Adam Smith's Invisible Hand versus Government's Iron Fist: Government's Effect on Economic Growth

Morgan D A Shields

This paper was written for Dr. Birkeli's International Economics course.

Introduction

I was reading an article in the September 7, 2009 issue of the National Review entitled "Why the Stimulus Failed: Fiscal policy cannot exnihilate new demand" by Brian Riedl and at the end of the article Mr. Riedl's conclusion was that "… big government does not bring economic growth" (Riedl 2009, 37). I thought for a moment about this statement and went back over his article thoroughly and realized that Mr. Riedl had not tested any such hypothesis in his article. Therefore I decided to look into the issue myself.

Literature Review

To begin my study, I turned to the person who is considered by many to be the foremost economists of the 21st century and the greatest proponent of the free market system, Milton Friedman. In his classic work Capitalism and Freedom, he discusses the free market system thoroughly. Milton Friedman believed that in order for an economic system to remain healthy, vital, and growing, the role of government must be limited. He believed that one of the biggest threats to the survival of capitalism and democracy is the assumption of the responsibility for welfare (Almond 2010). He stated in his work that he believed correct government or good government, "…would have clearly limited functions and would refrain from a host of activities that are now undertaken by federal and state governments in the United States, and their counterparts in other Western countries" (Friedman 2002, 35).

Friedman stated that "The role of government…is to do something that the market cannot do for itself, namely, to determine, arbitrate, and enforce the rules of the game. We may also want to do through government some things that might conceivably be done through the market but that technical or similar conditions render it difficult to do in that way" (Friedman 2002, 28). Government should only step in when and where the market cannot do something or will not do something.

He also stated that "Ever since the New Deal, a primary excuse for the expansion of governmental activity at the federal level has been the supposed necessity for government spending to eliminate unemployment" (Friedman 2002, 75). This is one of the main factors that I will be looking at in this paper – the supposed need of government to step in and employ people in the public sector.

Next, I turned to Adam Smith who published a book that changed the world in 1776 (the same year that the Declaration of Independence was signed) entitled The Wealth of Nations. His book was a radical insight into a free market system in which he stated that, "…a nation's wealth is really the stream of goods and services that it creates. Today, we would call it gross national product. And the way to maximize it, he argued, was not to restrict the nation's productive capacity, but to set it free" (Adam Smith).

Much like Friedman, Smith believed that government itself must be limited. "Its core functions are maintaining defence, keeping order, building infrastructure and promoting education. It should keep the market economy open and free, and not act in ways that distort it" (Adam Smith). He believed that "…the best interests of ordinary people are served if policymakers avoid such interventions and promote open competition" (Adam Smith).

Adam Smith promoted the idea of the "Invisible Hand" of the market place which allows the greatest good to be achieved whether intended by the producer or not. He believed that good government was minimal government and that good capitalism was competitive capitalism. This study is designed to test whether the invisible hand of the market is greater for the economy than the iron fist of government intervention and public sector employment. Is the private sector greater than the public sector? Both Milton Friedman and Adam Smith would have said yes.

Previous Studies

The question I want to answer, the hypothesis that Mr. Riedl set forth - that big government does not bring economic growth - is not a new question. It has been studied in many different ways and the research done on government's effect on the economy has been extensive. One of the authors who has delved into the question is Peter Saunders (1985) who, in his article "Public Expenditure and Economic Performance in OECD Countries" published in the Journal of Public Policy, looked at government size and growths effect on economic performance. In his study, he focused primarily on three principle indicators of economic performance, "These are, respectively: (i) the annual rate of economic growth (measured by the percentage change in real GDP); (ii) the annual rate of consumer price inflation; and (iii) the annual rate of growth of employment in the private (non-government) sector" (Saunders 1985, 9).

Mr. Saunder's states that there has been, "A general concern…that excessive government intervention in the economy (including regulatory activity) has weakened the impact of competitive forces and thus reduced overall flexibility and the growth imperative. In addition, governments have been competing with private employers in the labour market and may thus have had a restricting influence on private sector employment growth directly, and indirectly through upward pressure on wage levels" (Saunders 1985, 18). However, when the hypothesis was examined and tested, he states that "Overall,

the results provided little evidence that government size and growth have been detrimental to economic performance" (Saunders 1985, 2).

