

**Table 3.1**  
**World and Regional Military Expenditure Estimates (1993–2002)**  
 (in billions of U.S. \$)

Region	YEAR										
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
<b>Africa</b>	7.4	7.7	7.2	6.9	7.1	7.6	8.4	8.8	8.9	9.6	11.4
North	2.5	2.9	2.7	2.8	3	3.1	3.3	3.6	..	..	5.5
Sub-Saharan	5	4.8	4.5	4.1	4.1	4.4	5.1	5.2	..	..	5.9
<b>Americas</b>	385	365	347	328	328	321	322	333	338	368	451
North	365	344	324	306	304	298	299	310	313	344	426
Central	2.8	3.4	3	3.1	3.2	3.2	3.4	3.4	3.5	3.3	3.3
South	17.6	17.4	20	18.3	20.9	20.1	19.6	19.5	21.5	21.1	21.8
<b>Asia &amp; Oceania</b>	120	121	123	128	128	127	129	134	140	147	151
Central Asia	..	0.4	0.4	0.4	0.5	..	0.5	..	..	..	..
East Asia	99.8	101	103	107	107	105	106	111	116	122	125
South Asia	12	12	12.6	12.8	13.4	13.5	14.6	15.2	16.2	17.3	16.9
Oceania	7.7	7.7	7.4	7.4	7.4	7.7	7.5	7.3	7.4	7.4	8.5
<b>Europe</b>	196	192	178	177	177	175	177	180	181	181	195
CEE	25.6	25.9	20.1	18.8	19.6	16.9	17.8	18.9	20.1	21.4	24.5
Western	171	166	158	158	157	158	159	161	161	160	171
<b>Middle East</b>	53.5	54.1	50.9	51.7	56.5	60.7	60	67.3	73.8	78.4	70
<b>World</b>	<b>762</b>	<b>740</b>	<b>707</b>	<b>691</b>	<b>696</b>	<b>690</b>	<b>696</b>	<b>723</b>	<b>741</b>	<b>784</b>	<b>879</b>

Source of data: 1993–2002 data from Stockholm International Peace and Research Institute (SIPRI). *Year Book 2003: Armaments, Disarmament and International Security*. New York: Humanities Press. Appendix 10A, Table 10A.1 and Table 10A.3. 2003 data from Stockholm International Peace and Research Institute (SIPRI). *Year Book 2004: Armaments, Disarmament and International Security*. New York: Humanities Press. Appendix 10A, Table 10A.1 and Table 10A.3. 2004. Available at [http://projects.sipri.org/milex/mex\\_wnr\\_table.html](http://projects.sipri.org/milex/mex_wnr_table.html).

an increase in military expenditures. Therefore, military expenditures rise while private investment simultaneously declines, but one did not necessarily cause the other.

Is this negative relationship between military spending and private sector spending unique to the United States? This idea is an important question to now keep in mind. The next section compares the level of U.S. military expenditures to those of other countries.

## 3.5 GLOBAL MILITARY EXPENDITURES

### 3.5.1 International Comparisons

It is useful to have a general picture of global military expenditures and their geographic distribution. As Table 3.1 shows, world military expenditures, after declining throughout much of the 1990s, are now higher than they were a decade ago. Also, with the exception of Central and Eastern Europe (CEE), military expenditures are higher (or the same) in every region of the world. However, one should consider that despite the increase in global military expenditures, these expenditures are still drastically lower than the peak level of \$1.7 trillion reached in 1986.<sup>9</sup>

**Table 3.2**  
**Top 15 Countries in Military Expenditure Levels, 2002**  
 (billions of constant year 2000 U.S. dollars)

Country	2002 (SIPRI Yearbook)	Country	2002 (Military Balance)
United States	335.7	United States	329.6
Japan	46.7	China	48.4
U.K.	36.0	Russia	48
France	33.6	France	38
China	31.1	Japan	37.7
Germany	27.7	UK	35.2
Saudi Arabia	21.6	Germany	31.5
Italy	21.1	Italy	24.2
Iran	17.5	Saudi Arabia	20.9
South Korea	13.5	India	13.1
India	12.9	South Korea	12.6
Russia	11.4	Brazil	9.6
Turkey	10.1	Israel	9.4
Brazil	10.0	Turkey	8.7
Israel	9.8	Spain	8.2

Source of data: Stockholm International Peace Research Institute. *SIPRI Yearbook 2003—Armaments, Disarmament, and International Security*. Oxford, UK: Oxford University Press. Table 10.4. p. 312. The International Institute for Strategic Studies. *The Military Balance 2003–2004*. Oxford, UK: Oxford University Press. Table 33. pp. 335–339.

