100 recruiters. Although the reasons are not entirely clear, the Army made a deliberate policy decision to reduce its recruiter force. The recruiter force fell steadily for the next seven quarters, and bottomed out at 4,400 recruiters in the last quarter of 2004. During 2005 the Army restored about two-thirds of this reduction (from 4,400 to 5,500).

Some observers worry that the military recruits are drawn disproportionately from less educated, lower income groups in American society. They mention, in particular, the apparent dearth of college-bound youth in the military. Indeed, youth from states with higher fractions of college-bound youth, more densely populated areas, and youth from higher-income zip codes are somewhat less likely to enlist. Figure 2 provides evidence on propensity to serve and family income for the Army, Navy, and Marine Corps.¹⁶ The figure shows the cumulative percentage of enlistments from each income decile. If youth living in each income decile were equally likely to serve, the cumulative percentages would all lie along the 45-degree line. The cumulative percentages are, in fact, bowed out, indicating that individuals from lower-income zip codes are more likely to enlist. The distribution of recruits was most representative in the Marine Corps, followed by the Navy and Air Force (not shown, but similar to the Navy), and Army. Even in the Army, 40 percent of the recruits are from zip codes in the top half of the income distribution, and 20 percent of recruits are from zip codes in the top 30 percent.

One of the big changes in Army recruiting over the FY1995-2005 decade has been in its racial composition. Blacks have historically represented a larger share of Army

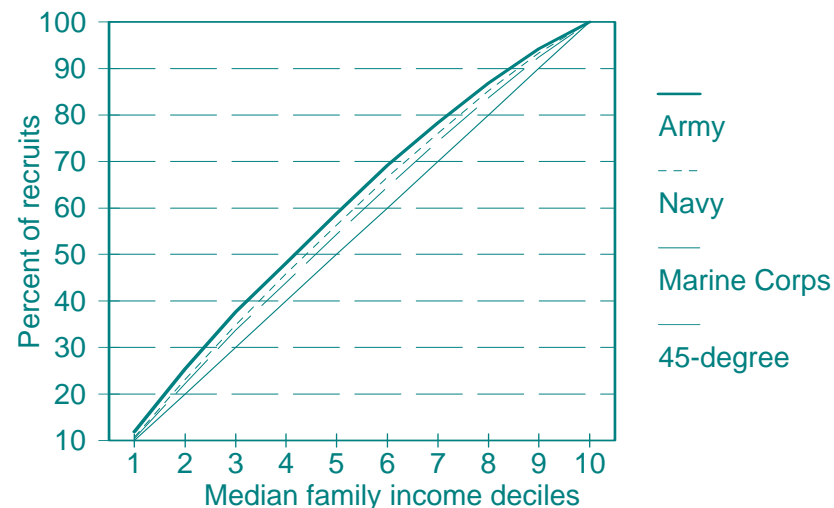


Figure 2: Cumulative distribution of recruits by family income decile in recruit's 5-digit zip code.

recruits than their share of the U.S. population. Indeed, between 1995 and 2000, black recruits made up about 22 percent of total Army enlistments. This percentage began declining in 2001, and by 2005 the black share of total Army recruits had declined to 14 percent, their overall share in the population. By way of contrast, Hispanic recruits have grown steadily, from just 7 percent in 1995 to about 13 percent in 2005, also about equal to their population share. The white share declined gently between 1995 and 1999 from about 67 percent to 62 percent, and then began rising, standing at just under 70 percent by 2005.

We conclude our overview of recruiting by highlighting recruiting for the U.S. reserve forces. The United States has a Selected Reserve force of around 850,000 personnel. Reserve units recruit both non-prior service and prior service personnel. For example, between 2000 and 2005, the two Army reserve components (Army Reserve and Army National Guard) recruited an average of 98,000 people.¹⁷ Combined, these components recruited more than the active Army force. Until very recently, the reserve forces of the various services have almost always met or exceeded their annual recruiting targets. But despite meeting recruiting goals in earlier years, the two Army reserve components recruited only 81,000 personnel in 2004 and 78,000 personnel in 2005, well short of their combined goal.¹⁸ But despite these shortfalls, Army reserve component recruiting rebounded dramatically in 2006, with these two components bringing in 103,000 new personnel.¹⁹

Estimating the recruiting effect of Operation Iraqi Freedom

What has been the effect of the ongoing Iraq conflict on recruiting? A complete analysis for all four services is beyond our current scope. However, we have data sufficient to allow us to begin to answer this question for the Army. We estimated models of high-quality enlistment supply using data over the period 1996 through 2005. The data are at the state level at a quarterly frequency. To account for the sizeable differences in population across states, the dependent variable is defined as the (natural log of) the number of high-quality enlistments per youth in a state.

Two explanatory variables capture the effects of the civilian economy: the rate of civilian unemployment and relative military monetary compensation.²⁰ We measure the intensity of the recruiting effort using information on the size of the recruiter force and recruiting goals assigned to each state at each point in time. Since more experienced recruiters are more productive than less experienced ones, we allow the effects of increases in the size of the recruiter force to have a different magnitude effect than decreases.²¹

We measure the effects of the Iraq war using three variables. First, we use an indicator variable that takes a value of one during the Iraq war period and zero otherwise. Secondly, we include the number of deaths in all four services in a given quarter, measured in 100s. Finally, we have included a variable that is intended to measure the attitudes in each state toward the Iraq conflict, which we measure as the percent of the population that voted for George W. Bush in the 2004 election. Although estimation over longer time periods will enhance the precision of the estimated effects of the various explanatory variables, it is only over the shorter time period over which one might expect to see the effects of attitudes regarding the Iraq war.²²

Table 3 reports estimates of the model for two time periods: 1996-2005 and 2004-2005. The estimates for the long time period indicate that each 10 percent increase in pay raises high-quality enlistment by 7 percent. The short-period estimated effect is somewhat larger, but we view it with some caution due to the limited observation period. The long-period estimates suggest that each 10 percent increase in the civilian unemployment rate increases high-quality enlistments by 4.2 percent. (The estimated coefficient on unemployment over the short period is positive, but small in magnitude. This is not surprising in light of the shortness of the period analyzed.) Each 10 percent increase in the size of the recruiter force is estimated to increase high-quality enlistments by 4.8 percent. The estimated effect of a 10 percent *decrease* in the size of the recruiter force over the long period is somewhat larger at 6.2 percent, and is consistent with the notion that experienced recruiters are more productive. The estimates for the short period tell a qualitatively similar story.

We now turn to the estimated effects of the Iraq war. Focusing on the longer time period, the estimated effect of the war in the first year is obtained by adding the coefficient on the dummy variable and trend, or about -0.01, a negligible effect.

However, the estimates indicate that recruiting fell by 25 percent each year thereafter. The impact of the Iraq war using the estimates for the short period is obtained by adding together the effects of the OIF and Bush percentage trends. Assuming that the average vote for Bush was (roughly) 50 percent, each year of the Iraq war was associated with a 33.7 percent decline in high-quality enlistments.²³ The trend is less negative in states that had higher votes for Bush, and more negative in states with higher votes for John Kerry, his Democratic Party opponent. Finally, we consider the impact of casualties. The short-period estimate of the effect of fatalities is small because there was limited variation in this variable over the estimation period. However, the estimated effect of fatalities over the longer period indicates that each additional 100 casualties per quarter (400 per year) reduce high-quality enlistment supply by 6.2 percent.

Table 3: Regressions for Army high-quality enlistments

<i>Independent variable</i>	<i>1996-2005</i>	<i>2004-2005</i>
Relative military pay	0.704 (4.05)	1.065 (3.51)
Unemployment rate	0.420 (9.77)	0.075 (0.58)
Army recruiters (+)	0.476 (8.32)	0.483 (3.65)
Army recruiters (-)	0.621 (12.68)	0.605 (6.81)
Army goal	0.068 (3.30)	0.235 (2.44)
OIF period dummy	0.246 (10.71)	0.300 (7.29)
OIF deaths (100s)	-0.062 (2.12)	-0.023 (0.56)
Overall trend	0.007 (0.17)	—
OIF period trend	-0.262 (14.51)	-0.457 (5.98)
2004 Bush pct trend	-0.002 (0.03)	0.240 (1.91)
Number of observations	1950	350
R-square	0.364	0.338

Note: Numbers in parentheses are t-statistics.

Retention in the 1995-2005 period

Retention is continually managed in different career zones to maintain a force that is balanced by rank and experience level. Management tools include manipulation of

elements of compensation such as basic pay and reenlistment bonuses and personnel policies such as mandatory separation (up-or-out) points that vary by rank and experience. Over the last decade, the services have generally very successfully managed retention to achieve desired force outcomes.²⁴

One period of concern, though, was the late 1990s, when the hot civilian labor market began to impinge on retention, particularly in high-tech occupations. Following recommendations of the 9th Quadrennial Review of Military Compensation, Congress implemented a series of increases in basic pay that began in July of 2000. The combined effects of these increases were shown in Table 2, which revealed that real basic pay and RMC have risen around 10 and 14 percent, respectively, since 2000. The basic pay increases that were implemented in the years 2000-2003 gave personnel in the mid and senior ranks larger percentage increases than personnel in the junior ranks. These pay increases were purposely designed to maintain retention in the mid and upper ranks and increase motivation and performance in the lower ranks.

These basic pay increases were implemented in a time of peace before the U.S. became involved in operations in Afghanistan and Iraq. Most of the special and incentive (S&I) pay increases have occurred since the inception of the conflict in Iraq and have played an important role in retaining personnel beyond the initial enlistment. In fact, voluntary retention has increased since 2000. In 2000, for example, 21,400 Army personnel reenlisted after completing their initial enlistment. In 2005 and 2006, the Army more than met its goals for initial reenlistments, re-signing 27,800 and 28,000, respectively. It also met or exceeded its goals for reenlistments of personnel beyond the initial reenlistment point. In the Army's case, reenlistments were bolstered by a bonus of \$15,000 for reenlistments of personnel stationed in Iraq and Afghanistan.²⁵ Marine Corps reenlistments have exceeded goals in every year since 2000.²⁶ Attrition from Selected Reserve units has fallen since 2000.

It might be surprising to some that retention has remained strong in the face of the stress and the risks of injury or death placed on personnel deployed to the combat zones, the stress to their families, and the extra workloads placed on personnel not deployed. That retention has not declined in the face of this wartime situation is testimony to the dedication of the men and women in the U.S. armed forces – both active and reservist – and to the effectiveness of the improvements in compensation that have compensated for the extra demands on personnel.²⁷ Concern of course remains that the retention levels that have prevailed in the Army, Marine Corps, and Selected Reserve units since 9/11 cannot be sustained over the longer term if the deployment rates shown in Table 1 do not soon decline.

High deployment rates can of course be alleviated by increases in end strength. Congress has authorized the Army to grow to 520,000 personnel by 2010, and many believe that the Marine Corps needs to grow beyond its currently authorized strength of 180,000. An expansion in force size raises the issue of cost. Despite large pay increases since 2000 and increases in cost due to the mobilization of large numbers

of reservists, manpower costs as a percentage of the DoD budget have declined, from 27.3 percent in 2000 to 24.1 percent in 2005. But manpower costs have risen by \$32 billion, from 0.75 percent in 2000 to 0.97 percent in 2005.²⁸ Even with the rise from 2000 to 2005, manpower costs are a smaller percentage of GDP than they were in any year during the Cold War era. A return to the active duty force level that prevailed in the Cold War era of 2.1 million – well beyond levels currently contemplated by policymakers – would raise personnel costs as a percent of GDP to at most 2 percent, the personnel cost share of GDP in 1975.²⁹

While the rising cost of military manpower is a matter of concern, the notion that personnel costs are inordinate, either in terms of the ability to pay for them or in terms of what was paid in the past, is not supported by the facts.³⁰

Options for expanding the force

A number of observers believe that the size of the U.S. armed forces is too small to meet current commitments or future contingencies. This concern is focused on the Army and, to a lesser extent, the Marine Corps. The prospect of attracting additional Army and Marine Corps volunteers has led some to balk at the cost and to propose conscription as a way of filling military manpower requirements.

It is easy to exaggerate the cost-savings of conscription. No proposal for a draft envisions an enlistment commitment of more than two years. Thus, any cost savings are limited to the first two years of service. More importantly, draftees are far less likely to reenlist than are volunteers. Consider an expansion in the size of the Army enlisted force from its current level of 405,000 to 505,000. How many more recruits would be needed? How would the experience distribution of the force be affected? How much would this expansion cost? To begin to answer these questions, we constructed four steady-state force scenarios based on average FY2000-2005 Army enlisted continuation rates and computed, to a first order of magnitude, their costs.

Table 4 shows the resulting computations. Based on the current force level of 405,000, which costs \$10.5 billion in basic pay per year, the Army must enlist 81,400 recruits annually. This force costs \$21.5 billion including costs for recruiting and training. Assuming no changes in continuation behavior, expanding the Army force by 100,000 would require enlisting an additional 19,100 volunteers per year, at an additional basic pay cost of \$2.6 billion and a total direct cost of \$28.1 billion. To attract these additional personnel without reducing the Army's quality mix, we increase the recruiter force by 50 percent and double the special and incentive pays budget (which includes enlistment and reenlistment bonuses).

We consider two draft scenarios. Both scenarios assume that draftees serve for two years and then depart military service, while volunteers display the same continuation behavior as currently. In the first scenario, the Army continues to enlist 81,400 volunteers, and drafts a number sufficient to achieve its desired end strength of 505,000, which we calculate to be 61,500. Notice that the Army must access and train

Table 4: Costs of expansion options for the army

	<i>Current force</i>	<i>AVF</i>	<i>Small draft</i>	<i>Large draft</i>
End strength	405,000	505,000	505,000	505,000
Voluntary accessions	81,400	101,500	81,400	60,000
Draftees	—	—	61,500	127,000
Percent careerists	48	48	38	28
Basic pay cost	\$10.5	\$13.1	\$12.4	\$11.5
RMC cost	\$17.8	\$22.3	\$21.0	\$19.6
S&I cost	\$1.5	\$3.0	\$1.9	\$1.0
Recruiting cost ^a	\$0.6	\$0.8	\$0.6	\$0.4
Training cost ^b	\$1.6	\$2.0	\$2.9	\$3.7
Direct force cost	\$21.5	\$28.1	\$26.4	\$25.2
Direct cost differential	—	—	-\$1.7	-\$3.4

All costs are in billions of dollars. ^a Recruiters and advertising. ^b Assumes training cost of \$20,000 per recruit.

about 147,000 individuals per year under this scenario, more than 40 percent more than required with the expanded AVF force. Training costs rise by \$0.9 billion relative to the expanded AVF scenario, assuming training costs of \$20,000 per recruit.³¹ Importantly, careerists as a fraction of the total force decline from 48 to 38 percent. The second scenario envisions reducing voluntary accessions to just 60,000 per year. Now the Army must draft 127,000 individuals per year! We allow the Army to reduce its recruiter force and eliminate its enlistment bonus budget – hence the decline in recruiting and S&I costs. This mixed force has just 28 percent careerists.

These calculations suggest minor budgetary differences between the expanded voluntary force and the two mixed forces. Of course, economic theory suggests that forces should be compared on the basis of their real resource costs and not just their budgetary costs. The two conscripted forces have higher opportunity costs than the mixed forces.³² As Poutvaara and Wagener elaborate elsewhere in this issue, conscription brings other costs, including those related to youths' attempts to evade conscription and the government's efforts to prevent it. Once all costs are considered, it is likely that, over the range of likely force sizes in the United States in the foreseeable future, the social costs of conscripted forces will exceed the social costs of a volunteer force.³³ Furthermore, for the cost comparisons to be complete, one needs to compare the costs of equally capable forces; it is likely that the mixed forces in our scenarios would be less effective than the expanded volunteer force owing to the significant drop in their average experience levels. Less experienced personnel are

generally less productive, and the decline in productivity is more pronounced the more technologically advanced the force. Adjustment for productivity differences would further increase the relative costs of the conscripted forces.

Some critics of the AVF argue for a draft on the ground that high ability, college-bound youth have largely avoided military service in the AVF era and that a draft is needed to infuse the enlisted ranks with more able personnel. Such a claim is dubious. About one-quarter of the 18-24 year-old youth population is enrolled in college. A random draft from this age group has a one-in-four chance of bringing in college students, and a very small chance of grabbing Ivy League students. However, women, who currently form 14 percent of the enlisted force, are not currently required to register with Selective Service, and so presumably would not be subject to a draft. If women were excluded from the draft, the burden of conscription would fall on the male youth population only. Nevertheless, a random draft from the full 18-24 year-old male population would subject males to less than a 1 percent chance of conscription. It is hard to imagine that politicians could justify assigning the conscription tax to such a small fraction of the youth population. A draft that attempts to maintain the current quality levels would fall very unevenly across the youth population.

In addition to how it affects the experience distribution of the force, conscription can affect the quality of new recruits, but not by attracting more high-quality, college-bound youth. We have already pointed out that a large fraction of U.S. youth does not meet current military eligibility standards. (In fact, only 26 percent does.) Of those that do not meet entry standards, 53 percent are disqualified for medical and physical reasons, 23 percent because of drugs or alcohol abuse, 12 percent for moral reasons, and the remainder for yet other reasons. Disqualifying such youth *a priori* would encourage malfeasance as youth attempt to avoid conscription. Some argue that drafting youth who are currently unqualified would be in those youths' interests, but it is not clear whether the military is the appropriate institution for rehabilitating such youth. How such youth would be handled under a draft is an open question, but conscripting these youth would have adverse consequences for military effectiveness.

Conclusions

U.S. military recruiting is sensitive to a number of factors, including the state of the economy, the magnitude of the recruiting effort, and, most recently, the ongoing conflicts in Afghanistan and Iraq. There is little question that the war has detracted from high-quality enlistments in the Army, although the strong civilian economy has also played a role. The Army has responded to these difficulties by boosting enlistment incentives, primarily bonuses, and by enlisting more individuals from low-quality groups. Although there has been a decline in the fraction of enlistments that are high-quality, the current level is not out of line with the high-quality intake in the mid-1980s.

Thus far, the U.S. military has successfully maintained active and reserve retention

by a variety of inducements, including more generous reenlistment bonuses, higher pay for hazardous duty, and increased family separation allowances. However, concern remains about the future of retention if current deployment lengths are maintained.

There is little doubt that it is more costly to staff the AVF in a time of war than a time of peace – U.S. military manpower costs have risen by about \$32 billion (2005 dollars) between FY2000 and 2005, or from 0.75 percent to 0.97 percent of GDP. While the cost of military manpower is a matter of concern, the notion that personnel costs are inordinate, either in terms of the ability to pay for them or in terms of what was paid in the past, is not supported by the facts.

Conscription is not a panacea. A 25 percent increase in the size of the Army enlisted force would have little effect on manpower outlays and would detract from force effectiveness, especially if a draft compels the entry of youth who do not currently meet U.S. military entrance standards.

Notes

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1. See Bicksler, Gilroy, and Warner (2004).
2. See Warner and Asch (2001) for a review of the record of the AVF up to 2000.
3. In this article, years are fiscal years (FY) and run from 1 October of one year to 30 September of the next year.
4. See Congressional Budget Office (2006, p. 30).
5. Navy strength is planned to fall to 331,000 by 2010 and Air Force strength will decline to 320,000. These reductions are being driven in large part by technology. New classes of Navy ships that are coming on line in the near future require much lower manning levels than the classes that they are replacing.
6. During the draft era in the United States, draftees served 2-year terms.
7. These averages are from Congressional Budget Office (2006).
8. See Warner and Asch (1996) and Asch, Hosek, and Warner (2007) for reviews of formal economic models of military recruiting and retention and empirical studies of these variables.
9. See Figure 10 of Bicksler and Nolan (2006).
10. Emphasis on recruiting high school graduates in the top half of the mental distribution derives from the fact that they are more productive. Warner and Asch (1996) and Asch, Hosek, and Warner (2007) provide evidence on the productivity of various qualities of personnel.
11. See Warner, Simon, and Payne (2003) for estimates of the enlistment effects of veterans and college attendance using data for the period 1988-1997.
12. Gilroy (2006).
13. Years are fiscal years (see note 3).
14. The easier recruiting of the Air Force reflects in part the high-tech nature of Air Force training and work experience. It may also reflect better working conditions and lower exposure to danger.
15. Moreover, the labor market is forward looking. Unemployment dropped to the mid-4's by early 2006. The U.S. Navy's percent high-quality continued to increase in 2004-2005. This improvement is due to a reduction in its recruiting goal as the Navy's end strength declined.
16. Figure 2 is based on data on all active duty enlistments over the period FY1988-2000. Each recruit was assigned the median family income in his 5-digit zip code. Median income by zip code was obtained from the 2000 Census.
17. Table 1-2 of Congressional Budget Office (2006).
18. Table 1-2 of Congressional Budget Office (2006).
19. Gilroy (2006).
20. The Army and other services also use enlistment bonuses and college benefits to attract high-quality recruits. However, such enlistment incentives tend to be used most intensively when recruiting is particularly difficult, thus inducing a negative correlation between high-quality enlistment and the level of incentives. Correcting for such bias, called "simultaneity bias," is beyond the scope of the present analysis, and so those variables are not included as explanatory variables here.

21. As mentioned earlier in the text, the recruiting effort also involves substantial expenditures on advertising. Unfortunately, we do not have such data available by state, information that is critical for accurate estimation of the effects of advertising.

22. Our explanatory variables control only imperfectly for the various factors that affect recruiting across states. If one assumes that the variation across states in these unmeasured factors take the form of time-invariant, state-level effects, then we can eliminate these factors by differencing the data, that is, by specifying both the dependent and explanatory variables in the form of *changes* rather than levels. Because there is a strong seasonal component to recruiting, we have taken *fourth differences*, thus differencing out any fixed, quarter-specific effects as well. Since our variables are measured in logarithms, the variables are essentially the percentage changes from their values in the same quarter in the preceding year. In the absence of time trends in the dependent variable, the intercept will drop out of a differenced model. The inclusion of an intercept allows for the existence of such a trend. Similarly, the Iraq war indicator variable, which takes on a value of one during the Iraq war and zero otherwise, measures the differential trend effect of the Iraq war. If the Iraq war had only an effect on the *level* of recruiting, differencing the model would require including a variable that takes on the value of one only for the period immediately following the onset of the war, for four quarterly periods, and zero both before the onset of the war and after the first year of the war.

23. The 33.7 number is arrived at by taking one-half of the “Bush pct trend” number and subtracting the “OIF period trend” number, i.e., $0.120 - 0.457 = -0.337$, or 33.7 percent.

24. See Congressional Budget Office (2006) for details of retention trends and accomplishment of retention objectives by service.

25. Furthermore, personnel stationed in combat zones do not pay income taxes on normally taxable compensation while serving in theater.

