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Report to the Chairman, Committee on the Budget, U.S. Senate

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BUDGET ISSUES

GDP Analysis Broadens Budget Debate

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The Honorable Jim Sasser
Chairman, Committee on the Budget
United States Senate

Dear Mr. Chairman:

Based on your request and discussions with your office, this letter summarizes the concept of gross domestic product (GDP) budgeting and provides comparative information on gross fixed capital formation (physical capital excluding inventories), health care consumption, and education consumption in the United States and comparable countries to illustrate both the utility and the potential shortcomings of such an approach. Gross domestic product is the value of goods and services produced within the United States, and differs only slightly from gross national product (GNP), the value of goods and services produced by residents of the United States.

Results in Brief

The GDP budgeting concept can be a useful tool because it broadens the debate beyond federal revenue and spending policies by including information on the allocation of total GDP. In a mixed economy, national goals are achieved both through federal tax or spending programs and other policy actions, such as regulation, and through the action of the state, local, and private sectors. Federal policy decisions affect the behavior of individuals, private entities, and state and local governments. The country achieves its national objectives through the use of all economic resources, not just those allocated through the federal budget process. Considering all sectors of the economy when developing federal taxing and spending policies could help budget decisionmakers better achieve desired economic outcomes.

Although international comparisons can improve policy decisionmaking, there are certain limitations to the data. Data for these type of comparisons are not always readily available, and it can be difficult to achieve comparability because of socioeconomic or demographic factors. More important, data on resources allocated to sectors of the economy do not necessarily reflect the outcomes that are received.

Background

Economist Herbert Stein has written extensively on national resource allocation, which he calls "budgeting the GNP."[1] Dr. Stein has argued that focusing solely on federal revenues and spending is too narrow. Instead, he suggests that the first step in federal budgeting should be to consider how national resources should be allocated. In his view, federal decisions on spending, taxing, and regulation should then be pursued with an eye to supporting these broad economic goals. The U.S. economy is a mix of both the public and the private sectors. Under Dr. Stein's approach, the question of who in this mixed economy—the federal government, state or local government, or the private sector—should finance investment or consumption in particular areas of the economy would be a separate question.

In thinking about how resources should be allocated in the U.S. economy, analysts and decisionmakers can use two types of analytical comparisons. One is to look at historical trends within the U.S. economy—a traditional approach typically used in assessing the economy. Another is to compare the allocations in the United States to those of other nations. Neither historical trends nor international comparisons provide a "correct" answer. Both, however, can help raise questions for which the answers would advance the debate and improve policy decisions. As evidenced by the debate surrounding health care, other countries can provide interesting insights into policy debate. Comparing historical trends in the composition of the U.S. economy to those of other industrial economies can help provide a context for assessing the current allocation of U.S. economic resources.

The Final Report of the House Members of the Joint Committee on the Organization of the Congress recommended that the Council of Economic Advisers be required to include a GNP analysis, similar to that advocated by Dr. Stein, in the Economic Report of the President. In testimony[2] before the Subcommittee on the Legislative Process, House Committee on Rules, we stated that if the Congress chooses to adopt this provision, we would suggest one technical but important change—that the requirement be for a GDP analysis rather than a GNP analysis. This would be consistent with the fact that in 1991 the United States joined the rest of the industrialized world in shifting its focus from GNP to GDP. Since other industrialized nations use GDP data, international comparisons will be easier if our national resources budgeting effort also uses GDP.

[1]Herbert Stein, Governing the $5 Trillion Economy (New York: Oxford University Press, 1989).

[2]Budget Process: Some Reforms Offer Promise (GAO/T-AIMD-94-86, March 2, 1994).

Scope and Methodology

In comparing countries, we used data collected by the Organization for Economic Cooperation and Development (OECD) primarily for the period 1970 through 1989 for the members of the G-7 (Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States) as well as for Sweden and Australia. We did not audit OECD data. The majority of the comparisons represent the use of resources as a percentage of each country's GDP. In those cases where comparisons were made in U.S. dollars, values in the other countries' currencies were converted by using purchasing power parities, an accepted rate of currency conversion that attempts to eliminate the differences in price levels between countries. To illustrate more clearly the differences among nations' economic choices, we also calculated an index which shows the average percentage of GDP all the nine countries devote to particular sectors and compared each nation's allocation to that average.

As you requested, we have provided additional source information on the data used including definitions. (See appendix I.) Appendix II provides, among other data, the cross-nation comparisons for gross fixed capital formation, health care consumption, and education consumption. Appendix III presents the nine countries' economic allocations in 1990 or the most recent year for which data were available, and appendix IV provides the additional information you requested on education.

United States Ranked Lowest in Gross Fixed Capital Formation

As our analysis of the data shows, the United States in 1970 and 1989 ranked last among the nine countries in gross fixed capital formation as a share of GDP. Although the relative ranking of countries can change and trends can increase or decrease from year to year, of the nine, only Canada and the United Kingdom had a net increase in their share of GDP devoted to investment in physical capital between 1970 and 1989. Comparing each of the nine nations to the group's average share of GDP devoted to this sector showed large differences between countries. At one end, Japan is almost 50 percent above the average; while the United States, at the other end, is approximately 20 percent below the average.

These comparisons should not be read as suggesting that the United States must invest at the rate reported in other industrial nations. Both differences in business cycles—which have not been factored into this work—and differences in national priorities may account for allocation differences. However, the fact that gross fixed capital formation in the United States is declining as a percent of GDP when the United States already occupies the last position among its chief competitors, at a

minimum, suggests the need to think about this question and to reexamine public policies involving capital formation, as well as other forms of investment. Long-term economic growth, a central concern to the nation, depends on many things, but private and public investment in infrastructure, human capital, and technology are essential. Without improved productivity and increased growth, the nation cannot continue to expect an ever-improving standard of living for future generations.

United States Ranks Highest in Health Care Consumption

Health care consumption presents a sharp contrast to the findings about gross fixed capital formation: health care consumption in the United States has grown dramatically as a percentage of GDP. In 1970, the United States was virtually tied with Canada as the economy with the highest percentage of resources devoted to health care. By 1987, the most recent year for which data are available for all nine countries, the United States had surged past Canada and still remained well ahead of the other nations. Throughout the 1980s, France and Sweden also devoted a rapidly growing share of their resources to health care, but both remain well below levels reported in the United States.

As might be expected from these trends, the United States is more than 20 percent above the nine-nation average for percentage of GDP spent on health care. The United Kingdom, the lowest of the nine, is 37 percent below the average.

These comparisons should not be read as suggesting that the United States should spend the same proportion of GDP on health care as other nations. However, we and other organizations have raised concerns over whether the United States is receiving health care commensurate with the resources spent and whether the increased spending on health care is affordable in an environment of limited resources and competing social demands. In our December 1992 Transition Series report, Health Care Reform, we pointed out that the inexorable rise in health care costs is constraining the financial capability of federal and state governments to address other pressing social concerns. In a 1992 study, Economic Implications of Rising Health Care Costs, the Congressional Budget Office found that there are strong reasons to believe that, in the United States, the marginal costs of health care often exceed the value of the marginal benefits received. Most recently, the 1994 Economic Report of the President points out that the U.S. health care system is far from efficient, stressing the inconsistency between the greater resources spent on health care as a percent of GDP in the United States and lower life expectancies

relative to other countries. The Economic Report of the President also stresses the danger that escalating health care costs will continue to confront federal, state, and local governments with painful choices among increased taxes, cuts in other programs, or increases in the deficit.

Since the elderly tend to consume a greater share of medical care than younger people, we also looked at one demographic factor that may explain why health care consumption is much higher as a share of GDP in the United States than in other countries—the proportion of elderly residents in each country. Since the United States spends a greater share of GDP on health care than other countries, one might expect that the United States would also have the highest proportion of elderly in its population. However, the United States ranks sixth among the nine in proportion of elderly citizens, while the United Kingdom, which uses the lowest percentage of GDP for health care among the nine, has the second highest proportion of elderly citizens. This suggests that other elements may be equally or more important in driving health care spending.

United States Ranks High in Education Consumption

The United States ranked second among seven nations[3] in both 1970 and 1987 in resources devoted to education although the differences between the various countries is generally small. Only Canada is higher, and the United States is gaining. When viewed in terms of spending per person in the age group 2-29, the United States leads even Canada. In addition, the U.S. allocation of GDP for education for all age groups grew slightly during this period.

In light of publicly expressed concern regarding the effectiveness of the U.S. educational system and its perceived underfunding, the U.S. position near the top of the seven countries may be unexpected. This ranking may be due in part to the difficulty of collecting data on education from these countries. The lack of complete data on privately financed training and apprenticeship programs may make other countries appear to spend less than they do. Moreover, any aggregated data obscure regional variations, which may be greater in countries with federal structures, such as the United States. In addition, variance in education spending across countries can reflect differences in the value given to particular elements, such as special or postsecondary education. However, these national comparisons still raise the question of whether the United States, as it considers increasing the level of funding for education, should look more closely at the effectiveness of current resource use.

[3]Comparable data were unavailable for Japan and Germany.

Because you expressed particular interest in more information on education, appendix IV provides additional comparisons. The data set, obtained from Education at a Glance, a 1992 report by the OECD, is relatively new and therefore cannot be used to show trends; it can provide comparative data on education spending for 1988 only. It is noteworthy that in these data, the United States continues to devote higher levels of resources to education than most of the comparison countries.

Conclusions

Examining U.S. economic data in the GDP budgeting context and using international comparisons can provide an improved sense of relative U.S. priorities and may help focus budget policy debate. Although this framework is limited, the concept can focus budget debate on the allocation of total GDP, not just that part which is controlled directly by the federal sector.

