THE SIZE AND FUNCTIONS OF GOVERNMENT AND ECONOMIC GROWTH

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EXECUTIVE SUMMARY

1. This paper shows that excessively large government has reduced economic growth. These findings present a compelling case that rather than devising new programs to spend any surplus that may emerge from the current economic expansion, Congress should develop a long-range strategy to reduce the size of government so we will be able to achieve a more rapid rate of economic growth in the future.

2. The expansion of the U.S. economy has now moved into its eighth year and it has been 15 years since there has been a major recession. Despite this positive performance, the growth of real GDP in the 1990s is less than half the rate achieved during the 1960s. In fact, the average growth rate of real GDP has fallen during each of the last three decades. The economies of other developed nations have followed this same pattern of more stability, but less rapid growth.

3. Government provision of both (a) a legal and physical infrastructure for the operation of a market economy and (b) a limited set of public goods can provide a framework conducive for economic growth. However, as governments move beyond these core functions, they will adversely affect economic growth because of (a) the disincentive effects of higher taxes, (b) diminishing returns as governments undertake activities for which they are ill-suited, and (c) an interference with the wealth creation process, because governments are not as good as markets at adjusting to changing circumstances and finding innovative new ways of increasing the value of resources.

4. In the United States, government expenditures as a share of GDP have grown during the last several decades. At the same time, the investment rate has declined and the growth rates of both productivity and real GDP have fallen. An empirical analysis of the data from 23 OECD countries shows a strong negative relationship between both (a) the size of government and GDP growth and (b) increases in government expenditures and GDP growth. A 10 percentage point increase in government expenditures as a share of GDP is associated with approximately a one percentage point decline in the growth rate of real GDP.

5. An analysis of a larger data set of 60 countries reinforces the conclusions reached by analyzing OECD countries. After adjustment for cross-country differences in the security of property rights, inflation, education, and investment, higher levels of government spending as a percentage of GDP exert a strong negative impact on GDP growth.

6. The five fastest-growing economies in the world from 1980 to 1995 had total government expenditures as a percentage of GDP averaging 20.1 percent, which is less than half the average of OECD countries.

7. If government expenditures as a share of GDP in the United States had remained at their 1960 level, real GDP in 1996 would have been $9.16 trillion instead of $7.64 trillion, and the average income for a family of four would have been $23,440 higher!

8. The OECD countries currently spend 15 percent of GDP or less on the core functions of government-protection of persons and property, national defense, education, monetary stability, and physical infrastructure. When governments move beyond these core functions, the empirical evidence indicates that they retard economic growth. The reduction in GDP growth rates in the United States and in many nations around the world can be traced directly to their increases in government expenditures far in excess of the growth-maximizing level.

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From the standpoint of economic stability, the U.S. economy has performed very well in recent years. The current expansion is now into its eighth year, and the economy continues to grow. It has been 15 years since the United States has experienced a serious recession. This is the good news. But there is also another story that has been largely ignored: The real growth rate of the United States has persistently declined during the last three decades. Even with the expansion of the 1990s, the average growth rate during the current decade is less than half that of the 1960s, and only about two-thirds of the figure achieved during the instability of the 1970s. The experience of other developed nations has been similar—their economies have been expanding, but at much slower rates than was previously the case.

The sluggish growth of developed economies is particularly surprising in light of another trend. Following the collapse of central planning and fall of the Berlin Wall, economic liberalism has become much more acceptable. In recent years, the world has moved toward greater economic freedom in several areas. Many countries have reduced their tariff rates, liberalized (or eliminated) interest rate and exchange rate controls, lowered their top marginal tax rates, and followed monetary policies more consistent with price stability.[1] Economic theory indicates and a number of studies have shown that these moves toward economic freedom have promoted economic growth.[2]

Despite these encouraging trends, however, one major component of economic freedom—size of government expenditures—has generally been moving in the opposite direction. In recent decades, there has been substantial growth in the size of government as a share of the economy, particularly in high-income industrial nations. This study examines this expansion in the size of government and its impact on economic growth.[3]

Exhibit 1 illustrates the growth of government in countries that are members of the Organization for Economic Cooperation and Development (OECD). Data are presented for all 23 countries that were OECD members during 1960-96. *Measured as a share of gross domestic product (GDP),* total government expenditures have grown substantially in every one of the OECD countries.

In 1960, the government expenditures of the group averaged 27 percent of GDP; by 1996 they had grown to 48 percent of GDP. This is a staggering increase, especially because Exhibit 1

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[1] See Gwartney, Lawson and Block (1996) for both discussion of the multi-faceted nature of economic freedom and evidence that there have been significant recent moves toward economic liberalism in several areas.

[2] See, for examples, Scully (1988), Torstensson (1994), Barro (1996), Kreuger (1993, 1997), and Gwartney and Lawson (1997).

[3] This issue has been previously addressed by others. See Barro (1989), Barth and Bradley (1987), Grier and Tullock (1987), Grossman (1988), Kormendi and Meguire (1985), Landau (1983, 1986), Peden (1991), Peden and Bradley (1989), and Scully (1992, 1994). These prior studies generally either focused only on the United States or their size of government measure was less comprehensive (i.e., it only included "government consumption" or "central government expenditures") than the measure utilized in this paper.

measures government growth very conservatively. If government expenditures were measured in constant purchasing power units or on a per capita basis, the increases in the size of government would be substantially greater than those presented in Exhibit 1.

Exhibit 1. The Size of Government in OECD Countries: 1960-1996

Total Government Outlays as a Percentage of GDP

Country	1960	1970	1980	1990	1996	Increase 1960-96
Australia	21.2	25.5	34.0	37.7	37.5	16.3
Austria	35.7	39.2	48.9	49.3	52.7	17.0
Belgium	34.5	36.5	50.7	54.6	54.5	20.0
Canada	28.6	35.7	40.5	47.8	46.4	17.8
Denmark	24.8	40.2	56.2	58.6	60.8	36.0
Finland	26.6	31.3	36.6	46.8	59.4	32.8
France	34.6	38.9	46.1	49.9	54.7	20.1
Germany	32.4	38.6	48.3	45.7	56.0	23.6
Greece	17.4	22.4	30.5	49.6	49.4	32.0
Iceland	28.2	29.6	32.2	39.9	37.3	9.1
Ireland	28.0	39.6	50.8	40.9	37.7	9.7
Italy	30.1	34.2	41.9	53.8	52.7	22.6
Japan	17.5	19.3	32.6	31.9	36.9	19.4
Luxembourg	30.5	33.1	54.8	45.5	49.3	18.8
Netherlands	33.7	46.0	57.5	57.5	58.1	24.4
New Zealand	27.7	34.4	47.0	50.0	42.3	14.6
Norway	29.9	41.0	48.3	51.3	46.4	16.5
Portugal	17.0	21.6	25.9	41.9	46.0	29.0
Spain	13.7	22.2	32.9	43.0	45.4	31.7
Sweden	31.0	43.7	61.6	60.8	66.1	35.1
Switzerland	17.2	21.3	29.3	30.9	36.9	19.7
United Kingdom	32.2	39.2	44.9	42.3	43.7	11.5
United States	28.4	32.5	33.7	34.8	34.6	6.2
Average	27.0	33.3	42.8	46.3	48.0	21.0

Sources: *OECD Economic Outlook*, Dec. 1997 (for 1996 data); *OECD Historical Statistics* (various issues); *IMF Government Finance Statistics Yearbook*, 1994 (for 1990 Luxembourg data); *New Zealand Official Yearbook*, various issues (for New Zealand data) and *Economic Report of the President,* 1997 (for U.S. data). The data for Switzerland are for current government expenditures only.

I. WHY DO GOVERNMENT EXPENDITURES AFFECT ECONOMIC GROWTH?

In theory the relationship between government expenditures and economic growth is ambiguous. Long ago, Thomas Hobbes (1651) described life without government as "nasty, brutish, and short" and argued that the law and order provided by government was a necessary component of civilized life.[4] Taking the Hobbesian view, certain functions of government such as the protection of individuals and their property and the operation of a court system to resolve disputes should enhance economic growth.[5] Viewed from another angle, secure property rights, enforcement of contracts and a stable monetary regime provide the foundation for the smooth operation of a market economy.

Governments can enhance growth through efficient provision of this infrastructure. In addition, there are a few goods—economists call them "public goods"—that markets may find troublesome to provide because their nature makes it difficult (or costly) to establish a close link between payment for and receipt of such goods. Roads and national defense fall into this category. Government provision of such goods might also promote economic growth.

However, as government continues to grow and more and more resources are allocated by political rather than market forces, three major factors suggest that the beneficial effects on economic growth will wane and eventually become negative. First, the higher taxes and/or additional borrowing required to finance government expenditures exert a negative effect on the economy. As government takes more and more of the earnings of workers, their incentive to invest, to take risks, and to undertake productivity-enhancing activities, decreases.[6] Like taxes, borrowing will crowd out private investment and it will also lead to higher future taxes. Thus, even if the productivity of government expenditures did not decline, the disincentive effects of taxation and borrowing, as resources are shifted from the private sector to the public sector, would exert a negative impact on economic growth.

Second, as government grows relative to the market sector, diminishing returns will be confronted. Suppose that a government initially concentrates on those functions for which it is best suited (for example, activities such as protection of property rights, provision of an unbiased legal system, development of a stable monetary framework, and provision of national defense). By performing these core functions well, the government provides the framework for the efficient operation of markets and thereby enhances economic growth. As it expands into other areas, such as the provision of infrastructure and education, the government might still improve performance and promote growth, even though the private sector has demonstrated its ability to

[4] Not everyone would agree with Hobbes, of course. Rothbard (1973) provides an interesting argument that the private sector could more effectively undertake all of the functions normally done by government.

[5] See Knack and Keefer (1995) and Keefer and Knack (1997) for evidence that a legal system that protects property rights, enforces contracts, and relies on rule-of-law principles for the settlement of disputes among parties does indeed enhance economic growth.

[6] Browning (1976) was one of the first to document the magnitude of the negative effects that taxes at levels used by developed economies have on the economy.

effectively provide these things. If the expansion in government continues, however, expenditures are increasingly channeled into less and less productive activities. Eventually, as the government becomes larger and undertakes more activities for which it is ill suited, negative returns set in and economic growth is retarded. This is likely to result when governments become involved in the provision of private goods—goods for which the consumption benefits accrue to the individual consumers. Goods like food, housing, medical service, and child care fall into this category. There is no reason to expect that governments will either allocate or provide such goods more efficiently than the market sector.