Peter Evans and James E. Rauch (1999) in their article "Bureaucracy and Growth: A Cross-national Analysis of the Effects of 'Weberian' State Structures on Economic Growth," published in the American Sociological Review analyzed the effects of several aspects of government on economic performance. More specifically, the purpose of their study was to "…establish a basic connection between bureaucratic structures and economic growth…" (Evans and Rauch 1999, 753). Their definition of government was Weber's theory and definition of bureaucracy. They state that "Weber viewed bureaucracy, not as a generic collection of state officials, but as a particular kind of organizational structure, set in contrast to earlier patrimonial and prebendal forms of government administration" (Evans and Rauch 1999, 749). The premise of their research is the same as Weber who "…argued that public administrative organizations characterized by meritocratic recruitment and predictable, long-term career rewards will be more effective at facilitating capitalist growth than other forms of state organizations" (Evans and Rauch 1999, 749). Evans and Rauch use this definition of meritocratic recruitment and career rewards to decide whether a government is efficient or not. The reason that these two items make a government more efficient are discussed in their article as follows:

Meritocratic recruitment not only increases the likelihood of at least minimal competence but also helps generate corporate coherence and esprit de corps, which in turn can be argued to have substantive effects on the motivation of individual officeholders…Offering rewarding long-term careers might also increase competence in the long run, but regardless of their effects on competence, such careers will increase corporate coherence. Likewise, the predictable prospect of long-term career rewards reduces the relative attractiveness of the quick returns available from corrupt individual practices (Evans and Rauch 1999, 752).

The hypothesis of their study was that "…countries whose bureaucratic structures incorporated Weberian features will have experienced more rapid economic growth over the 20 years between 1970 and 1990 than did those countries in which such features were less fully incorporated" (Evans and Rauch 1999, 753). To test this hypothesis, they looked at 35 developing countries, using a fixed-response questionnaire sent to economic officials and leaders within the country. The results indicated (according to Evans and Rauch) that there is "…credence to the proposition that state bureaucracies characterized by meritocratic recruitment and predictable, rewarding career ladders are associated with higher growth rates" (Evans and Rauch 1999, 760).

"What if Anything Is Wrong with Big Government?" (1981) by Richard Rose, published in the Journal of Public Policy looked at whether "The growth of big government will reduce governmental effectiveness insofar as growth is concentrated upon programmes lacking explicit and tested means-ends technologies" (Rose 1981, 12). Mr. Rose states that the reason that big government will reduce governmental effectiveness is because "The growth of big government will increase contradictions between government programmes because of a disproportionate increase in the interdependence of programmes" (Rose 1981, 12) and "The growth of big government will threaten popular consent insofar as it increases the perceived impropriety of government's actions" (Rose 1981, 13).

His study focuses on the problems that tend to arise with large and growing governments. The study examines historical records from mainly Britain and the United States. He hypothesizes three generic effects that will occur in countries with large and/or growing governments. These effects are: "…a loss of effectiveness, because of the use of weaker means-ends programme technologies for new programmes; an increase in contradictions between existing, growing and new programmes; and a possible reduction of consent, insofar as growth increases the 'impropriety' of government actions" (Rose 1981, 5).

One of the findings of his study is that:

Public employees enjoy several benefits that private sector employees lack: their pensions can be inflation-proofed; their job security tends to be greater; and their employer can use taxation to meet wage claims. Moreover, public employees are normally more likely to be unionized than private sector employees, and are strategically far better positioned to bargain for higher wages. Given these factors, and the tendency of public employees to be in jobs where productivity rises more slowly than in the private sector, there is a relative price effect, that is, a tendency for public employees' earnings to claim a growing proportion of the national product (Rose 1981, 19).

He states that this large influx in employment in the public sector "…will be immediately regarded as a benefit by those so engaged, but not necessarily by those who work in the private sector" (Rose 1981, 14). He also states in his study that "Insofar as Western governments see public employment as a means of contributing to national economic growth, then there is a potential contradiction between the present pattern of public employment and economic growth policies…The contradiction arises because a substantial majority of public employees are not engaged in producing market goods, but collective goods or welfare services that, although in principle marketable, are given away" (Rose 1981, 18).

Atul Dar and Saleh Amirkhalkhali's article, "The Impact of Government Size on Economic Growth: A Time Series Cross-Country Study" (1999) published in Development Policy Review examines the "…role played by the size of the government sector in modifying the impact of various determinants on economic growth" (Dar and Amirkhalkhali 1999, 65).