Budgeting the GDP also involves much more than assessing U.S. economic trends as compared with those of other industrial countries. Implementing such a budgeting approach would involve a more detailed understanding of the underpinnings of these economic allocations than this aggregate level of data can provide; more needs to be known about the impact of changes in federal spending as well as tax and regulatory policies on the allocation of national economic output. Moreover, such analyses need to take into account the distributional consequences of such allocations across various income groups in society. Such an approach would provide greater awareness of the consequences of changing the allocation devoted to one economic sector on the others.

This type of data does not capture the results attained for the resources that have been allocated. It can, however, both provide a context for assessing trends in the United States and raise questions, the answers to which could help better target federal policies for constructive economic results. For example, the current debate over health care reform has brought such comparisons to public attention and allowed the debate to focus not solely on federal costs but on the total cost of health care to the economy.

We look forward to working with you and your office on these issues in the future. If you wish to discuss this information further, please contact me at (202) 512-9573. Major contributors to this report are listed in appendix V.

Sincerely yours,

Paul L. Posner

Paul L. Posner
Director, Budget Issues

Contents

Abbreviations

GDP	gross domestic product
GNP	gross national product
ISCED	International Standard Classification of Education
OECD	Organization for Economic Cooperation and Development
UNESCO	United Nations Educational, Scientific, and Cultural Organization

Sources and Definitions

Sources

The data in the figures in appendix II are from the Organization for Economic Cooperation and Development (OECD) National Accounts, Volume 2: Detailed Historic Tables. The classifications are organized according to the System of National Accounts used by the OECD and the United Nations. All percentages in the pie charts have been rounded to the nearest percentage point. The data in appendix IV are from the 1992 OECD publication Education at a Glance.

Definitions

The OECD defines the components of gross domestic product (GDP) as follows:

Total final consumption expenditure. This represents government final consumption expenditure and private final consumption expenditure. Government final consumption expenditure is the value of goods and services produced by governments for their own use less the value of sales and the value of capital formation. Private final consumption expenditure is the outlays of resident households for new durable and nondurable goods and services less sales of secondhand goods, scraps, and waste. It also includes the value of goods and services produced by private nonprofit institutions for their own use. The sections listed below are components of total final consumption expenditure.

Defense. This is the defense component of total consumption expenditure. It is entirely made up of public sector expenditure. It represents military and civil defense administration and operation, foreign military aid, defense-related applied research and experimental development, and defense affairs. It includes durable (capital) goods for military use.

Education. The breakdown of education data is based largely on the categories of the International Standard Classification of Education (ISCED) of the United Nations Educational, Scientific, and Cultural Organization (UNESCO). ISCED defines education as organized and sustained communication to bring about learning. It may be conducted within or outside an official school system or institutional arrangement. ISCED covers education for all types of students and for all age groups, including adults. Education includes activities that in some countries and in some languages may be described as "training" or "cultural development." It excludes types of communication that are not designed to bring about learning or are not planned in a pattern or sequence with established aims, for example, leisure-time activities. It excludes capital formation, such as new school buildings.

In OECD calculations, apprenticeship programs are classified as belonging to formal education. Such programs typically involve alternating between educational institution learning (ordinary or specialized) and learning through work experience programs, which may include highly organized training in a firm or with a craftsperson. There must be a legal arrangement between the apprentice and the firm or craftsperson. Apprenticeship programs are considered technical/vocational education.

Health care. Health care consumption includes expenditures for hospital affairs and services; clinics; medical, dental, and paramedical practitioners; public health affairs and services; medicaments, prostheses, medical equipment and appliances or other prescribed health-related products; and applied research and experimental development related to health and medical delivery systems. Hospital affairs includes general and specialized hospitals, medical and maternity centers, and nursing and convalescent home services. Public health affairs and services include administration, management, and so forth of items such as blood banks, population control services, and disease detection services. It excludes capital formation, such as new hospital buildings.

Transportation/communication. Transportation and communication consumption includes road transport, water transport, railway construction, air transport, pipeline transport, other transport system affairs and services, and communication affairs and services. It excludes capital formation (except for railway construction), such as new roads. The U.S. reliance on road systems and other countries' reliance on railway systems would be a factor to consider when viewing this category for comparison purposes.

Other consumption. This is a residual figure. Total consumption expenditure minus the just mentioned categories equals "other." On the public sector side, it includes general public services; public order and safety affairs; social security and welfare affairs and services; housing and community amenity affairs and services; recreational, cultural, and religious affairs and services; fuel and energy affairs and services; agriculture, forestry, fishing and hunting affairs, and services; mining and mineral resources affairs and services; manufacturing affairs and services; construction affairs and services; and other economic affairs and services. On the private sector side, it includes food, beverages, and tobacco; clothing and footwear; rent, fuel, and power; furniture, furnishings, and household equipment and operation; recreation, entertainment, and

cultural services; miscellaneous goods and services; and consumption of private nonprofit institutions serving households.

The items listed below are not part of total final consumption expenditure, but represent the rest of the economy, or GDP.

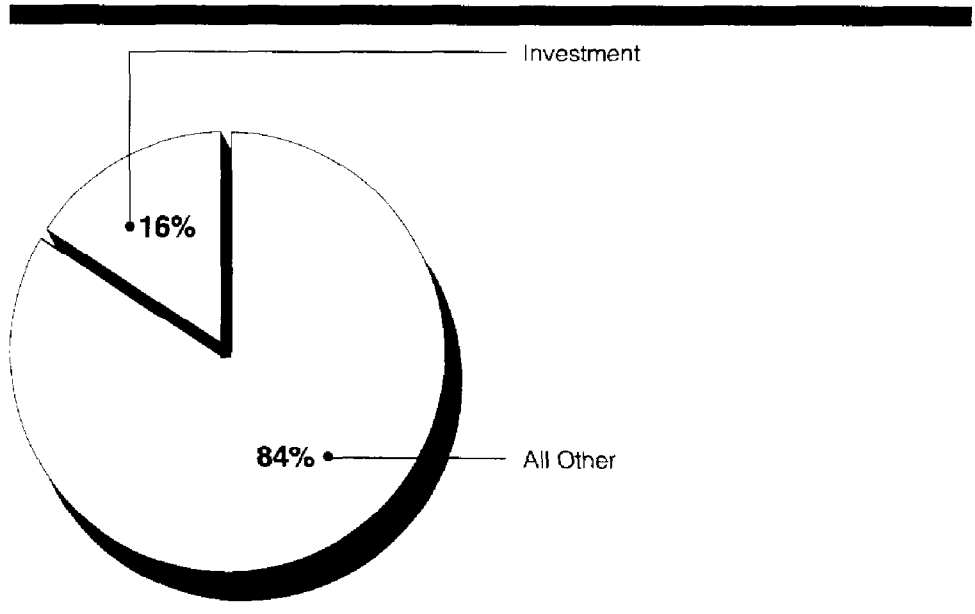
Increase in stocks. The market value of the physical change in stocks of materials, supplies, work-in-progress (except on construction projects), finished products, and livestock raised for slaughter; in merchandise held by resident industries; and in stocks of strategic materials and emergency stocks of important products held by government. It could be described as inventory investment.

Gross fixed capital formation. The outlays of industries, producers of government services, and producers of private non-profit services to households for additions of new durable goods to their stocks of fixed assets less the net sales of similar secondhand or scrap goods. Excluded are the outlays of government on durable goods for military use.

Net exports. The net transfers of the ownership of goods and services provided between residents of a country and nonresidents.

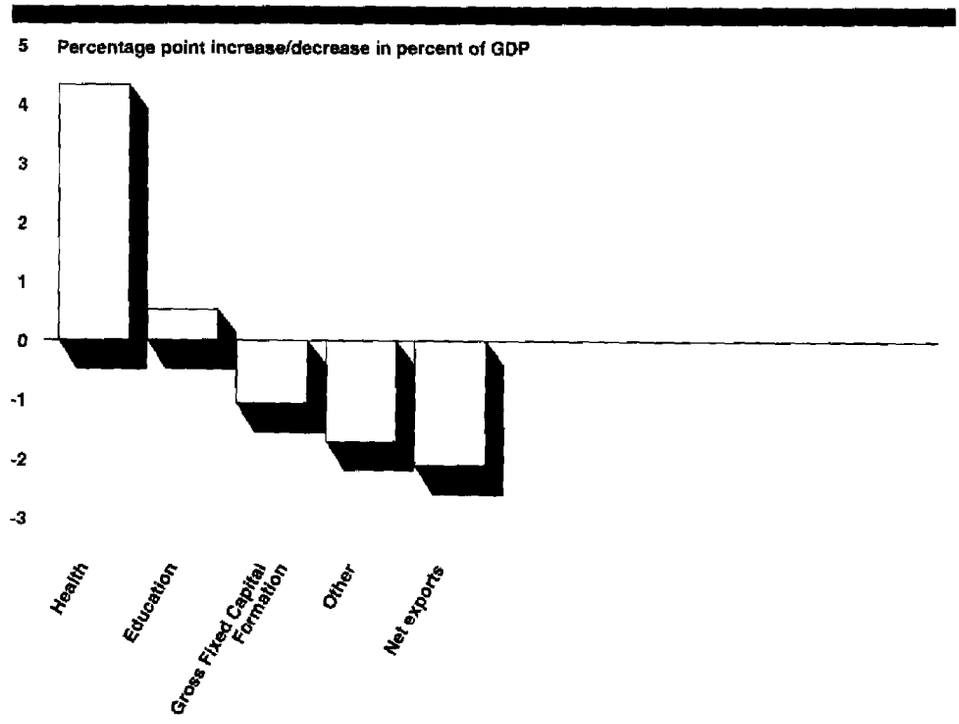
Cross-National Comparisons

Figure II.1: Composition of U.S. Economy, 1990 (Percent of GDP)



Note: All other includes consumption and net exports (85.49 and –1.48 percent of GDP, respectively).