Finally, the political process is much less dynamic than the market process. While competition rewards alertness, it also imposes swift and sure punishment on those who make bad decisions and thereby reduce the value of resources. Adjustment to change is much slower in the public sector. By way of comparison with markets, the required time for the weeding out of errors (for example, bad investments) and adjustments to changing circumstances, new information, and improved technologies is more lengthy for governments.[7] This is a major shortcoming as it relates to economic growth. To a large degree, growth is a discovery process. As entrepreneurs discover new and improved technologies, better methods of production, and opportunities that were previously overlooked, they are able to combine resources into goods and services that are more highly valued (Kirzner 1973, 1997; Schumpeter 1912). This is the central element of wealth creation and growth. Reliance on markets and the presence of economic freedom facilitate this process. Clearly, the expansion of government relative to the market sector slows this important source of economic growth.

In summary, government provision of both (a) an infrastructure for the operation of a market economy and (b) a limited set of public goods can provide a framework conducive for economic growth. However, as the size of government continues to grow, the (a) disincentive effects of higher taxes and borrowing, (b) diminishing returns, and (c) a slowing of the discovery and wealth-creation process will become more and more important. Eventually, these factors will dominate and the marginal government expenditures will exert a negative impact on growth. Exhibit 2 illustrates the relationship between size of government and economic growth, *assuming that governments undertake activities based on their rate of return*. As the size of government, measured on the horizontal axis, expands from zero (complete anarchy), initially the growth rate of the economy—measured on the vertical axis—increases. The A to B range of the curve illustrates this situation. As government continues to grow as a share of the economy, expenditures are channeled into less productive (and later counterproductive) activities, causing the rate of economic growth to diminish and eventually decline.[8] The range of the curve beyond B illustrates this point.

[7] The role of profit and loss is central to this process. In the market sector, profit provides decision-makers with a strong incentive to keep cost low, discover better ways of doing things, and adopt improved technologies quickly. On the other hand, losses impose a penalty on those that have high cost or use resources unproductively. Thus, the dynamics are constantly channeling resources toward uses that are more highly valued. There is no similar mechanism that performs this function effectively in the public sector. Compared to the market sector, productive activities are acted upon less rapidly and counterproductive activities are eliminated more slowly in the government sector. As a result, the dynamic growth process is slower in the latter.

[8] See Barro (1990) for the development of a formal model with the characteristics we have outlined here.

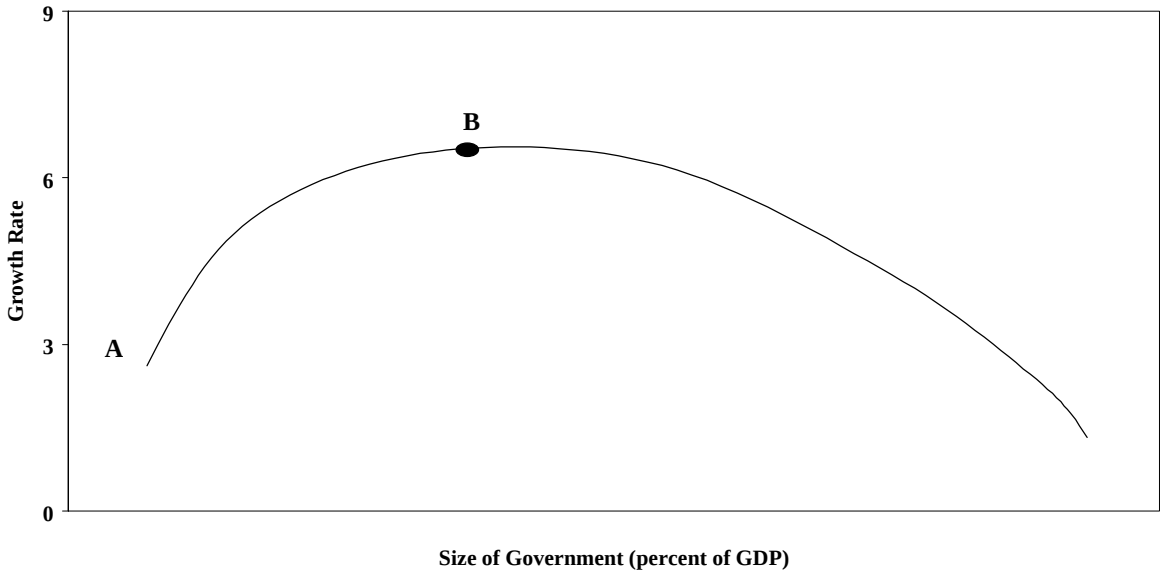


Exhibit 2: The Size of Government-Growth Curve

If governments undertake activities in the order of their productivity, at first government expenditures would promote economic growth (moves from A to B above), but additional expenditures would eventually retard growth (moves along the curve to the right of B).

In the real world, governments may not undertake activities based on their rate of return and comparative advantage. Small government by itself is not an asset. When a small government fails to focus on and efficiently provide core functions such as protection of persons and property, a legal system that helps with the enforcement of contacts, and a stable monetary regime, there is no reason to believe that it will promote economic growth. This has been (and still is) the case in many less developed countries. Governments—including those that are small—can be expected to register slow or even negative rates of economic growth when these core functions are poorly performed. Unless proper adjustment is made for how well the core functions are performed, the empirical relationship between size of government and economic growth is likely to be a loose one, particularly when the analysis involves a diverse set of economies.

A fundamental model of economic growth developed by Robert Solow (1956) suggests that while some economies may be wealthier than others, in the long run they should all grow at the same rate. More recent work has suggested that not only do economies actually have substantially different growth rates over lengthy time periods (Quah 1996; Gwartney and Lawson 1997), there are also good theoretical reasons for believing that countries can maintain the different rates (Lucas 1988; Romer 1990). This issue is important because if long-run growth rates across countries are all the same (or approximately the same), the long-term consequences of economic policies that impede growth are less severe. This study will examine the issue empirically by looking at how the size of government has affected economic growth.

II. GOVERNMENT EXPENDITURES AND ECONOMIC GROWTH IN THE UNITED STATES

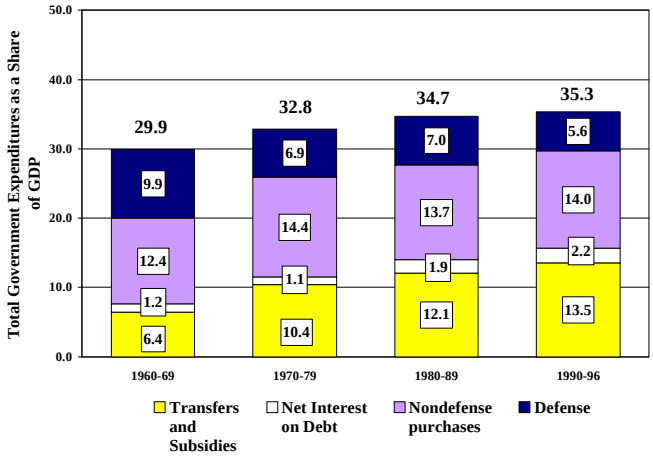
Exhibit 3A looks at this growth in government expenditures in the United States, and shows that the increase in government expenditures is primarily due to the growth of transfers and subsidies, rather than in the core areas of government. The bars in Exhibit 3A show average government expenditures for all years in each decade, or in the case of the 1990s, partial decade. In the 1960s government expenditures at all levels of government averaged 29.9 percent of GDP, and increased to 32.8 percent of GDP in the 1970s, 34.7 percent of GDP in the 1980s, and 35.3 percent of GDP in the 1990s. The breakdown of components in Exhibit 3A shows that while net interest expenditures almost doubled as a percent of GDP, even in the 1990s interest expenditures amounted to only 2.2 percent of GDP. National defense expenditures declined substantially over the entire period, and there was a slight increase in non-defense purchases. While non-defense purchases were higher in the 1970s than the 1960s, they have been virtually unchanged during the last three decades.

As a share of GDP, transfers and subsidies have more than doubled since the 1960s. They have risen from 6.4 percent of GDP in the 1960s to 13.5 percent of GDP during the 1990s. Thus, transfers and subsidies consumed an additional 7.1 percent of GDP in the 1990s than during the 1960s. The share of GDP devoted to total government expenditures rose by 5.4 percent over that same period (and 6.2 percent between 1960 and 1996). Thus, transfers and subsidies by themselves fully account for the growth of government as a share of GDP in the United States.

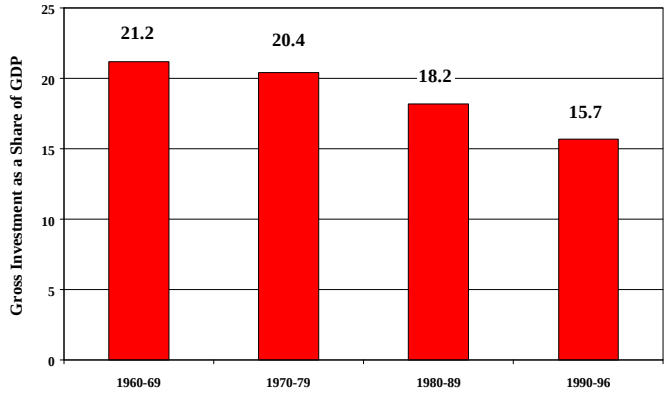
This expansion in the size of the transfer sector is likely to reduce economic growth. Transfers and subsidies that enlarge the size of government will require higher tax rates, which will reduce productive incentives. Compared to expenditures in core areas, additional government expenditures on transfers will exert little positive impact on growth. Transfers and subsidies also bring with them the problem of rent-seeking. Rent-seeking (or subsidy-seeking) occurs when people attempt to enhance their wealth by trying to direct government benefits to themselves rather

Exhibits 3A and 3B

(A) Government expenditures have risen substantially.



(B) Rising government expenditures have "crowded out" investment.

