Economic Growth and Government Size

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Short Summary

There is good reason to expect that the size of government relative to the whole economy can be too small or too big, implying there is some optimal government size. Without government providing the rule of law and protecting private property, productive behavior will not flourish privately. Some publicly provided goods and services complement private sector resources, so increasing the size of government from a very small level must increase labor productivity rather than reduce it. However, as with any productive resource, there will be diminishing returns to more government, so a point must also be reached where additional resources allocated through government will be less productive than if those same resources were allocated through the private sector.

The research which presumes the existence of these tradeoffs tends to find the size of government that maximizes the rate of economic growth as being between 17 percent of the economy to 26 percent. This research indicates lower income countries and less developed countries are the most likely to benefit from an increase in government size, while it suggests all developed countries would experience a substantially higher rate of economic growth if the size of government is reduced.

The research seeking to find the government size that maximizes the rate of economic growth identifies aspects of government that tend to slow the rate of economic growth. Excess transfer payment programs or safety net programs are most commonly identified. Weaker education systems and corrupt government are also identified.

Of course, a nation need not seek to maximize its rate of economic growth, and the evidence suggests nations have other goals. There is much evidence supporting "Wagner's Law, which indicates economic growth will translate into larger government size. Citizens may not understand that transfer payment and safety net programs hinder growth. Focused special interests may also exploit this ignorance to lobby for additional spending of direct interest to themselves. However, the evidence suggests people value these and other government programs to an extent that the size of government extends beyond that which maximizes the rate of economic growth. One scholar

puts the optimal size of government at 41% of gross domestic product when goals in addition to growth are considered.

A Review of Relevant Literature

The following figure presents two facts: (1) The growth rate of the U.S. Economy is decreasing, and (2) the size of government relative to the economy is increasing. The growth rate of the economy is measured along the left vertical axis as the change in real gross domestic product from the previous year. The size of government is measured along the right vertical axis as a percentage of gross national product. The rate of economic growth decreases by 0.028 percentage points per year along the best fit trend line shown in the figure, which implies the average growth rate has been falling by 1 percentage point over 36 years or so. The predicted average growth rate for 1947 on the trend line is 4.11 percent, and this decreases to a predicted average growth rate of 2.24 percent for 2014. The size of government as a percentage of the economy increases by 0.18 percentage points per year along the best fit trend line shown in the figure, which implies the size of government as a percentage of the economy has grown by 1 percentage point every 5 to 6 years. The predicted size of government for 1947 is 23 percent of gross national product, while in 2014 it is 35 percent.
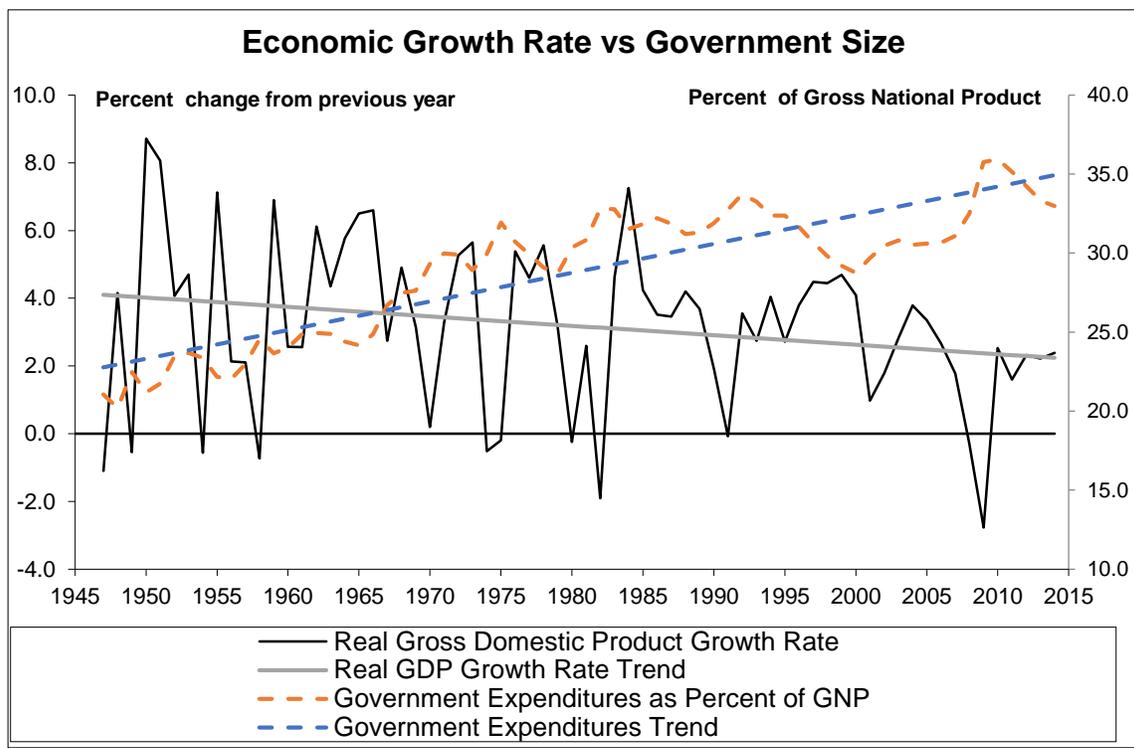
The primary question of interest here is the extent to which the growth in the size of government is causing the slowdown in the rate of economic growth. The trend lines in the figure indicate a clear correlation between the two, but correlation does not imply causation. The remainder of this article examines economic research aimed at explaining the slowing rate of U.S. economic growth, with a particular focus on efforts to relate the slowdown to the growing size of government.