Figure II.2: Shifts in the Composition of the U.S. Economy Between 1970 and 1989



Note: Other includes other areas of consumption and inventory investment.

Figure II.3: Gross Fixed Capital Formation, 1970 and 1989

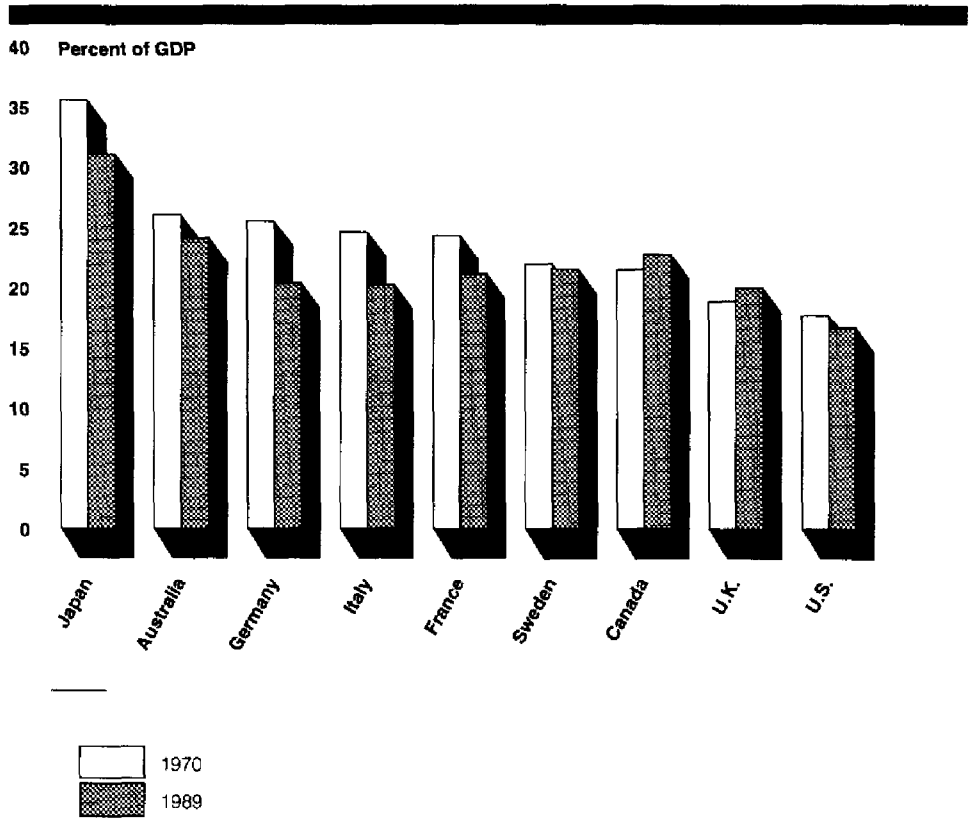
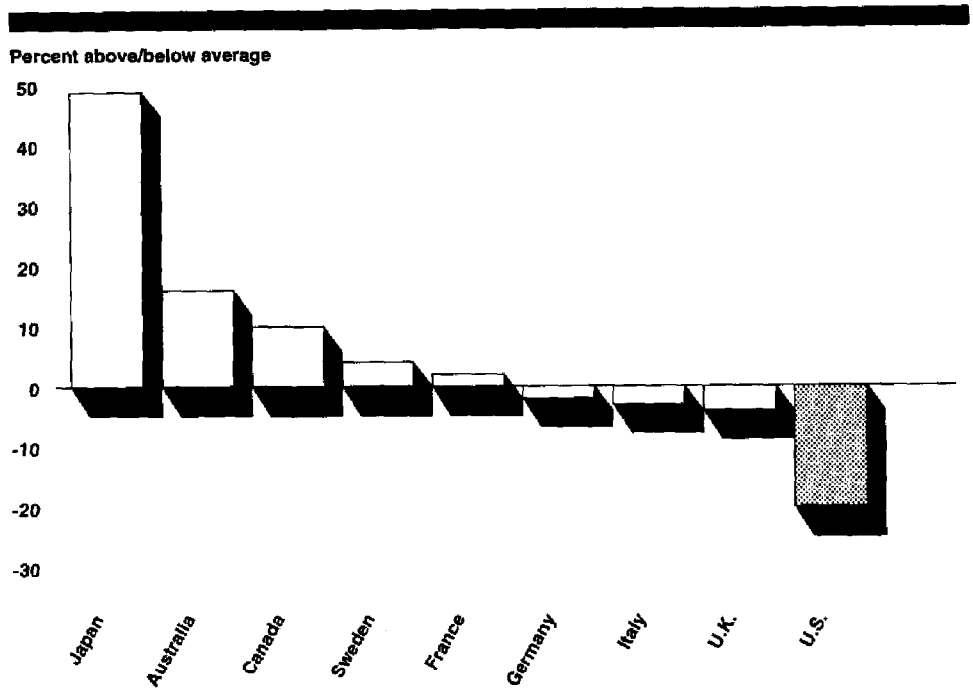


Figure II.4: Index of Country's Capital Formation Relative to the Average Share, 1989



Note: The values represent the amount above or below the average that all countries devoted to capital as a percent of their total GDP. A value of zero means that a country's share of GDP devoted to capital equals the average of all the countries.

Figure II.5: U.S. Health Care Consumption

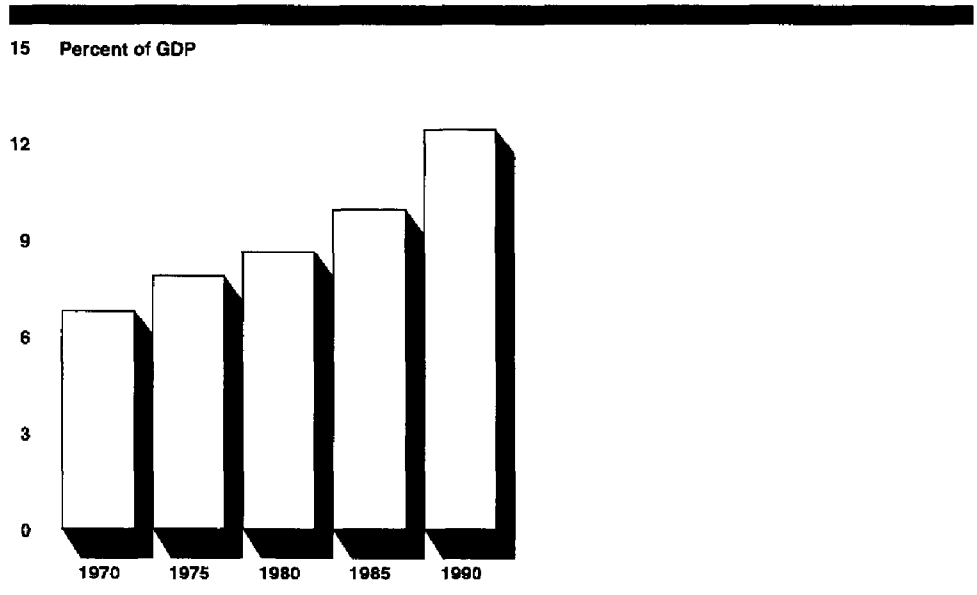
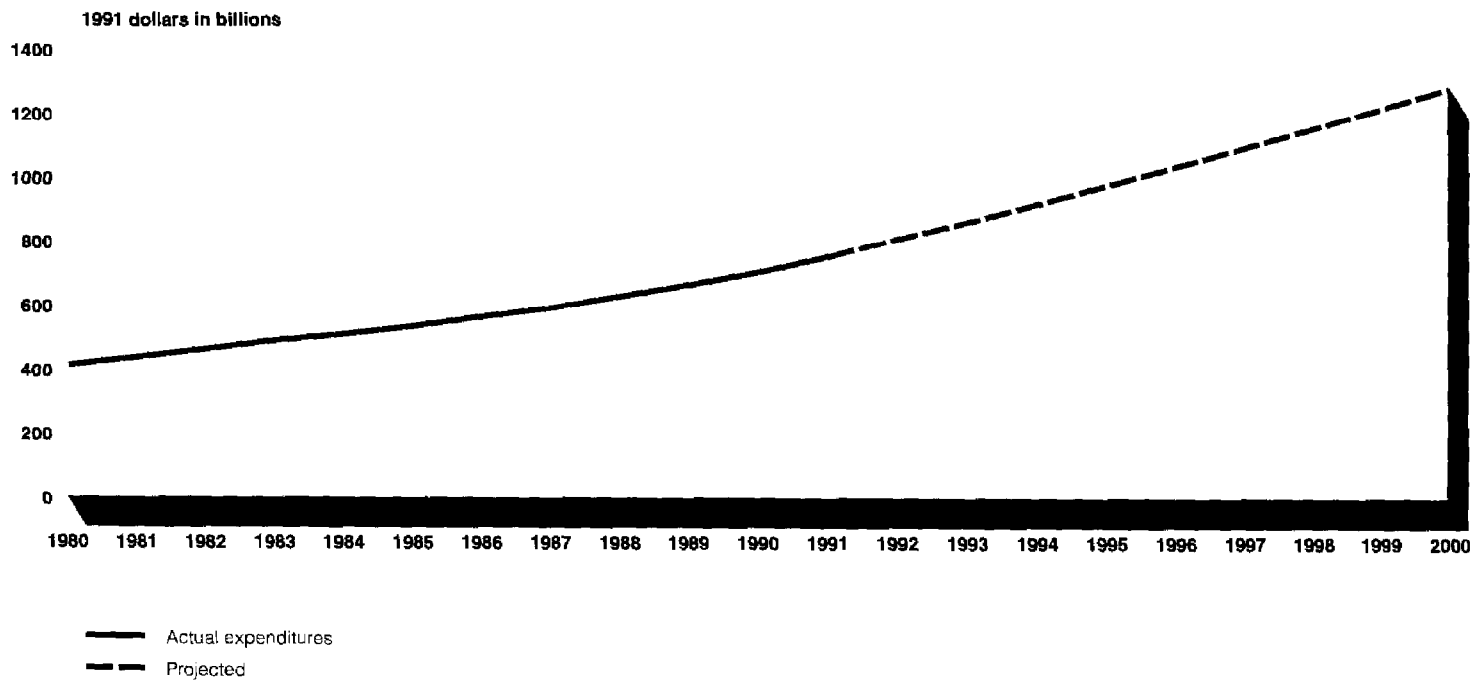
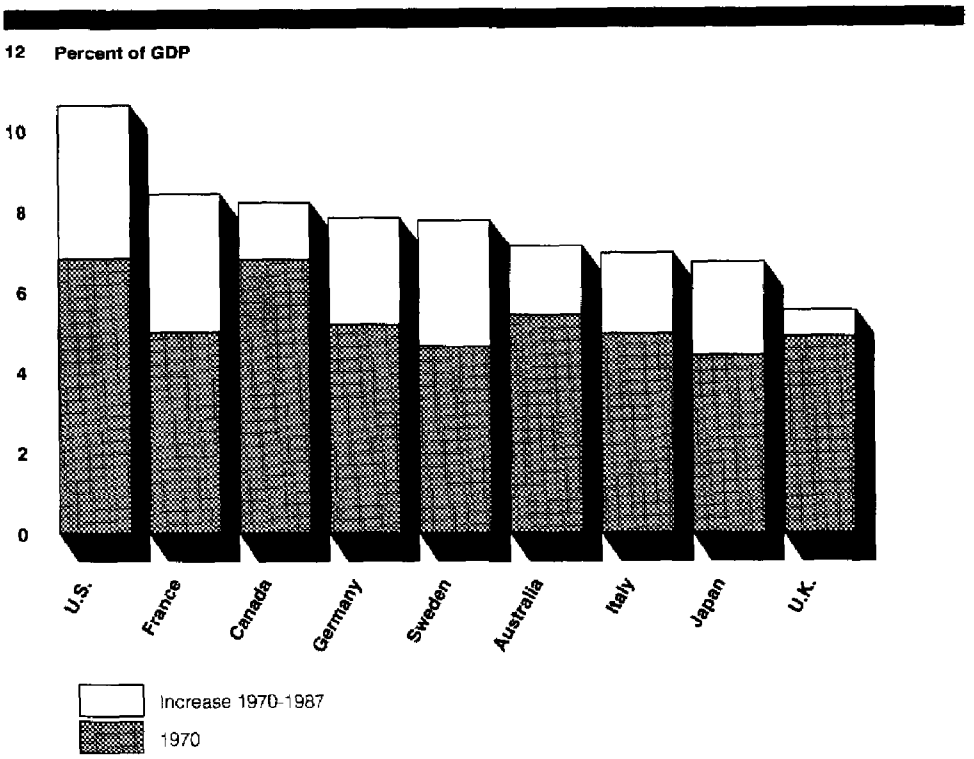