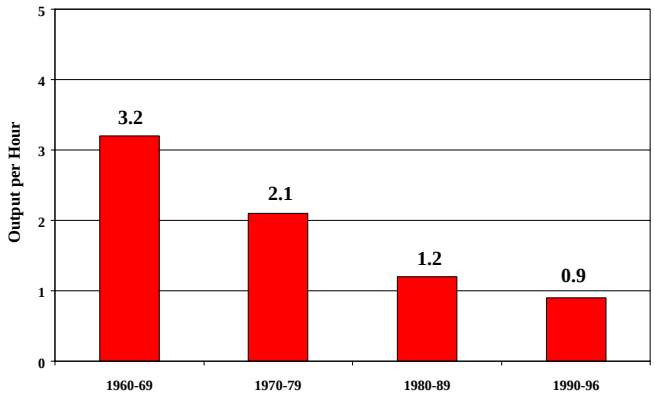


than by engaging in productive activity. Rent-seeking benefits the recipient of the rents, but it is a drain on the economy as a whole. The terminology is somewhat unfortunate because, in this context, "rent" does not mean a payment to a property owner, as it does in common language. Rather, it is referring to transfers received by the recipient that are paid for by others.[9] When people try to obtain income by having the government transfer benefits to themselves rather than by providing goods and services to others, economic growth suffers.

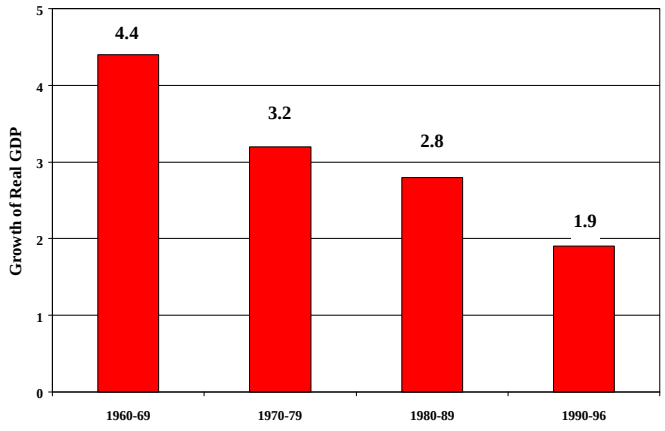
Exhibit 3B shows gross investment as a percentage of GDP for the same time periods covered in Exhibit 3A. While government expenditures increased as a share of GDP during every decade, gross investment fell. Of course, other factors may be at work here, but there are several reasons to expect that the growth of transfers and subsidies will retard investment. The increased availability of transfers and subsidies will increase the incentive of both businesses and organized interest groups to seek gains through government largess rather than increases in productivity. Since the direction of transfers is generally either from those with high income to those with lower levels of income, or from working people to retired people, they shift income away from people with high savings rates and toward those who save less of their income.[10] The predictable effects are a reduction in total savings, higher real interest rates and a decline in the rate of investment, particularly investment financed by Americans. In addition, much of the growth in the transfer sector (and overall size of government) has been financed with government borrowing. This too is likely to place upward pressure on interest rates and reduce the level of investment.[11]

Exhibits 3C and 3D

(C) More government and less capital formation lead to slower growth of productivity.



(D) Lower productivity means less growth of real GDP.



[9] This idea, developed by Tullock (1967), was given the name rent-seeking by Kreuger (1974), who showed how the problem of rent-seeking is especially harmful to less-developed nations.

[10] While studies show that there is a net flow of transfers from high- to low-income recipients, they also indicate that a substantial proportion of the transfers are among persons and households in middle-income groupings.

[11] When bond financing is substituted for current taxation and citizens fail to fully realize the higher future taxes implied by the bonds, they would perceive that they are wealthier than is really the case. Under these circumstances, the debt will lead to a

Investment is the primary factor that increases labor productivity. Individuals working with more capital (better tools and machinery) will produce more output per hour. For example, investment in a backhoe will allow one person to do the work of several with shovels. Exhibit 3C shows that as investment has fallen over the four decades from the 1960s to the 1990s, the growth in output per hour has also fallen. In turn, the slowdown in productivity has reduced the growth rate of real GDP during each of the last three decades (see frame D). The story told by Exhibit 3 is that as government has grown, it has crowded out investment which has resulted in declining productivity growth and a slowdown in the growth rate of real GDP. Larger government leads to less economic growth.[12]

III. EVIDENCE FROM OECD COUNTRIES

Compared to most other countries around the world, the institutional arrangements and income levels of the 23 long-standing OECD members are relatively similar. Politically, all OECD countries are stable democracies. Their legal structures generally reflect a commitment to the rule of law. Monetary arrangements have been stable enough to avoid hyperinflation during the post World War II era. In the area of international trade, OECD members have been at the forefront of those promoting more liberal trade policies within the framework of GATT and the World Trade Organization. The homogeneity among these countries adds to the significance of comparisons within this group.

Despite their similarities, the size of government as a share of the economy has varied substantially among OECD countries (and across time periods). What impact has this variation had on economic growth? This section views relevant data from several perspectives in an effort to answer this question.

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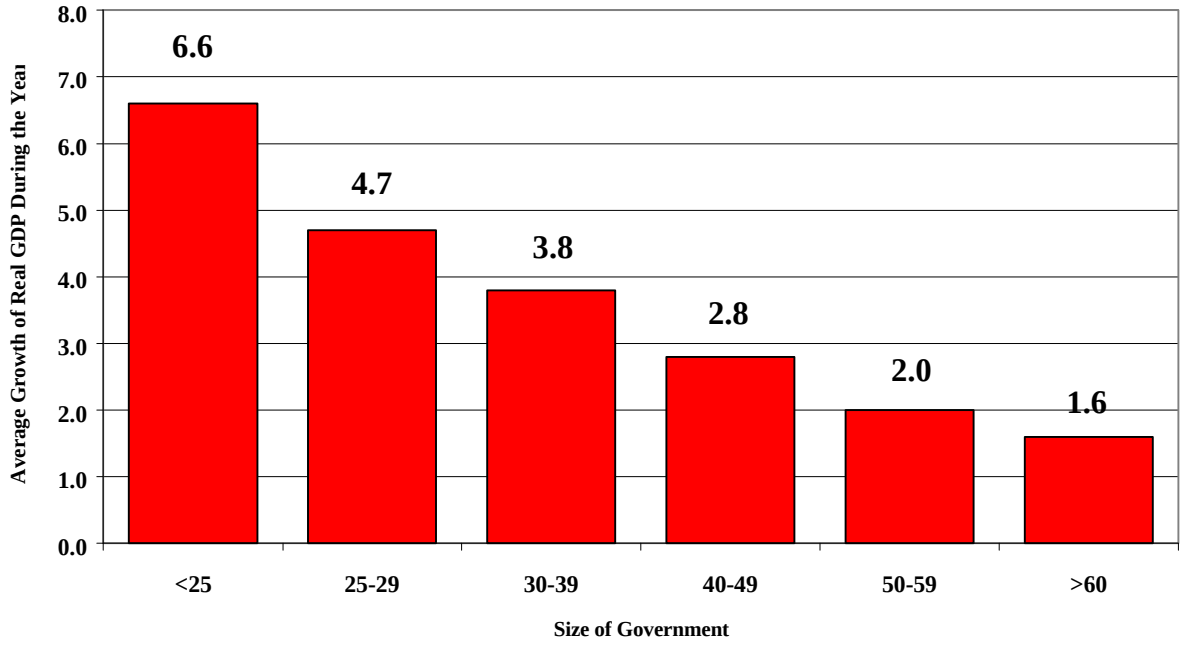
higher level of current consumption (and lower levels of savings and investment) than would otherwise have been true. There is some evidence that this has happened in the United States. As outstanding debt has grown as a share of GDP since the mid-1970s, private consumption has increased as a share of GDP.

[12] Data like that of Exhibit 3 were also prepared for Canada. The Canadian figures for government expenditures by category are presented below:

	Percent of GDP	
	1960s	**1990s**
Defense	3.1	1.7
Non-defense Purchases	19.6	26.9
Net Interest	2.7	9.4
Transfers and Subsidies	4.4	11.4
Total	**29.8**	**49.4**

In Canada, average government expenditures rose from 29.8 percent of GDP in the 1960s to 49.4 percent in the 1990s. As the chart illustrates, non-defense purchases, net interest, and transfers and subsidies all contributed substantially to the growth of government. As these data show, the size of government as a share of the economy rose even more rapidly in Canada than the United States. At the same time, the growth of real GDP has fallen more rapidly in Canada. In the 1960s, Canadian real GDP increased at an annual rate of 5.2 percent, compared to 4.4 percent for the United States. By the 1990s, the situation was reversed. The Canadian growth rate in the 1990s has averaged only 1.3 percent, compared to 1.9 percent for the United States. Like the United States, the growth of real GDP in Canada has fallen each decade since the 1960s.

Exhibit 4: Size of Government and the Annual Growth of Real GDP for OECD Countries: 1960-1996

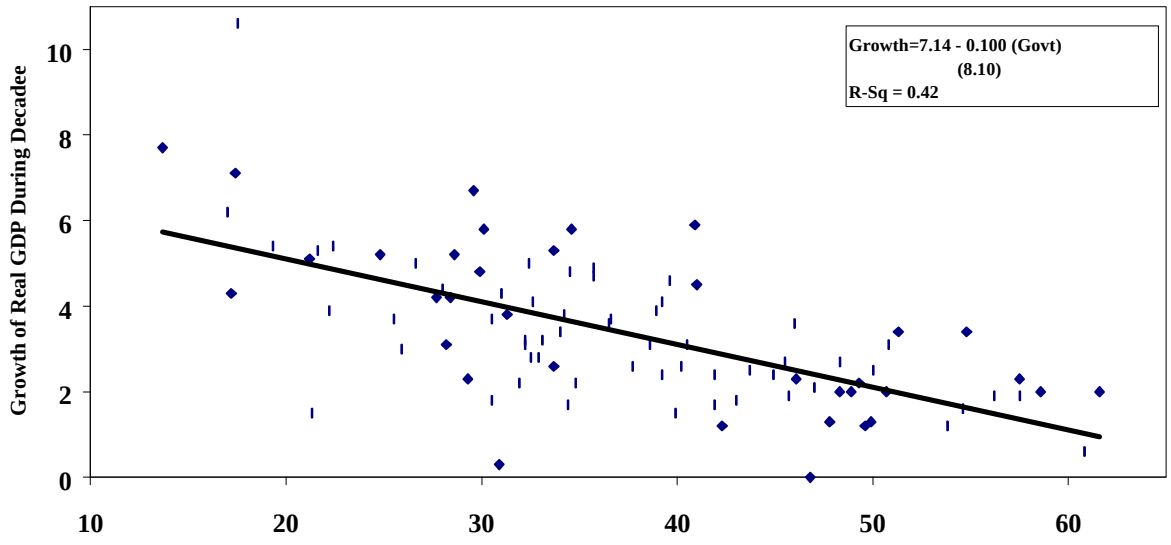


Here we illustrate the link between the growth of real GDP and size of government for OECD countries during 1960-1996. Note that when government was smaller, the average growth rate of real GDP was higher.