Their study "…consider[s] whether the overall size of the government sector has implications for economic growth. The overall size of government is measured by government expenditure plus tax revenue relative to GDP" (Dar and Amirkhalkhali 1999, 66). To measure economic growth they used factors such as "…capital accumulation, growth of the labour force, and export expansion [which] are affected by the overall size of government in the economy" (Dar and

Amirkhalkhali 1999, 67).

Their hypothesis was tested on 17 Western Hemisphere countries in a time-series experiment in which period averages were taken. The 17 countries were classified "…into four groups of low, intermediate, intermediate-to-high, and high ranges in terms of the overall size of the government sector" (Dar and Amirkhalkhali 1999, 74). They state that "The results generally indicate that the role of capital formation and export expansion in fostering economic growth is not adversely affected for countries with large government sectors" (Dar and Amirkhalkhali 1999, 74).

Now that some of the previous literature and studies have been analyzed, the following sections of this paper set forth my theory and hypothesis, as well as the research design for how the hypothesis will be tested.

Theory and Hypothesis

The theory set forth by Mr. Riedl was that big government doesn't bring big economic growth. My hypothesis is that, as government size increases, economic growth decreases. The hypothesized relationship is a negative relationship in which as government size increases, economic growth will decrease.

Dependent Variable

Economic growth will be measured by Gross Domestic Product (GDP) per capita, the percent growth rate of GDP per capita, and the level of economic freedom in the country. These factors will provide good indicators of whether or not economic growth and stability is occurring, being maintained, or decreasing.

The data for GDP per capita and the percent growth rate of GDP will be taken from the Penn World Tables 6.3. Data for the level of economic freedom will be taken from The Economic Freedom of the World Table as released by the Cato Institute. They state that "The index…is designed to measure the consistency of a nation's institutions and policies with economic freedom" (Gwartney and Lawson). The key factors that they believe reflect economic freedom are: personal choice, voluntary exchange coordinated by markets, freedom to enter and compete in markets, protection of persons and their property from aggression by others (Gwartney and Lawson). The Cato Institute believes that these four items are the "…four cornerstones [that] underpin the design of the EFW [Economic Freedom of the World] index" (Gwartney and Lawson). They also state that "In order to achieve a high EFW rating, a country must provide secure protection of privately owned property, even-handed enforcement of contracts, and a stable monetary environment. It also must keep taxes low, refrain from creating barriers to both domestic and international trade, and rely more fully on markets rather than the political process to allocate goods and resources" (Gwartney and Lawson). Thus a country with a high Economic Freedom of the World (EFW) index score will be a country with more economic freedom and security.

Independent Variable

In most previous studies done on government's size and its effect on the economy, the studies have analyzed mainly government consumption and expenditure levels. I am, however, more interested in the true size of government as measured by its employment percentage. Thus, for purposes of this study, government size will be measured by the percent of the population employed in the public sector. In most prior studies, government size has been measured by the size of government expenditures or in some cases its efficiency as measured by Weberian measures. However, my greater interest is with the actual size of the public sector employment. To get a true calculation of the size of government, the percent of people employed in the public sector is what I will be analyzing. Statistics for these numbers will be taken from the International Labour Organization.

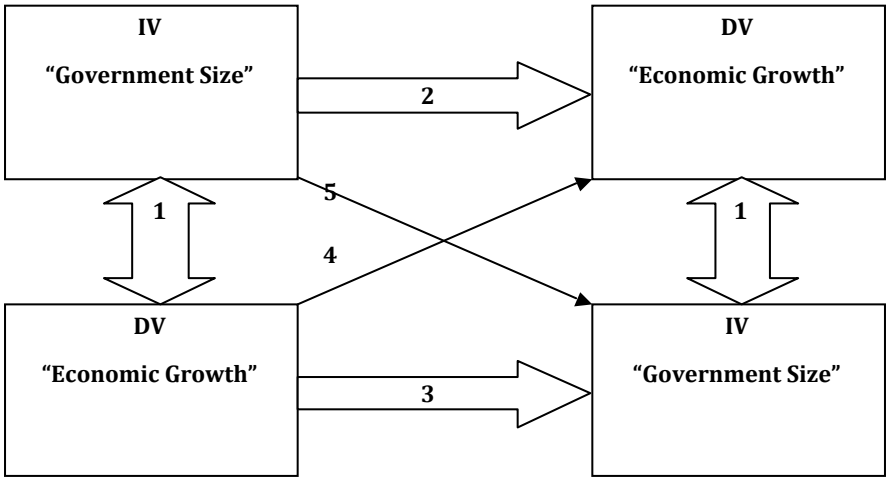
Control Variables

Control variables will also be employed in the model – these control variables will be some of the indicators used in previous studies (as mentioned above): the level of government consumption as a percentage of GDP and the size of government expenditures, taxes and enterprise. Data for these variables will be taken from the Economic Freedom of the World Index as released by the CATO Institute (as discussed earlier). I am controlling for these variables because both of them have been cited to have some influence over economic growth and size. By controlling for these factors, I am limiting their influence over my study and results.