One should also consider the expenditure levels of specific countries. There are numerous sources that provide regularly updated military expenditure data. Two that provide on-line access include the U.S. Central Intelligence Agency's *CIA World Fact Book* and the Stockholm International Peace Research Institute's *SIPRI Yearbook*.<sup>10</sup> Other sources include the International Institute for Strategic Studies' *Military Balance* yearly publication and The U.S. State Department's *World Military Expenditures and Arms Transfers*.

Look at Table 3.2. It provides two rankings of the top 15 countries according to military expenditures in the year 2002. One list is from the *SIPRI Yearbook 2003* and the other list is from *The Military Balance 2003–2004*. Notice that many of the same countries are on both lists, but the level of military expenditure for these countries varies.

Why do measures of military expenditure vary? There are several reasons. First, there can be a lack of credible government data collection, such as for Iran and Russia. Second, some studies will include expenditures on paramilitary (group of civilians trained in a military fashion) and police in the figures, depending on the extent to which the central government controls these entities. Third, some studies may be using a different base year upon which to adjust for inflation (the same level of expenditures can appear as a higher figure if prices from a later year are used).

Regardless of the figures used, the United States spends an extraordinary amount of money on defense. However, it ranked only 47th in the world in 2002 when military expenditures are measured as a percentage of a country's GDP (U.S. military expenditures were 3.1 percent of U.S. GDP).<sup>11</sup> The same can also be said of the number two country in the SIPRI rankings, Japan, whose high level of military expenditure was only about 1 percent of GDP (see Box 3.4).

Military expenditure as a percentage of GDP is important because it illustrates a country's level of **militarization**—how much of a country's economy is dedicated to the

**Box 3.4**  
**Historical Perspective**  
**Japan's Constitution and its Military Expenditures**

During the later stages of World War II, the leaders of the United States, the United Kingdom, and the Soviet Union held a series of conferences to discuss the composition of the world system after the war and the conditions for Japanese and German surrender. In Potsdam, Germany, in July 16, 1945, the terms for Japanese surrender were specified. After the conference, U.S. President Truman and British Prime Minister Atlee issued the Potsdam Declaration, which specified that after Japan's defeat "the occupying forces of the Allies shall be withdrawn from Japan as soon as these objectives have been accomplished and there has been established in accordance with the freely expressed will of the Japanese people a peacefully inclined and responsible government."<sup>1</sup>

The Potsdam Declaration led to the incorporation of Article 9, the Renunciation of War article, into Japan's postwar constitution. Article 9 states:

"Aspiring sincerely to an international peace based on justice and order, the Japanese people forever renounce war as a sovereign right of the nation and the threat or use of force as means of settling international disputes.

"In order to accomplish the aim of the preceding paragraph, land, sea, and air forces, as well as other war potential, will never be maintained. The right of belligerency of the state will not be recognized."<sup>2</sup>

However, how can Article 9 be rectified with the fact that Japan is one of the largest military spenders in the world? Since World War II the Japanese government has continually interpreted the article as suggesting that it cannot become a military *power*. For Japan, this means it cannot possess military capability strong enough to pose a military threat to other countries or maintain defense

capability beyond the minimum necessary for self-defense.<sup>3</sup> Therefore, Japan does not have 'armed forces.' Instead, it has "Self Defense Forces" (SDF). The SDF is not allowed to fight outside the country and cannot engage in mutual defense pacts (i.e., cannot defend an ally under attack).<sup>4</sup>

Furthermore, though Japan has high military expenditures, it only spends approximately 1 percent of its GDP on military expenditures, significantly less (as a percentage of GDP) than many European countries. Hence, Japan's large expenditures are simply the result of the fact that it has a large economy (second largest in the world, behind the United States), rather than a concerted effort on the part of the Japanese government to create a heavily militarized country.

However, Japan's military policy has begun a gradual shift over the past decade. Ever since Japan was criticized during the 1991 Gulf War for not actively participating, Japan has allowed troops to take part in United Nations sanctioned peacekeeping operations. The threshold for preventing Japan from using its military outside the country was further lowered in 2004 when Japanese Prime Minister Junichiro Koizumi authorized the deployment of approximately 1,000 peacekeeping troops to Iraq (Japan's first non-UN authorized military mission).