26. Table 2-6 of Congressional Budget Office (2006).

27. Two compensating differentials received by personnel stationed in combat zones are Imminent Danger Pay (\$225 per month) and Family Separation Allowance (\$250 per month to married personnel who are deployed for more than 30 days).

28. Statistics available in DoD budget documents found at <http://www.dod.mil/comptroller/budgetindex.html>. About a third of the increase was due to implementation in 2003 of the Defense Program Health Accrual. This charge accounts for future retiree health benefits that will be paid to current military members

and their families. This charge did not exist in 2001.

29. If the increase were linear, costs would rise to 1.35 percent of GDP. Two percent is surely an upper bound to allow for disproportionate pay hikes that might be required to sustain a 50 percent expansion in force size. Moreover, there is no need to expand Navy or Air Force personnel to Cold War levels. A more likely scenario is a moderate increase in Army, Marine Corps, and perhaps reserve personnel.

30. Contractor costs are part of the procurement budget and not part of the manpower budget as normally defined. DoD can substitute private contractor services for military personnel, which it did a lot of in Bosnia where food and housing services were contracted out rather than provided by military cooks or construction workers. It can also substitute government civilian employees for uniformed military personnel. Again, the cost of civilian employees shows up in other parts of the DoD budget.

31. The Army reported an average initial training cost of \$16,800 in 2004.

32. For a full elaboration of the difference in opportunity costs between volunteer and conscripted forces, see Warner and Negrusa (2005).

33. When the demand for military manpower exceeds a certain threshold, it is possible for the social cost of a volunteer force to exceed the cost of a conscripted force. See Warner and Negrusa (2005) for details. Our calculations indicate that the threshold is likely to occur at a much larger force level than the ones contemplated above.

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The privatizing of war and security in Afghanistan: future or dead end?

Antonio Giustozzi

In a sense, the latest Afghan conflict (i.e., since 2002) was from the very start characterized by a high degree of privatization. As some authors have put it, the Afghan model, “combining indigenous armies, U.S. special operators, and airpower ... suggests a less costly and more effective method of accomplishing U.S. security objectives.”¹ The “indigenous armies” utilized in 2001 were of course non-state armed groups, some of which had a political dimension to them and some had not. Among the latter were a number of local strongmen and tribal leaders mobilized through direct payment of cash by the CIA to fight against Taliban forces in southern, southeastern, and eastern Afghanistan. These could be appropriately described as private armies. It is open to discussion whether the primary motivation of these strongmen and of their fighters was profit or something else. Although cash incentives were a key factor of mobilization, it is likely that the militiamen were also motivated by loyalty to their leaders. For the leaders, a motivational factor was participation in the division of the political spoils at the end of the war. Indeed, many of them were then appointed to official positions such as governors, military commanders, chiefs of police, or ministers.

In strategic terms, the reliance on directly funded allies to conduct joint operations was a significant innovation.² For some time after 2001, the U.S. command continued to occasionally use militias in military operations against remnants of the Taliban in southern and eastern Afghanistan. When needed, U.S. officers would approach a strongman and ask him to contribute some militiamen to a particular operation, of course in exchange for payment. Such opportunities appear to have been largely welcomed, not only because of the cash gains but for other reasons too. For example, it permitted strongmen to reward their militiamen and maintain relatively large forces mobilized, at no additional cost to them. These joint operations also offered the opportunity to pose as “America’s friends,” a status which could be used to both expand their influence and intimidate potential rivals.³

Nonetheless, some developments which occurred after 2001 took much of the shine away from the concept. Particularly from 2003 to 2004 it emerged clearly that there were drawbacks to relying on private armies to control Afghanistan. In the perception of western policymakers – and sometimes among NATO officers – heroic anti-Taliban fighters began turning into warlords. Stories about corruption, human rights abuses, illegal taxation, and land grabs started emerging to embarrass the often naïve proponents of the new strategic concept.⁴ Even more worryingly for the policymakers, the strongmen turned out to be unreliable allies, not only because of

their weak commitment to do any serious fighting, but also because of their inclination to put local, often petty, interests first. Already at the time of Operation Anaconda, the first large-scale joint operation of the post-Taliban period, allegations started to surface that Hazrat Ali’s militiamen had let the Arab fighters slip through the net into Pakistan.⁵ Similar allegations would later hit Gul Agha Shirzai of Kandahar, while another U.S. ally, Padcha Khan Zadran, discredited himself by turning against President Karzai and forcing the Americans to dump him.⁶

The Afghan conflict also featured other, more conventional, forms of privatization of security, at least in terms of the ongoing policy debate. This refers to the enlisting of “mercenaries” to fulfill specific tasks. Although private military companies (PMCs) have not yet arrived in Afghanistan and are unlikely to arrive there anytime soon, two other types of mercenaries have operated in Afghanistan so far. One type is directly recruited indigenous *combat* forces, which have been used as auxiliary troops mainly by the U.S. Army. The second type are non-Afghan, *non-combat* private security companies (PSCs), limited to the provision of security for expatriates and Afghan VIPs as well as training and support services for indigenous security forces.

While the use of alliances with strongmen’s private armies is falling out of fashion after a number of debacles (not only in Afghanistan but also in Iraq), the reliance on PSCs and mercenaries remains in great favor within policy circles in Washington and in some other western capitals. For this reason, the remainder of this article focuses on PSCs and their impact on post-Taliban Afghanistan, trying to establish whether they proved to be cost-effective, whether there have been any significant side effects to their employment, and whether there is potential for their future development and deployment.

DynCorp and USPI

An estimated twenty-five foreign security companies from the U.S., Britain, Australia, and South Africa were active in Afghanistan in mid-2006. The most important ones among them were DynCorp and U.S. Protection and Investigations (USPI) from the U.S., and Global Risk from the U.K. The latter focused on providing services to embassies. For example, the U.K. government spent £15.3 million from 2003 to 2006 for the provision of private security services.⁷ It was also involved with the U.N. in providing advice and support to the teams sent out to the provinces for organizing the presidential elections of 2004. USPI was a small and relatively unknown company before entering the Afghan market where it then conquered a leading position by competing aggressively on price. Within a couple of years, USPI had emerged by far as the market leader in terms of security guards services. It started by winning a major contract, worth \$36 million, with the U.S. construction company Louis Berger, to provide security on the Kabul-Kandahar highway. USPI became the most recognized brand name in the Afghan security market because of its ubiquitous guard boxes in Kabul’s streets. In terms of turnover, however, the market leader remained DynCorp.

The company started its activities in Afghanistan by winning an \$82 million contract to guard President Karzai and train his future Afghan bodyguards. Although the original plan was to directly provide guard services for a period of 6 to 18 months, it took until January 2006 for Karzai to have an all-Afghan bodyguard. The company then won another contract, worth \$290 million, mainly to train Afghan police and carry out drug eradication. In 2006, it employed 800 expatriates in Afghanistan, almost all of whom Americans, with starting salaries of \$100,000/year.⁸ (In 2006, the average cost, all inclusive, of personnel to the U.S. military was \$85,553,⁹ which compares favorably to the \$130,000 to \$250,000 which private contractors in Afghanistan cost the U.S. government.¹⁰ U.S. Special Forces soldiers earn between \$25,000 and \$120,000.)

If the economic rationale of using private security contractors is not always very clear, there might be an efficiency rationale. Maybe contractors deliver better service than army troops. Both DynCorp and USPI were the object of much controversy, although for different reasons. Complaints against private security firms do not just come from NGOs.¹¹ Karzai's DynCorp bodyguards for example were known for their arrogant and aggressive behavior, which included abusing European diplomats and slapping an Afghan minister. They were even reprimanded by the U.S. Department of State.¹² DynCorp's police training program was not exempt from criticism either, although much of what was wrong with it was due to the way the program had been conceived by the State Department. About 60,000 Afghan policemen were trained by DynCorp in 2 to 8 weeks courses, considered by many far too short to substantially affect the quality of Afghan police. Later, the basic course was increased to 8 weeks.¹³ Among expatriates and Afghans alike, the general assessment of the impact of police training was largely negative.¹⁴ DynCorp poppy eradication programs similarly drew criticism from several quarters. The initial \$50 million contract, awarded in 2004, was to train a 400 member Afghan eradication team (to become known as Afghan Eradication Force). They received two weeks of training before being deployed.¹⁵ Another \$100 million were added to the bill later and DynCorp would deploy expatriates, too, to oversee the eradication effort. In particular, a team of 80 people operated in Helmand province, the main poppy producer in the country, but allegations of corruption against the poppy eradication program continued to be pervasive. There was a widespread feeling that the fields of certain powerful individuals were being spared, and that it was possible to bribe the eradication officers to save one own's field.¹⁶ In the end, DynCorp only succeeded in eradicating 220 hectares of a planned 10,000 to 15,000 hectares.¹⁷

General Richards, NATO commander in Afghanistan, criticized the role of "unethical private security companies" which are "all too ready to discharge firearms" and contribute to lead the country "close to anarchy."¹⁸ There is substantial evidence that contractors working for PSCs have the tendency to behave worse than regular foreign army troops. They are accused of insensitivity and arrogance, but enjoy virtual immunity from prosecution.¹⁹ DynCorp's staff involvement in prostitution rings in

the Balkans are well known,²⁰ but stories are often heard about the involvement of private security contractors in prostitution rings in Afghanistan as well.²¹ At the same time, the boundary between regular American forces and private contractors is often murky enough to allow all sorts of incidents to take place, resulting in additional resentment against the U.S. among the Afghan population.²² The best known example of how wide a space is left open to abuses is that of Jonathan K. Idema, a freelance bounty hunter who had established his own private prison in Kabul, where he tortured prisoners trying to extract information. He had managed to convince even NATO that he was working for the U.S. government.²³

Afghan mercenaries: Sepoys and private guards

Recruitment and training of Afghan troops to serve as U.S. military force auxiliaries started in 2001. These auxiliaries would become known by the acronym of ASF (Afghan Security Forces). They appear to have been paid around \$125 to \$150 a month, significantly more than the troops of the Afghan National Army (ANA) or the Afghan National Police (ANP).²⁴ They would normally be deployed in numbers varying between 100 and 150 at U.S. "firebases" and forward bases where they would take care of external security and be available to accompany U.S. troops in patrols and combat missions. Their role was similar to that of the British empire's Sepoys. The total number of ASF militiamen was not disclosed, but it must have been in the low thousands (2,000 to 3,000). The rationale for creating the ASF was twofold. They would act as the interface between U.S. troops and the local population. Since they were recruited locally, they were expected to be acquainted with local customs and mores. They were also expected to be more acceptable to local populations when carrying out village and house searches, and arrests. The second rationale was to limit U.S. casualties. They would be deployed at the head and back of every U.S. convoy, and in battle they would approach the enemy ahead of U.S. troops. The U.S. military is not required to disclose information about ASF casualties, so that there are no statistics available. This could be a third rationale for creating the ASF. Judging from anecdotal information concerning the employment of ANA troops serving in similar roles from 2004 and from the limited information about ASF casualties,²⁵ their "screens" appear to have saved quite a few American lives, at some cost of their own.

A major problem related to the existence of the ASF was political in nature. The direct and unaccountable recruitment of Afghans to serve under the orders of U.S. officials could not but be a source of some embarrassment to the Afghan government, particularly to the extent that ANA units were beginning to be available for deployment. The problem was compounded by a gradually intensifying insurgency from 2003 onward, so that the ASF appeared undersized for its task. Although the ASF were hardly ever mentioned in the documents of the Afghan government, of the United Nations, or of Kabul's diplomatic community, expanding its size would have increased the danger of ASF turning into a political issue. As a result, it was decided

to gradually disband the ASF from 2005, providing incentives for them to join the ANA or the ANP.²⁶ Thus, ANA units gradually replaced the ASF in the role of auxiliaries.

Afghan mercenaries were not just recruited into the ASF. Militias, usually a few hundred men each, were formed *ad hoc* in some localities with CIA funds to help hunt down remnants of the Taliban and al Qaeda, but were mostly disbanded or turned into ASF by 2003.²⁷ In fact, virtually every country opening military bases in Afghanistan recruited small numbers of locals to provide external security of the premises. This utilization of local mercenaries was never controversial, given their very modest numbers and limited role. More controversial proved the recruitment of Afghans by foreign security companies, not only because of the larger numbers involved, but also because of the modalities of recruitment and of their activities.

In terms of recruitment of Afghans, the most important PSC operating in Afghanistan was and is U.S. Protection and Investigations (USPI). The company employed as many as 1,200 Afghans along the Kabul-Kandahar highway, but was present elsewhere in Afghanistan too. In particular, it employed hundreds of Afghans in Kabul at \$3 a day to provide security to offices of international organizations and along the Kandahar-Girishk road, where it protected U.N. deminers. Overall, USPI was employing about 5,000 Afghans as guards in 2006. USPI's practices were often a source of controversy. It was accused of overcharging, as only 400 to 500 of the men supposed to be on its pay bill on the Kabul-Kandahar road appeared to be actually there. On the same highway, it used highway police commanders and policemen to provide security, with the collaboration of General Jurat of the Afghan Ministry of Interior. Although formally this "cooperation" was presented as capacity building, the policemen were in fact doubling up as private guards and saw their salary increase to \$150 a month. Among the allegations were accusations of drug running and illegal taxation. Its practice of approaching local commanders and paying them money to provide their own men for establishing posts along the highway was also the object of much criticism, particularly since the U.N. was trying to demobilize militias countrywide.²⁸ USPI adopted the same practices in Helmand too.²⁹

Conclusion: a dead end

The assessment of the employment of mercenaries in Afghanistan gives mixed results. U.S. armed forces appear to have been happy with their ASF and *ad hoc* militias and only replaced them because of political reasons or because they felt that they were no longer needed. At least some U.S. officers viewed the locally recruited ASF as having "a better feel for the region's people and geography" than the nationally recruited ANA troops.³⁰ Could the ASF model be extrapolated and turned into something more similar to the old Sepoys, not only in terms of tactical employment but also in terms of their strategic and political role? As discussed, there are major political constraints to a wider use of ASF-style forces. Accusations of neo-colonialism would flourish,

something which U.S. authorities cannot afford at a time when their aims in Afghanistan and elsewhere are already under close scrutiny.

By contrast, the work of PSCs seems to have satisfied few. The main rationale for their use is the overstretching of U.S. armed forces and, in particular, of its Special Forces. While in the short term no practical alternative to the use of PSCs existed, from an economic standpoint it is not at all obvious whether this option saves any money to the governments involved in the medium and long-term. Moreover, there seem to be negative side effects to the use of private security contractors on the ground. They succeeded in maintaining the security of their protégés, but the extent of the actual threat is not easy to assess. The only attempt on Karzai's life took place before the contracting of DynCorp. After the contractors got involved, Karzai was effectively isolated from contact with the Afghan public. The few recorded violent incidents involving private contractors were direct attacks against them, rather than against the individuals or offices which they were paid to protect. For example an attack on DynCorp premises in Kabul killed five staff members, as well as several Afghan civilians, and might have been related to the unpopularity of the company's men.

Private security contractors are not subjected to the control of military authorities, nor to military discipline. Their record of abusive behavior is indisputable and there are indications that they might have played a significant role in alienating the Afghan public and turning it against "foreigners." Unless much changes, the potential of private security companies in peacekeeping does not appear to be a bright one.

Notes

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1. Andres, *et al.* (2005/6, pp. 124-125).
2. For an enthusiastic endorsement of the concept, see Andres, *et al.* (2005/6).
3. See, e.g. Giustozzi (forthcoming); Chayes (2006, p. 61).
4. For examples of anti-warlord literature see Human Rights Watch (2002; 2003; 2004).
5. Afghan Foreign Ministry spokesman, quoted in *Stratfor*, 14 September 2005.
6. Giustozzi (2003, pp. 9-10).

7. "UK pays £150m for private security in war zones." *The Scotsman*. 23 September 2006.
8. Nawa (2006).
9. Based on figures published in IISS (2006).
10. Exact figures are not available, because the U.S. government is unable to specify how much it spends on PSCs. See GAO (2005b).
11. See Keilthy (2004).
12. "DynCorp Guards Chastised by U.S. State Department." *BBC News*. 14 October 2004. See also Tepperman (2002) and Isenberg (2003).
13. Rohde (2006); GAO (2005a, p. 3).
14. Personal communications with U.N. officials, Afghan tribal elders, and politicians, Kabul, Kunduz, Toluqan, Kandahar, Mazar-i Sharif, January 2004 to October 2006.
15. "After the Taliban." *The Economist*. 20 November 2004, p. 46.
16. The Senlis Council (2006, p. 15).
17. Nawa (2006, p. 20).
18. See Norton-Taylor (2006).
19. Rubin (2006).
20. Crewdson (2002).
21. Personal communication with expatriates in Kabul, May 2005.
22. Smith and Gall (2004).
23. Meo (2004).
24. Naylor (2006).
25. It is common in today's Afghanistan to hear complaints about the losses suffered by ANA troops traveling in pickup trucks "protecting" US troops traveling in armored vehicles (personal communications with Afghan notables, Gardez, October 2006; see also Koelbl, 2006).
26. See CFCA (2006).
27. Scott-Tyson (2004) for the case of a 300-men militia in Orgun district (Paktika), south-eastern Afghanistan.
28. ICG (2005); Nawa (2006).
29. The Senlis Council (2006, p. 16).
30. Naylor (2006).

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Privatizing and internationalizing violence

Herbert Wulf

The history of contemporary wars and violent conflict reveals two new trends: the privatization of violence and international interventions to stop wars.¹ First, *privatization of violence*: The number of armed non-state actors engaged in wars and violent conflicts has decidedly increased during the last two decades. Armed non-state actors such as warlords, militias, rebels, para-military groups, and gangs fight for their own political or economic interests. This process has been classified as bottom-up privatization in which armed non-state actors spread violence, create insecurity, and contribute to the failure of states. At the same time, governments contract more and more technical or other logistic services to private military companies in order to assist the regular armed forces in wars. In exceptional cases they even hire companies for combat operations – a process called top-down privatization or outsourcing of military functions.² Many governments in conflict-prone areas, in countries with failed or weak statehood as well as in many post-conflict societies are no longer capable of guaranteeing law and order. Their police and military forces are too weak, too corrupt, or unwilling to exercise the rule of law and the state monopoly of violence.³ Unarmed non-state actors operate in this locus of weak statehood uncontrolled and unrestricted. This type of private use of violence offers attractive economic gains.

The history of contemporary wars and violent conflict reveals two new trends: the privatization of violence and international interventions to stop wars.

The armed forces of many countries in the world have demobilized millions of soldiers since the end of the Cold War. Yet today these forces are increasingly burdened with various deployments in conflict, war and post-war, such as in the Balkans, in Africa,

Afghanistan, and Iraq. They have consequently come to depend more and more on private military companies for logistic support, training, repair and maintenance of weapons systems and other military equipment, for the collection of intelligence information, for interrogation of prisoners of war, and for supplying mail, food, and clean uniforms. Private companies of all sizes are active worldwide in pre-war preparation, in war, and in post-war programs. One problem with these developments is that they occur largely outside the control of parliaments and only partially under the oversight of governments. The boom in the creation of private military companies and the significant growth in their turnover is part of a general trend to privatize state functions.

The two forms of privatization – bottom-up and top-down – are fundamentally

different, and partly contradictory, since privatization in violence markets is always exercised without the consent of governments and usually against their explicit policy, while outsourcing of military tasks to private military companies is a government planned process. These forms of privatization are not always easy to separate. Warlords, rebels, and similar groups occasionally clash with private military companies, particularly when besieged governments turn to these companies for protection, for example in Iraq or Afghanistan, or when governments deploy militias for their defense, as was the case for example in Zaire under President Mobutu shortly before his fall.

Second, *international interventions*: The international community has progressively tried to counter the outbreak and fighting of wars through concerted efforts to intervene, if necessary by military means, with and without U.N. mandates. There is a general trend in recent years of political decisions to engage in international interventions, e.g., military missions of peacekeeping, peace enforcement, peace building, or other types of international military or civil-military interventions. Such international interventions, it is argued by its proponents, are needed because of humanitarian concerns, for example to prevent genocide, ethnic cleansing, or other gross human rights violations, to promote democracy or a change of regime, and to facilitate nation-building. The “responsibility to protect” has become a widely accepted norm.⁴ In these cases the military is supposed to act as a stabilizing factor.

As a result, armed forces are operating more and more jointly as “Blue Helmets,” as “coalitions of the willing,” or as military alliances. These international operations affect the organization of the military. International interventions necessitate not only new weapons and equipment but also structural changes within the armed forces. The military that is traditionally geared to the nation-state must now orient its structure internationally. In fact, nationally organized armed forces are now outdated, given these new international tasks. But considerations of prestige and pride, and national political and economic interest, are a barrier to establishing a truly integrated international armed force.

Both, privatization of violence and international interventions, have important effects on executing the monopoly of violence. For more than three centuries, since the Peace of Westphalia, the monopoly of force has been held by the nation-state, a state with a clearly defined territorial space – though not in all parts of the world. This concept of the monopoly of violence is now fundamentally questioned for a variety of reasons, including the privatization and internationalization of violence. Nowadays, the authority for decisionmaking about the deployment of troops has been progressively delegated to international organizations. The instruments and methods to control the armed forces and other institutions of the state monopoly of force are a prerequisite for their legitimate use. This has largely been the case within the nation-state. However, if the nation-state changes so fundamentally due to internationalization and globalization, instruments for control need to be developed at a global level. This is presently not the case and it is not foreseeable that this gap

in democratic control will soon be closed. International democratic control of the armed forces has not developed in parallel to the international military interventions. A culture of accountability of the decisionmakers at the global level is glaringly absent. Democratic control, if exercised at all, takes place at the national level but not internationally.⁵ This undemocratic character of international relations and international law throughout history makes the process of democratizing this system extremely difficult.

Why should – and actually can – a life-and-death question such as war and peace in the world be excluded from the democratic decisionmaking process? The democratic control of internationalized armed forces is more complex than of national forces. Tasking private military firms with military jobs complicates the democratic control even more or might make it impossible in certain situations. However, armed forces engaged in international interventions in the name of the defense of human rights, the promotion of democracy, and the prevention or ending of war are only credible if they themselves operate on the basis of effective democratic control. Otherwise, there is the danger of misusing the armed forces for purposes other than humanitarian.

Causes and motives for outsourcing

Privatization of military and security services embraces a wide variety of different concepts and developments. Privatization, occasionally also called *commercialization* or *outsourcing* includes – willingly or unwillingly – giving up part of a state's authority in exercising the monopoly of violence.

The first type, the bottom-up privatization, in which representatives of the state system are occasionally accomplices, describes activities of non-state actors. These non-state actors, who can also be classified as “violence entrepreneurs” create a situation of insidious insecurity. They are often the cause for chaotic or lawless situations or even the collapse or failure of states, and are directly responsible for the loss of the state monopoly of violence. In many cases where the U.N. intervened, such as in Liberia, Sierra Leone, the Democratic Republic of Congo, East Timor, Kosovo, Haiti, and Afghanistan, these non-statutory armed forces are the cause for the violent conflict and/or the main hindrance to ensure sustainable peace.