Exhibit 4 presents data on the average year-to-year growth rate of GDP according to the size of government. As Exhibit 1 illustrates, total government expenditures summed to less than 25 percent of GDP in seven OECD countries in 1960.[13] In total, there were 81 cases during 1960-1996 where a nation had government expenditures less than 25 percent of GDP. Countries in this category averaged a GDP growth rate of 6.6 percent during these years. When the size of government was between 25 percent and 30 percent of GDP during a year, the average growth rate fell to 4.7 percent. The year-to-year growth declined to 3.8 percent when government expenditures consumed between 30 percent and 40 percent of GDP. Still larger government was associated with still lower rates of growth. During years when the size of government of an OECD country exceeded 60 percent, the average growth of real GDP plummeted to an anemic 1.6 percent. The data of Exhibit 4 clearly illustrate an inverse relationship between the year-to-year growth of GDP and the size of government in OECD countries.

[13] Throughout this paper, total government expenditures as a share of GDP are used to measure the size of government. Total government expenditures include spending on government consumption, transfers and subsidies, net interest on outstanding debt, and capital goods. Previous cross-country studies have generally used government consumption (or central government expenditures) as a share of GDP to measure the size of government. While these figures are easier to obtain and available for more countries, they are often highly misleading. The government consumption figures substantially understate the size of government for countries with either (a) large transfer and subsidy sectors or (b) a high level of government investment. Similarly, the central government figures will understate the size of government for countries (for example, United States and Switzerland) where substantial expenditures are undertaken at lower levels of government. Thus, the total government expenditure figure is both a more accurate and more comprehensive indicator of government size.

Exhibit 5: Higher Government Spending Reduces Economic Growth Among the OECD Countries.



Here we show the relationship between size of government at the beginning of the decade and growth of real GDP during thee decade. These data indicate that a 10 percent increase in government expenditures as a share of GDP reduces the annual ratee of growth by 1 percent.

Exhibit 5 considers the relationship between size of government and growth over a more lengthy time period. Size of government *at the beginning of a decade* is measured on the x-axis, while growth of real GDP *during the decade* is recorded on the y-axis. The exhibit contains four dots for each of the 23 OECD members—one for each of the four decades—for a total of 92 dots. Each dot represents a country's total government spending *at the beginning of the decade* and its accompanying growth of real GDP *during that decade*. As the plot illustrates, there is a clearly observable negative relationship between size of government and long-term growth of real GDP. The line drawn through the plotted points is the least squares regression line showing the relationship that best fits the data. The slope of the line (*minus* 0.100) indicates that a 10 percentage point increase in government expenditures as a share of GDP leads to approximately a one percentage point reduction in economic growth. The R-squared of .42 indicates that government spending alone explains about 42 percent of the differences in economic growth among these nations during the period.

Exhibit 5 illustrates the trade-off between size of government and economic growth. Looking at the regression, government expenditures of 20 percent of GDP are associated with a decade-long average annual growth rate of approximately 5 percent, while government expenditures of about 45 percent are associated with only half as much economic growth. Among these countries, a 25 percent increase in the size of government as a share of GDP retarded the annual rate of economic growth by approximately 2.5 percent. This evidence

indicates that big government imposes a heavy penalty in the form of a lower rate of economic growth.[14]

Several other things are worth noting about Exhibit 5. First, although the theory represented in Exhibit 2 suggested that if government expenditures are too low, economic growth can suffer, there is no evidence of that in Exhibit 5. There are six observations for nations with government expenditures as a percentage of GDP well below 20 percent. Of these six observations, five lie above the "best fit" line, and the remaining point is only slightly below. Thus, there is no evidence that the size of government for any of the OECD countries during the last four decades was less than the growth-maximizing level (point B of Exhibit 2). To the contrary, Exhibit 5 indicates that all of these countries were on the downward sloping portion (right of point B) of the "size of government-growth curve" of Exhibit 2.

The OECD countries represented in Exhibit 5 are developed economies with relatively high per capita incomes. With the possible exception of Japan, none are "growth miracles"—less developed economies that might have high rates of growth because their current level of income is relatively low. Japan did register very high growth rates for several decades. But even here there is a revealing story. At the beginning of the 1960s, the total expenditures of the Japanese government were only 17.5 percent of GDP and they averaged only 22.0 percent of GDP during the decade. With that environment, the Japanese economy registered an average annual growth rate of 10.6 percent in the 1960s. During the 1960s the Japanese economy fits the small government, high growth mold. Over the next three decades, the Japanese government grew steadily; by 1996 government spending had soared to 36.9 percent of GDP. At the same time, Japan's growth rate moved in the opposite direction, falling to 5.4 percent in the 1970s, 4.8 percent in the 1980s and sagging to 2.2 percent in the 1990s. As in United States, the growth of government in Japan has been associated with a slowdown in the rate of economic growth.

Additional insights on the relationship between size of government and economic growth can be gleaned from comparisons between OECD members with *large* increases in government expenditures and those with *small* increases. The size of government as a share of GDP rose in all OECD countries between 1960 and 1996. However, there was substantial variation. The top part of Exhibit 6 shows data for those countries with the smallest growth in government expenditures as a percentage of GDP, while the bottom portion of the table presents the figures for those with the largest increases in size of government. The bottom row of Exhibit 6 indicates the average for all 23 OECD members.

In five OECD countries (United States, Iceland, United Kingdom, Ireland, and New Zealand), government's share of GDP increased by less than 15 percentage points. As a share of GDP, the average size of government for this group rose from 28.9 percent in 1960 to 39.1 in

[14] It is important to realize that increases in government expenditures, even expenditures on government consumption, do not necessarily mean a proportional increase in the "volume" of goods supplied by the government. Government subsidies may simply increase the prices of privately supplied goods, without exerting much impact on the quantity produced. When goods are supplied by government enterprises, greater expenditures may merely reflect inefficiency and higher cost. Interestingly, this latter factor actually enlarges GDP because the cost of producing the government-supplied goods (rather than the purchase price as in the case of private goods) is added to GDP. To the extent these factors are important, the real GDP figures over-estimate the growth rates of countries with substantial increases in the size of government.

1996, an increase of 10.2 percentage points. In contrast, the *increase* in government expenditures accounted for more than 25 percent of GDP in six OECD countries (Spain, Portugal, Greece, Finland, Sweden, and Denmark). Interestingly, the size of government of these six countries (bottom half of Exhibit 6) averaged 21.8 percent of GDP in 1960, well below the OECD average of 27.0 percent. By 1996, however, the picture was dramatically different. In 1996 the government expenditures of the six had risen to 54.5 percent of GDP, well above the OECD average of 48.0 percent.

As the size of government rose during 1960-96, the growth rates of OECD members plummeted. Among the 23 long-standing members, only Ireland achieved a higher growth rate in 1990-96 than in 1960-65. If size of government negatively impacts growth, the performance of countries with the *largest expansion* in size of government should be relatively poor. Exhibit 6 sheds light on this issue. The right side of the table shows the annual growth rates of real GDP for both the "slow" and "rapid" growth of government countries at both the beginning (1960-65) and end (1990-96) of the period. The differential growth rate (Column 6) between the earlier and latter periods is also presented. The growth rate of real GDP declined for both groups, but

Exhibit 6. The Growth Rate of Real GDP in the 1990s Compared to 1960-1965, According to Increases in the Size of Government Between 1960 and 1996: OECD Countries

	Government as a Percent of GDP			Growth Rate of Real GDP		
	1960 (1)	1996 (2)	Change (3)	1960-65 (4)	1990-96 (5)	Change (6)
Countries with Smallest Increases in Size of Gov't						
United States	28.4	34.6	+6.2	4.4	2.2	-2.2
Iceland	28.2	37.3	+9.1	4.5	1.5	-3.0
Ireland	28.0	37.7	+9.7	4.1	5.9	+1.8
United Kingdom	32.2	43.7	+11.5	3.5	1.2	-2.3
New Zealand	27.7	42.3	+14.6	5.0	2.5	-2.5
Average	**28.9**	**39.1**	**+10.2**	**4.3**	**2.7**	**-1.6**
Countries with Largest Increases in Size of Gov't						
Portugal	17.0	46.0	+29.0	6.5	1.7	-4.8
Spain	13.7	45.4	+31.7	8.5	1.8	-6.7
Greece	17.4	49.4	+32.0	7.2	1.2	-6.0
Finland	26.6	59.4	+32.8	5.6	0.0	-5.6
Sweden	31.0	66.1	+35.1	4.9	0.6	-4.3
Denmark	24.8	60.8	+36.0	5.9	2.0	-3.9
Average	**21.8**	**54.5**	**+32.7**	**6.4**	**1.2**	**-5.2**
All OECD Countries						
Average	**27.0**	**48.0**	**+21.0**	**5.5**	**1.9**	**-3.6**

Source: Derived from *OECD Historical Statistics* and *OECD Economic Outlook* (various issues).

the reduction was substantially greater for the rapid growth of government group. The reduction in the average growth rate of real GDP was 5.2 percentage points for OECD members with the largest expansion in size of government, compared to an average decline of 1.6 percentage points for those with the least increase in size of government. The reduction in the growth rate of every nation in the "big growth of government" group exceeded the OECD average (bottom line of table). In contrast, each country in the top group—those with the least expansion in government—registered below average reduction in growth. Moreover, every nation in the bottom group had a *larger reduction* in growth than any of the nations in the top group.