<sup>1</sup> *Potsdam Declaration*. July 26, 1945. East Asian Studies Documents. UCLA Asia Institute. Available at [www.isop.ucla.edu/eas/documents/potsdam.htm](http://www.isop.ucla.edu/eas/documents/potsdam.htm).

<sup>2</sup> *The Constitution of Japan. Chapter II. Article 9*. November 3, 1946. Prime Minister of Japan and His Cabinet. Available at [www.kantei.go.jp/foreign/constitution\\_and\\_government\\_of\\_japan/constitution\\_e.html](http://www.kantei.go.jp/foreign/constitution_and_government_of_japan/constitution_e.html).

<sup>3</sup> "Basic Policies of National Defense" in *Overview of Japan's Defense Policy 2002*. Japanese Defense Agency. Available at [www.jda.go.jp/e/index\\_.htm](http://www.jda.go.jp/e/index_.htm).

<sup>4</sup> Pilling, David. "Japan Searches for a Role on the World Stage." *Financial Times*. April 13, 2004.

military. Hence, countries with a higher percentage of GDP devoted to military expenditures are considered to be more militarized than countries with lower percentages. Table 3.3 shows what are considered the most militarized countries in the world (in terms of military expenditures as a percentage of GDP). It is interesting to note that of the top 25 military spenders (in terms of percentage of GDP), six rank 200 or below in terms of GDP per capita (out of 231), 15 rank 100 or below, and 20 rank 50 or below. The relationship between military expenditures and global poverty will be explored more in Chapter 6.

**Table 3.3**  
**World's 25 Most Militarized Countries, 2002**

Country	Military expenditures - percent of GDP (%)—2002	GDP per capita Rank	GDP—per capita
North Korea	25	206	\$1,000
Democratic Republic of Congo	21.7	223	\$600
Eritrea	16	220	\$700
Oman	13.4	90	\$8,300
Saudi Arabia	12	64	\$11,400
Kuwait	10.7	50	\$17,500
Qatar	10.6	36	\$20,100
Syria	10.3	142	\$3,700
Angola	9.8	179	\$1,700
Israel	9.7	40	\$19,500
Jordan	9.3	132	\$4,300
Ethiopia	8	221	\$700
Vietnam	7.1	163	\$2,300
Bahrain	6.7	55	\$15,100
Armenia	6.4	143	\$3,600
Burundi	5.9	229	\$500
Algeria	5.9	114	\$5,400
Yemen	5.7	214	\$800
Serbia & Montenegro	5.3	118	\$5,100
Brunei	5.2	46	\$18,600
Singapore	5.2	25	\$25,200
Turkey	5.1	97	\$7,300
Myanmar	5	183	\$1,700
Sudan	4.9	189	\$1,400
Russia	4.8	77	\$9,700

**Source of data:** GDP per capita rank from CIA World Fact Book 2002. Available at <http://www.cia.gov/cia/publications/factbook/docs/rankorderguide.html>. Military expenditures as a percent of GDP from the International Institute for Strategic Studies 2003-2004. *Military Balance* data cited in Chamberlin, Jeffrey. "Comparisons of U.S. and Foreign Military Spending: Data from Selected Public Sources." Congressional Research Service Report for Congress. January 28, 2004. Table 1 available at <http://fas.org/man/crs/RL32209.pdf>.

Not surprisingly, many heavily militarized countries are involved in international disputes. These countries include Turkey and Greece (dispute over Cyprus), India and Pakistan (dispute over Kashmir), and Israel and Syria (who have no formal peace treaty after a war between them in 1973).