Figure II.6: U.S. Health Expenditures and Projections, 1980-2000



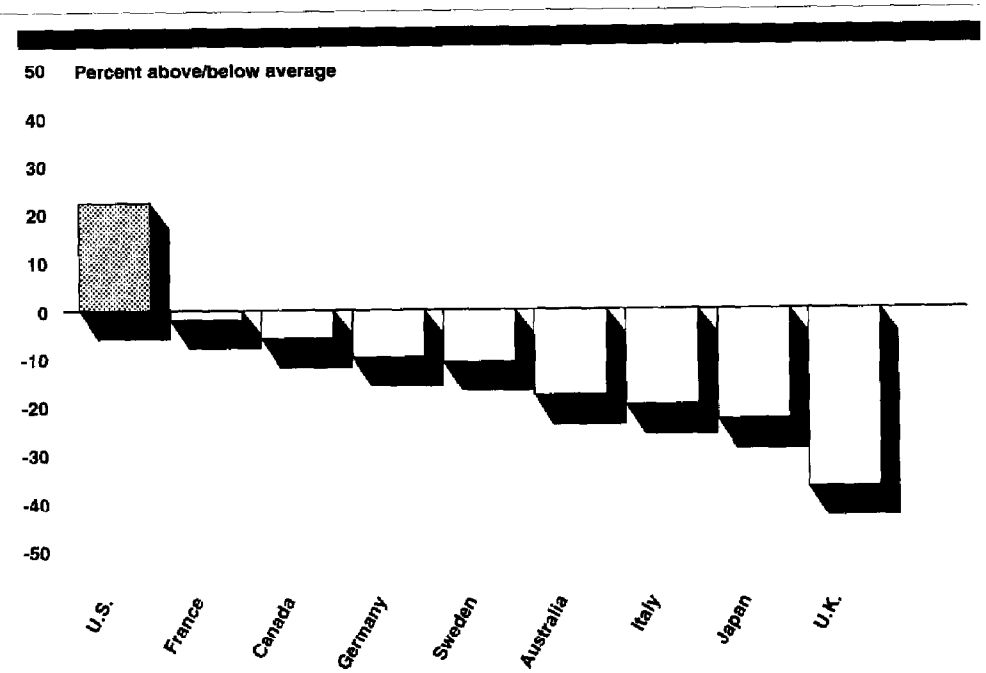
Source: Congressional Budget Office Projections.

Figure II.7: Health Care Consumption by Country



Note: Data for the United Kingdom begin in 1978, France in 1975, and Australia in 1973. Data for Sweden for 1970 represents public sector only.

Figure II.8: Index of Health Care Consumption Relative to the Average Share, 1987



Note: The values represent the amount above or below the average that all countries devoted to health care as a percent of their total GDP. A value of zero means that a country's share of GDP devoted to health care equals the average of all the countries.

Figure II.9: Percent of the Population 65 Years or Older, 1987

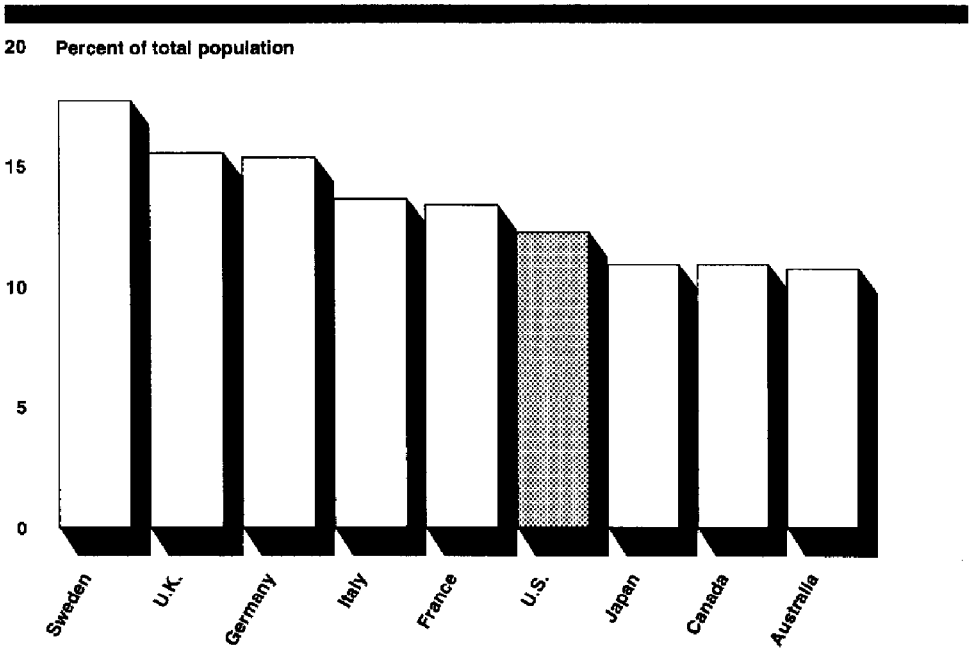
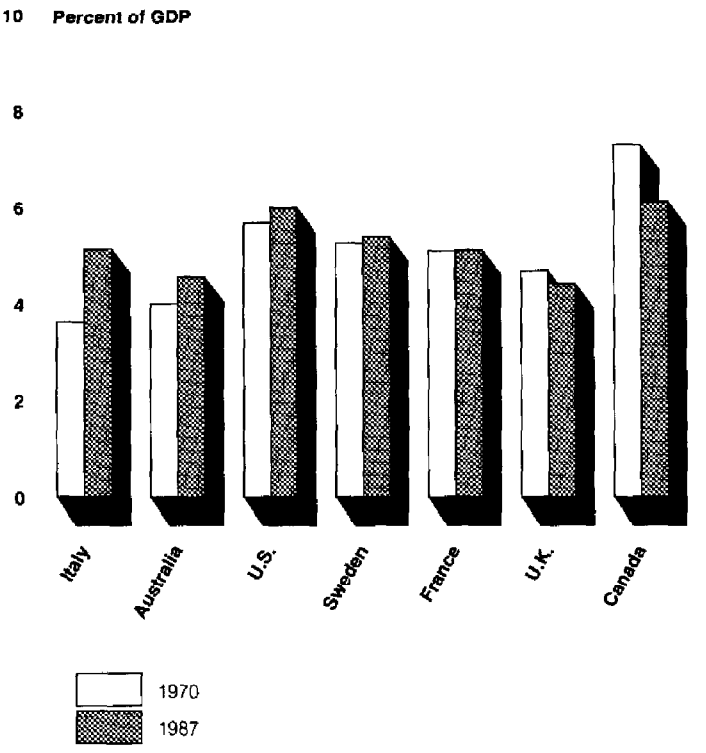


Figure II.10: Education Consumption



Note: Data for the United Kingdom begins in 1978, France in 1975, Australia in 1973. Trend data on total education expenditure is not available for Japan and Germany.