The second type of privatization, top-down, is deliberately planned and implemented by governments. The aim is to outsource traditional military and state functions to private companies. They offer a wide range of services: they work for armed forces in war, but also for non-state institutions such as international agencies, humanitarian organizations in post-conflict societies, for governments in their fight against rebels or insurgents as well as for multinational companies.

The present discussion about the activities of those private military firms sometimes creates the impression as if this is an entirely new phenomenon. But in the past governments have already entrusted companies or other private actors with

diverse military tasks. The most prominent example is weapon manufacturing. Privatization in the military sector is not new; new is that a wider spectrum of traditional military tasks is outsourced today.

Governments outsource military jobs mainly to compensate for reduced military capabilities and for economic reasons. According to the dominant economic theory, the market is better qualified to handle these functions more efficiently than

The neoliberal concept of the lean state has not stopped at the gates of military bases, and even sensitive military functions are privatized.

the armed forces themselves. The causes and motives to order services at private military companies are manifold and sometimes overlap. At least eight military, economic, political, and ideological reasons for commercialization or privatization can be delineated. First, on the supply side, there are vast capacities of highly qualified military experts who no longer find employment in the armed forces. They are now looking for new jobs and find them in the private military companies. Second, at the same time some armed forces are over-burdened by the increasing number of military interventions abroad. Outsourcing of military missions is a reaction to bottlenecks in the availability of specialized troops. Third, armed forces tend to use ever more modern equipment. They are, however, no longer in a position to use and maintain all these high-tech systems; they depend on the technical service of expert companies. Fourth, especially weak or besieged governments without strong armed forces purchase such services. Fifth, the demand for U.N. peace missions has always been larger than what member states offer in troops and other resources. This situation strengthened the role of private security and military companies to support or even replace the state troops. Sixth, the intensified demand for armed forces in various deployments related to the “war against terror” contributed to the over-stretch of armed forces. Thus, governments try to complement or replace the armed forces' missions by using the private sector. Seventh, given public opinion at home, it is more attractive for some governments to task military firms with the intervention job rather than the armed forces. Public awareness and the criticism when body bags return home have an effect on government decisionmaking. It is less eye-catching to send contractors than uniformed soldiers. Eighth, the concept of a “lean state” is central for this development. Many state functions – civilian as well as military – are outsourced in order to find market solutions which are more cost effective. The neoliberal concept of the lean state has not stopped at the gates of military bases, and even sensitive military functions are privatized.

However, the private sector still needs to produce the empirical evidence that it can contribute to solving some of the budgetary difficulties of the defense sector or do the job more efficiently. Increasing privatization and delegation of public missions to the private sector has certainly been of great economic benefit in a number of areas. Economic success in privatizations – independent of which part of the public sector

is privatized – depends on at least three conditions.⁶ First, true and sustained competition must be operable; competition is essential to prevent companies from realizing monopoly profits. Second, government or its agencies must have a clear understanding of what kind of services are expected, and they must be able to articulate their demand. Third, control and verification mechanisms must be in place.

The results of evaluations of numerous contracts in the defense sector, for example by the U.S. Government Accountability Office, show that these conditions are not always guaranteed. So-called blanket-purchase agreements are often signed with a limited number of a few big companies, often without public bidding. Long-term and open-ended blanket-purchase agreements do not include clearly defined services. On the contrary, to avoid public bidding and to be able to quickly request services and make use of the know-how of companies, the Pentagon, for example, prefers open and vaguely formulated contracts. Such contracts usually evolve into a bilateral monopoly, with a monopolist each on the demand and the supply side. The capacities in the defense ministries to oversee the private military companies are completely inadequate. Ironically, private military companies have been contracted to oversee other private military companies while another company was tasked to write the government guidelines for defense ministry outsourcing.⁷

Deployment of private military companies is not without tension because they need to pursue two at least partially competing principal concepts: guaranteeing security by the public sector and the profit motive of these companies. The public good “security” and the private good “economic gain” can be in competition with each other or even be contradictory. To avoid the risk of losing assets, companies have in certain cases decided against providing security by military means. For instance, during the Ethiopia and Eritrea war at the end of the 1990s, Ethiopia leased a small but modern air force from the Russian aircraft manufacturer Sukhoi, including modern Su-27 fighter jets with pilots and maintenance crews. This air force flew hardly any sorties during the war. Eritrea had equally hired Ukrainian aircraft and pilots, but the companies on both sides did not want to risk their assets and the pilots’ lives. This risk avoidance strategy of private companies could possibly emerge as a new and completely unexpected barrier to the engagement in fighting. In contrast, the profit motive of the companies could function as a conflict accelerator.

The role of the state – mercantilism revisited

Privatization of violence and internationalization of force correlate closely with the dominant economic system and power structure, especially with the ongoing globalization of society and liberalization of markets. The key to the modern “Westphalian” nation-state is the monopoly of legitimate force which includes the dissolution of private armies and de-privatizing the use of violence.⁸ This concept is questioned, or at least undermined, by the notion of outsourcing military and police functions. Furthermore, globalization deemphasizes the nation-state as the key actor

in the international system. Globalization liberates powerful economic forces; it embraces most countries of the world but also excludes millions of people from the benefits of economic growth. It integrates and connects states and people and fractures them at the same time. The erosion of the nation-state is an extreme manifestation of globalization as it increasingly leads to a shift of the loci of authority away from the nation-state toward the global and the local level, leading to a diversity of authority relationships.⁹ As a result, security can no longer (if it ever could in many areas of the world) be guaranteed by the nation-state.

At the same time, however, promoting nation-building and a liberal, deregulated market economy has become the lynchpin of international interventions, peacekeeping, and reconstruction programs. It seems somewhat paradoxical to prioritize the creation or rebuilding of central state authority and institutions – despite the so-called Washington consensus which calls for a reduced role of the state in development – during a period of history when globalization reduces the room for decisions at the nation-state level. The pendulum for the perception of state institutions has now swung in favor of good governance in which the international community promotes effective state institutions and a functional and legitimized state.¹⁰ On the one hand, the dominant economic theory largely ignores the privatization of violence from below, despite the fact that the criminal sector is a growth industry. Official economic statistics hardly recognize this fact.¹¹ On the other hand, the concept of the lean state functions as the ideological pattern for privatizing military and police tasks by claiming that the private sector is more efficient.¹²

Mercantilism was the general and widely accepted economic doctrine during the period from the 16th to the 18th century, the time when the state monopoly of violence developed in Europe after the Peace of Westphalia. Today’s economic policy and instruments are largely a mirror image of the mercantilist period. During the time of Jean-Baptiste Colbert (1619-1683, and Finance Minister to France’s Louis XIV) and Robert Walpole (1676-1745, and British Prime Minister), the aim was to increase the wealth of the nation. Wealth meant power. Trade would not only enrich the individual merchant but increase the power of the state, too. Economic development was conceived as a zero sum game in which the expansion of trade and the control of foreign territories could only be accomplished at the expense of competing nations.¹³ To achieve this goal, the state introduced unprecedented intervention mechanisms and began to regulate economic affairs – both foreign trade and domestic economic development. In contrast today, deregulating the economy and liberalizing trade is

Successful privatization of state functions depends on three conditions. First, there must be competition; second, government must clearly articulate the goods or services demanded; and third, workable control and verification mechanisms must be in place.

supposed to benefit all participating actors, thus a win-win-situation. During mercantilism, the political rivalries of the past became systematized to economic competition and conflict of state power with many wars among the European nations.

Already during the absolutist period, the various princely states had realized their need for secure finances to feed and pay their troops. The mercantilist states' ambitions, their need for building powerful navies and armies, to man them and equip them with ships and weapons, created new and unprecedented demands on the state budget. As a result, a state bureaucracy with war ministries and departments for revenue collection were invented and created. The infrastructure was improved to organize the logistics for the armies. The size of the armed forces grew dramatically. Louis XIV increased his army from 30,000 soldiers in 1659 to 97,000 in 1666 and to 350,000 in 1710.¹⁴ New standards for training and discipline of the troops were introduced; military bases, military hospitals, parade places, and military depots were constructed. The period of mercantilism saw the creation of standing armies, recruited mainly from the state's own population; the war entrepreneurs, the mercenaries and *condottieri*, typical for the period of the Thirty Year war in Europe, gradually came under the control of the state. Civil servants took control over the war system and its funding while military officers' tasks were limited to strictly military matters. Monopolization and bureaucratization of military power in the hands of the state was typical for the history of nation-building in Europe. The growth of state power and resources with permanent forces was unparalleled.¹⁵

The comparison of the economic concept of the mercantilist period and today's neoliberal economic concept illustrates some of the marked contrasts. They are most significantly illustrated through the instrument of state intervention in the mercantilist period versus deregulation and privatization of today, and in the realm of national orientation versus globalization. The state monopoly of force emerged in the mercantilist period; individuals were forced to give up their weapons; private armies were dissolved and war entrepreneurs ran out of business due to the creation of standing mass state forces. Today, neither the monopoly of force nor the existence of national armed forces is conceptually questioned. But outsourcing of military functions reduces the state's role in exercising the monopoly of force. Privatization of military functions, the delegation of a central state function to private actors, the boom in private military companies, and more generally the privatization of security entails the danger of undermining the state monopoly of force, which has been considered as an important civilizing factor in the history of Europe. A number of governments enforce this process, while experimenting with the still to be proven argument that the private sector is more efficient in the area of military missions as well.

Beyond the nation-state

Deployment of private companies has a deep impact on how the state monopoly of

violence is exercised and controlled. An important consideration is that these companies are not accountable to parliament or the public. While government is held accountable by parliament, private companies are responsible only to their shareholders and clients. This is precisely the reason why some governments want to make use of private companies. Parliamentary control can thus partially be avoided by the executive. A case in point is the engagement of private military companies in the anti-drug campaign in Colombia on behalf of the U.S. government. The government took this decision after Congress ruled that the U.S. military could not be deployed for that task.

The major impact of internationalizing military functions is a fundamental change of the role of the military in its relation to the nation-state and the long-term effects for the state monopoly of force. Globalization has changed the basic concept of the nation-state.

De-nationalization and a reduced role of the state can be observed in many economic, social, and cultural areas. In most cases national governments can no longer take decisions regarding war and the use of force. There is a real danger that the state instruments of force fall into the hands of non-state actors like criminal gangs, insurgents, and militias or that they will be handed over to privately operating companies. The trends to privatize and internationalize security exacerbate the already pressing problem of insufficient parliamentary oversight of the armed forces. However, it has been rightly emphasized that "the crux of the issue is not *how* force is organized (i.e., public or private) but how it is *organized* (i.e., regulated)."¹⁶ At the international level it is often unclear under whose control the internationalized armed forces operate, and democratic oversight is only marginally developed.

Three political and legal areas are of great importance for the future development of security and peace and the regulation of force. First is the regulation and the strict legal control of private military companies so as to overcome the legal black hole in which they presently operate.¹⁷ A comprehensive prohibition seems impossible, not the least because of legal and administrative difficulties of implementation. Self-regulation of the industry seems inadequate since the "black sheep" within the industry would not observe the self-regulation mechanism anyway. The regulation of companies can be addressed at different levels, ranging from a reformed Geneva Convention, to registration and licensing of companies – as is done, for example, in arms export regulation – to international transparency and verification methods.

A second arena pertains to overcoming the democratic deficit.¹⁸ At the national level parliaments can use their legislative function and budgetary powers as an effective instrument to strengthen their role in influencing or preventing executive decisions. While this is not uncommon with regard to the deployment of troops,

Private military companies are not accountable to parliament or the public. This is precisely the reason why some governments want to make use of them.

contracts with military firms and deployment of contract personnel is hardly on the agenda of parliaments. However, the established although often inadequate control mechanisms at the national level are being complicated when international missions are decided upon. The national control instruments are often unsatisfactory for this purpose. International law and practice needs to be reformed to cover the new trends of privatization of violence and internationalization of interventions.

A third point regards the reforming of the state monopoly of force. Reconstructing the monopoly of violence in post-conflict situations is not just about re-establishing *state* monopoly of violence. A more comprehensive approach is necessary to establish rules and regulations for the use of force. Instead of addressing almost exclusively, as it is presently done by external actors, the level of the nation-state, it has been suggested to establish a carefully crafted division of labor in exercising the monopoly of violence at the global (U.N.), regional (regional organizations), nation-state, and local level.¹⁹ As a result of increasing interdependence and globalization, the nation-state has lost or transferred part of its sovereignty to other entities: to the top (to supranational or multilateral organizations) and down to lower levels (such as local and district associations). These realities should also be reflected in the monopoly of force. Given the globalized world, with porous or non-existent nation-state borders, with failing or collapsed states, and with asymmetric zones of insecurity, the future lies not necessarily in the establishment of a nation-state monopoly, but rather in a multi-level public monopoly of violence at the local, national, regional, and global level. To create such a system might seem utopian. However, a multi-level public monopoly of force comes closer to the present reality of the international system than the state-centric nation-state system since it addresses these different levels of political decisionmaking.

Notes

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1. This article draws on Wulf (2005).
2. Mandel (2001).
3. I use the terms “monopoly of violence” and “monopoly of force” interchangeably.
4. See International Commission on Intervention and State Sovereignty (2001); United Nations High-level Panel on Threats, Challenges and Change (2004). Also see Brauer (2006).

5. See Ku and Jacobson (2003); Born and Hänggi (2004).
6. Markusen (2003).
7. See Wulf (2005, pp. 186-191).
8. Weber (1992 [1919], pp. 157-252).
9. Mason (2005).
10. Debiel (2005).
11. Lock (2004).
12. Singer (2003, p. 66) calls this “the power of privatization and the privatization of power.”
13. Colbert wrote: “France ... could rise to power and wealth only on the ruins of her rivals.” Quoted in Howard (1976, p. 46).
14. Kennedy (1987, p. 88).
15. Tilly (1990).
16. Brauer (forthcoming). Quote from p. 2 of draft chapter available at <http://www.aug.edu/~sbajmb/paper-PMCs.pdf> [accessed 24 August 2006].
17. Schreier and Caparini (2005).
18. Ku and Jacobson (2003); Born and Hänggi (2004).
19. These proposals are detailed in Wulf (2006).

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Terrorist financing beyond 9/11

Loretta Napoleoni

Jihadist terrorist financing is the most challenging aspect of terrorism today. So far it has shown a remarkable ability to adapt to counter-terrorism legislation; it has mutated and by doing so it has been unaffected by *ad hoc* measures introduced to curb its growth.

The U.S.-led war in Iraq, in particular, triggered major metamorphoses in the structure and financing of the Jihadist movement in Europe and the Middle East, as shown by the investigation of the 7 July 2005 London bombings. Far from curbing the growth of Islamist terror, the Iraqi insurgency activated a new network of loosely connected, home grown, self-funded Jihadist cells. Their inspirational icon was a new, legendary terror leader, Abu Musab al Zarqawi. A skillful manipulator, he exploited the mythology manufactured by the United States around his figure, as well as the war in Iraq, to turn the battered al Qaeda – a small transnational armed organization – into a global anti-imperialist ideology, i.e., al Qaedism.¹ European counter-terrorism intelligence concurs that al Zarqawi's activity in Iraq became the driving force behind new, self-funded terror networks in Europe and the Middle East. Today, after his death, this network has a life of its own.

Jihadist terrorist financing is the most challenging aspect of terrorism today. It has adapted to counter-terrorism legislation and mutated so as to be unaffected by measures introduced to curb its growth.

attacks abroad, e.g., in the West. It seems that Iraq is fast developing into a failed state similar to Afghanistan during the Taliban regime, a safe haven for Jihadist organizations and for their finances. (The 11 September 2001 attacks – 9/11 for short – were funded and masterminded while al Qaeda headquarters were in Afghanistan).

Since 9/11, all major evolutions in terrorist financing have taken place while governments have introduced counter-terrorism legislation, legislation which has systematically been bypassed by armed groups. To understand how and why these measures have failed one has to accept that terrorist financing is a dynamic phenomenon with a remarkable ability to circumvent new laws and to reinvent itself. The lesson to learn is that to win the financial battle against the Jihadists, governments must be able to predict the next move, to anticipate the next mutation.

This brief article analyzes the policies implemented to fight terrorist financing and

shows how terrorist financing has been able to mutate despite them.

The financial war on terror

Prior to 9/11, the GDP of the New Economy of Terror – money generated by all armed organizations around the world – was \$500 billion.³ The currency used inside the terror economy was the U.S. dollar, and the most common denomination was the 100 dollar bill. This calculation includes wealth generated by armed organizations as well as the economy of state-shells, regions which are controlled by armed groups, and warlords, for example, in the eastern Congo. One third of the New Economy of Terror was generated by legitimate businesses, ranging from donations from businessmen to salaries of members of armed organizations; the other two thirds of the \$500 billion was money laundered in U.S. dollars inside the United States. The most important source of revenues for armed organizations was smuggling of narcotics. Al Qaeda's finances represented a very small fraction of the New Economy of Terror.

Following 9/11, the two main policies implemented to counter terrorism financing were the Patriot Act and the Terror Lists. Neither of these were part of a multilateral response to 9/11; instead they were the result of America's decision to take the lead in all aspects of the "war on terror," including countering terrorist financing.⁴

The Patriot Act is primarily an anti-money laundering legislation which did not address the problem of terror money generated by legitimate businesses. Because it was introduced only in the United States, the act did not reduce the flows of criminal and terror money but rather caused the shifting of the epicenter of money laundering activity from the United States to Europe. To date Europe does not have homogeneous legislation to combat money laundering or to regulate offshore facilities. Italian magistrates investigating the Milan mosque in Via Quaranta discovered that the cell received funds, denominated in euros, from Arab countries via British offshore accounts.⁵ It is important to stress that with the introduction of the euro, once money has successfully entered the European banking system, it can be wired and withdrawn anywhere without any controls. Members of terror groups operating in Europe use ATM machines, as the 9/11 hijackers did, to access the cash made available by their sponsors. Those who participated in the Bali, Istanbul, and Madrid attacks also used ATM machines.⁶

Against this background, Europe has become the most important international hub for the criminal, illegal, and terror economy and the euro the currency used to conduct most money laundering activities. The United Kingdom, in particular, with its offshore facilities and attractive fiscal legislation, is an ideal money laundering hub. Thus the Patriot Act ended up damaging Europe while protecting America.

The Terror Lists, registers of people and companies suspected of bankrolling terror organizations, were also not implemented globally. Several countries did not participate in this initiative because of the unconstitutionality of blacklisting people

only on suspicion, others were forced to back off after being taken to court by people whose names appeared in the lists, and some countries simply did not comply with the lists. To date a comprehensive list of lists does not exist.

The failure of the two major financial anti-terrorist pieces of legislation becomes apparent when considering that since 9/11 – and despite the destruction of the Taliban regime, the disappearance of al Qaeda as a transnational armed organization, and the invasion of Afghanistan and Iraq – the size of the New Economy of Terror has not shrunk. In total, no more than \$200 million in terror money has been frozen across the world. And this is a very optimistic estimate; a more realistic one is \$125 million.

More likely, the New Economy of Terror has grown,⁷ as we now have to add to it:

- < The proliferation of state-shells run by warlords, militias, and Jihadist groups in countries such as Iraq, where, prior to the invasion, armed organizations did not operate.
- < The creation of new joint ventures between crime and terror, e.g., in Latin America, where partnerships among narco-traffickers, armed groups, and members of populist governments have been established.
- < The rise in oil prices which has generated a surge of wealth in Arab oil-producing countries which have traditionally sponsored Islamist groups; until recently, part of this wealth bankrolled the insurgency in Iraq via a fleet of cash couriers.
- < The development of new drug routes, for example cocaine from Colombia to Europe, where drug money is laundered and invested in property.
- < The birth of a network of Jihadists in Europe who self-fund their terror activity.

Restructuring Islamist terrorist finances

The most remarkable change since 9/11 has been the restructuring of Jihadist finances. At the end of April 2006, the three videos issued by bin Laden, al Zarqawi, and al Zawahiri confirmed the success of such restructuring. In the messages, al Qaeda's leaders did not mention money or talk about their financial needs. This is a clear indication to their sponsors that there is no shortage of cash. The U.S. secret report completed in the summer of 2006 on the Iraqi insurgency also stresses that a major restructuring has taken place in Iraq, even to the extent that the insurgency is today financially self-sufficient. One could argue that several local groups have successfully privatized terrorism financing, i.e., they have sought ways to self-fund themselves while still operating under the ideological umbrella of "al Qaedaism." This privatization took place during the globalization of terrorism in the 1990s. Groups such as the 7 July 2005 London bombers, as well as the Iraqi insurgency, have conducted this privatization.

The main characteristics of this privatization within the globalized trade mark of al Qaeda are: the decentralization of the funding activity in Europe and in the Middle East, the strengthening of self-funding activity via legitimate businesses, and the

financial independence of the Iraqi insurgency. These changes have taken place while the cost of carrying out terror attacks has been plummeting (as will be seen later on).

The new model of terrorism financing

Following the fall of the Taliban regime, the disintegration of al Qaeda triggered the disappearance of its global financial structure, the one used to mastermind the U.S. embassy bombings in Africa, the attack against the *USS Cole* in Yemen, and the destruction of the World Trade Center in New York.

Until 9/11, al Qaeda was a small transnational organization, hardly known outside its small group of sympathizers. It was funded by a complex network of investments and sponsors, whose primary aim was to bankroll training camps in Afghanistan where Muslim warriors were forged for eventual deployment wherever needed, e.g., Kashmir, Chechnya, Kosovo, as well as New York. 9/11 was the last transnational attack funded by al Qaeda; all others since then were self-funded by groups ideologically linked to al Qaeda. (In the first Bali bombing, where al Qaeda did participate as a financial partner, the money had been transferred before 9/11.)

The reshaping of al Qaeda's global financial structure along decentralized lines was triggered by the invasion of Iraq. The war offered a dissolved al Qaeda the opportunity to transform itself into al Qaedaism, the global anti-western ideological umbrella under which the radicalization of European and Middle Eastern groups took place. Images of the Iraq invasion fiasco traveled across the world, fueling a deeply-rooted sentiment of solidarity and humiliation among Muslims. The presence of European troops in Iraq gave birth to an anti-European sentiment among radical Muslims, many of them born in Europe. This is a novel sentiment. Up until 9/11 Osama bin Laden had clearly stated that al Qaeda's fight was against the United States, perceived as the far away enemy which backed the near enemy, the corrupted oligarchic Muslim rulers.

Until 9/11, the main task of the European terror network was to supply funds and recruits for Islamist armed groups abroad, i.e., outside Europe. French-born Zacarias Moussaoui, the alleged 9/11 twentieth hijacker, for example, reached London penniless and in search of his own identity as a Muslim. The European mosque network provided him with financial and emotional support. Once ready, he was sent to Afghanistan where al Qaeda put him through extensive training and eventually selected him to travel to America. Thus Europe was a base to raise money and to recruit people; it was never a target. This situation changed dramatically after 9/11, in response to the financial war on terror.