However, being involved in an international dispute does not mean a country will be heavily militarized, as some countries involved in international disputes spend surprisingly little of their GDP on the military. Examples include Taiwan, China, and South Korea. China and Taiwan are embroiled in a dispute over how much autonomy the island of Taiwan should be given from the mainland, while South Korea is still officially in a state of war with North Korea (the most heavily militarized country in the world). The low level of militarization for these three countries (as measured by the military expenditure to GDP ratio) can be easily explained. Despite its low level of militarization, its massive population allows China to compile the largest number of troops in the world (see Chapter 4). For decades



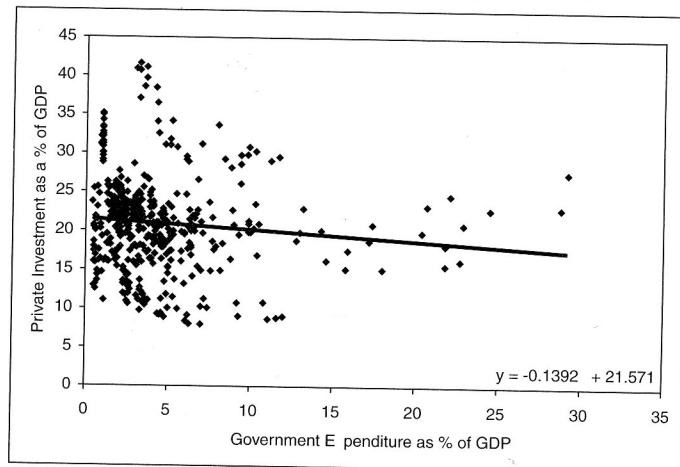
South Korea has been reliant on a direct U.S. military presence in the country, while Taiwan has been reliant on U.S. diplomacy. It is also worth noting that despite Europe being on the front lines of the Cold War standoff between the United States and the Soviet Union and instability in Bosnia and Kosovo during the 1990s, reliance on U.S. defense support through NATO also explains why many European countries (with perhaps the exception of France and the United Kingdom) do not spend as much of their GDP on defense as the United States.<sup>12</sup>

### 3.5.2 Macroeconomic Impact of Military Expenditures: International Comparisons

Section 3.4 showed a negative relationship between military expenditures and private investment in the United States. What about the rest of the major military spenders? Using data from 1979–1999, Figures 3.14 and 3.15 compare military expenditures as a percentage of GDP to private investment as a percentage of GDP (Figure 3.14) and military expenditures as a percentage of GDP to private consumption as a percentage of GDP (Figure 3.15), for the 25 largest military spenders. Right away, one should notice that, much like the U.S.-only data in Figures 3.12 and 3.13, Figures 3.14 and 3.15 also show a negative relationship between military expenditures and private-sector spending.

However, one should again keep in mind that correlation does not mean causation. The relationships shown in Figures 3.12 and 3.13, or in Figures 3.14 and 3.15 do not account

**Figure 3.14**  
Military Expenditures and Private Investment  
The Top 25 Military Spenders (1979–1999)

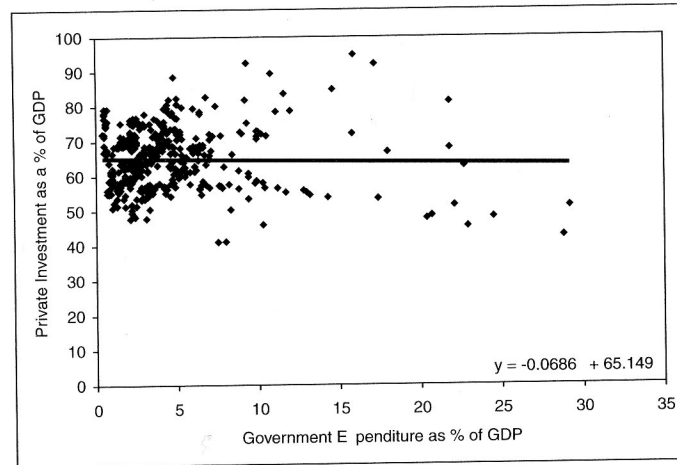


**Source of data:** Military exp./GDP from the U.S. Department of State's World Military Expenditures and Arms Transfers (WMEAT) 1979–1989 and 1999–1989. Data are from the Inter-University Consortium for Political and Societal Research (ICPSR). I/GDP from Penn World Tables (Investment Share of RGDP).

Countries included are the United States, Russia, China, France, Japan, United Kingdom, Germany, Italy, India, South Korea, Brazil, Israel, Turkey, Spain, Canada, Australia, Taiwan, Netherlands, Indonesia, Mexico, Greece, Poland, Iran, and Syria.

**Notes:** Only 24 of the top 25 used, because private investment data is not available for Saudi Arabia. Only years 1990 to 1999 were used for Russia (for 1979 through 1989, private investment data are not available). Military expenditures for Iran from 1983–1988 are not available. 486 total observations.