In the physical sciences, researchers can go to the laboratory and design experiments to test the validity of their hypotheses. Economists do not have this luxury. However, sometimes fortuitous events provide an almost ideal experiment. Such was the case with regard to the changes in the size of government for the nations of Exhibit 6. Government expenditures as a share of the economy for each of the countries in the top part of Exhibit 6 exceeded the OECD average (27.0 percent) in 1960. At the same time, their average growth rate (4.3 percent) during 1960-65 was less than the OECD average (5.5 percent). This situation was exactly the opposite *for this same set of countries* in the 1990s. By the 1990s, government expenditures as a share of the economy for those in the top group were below the OECD average, while their average growth rate (2.7 percent) exceeded the OECD average (1.9 percent).

Meanwhile, just the reverse happened to the bottom group. Except for Sweden, their government expenditures were below the OECD average in 1960 and they achieved above average growth in the first half of the 1960s. By 1996, the size of government (except for Spain and Portugal which were just slightly below the OECD average) of the countries in the bottom group was above the OECD average. Correspondingly, their average growth rate (1.2 percent during 1990-96) fell below the OECD average.

Because these figures are for the same countries (and country groupings with relatively similar political structures, incomes, and levels of development), the potential impact of differences in such things as culture, natural resources, and motivation of the people is minimized. It would have been difficult for a researcher seeking to isolate the impact of size of government on economic growth to have designed a more relevant experiment. This is what makes the pattern of the results presented in Exhibit 6 so compelling. When the size of government was below the OECD average—the 1990s for the top group and 1960s for the bottom group—those nations enjoyed above average growth. In contrast, when the size of government exceeded the OECD average—the 1960s for the top group and 1990s for the bottom group—those nations suffered below average growth.

Using the entire sample of OECD countries from Exhibit 1, the regression results of Exhibit 7 add precision to our findings. As in Exhibit 5, there are four observations for each nation. The dependent variable in the first two regressions is the growth of real GDP in a nation during a decade, and the first independent variable is government expenditures as a share of GDP *at the beginning* of that decade. The second independent variable is the *change* in government expenditures as a share of GDP during the decade. The regression shows that there is a strong negative relationship between the share of GDP going to government and the growth rate of GDP during the subsequent decade, with a t-statistic of 8.14 (indicating significance at the 99

percent level of confidence). There is a weaker relationship, although still statistically significant at better than the 90 percent level, between the *change* in government expenditures and GDP growth.

Exhibit 7. The Impact of Government Expenditures on the Investment and Growth of OECD Countries: 1960-1996

	Dependent Variable: Growth of Real GDP During the Decade		Dependent Variable: Investment as a Share of GDP During the Decade
Independent Variable	**(1)**	**(2)**	**(3)**
Government Expenditures as a Share of GDP at Beginning of the Decade	-0.11*** (8.14)	-0.099*** (6.81)	-0.159*** (5.14)
Change in Gov't Exp. During Decade	-0.046* (1.70)	-0.055** (2.06)	-
Investment as a Percent of GDP	-	0.087** (2.08)	-
Constant	7.724	5.365	28.4
Adj. R^2	0.43	0.45	0.22
Number of Observations	92	92	92

* Significant at 90 percent level.
** Significant at 95 percent level.
*** Significant at 99 percent level.

Source: The data used in these regressions were from *OECD Historical Statistics* and *OECD Economic Outlook.*

The second regression adds investment as a percentage of GDP as an independent variable. Investment would be expected to increase economic growth, and the positive sign on the investment coefficient shows that more investment is correlated with higher economic growth.[15] The coefficient of the investment variable is significant at better than the 95 percent level of confidence. Even after adjusting for cross-country differences in investment rates, both level of

[15] We also analyzed models that included both investment in human capital (changes in the mean years of schooling of persons 25 years and older during a decade) and variability in the rate of inflation for OECD countries. Neither of the variables was significant. In the case of the human capital variable, we suspect this reflects that years of schooling are an imperfect measure—they do not reflect differences in quality of schooling and other factors that might influence learning. For OECD countries, differences in the variability of inflation were relatively small during the time period under consideration. This may account for the insignificance of this variable.

the government expenditures and change in size of government during the decade remain highly significant. This provides additional support for the hypothesis that a larger public sector reduces economic growth.

The coefficients of the government expenditure variables indicate the impact of a one unit (a one percentage point) change in government expenditures on the growth rate of real GDP. The 0.11 coefficient for government expenditures at the beginning of the period in Equation 1 of Exhibit 7 indicates that a one unit increase in the size of government as a share of GDP at the beginning of the period reduces the growth rate during the decade by 0.11 percentage points. At the same time, an increase in government expenditures *during the decade* reduces growth by an additional 0.046 percentage points. Even when investment is included as an independent variable in the model (Equation 2), growth is reduced by approximately one-tenth of a percentage point when the size of government is one unit greater at the beginning of the period (and by approximately five hundredths of a percent for each percent point increase in size of government during the decade). This indicates that if government expenditures were 10 percentage points higher (for example, 35 percent rather than 25 percent) as a share of GDP at the beginning of the period, the long-term growth rate of real GDP would be a full percentage point lower.[16] Correspondingly, a 10 percentage point *increase* in the size of government during the decade would reduce growth by five-tenths of a percentage point.

As discussed earlier, higher government expenditures crowd out investment. Evidence was presented that this has been the case in the United States, and the third regression of Exhibit 7 indicates that this has been true for other OECD countries. In this equation, investment as a share of GDP is the dependent variable, while size of government is the independent variable. There is a strong negative correlation between the two. The 0.159 coefficient for the size of government variable indicates that a 10 percentage point increase in the government expenditures as a share of GDP reduces an economy's investment rate by approximately 1.6 percentage points. The t-statistic (5.14) is significant at more than the 99 percent level, illustrating that the estimated negative impact of the government expenditures on investment is highly reliable.

Like that for the United States, the evidence from OECD countries indicates that increases in the size of government retard both investment and economic growth. The persuasiveness of these findings is enhanced by the homogeneity of OECD members. All of these economies have the commonly recognized prerequisites for economic growth: mature financial markets, an educated work force, stable political institutions, secure property rights, and a stable monetary policy with low inflation. The consistent negative relationship between size of government (and its growth) and the growth of real GDP for these economies is particularly revealing.

What do these estimates imply with regard to the United States? If the size of government as a share of GDP in the United States had remained at the 28.4 percent level of 1960, our

[16] When maintained over a lengthy time period, relatively small differences in growth rates can exert a dramatic impact on income levels. For example, if the growth rate of the U.S economy had been 1 percent lower during the 1870-1990 period, today the per capita income level of the United States would be approximately the same as that of Mexico. See Barro and Sala-i-Martin (1995).

estimates indicate that real GDP in 1996 would have been 20 percent greater.[17] If it were not for the expansion in the size of government *as a share of the economy* between 1960 and 1996, real GDP in 1996 would have been $9.16 trillion rather than $7.64 trillion. This would have increased the income of Americans a whopping $5,860 *per person* (an income increase of $23,440 for the average family of four).[18]

Even more striking, consider what would have happened if non-defense government expenditures had remained at their 1960 level as a share of GDP, while defense expenditures followed the downward path that actually occurred. In this case, the size of government would have fallen to 25.4 percent of GDP by the end of the 1960s and it would have been just slightly lower throughout the rest of the period. If this had occurred, the estimates of Exhibit 7 indicate that real GDP in 1996 would have been more than 40 percent greater.[19] Put another way, if government expenditures had been approximately one quarter (rather a little more than a third) of the economy during the last three decades, the per capita income of Americans in 1996 would have been $11,500 higher. For a family four, this translates to an increase in income of $46,000. As these figures demonstrate, in the long run big government extracts a heavy toll on growth and prosperity.

IV. MORE INTERNATIONAL EVIDENCE

In order to add breadth, data were assembled on size of government and other factors thought to influence growth for 60 countries, including both less developed and high-income industrial economies.[20] Because this is a more diverse group than OECD members, adjustment for differences in political economy characteristics is important. Because of the unavailability of some of the required variables for years prior to 1980, our analysis covers the 1980-95 period.

Exhibit 8 summarizes the statistical results for this larger and more diverse data set. Results are presented for four different regression models. All countries for which the required data could be obtained are included in the analysis. The average annual growth rate of real GDP during 1980-95 is the dependent variable. The various independent variables included in the alternative models are indicated down the left side of the table.

The first four independent variables are measures of government expenditures and their changes. In addition to these size of government variables, alternative models also consider the impact of (a) security of property rights, (b) variability in the rate of inflation, (c) schooling

[17] On average, government expenditures were 5 percent more than the 28.4 figure of 1960. The estimates of Exhibit 7 indicate that this retarded real GDP growth by five-tenths of a percent annually. This figure compounded over the 36-year period is equal to 20 percent.

[18] Total government spending would now be almost the same under this alternative. Spending 28.4 percent of $9.16 trillion would produce total government spending of $2.60 trillion, compared with actual total government spending $2.70 trillion in 1996.

[19] One percent compounded over a 36-year period is actually a little more than 40 percent.

[20] See Appendix for a listing of the 60 countries included in the analysis of this section.

(investment in human capital), and (d) investment in physical capital. These "control variables" are included in order to help us better isolate the independent effects of size of government.

The data on security of property rights come from the *International Country Risk Guide*, a private rating service that has tracked the political, financial and economic risks accompanying business and investment activities in various countries since 1982. The credibility of these ratings is enhanced by the fact that the business has survived by marketing them to investors and businesses over a lengthy time period. While the ratings cover several areas, three of them pertain specifically to the security of property rights and presence of rule of law. These three factors are (a) risk of expropriation, (b) risk of contact violation, and (c) presence of rule of law. We placed the ratings on a scale of one to ten; a higher rating is indicative of more secure property rights and stronger support for rule of law principles.[21] Because the data series begins in 1982, the initial rating is for 1982 (or earliest available year) rather than 1980. Components for both the property rights rating in 1982 and the *change in the rating* during the 1982-1995 period are incorporated into the analysis.