Local Jihadist groups have successfully privatized terrorist financing while still operating under the ideological umbrella not of al Qaeda but of "al Qaedaism."

Money, which in the past had gone to fund distant Jihadist fights in Bosnia, Kashmir, Sudan, and including al Qaeda in Afghanistan, was diverted to sustain a new breed of Jihadists in Europe and the Middle East. Thus the Casablanca and Madrid bombers had no direct links with Osama bin Laden but used funds gathered in Europe by al Qaeda's network. Suddenly, people did not need to raise money to travel to the camps in Afghanistan and Pakistan; they could fight in the streets of their towns. The presence of coalition forces in Iraq allowed Osama bin Laden, Abu Musab al Zarqawi, and Ayman al Zawahiri to become icons of al Qaedaism, semi-supernatural figures, people who inspire the Jihadists.

The decentralization of al Qaeda's funding activity is the direct consequence of the transition of Europe from an operational base and a fund-raising continent into a primary target. The Middle East experienced a similar transition. While in the past al Qaeda's enemy was the United States, European Jihadist groups have focused their fight inside the continent and linked it to the war in Iraq. In a chilling video recorded before the 7 July 2005 London attack, one of the perpetrators justifies his decision to become a suicide bomber by reference to avenging U.S. forces' killings of Iraqis. European cities are today primary targets, as proved by the Madrid and London attacks and clearly stated by the Islamist leadership in subsequent statements. "Strikes within cities are a type of military diplomacy," stated *Al Battar*, al Qaeda's virtual magazine issued after the attack in Madrid. "This type of attack is often written with blood, embellished with body parts and perfumed with gunpowder."⁸ The document is a chilling reminder of the reasons why, since the tragic events of 9/11, the incidence of terror attacks in Muslim and Western cities has continued. "Strikes bear a political meaning related to the conflict in ideology. They are considered a message sent to multiple parties, thus choosing the targets is done with extreme precision."⁹ Most European intelligence services are adamant that several attacks are currently in the pipeline. After the Madrid March 2004 attack, even European politicians admitted that the danger was very serious, and the London attacks in July 2005 demonstrated that existing counter-terrorism measures were not sufficient to prevent repeated attacks on mass-transit targets.

Home-grown groups rely on several proven techniques to raise funds for themselves, using both legitimate and illegitimate activities. Funds gathered by the mosque network belong to legitimate activities; this is clean money, legally earned, which is then diverted to fund terror groups. Members of Islamist armed organizations often have legitimate jobs. In Spain and in Italy, several of them worked as mechanics and waiters to support themselves and reduce the financial burden on the organization.

Legitimate funding is sufficient to bankroll Jihadist terrorist activity because the attacks are small-scale replicas of 9/11, which is the template. Any financial constraint is bypassed by adapting suicide missions according to the available budget. Home-grown groups, some of which we should call "improvised terrorists," for example some of the London bombers who were recruited and indoctrinated in less than a year, do not have well developed connections with the world of crime. Yet they find it easy

to raise money through a network of friends, even family, and using their own savings. Thus self-funding via legitimate businesses becomes their main financial source.

Self-funding and decentralization have been successful because the unit cost of terror attacks has declined sharply since 9/11. The execution of the U.S. attacks cost half a million dollars, the Madrid bombing 10,000 dollars, and the London suicide missions less than 3,000 dollars. The killing of Theo Van Gogh in Holland probably cost less than \$100 but the impact has been enormous, turning many Dutch people from tolerant to intolerant toward ethnic and religious groups.

Conclusions

It is now apparent that it was 9/11 that prompted a major metamorphosis inside the Jihadist movement. The desire of radical Islamist groups to emulate 9/11 coupled with counter-terror measures such as the war in Iraq, fueled the network's transformation. This is especially true since counter-terror measures have been and are still perceived by Muslims, including European-born, as hegemonic and anti-Muslim. Moreover, since 9/11 Europe has seen the spontaneous emergence of home-grown Jihadist groups whose members have not been trained in Islamist camps in Afghanistan or Sudan, as was the case of the cells that carried out the Madrid and London attacks.¹⁰ These groups have no official links with al Qaeda or Osama bin Laden but operate under the ideological umbrella of a new creed: al Qaedaism.

Terrorist financing is still evolving. Home-grown, self-funded Jihadist groups are today operating in Europe under the umbrella of a new anti-imperialist ideology: al Qaedaism. After 9/11, these groups have used terror financiers' seed-money which landed in Europe after the introduction of the Patriot Act to start their activity. Recognizing al Zarqawi as their new icon, they are motivated by the war in Iraq. Unlike al Qaeda, their primary target is not the United States but Europe. Today, these groups need very little money to carry out attacks inside European cities, so little indeed that they can easily self-fund their activity. Against this new scenario, Osama bin Laden does not need to plan, plot, and fund another 9/11. All he needs to do is to issue a call to implement a thousand, small-scale replicas of such an attack. It is this new reality and its future development that European countering-terrorism financing should address.

Notes

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1. Napoleoni (2005).

2. Burns and Semple (2006).
3. The points and claims made in this paragraph are elaborated upon in Napoleoni (2004).
4. Report of the Countering Terrorist Financing group for the Club of Madrid, Conference on Democracy and Terrorism, Madrid, March 2005. <http://summit.clubmadrid.org/index.html> [accessed 10 December 2006].
5. “Tentacles of Terror: Ansar al-Islam Goes International, Causing Tremors.” *The Daily Star* [Beirut]. 29 March 2004.
6. Ibid.
7. I have estimated that from 9/11 to the end of 2005 the New Economy of Terror has grown between 4 to 6 percent. See Napoleoni (2005).
8. “Al Battar Training Camp, Northeast Intelligent Network.” March 2004. www.homelandsecurityus.com.
9. Ibid.
10. Graff (2004).

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Defense economics: achievements and challenges

Keith Hartley

Defense economics is a relatively new part of the discipline of economics. One of the first specialist contributions in the field was by Hitch and McKean, *The Economics of Defense in the Nuclear Age*, published in 1960. This article presents an overview of the achievements and challenges for defense economics. The achievements are based on a review of papers published in the research journal *Defense and Peace Economics*, especially publications and progress since the Tenth Anniversary Issue (2000). The focus is on coverage of topics, including Special Issues. Major gaps in coverage are identified.

The choice of topics for challenges facing defense economics represents a personal view. These include the defense economics problems; U.K. nuclear weapons policy; project case studies based on the example of the Eurofighter Typhoon; the military production function and the role of military outsourcing; and some data problems illustrated with reference to the costs of conflict and the Iraq war.

Achievements: definitions and research coverage

The definition of defense economics has evolved to reflect new threats and new policy developments. During the Cold War and in its immediate aftermath, defense economics was defined as the economic study of defense, disarmament, conversion, and peace. In the post-Cold War environment, the focus has shifted to the economics of war and peace. Modern definitions embrace the study of wars and conflicts, both conventional and non-conventional. Examples include the economic study of civil wars, revolutions, and terrorism.¹

Some of the pioneering contributions in the field were made by U.S. economists (although they are less dominant today). These contributions included (1) models of arms races, (2) economic theories of alliances, (3) the demand for military expenditure, (4) defense, growth, and development, (5) procurement and contracting, and (6) the economics of military personnel, especially an all-volunteer force.² On the last topic, it is interesting to compare the U.K. and U.S. experience. The United Kingdom introduced an all-volunteer force earlier than the United States, but compared with America, U.K. economists were not actively involved in the policy debate.

Reflecting the end of the Cold War, globalization, and new security threats, for example in the form of international terrorism, new developments in defense economics include (1) economic studies of disarmament and the peace dividend, especially the novel idea of analyzing disarmament as an investment process; (2) the arms trade; (3) terrorism; (4) the economics of peacekeeping; and (5) the economic

study of conflict. Compare market analysis with conflict. Markets are characterized by voluntary trade and exchange, based on the price mechanism, by markets in equilibrium, and by the growth of output (creative power). In complete contrast, conflict uses military force to achieve a re-allocation of resources, markets are in disequilibrium (chaos), conflict destroys markets, and conflict focuses on destructive power rather than creative power (i.e., it involves the destruction of physical and human capital).³

The balance of defense economics research has shifted from models of arms races; theories of alliances; demand for military expenditure; defense, growth, and development; procurement and contracting; and military manpower to disarmament and the peace dividend; the arms trade; terrorism; peacekeeping; and the economics of conflict.

The research journal: *Defense and Peace Economics*

Background

To serve the needs of the defense economics research community, a dedicated specialist research journal was launched in 1990. The journal provides an indicator of the development of defense economics and its establishment as a reputable sub-discipline of economics (cf., health economics). Initially titled *Defense Economics*, it was at first published four times a year. Supported by an international Editorial Board, joint leadership was provided by a U.K.-based Managing Editor and a North American Editor, the latter reflecting the presence of a substantial number of U.S.-based defense economists. In 1995, the journal was renamed *Defense and Peace Economics* to reflect the post-Cold War security changes and the increasing focus on disarmament, conversion, and peace issues. Publication was increased to six issues per year in 2000, a further reflection of the growing academic interest in the field. In late 2006, the typical lag between acceptance of a paper and its publication was about 12 months.

Features of the journal

Whilst the journal focuses on economics papers, it readily accepts good quality contributions from related disciplines as well as articles written by policymakers, industrialists, and practitioners. Two distinctive features are its Country Survey Series and its Special Issues. To date, there have been some 20 Country Surveys, each designed to provide data, analysis, and evaluation of a country's defense economy (e.g., data on defense expenditure, armed forces, demand for defense spending, and, if applicable, its defense industrial base). There remains scope for more Country

Surveys of both major defense spending nations (e.g., the United States) and nations which in defense economics terms are less well-known (e.g., China, India, Iran, Iraq, Pakistan, the new NATO members, and North Korea).

The journal has published numerous Special Issues. These include special, topical, and at the time under-researched themes (e.g., terrorism, arms exports, and defense R&D), tributes to leading defense economists (e.g., Jack Hirshleifer), and selections of conference papers focusing on a common theme. Special Issues intended to promote defense economics in a specific country (e.g., Canada, Greece, South Africa, Spain, Turkey) have also been published. Each Special Issue requires a Guest Editor who is responsible for the content of the Issue and the quality of the articles. Proposals for Special Issues are made to the Editors who will then commission the Issue, or the Editors might approach someone to take the lead and develop a Special Issue.

The Tenth Anniversary Issue, 2000

The tenth anniversary of the journal was commemorated with a special Tenth Anniversary Issue.⁴ This contained an article reviewing the coverage of the journal to that date. There were also articles on concepts of defense economics, arms races, conflict and exchange, defense and foreign aid, manpower economics, and disarmament.

This section summarizes the main findings of the review of coverage from 1990 to 2000. The top-10 topics covered were (figures in brackets show the number of articles): (1) defense expenditure studies [29], (2) procurement processes and policies [21], (3) economics of alliances [18], (4) resource conversion from military to civilian applications [17], (5) the defense industries and defense industrial base [16], (6) military manpower [14], (7) country surveys [11], (8) terrorism, guerrilla warfare, and insurgencies [11], (9) defense and growth [9], and (10) public choice and defense [8].

In contrast, areas with relatively little coverage included articles on arms races, the arms trade, disarmament and arms control, the military production function, the nature of defense economics, and defense budgets. In view of their importance and topicality, the small number of articles on arms races and the arms trade was surprising. Other gaps included game theoretic analysis of defense, peace economic studies (including peacekeeping missions, regional arms races, and conflict resolution), contributions from related disciplines, and good quality case studies of defense industries, projects, and of conversion (both successful and unsuccessful).

Progress since 2000

The record of publications since the anniversary issue (i.e., since 2000/1) enables an assessment of the changing trends in defense economics. From 2000/1 to 2006/6, the journal has published 41 issues with 221 articles. Table 1 shows the topics with the greatest coverage over this period. In aggregate, these topics account for 87 percent

Table 1: Coverage from 2000 to 2006

<i>Topics and number of articles</i>		<i>Topics and number of articles</i>	
Defense-growth	23	Peace and peacekeeping	12
Conflict	22	Debt issues	10
Defense industrial base	20	Defense R&D	10
Arms races and arms control	17	Alliances	9
Terrorism	16	Manpower economics	9
Military production function	15	Arms trade	8
Defense expenditure	14	Country surveys	8

of all topics published over the period. Inevitably, there are problems of classification, especially with defense-growth and defense expenditure studies as well as with personnel and military production function articles. Nonetheless, compared with the 1990-2000 period, there are some new topics in the top list. These include conflict, arms races, terrorism, the military production function, peacekeeping, defense R&D, and the arms trade.

Equally interesting are the topics which have received little coverage. These include European defense policy, disarmament, conversion, security policy, defense budget trade-offs, procurement, regional issues, public choice, and the nature of defense economics.

The list of Special Issues is a further indicator of developments in defense economics. Since 2000, there have been 16 Special Issues reflecting new topics, new themes, conference proceedings, and efforts to promote defense economics in specific countries. Table 2 shows the coverage of Special Issues since the anniversary issue.

Major gaps remain, as before 2000. There is a need for good quality analytical and critical case studies of conflict, defense industries, projects, and conversion (both successful and failed conversions). Examples include the Iraq war and experience with major weapons projects such as aircraft carriers, combat aircraft (e.g., F-22, JSF, Typhoon), and submarines. There is also scope for more articles from policymakers, the armed forces, and from industry.

Other opportunities exist in procurement and contracting, analysis of the efficiency of the armed forces, and the military production function. The history of economic thought in war, defense, and peace is another gap. Finally, globalization issues need to be addressed, embracing global threats, global defense industries, and global military solutions (e.g., peacekeeping and *ad hoc* military alliance such as “coalitions of the willing”).

Challenges: the defense economics problem and two examples

The defense economics problem is the standard economics problem of choice under

Table 2: Special issues, 2000 to 2006

Arms exports
South Africa
Defense in Greece and Turkey
Economics of defense: perspectives from Spain
Civil wars
Defense and economic development in the Balkans
Economic analysis for defense decisionmakers
Internal and external threats
Economics of conflict, civil war, and peace: historical perspectives
Symposium on defense economics
Deficit, debt, and defense
Future of the defense firm
Canadian perspectives on defense economics
Defense R&D
Peacekeeping
Essays in honor of Jack Hirshleifer

uncertainty. It reflects two trends. First, for most nations, defense budgets in real terms have been either broadly constant or falling. Second, input costs for equipment and military personnel have been rising. Unit equipment costs have doubled every decade leading to smaller numbers of equipment ordered from defense industries and smaller numbers for the armed forces (e.g., a long-run downward trend in the numbers of combat aircraft, tanks, and warships in the armed forces). Also, for military personnel, the costs of an all-volunteer force have to rise faster than wage increases in the civilian sector (i.e., to compensate for the net disadvantages of the military employment contract: discipline, mobility, danger, long and unsociable hours on operations, and the probability of injury and death). The result of these trends is the need for difficult defense choices. Whilst higher defense spending will “solve” some of these problems, it shifts the choice problem from defense to social welfare spending and taxation levels (i.e., “guns versus butter” choices).

Interestingly, the end of the Cold War has made no difference to unit cost escalation: it has continued. For example, the U.K. cannot afford a successor to the Typhoon combat aircraft, attack helicopters are becoming unaffordable so that there is a renewed future for main battle tanks, and by the time UAVs are as capable as manned aircraft, they will be equally as expensive and hence just as unaffordable.⁵

A further dimension affects the defense economic problem. Evidence shows that there is a positive relationship between annual defense R&D spending some 10 to 25 years earlier and military equipment capability (or years of advantage). This relationship is subject to diminishing returns. It shows that the United States is the world leader and that it is some 5 to 6 years ahead of the U.K. and France, some 8

years ahead of Germany, and about 12 years ahead of Sweden. The result is that the U.S. defense industry has an international competitive advantage reflected in its defense export performance. But the U.S. advantage comes at a price. Its lead over the U.K. involves an annual defense R&D budget which is five times that of Britain.⁶

A variety of responses are available to address the defense economics problem. These include “equal misery,” affecting all the armed forces and involving less training, fewer attrition buys, some project cancellations, and delays in delivering new equipment (i.e., shifting new equipment programs to later time-periods). Alternatively, there could be a defense review involving a major shift in a nation’s defense commitments (e.g., abandoning some capabilities, or role specialization), or nations could seek to improve efficiency in procurement through competitive purchasing and military outsourcing. For European nations, an EU defense policy is a further option.

Economic theory offers some policy guidelines and principles for formulating defense policy. First, the principle of final outputs requires a focus on the final outputs of defense in terms of peace, security, and protection or, more realistically, in terms of defense capabilities. For example, it might be that a nation’s defense budget provides the capability to be involved in a major conflict as part of an international coalition (e.g., the U.K. in Iraq and Afghanistan) or to be involved in, say, three small to medium-scale operations (e.g., peacekeeping). Such an approach shows the limitations of focusing on inputs. Typically, debates about defense policy focus on the implication of budget cuts for the size of the army, navy, and air force (e.g., cuts in the numbers of infantry regiments, tanks, warships, and combat aircraft squadrons). This is the wrong focus. Instead, the key question is what contribution do these inputs of soldiers, warships, and aircraft make to the final outputs of peace and security and what would be the impact of marginal changes in these inputs (e.g., reducing the size of the navy by 5 percent and increasing the size of the army by 5 percent)?

A second economic principle is that of substitution. This recognizes that there are alternative means of achieving protection. For example, there are substitution possibilities between civilians and military personnel, between reserves and regulars, between attack helicopters and tanks, between cruise missiles/UCAVs and manned combat aircraft, between air power and land forces, and between nuclear and conventional forces. Some of these substitution possibilities affect the traditional monopoly property rights of the armed forces. It might mean cruise missiles operated by the army and navy replacing manned combat aircraft operated by the air force.

A third economic principle is that of competition as a mechanism for achieving

The defense economics problem of choice under uncertainty and budget constraints remains. Interestingly, the end of the Cold War has made no difference to equipment unit cost escalation.

efficiency. Here, opportunities exist for introducing or extending competition to the purchase of defense equipment (e.g., buying from overseas rather than from a national defense industrial base) and to military outsourcing. Typically, the armed forces operate a monopoly of services provided by “in-house” units. Such activities could be opened-up to competition by allowing private firms to bid for this work (e.g., catering, training, transport, managing military bases, and training ranges).

U.K. nuclear weapons policy

The first specialist defense economics textbook, published in 1960, was entitled *The Economics of Defense in the Nuclear Age*.⁷ Nearly 50 years later, the U.K. is considering whether to replace its Trident strategic nuclear force. This decision will be controversial, involving political, military, and moral issues. But economics cannot be ignored since costs are involved.

Economic principles such as the principles of final output, substitution, and competition can help focus the questions defense decisionmakers need to answer.

Economists assess a Trident replacement decision by starting with a conceptual framework. Policy options need to be identified, embracing submarine, air, and land-based alternatives for a strategic deterrent (including the option of running-on Trident for longer than

its original planned service life). The options then need to be assessed using a cost-benefit framework. Costs include acquisition, life-cycle, and disposal costs. Benefits embrace the military effectiveness of the options in relation to the military requirement. There are also wider economic and industrial benefits to be included in the evaluation. These include such factors as security of supply, the retention of industrial capabilities, and the impact on jobs, technology, and any exports.

Opportunity costs cannot be ignored. One estimate suggests replacement costs of £15-20 billion over 20 years (based on building a new Vanguard/Trident force at 2006 prices), but the estimate might be double that figure or considerably less. No official figures are as yet available. An expenditure of £15-20 billion could be used for alternative defense spending on conventional equipment. For example, £15-20 billion might buy 30 to 40 Type-45 destroyers, or two aircraft carriers plus their JSF aircraft and helicopters, or 230 to 310 Typhoon combat aircraft. (These are illustrative examples based on acquisition costs only.) Alternatively, there are Trident versus social welfare trade-offs. Alternative civil spending is available in the form of 100 to 130 new hospitals (capital costs only, over 20 years) instead of a Trident replacement.

A Trident replacement also affects the future of the U.K. submarine industrial base (UK SIB). Without a submarine replacement for the U.K.’s nuclear deterrent force, it will be difficult and costly to maintain a UK SIB. But a submarine replacement will require contract negotiations with a U.K. monopoly supplier (viz., BAE Systems) and

the associated problems of determining prices and profits on non-competitive contracts and providing efficiency incentives whilst avoiding “excessive” profits. As always, there are no costless options.

Project case studies: Typhoon

Typhoon illustrates the opportunities for in-depth case studies of major equipment projects and for the economic evaluation of such programs. Economic theory suggests guidelines for an efficient defense industrial policy in an alliance and these can be used to assess the efficiency of the Typhoon program. Efficient programs are characterized by gains from trade based on specialization by comparative advantage, by gains from economies of scale and learning, and by reduced duplication of costly R&D. Typhoon fails on gains from trade since its work-sharing arrangements are not based on comparative advantage among partner nations. Instead, work is allocated on the basis of *juste retour*, reflecting the size of national orders and the desire of each nation for a share of the high technology work on the program and for national final assembly lines. However, Typhoon scores more highly on gains from scale and learning through combining all national orders into one large-scale order, but it loses some economies of learning through duplicate final assembly lines (but final assembly amounts to only 3 to 5 percent of production costs). Finally, there are some gains for Typhoon from reduced duplication of costly R&D programs (e.g., four nations choosing one R&D program).

The large-scale public expenditure on Typhoon of over €54 billion (2004 prices for development and production) has attracted considerable public scrutiny by national parliaments. Criticism has also been made of the continued relevance of Typhoon in the new post-Cold War security environment, the high and rising costs of the project, its considerable delays, the inefficiencies of its industrial arrangements, and the bureaucracies of the customer governments. However, there has been little information on the economic benefits of Typhoon. What are its benefits in terms of jobs, technology spin-offs, and balance of payments (exports and import-savings)? Such economic and industrial benefits are part of a complete cost-benefit economic evaluation of Typhoon.⁸

Economic benefits

Typhoon supports about 105,000 jobs directly and indirectly in over 400 European companies. In 2006, these jobs were distributed as follows: Germany and Italy with 20,000 each, Spain with 25,000, and the U.K. with 40,000 jobs. Many of these are highly-skilled and high wage jobs in development, production, and support. Many of Typhoon’s labor skills are highly transferable (e.g., to motor car and electronic industries, and to Airbus A380 work).

An impressive list of technology benefits and spin-offs from Typhoon can be

cited. Examples include carbon-fiber technology, flight control systems, and aero-engine technology. There are spin-offs to civil aircraft, to motor car industries (including Formula 1 racing cars in Italy and the U.K.), and further spin-offs to supply chains (including the application of modern business practices).