It is evident that government actions may enhance economic growth but may also hinder economic growth. Table 1 presents a summary of enhancements and hindrances mentioned in the literature reviewed in preparing this article.

Table 1 Government Actions Enhancing or Hindering Economic Growth		
Enhancement	Hindrance	Source(s)
Provision of rule of law and protection property rights		Barro (1990), Vedder and Galloway (1998), Di Matteo (2013)
Provision of public goods which the free market underprovides (e.g., defense, policing, roads, education)		Grossman (1987), Barro (1990), Peden (1991), Scully (1994), Vedder and Galloway (1998), Di Matteo (2013)
Reducing economic distortions by ameliorating positive or negative externalities generated by private activities		Grossman (1987), Scully (1994), Di Matteo (2013)
Provision of a medium of exchange		Vedder and Galloway (1998)
	Special interest use of government increases economic distortions	Grossman (1987), Scully (1994), Alfonso and Jalles (2011)
	Additional taxation discourages productive behavior	Peden (1991), Scully (1994), Vedder and Galloway (1998)
	Additional transfer payments discourage productive behavior	Barro (1990), Scully (1994), Vedder and Galloway (1998)
	Ability to earn a living by servicing government diverts resources from creative activities	Peden (1991)
	Taxation methods favoring consumption and borrowing discourage saving and more productive investment	Barro (1990), Scully (1994)
	Growth of government leads to the growth of government regulation which makes production less profitable	Scully (1994)

Grossman (1987) estimates a model of U.S. economic growth that contrasts two views of how government may impact the economy. His model includes what he calls the "Pigouvian View" that additional government complements private sector labor and capital in producing output, say

because of the provision of public goods and because of the amelioration of negative externalities. However, his model also captures what he calls the "Public Choice View," that a larger government offers more opportunities to gain from special interest lobbying and the success of individual lobbying slows overall growth. For the most recent year he had data, 1982, Grossman found that the optimal size of government expenditure was roughly 18 percent of the economy's output level, and that the actual size of government at the time was nearly twice the size it should be, assuming the sole goal of government is to maximize economic growth. He estimated that the economy was producing 22 percent below what it would have been able to produce if the over allocation of resources to the public sector were reallocated to the private sector.