High and variable rates of inflation may also retard economic growth. Higher inflation rates reduce the value of a nation's currency and encourage people to shift resources away from production and toward activities designed to protect themselves from inflation. Inflation also lowers the informational content of prices. Nations with high levels of inflation also tend to have high variability in their inflation rates, but there is a slightly stronger statistical relationship between the variability of the inflation rate (as measured by its standard deviation) and GDP growth than is true for the level of inflation. Thus, the standard deviation of the inflation rate was used to measure the impact of inflation on economic growth.[22]

Both economic theory and prior research suggest that investment in both human and physical capital can be expected to enhance economic growth. We use data on increases between 1980 and 1995 in the mean years of schooling for persons age 25 and over as a measure of improvements in the level of human capital.[23] The physical investment component is the average investment rate as a share of GDP during 1980-95. Of course, increases in both of these variables are expected to positively impact economic growth.

In addition to the size of government variables, Equation 1 of Exhibit 8 includes the initial property rights rating in 1982, the *change* in the rating between 1982 and 1995, and standard deviation of the inflation rate in the model. Both property right variables are highly significant and the inflation variable is also significant at the 90 percent level. With regard to the size of government variables, the coefficients for the *level* of government expenditures as a share of GDP, and the *changes* between 1980 and 1985 and between 1985 and 1990 were all negative and

[21] The country ratings for Risk of Expropriation and Risk of Contact Violation were on a one-to-ten scale, while that for Rule of Law was on a one-to-six scale. After the Rule of Law variable was converted to a one-to-ten scale, the three components were averaged to derive the property rights rating.

[22] Robert Lucas, Thomas Sargent, Robert Barro and others have highlighted the adverse side effects of variability of the rate of inflation. For a theoretical analysis of this subject and related issues, see Miller (1994).

[23] The years of schooling data are from Barro and Lee (1993).

highly significant. The adjusted .48 R^2 of Equation 1 indicates that the variables incorporated into this model explain 48 percent of the variation in growth rates among this diverse set of countries.

Exhibit 8. The Impact of Size of Government on the Growth Rate of Developed and Less Developed Countries: 1980-1995

	Dependent Variable = Annual Rate of Growth (Real GDP)			
Independent Variables	**(1)**	**(2)**	**(3)**	**(4)**
Government Expenditures as a % of GDP: 1980	-0.62*** (2.86)	-0.49** (2.36)	-0.42* (1.73)	-0.40* (1.69)
Change in Gov't Exp. as a % of GDP: 1980-85	-1.15** (2.60)	-1.17** (2.81)	-1.01** (2.30)	-1.09** (2.58)
Change in Gov't Exp. as a % of GDP: 1985-90	-1.15** (2.58)	-0.97** (2.29)	-0.83* (1.72)	-0.81* (1.76)
Change in Gov't Exp. as a % of GDP: 1990-95	-0.68 (1.30)	-0.6 (1.22)	-0.31 (0.55)	-0.4 (0.74)
Property Rights (Initial Rating)	1.37*** (6.50)	1.30*** (6.53)	1.13*** (4.48)	1.17*** (4.85)
Change in Property Rights: 1982-95	1.46*** (5.50)	1.36*** (5.38)	1.25*** (4.30)	1.25*** (4.50)
Std. Dev. of Inflation Rate	-0.82* (1.78)	-0.57 (1.29)	-0.68 (1.49)	-0.52 (1.17)
Change in Years of Schooling (Age 25 & older) between 1980 and 1995	-	0.61** (2.80)	-	0.55** (2.38)
Investment as a % of GDP	-	-	0.085* (1.67)	0.048 (0.92)
Constant	-8.27	-8.72	-8.81	-8.98
Adj. R^2	0.48	0.54	0.49	0.54
Number of Observations	60	60	60	60

* Significant at 90 percent level.
** Significant at 95 percent level.
*** Significant at 99 percent level.

What do the coefficients for the size of government variables indicate about the impact of government expenditures on the growth of economies? The coefficient for the *level* variable indicates that a 10 percentage point increase in size of government *at the beginning of the period* was associated with approximately a six-tenths of a percentage point reduction in annual growth during the entire 15-year period. The coefficients for the *change* in size of government variables between 1980 and 1985 and between 1985 and 1990 indicate that a 10 percentage point increase during each of these periods reduced the annual growth of real GDP by 1.15 percentage points during the 1980-95 period. While the change in size of government between 1990 and 1995 is negative, it is insignificant. The larger coefficients (and greater significance) of the variables reflecting the changes in the size of government for the earlier five-year periods compared to the five years of the 1990s make sense. After all, the expansion in government between 1980 and 1985 (and 1985 and 1990) will influence growth for a decade or more of the 1980-95 period, whereas the government growth of the 1990s will exert an impact over only a short portion of 1980-95 period.

Equation 2 adds the schooling variable to the model. The changes in the years of schooling between 1980 and 1995 exert the expected positive impact and the variable is significant at the 95 percent level of confidence. With the exception of the inflation variable, all of the other variables remain significant. Equation 3 deletes the schooling variable from the model and inserts the investment rate. The investment variable has the expected sign and it is significant at the 90 percent level of confidence. The size and significance of the other variables is very similar to that of Equation 2.

Finally, Equation 4 incorporates both the schooling and investment variables into the model along with the property rights, inflation, and size of government measures. In this more comprehensive model, both the initial level of government expenditures and the change during both of the five-year periods of the 1980s continue to be significant at the 90 percent level or more. The property rights and schooling variables are also highly significant. While the inflation and investment variables have the expected signs, they are no longer significant. The R^2 for Equation 4 indicates that the variables of this model explain 54 percent of the variation in the ratings among this diverse set of countries.

The results of Exhibit 8 illustrate that there is a strong positive correlation between the security of property rights and economic growth.[24] This relationship highlights the importance of a legal structure that protects property rights, helps with the enforcement of contacts, and provides a fair mechanism—rule of law—for the settlement of disputes between parties. As we previously discussed, core functions of government in this area are vitally important for the smooth operation of a market economy. Many governments—particularly those of less developed nations—perform this function poorly. Economic stagnation and poverty are the highly visible side effects. Exhibit 8 also indicates that improvements in human capital are an important source of growth. Increases in educational attainment consistently lead to increases in the growth rate of GDP. While the statistical links between growth and the price level stability and investment variables were weaker, their significance may well have been reduced because of their correlation with other variables in the model.

[24] See Knack and Keefer (1995) and Keefer and Knack (1997) for additional evidence on this point.

The primary reason for including the "control variables" of Exhibit 8 was to see whether size of government exerted a strong independent impact on the growth of real GDP. The results indicate that it does. Even after accounting for differences across countries in protection of property rights, inflation, education, and investment, the level of government expenditures at the beginning of the period and the growth of those expenditures during the first decade of the 15-year period exerted statistically significant effects on the growth of GDP during 1980-95. As in the case of the OECD nations, the magnitude of these coefficients indicates that the negative impact of size of government on growth is sizeable.

V. EVIDENCE FROM OECD NATIONS WITH SHRINKING GOVERNMENT

The growth of government has been so pervasive in the last half of the twentieth century that there have been only a few instances where nations have substantially reduced its size. This is particularly true for the high-income industrial economies. Exhibit 9 isolates the only three instances of a substantial decline in government expenditures as a share of the economy among OECD countries during the 1960-96 period. The first case is that of Ireland, which saw government expenditures as a share of GDP go from 28 percent in 1960 to 52.3 percent in 1986. This situation was reversed during the 1987-96 period. As a share of GDP, government expenditures declined from the 52.3 percent level of 1986 to 37.7 percent in 1996, a reduction of 14.6 percentage points. From 1960 to 1977 government expenditures increased from 28 percent to 43.7 percent, and Ireland's real GDP growth rate was 4.3 percent. It declined to 3.4 percent during 1977-86, as the government further expanded to 52.3 percent of GDP. During the recent decade of shrinking government, the annual growth rate in Ireland's real GDP rose to 5.4 percent. As government expenditures shrank in Ireland, Ireland's economic growth increased.

The experience of New Zealand is also revealing. Between 1974 and 1992, New Zealand's government expenditures as a share of GDP rose from 34.1 percent to 48.4 percent. Its average growth rate during this period was 1.2 percent. Recently New Zealand began moving in the opposite direction. The percentage of GDP devoted to government expenditures was reduced from 48.4 percent in 1992 to 42.3 percent in 1996, a reduction of 6.1 percentage points. Compared to the earlier period, New Zealand's real GDP growth has increased by more than two percentage points to 3.9 percent.

The United Kingdom provides additional evidence. Government's share of GDP rose from 32.2 percent in 1960 to 47.2 percent in 1982. During this period, UK's GDP growth rate was 2.2 percent and there was widespread reference to the "British disease." Between 1982 and 1989, government's share of GDP declined by 6.5 percentage points to 40.7 percent. Responding, UK's rate of GDP growth increased from 2.2 percent to 3.7 percent. While shrinking government has been rare in the past few decades, evidence from places where government has shrunk is consistent with the hypothesis that larger government lowers economic growth. The evidence illustrates that if the size of government is reduced, higher rates of economic growth can be anticipated.

Exhibit 9. Comparing Periods of Expansion in Size of Government with Periods of Shrinkage in Size: The Cases of Ireland, New Zealand and United Kingdom

Country/Time Period	Government Outlays as a Percent of GDP			Growth Rate of Real GDP During Period
	Beginning of Period	End of Period	Change	
Ireland				
Periods of Expanding Government				
1960-1977	28.0	43.7	+15.7	4.3
1977-1986	43.7	52.3	+8.6	3.4
Period of Shrinking Government				
1987-1996	**52.3**	**37.7**	**-14.6**	**5.4**
New Zealand				
Period of Expanding Government				
1974-1992	34.1	48.4	+14.3	1.2
Period of Shrinking Government				
1993-1996	**48.4**	**42.3**	**-6.1**	**3.9**
United Kingdom				
Period of Expanding Government				
1960-1982	32.2	47.2	+15.0	2.2
Period of Shrinking Government				
1983-1989	**47.2**	**40.7**	**-6.5**	**3.7**

Source: Derived from *OECD Economic Outlook* and *OECD Historical Statistics.*

VI. THE SIZE OF GOVERNMENT IN HIGH-GROWTH NATIONS

The data in Exhibit 4 for OECD countries suggests that smaller government is correlated with faster rates of economic growth. While in theory government could be too small to provide the necessary environment for economic growth, the data in Exhibit 4 give no indication that any OECD government was excessively small at any time during 1960-96. Within the size of government range of this period, smaller government was consistently associated with more rapid economic growth.