Figure II.11: Education Consumption, Per Capita for Ages 2-29, 1987

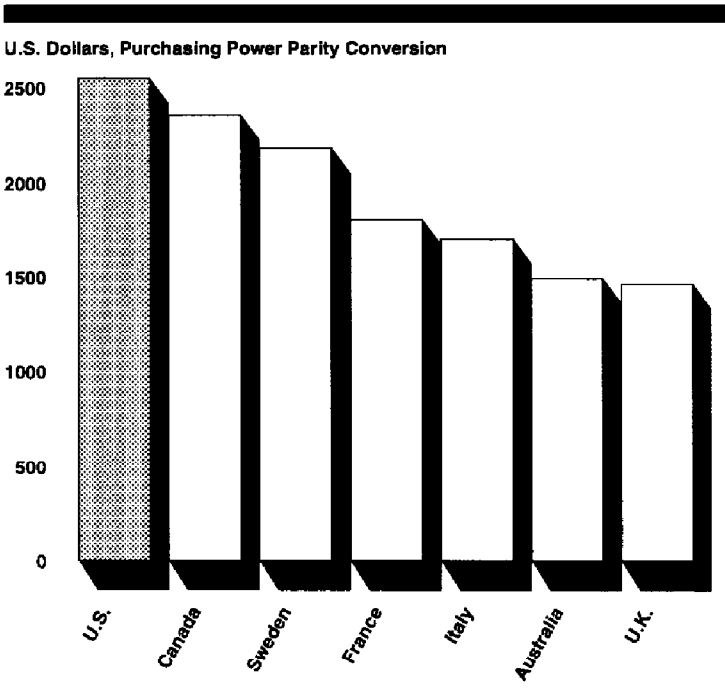
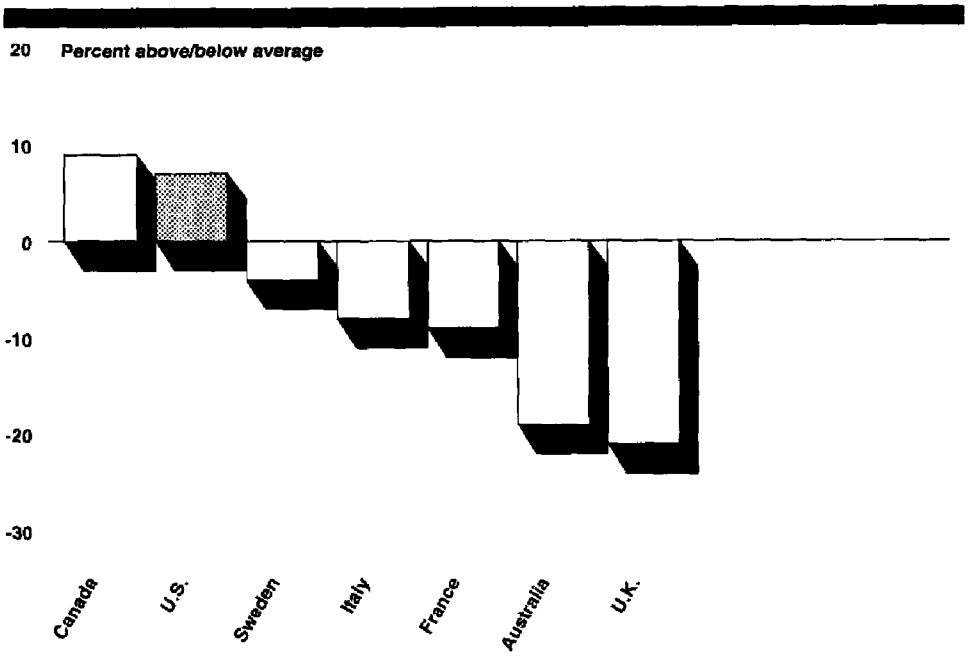


Figure II.12: Index for Education Consumption Relative to the Average Share, 1987



Note: The values represent the amount above or below the average that all countries devoted to education as a percent of their total GDP. A value of zero means that a country's share of GDP devoted to education equals the average of all the countries.

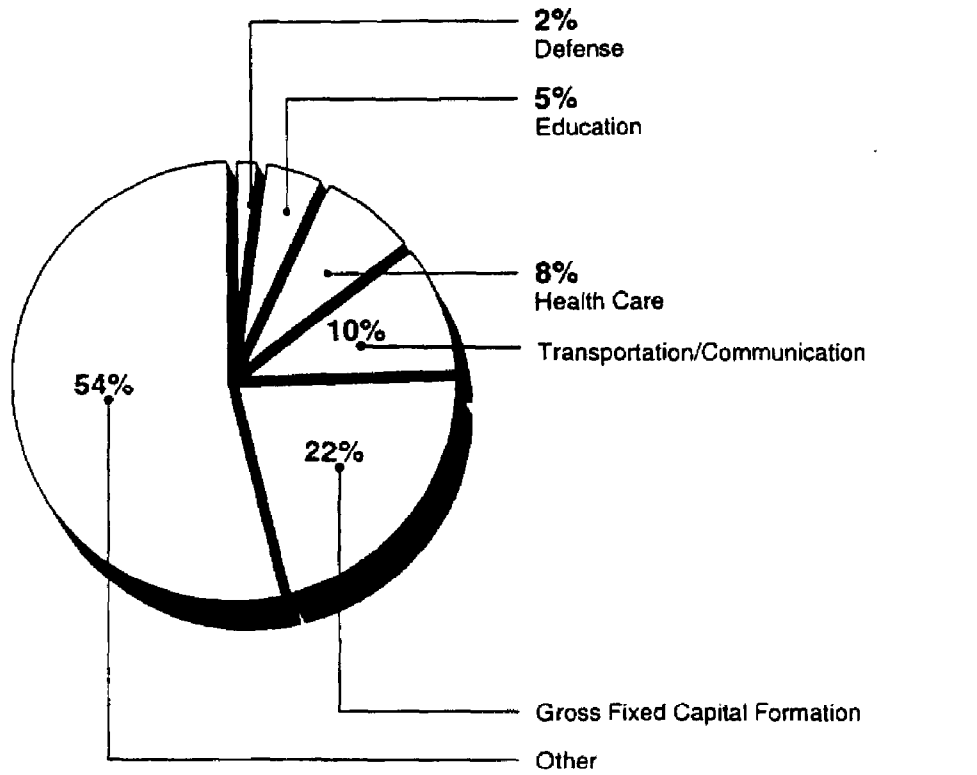
National Economic Allocations

Table III.1: Economic Allocations Across Countries (1990 or Most Recent Year for Which Data Are Available, Percent of GDP)

		Gross fixed capital formation							
Country	Year	Non-residential	Residential	Transportation/ communication	Health	Defense	Education	Other consumption	Other
Australia	1990	17	5	10	8	2	5	54	0
Canada	1987	14	7	11	8	2	6	50	1
France	1988	15	5	11	8	3	5	51	1
Germany	1989	15	5	9	8	2	4	50	6
Italy	1990	15	5	8	7	2	5	57	1
Japan	1990	26	6	6	6	1	3	50	1
Sweden	1989	16	5	10	8	2	5	53	1
U.K.	1990	16	3	11	6	4	4	58	–2
U.S.	1989	12	4	11	11	6	6	50	–1

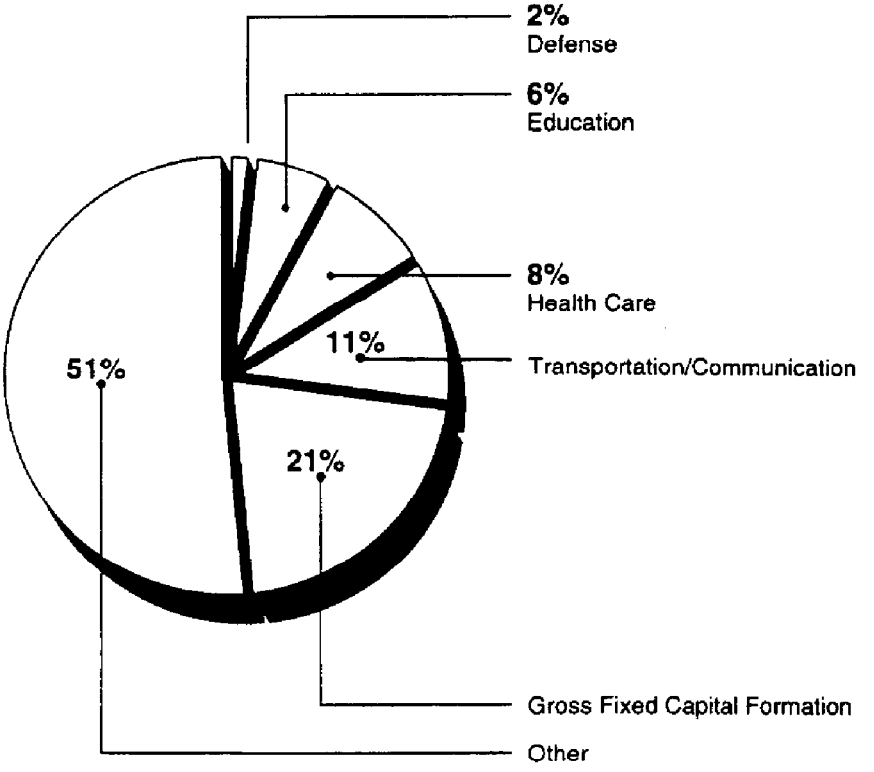
Note: Figures may not add to 100 percent due to rounding. Other represents inventory investment, net exports, and statistical discrepancy. This table summarizes data in the following pie charts.