Typhoon offers export and import-savings benefits which further contribute to providing jobs and to maintaining the European defense industrial base which represents an alternative source of supply to the United States. In late 2006, Typhoon export orders amounted to 90 aircraft valued at €9.5 billion. Also, the import-saving contribution of Typhoon was estimated at €33.5 to €54 billion (acquisition costs only: the higher estimate assumed that Typhoon was the least-cost solution and the lower estimate assumed a mixed buy of U.S. F-15E and F-18E/F aircraft). On this basis, the total balance of payments contribution of Typhoon is some €43 to €63.5 billion.

A critique

The economic benefits of Typhoon need to be evaluated critically. The opportunity cost question cannot be avoided. Would the resources used on Typhoon make a greater contribution to national output if they were used elsewhere in the economy?

Similarly, examples of technology spin-offs appear impressive but they are qualitative, not quantitative: there are lots of examples and case studies, but little evidence on their valuation. What is the market value of these spin-offs and what is their transmission mechanism? One estimate based on the Netherlands' experience with its planned JSF purchase suggested that Typhoon technology spin-offs might be valued at €7.2 billion (2004 prices) but this is likely to be a lower-bound estimate.⁹ Some of the mechanisms whereby technology from Typhoon is "spun-out" to other sectors of the economy have been identified. These included labor turnover with skills transferred elsewhere either within a company or to other firms (e.g., the motor car industry in Germany), through staff on Typhoon acting as consultants (e.g., to the Formula 1 racing car industry), through the supply chains, and through links with universities.¹⁰

A more fundamental critique of the economic benefits of Typhoon concerns their market failure dimension. Do arguments about jobs, technology, and exports reflect genuine market failures justifying state intervention? Is state intervention likely to be worthwhile? And are defense projects, such as Typhoon, the most efficient form of intervention to correct market failures? In relation to jobs and exports, it is likely that labor and foreign exchange markets are working reasonably well, but spin-offs are a beneficial externality suggesting failure in technology (R&D) markets.

Finally, collaboration inefficiencies on Typhoon cannot be ignored. These embrace development and production and are reflected in the work-share arrangements, the industrial organization, and the customer governments of the partner nations, all of which have led to cost increases and delays. For example, the

Typhoon program lacks a single lead company as prime contractor with management authority and financial responsibility, and also it lacks a single customer. Governments are subject to changing requirements, national agendas, industry lobbying, and different budgetary pressures (national projects are not immune from such features). The Eurofighter company recognizes that about one third of the 54-months delay was due to the company and its management organization, with the remainder attributed to the partner governments, their budget problems, and to changes following the end of the Cold War.

The Typhoon program offers some lessons for future collaborations. First, work-shares need to be based on efficiency and competitiveness criteria rather than political bargaining and equity among partner nations. Second, collaboration needs a single prime contractor subject to the risks of a fixed price or target cost incentive contract. Despite its recent problems, Airbus is an example of a successful collaboration.

Conclusion: further challenges

Challenges for the armed forces

Just as private industry undertakes continuous change due to changing consumer preferences, new technology, and the emergence of lower cost rivals at home and overseas, the armed forces cannot avoid the need to change. Drivers for change come from budget cuts, new technology, new threats, new conflicts, and sometimes from government through a new, innovative defense minister (e.g., McNamara).

The need for change in the armed forces means that they may have to address radical solutions and depart from traditional ways of doing business. For example, the substitution principle with, say, a greater use of reserve forces and more military outsourcing, has to be addressed in an era of defense budget constraints and a preference for social welfare spending. The search for efficiency improvements in the armed forces is limited by their lack of private market incentives in the form of competition, the profit motive, and the policing role of capital markets (i.e., threats of takeovers and bankruptcy).

Challenges for defense economics

Based on traditional and new topics, a massive research agenda remains. Traditional areas include the scope for further analytical and empirical work on the military production function and the efficiency with which the armed forces convert inputs into military outputs. Here, there is scope for the international comparison of labor-capital relationships in such forms as the numbers of military personnel per warship, tank unit, and combat aircraft squadron. Military outsourcing also provides a check on the internal efficiency of various activities of the armed forces and questions arise about the optimal extent of such outsourcing (e.g., combat units).

Data problems remain, but the collection of reliable data provides a public good subject to free-riding, and this is not an attractive route to fast promotion in the economics profession! Two examples illustrate the challenges. First, there is a need for more data on the defense industrial base for each nation in the world. China is an obvious data gap. Also, there is a lack of data on defense R&D, especially its inputs of scarce scientists and engineers. Second, new studies of the economics of conflict require data on the costs of conflict. Such data are difficult to obtain. There are military costs and civilian costs to be considered. Ideally, data are needed on the planned military costs and final outcomes, including the impact of conflict on all participating nations. Even the apparently simple task of obtaining data on the military costs of the conflict and peacekeeping phases of operations in Afghanistan and Iraq are fraught with difficulties. There remains scope for a proper costing of the conflicts in Iraq and Afghanistan.

Notes

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1. For example, Brauer (2003); Barros and Sandler (2003); Hartley (2007); Hegre and Sandler (2002).
2. For example: (1) Richardson (1960); Intriligator and Brito (1989); Schelling (1966); (2) Olson and Zeckhauser (1966); Sandler (1988); (3) R. Smith (1980); (4) Benoit (1973); (5) Peck and Scherer (1962); (6) Hansen and Weisbrod (1967); Oi (1967). A detailed reference list for these pioneering contributions is provided in Sandler and Hartley (1995).
3. For example: (1) Hartley, *et al.* (1993); (2) Levine, Sen, and Smith (2000); (3) Sandler (1992); (4) Solomon and Berkok (2006); (5) Hartley and Sandler (2003). For an up-to-date coverage, also see Sandler and Hartley (2007).
4. See Hartley and Sandler (2000).
5. Pugh (2007).
6. Middleton, *et al.* (2006).
7. Hitch and McKean (1960).
8. See Hartley (2006).

9. Hartley (2006, pp. 17-18).

10. Hartley (2006, p. 17).

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Russian military expenditure: what's behind the curtain?

Vasily Zatsepin

Military budgets as “a visible manifestation of national strategic intentions, priorities, and policies” still are worthy objects for study and monitoring.¹ In the Cold War era, western economists devoted serious attention to the Soviet economy in general and to Soviet military expenditure in particular. The validity of these efforts is obvious but, for the latter, their effect was mostly contradictory and some times disappointing.² (Statistically, there is still little known about past Soviet military expenditure.³) With few exceptions, contemporary Russian military expenditure cannot boast of such attention,⁴ even though the United Nations (U.N.), the International Monetary Fund (IMF), the North Atlantic Treaty Organization (NATO), the Stockholm International Peace Research Institute (SIPRI), the International Institute for Strategic Studies (IISS), and others⁵ continue to monitor this subject.

Inside Russia, the topic of military expenditure is usually disregarded by economists and does not receive close scrutiny. Breaking this tradition of relative inattention, since the year 2000 the Moscow-based Institute for the Economy in Transition (IET), an independent research body, has begun to publish annual estimates of Russian military expenditure.⁶ Based on IET's work, this article presents an analysis of Russia's current practice of recording and reporting its military expenditure. It examines, first, Russian military expenditure since 1999 with an emphasis on the current budget year. Second, the underlying budgeting process, defense planning, and other institutional factors are considered. And third, prospects for the future, as announced by high-ranking Russian officials, are reviewed and some problems encountered when researching Russian military expenditure are discussed.

Russian military expenditure

Definition of military expenditure

The definition of military expenditure used by IET is based on a framework proposed by the United Nations – the U.N. Standardized Instrument for Reporting Military Expenditures – and resembles that developed by Argentina and Chile with U.N. support.⁷ The functional classification of Russia's federal budget according to its annual Federal Budget Law (budget allocation) and its Federal Budget Execution Law (actual outlays) serves as the base for the evaluation. The main part of military expenditure is concentrated in the National Defense budget function and covers the

country's spending on its military atomic program and its armed forces (military and civilian personnel minus retirement pensions; operations and maintenance; procurement; military construction; research and development). The resulting amount is regarded as defense (or direct military) expenditure and is labeled in this article as DEFEX.

Based on this, another measure – labeled $MILEX_1$ – is found by adding indirect military expenditure, taken from a budget division called National Security and Law Enforcement Activity (i.e., troops of the Ministry of Interior, other security bodies, and border service). Also included, from other budget categories, are expenses on civil defense, special construction, and preparation for mobilization of the economy. The total is a close analog to the U.N.'s G_1 measure,⁸ which also includes civil defense matters. A second aggregate of military expenditure ($MILEX_2$) is estimated by adding expenses connected with previous military activity, namely on retirement pensions for military personnel and an appropriate part of the state's Housing Program under which retired military personnel are provided with a dwelling. The $MILEX_2$ aggregate is an analogue to the U.N.'s G_2 measure, which in addition to G_1 includes net pension benefit expenditure.⁹ Figure 1 shows the components of Russian military expenditure.

Short-run spending dynamics

Defined as described, a uniform time series for the years 1999 to 2004 can be generated (see Table 1; panel A in roubles; panel B as a percentage of Russian GDP). Notwithstanding well-known limitations in comparing military expenditure across countries,¹⁰ the data in panel C is converted to current U.S. dollars at purchasing power parity (panel D). When considering actual outlays, it is important to know that data about the execution of the federal budget by law become available in Russia only 25 months after its passage. For comparison, panel B also displays SIPRI data.

Current military expenditure

Unfortunately, by changing its budget functional classification in 2005 to accord with the Classification of the Functions of Government (COFOG) of the U.N.'s System of National Accounts and the IMF's Government Finance Statistics Manual 2001,¹¹ the Russian government has “spoiled” the uniformity of observed time series. Now civilian-type expenditures of the Ministry of Defense are excluded from the National Defense category and transferred to other (“peaceful”) divisions. In some cases, this produces unexpected (from the standpoint of economics) effects which will be described later. On the plus-side, however, this change shifts the $MILEX_2$ definition used by IET closer to that used by NATO.¹²

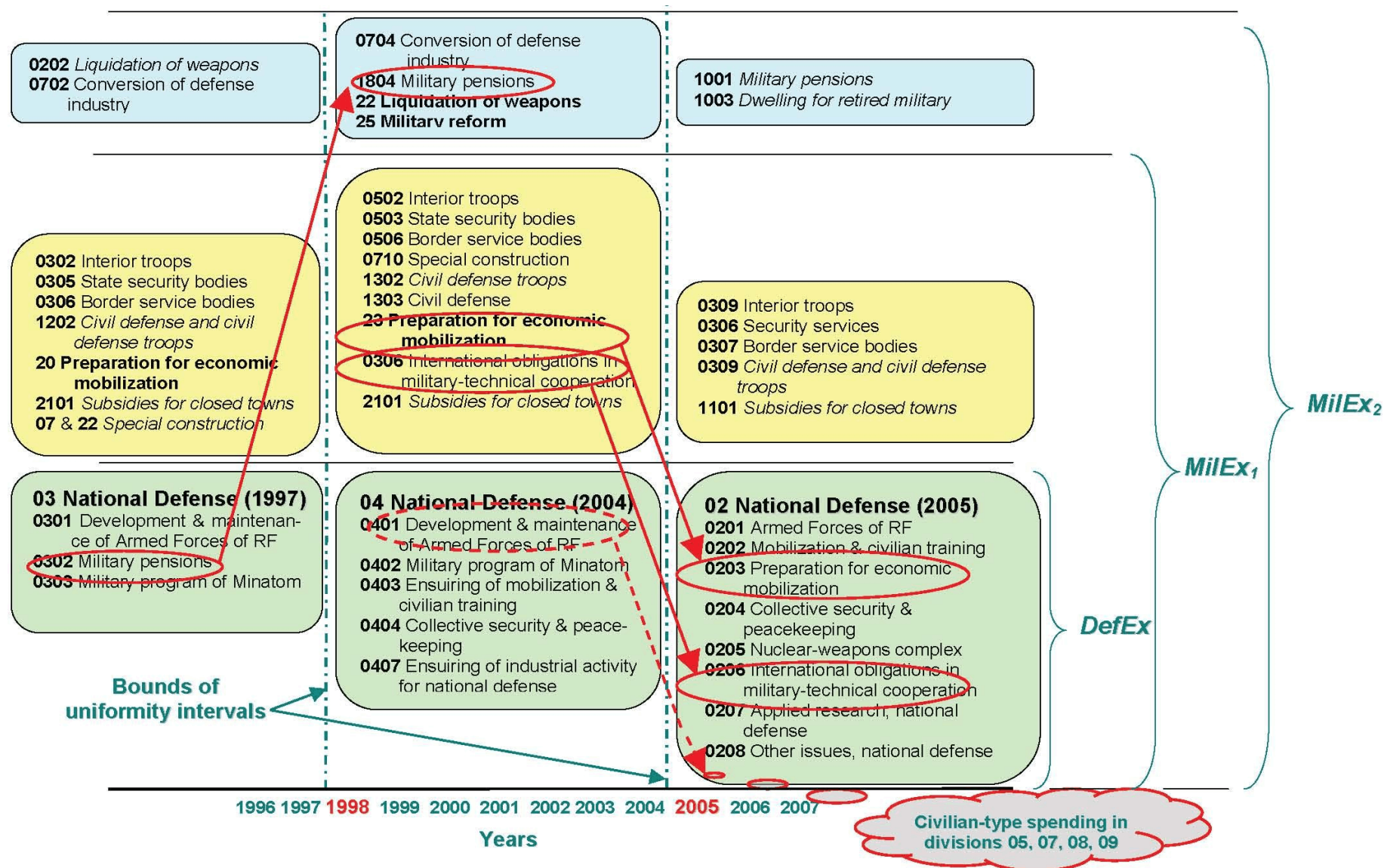


Figure 1: Components of Russian military expenditure since 1995. Source: Russian federal budgets, 1996-2006. ConsultantPlus® database software. Note: Budget division titles and codes of divisions and subdivisions are shown in bold; analytical groups under the codes are in italics.

Table 1: Russian military expenditure

	1999	2000	2001	2002	2003	2004	2005	2006	2007 ^a
<i>Panel A (billions, constant roubles; base year = 1999)</i>									
DEFEX (outlays)	115.6	139.3	154.5	159.5	169.0	172.2	194.5	–	–
DEFEX (budget)	93.7	152.2	133.9	153.5	168.6	171.2	193.5	198.3	222.6
DEFEX (outlays/budget, %)	123%	92%	115%	104%	100%	101%	100%	–	–
DEFEX outlays growth (1999=100%)	100%	121%	134%	138%	146%	149%	168%	–	–
MILEX ₁ (budget)	128.9	196.5	176.8	190.7	216.9	218.1	239.4	252.7	291.5
MILEX ₂ (budget)	144.0	221.4	205.6	246.1	282.5	252.6	267.7	280.7	320.0
<i>Panel B (as percentage of GDP)</i>									
DEFEX (outlays)	2.4	2.6	2.8	2.7	2.7	2.6	2.7	–	–
DEFEX (budget)	1.9	2.9	2.4	2.6	2.7	2.6	2.7	2.7	2.6
MILEX ₁ (budget)	2.7	3.7	3.2	3.3	3.4	3.3	3.3	3.5	3.4
MILEX ₂ (budget)	3.0	4.2	3.7	4.2	4.5	3.8	3.7	3.9	3.8
SIPRI ^b	3.4	3.7	4.1	4.3	4.3	3.9	4.3	4.3	–
<i>Panel C (billions, current roubles)^c</i>									
DEFEX (outlays)	115.6	191.7	247.7	295.4	355.7	430.0	581.1 ^d	–	–
DEFEX (budget)	93.7	209.4	214.7	284.2	354.9	427.4	578.4	666.0	821.2
MILEX ₁ (budget)	128.9	270.4	283.4	353.1	456.5	544.5	715.4	848.8	1,075.1
MILEX ₂ (budget)	144.0	304.6	329.6	455.6	594.6	630.7	800.2	942.8	1,180.5
<i>Panel D (billions, current US \$)^e</i>									
DEFEX (outlays)	21.9	26.8	30.2	31.9	34.2	36.2	44.4	–	–
DEFEX (budget)	17.7	29.3	26.2	30.7	34.1	35.9	44.2	46.4	52.7
MILEX ₁ (budget)	24.4	37.8	34.6	38.1	43.9	45.8	54.7	59.2	68.9
MILEX ₂ (budget)	27.2	42.6	40.2	49.2	57.1	53.0	61.1	65.8	75.7
<i>Auxiliary statistics</i>									
GDP ^f , billions, current roubles	4,823	7,306	8,944	10,831	13,243	16,752	21,598	24,380	31,220
GDP deflator (%) ^g	172.5	137.6	116.5	115.5	113.7	118.6	119.7	112.4	109.8
Purchasing power parity, roubles/\$	5.29	7.15	8.19	9.27	10.41	11.89	13.09	14.34	15.59

Sources: ^a Projected federal budget for Russian Federation, 2007 <http://www1.minfin.ru/budjet/prjbud2007.zip>; ^b 1999-2004 from *SIPRI Military Expenditure Database* http://first.sipri.org/non_first/milex.php?look_up_country=643 [accessed 28 September 2006]; 2005-06 from Cooper (2006, p. 13); ^c *Russian Economy: Trends and Outlook, 2000-06*; ^d preliminary data from Federal Treasury http://www.roskazna.ru/store/reports_file146.xls [accessed 30 October 2006] ^e GDP-based purchasing-power parity for 1999-2004 from Rosstat (2006, p. 785); 2005-07 author's estimates (linear trend of prior data); ^f 1999-2004 from Rosstat (2006, p. 323); 2005 from Federal State Statistics Service http://www.gks.ru/bgd/free/b01_19/IssWWW.exe/Stg/d000/i000610r.htm; 2006 from Federal Law (2005); 2007 from Mikhailov (2006); ^g 1999-2004 from Rosstat (2005, p. 94); 2005-07 from Vasilchuk (2006).

Table 2: Estimates of transferred civilian-type allocations, 2004-2007

	2004	2005	2006	2007
<i>Secret civilian-type allocations by division (billions, current roubles)</i>				
04 National economy	0.2	0.1	0.1	3.2
05 Housing and communal services	–	–	1.7	2.3
07 Education	–	4.4	5.5	7.0
08 Culture, cinematography, mass media	–	0.1	0.1	0.1
09 Health and sport	–	4.0	0.1	6.9
11 Interbudgetary transfers	–	–	–	3.0
Subtotal for secret allocations	0.2	8.7	12.5	22.6
Subtotal for secret allocations (%GDP)	0.00	0.04	0.05	0.07
<i>Explicitly allocated to Ministry of Defense by division (billions, current roubles)</i>				
05 Housing and communal services	7.6	–	14.6	11.4
07 Education	0.2	19.7	24.4	30.1
08 Culture, cinematography, mass media	–	1.0	1.4	1.8
09 Health and sport	2.4	14.9	17.2	21.3
Subtotal for MoD	10.3	35.6	57.7	64.6
Subtotal for MoD (%GDP)	0.06	0.16	0.24	0.21
Total for civilian-type	10.3	44.3	70.2	87.2
Total for civilian-type (%GDP)	0.06	0.20	0.29	0.28

Note: Data for 2004 reallocated to respective divisions of current budgetary classification. *Sources:* 2004-2006 budget and 2007 budget project data.

Along with the switching to the new budget classification in the 2005 federal budget, a further consolidation of military expenditure in the National Defense division was carried out. This included expenditures for international military technical cooperation programs and preparation for economic mobilization. Moreover, one now finds two new subdivisions: “Applied Research, National Defense” and “Other Issues, National Defense” (see Figure 1). The military expenditure data for 2005-2007 are therefore shown in Table 1 separately from previous periods. Estimates for transferred civilian-type aggregates are given in Table 2 (these estimates are not taken into account in Table 1).

Without doubt, the use in Table 2 of the term “secret” in connection with civilian-type allocations may provoke objections, or at least some questions. Why must these sums be regarded as secret, and if they are secret how it is possible to calculate them? One point is that according to the Law on State Secrets we know for sure about the existence of secret annexes in the budgets which contain data connected to defense procurement, R&D, and other matters.¹³ For the 2005-2007 budget years, there are 9

secret annexes each year. This is usual budgetary practice in Russia and amounts to about 15-20 percent of the total number of annexes in the last few years’ federal budgets; two of the nine are classified as “most secret.” Knowing that there are secret sums, it turns out that one can quite easily calculate them as the difference of the values specified in the budgetary annex containing the distribution of the total expenditure across the divisions and subdivisions of the functional classification¹⁴ and the amounts for the same budgetary divisions and subdivisions contained in the annex with the distribution of non-secret allocations.¹⁵ The procedure is similar to that used for analyses of secret sums in the U.S. defense budget,¹⁶ but actually simpler due to the explicit structure of secret annexes used in Russia. Regarding the reliability of the estimates in Table 2, note that the values given are lower bounds because allocations to other military bodies (e.g., Interior Ministry troops) are not taken into account so that the actual totals will be substantially higher than reported here.

In this connection it is worth noticing statements made by Victor Zavarzin, chair of the Russian Federation State Duma Defense Committee, which suggest that of the 798 billion roubles of defense expenditure in 2006, 132 billion roubles were hidden in non-military budget divisions.¹⁷ Including this “hidden” amount in Table 1, panel B for 2006 would increase the estimated defense burden by 0.5 percentage points. (Moreover, according to our budget-based estimates, in 1998 the Russian Ministry of Defense spent about 0.01 percent of GDP on education and health but in 2006 this went up to 0.26 percent. Of course 1998 was disastrous for the Russian finance system, but the data discussed here are for allocations, not outlays.)

Adoption of the new budget classification has led to noticeable discontinuity in the observed time series for Russian military expenditure. Comparability can be restored only by adding the figures shown in Table 2, which would result in a continuation of the nominal use of the old classification. Failing that, the series will be non-uniform.