Research Design

In the test of the above-hypothesis, first, the relations of the above-mentioned variables (independent, dependent, and control) will be analyzed using SPSS 17. Bivariate studies will be run and partial correlations controlling for the level of government consumption and expenditures, will also be run. This will help to establish a correlation between the variables. If there is a correlation found, then I will try to attempt to establish causation through several other tests using the relation between the variables.

The study that will be done is a cross-national design for the years 1990, 1995, 2000 and 2005 tested on 23 countries[1]. The data for the independent, dependent and control variables were collected from the Penn World Tables, the Economic Freedom of the World Report, and the International Labour Organization. The study that will be conducted will look like the following diagram:



The initial questions that the study will try to answer are as follows:

1. Are government size and economic growth correlated?
2. Does an increase (or decrease) in government size lead to an economic decline (or growth)?
3. Does economic growth (or loss) lead to an increase (or decrease) in government size?
4. Does economic growth (or loss) lead to more economic growth (or loss)?[2]
5. Does an increase (or decrease) in government lead to an increase (or decrease) in government?[3]

Empirical Analysis

The following sections of this paper set forth the empirical analysis that was done on the above-referenced variables (independent, dependent and control). The questions that were set forth in the Research Design section of this paper will be answered.

Correlations

The first set of correlations that were run were done for the percentage of people employed in the public sector for the years 1990, 1995, 2000, and 2005 correlated to: (1) the Growth Rate of Real GDP per capita, (2) Real GDP per capita, and (3) the Economic Freedom of the World (EFW) Index Score, for those same years. All coefficients should be negative in sign. This means that an increase in the percent of people employed in the public sector should lead to a decrease in the Growth Rate of Real GDP per capita, a decrease in Real GDP per capita, and a decrease in the EFW Index Score. The results of that study are found in the following table (TABLE 1).

TABLE 1
Correlations of Public Sector Employment

Public Sector Employment to…	
Growth Rate of RGDP Per Capita	-.160
RGDP Per Capita	-.341**
EFW Index Score	-.462**

****Correlation is significant at the 0.01 level**

The results indicate that there is a significant relationship between the level of public sector employment and Real GDP per capita and the EFW Index Score, but not between it and the Growth Rate of Real GDP per capita.

While at first glance the fact that the Growth Rate of Real GDP per capita is not statistically significant while Real GDP per capita is statistically significant seems a bit odd, there is a reason for this. The Growth Rate of Real GDP per capita is only looking at the changes from year to year in the number. Real GDP per capita on the other hand is looking at the overall number. The fact is, is that the economy fluctuates year to year more than the overall position will change.

For the relationships that were found to be statistically significant (and for the relationship that was not), the results were in the hypothesized direction. That is, that as the level of public employment increased, Real GDP per capita also decreased. And as the level of public sector employment increased, the EFW Index Score also decreased.

It was not a surprise that the level of public sector employment in a country was negatively correlated with the EFW Index Score, because part of the scoring is based on the level of government expenditures and deals with government control over the economy. It would make sense that countries with high levels of control over their economies would have a greater amount of employment within government. It might be argued that therefore, this variable is a bit circular in nature and tells us very little. However, I believe that it does show something very important and interesting which will be

discussed after the control variables have been applied (below).

For the two indicators that were statistically significant (Real GDP per capita and the EFW Index Score), the next table (TABLE 2) shows the correlations between the level of Public Sector Employment and those two indicators when the control variables are applied.