Figure III.1: Economy of Australia, 1990 (Percent of GDP)



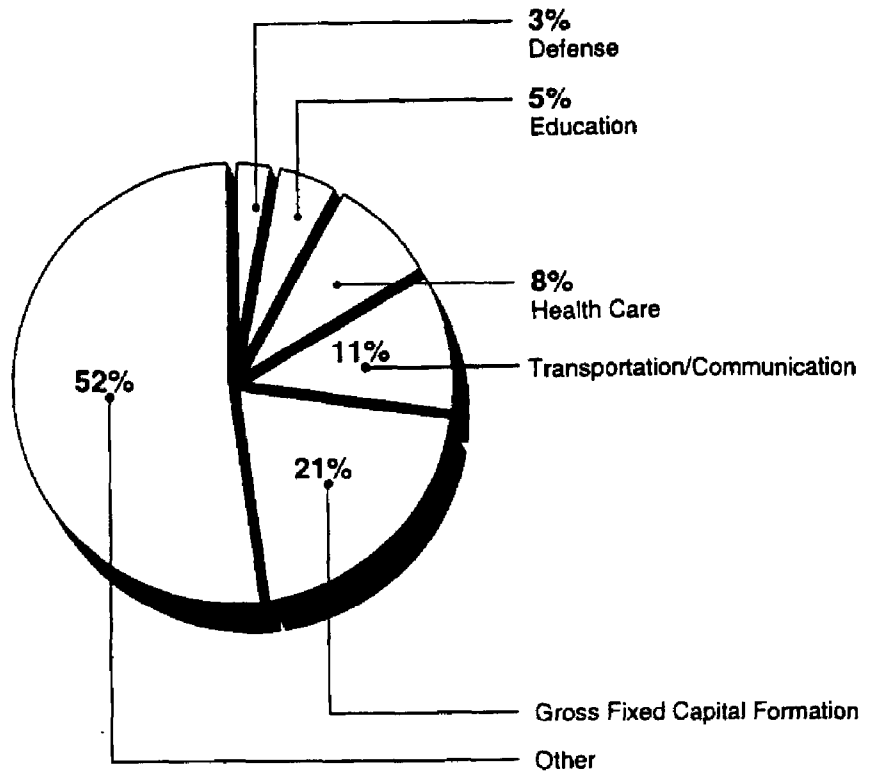
Note: "Other" is largely "other consumption" (see appendix I), but it also includes small amounts of inventory investment, net exports, and any statistical discrepancies.

Figure III.2: Economy of Canada, 1987
(Percent of GDP)



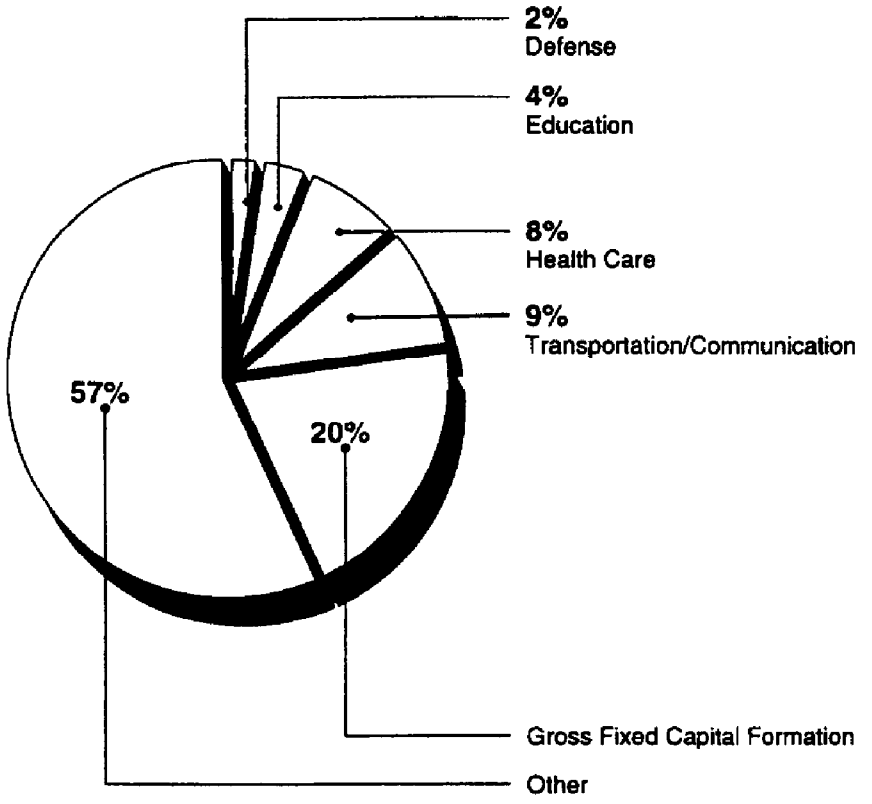
Note: "Other" is largely "other consumption" (see appendix I), but it also includes small amounts of inventory investment, net exports, and any statistical discrepancies.

Figure III.3: Economy of France, 1988
(Percent of GDP)



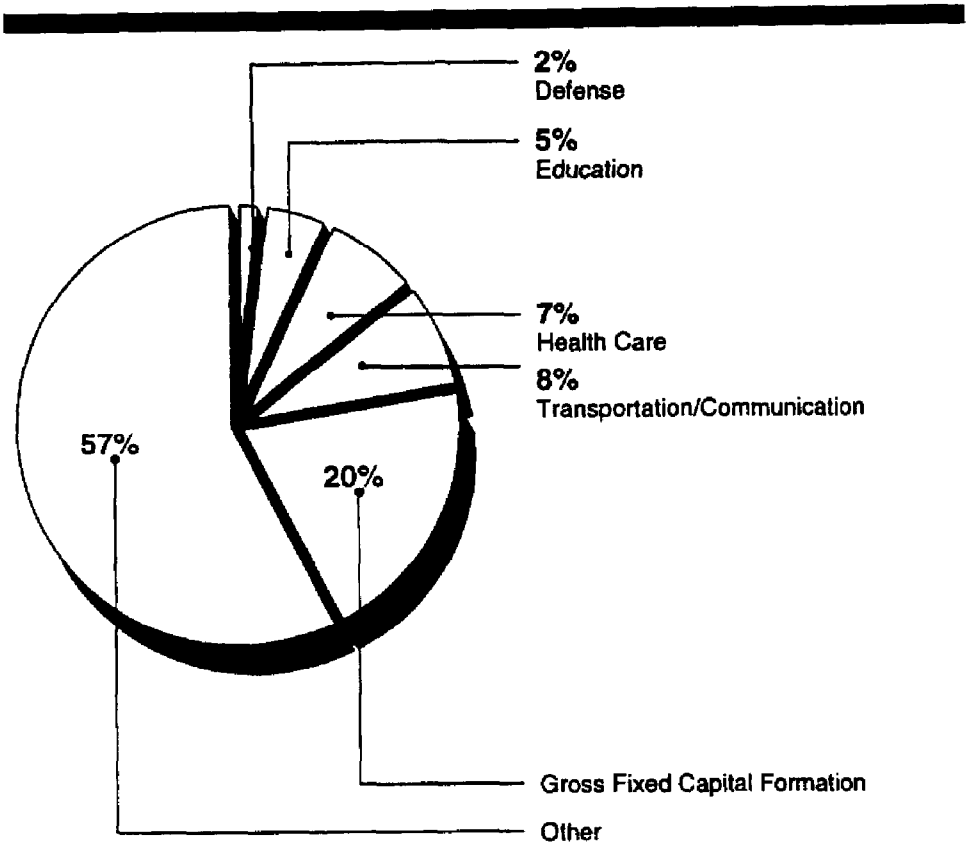
Note: "Other" is largely "other consumption" (see appendix I), but it also includes small amounts of inventory investment, net exports, and any statistical discrepancies.