Barro (1990) incorporated a government sector into model of economic growth. Similar to Grossman (1987), Barro assumes government expenditure contributes to economic growth by complementing private sector capital investment, but the contribution is subject to diminishing returns. The complementarity and diminishing returns assumptions together imply that increases in the size of government relative to the economy enhance growth when government is very small but hinder growth with government becomes large. Because government is essentially an input to the production process, there is an optimal relative size of government just as there are optimal relative sizes for labor and capital inputs. Importantly, Barro finds that the maximization of consumer well-being corresponds to maximization of the rate of economic growth. Barro extends his basic model to distinguish non-productive government spending (e.g. transfer payments), which does not complement private sector production, and finds that an increase in the proportion of this type of spending lowers the rate of growth.

Barro (1990) reviews early efforts to relate economic growth to government size. Most of the studies found that an increase in government size reduced the rate of economic growth. Barro's own empirical study found that the typical nation had increased the non-productive services of government beyond the optimum, while the levels of productive government services were about right. Overall, he estimates the optimal size of government to be about 25%.

Vedder and Galloway (1998) prepared a study called "Government Size and Economic Growth" for a joint committee of Congress. Their work references the "Armey Curve," named after Richard Armey who was both a member of Congress and academic economist. The Armey Curve plots the expected rate of economic growth vertically and the size of government as a percentage of the economy horizontally. The typical curve is shaped like a smooth mountain, rising from zero, reaching a peak where the rate of economic growth is maximized at the optimal size of government, and then decreases back to zero.

The logic behind the Armey Curve is the logic of the law of diminishing returns applied to government size. When government is very small, adding more government can strengthen market institutions and contribute to economic growth. The provision of law and order, of private property rights, of a medium of exchange, and of basic infrastructure all complement and encourage the investment, entrepreneurial activity, and hard work that result in economic growth. However, because of diminishing returns, there must be some point where resources are more productively allocated to the private sector than to government. In addition, Vedder and Galloway stress the discouraging effects on productive behavior of high taxes and significant transfer payments. They

estimate a model using federal government expenditure and estimate the optimal level of federal government expenditure to be about 17.5 percent of gross domestic product (GDP).

When Vedder and Galloway (1998) estimated their model in 1997, the federal government was spending 20 percent of GDP, down from 22 percent in 1991. Vedder and Galloway note that federal spending has not been 17.5 percent of GDP since 1965, and argue the reduction from 22 percent to 20 percent from 1991 to 1997 enhanced productivity by shifting the share of resources to the more productive private sector. In 2014, the federal government spent 22 percent of GDP, so the results of Vedder and Galloway suggest federal spending restraint will enhance economic growth.

Vedder and Galloway (1998) also apply their method to different types of government spending, seeking to identify whether some types of federal spending reach an optimum at a different level than other types. They found that federal transfer payments should be 7.3 percent of GDP, but they were 11.5 percent in 1997. This gap in the transfer payment optimum is larger than the gap in the overall optimum. This suggests the non-transfer payment activities of the federal government are not too large, but are perhaps too small. That is, Vedder and Galloway find that transfer payment growth entirely responsible for government being too large today.

Vedder and Galloway (1998) also extend their results to state and local government. They estimate the optimal size of state and local spending relative to the whole economy at 11.4 percent. In 1993, the last year they had data, state and local governments spent 15.7 percent of GDP. In 2014, state and local governments spent 14.0 percent of GDP. Thus, using the Armey Curve, as estimated by Vedder and Galloway, state and local governments have also grown too large if the goal is maximizing the rate of economic growth.

Peden (1991) examines growth over the 1929-1986 period, seeking to examine whether government was too small in 1929 but too big in 1986. He notes that federal, state and local government combined amounted to just 10 percent of the economy in 1929, but 35 percent in 1986. He specifies and estimates a model that separates the direct effects of government spending from the indirect growth effects. He finds growth increases with the size of government up to a certain point (about 17% of GNP), but above this optimal level further increases in the activity of government reduce the growth of productivity. His model indicates the economy would suffer from a decrease in government expenditure short term as resources are temporarily displaced, but he concludes that the U.S. is foregoing gains in living standards by not reducing the size of government to a level close to the 17% optimum.