TABLE 2
Public Sector Employment Correlations With Control Variables

Public Sector Employment To…		Controlling for General Government Consumption Spending as a Percentage of Total Consumption	Controlling for the Size of Government Expenditures, Taxes, and Enterprises
Real Gross Domestic Product Per Capita	-.341**	-.534*	-.719**
EFW Index Score	-.462**	-.770**	-.800**

***Correlation is significant at the .05 level**
****Correlation is significant at the .01 level**

As can be seen from this table, for the correlations above, 100% of the bivariate correlations are significant in the hypothesized direction when the level of government consumption and the size of government expenditures are controlled for. In fact, all correlations are more significant when the two variables are controlled for. These correlations show that there is a significant negative relationship between the level of people employed in the public sector and Real GDP per capita and the EFW Index Score. Meaning that as the percentage of people employed in the public sector increases, Real GDP per capita decreases. Conversely, as the percentage of people employed in the public sector decreases, Real GDP per capita increases. Also, as the percentage of people employed in the public sector increases, the level of economic freedom decreases. Equally, as the level of public sector employment decreases, the level of economic freedom increases. Even when the level of government consumption and government expenditures are (in essence) taken out of the equation (controlled for), the data still supports the hypothesis.

The importance of these results when controlled for is imperative for the hypothesis. What this means, is that even if a country can manage to have high public sector employment rates with minimal government consumption, taxes, expenditures, etc., it will still have a negative effect on the Real GDP per capita of the country. The level of public sector employment in a country (regardless of how much its consumption, expenditures, or taxes are), does a good job of predicting the level of Real GDP per capita. As the level of public sector employment increases, the level of Real GDP per capita decreases.

When the control variables were applied to the relationship between the level of public sector employment and the EFW Index Score, the correlation became much stronger. What this seems to indicate is that while the size of government, as related to expenditures, etc., is one of the measures in the EFW Index Score and a main component to whether or not a country is economically free or not, even when that number is taken out of the equation, public sector employment can help to predict the level of economic freedom in a country.

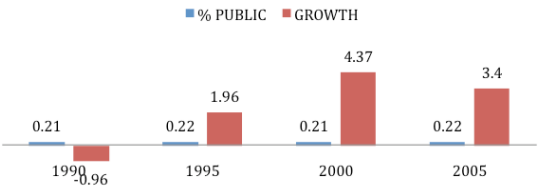
Graphs

All of the data that was used in the correlation studies above were also programmed into an Excel database and charts and figures were also run and analyzed.

The next few charts analyze individual countries' percent of public sector employment and the growth rate of Real GDP per capita. Even though the correlation between these two variables was not statistically significant, graphs have still been produced to show some of the more significant relationships within the study itself. However, the correlation shows that the level of public sector employment is not a good indicator of the growth rate of Real GDP per capita. The degrees of freedom within these particular variables may be too great. Therefore, a future study that has more data for more countries and more years may be able to generate a statistically significant relationship for these two variables.

Graph 1 depicts the numbers for Greece for the years 1990, 1995, 2000 and 2005.

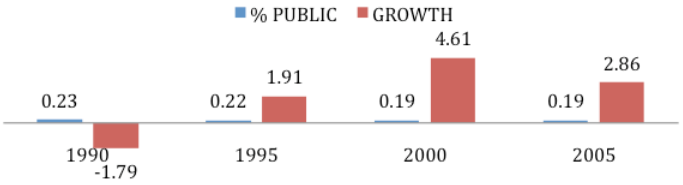
GRAPH 1
Greece



The graph of Greece shows that when public sector employment was at its lowest percentage in 1990 and 2000 (at 21%), Greece saw both its lowest growth rate in 1990 (-0.96) and its highest growth rate in 2000 (4.37). This graph indicates that the relationship is not statistically significant and is not a good predictor.

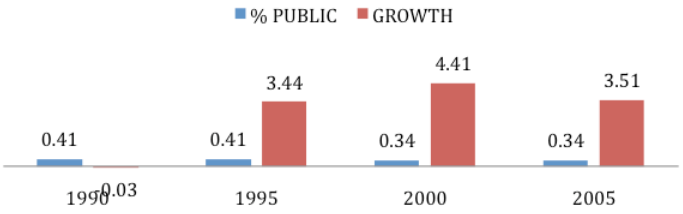
The next graph (Graph 2) depicts the same relationship as Graph 1, but for Canada.

GRAPH 2
Canada



Graph 2 shows that when Canada had its highest percentage of public sector employment (23%) in 1990 it had its lowest growth rate (-1.79%). When public sector employment went down in 1995 by just 1%, growth rate increased to 1.91%. When the percentage of public sector employment was at its lowest in 2000 and 2005 (at 19%), the growth rate of Real GDP per capita was it its two highest numbers 4.61% and 2.86%. The next graph (Graph 3) depicts the same relationship of Sweden.