Figure III.4: Economy of Germany, 1989 (Percent of GDP)



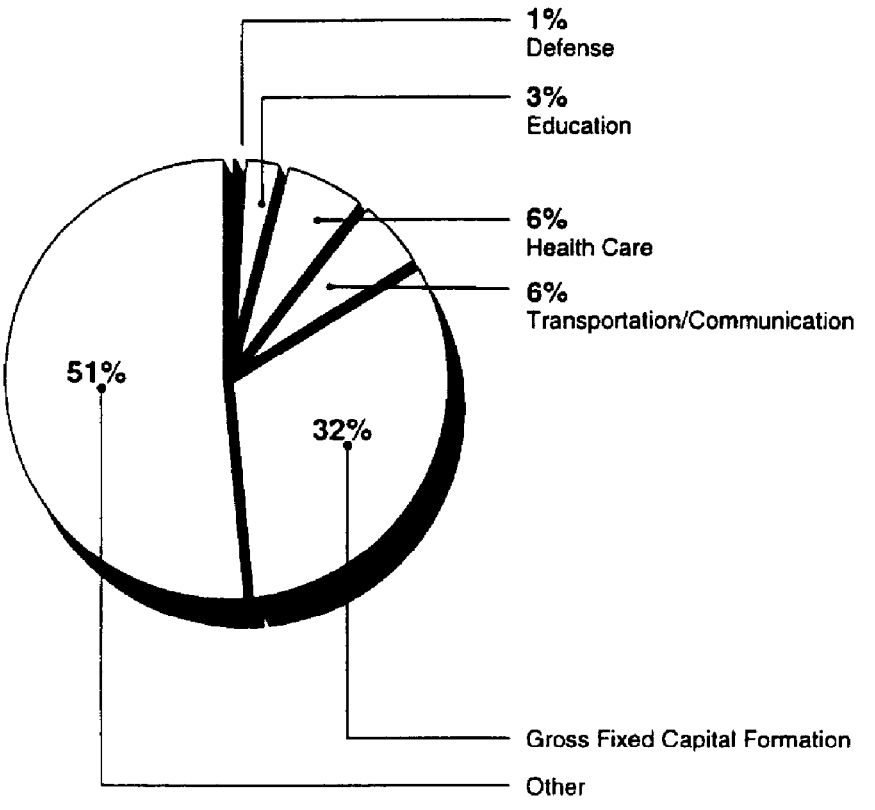
Note: "Other" is largely "other consumption" (see appendix I), but it also includes small amounts of inventory investment, net exports, and any statistical discrepancies.

Figure III.5: Economy of Italy, 1990
(Percent of GDP)



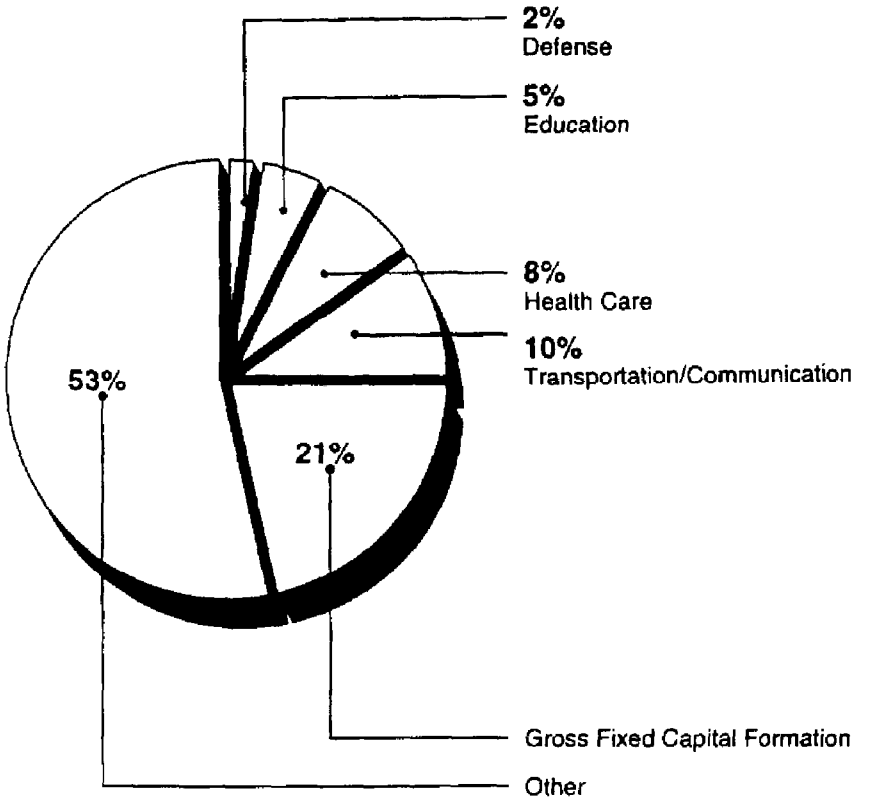
Note: "Other" is largely "other consumption" (see appendix I), but it also includes small amounts of inventory investment, net exports, and any statistical discrepancies.

Figure III.6: Economy of Japan, 1990
(Percent of GDP)



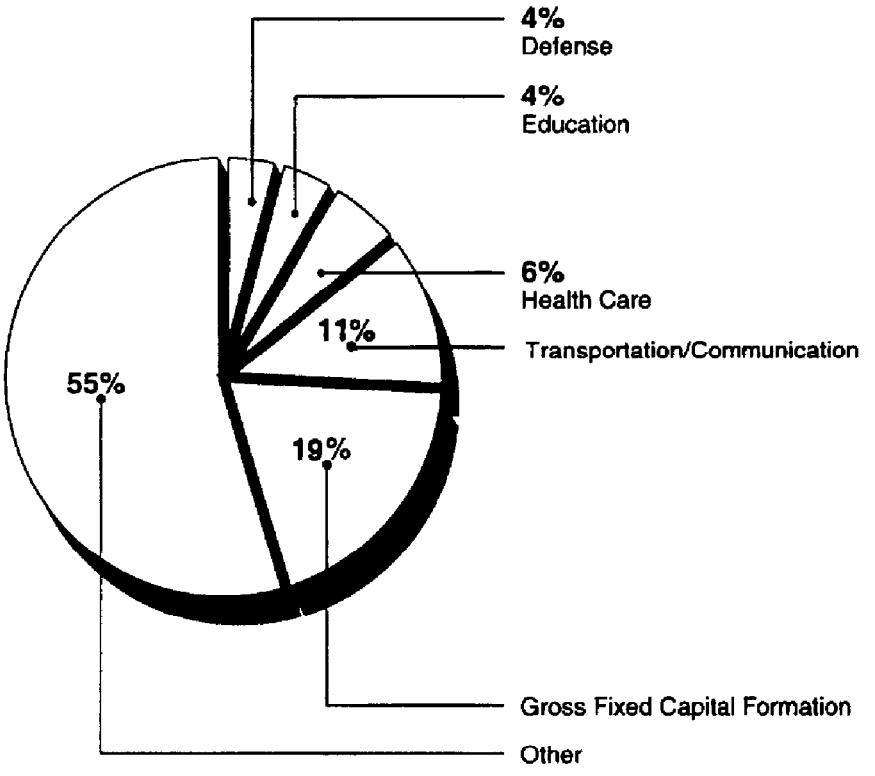
Note: "Other" is largely "other consumption" (see appendix I), but it also includes small amounts of inventory investment, net exports, and any statistical discrepancies.

Figure III.7: Economy of Sweden, 1989
(Percent of GDP)



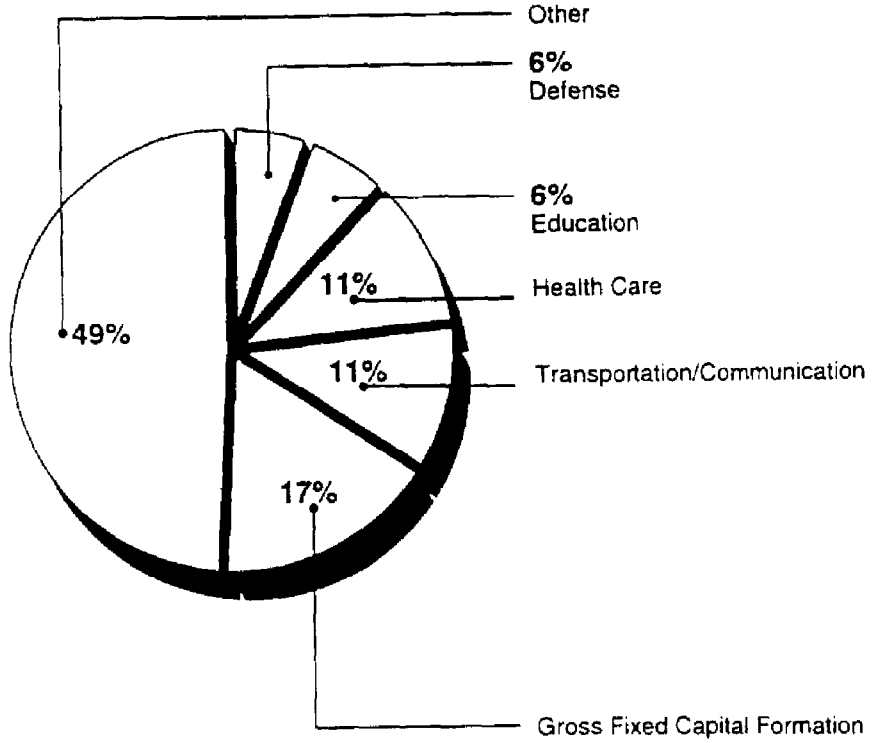
Note: "Other" is largely "other consumption" (see appendix I), but it also includes small amounts of inventory investment, net exports, and any statistical discrepancies.

Figure III.8: Economy of the United Kingdom, 1990 (Percent of GDP)



Note: "Other" is largely "other consumption" (see appendix I), but it also includes small amounts of inventory investment, net exports, and any statistical discrepancies.