Scully (1994) emphasized the importance of understanding the relationship between government size and economic growth, where government size is measured by the average tax rate. Scully specifies a model where the output of the economy depends upon the share of output allocated to government and the share remaining in private hands, with the two complementing each other. Since the two are complements, the model necessarily implies government can be too large or two small. Estimating the model, Scully finds the optimal average tax rate (federal, state and local combined) is about 22 percent. Scully notes that the rate was close to optimal in 1949, but reached 30 percent by 1969 and just over 40 percent as of 1989. Scully estimates the average American in 1993 would have been roughly twice as wealthy because of the growth lost from an average tax

rate that was too high. Scully's model also indicates government would have had substantially more revenue with the optimal tax due to more rapid growth of the tax base, so much that there would not have been the need to accumulate the significant national debt accumulated between 1949 and 1993.

Alfonso and Jalles (2011) follow in the footsteps of Barro and present a model of economic growth with a public sector. They fit the model to data from 108 countries over the 1970-2008 period. They find that government size negatively impacts the rate of economic growth overall. However, they also find bad government institutions especially hinder growth, while high quality government institutions can enhance growth.

Di Matteo (2013) presents a significant study on this topic, reviewing much previous work but also estimating a model for 186 countries using data from 1980 to 2011. He finds that, on average, annual per capita GDP growth rate is maximized at 3 percent when the government expenditure to GDP ratio is 26 percent. Good governance and economic freedom also are found to positively impact economic growth. A positive association is found between government spending and favorable societal outcomes, but there are diminishing returns to government size such that Di Matteo finds there are few additional benefits once the public sector reaches 30 to 35 percent of GDP.

Facchini and Melki examine (2013) 84 previous studies and do one of their own. Of the 60 studies that test for only a linear relationship between government size and output, 67% find a negative effect of government size on growth, 8% find the opposite effect, and 25% are inconclusive. The negative effect is less prominent for low income countries, suggesting an increased government size may be more useful in a low income country.   Of the 24 studies, which test a non-linear model, or U-Shape, the optimal government size ranged from 17% to 44%, with studies focused on the U.S. tending to be near the 20% ratio.   Facchini and Melki find a 30% optimal ratio for France. They conclude that their findings suggest there is a U-shape effect of government size on economic growth, but that the optimum will tend to vary by country. By reducing the size of government in France from 50% to 30% of GDP, their model predicts the average growth rate in France would increase from 1.9% to 3.2%.

Why do governments grow beyond the level which maximizes the rate of economic growth? Scully (1994) suggests voters do not understand (or do not believe) there is a link between taxation, incentives, and economic growth, nor do they understand just how much is given up. He also argues government's gradual, incremental growth has conditioned people to a large role for government, even though it has a net detrimental effect.   Finally, he suggests elected representatives and government bureaucracies have incentives to grow government and find ways to encourage the electorate to do so.

De Witte and Moesen (2010) recognize larger government may imply slower economic growth but emphasize growth is usually not the only goal. They propose that growth in relative government size may be government responding effectively, if not optimally, to the desires of the citizenry. Economic growth leads to changes in society, they argue, and these changes tend to make government services more attractive to the median voter. Of particular importance, they argue, is the idea that economic growth tends to reduce average family size so the median voter

increasingly wants government to grow in relative size to take on functions that had more traditionally been taken on by larger families. They report that the tax to revenue to GDP ratio of developed countries had grown from 25% in 1960 to 36% in 2003. Using "data envelopment analysis," rather than estimating a structural model, they estimate the optimal size for government in a developed economy to be 41%, of GDP, much larger than other analyses.

De Witte and Moesen's perspective is consistent with Wagner's (1883) Law, which is the theory that government expenditure will grow faster than the economy as an economy grows because government goods and services (protection, culture, welfare) tend to be particularly sought as incomes increase. That is, Wagner's Law proposes government goods and services are what economists call "income elastic."