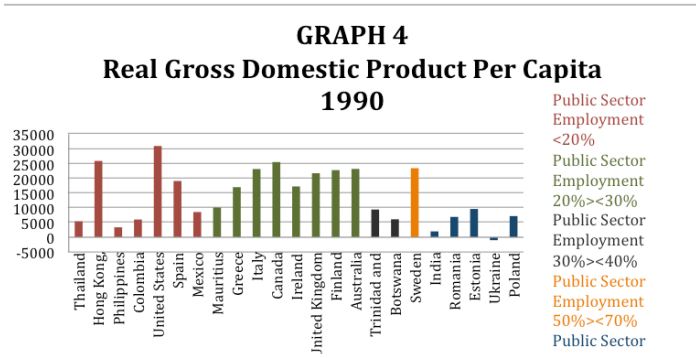
GRAPH 3
Sweden



Sweden is also consistent with the findings of the correlation in the study (which was a negative, non-statistically significant, relationship). When Sweden's public sector employment was at its highest (1990 and 1995), the growth rate of Real GDP per capita was at its lowest (.03% and 3.44%). When the percentage of public sector employment was at its lowest (2000 and 2005), the growth rate of Real GDP per capita was at its highest 4.41 and 3.51%.

The next set of graphs depict the correlations between Real GDP per capita and the percent of people employed in the public sector for the years 1990, 1995, 2000 and 2005. This relationship was statistically significant and therefore, the level of public sector employment can be used as a predictor of the level of Real GDP per capita.

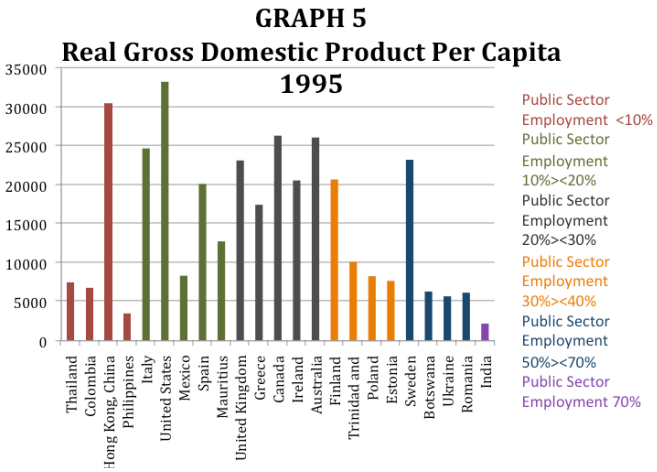
Graph 4 depicts Real GDP per capita for1990 for all the countries examined in the study. The graph shows that, in general, the countries with the highest percentage of public sector employment (greater than 70%) had the lowest amount of growth. Those with the lowest public sector employment (less than 20%) had the highest amount of Real GDP per capita. However, because the relationship is correlated at -.341, it is not a one-to-one relationship. Meaning that, not every time a country has a high level of public sector employment will it also have low levels of Real GDP per capita. The graph below depicts this as well, because some countries with the lowest level of public sector employment also have some of the lowest Real GDP per capita.



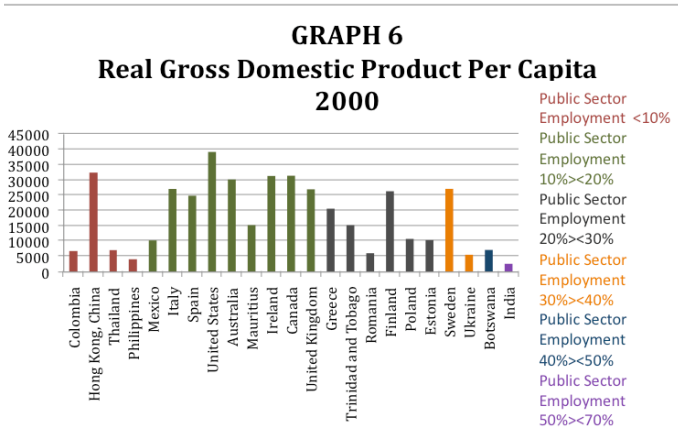
In the graph above, it is a general trend that the countries with public sector employment between 30 and 20% saw a steady rate of higher levels of Real GDP per capita.

Graph 5 depicts the data for 1995. The graph shows that at the highest and lowest levels of public sector employment; there are the lowest levels of Real GDP per capita, again this is reflective of the none one-to-one relationship of the correlation. In general, we find that at lower levels of public sector employment there are higher levels of Real GDP per capita.