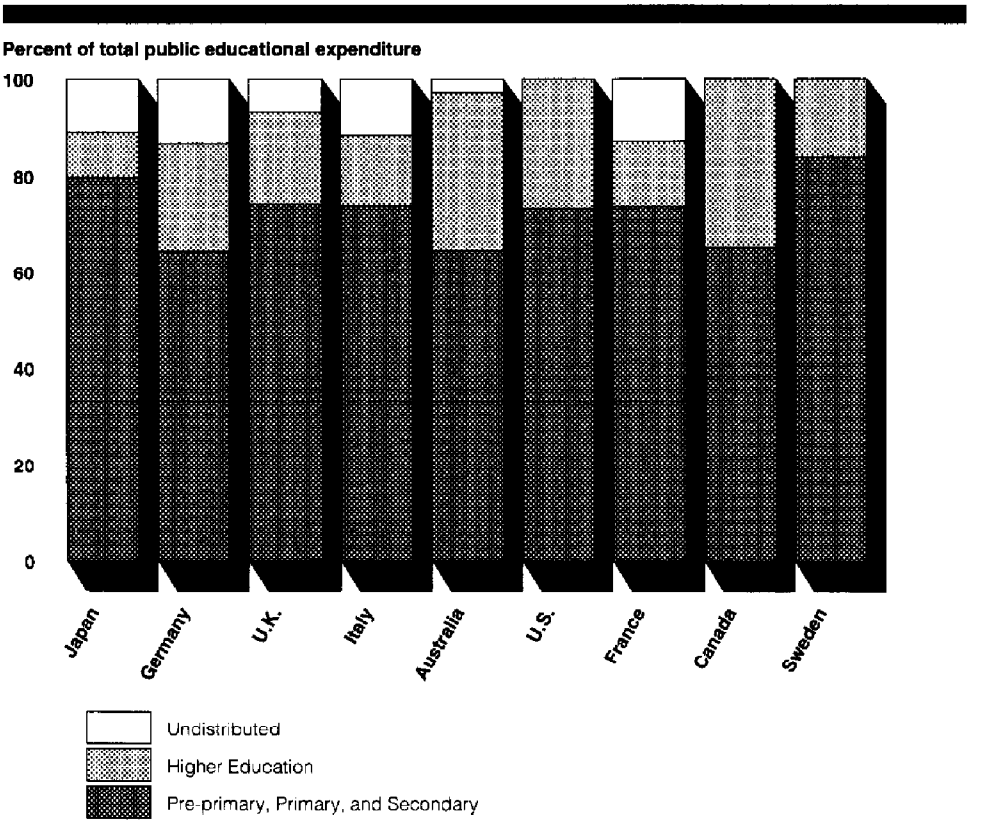
Figure III.9: Economy of the United States, 1989 (Percent of GDP)



Note: "Other" is largely "other consumption" (see appendix I), but it also includes small amounts of inventory investment, net exports, and any statistical discrepancies.

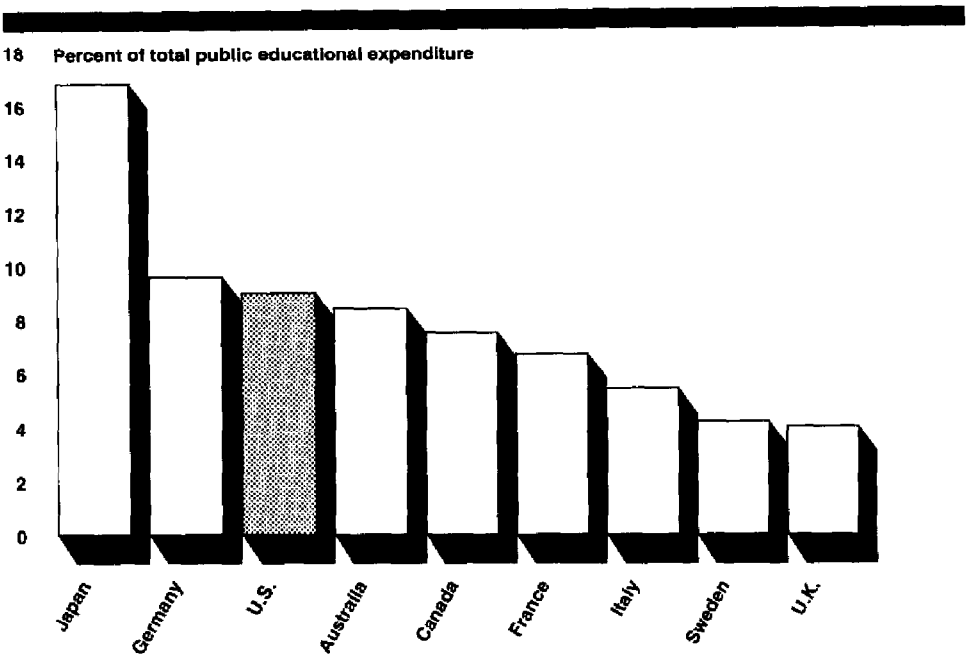
Educational Comparisons

Figure IV.1: Shares of Public Expenditure on Education by School Level, 1988



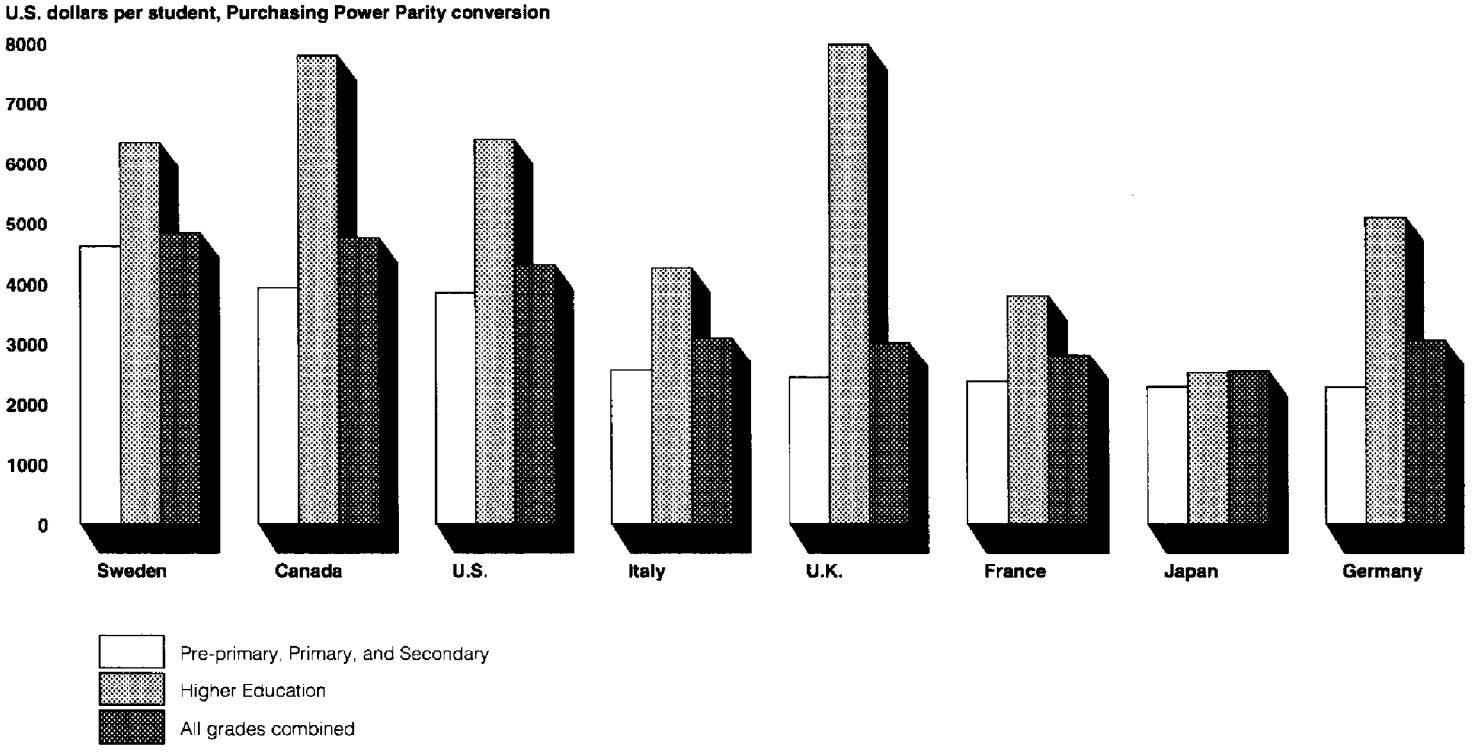
Note: Some countries indicated that a significant portion of education funding was "undistributed," or not allocated between pre-primary, primary, and secondary education and higher education. Public expenditure includes both consumption and capital expenditures. Differences among countries in the shares allocated to the different levels of education may reflect differences in the duration of education at each level. In Australia, expenditure for higher education includes expenditure for vocational secondary education, as it is taught in higher education institutions. In Sweden, preprimary data are estimated. They include only expenditure data for required programs for 6 year-olds, and do not cover programs for younger children.

Figure IV.2: Capital Formation Devoted to Education, 1988



Note: Capital in this case is defined as resources spent on items that last for more than 1 year, such as school buildings and equipment. Capital expenditure data for Germany and the United States include the repayment of loans. The data for Japan include private schools.

Figure IV.3: Public Expenditure Per Student by School Level, 1988



Note: Includes both consumption and capital expenditure. In the data for the United Kingdom, the estimated expenditure for nursing and paramedical students is not included but the number of these students has been counted. Therefore, the cost per student at the higher education level is underestimated. For the United States, higher education data refer to total expenditures by public universities after transfers, including the tuition fees the universities collected from their students.

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