Many researchers have applied time series techniques to examine the relationship between government expenditure and economic growth. These techniques are designed to address the fact that the obvious correlation between government size and the rate of economic growth present in Figure 1 may be spurious. That is, there may be no causation, and if there is causation the direction of the causation may go in either direction or in both directions.

Two of the most significant time series studies have been completed by Kolluri, Panik, and Wahab (2000) and Maggazino (2010). Kolluri, Panik, and Wahab (2000) examine data for G7 countries from 1960 to 1993. Maggazino (2010) examines data for EU27 countries from 1970 to 2009. Both studies primarily find support for Wagner's law. That is, there is a long term relationship between government spending and economic growth; economic growth causes growth in government spending, not vice versa; and government spending grows faster than the economy so that the size of government grows relative to the economy. Maggazino (2010), who considers numerous different definitions of government size and who considers numerous statistical issues not considered by previous authors concludes "we find no clear evidence of government expenditure causing national income."

Nonetheless, there have been some time series analyses which have found evidence that government expenditure impacts income growth. Thus, the most typical conclusion one finds in the time series literature, as illustrated by Srinivasin (2013, p. 336) who reviews the literature more recently, is "there exists an extensive literature" but "the debate about the relationship between size of government expenditure and economic growth has been one that seems ambiguous." In summary, the research applying time series primarily find that societies choose to grow government as their income levels grow, that there is not much support that government expenditure causes economic growth, but there is also not much support that government expenditure hinders economic growth.

Government size is not the only possible reason for slowing economic growth, so it is good to review other possible reasons. For review purposes, the recent ebook released by the Center for Economic Policy Research (2014) offers a broad range of perspectives from nearly two dozen top economists about the causes of the slower recent growth of developed economies. The explanations can be placed into three categories: (1) there is now diminished long run growth potential; (2) actual production persistently is falling below potential production, and (3) the slowdown is temporary.

The scholars writing in the Center for Economic Policy Research (2014) ebook offer the following reasons for why the long run rate of economic growth might now be lower:

- The rate of technological improvement was exceptionally high after World War II but now the rate of improvement has settled to a slower but more normal long term rate.
- Population growth, which in some theories fuels labor productivity, is slowing or stagnant.
- Productivity gains from improved education have largely been captured and further such gains will be more difficult to obtain.
- Increased income inequality is discouraging growth overall by lessening the growth of middle class income.
- Higher public debt ratios are discouraging public investments that enhance labor productivity.
- The rate of growth has not really decreased but rather the traditional production measure does not adequately capture the increase in production, especially quality and free internet services provided along with advertising, associated with modern technological improvement.
- Tougher financial regulation creates an increased cost of capital independent of interest rate levels.
- Increased regulation makes it more difficult for economic systems to reallocate resources from less efficient production to more efficient production.

The scholars writing in the Center for Economic Policy Research (2014) ebook offer the following reasons for why there may be a persistent gap between actual and potential production more recently:

- The real interest rate consistent with full employment is negative, so expansionary monetary policy is not effective at maintaining full employment.
- Maintaining financial stability prevents the expansionary monetary and fiscal policies necessary to maintain full employment.
- Balance sheets damaged by the Great Recession asset losses have led individuals and firms to move toward saving rather than spending, providing a persistent damper on aggregated demand.

The scholars writing in the Center for Economic Policy Research (2014) ebook offer the following reasons for why there may be a temporary decrease in the rate of growth:

- A severe recession leads to exceptional unemployment and skills deteriorate during the unemployment spells, leading to lower labor productivity and a higher temporary unemployment rate.
- A lower labor force participation rate occurs because extended unemployment makes re-employment more difficult.
- Enhanced social welfare benefits, especially disability insurance, has reduced the labor force participation rate and accumulation of human capital.
- The technological change occurring more recently favors the demand for highly skilled labor, leading to higher wages among the highly skilled but lower labor force participation among the lower skilled.

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