It is interesting to look at Poland, who in Graph 4 had public sector employment levels greater than 70%, but now in Graph 5 has public sector employment levels between 30 and 40%. As predicted from the hypothesis, their Real GDP per capita is in fact slightly better with lower levels of public sector employment. The relationship of Poland will be discussed further below.



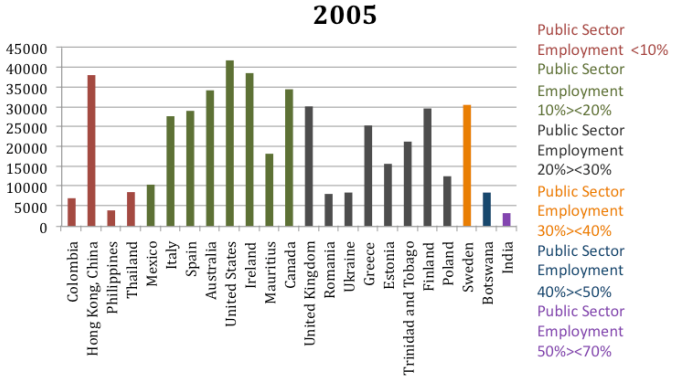
Graph 6 which shows the data for 2000 and Graph 7 which shows the data for 2005 tell much the same story as the two graphs above (for 1990 and 1995).



Graphs 4-7 show some interesting trends. For instance, Sweden and India are relatively close on the scale insofar as the level of Public Sector Employment goes, but Sweden's Real GDP Per Capita is significantly higher for every year tested. Part of the reason for this, is that Sweden went from a 41% level of public sector employment in 1990 to a level of 34% in 2005 – a decrease of 7 points. India, on the other hand only decreased their public sector employment level 3 points, from 71% to 68% in the same time frame. You can see that India did boast a slight increase in their Real GDP per

capita for their lowering of public sector employment. However, the difference between Sweden and India in levels of public sector employment vary from a difference of 35 points to 30 points. Consequently, their Real GDP per capita disparity is from 27,292 to 21,057.

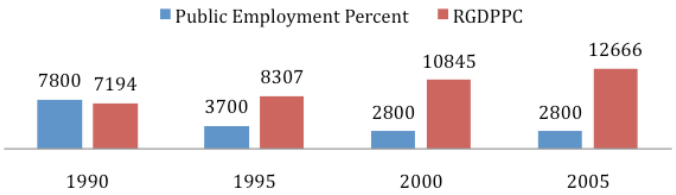
GRAPH 7
Real Gross Domestic Product Per Capita
2005



The following graph (Graph 8) depicts the numbers for a single country, Poland, for the years 1990, 1995, 2000 and 2005. For ease of observation, the percentage of public sector employment has been multiplied by 10,000, so that the graph can be larger and easier to read. For example, for 1990 the percentage is shown on the graph as 7,800 which is equal to 78% (7,800/10,000).

Poland has managed to lower its public sector employment from 78% in 1990 down to 28% in 2005. Consequently, its Real GDP per capita has risen from 7,195 to 12,666.

GRAPH 8
Poland



Looking at Poland is interesting to note, because of the fall of communism in this country just a year before the first data point (1990). The trend here is typical in post-soviet held countries after the fall of communism. Communism, as the way it has been practiced in countries like the USSR has been government control of industry. In a truly communist country (which has never existed) the state would wither away. However, in communist countries in reality, the iron fist has been the only fist. Private property and private business are nonexistent. In other words, public sector employment is at its highest. Government becomes an extreme monopoly owning all the means of production.

Historically, countries run by a communist regime, where the private sector is either non-existent or extremely handicapped, have had poor economic growth and prosperity. One only need glance at North Korea versus South Korea to see. Some of these differences between capitalism and socialism, as they pertain to Poland are discussed in a book by Gavin Rae (2008) entitled Poland's Return to Capitalism: From the Socialist Bloc to the European Union he states that "One of the unique features of the capitalist class is that it uses a large part of its accumulated capital for production, rather than consumption. Also, an increasing part of this capital goes into investment in the productive process, which increases in relation to the growth of wages" (Rae 2008, 51).