Openly published U.N. data about the structure of Russian military expenditure in 2005 are shown in Figure 2. However, the data suggest that in 2005 every fifth rouble assigned to armed forces personnel (or 8 percent of total military expenditure) was “unallocated.”¹⁸ Due to the high secrecy level of Russia’s federal budget process, as for 2006 it is not possible anymore to estimate the structure of military expenditure from the data supplied by the annual budget laws. Instead, one must rely on imprecise statements, such as that by V. Zavarzin, according to which the capital cost part of Russian defense spending amounted to 40 percent, up from 35-38 percent in 2005.¹⁹

Behind the curtain

The federal budget and budgeting process

Russia’s budgeting system is still in transition from that used in the former Soviet Union. Although this transition may be in its ultimate phase, the new legal framework

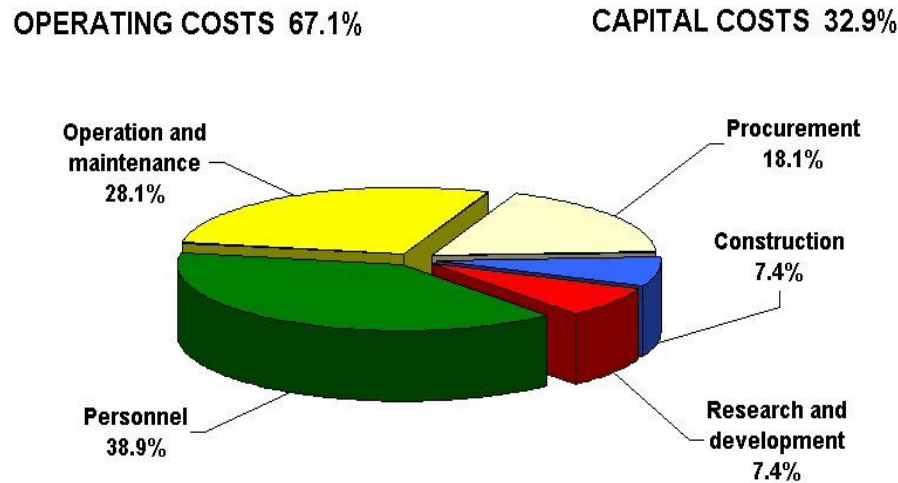


Figure 2: The 2005 structure of Russia's military expenditure. *Source:* United Nations (2006).

– the Budget Code that came into force in 2000 – is still subject to annual changes that affects budget management.²⁰

The key shortcoming of the federal budget preparation phase is the lack of a formal and openly published budget request by the Ministry of Defense (and other governmental bodies, of course). Consequently the ministry's intentions are subject only to internal government bargaining; outside views cannot be brought to bear on the process. The budget preparation ends with the adoption of a three-year rolling financial plan. The laudable goal is to shorten, to 15-16 months, the ultimate time needed to approve the annual Federal Budget Execution Law (spending authorization) and thereby improve the efficiency of the annual budgetary cycle.

The main actor in the budget approval phase is the Federal Assembly of the Russian Federation. Regrettably, its members cannot effectively carry out the task of budget control because of the presence of a dominant contingent of "soldier-politicians"²¹ in both of the relevant defense committees (in the Duma and in the Federation Council). Not only do they lack skills and advanced analytical support in defense budgeting, economics, and accounting but they act "as a kind of lobby for the military circles [rather] than as a tool of democratic control of military and security agencies."²²

Once approved, there are also severe problems with the implementation of the federal budget. Budget execution is known for remarkable, substantial delays. For example, because of the late issuance of the government regulation that implements the federal budget – for the 2006 budget done only at the end of February 2006²³ –

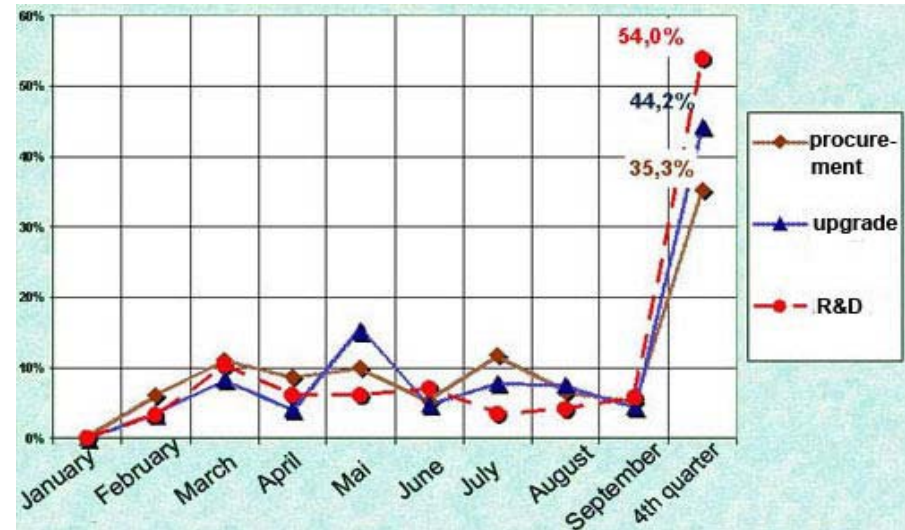


Figure 3: Flow of centralized payments for public procurement contracts by Russian Ministry of Defense in 2005, % of annual purchase orders volume. *Source:* Pulin (2006); translated from Russian by the author.

budget payments are skewed toward the end of the budget year. According to statements from the Russian Chamber of Accounts, especially absurd situations arise in the defense sector (see Figure 3).

Another substantial change in the budgetary system involves the previously mentioned adjusting of functional budget classifications to be in line with COFOG, the U.N.'s and IMF's standardized system of national accounts. While this carries implications that may be regarded as positive (e.g., international comparability; removal of non-defense, civilian-type items from the defense budget), it is also true that classified expenditures are now spread across various federal budget divisions unrelated to defense and security, quite an unwelcome effect from the standpoint of defense economists and budget analysts. At a minimum, it raises the question of what were the underlying motives of federal budget developers when placing such expenditures on "secret" lists and then leaving them classified.

Secrecy problem

According to the already mentioned Law on State Secrets, the most prominent feature of Russia's military expenditure is its potential *full secrecy*.²⁴ Even though the Budget Code limits secrecy to the line-item level, in practice there are entire budget

Table 3: Secrecy in Russia's federal expenditures, 2003–07 (% classified)

Code and title of division and subdivision ^a	2003 ^b	2004	2005	2006	2007
Total federal expenditure	9.5	9.7	11.3	12.0	12.2
01 General public services	n/a ^c	n/a	3.9	6.1	7.6
0110 State material reserve	97.7	93.5	83.0	89.9	92.4
0111 Basic research	–	–	1.8	1.9	1.2
0115 Other issues in general public services	n/a	n/a	0.1	0.1	0.7
02 National defense	36.2	37.9	41.4	44.0	45.6
0201 Armed forces of Russian Federation	34.3	35.8	32.9	36.8	37.6
0203 Preparation for economic mobilization	100.0	100.0	100.0	100.0	100.0
0204 Collective security and peacekeeping	n/a	n/a	100.0	100.0	100.0
0205 Nuclear-weapons complex	100.0	100.0	100.0	100.0	100.0
0206 International obligations in military-technical cooperation	46.3	–	44.6	45.9	45.5
0207 Applied research, national defense	n/a	n/a	99.0	94.0	93.6
0208 Other issues, national defense	n/a	n/a	2.5	9.5	25.4
03 National security and law-enforcement activity	22.4	19.5	29.2	31.0	31.3
0302 Internal affairs bodies	2.3	2.7	5.0	5.50	5.2
0303 Interior troops	10.9	10.5	12.3	11.1	10.2
0306 Security services	100.0	98.8	97.8	96.2	97.3
0307 Border service bodies	13.0	20.2	100.0	98.8	97.5
0309 Prevention and liquidation of consequences of emergency situations and natural disasters, civil defense	49.8	59.5	59.4	62.6	52.6
0311 Applied research, national security and law-enforcement activity	n/a	n/a	76.2	67.3	63.8
0313 Other issues, national security and law-enforcement activity	n/a	n/a	9.0	36.4	57.4
Code and title of division and subdivision ^a	2003 ^b	2004	2005	2006	2007
04 National economy	n/a	n/a	0.1	–	0.6
0410 Applied research, national economy	n/a	n/a	–	–	5.4
0411 Other issues, national economy	n/a	n/a	0.1	0.1	–
05 Housing & communal services	n/a	n/a	–	4.4	4.7
0501 Housing	n/a	n/a	–	6.4	6.2
07 Education	–	–	2.9	2.7	2.5
0701 Pre-school education	–	–	1.1	2.3	2.0
0702 General education	–	–	0.6	1.7	2.3
0704 Secondary professional education–	–	–	1.2	1.0	0.9
0705 Retraining & professional improvement	–	–	18.9	14.9	16.8
0706 Higher professional education	–	–	3.4	2.9	2.7
0709 Other issues, education	–	–	0.2	0.6	0.3
08 Culture, cinematography, and mass media	–	–	0.1	0.2	0.2
0801 Culture	–	–	0.1	0.1	0.1
0804 Periodical press and publishing houses	–	–	11.5	9.7	11.2
0806 Other issues, culture, cinematography, and mass media	–	–	–	0.1	–
09 Health & sport	–	–	3.7	3.4	3.3
0901 Health	–	–	4.4	3.9	3.8
0902 Sport & physical training	–	–	0.6	0.7	0.4
11 Interbudgetary transfers	–	–	–	–	0.2
1101 Financial assistance to other budgets	–	–	–	–	0.6

Note: ^a Current budgetary classification; ^b data for 2003 and 2004 are reallocated to respective divisions and subdivisions of current budgetary classification; ^c direct match in current classification is not available; *Sources:* 2003-06 budget and 2007 budget project data.

subdivisions that are fully secret. (The secrecy level itself is regulated not by the Ministry of Defense but, for the most part, by the Ministry of Finance and the Ministry for Economic Development and Trade.) Despite President Putin’s May 2004 statement before the Federal Assembly that “a transparent military economy is a necessary condition for reform,”²⁵ Table 3 shows continuous growth of secret federal expenditure. The reasons for such growth remain hidden, as no official explanatory statements have been made. We only know that for the past two years no substantial changes were made to the official list of data that are considered state secrets. Although additional research is needed, independent observers conjecture that among the main reasons for the observed growth of secret expenditure in the budget is opportunistic behavior by those who stand to personally benefit from the higher remuneration offered for work with classified information. Already it can be shown that civil servants at the Ministry of Finance and the Ministry for Economic Development and Trade face stronger incentives to keep things under the cover of secrecy than the Russian military does (see Table 4).

Table 4: Size of remuneration for work with secret information in Russia

Clearance level	Rated increase to official salary, %	
	for civil servants	for military servants
“Of particular importance”	50–75	25
“Most secret”	30–50	20
“Secret”	10–15	10
“Secret” (without formal clearance)	5–10	–

Sources: Regulation (2006b); MOD (2006).

Of course, it is difficult to say what price Russia pays – say in terms of percentage points of GDP lost per one-percent rise in the secret portion of the federal budget – but the existence of negative feedback is not doubted.

Defense planning

Rational defense *budgeting* is seriously handicapped by deficiencies in defense *planning*, inherited almost intact from Soviet times. The federal Defense Law²⁶ defines the main components of the military planning system. Its main pillars are the Armed Forces Employment Plan, the Force Structure Development Plan, and the State Armament Program,²⁷ the first and last constituting the formal basis for defense budgeting. In addition, the Russian General Staff has developed certain long-term plans (see Figure 4).²⁸ In 2005, this planning system was extended with the adoption of the special Armed Forces Units Provision Comprehensive Program for 2006-

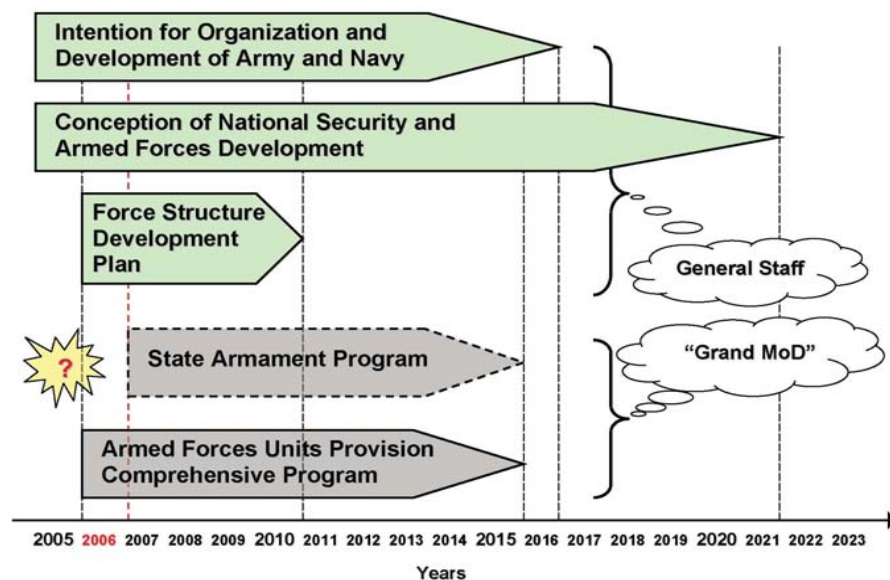


Figure 4: Russian budget-related defense planning. Sources: Federal Law (1996); Baluevskiy (2005); Ivanov (2005).

2015.²⁹ But in 2001, the former chief of the Russian General Staff acknowledged that General Staff planning and the State Armament Program were based on incompatible principles,³⁰ so that the link between military planning (shown in green on Figure 4) and weapons programming (in grey) may be weak or altogether absent. Any substantial connection of the State Armament Program with defense budgeting must thus be regarded as questionable.³¹

Quasi PPBS

The State Armament Program goes back to the late 1960s. It was initiated by the Soviet leadership in response to the manifestly successful Planning, Programming, and Budgeting System (PPBS) of the U.S. Department of Defense. Despite the fact that the USSR perished before the first Soviet Armament Program was completed, the Russian Federation continues to use it in practically unaltered form. Yet, as shown in Table 5, the current State Armament Program differs in significant respects from its U.S. counterpart.

Furthermore, from Soviet times to today, those participating in the development of the State Armament Program were unable to negotiate and publish any rules and regulations for it.³² Instead of being a means of control over the military-industrial

Table 5: Comparison of two military programming systems

	PPBS (USA) ^a	State Armament Program (Russia)
Cycle duration, years	2 (was 1)	5
Depth, ^b years	4 (was 5)	10
Moving time horizon	Yes	No
Accountability	Transparent	Opaque
Secrecy	Minimal	Full

Note: ^a Now the Planning, Programming, Budgeting, and Execution System (PPBES); ^b The current Pentagon budgeting plan has a depth of 6 years. *Sources:* McCaffery and Jones (2004); Burenok (2004).

complex, the program became a tool for special interest groups to control a considerable share of federal military expenditure. Today, it appears that even the Russian leadership is losing trust in the effectiveness of this inheritance; signs of failure are becoming obvious even for external observers. In fact, the development of the Armed Forces Units Provision Comprehensive Program for 2006-2015 (Figure 4) serves, in essence, as an alternate State Armament Program.

Actors and goals

There are too many actors on the defense management stage in Russia. Forming a virtual “Grand Ministry of Defense,” the size of the country’s military expenditure and its structure are determined by the Ministry of Finance and the Ministry of Economic Development and Trade, not by the Ministry of Defense. This results in another source of inefficiency at the highest level of Russian public administration and is vivid evidence of the failure of parliamentary control over the defense and security sector. One effect of this “Grand Ministry of Defense” practice is, for example, the current situation that keeps spending on armed force training at 20-25 percent of the funding level needed to sustain force capabilities, and converting a substantial part of its manpower into overhead.

Back in 2000, the Security Council of the Russian Federation set a goal for the Ministry of Defense to achieve a 50 percent share of capital costs in the defense budget by 2010, following “best international practice.” Intended to serve as a performance indicator for the Russian armed forces, this goal was confirmed in July 2005. And in late 2005, the chief of the Russian General Staff stated: “All the world develops according to the outline: about 60 percent is spent on procurement, research and development; and about 30-40 percent on salaries and matters connected with logistics and combat training of forces.”³³ But even a cursory glance at international practice (see Figure 5) casts grave doubt on the seriousness with which this goal is pursued in practice by Russia’s high-ranking officials, even on the priorities they set

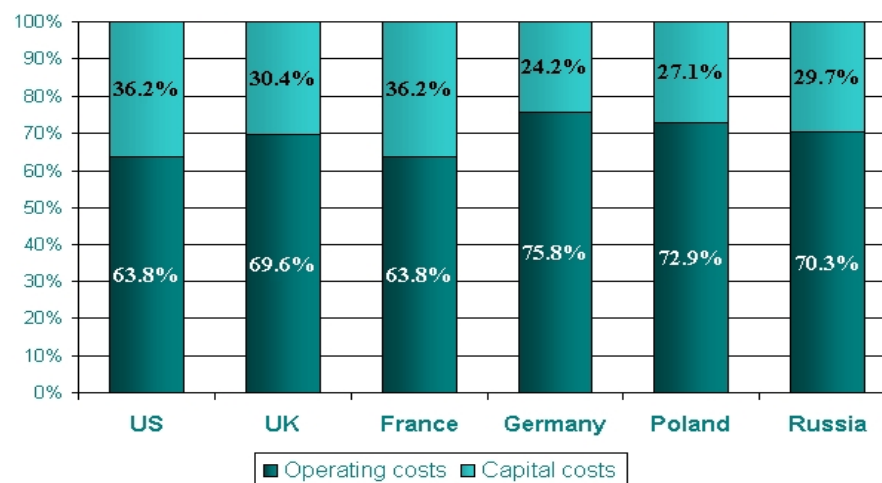


Figure 5: The operating/capital cost structure of military expenditure of a number of countries in 2004. *Source:* United Nations (2005).

forth, and on the quality of information they use in defense management-related decisionmaking.

Nonetheless, according to a recent statement by the chief of the Defense Economics and Finance Service, the overall movement of Russian defense budgeting can be described as “back to the future.” The former Soviet experience is viewed with envy, nostalgia, and short-sightedness as a valuable classicism, and Russia’s prospective military cost structure foresees higher capital cost outlays in future (Figure 6).³⁴

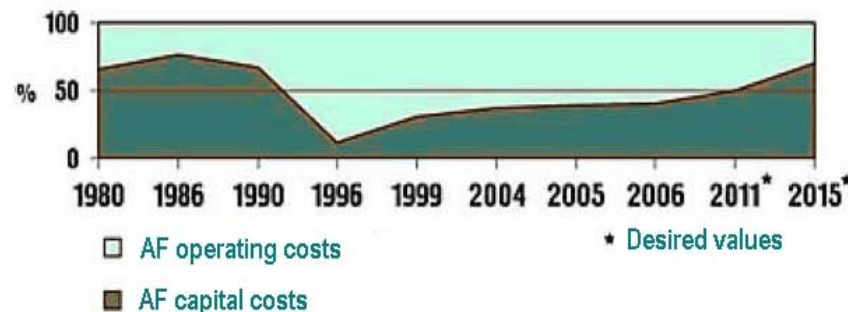


Figure 6: Prospective cost structure of expenditure on Russia’s armed forces. *Source:* Kudelina (2006); translated from Russian by the author.

Conclusion

One remaining issue concerns the quality of the time series presented in Table 1. A comparison of IET's with SIPRI's data reveals some differences. Not of critical magnitude, they nonetheless necessitate further data verification to eliminate possible mistakes and simple oversights. More serious efforts will be required to overcome systematic errors, caused for example by the accounting approaches used in the data collection. The IET series can be regarded as a reliable lower bound, however, as our experiments with using different weighted estimates for pensions in paramilitary forces and other adjustments³⁵ show the possibility of an increase of about 10 percent in the data for 2005-2007 (at the MILEX₂-level).³⁶

A second concern regards off-budget and extra-budget military expenditure. Presently, it is impossible to account for these without insider information or a substantial decrease in the level of secrecy in Russia's defense and security sector. Unfortunately, as Russia's public administration reform appears to have come to a stop, a full release of Ministry of Defense budget requests and annual reports and accounts does not appear imminent.

Russia's defense management is a case of government failure,³⁷ largely on account of limited information and limited control over bureaucracy (e.g., undue secrecy, lack of quality statistics, and questionable priority setting in the security sector). Failures imposed by the political process were not the focus of this article but my view on this matter is that the successful erection of a so-called "power vertical" does not offer much hope for democratic control of the defense and security sector and its rational management. Russia finds itself in an institutional trap: one pincer is formed by the secrecy obsession of its high-ranking officials, the other by the vital necessity to manage the country's resources efficiently. As regards the main theme, it will be interesting to research and debate the determinants of Russia's recent military expenditure. Already it is widely acknowledged that they are mainly of an internal nature and not connected to external threat levels.³⁸

As to the near-term future, it is safe to predict that the current year's federal budget will be increased more than once. For example, lack of fuel for combat training will be excused by "unplanned" price growth (rather than acknowledged as intentional budget policy) and result in higher-than-planned outlays. Also, it seems very likely that most procurement outlays will again be executed in the last quarter of the year. And the secrecy level in Russia's federal budget is likely to grow as well, at least until 2008 when, one hopes, a newly elected president may change Russia's budgetary ways.

Notes

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thanks the editors and an anonymous reviewer for helpful comments.

1. Crane, *et al.* (2005, p. 91).
2. Rosefielde (2005).
3. Harrison (2003).
4. For example, Cooper (2006), Fontanel (2003).
5. For example, WMEAT (2002).
6. <http://www.iet.ru/publication.php?folder-id=44&category-id=2083&lang=en>.
7. United Nations (2002); CEPAL (2005).
8. CEPAL (2005, p. 63).
9. CEPAL (2005, p. 63).
10. For example, Brzoska (1995).
11. IMF (2002) .
12. WMEAT (2002, p. 194).
13. Law (1993).
14. Annex 8 in (Federal Law, 2005).
15. Annex 46 in (Federal Law, 2005).
16. For example, Kosiak (2006).
17. Matveev (2006).
18. "Unallocated" means not assigned to a particular spending category.
19. See Mikhailov (2006); also see United Nations (2006).
20. Budget Code (1998); Diamond (2002).

21. Betz (2002).
22. Fedorov (2002).
23. Regulation (2006a).
24. Law (1993).
25. Putin (2004).
26. Federal Law (1996).
27. In Russian “*Plan primeneniya Vooruzhennykh Sil*,” “*Plan stroitel’stva Vooruzhennykh Sil*,” and “*Gosudarstvennaya programma vooruzheniya*,” respectively.
28. Baluevskiy (2005). The *Conception of National Security and Armed Forces Development Until 2021* (“*Kontseptsiya natsional’noy bezopasnosti i stroitel’stva Vooruzhennykh sil na period do 2021 goda*”) and the *Intention for Organization and Development of Army and Navy until 2016* (“*Zamysel stroitel’stva i razvitiya armii i flota na period do 2016 goda*.”)
29. Ivanov (2005). In Russian “*Kompleksnaya programma otnosheniya soedineniy i voinskikh chastey Vooruzhennykh Sil Rossiyskoy Federatsii na 2006—2015 gody*.”
30. Kvashnin (2001).
31. Moreover, the previous Russian armament program finished in 2005, and we now witness a strange one-year pause as the next State Armament Program commences only in 2007.
32. Burenok (2004).
33. Chernyak and Gavrilov (2005).
34. Kudelina (2006).
35. For example, separation of military from non-military parts in subdivisions “0312 Applied Research, National Security and Law Enforcement Activity” and “0313 Other Issues, National Security and Law Enforcement Activity.”

36. Even higher estimates would be achieved by taking into account the appropriate (“military”) part of interest charges on government debt (see Brauer, 2004). Of course, this does not change the difficulty of collecting the underlying military expenditure data in the first place.