Exhibit 10 probes this issue further by looking at government expenditures as a share of GDP for the 10 nations with the fastest rates of economic growth during 1980-95. The average annual per capita GDP growth of these countries ranged from 7.4 percent for South Korea to 4.2 percent for Malaysia. There are no OECD members in this group of fastest-growing economies. The numbers in the table show total government expenditures as a share of GDP at five-year intervals during the 1975-95 period. The numbers in parentheses show non-investment government expenditures in cases where these figures are available.

Exhibit 10. The Size of Government (1975-1995) for the 10 Countries with The Highest Growth Rate During 1980-1995

	Total Government Expenditures as a Share of GDP (Non-Investment Government Expenditures are in parentheses)				
Country	**1975**	**1980**	**1990**	**1995**	**Change 1975-95**
South Korea	21.0	22.2	19.0	20.4	-0.6
	(15.3)	(14.4)	(11.6)	(10.6)	(-4.7)
Thailand	17.5	23.0	17.1	18.1	0.6
	(12.3)	(14.1)	(11.0)	(09.5)	(-2.8)
Taiwan	21.5	23.2	27.1	30.1	8.6
	(14.0)	(14.0)	(16.3)	(19.3)	(5.3)
Singapore	23.2	23.1	21.7	14.4	-8.8
	(13.3)	(13.2)	(15.0)	(10.8)	(-2.5)
Hong Kong	19.0	20.9	16.0	17.6	-1.4
	(15.5)	(16.0)	(12.4)	(13.1)	(-2.4)
Botswana	35.1	33.9	36.2	37.8	2.7
	(18.9)	(20.6)	(n.a.)	(n.a.)	-
Mauritius	24.6	29.0	25.3	23.2	-1.4
	(18.9)	(20.6)	(13.8)	(13.9)	(-5.0)
Cyprus	32.9	29.1	29.8	33.8	0.9
	(29.7)	(23.1)	(24.8)	(28.8)	(-0.9)
Indonesia	20.5	25.0	21.5	19.3	-1.2
	(12.5)	(14.3)	(12.2)	(09.8)	(-2.7)
Malaysia	36.2	37.7	32.7	32.3	-3.9
	(26.2)	(26.1)	(21.2)	(28.8)	(2.6)
Average	**25.2**	**26.7**	**24.6**	**24.7**	**-0.5**
	(17.7)	**(17.6)**	**(15.4)**	**(16.1)**	**(-1.6)**

Source: International Monetary Fund, *Government Finance Statistics Yearbook*; *Statistical Abstract: Republic of China*; *Hong Kong Annual Digest of Statistics* and various other country sources.

South Korea, the world's fastest-growing economy during this period, had government expenditures that were relatively stable at between 20 and 21 percent of GDP. Non-investment government expenditures in South Korea showed a steady decline from just over 15 percent of GDP to just over 10 percent during the two decade period, indicating that South Korea has increasingly been devoting government expenditures toward investment. The total government expenditures of Thailand, the second fastest-growing economy, were generally less than 20 percent of GDP throughout most of the period, and they also showed a trend toward increased government investment. Taiwan, third on the list, showed a substantial increase in total government expenditures, from 21.5 percent of GDP to 30.1 percent, but still ended the period with government expenditures well below the world average. Taiwan's non-investment government expenditures were still less than 20 percent of GDP.[25] Singapore and Hong Kong, the next two countries, saw substantial declines in government expenditures as a percentage of GDP, and both countries had 1995 government expenditures well below 20 percent of GDP.

The next five economies on the list had higher government expenditures than the five fastest-growing economies, but all were still well below the OECD average shown in Exhibit 1. The average level of government expenditures of the 10 fastest-growing economies was 24.7 percent of GDP in 1995, compared to 25.2 percent in 1975. Thus, these economies were characterized by small and relatively stable government expenditures as a share of the economy.

These characteristics were even more pronounced among the Top Five. Except for Taiwan, none of the five fastest-growing economies had government expenditures greater than 21 percent of GDP in 1995. The average level of government expenditures for the five fastest-growing economies was 20.1 percent of GDP in 1995, lower than the average for the Top 10. The non-investment government expenditures of the five fastest-growing economies averaged less than 13 percent of GDP in 1995.

Once again, the size of government figures from the world's fastest-growing economies are consistent with the hypothesis that the smaller the level of government expenditures, the higher the rate of GDP growth. Furthermore, in contrast with OECD countries, the tendency toward the growth of government was absent among the fast-growing economies.

VII. THE GROWTH-MAXIMIZING LEVEL OF GOVERNMENT EXPENDITURES

A persuasive argument can be made for designing government policies in order to maximize the economy's rate of growth. In the long run, a strong economy is the best way to benefit all citizens. One need only look at the progress of the 20th century to see how economic growth has helped even those least well-off in the economy or compare the well-being of those in poverty in the United States with the typical standard of living in less-developed economies, to see why policies that foster economic growth are the key to long-term prosperity.

[25] By way of comparison, the total government expenditures of the United States were just under 35 percent of GDP, not much higher than the figure for Taiwan. However, capital expenditures in the United States were only 3 percent of GDP. Thus, the non-investment government expenditures of the United States were more than 30 percent of GDP, much higher than the 19.3 percent figure for Taiwan in 1995.

If one wanted to design a government that maximized economic growth, how large would that government be? The data examined earlier give no indication because for every nation examined, none had governments so small that they impeded economic growth, even though there were several instances in which total government expenditures were less than 20 percent of GDP. Because there is no evidence that any existing government is smaller than the growth-maximizing size of government, some other method must be used to surmise what size of government would maximize an economy's growth rate.

One way to address the question would be to look at the size of the government within the framework of the theory discussed earlier in the paper. There are certain core functions of government that assist economic growth by protecting property rights and creating an environment conducive to growth. As economies expand beyond these core functions, larger government impedes growth because of: (a) the disincentive effects of taxes, (b) the tendency of government to expand into areas that are better suited for private sector production, (c) increased rent-seeking (rather than productive) activities, and (d) the crowding out of private investment. Thus, one way to conjecture what level of government would maximize economic growth is to examine the size of public sector expenditures on these core functions.

What might fall into these core functions is itself a matter of debate. Exhibit 11 indicates the size of federal, state, and local government expenditures in the United States for various years for six categories that many would consider the core functions of government. Protection of persons and property would come high on the list, and the top section of Exhibit 11 shows the percentage of GDP devoted to this area, broken out to show several sub-components. Expenditures on the protection of persons and property have been expanding over the years, rising from 0.64 percent of GDP in 1960 to 1.5 percent of GDP in 1992. Despite this growth, these expenditures consumed a relatively small share of GDP even in the 1990s.

National defense and international affairs is another area that might be considered a core function of government. In most years it is the largest of the functions listed here, but has shown a considerable decline since the 1960s. The national security category was 9.3 percent of GDP in 1960, and after the end of the Cold War has fallen to approximately 5 percent in 1992.

One might debate whether education should even be included as a core function of government, because the private sector has shown itself quite capable of providing high-quality education. Nevertheless, education is a key component in economic growth, and most education in the United States (and around the world) is produced by government. Education's share of GDP increased substantially in the 1960s, from 3.69 percent in 1960 to 5.38 percent in 1970. It was only slightly more than that in 1992.

Infrastructure is another area in which government might foster economic growth, even though the private sector has the capability to produce infrastructure without government. Exhibit 11 shows government expenditures on (a) highways and (b) sewage, sanitation, and environmental protection. The combined government expenditures in these categories summed to less than two percent of GDP in 1992. The expenditures of the Federal Reserve System, which only constitute a tiny fraction of GDP, are also included.

Exhibit 11. U.S. Federal, State and Local Government Expenditures for Select Budgetary Categories as a Percentage of GDP: 1960-1992

	1960	1970	1980	1990	1992
Protection of Persons and Property					
Police Protection	0.39	0.49	0.54 [1]	0.55	0.66
Corrections	0.14	0.16	0.24 [1]	0.43	0.50
Judicial	0.11	0.11	0.13 [1]	0.16	-
Other Criminal Justice System Activities	n/a [2]	0.06	0.11 [1]	0.14	0.34 [3]
Subtotal	**0.64**	**0.82**	**1.02** [1]	**1.28**	**1.50**
National Security					
National Defense	8.72	7.75	4.81	5.21	4.78
International Affairs	0.58	0.34	0.46	0.24	0.26
Subtotal	**9.30**	**8.09**	**5.27**	**5.45**	**5.04**
Education					
Elementary and Secondary Education	2.88	3.62	3.34	3.52	3.67
Higher Education	0.61	1.06	1.22	1.28	1.35
Other Education	0.20	0.70	0.61	0.52	0.65
Subtotal	**3.69**	**5.38**	**5.17**	**5.32**	**5.67**
Highways	**1.82**	**1.61**	**1.21**	**1.08**	**1.08**
Sewage, Sanitation, and Environmental Protection	**0.53**	**0.60**	**0.97**	**0.80**	**0.85**
Federal Reserve System: Expenses	**-**	**0.03**	**0.03**	**0.02**	**0.02**
TOTAL	**15.98**	**16.53**	**13.67**	**13.95**	**14.16**

[1] These percentages were calculated from 1979 expenditures and GDP because detailed data were not collected in 1980.

[2] Legal representation and other related activities were not counted toward criminal justice system expenditures prior to 1969.

[3] Judicial, legal and other activities were combined into a single category in the 1992 data.

Source: Bureau of the Census, *Statistical Abstract of the United States* (various issues), *Board of Governors of Federal Reserve System: 1996 Annual Report*, and *Economic Report of the President*, (February 1997).