**Figure 3.15**  
**Military Expenditures and Private Consumption**  
**The Top 25 Military Spenders (1979–1999)**



**Source of data:** Military Exp./GDP from the U.S. Department of State's World Military Expenditures and Arms Transfers (WMEAT) 1979–1989 and 1999–1989. Data from the Inter-University Consortium for Political and Societal Research (ICPSR). C/GDP from Penn World Tables (Consumption Share of RGDP).

Countries included are the United States, Russia, China, France, Japan, United Kingdom, Germany, Italy, India, South Korea, Brazil, Israel, Turkey, Spain, Canada, Australia, Taiwan, Netherlands, Indonesia, Mexico, Greece, Poland, Iran, and Syria.

**Notes:** Only 24 of the top 25 used, because private consumption data are not available for Saudi Arabia. Only the years 1990 to 1999 are used for Russia (for 1979 through 1989, private consumption data are not available). Consumption estimated at 64.5 for Taiwan in 1999. Military expenditures for Iran from 1983–1988 are not available. 486 total observations.

for other factors that, when taken into consideration, may render military expenditures and private investment as having, in reality, no relationship (such as the onset of war impacting both separately).

### 3.6 EXPLORING THE CAUSES OF MILITARIZATION

International disputes lead countries to spend a higher proportion of their GDP on military expenditures because of what is called the **security dilemma**. When two countries each perceive the other as a threat, both countries will buy and construct weapons in an attempt to have more than the other. Because both sides are obtaining weapons, neither side will be able to stop obtaining weapons. This situation results in an **arms race**.

#### 3.6.1 Modeling the Security Dilemma

Figure 3.16 illustrates the security dilemma using **game theory** (a theory designed to understand how individuals behave when they expect their actions to influence the behavior of others). In game theory, there are two actors, for example, the United States and the Soviet Union (U.S.S.R.). Each side can choose one of two courses of action (to arm or disarm). The action one actor chooses will have implications for the action taken by the other. For example, if the U.S. chooses to arm and the U.S.S.R. chooses to disarm, then

### 3.7 KEY POINTS

#### Key Macroeconomic Points:

- Theory suggests that military expenditures can harm an economy by crowding out the private sector. However, the empirical evidence presents only a weak negative relationship between U.S. military expenditures and U.S. private investment.
- Though the United States spends significantly more on defense than any other country in the world, it spends only a moderate amount relative to the size of its economy. Countries that are involved in major international disputes are commonly highly militarized, unless they have military support from the United States (such as South Korea, Taiwan, and Europe).
- The ability of weapons to produce national security is constrained by diminishing marginal returns—each additional weapon fails to add as much to a country's national security as the previous weapon.

#### Key Microeconomic Points:

- The short-term costs of moving along a country's Production Possibilities Frontier (trading "guns" for "butter") means that disarming can, in the short run, be economically harmful.
- Game theory can illustrate the security dilemma (that states will continue to amass weapons in an effort to have more weapons than their rival, so as to prevent their rival from defeating them in a military confrontation).
- Because arming a country can take resources away from the civilian sector, arms races can be detrimental to economies with small production possibilities frontiers.

#### Key Terms

Disarmament	Negative relationship/Negative correlation
Production possibilities frontier	Positive relationship/Positive correlation
Increasing opportunity costs	Militarization
Crowding out effect	Security dilemma
Disposable income	Game theory
Marginal propensity to consume	Dominant strategy
Marginal propensity to save	Nash Equilibrium
Closed economy	National security function
Peace dividend	Utility
Scatter-plot diagram	

#### Key Questions:

1. Why do you think U.S. military expenditures have fluctuated more over the past 50 years than U.S. nonmilitary government expenditures?
2. Using the macroeconomic identity  $Y = C + I + G + (X - M)$ , illustrate why government expenditures may crowd out private investment.
3. Which do you think is a better measure of how "militarized" a country has become: its level of military expenditures, or its level of military expenditures relative to its GDP? Why?
4. For years, India and Pakistan have disputed who controls the region of Kashmir. Because this dispute has led to war on three occasions over the past 50 years, both countries feel threatened by the other. Use game theory to illustrate how this will lead to an arms race.
5. Continuing from the previous question, if Pakistan has a smaller economy than India, illustrate why an arms race will be more harmful to Pakistan than to India.