37. Stiglitz (2000, pp. 9-10).

38. Ovsienko (2005).

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The economics of terrorism: a synopsis

Fernanda Llussá and José Tavares

The number of economics of terrorism studies has increased dramatically since 11 September 2001. Yet in spite of the renewed attention to the field, much remains to be clarified and integrated with what we already know from the economics of terrorism. In this article, we map what we believe are the most important results of this literature, highlighting key papers we deem representative of our state of knowledge, and organizing the literature into their macro versus micro and empirical versus theoretical aspects.¹

We adopt Enders and Sandler's (2002) view of terrorism as "the premeditated use or threat of use of extra-normal violence or brutality by sub-national groups to obtain a political, religious, or ideological objective through intimidation of a huge audience, usually not directly involved with the policymaking that the terrorists seek to influence." In economic studies of terrorism, this is the most frequently used definition. Its three main elements are: (a) the use of extreme violence, (b) the "underground" nature of terrorist acts, individuals, and organizations, and (c) publicity, i.e., the intended effect on a broad audience, possibly through the media.

A topical summary of the terrorism literature

We organize the subject matter around seven topics, namely (1) the measurement of terrorist activity, (2) the nature of terrorists, (3) the utility cost of terrorism, (4) the impact of terrorism on aggregate output, (5) terrorism and specific sectors of activity, (6) terrorism and economic policy, and (7) counter-terrorism. These cover the universe of terrorism topics to which economists have devoted their effort. For each, we identify the most relevant papers and point to the main conclusions.

The measurement of terrorist activity

Terrorist attacks are relatively rare and extreme events. The number of attacks is highly volatile over time and across countries (Enders and Sandler, 2002).² Evidence of cyclical patterns are observed, with increased incidence during economic downturns (Im, *et al.*, 1987; Enders and Sandler, 1995, 2000; Blomberg, Hess, and Weerapana, 2004b) and around elections (Berrebi and Klor, 2004; Brauer, *et al.*, 2004). Over time terrorist attacks have become more lethal (Enders and Sandler, 2000; Sandler and Enders, 2004), a possible consequence of a change both in terrorist motivations, from ideological to religious-based, and method, e.g., the increased use of suicide attackers (Berman and Laitin, 2005). In addition, since the 1967 Arab-Israeli war, attacks are markedly transnational in nature.³

The targets of terrorism are frequently in rich countries, the United States being

the most often targeted state (Blomberg, *et al.*, 2004a, 2004c; Enders and Sandler, 2002), yet it remains unclear whether democracies are likelier targets (see Blomberg, *et al.*, 2004a, for a yes; Tavares, 2004, for a no; and Abadie, 2004, for a non-monotonic answer to the question).

The most widely used data sets regarding the measurement of terrorist activity are those by Mickolus and associates – Mickolus (1980, 1982), Mickolus and Fleming (2003), Mickolus, *et al.* (1989, 1993) – and the data set from the International Policy Institute for Counter-Terrorism (2003). Other data sets, usually with narrow dissemination, either cover disaggregated data or are specialized in nature, based for instance on sectoral or individual information. However, most data sets are built from counts of actual terrorist attacks or victims which ignores the very relevant indirect and psychological costs of terrorism.⁴

The nature of terrorists

Explanations for the emergence of terrorist groups range from those based on individual or group behavior to aggregate correlates. Although generalizations are extremely risky at the current stage of research, the dominant view suggests that the support for terrorist acts is not associated with lower educational or economic status (Krueger and Maleckova, 2003; Berrebi, 2003; Schelling, 1991).⁵ As the presence of suicide actors dramatically illustrates, non-orthodox explanations for terrorism may be required.⁶ These are provided by the work of Wintrobe (2001, 2006) on extreme tradeoffs, Hardin (1995) on group identity, Ferrero (2005) on the use of social sanctions, and Berman (2003) and Berman and Laitin (2005) on club good theory. Individual hatred toward specific groups or nations can emerge from misinformation and manipulation by political leaders (Glaeser, 2005; Charney and Yakatan, 2005) who can enhance follower loyalty by promoting violence (Epstein and Gang, 2004).

At the aggregate level, different studies view terrorism as the result of tensions including the availability of new resources with modernization (Crenshaw, 1981; Aziz, 1995) or the rise of religious-based fundamentalism (Crenshaw, 1981). Terrorism may be a substitute for other forms of political conflict in the internal fight over resources (Garfinkel, 2004; Blomberg, *et al.*, 2004c) and terrorist acts are part of a signaling game where governments are uninformed of terrorists' strengths (Lapan and Sandler, 1993). Terrorism, it has been argued, has also been used in the international arena as a foreign policy tool (O'Brien, 1996).

Terrorist attacks are relatively rare and extreme events, showing cyclical patterns, but having become more transnational and lethal with time. The use of suicide bombers has become more frequent.

The utility cost of terrorism

Certainly, terrorist acts have an adverse impact on individual utility and on the economy. However, its association with extreme harm and uncertainty suggest that terrorism's utility cost goes beyond the direct and immediate damage. Terrorism entails costs linked to what has been named a "non-rational" evaluation of risk on the part of individuals, i.e., a decrease in utility well beyond the computable expectation of losses. The perception of this cost may be associated with an outcome-independent negative impact of "fear and loathing" that greatly exceeds the "objective" discounted harm (Becker and Rubinstein, 2004; Sunstein, 2003; Viscusi and Zeckhauser, 2003).⁷ Despite, or because of its "non-rational" nature, this perceived cost can be quite substantial, as suggested in Frey, *et al.* (2004).

The impact of terrorism on aggregate output

A large number of studies focus on measuring the economy-wide impact of terrorist attacks. They conclude that the direct cost to output is relatively small, smaller than the cost of internal conflict, external war, or natural disasters. Nonetheless, for specific populations, regions, and sectors the adverse effects can be very large.

A considerable number of articles on the economics of terrorism concentrates on the output consequences of terrorist events. The main conclusion is that the direct cost to output seems relatively low and short-term (Hobijn, 2002; International Monetary Fund, 2001; Navarro and Spencer, 2001, who analyze the physical and human losses).

Terrorist attacks do reduce economic growth although the estimated impact is smaller than that of violent internal conflict and external war (Blomberg, *et al.*, 2004a) or natural disasters (Tavares, 2004). Nonetheless, high and persistent levels of terror (Eckstein and Tsiddon, 2004) or terror concentrated in specific regions (Abadie and Gardeazabal, 2003; World Bank, 2002, 2003) have a considerable impact. Although less targeted, poorer countries suffer more from attacks (Blomberg, *et al.*, 2004a, on poorer countries; World Bank, 2002, 2003, on Israel versus the Palestine territories).⁸ There is evidence that democratic countries are more resilient to attacks (Tavares, 2004).

An alternative way to look at the effect of terror on aggregate output is through its impact on the value of stocks of different companies. Here researchers have found evidence that the impact is relatively short-term and may decrease over time (Choudhry, 2003; Chen and Siems, 2004; Eldor and Melnick, 2004) probably due to efficient diversification which diminishes the influence of risk on particular stocks.

Terrorism and specific sectors of activity

The economics literature provides ample evidence that terrorism is associated with significant differential impacts on specific sectors of the economy. Such a severe shock, concentrated in time, is likely to affect consumption and investment in response to a willingness to free resources for other uses. In fact, there are noticeable decreases in consumption after terror attacks (Eckstein and Tsiddon, 2004; Fielding, 2003a) and decreases in investment (Eckstein and Tsiddon, 2004; Blomberg, *et al.*, 2004a; Fielding, 2003b), the latter a consequence of a crowding-out effect in response to increases in public spending. International capital and trade flows are also likely to decrease (Abadie and Gardeazabal, 2005; Enders and Sandler, 1996, for capital flows; for trade, see Walkenhorst and Dihel, 2002; Nitsch and Schumacher, 2004).⁹

Tourism and airline demand, due to their specific vulnerability to attacks and consumer sentiment, have attracted special research attention. The consensus points to a clear negative impact on tourism and airline demand (Drakos and Kutan, 2003; Enders, *et al.*, 1992; Enders and Sandler, 1991, 1996; Sloboda, 2003; Fleischer and Buccola, 2002, on tourism; Drakos, 2004; Ito and Lee, 2004, on airline demand). The concentration of economic and governmental activities and the large population density of urban areas suggests a greater vulnerability to terrorism. If this view holds, terrorism can be viewed as a tax on cities. However, the estimates by most authors point to a very limited cost, especially in the long-run (Bram, *et al.*, 2002; Glaeser and Shapiro, 2002; Harrigan and Martin, 2002; Mills, 2002; and Rossi-Hansberg, 2003).

Given the association of terrorism with risk in general, and the dramatic revisions in risk profile faced by economic activities, the insurance industry is likely to be affected, either positively or negatively, by terrorist attack.¹⁰ In addition, changes in exposure may highlight market imperfections in the industry. There is evidence that the stock of insurance companies does react to increased terrorist risk (Cummins, *et al.*, 2003).¹¹ Berrebi and Klor (2005) show strong evidence of a differential and positive impact on defense and security industries in Israel in the aftermath of terror attacks.¹²

Terrorism and economic policy

Terrorism can affect fiscal and monetary policy in the same way as any other unexpected shock would, or as policymaking responds endogenously to terrorist events. The increase in public spending in response to additional security needs is likely to be small (Lenain, *et al.*, 2002; Gupta, *et al.*, 2004; and Hobijn, 2002) and probably with little impact on budget deficits (Eichenbaum and Fisher, 2004; and Wildasin, 2002).¹³ As to the reaction of the payments system in the face of an attack, Lacker (2004) shows how the Federal Reserve credit extension after 11 September increased the supply of banks' balances and decisively preempted the emergence of a payments crisis after the terrorist attack.

Countering terrorism

Counter-terrorism is probably the most policy-relevant issue on the economics of what can be done to reduce the incidence and impact of terror acts. Two basic options are available: to counter terrorism by force (the “stick”) or by increasing the opportunity cost of terrorism (the “carrot”), making targets less attractive or adjusting media coverage to diminish its attractiveness.¹⁴ In thinking about counter-terrorism it is realistic to acknowledge beforehand that complete eradication of terrorist activity is unlikely, not only because of imperfect information and cost asymmetry, which gives terrorist groups a strategic advantage, but also due to continuous innovation by both sides to the conflict.¹⁵

As terrorists substitute among means, targets, and across time, counter-terrorist strategies beyond deterrence, such as comprehensive multilateral coordination, must be developed and applied.

The literature provides evidence that terrorists substitute among means, targets, and across time (Im, *et al.*, 1987, for substitution over time and targets; Garfinkel, 2004; Blomberg, *et al.*, 2004c, for substitution with other forms of violence). This ability on the part of terrorists suggests the use of a

portfolio of anti-terrorist measures (Enders and Sandler, 2004; Frey, 2004). So far, deterrence has been the main response of states to terrorist organizations although it might not be the right strategy since it induces escalation.¹⁶ Credible non-negotiating policies are also important (Sandler and Enders, 2004) but time inconsistency is a major issue and there is a high risk of default (Lapan and Sandler, 1993). Economic sanctions are also used frequently but are probably ineffective.¹⁷ An important mechanism is active limitation of terrorist funding through better regulation (Fitzgerald, 2004). Frey and Luechinger (2003, 2004) and Frey (2004) argue forcefully for decreasing benefits or raising the opportunity cost, rather than the material cost of attacks. In contrast, some states tolerate the activities of terrorist organizations in their territory in exchange for no direct harm and at the expense of other nations – a dominant strategy, according to Lee (1988) – which points to the desirability of multilateral coordination and institutions. On an optimistic note, evidence suggests that people realize the complexity of terrorism and are ready to accept more flexible policy responses (Downes and Hoffman, 1993), including in cases involving hostage taking (Shambaugh and Josiger, 2004).

One plausible response to terrorism is adjusting how political institutions (Wilkinson, 2001) or legal institutions function (Garoupa, *et al.*, 2005; Enders, *et al.*, 1990). Mueller (2004) argues that it is necessary instead to strengthen democratic institutions and increase citizens’ understanding and support for those institutions. Other options include decentralizing political institutions to decrease the attractiveness of targets (Frey and Luechinger, 2003).

Concluding remarks

We presented a brief overview of the economics literature on terrorism. Evidently, this is an expanding field that addresses very diverse issues using varied research methodologies. In Table 1 we classify the papers as to their macro versus micro and empirical versus theoretical emphasis. Although subjective, this classification makes clear where additional contributions can be made: most of the existing studies are of an empirical nature and examine the consequences of terrorist attacks at the aggregate level and in specific sectors of economic activity. In the case of the micro-based studies, the mix of papers is more balanced. In Table 2 we present a list of twelve papers we think ably summarize what is now known on economics and terrorism. These twelve papers are suggestive of the broad range of questions addressed and the progress made, constituting a very useful introduction to the literature.

Sadly, terrorism will probably rank high on the political agenda for years to come. Understanding the motivations of terrorists and terrorist groups and diminishing the occurrence and the effects of violence must be a key element in the response to terrorism. This is only possible if we extend our knowledge on the intrinsic nature of terrorist phenomena by collecting new data to answer the remaining questions, thus decreasing the extent of our ignorance of its causes and consequences. In this effort, the role of research in economics, as surveyed in this paper, is likely to remain central.

Table 1: The economics of terrorism literature in 4 boxes

	Mostly <i>theoretical</i> (n=31)	Mostly <i>empirical</i> (n=52)	
Mostly <i>microeconomic</i> in approach (n=22)	<p>Becker and Rubinstein (2004) Berman (2003) Berman and Laitin (2005) Enders and Sandler (2004) Epstein and Gang (2004) Ferrero (2005) Garoupa, Klick, and Parisi (2005) Glaeser (2005) Lapan and Sandler (1993) Lee (1988) Sunstein (2003) Wintrobe (2001) Woo (2002)</p>	<p>Berman and Stepanyan (2004) Berrebi (2003) Charney and Yakatan (2005) Krueger and Maleckova (2003) Pape (2003) Frey, Luechinger, and Stutzer (2004) Viscusi and Zeckhauser (2003) Downes-Le Guin and Hoffman (1993) Shambaugh and Josiger (2004)</p>	
	(n=13)	(n=9)	
Mostly <i>macroeconomic</i> in approach (n=61)	<p>Abadie and Gardeazabal (2005) Aziz (1995) Berrebi and Klor (2004) Blomberg, Hess, and Weerapana (2004c) Crenshaw (1981) Eckstein and Tsiddon (2004) Enders and Sandler (1995) Enders, Sandler, and Cauley (1990) Fitzgerald (2004) Frey and Luechinger (2004) Frey and Luechinger (2003) Garfinkel (2004) Harrigan and Martin (2002) Lenain and Koen (2002) Mills (2002) Mueller (2004) OECD (2002) Rossi-Hansberg (2003)</p>	<p>Abadie (2004) Abadie and Gardeazabal (2003) Berrebi and Klor (2005) Blomberg, Hess, and Orphanides (2004a) Blomberg, Hess, and Weerapana (2004b) Bram, Haughwout, and Orr (2002) Brauer, Gómez-Sorzano, and Sethuraman (2004) Brown, Cummins, Lewis, and Wei (2004) Brück and Wickström (2004) Chalk, Hoffman, Reville, and Kasupski (2005) Chen and Siems (2004) Choudhry (2003) Cummins and Lewis (2003) Drakos (2004) Drakos and Kutan (2003) Eichenbaum and Fisher (2004) Eldor and Melnick (2004) Enders and Sandler (2002) Enders and Sandler (2000) Enders and Sandler (1991) Enders and Sandler (1996) Enders, Sandler, and Parise (1992)</p>	<p>Fielding (2003a) Fielding (2003b) Fleischer and Buccola (2002) Glaeser and Shapiro (2002) Gupta, Clements, Bhattacharya, and Chakravarti (2004) Hobijn (2002) Im, Cauley, and Sandler (1987) International Monetary Fund (2001) Ito and Lee (2004) Kunreuther, Michel-Kerjan, and Porter (2003) Lacker (2004) Navarro and Spencer (2001) Nitsch and Schumacher (2004) O'Brien (1996) Sandler and Enders (2004) Sloboda (2003) Tavares (2004) Walkenhorst and Dihel (2002) Wildasin (2002) World Bank (2002) World Bank (2003)</p>
	(n=18)	(n=43)	

The 12 papers highlighted in **bold typeface** are mentioned in detail in Table 2.

Table 2: Twelve economic papers on terrorism

<i>Paper</i>	<i>Questions addressed</i>	<i>Paper</i>	<i>Questions addressed</i>
Abadie, Alberto and Javier Gardeazabal (2003) "The Economic Costs of Conflict: A Case Study of the Basque Country." <i>American Economic Review</i>	<ul style="list-style-type: none"> - What is the impact of terrorism in a region submitted to a continued terror campaign? - How do the stocks of firms with a significant share of their business activity in a region vulnerable to terrorism change with the evolution of a truce pact and its end? 	Becker, Gary S. and Yona Rubinstein (2004) "Fear and the Response to Terrorism: An Economic Analysis." Mimeo.	<ul style="list-style-type: none"> - How can fear and risk aversion explain individual responses to terror? - Does terror have an effect on the quality or the "quantity" of life?
Berman, E. and Laitin, D. (2005) "Hard Targets: Theory and Evidence on Suicide Attacks." National Bureau of Economic Research	<ul style="list-style-type: none"> - Can a rational choice model of terrorist group tactics predict when suicide attacks are used? 	Blomberg, S. Brock, Gregory Hess and Akila Weerapana (2004c) "An Economic Model of Terrorism." <i>Conflict Management and Peace Science</i>	<ul style="list-style-type: none"> - Can a model where terrorism is initiated by groups unhappy with their economic situation predict the occurrence of conflict? - What does the choice between rebellion and terrorism depend on?
Eckstein, Zvi and Daniel Tsiddon (2004) "Macroeconomic Consequences of Terror: Theory and the Case of Israel." <i>Journal of Monetary Economics</i>	<ul style="list-style-type: none"> - What can a theoretical model tell us about the impact of terrorism on output, investment, and consumption in the long run? - Do the model's predictions correspond to evidence from an economy subject to continued terrorist attacks? 	Eldor, Rafi and Rafi Melnick (2004) "Financial Markets and Terrorism." <i>European Journal of Political Economy</i>	<ul style="list-style-type: none"> - What is the reaction of the stock and foreign exchange markets to terrorist attacks in an economy subject to multiple terrorist attacks? - Do stock and foreign exchange markets continue to perform efficiently? - Does market liberalization help investors diversify and thus cope with terrorism?
Enders, Walter and Todd Sandler (2002) "Patterns of Transnational Terrorism, 1970-1999: Alternative Time-Series Estimates." <i>International Studies Quarterly</i>	<ul style="list-style-type: none"> - Over time, what are the consequences of transnational terrorism in terms of number of deaths? - Have terrorist attacks become more threatening and lethal in recent years? - Is there a cyclical pattern in the incidence of terrorism? - What are the preferred targets? 	Enders, W. and T. Sandler (2004) "What Do We Know about the Substitution Effect in Transnational Terrorism?" In: A. Silke, ed. <i>Researching Terrorism: Trends, Achievements, Failures</i> .	<ul style="list-style-type: none"> - Is there a substitution effect among targets of transnational terrorists? - What do you know of different approaches to combat terrorism?
Frey, Bruno S. and Simon Luechinger (2003) "How to Fight Terrorism: Alternatives to Deterrence." <i>Defense and Peace Economics</i>	<ul style="list-style-type: none"> - What are the best alternatives to deterrence in fighting terrorism? - Do these strategies significantly dissuade potential terrorists? 	Gupta, Sanjeev, Benedict Clements, Rina Bhattacharya and Shamit Chakravarti (2004) "Fiscal Consequences of Armed Conflict and Terrorism in Low- and Middle-Income Countries." <i>European Journal of Political Economy</i>	<ul style="list-style-type: none"> - What are the fiscal effects of armed conflict and terrorism in low and middle-income countries? - How is increased government defense spending financed?
Krueger, Alan B. and Jitka Maleckova (2003) "Education, Poverty and Terrorism: Is There a Causal Connection?" <i>Journal of Economic Perspectives</i>	<ul style="list-style-type: none"> - What do opinion polls tell us about the characteristics of supporters of terrorism? - How does support change with education and personal income? 	Tavares, José (2004) "The Open Society Assesses Its Enemies: Shocks, Disasters and Terrorist Attacks" <i>Journal of Monetary Economics</i>	<ul style="list-style-type: none"> - What aggregate indicators are associated with a higher incidence of terrorist attacks? - How does the impact of terrorist attacks on output compare with that of natural disasters and currency crises? - Is the cost of a terrorist attack larger or smaller in the case of democracies?

Notes

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1. For broader surveys on economics and terrorism see Laitin and Shapiro (forthcoming) on the motivations and organization of terrorists, Brück and Wickström (2004) and Enders and Sandler (forthcoming) on the consequences of terrorism and Llussá and Tavares (forthcoming) on the different issues and the research agenda. Brück (2006), Enders and Sandler (2006), and the forthcoming Keefer and Loayza are important comprehensive volumes.

2. Tavares (2004) shows that time series on terrorist attacks display a substantially higher standard deviation than similar series on natural disasters.

3. See Enders and Sandler (2002).

4. For discussion, see Enders and Sandler (1995; 2002), and Frey (2004).

5. As an example of an explanation for these counter-intuitive results, education can signal an individual's ability to commit, a necessary input for extreme actions. For an interesting exercise based on a different view, see Berman and Stepanyan (2004) who assesses the number of potentially "radical" Muslim women, based on fertility, low returns to education, and religious education.

6. The "demand" for suicide terrorists is the central issue in Wintrobe (2006) and Pape (2003).

7. Becker and Rubinstein (2004) argue that an exogenous shock to the probability of being harmed affects peoples' choice in two ways: a change in exposure to risk – the weights of "good" and "bad" states change – and in fear – in each state of nature, the utility level itself decreases in response to an increased probability of being harmed. Sunstein (2003) shows that individuals focus on the "badness" of the result rather than on the probability of occurrence. This so-called "probability neglect" results in fear that greatly exceeds the discounted harm.

8. The World Bank (2002, 2003) estimates the cost of the Palestinian–Israeli conflict for both contenders: while the cost to Israel is estimated at 4 percent of GDP, the Palestinian territories suffered a 50 percent decline in income per capita between 1994 and 2002. In addition, specific sectors such as tourism and trade have been especially hurt.

9. The contraction in trade may be in response to an increase to trade and transport costs, as argued in Organization for Economic Development and Cooperation (2002) and Lenain, *et al.* (2002).

10. Woo (2002) presents an analytical method to compute the risk of terrorism in actuarial terms. Lenain, *et al.* (2002) argue for a negative impact on the insurance industry.

11. There is also an as yet unsettled discussion on the appropriateness of government schemes that interfere with the insurance market, such as the Terrorism Risk Insurance Act (TRIA) in the United States. See, e.g., Kunreuther, *et al.* (2003); Chalk, *et al.* (2005); and Brown, *et al.* (2004).