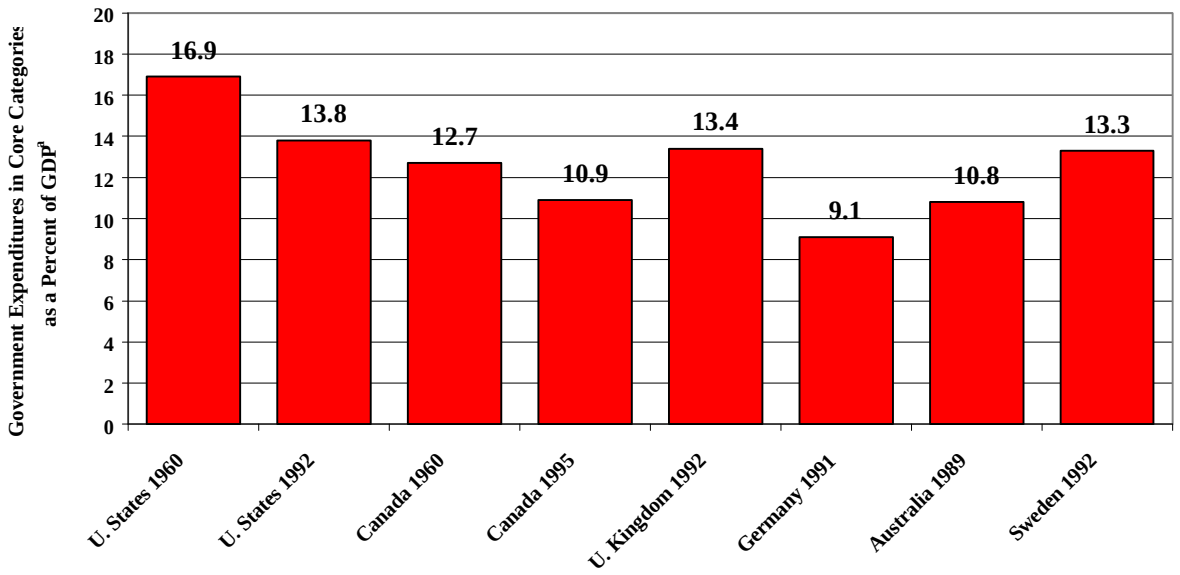
All of these categories added together could be considered a measure of expenditures on the core functions of government, even though as already noted, the private sector could undertake at least some of these activities without government involvement. Even so, expenditures on these core functions of government have always been less than 20 percent of GDP. Since 1980, core

function expenditures have been less than 15 percent of GDP. Exhibit 1 showed that in 1990 government outlays in the United States were 34.8 percent of GDP, suggesting that if government expenditures were half as large as they are today, they would still be large enough to cover the core functions of government.

A similar story emerges when government expenditures are examined in other developed economies. In addition to the data for the United States, Exhibit 12 presents data for Canada (in 1960 and 1995), United Kingdom, Germany, Australia, and Sweden (for various recent years). In an effort to maintain compatibility of the data across countries, the categories of Exhibit 12 are slightly different than those of Exhibit 11. The primary difference is the substitution of expenditures on "transportation and communication" for those on highways, sewage, sanitation and environmental protection. The latter categories were unavailable for countries other than the United States and Canada. These data indicate that in recent years the actual government expenditures on these core functions sum to between 9 percent and 14 percent of GDP. Interestingly, these core government expenditures in "big government" European economies like Sweden and Germany consume approximately the same share of the economy as in the United States.

Finally, while data over a lengthy time were available for only the United States and Canada, in these two countries, expenditures on the core functions of government were a smaller share of GDP in the 1990s than was true for 1960. Clearly, the growth of expenditures in the core areas has contributed little to the rapid growth of government.

Exhibit 12: Core Government Expenditures as a Share of GDP



Government expenditures in core categories have been between 9% and 14% of GDP in major OECD countries in recent years.

[a]The core categories are: (1) public order and safety, (2) national defense, (3) education, and (4) transportation and communication. Many would also include expenditures on the operation of a central banking system, sanitation, and environmental protection. Since these figures were not available for all countries, we did not include them here. In the U.S. and Canada, government expenditures in these two additional areas summed to approximately 1 percent of GDP.

VIII. SUMMARY AND CONCLUSION

There is overwhelming evidence that both the size of government and its expansion have exerted a negative impact on economic growth during the last several decades. As government outlays in the United States have grown from 28.4 percent of GDP in 1960 to 34.6 percent in 1996, investment as a share of GDP, labor productivity, and real GDP growth have fallen. Data for 23 OECD countries also revealed that higher government expenditures were correlated with both less investment and lower rates of growth during the 1960-96 period. An analysis of data for a larger set of 60 nations illustrates the same thing. Moreover, the size of government in the world's fastest-growing economies is generally less than 20 percent, and their non-investment government expenditures are approximately 13 percent of GDP, far less than the comparable figures in the United States and other OECD countries. In the few isolated cases where government expenditures shrank by an appreciable amount, this reduction in the size of government was correlated with an increase in real GDP growth. All this evidence points in the same direction: Larger government means slower economic growth.

The core functions of government are vitally important. Governments serve their citizens well when they protect property rights and enforce contracts, provide a stable (and freely convertible) currency, promote freedom of exchange in both domestic and international markets and rely primarily on competitive markets to allocate goods, services, and resources. However, as they move beyond these core functions, the tax and spending policies of governments soon become counterproductive and they begin to restrain economic growth and cause income levels to fall well below their potential. This is precisely what has happened in the United States and other OECD countries in recent decades.

Seeking to gain some insight into the level of government expenditures that would maximize a nation's economic growth, we separated the core-function expenditures from other government expenditures. In the United States, the core area expenditures comprise less than 15 percent of GDP in the 1990s, and they have been declining slightly over the past several decades. An examination of data for five other developed economies also indicates that government expenditures in these core areas are less than 15 percent. All of the evidence suggests that the level of government that maximizes the performance of the economy would place government expenditures at 15 percent or less of GDP.[26]

Often, things that we do not know are not nearly as damaging as those that we think we "know" that are not true. This has certainly been the case with economics during the last several decades. For example, in the 1960s we "knew" (or at least thought we knew) that there was a trade-off between inflation and unemployment and that expansionary policies could be used to reduce the unemployment rate. Our perception of knowledge in this area contributed to the

[26] This figure is somewhat smaller than the estimates of other researchers that have utilized different methodologies (and data sets) to derive parallel estimates for the United States. Peden (1991) estimates that for the United States the "maximum productivity growth occurs when government expenditures represent about 20 percent of GDP." Scully (1994) estimates that the growth-maximizing size of government (combined federal, state, and local) is "between 21.5 percent and 22.9 percent of gross national product (GNP)." However, these estimates have one thing in common: they all indicate that excessively large government expenditures are retarding the economic growth of the United States.

inflation and instability of the 1970s. Similarly, many development economists (and policy-makers) "knew" that government planning could direct resources into areas where they would earn a high rate of return and thereby promote economic growth—particularly in less developed countries. This perception has contributed to the failures of both government planning and foreign aid programs around the world.

After a couple of decades of declining growth rates, many economists now "know" that high-income developed economies can no longer achieve and sustain real growth rates of 3.5 percent and up. There are various explanations why. For a while, sluggish growth rates were blamed on rising energy prices. But real energy prices have been declining during the last 15 years, and there is little sign of a turnaround in growth. Some now argue that wealthy high-income nations are unable to grow rapidly because their citizens are unwilling to save very much. Still others argue that constraints imposed by technology, or the global movement of capital, or some factor explains why today's growth rates are so much lower than a few decades ago.

The evidence presented in this paper provides an alternative explanation: Increases in the size of government have slowed economic growth. Our findings raise several questions for those who adhere to the view that the recent growth declines were inevitable. First, if the falling growth rates were merely a reflection of the secular decline of mature economies, why did the growth rates of the countries with the largest expansions in government decline the most? (See Exhibit 6.) Second, if size of government does not matter much, how does one explain the persistent negative relationship between size of government (and its change) and the growth of GDP for both high-income democracies and a diverse set of countries including both industrial nations and LDCs? (See Exhibits 4, 5, 7, and 8.) Why did the economies of Ireland, United Kingdom (in the 1980s), and more recently, New Zealand reverse course and achieve higher growth rates when government expenditures were reduced as a share of GDP? (See Exhibit 9.) If size of government is unimportant, why do all of the world's fast-growing economies have governments of modest size? (See Exhibit 10.) In contrast with the OECD nations, why is there no trend toward the expansion in the size of government among the rapid-growth economies?

We believe that the answer to each of the above questions is straightforward: Large and expansionary government has retarded economic growth, particularly in high-income countries. The findings of this paper indicate that more rapid growth is possible, but the relative size of government must be reduced if our growth potential is to be realized. Unfortunately, many policy-makers appear to be largely oblivious to the negative impact of government expenditures on economic growth. As the budget deficit shrinks during the current expansion, increasingly the focus of policy-makers is shifting toward the introduction of new programs. This is a serious error. Higher spending levels will retard the growth of income. Now is the time to develop a long-range strategy to reduce the size of government and restrict its activities to areas where it has a clear comparative advantage. If we follow this course, the experience of nations around the world clearly illustrates that we will be rewarded with higher rates of economic growth.

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Appendix

List of 60 Countries Included in the Analysis of Exhibit 8

Australia	Finland	Kenya	Singapore
Austria	France	Korea, Rep.	Spain
Belgium	Germany	Malaysia	Sri Lanka
Bolivia	Ghana	Mexico	Sweden
Brazil	Greece	Netherlands	Switzerland
Cameroon	Guatemala	New Zealand	Taiwan
Canada	Honduras	Nicaragua	Thailand
Chile	Hong Kong	Norway	Togo
Colombia	Iceland	Pakistan	Tunisia
Costa Rica	India	Panama	Turkey
Denmark	Indonesia	Paraguay	United Kingdom
Dominican Republic	Ireland	Peru	United States
Ecuador	Israel	Philippines	Uruguay
Egypt, Arab Rep.	Italy	Portugal	Venezuela
El Salvador	Japan	Sierra Leone	Zimbabwe

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Government Spending is severely impacting American Economic Growth. Find out more about Government Spending Trends and Spending Control Solutions.Â The key is the size of government, not how it is financed. There is overwhelming evidence that government spending is too high and that America's economy could grow much faster if the burden of government was reduced. Copied. Select a Section 1/0. Toggle open close. For more on government spending, read Brian Reidl's new paper "Why Government Does Not Stimulate Economic Growth" -. For more information, see the supplemental appendix to this paper. Policymakers are divided as to whether government expansion helps or hinders economic growth. Economic theory suggests that a large government may undermine economic growth through the cost of financing expenditure and differences in the rate of productivity growth between the public and private sector. This theoretical section, and the following section on empirical evidence, focuses on these â€˜direct' mechanisms through which government size can impact on growth. While not covered in this paper, we recognise that there are also a number of more â€˜indirect' impacts. These may work at the â€˜micro' level, such as the impact of benefits on incentives to work, or at the â€˜macro