12. This is true also of defense-related Israeli exports, which seem to benefit from a boom after the attacks.

13. Here we refer to the fiscal response to terrorist attacks and not the fiscal consequences of policy choices that are presented as a consequence of such attacks. As an example, the fiscal consequences of U.S. military involvement in Afghanistan and Iraq are certainly not trivial, but we consider such military involvement a policy choice in itself and not a necessary consequence of the September 2001 attacks.

14. See Frey (2004) for a discussion of the relative attractiveness of different counter-terrorist policies.

15. Mickolus, *et al.* (1989) quote the statement by the IRA after a near-miss assassination attempt targeted at the United Kingdom's prime minister: "Today, we were unlucky. But remember we have only to be lucky once. You will have to be lucky always."

16. Frey (2004) lists a series of other costs, ranging from over-reliance on deterrence, including budgetary costs and political costs (in terms of possibly reduced support for counter-terrorism policy), exploitation by self-interested politicians to extend their stay in power, and reduced human rights and civil liberties. Deterrence also entails costs due to the response of terrorists, which gain in visibility and cohesion and substitute toward potentially deadlier means of attack.

17. See Frey (2004).

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Review article: is war necessary for economic growth?

Jurgen Brauer

“Is War Necessary for Economic Growth?” is a provocative title. One cannot publish such a title without expecting to be taken seriously – and being expected to provide a substantive answer. If the author succeeds in the former, he fails in the latter.

A far more precise title of the book would have been: “Is Major War, or Threat Thereof, Necessary for the Continued Post-World War II Economic Growth of the United States of America?” Even if a clear-cut answer were provided, it would apply only to the United States and readers would learn little about the broader questions of (military) technology, productivity, development, and growth. The author, Vernon W. Ruttan – Regents Professor Emeritus, Department of Applied Economics, University of Minnesota – is a well-regarded authority on agricultural economics and on technology and economic development. He is also author of a recent textbook on technology, growth, and development.¹ He writes that in that book he did not “give particular attention to the role of military and defense-related procurement as a source of commercial technology development” (p. vii), hence the production of the book under review here.

“Is War Necessary for Economic Growth?” studies the effect of military procurement on the eventual commercial development of six general-purpose technologies. Professor Ruttan claims that military procurement has been “a major source of technology development across a broad spectrum of industries that account for an important share of U.S. industrial production” (p. vii) but nowhere in the book does he provide an estimate of what that share would amount to. It is surely correct that the military dollar fully funded, co-funded, or seed-funded many technologies, some of which have found their way to the non-military sphere. But the military dollar also funded many a boondoggle. For instance, the dollars spent on the Strategic Defense Initiative (SDI, or “Star Wars”), as Professor Ruttan himself acknowledges (pp. 183-184), have yet to produce anything by way of new, general-purpose technologies. In that regard, the military dollar does not differ from the non-military government dollar, or even from the private sector dollar: some technology funding succeeds, and some fails.

Surrounded by an introduction and a conclusion, the bulk of the book consists of six case studies. They are: (1) interchangeable parts and the advent of mass production; (2) military and commercial aircraft development; (3) nuclear energy and electric power; (4) the computer, semiconductor, and software industries; (5) the Internet; and (6) the space industry. It is not clear why the origin of other candidate general-purpose technologies are not examined, e.g., the standardized container

shipping “box” that revolutionized land and sea transport, biochemistry and the pharmaceutical industry, electron microscopy and materials science, or even technology that permits the United States to be a world-class agricultural production powerhouse and exporter – all of

which have assisted military purposes immeasurably. They served as “spin-ins” to, instead of as “spin-offs” from, the military sector. If one wishes to examine why and how war or preparation therefore might produce general-purpose technology, should one not set this against why and how peace might accomplish the same thing?

Some of the chosen cases are puzzling. For instance, given its significant but not overwhelming share in the U.S. electricity market even today – 20 percent in 2004,² and a much smaller share, namely only 8 percent, of overall U.S. energy consumption³ – it is not clear in what sense nuclear energy is in fact a general-purpose technology.

The book’s standard of evidence is low. All six case studies are under-researched and rely overmuch on weakly marshaled secondary material. Elsewhere, I take exception to the author’s stark assertion that “nuclear power is the most clear-cut example discussed in this book of an important general-purpose technology that in the absence of military and defense-related procurement would not have been developed at all – it would not have been developed ‘anyway’” (p. 86).⁴ In this review, I take a brief look at the five other cases.

Interchangeable parts and mass production

Chapter 2 on “Interchangeable Parts and Mass Production” is only 10 pages long, and the critical part – the part that should establish how the advent of interchangeable parts and commercial mass production was an outflow of military procurement – is only 3-1/2 pages long. Professor Ruttan locates the origin of the invention and use of interchangeable parts and mass production, widely dubbed the “American System of Manufacturing,” with the U.S. Ordnance Department’s gun acquisition program and the Springfield and Harpers Ferry armories in the early 1800s. Interchangeable parts made use of guns in the field easier. (Instead of waiting for an armorer to repair a gun, one could just exchange the faulty part and continue the use of the gun.) Likewise, among other virtues, mass production that replaced craft-production of guns led to higher gun reliability. Yet Professor Ruttan himself notes that the key technology was brought in by civilians, Thomas Blanchard and John H. Hall. Moreover, the use of interchangeable parts can be traced back at least as far as Gutenberg’s interchangeable type to print books! Economic historians Rondo Cameron and Larry Neal report on Dutch merchant shipbuilding in the 1600s using “elementary mass production techniques [and keeping] stores of interchangeable parts.”⁵ Later, in the 1700s,

Ruttan, Vernon W. *Is War Necessary for Economic Growth? Military Procurement and Technology Development*. New York: Oxford University Press, 2006.

clockmakers used interchangeable parts as well, and so did the French military before none other than Thomas Jefferson became enamored with the idea of interchangeable parts and mass production and wrote back home about it. Professor Ruttan's claim, then, that "only the U.S. War Department could provide the large arms contracts that enabled private manufacturers such as North, Whitney, and Colt to make the large investments necessary to build and equip factories with the machinery to produce the interchangeable parts for gun production" (p. 30) does not sit quite well. Moreover, as weapons historian Edward C. Ezell notes, the American System "was not a simple panacea for solving the weapons-manufacturing problem. Success lay with the efficient marshaling of production capacity, whether it be based on the craftsman's skill or the machine's repetition and precision" (1986, p. 25), or, as renowned military historian Martin van Creveld notes in the introduction to his *Technology and War*, "we must begin by taking into account such mundane things as roads, vehicles, communications, timekeepers, and maps, and end by considering the most complex problems of technological management, innovation, and conceptualization" (1989, p. 2). In a word, just because the U.S. Ordnance Department placed a large order for handguns does not equate to a revolution from crafts to mass production. The industrial revolution had just got underway, and what is inconceivable is not that without the U.S. weapons order mass production with interchangeable parts would not have occurred. Instead, what is inconceivable is how mass production with interchangeable parts would not have become standard practice anyhow, especially given the pre-1800 antecedents.

The development of the commercial aircraft industry

Chapter 3 discusses the development of military and commercial aircraft. Once more, there is no question that military funding, in the United States as elsewhere, provided huge incentives. But can it really be said that there would be no commercial aircraft industry today, or a substantially less advanced one, without the military dollar? From Icarus of Greek mythology to the hot-air balloon built by the Montgolfier brothers in 1783, to Otto Lilienthal's controllable air glider flown in 1891, to the first Zeppelin or *dirigible* flight in 1900, to the Wright brothers' Kitty Hawk, North Carolina flight in 1903, people not only pursued the dream of flight but successfully advanced it.⁶ So, what is there to believe that without the military, the quest would not have continued? By 1908, the third Zeppelin had made 45 flights and had traveled 4,398 km (about 2,700 m), at which point the German military became interested. As coincidence would have it, that was the same year the American military became interested in the Wright brothers' contraption. Civilians led the military, not the other way around.⁷ In fact, the world's first commercial airline was founded in Germany, and by 1914, twenty-one of Zeppelin's airships had transported some 40,000 passengers, covering 200,000 km of distance. In 1924, a Zeppelin-design made an 8,050 km transatlantic flight to deliver an airship to the United States,⁸ also for commercial service (it flew

there for eight years under the name "ZR-3 USS Los Angeles"), and to an enthusiastic welcome by the American public and a White House reception.

The Great War resulted, in essence, in a design-competition between two engine-powered aircraft designs, the difference lying in the wing-lift (the Wright brothers) as opposed to the gas-lift design (Zeppelin). Both aircraft served in the war; both were used for reconnaissance missions and for bombing raids. About equally fast, the airship could carry many more guns and a much larger bomb load on account of its much larger lift capacity. It also sported superior range and endurance. The big problem, the one that proved to be its doom, was greater vulnerability to air defense, i.e., searchlights and gunfire.⁹ If not for that, who is to say that today we would not fly in airships rather than in airplanes? Quite possibly, airplanes might be second-best technology, surviving only because of the exigencies of war.¹⁰ Professor Ruttan notes that by "the mid-1990s it seemed clear that military contracts would no longer play a significant role in the development of the U.S. commercial airliners" (p. 58),¹¹ and that "it was becoming increasingly clear that technology transfer from military procurement was no longer a dynamic source of technical change in the commercial airline industry" (p. 62). Is it possible that the military dollar was no more than an unwelcome "interloper" in the civilian air flight business, an interloper that steered civilian aircraft advances off course? It is perhaps because Professor Ruttan follows the aircraft as it developed, rather than as it might have developed, that he never seriously asks what alternatives they were (he never mentions the Zeppelin, for instance). When he writes that it "is hard to avoid the conclusion that, in the interwar period, commercial aircraft would have been developed more slowly and introduced more slowly in the absence of defense-related technology development and military procurement ... [and] that the advances in aircraft design represented by the Boeing 707 and 747 would have been substantially delayed in the absence of the stimulus provided by military procurement" (p. 64), he thereby assumes that the Boeing 707 and 747 and *only* the Boeing 707 and 747 could ever have been invented for passenger air flight. The Zeppelin and the pre-World War I commercial airline based on it suggest that it could have been otherwise. Perhaps the military dollar amounted to nothing but an enormous, 80-year long (ca. 1915 to 1995) diversion of research and funding to designs that suited the military but impeded civilian advance. Although Professor Ruttan discusses path-dependence in the opening chapter, he never applies it in the case studies, much preferring to stick with the demand-induced view of technological advances.

The computer industry

Chapter 5 discusses the electronic digital computer industry. (Chapter 4 on nuclear energy and electric power is discussed in Brauer, 2007). The history of computing proceeds so gradually and is so smoothly set with continuous invention and innovation that it is difficult to delineate with precision which advances count for

“how much” in directing the development that has led to today’s ubiquitous computing environment. It is a bit odd that Professor Ruttan would narrow the scope of his writing to the electronic digital computer, rather than say to automation which is the tack van Creveld takes and which, at once, makes clear that the quest for efficiency-enhancing technology is a quest that much transcends military objectives and applications. One fears that Professor Ruttan is setting up a strawman case.

Within the restricted view, there is no question at all that the military dollar played an influential, demand-inducing, role. But what role? Would today’s computer industry either not exist or lag substantially behind the achievements made to date? Do we have to thank World War II and its 20 million dead for what pleasures modern-day computers offer? Even in this case, ambiguity enters. For example, developments in the field relied on general-purpose tinkerers and scientists such as Charles Babbage and Hermann Hollerith. The invention of the first *digital* computer is difficult to pin down, but a number of sources give pride of place to the U.S.’s Atanasoff-Berry effort and to Germany’s Karl Zuse’s (both with working models in 1941). This of course was made possible by the tremendous advances in physics in the early part of the century. Universities in the United States, such as Harvard, Princeton, the Massachusetts Institute of Technology, the University of Pennsylvania, the University of California (i.e., Berkeley), and others were repositories of extraordinary talent which the military dollar could hire.

The military was certainly willing and able to finance risky ventures. But this is a long way from claiming that the effort would otherwise not have been undertaken at all or that substantial delays would have occurred. Especially when put in the historical context of non-digital, non-electronic computing and automation, one could argue, I believe, that World War II just happened to come along “at the right time” to provide an important research sponsor for particular forms of computing. As for the case of aircraft, it is possible that because of the overwhelming presence of the military dollar inferior computing designs became “locked-in,” inferior, that is, from the point of view of the eventual civilian general-purpose technology that would result and come to dominate today’s computing environment. The dynamics of the market can skew the outcome. A large player affects the development path. Thus, if one couples Professor Ruttan’s demand-induced view of technological advance with evolutionary and path-dependency views, one might agree with Rip and Kemp that “technology is not chosen because it is efficient, but becomes efficient because it is chosen.”¹² The civilian market made the best of what the military let trickle out. Indeed, the subsequent civilian development of the computing industry – one might point for example to hardware and software designers’ rabid adherence to open standards – can be argued to demonstrate that the military *stifled* rather than advanced technological development by keeping things under the impenetrable wrap of secrecy.

There is no space here to make a similar case for the semiconductor industry, other than to note that it, too, grew out of civilian university and commercial-based research – in this case to advance communications technology. The military was merely the

most important early adopter. Professor Ruttan’s demand-induced view is not wrong, but it tells only a part of the overall story and thus clouds his eventual conclusions.

The Internet

Chapter 6 – “Inventing the Internet” – underplays both American *non-military* contributions as well as *non-American* developments. As always, there is no question that the military dollar spurred research and steered developments into useable products and services, but the case that *without* the military dollar similar products and services would not have become available or only with substantial delay is not well made. Yes, the U.S. Department of Defense’s Advanced Research Projects Agency (ARPA), founded in 1958, was an important contributor to the development of computer networks.¹³ Professor Ruttan’s presumption is that without the military there somehow would have been no or much less of a need for computer-to-computer communication. Yet even without the military, scientists will still have wanted to have their computers communicate, the better to share data and findings more easily. The underlying idea, after all, is entirely akin to telephone, electricity, road, railroad, and other networks. It is a bit outlandish to suggest that only the military dollar would have been able to create what would become the Internet, a network of computer networks. What the military dollar did do was to appropriate the early development process, channel it toward its own needs, thereby forestalling whatever civilian developments would have taken place as researchers were drawn from civilian to military applications. For example, the idea of “packet-switching” – breaking a message into parts to be distributed via a variety of net-nodes and alternative routes to the ultimate intended recipient where the parts would be reassembled – derived from security concerns that a nuclear explosion might disable a centralized communications node, thus giving rise to decentralized nodes and routing. Was this idea unique to military needs? No, not at all as the aforementioned telephone, electricity, and road networks also are decentralized. Capacity constraints at centralized computer nodes eventually would have spawned decentralized systems. That it was “only the commitment of very large financial and technical resources that were available to ARPA that assured the success of the packet switching technology” (p. 117) is then no more than an assertion.

Researchers do not stop researching just because the military does not fund their interests. Indeed, Professor Ruttan does not report alternative civilian network efforts, nor European network efforts. ARPA and ARPAnet, being of U.S. military provenance, had obvious reasons to keep close control over knowledge diffusion. In fact, the *exceptions* to knowledge sharing are interesting: for example, in 1968, the governments of the United States and Norway concluded an agreement whereby Norway would become the first non-U.S. ARPAnet node (the link become operational in 1973). The purpose concerned Norwegian seismological research, especially in the area of seismological detection – Soviet nuclear-test explosions in other words.

Professor Ruttan's concluding assessment is that "in the absence of military support ... [the] realization of the Licklider vision would have been substantially delayed," perhaps for "at least another decade" (p. 128). This may well be an incorrect assessment. Joseph Licklider's famous "man-computer symbiosis" paper was published in 1960, and ARPA hired him in October 1962. It is inconceivable that Licklider would not have pursued his man-machine interaction vision elsewhere. The military just offered a convenient avenue to do so. Moreover, when in the early to mid-1980s the U.S. National Science Foundation inherited some of ARPA's network research, resulting in NSFnet – an *open* university and research computer network – the question arises of why the U.S. government could not have placed network research with the NSF in the first place. If in the late 1950s, the funds had gone to NSF rather than ARPA, would we not now be in possession of an equally marvelous Internet? My point is that there is nothing *inevitable* about *only* the military dollar having been able to lead to computer-network research, as Professor Ruttan implies.

The space industry

The final case study, in chapter 7, concerns the space industries. The main objective is "to trace the development of weather, communication, and earth-observing satellites to their World War II and cold war origins" (p. 130). In my reading, the chapter shows just the opposite – how civilian use of space has been equally possible. Indeed, the chapter includes long sections on how Eisenhower and Kennedy insisted on some degree of separation between the military and the public-goods civilian spheres, and many examples are provided of international public cooperation and of American private sector involvement, especially in the arena of communications satellites. Only toward the very end of the chapter does Professor Ruttan make the point that without *launch vehicles* (i.e., rockets), none of this might have been possible. However, the launch vehicle part of the space industry is scarcely discussed in this chapter, so that it is not possible to assess the assertion. To the extent that the launch industry is discussed, what is remarkable is that in preparation for the International Geophysical Year (IGY), 1957-58 – an international *civilian* "good-will" demonstration of high-tech science for the common welfare of humankind, and expressly endorsed by Eisenhower – the United States decided that it would *not* involve agencies that worked on military space-launch vehicles. Instead, the project (called Project Vanguard) was handed to an agency that had "no involvement with the [ballistic] missile program" (p. 133), namely the Naval Research Laboratory (NRL). In 1956, the U.S. Army Ballistic Missile Agency (ABMA) snatched Wernher von Braun's rocket team that had worked to develop ICBM's since the late 1940s and pushed mischievously, despite Eisenhower's instruction of separating military and civilian rocketry, for part of the IGY spoils.¹⁴ When the NRL's Vanguard rocket failed (6 December 1957), von Braun's Jupiter-C succeeded to put the first U.S. satellite into orbit (31 January 1958) – but only by a matter of six weeks when another Vanguard

rocket achieved the same objective (17 March 1958). A critical piece of information is that von Braun's Jupiter-C was based on missile technology, whereas the pedigree of the Vanguard was not a war-technology but instead based on early weather-study rockets. The key point is that there *was* alternative, non-military technology available (even though it was formally placed with a naval research outfit) and so, again, one must question the just-so story telling: can we really believe that without the military dollar, the world would not have begun and succeeded to explore space? I am not convinced by Professor Ruttan's story.

Conclusion

Even if one grants Professor Ruttan's major point, that military funding and procurement were the key to the eventual commercial success of certain general-purpose technologies, the book tells us little about the economics involved. Just what makes spin-off possible and successful? Although there are frequent references about how civilians either brought critical ideas to the military or of how civilians harnessed such ideas from the military, the book is essentially silent on concepts such as network economies or the economics of (open) standards with which the question of successful technology transfer from the military to the civilian sector might have been explored. Even Alan Milward's now 30-year old chapter on "war, technology, and economic change" has a more nuanced discussion of the issues than the book under review offers.¹⁵

Professor Ruttan does not argue that creating spin-offs from the military sector is necessarily an "efficient way to advance commercial technology development" (p. 162). That is not the question he pursues. Instead, he asks: Is major war, or threat thereof, necessary to create general-purpose technologies to advance future U.S. economic growth? His opinion is that "it may" (p. 185), on no more argument than that he is doubtful that the U.S. private sector can mobilize the resources necessary to develop future general-purpose technologies. He also believes that the "U.S. [defense] industrial base is losing its capacity to respond" even if there were a massive publicly financed injection of resources (p. 185). Further, even if the defense industrial base could respond, he still remains "skeptical" (p. 185) that viable new general-purpose technologies could result. He raises the question, for example, of the *general-purpose* use of stealth aircraft technology (p. 62). It's all argued as if the future United States were a case study to fit Olson's (1982) thesis in *The Rise and Decline of Nations*. Once more, perhaps Professor Ruttan is correct – it is just very hard to press as much of a conclusion as he does from the evidence presented.

The statement in the concluding chapter that "I have yet to identify a recent comprehensive analysis of the changing structure of the defense industrial base or of the policy implications for defense procurement" (p. 176) is puzzling. The author does not specify what he means by "comprehensive analysis," but the book's almost total lack of reference to the now fairly well developed defense economics literature –

complete with its own journals (*Defence and Peace Economics*, as well as *this* journal, and others), professional association, annual conferences, at least one textbook, a 3-volume reader, and two volumes in Elsevier's celebrated *Handbook* series (1995 and 2007) – suggests that he has not looked in the right place to inform himself.

All-in-all, this is a disappointing book on a great topic.

Notes

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1. Ruttan (2001).
2. See www.eia.doe.gov/fuelectric.html [accessed 1 September 2006].
3. See CEA (2006).
4. Brauer (2007).
5. Cameron and Neal (2003, p. 115).
6. Note that the common American claim, repeated by Professor Ruttan, that the Wright brothers were the first to succeed with a "heavier-than-air self-powered flying machine" (p. 34) is incorrect. The *Luftschiff Zeppelin 1 (LZ1)* also was a rigid, heavier than air structure (an aluminum body lifted by hydrogen gas) and, using a Daimler internal-combustion engine, also was self-powered. What distinguished the Wright brothers' machine was wing-lift as opposed to gas-lift.
7. The same was true for the balloon. A civilian invention, it was used for instance both in the American Civil War in the 1860s and in the French-German War of 1870/71.
8. In 1917, a military Zeppelin made a transcontinental non-stop flight from Germany to German East Africa (Tanzania), covering 6,757 km in 95 hours, a long-distance record at the time.
9. See Wikipedia (2006).
10. Much the same story can be told for jet-engine development, originally stemming from the work of Frank Whittle of the U.K. (a patent was granted in 1932) and of Hans von Ohain in Germany who did similar work in 1935, with the first jet engine

airplane flying as the Heinkel He-178 three days before the outbreak of World War II. Curiously, Professor Ruttan tells some of this story, even that the American military was slow to switch from propeller-driven airplanes until American bombers got beat by Soviet jet-engine fighters in the Korean war in the early 1950s. The real story here is not the military as hero of technology advancement but the military as technological Luddite!

11. To be sure, no longer playing a "significant role" safe for the issue of cross-subsidization between military and civilian divisions, both at Boeing and at Airbus (EADS).
12. Cited in Carrillo-Hermosila and Unruh (2006, p. 711). The reference to Rip and Kemp is (Rip and Kemp, 1998, p. 353).
13. ARPA was renamed DARPA in 1972 (Defense Advanced Research Projects Agency) but regained its original designation as ARPA again in 1993. Professor Ruttan misses that ARPA then was *again* renamed, in 1996, to DARPA (see http://www.darpa.mil/body/arpa_darpa.html; accessed 20 September 2006).
14. One annoyance in this, as in the nuclear-energy chapter, is that Professor Ruttan consistently misspells names. Just as chemist Fritz Strassman should be Fritz Strassmann, so rocket scientist Werner von Braun should be Wernher von Braun.
15. Milward (1977).

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