Poland, in the 1980s, with the imminent fall of communism in the USSR began discussing plans to tweak the socialist system, however it was soon apparent that the socialist economy was "…unreformable and that a decisive break from this system needed to be made" (Rae 2008, 53). In Poland, the decision to break from the socialist economic system came down to two options – to break away slowly or to break it off quickly, completely. Poland decided to breakaway quickly and completely with what they called "shock-therapy reforms" (Rae 2008). "The blueprint for the shock-therapy reforms was derived from the Chicago school in the USA and brought, literally, to the Polish parliament by the economist Jeffery Sachs" (Rae 2008, 53). Another economist named Janos Kornai, a Hungarian, constructed a theory of soft budget constraints which "…reasoned that any partial reform of the socialist economies would be undermined by these firms' 'soft-budget constraints' and that a programme of mass privatization had to be instigated to cut the reciprocal dependency between firms and the state. Such rationale guided the transition from socialism in Poland" (Rae 2008, 53).

The first series of the shock-therapy were introduced at the beginning of 1990 - "The philosophy guiding the shock-

therapy reforms was that if it had not been for socialism Poland would have a modern WE [Western European] Economy and therefore the constraints of this system should be removed as rapidly as possible….Enterprises were subjected to 'hard budget' constraints, determined by the market, with the belief held that the old inefficient and wasteful industries would perish, while profitable and market orientated ones would replace them and flourish" (Rae 2008, 54). Along these lines of thinking, mass privatization took place – "…which was tantamount to the selling off of national companies to foreign capital" (Rae 2008, 56). We can trace this reduction of government owned companies to the private sector as Poland's public sector employment begins to shrink in the above-graph (Graph 8) correspondingly their Real GDP per capita has been increasing.

Case Study - USA

A case study has been done using only the United States which looks at other factors that might be affected by the percent of people employed in the public sector. The following table (TABLE 3) shows the correlations between several variables and the percent of people employed in the public sector for the United States. The data for this particular study is for the years 1985, 1990, 1995, 2000, 2001, 2002, 2003, 2004, 2005, 2006, and 2007. The data was collected from the US Bureau of Labor Statistics, as well as the Penn World Tables, the International Labour Organization, and The Economic Freedom of the World Index.

TABLE 3

USA Correlations of Percent of People Employed in Public Sector To…

Unemployment Rate	.771**
Investment's Share of Real Gross Domestic Product Per Capita	-.756**
Government's Share of Real Gross Domestic Product Per Capita	.719*

N=11

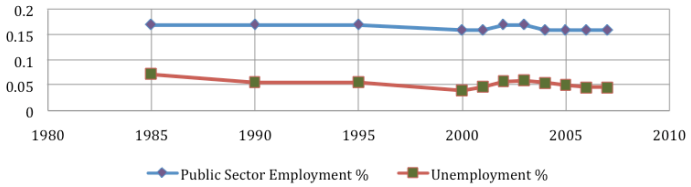
****. Correlation is significant at the 0.01 level**

***Correlation is significant at the 0.05 level**

All the correlations that were run for this case study were significant. As can be seen from this table, the percent of people employed in the public sector does have a positive, significant relationship, to the level of unemployment. That is to say that as the percent of people employed in the public sector increases, the level of unemployment also increases and conversely, as the percent of public employment decreases, the percent of people unemployed also decreases. This is a somewhat fascinating finding. As explored by Richard Rose above, there appears to be a contradiction. The government often uses its control and exercise of employing people in the public sector to reduce unemployment levels throughout the country. However, as Rose stated above, this tactic of the government is viewed well by those being employed by the public sector, but not by those in the private sector.

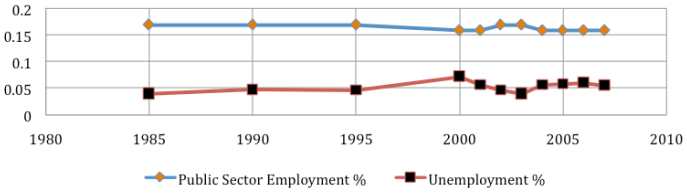
Graph 9 below is a scatterplot diagram of the data points for the years of the correlation study of unemployment rates and public sector employment percentages for the USA for the years mentioned above.

GRAPH 9
USA Public Sector Employment and Unemployment Percentages



As can be seen from the results, when there is an uptick in the level of public sector employment, there is a coinciding uptick in the level of unemployment. The two lines appear to be traveling at the same rate and direction (in general). My suspicions would have been that the level of public sector employment and the level of unemployment would have been moving in opposite directions and would have looked more like the imaginary results in Graph 10, below.

GRAPH 10



In Graph 10, the rate of unemployment and the level of public sector employment move in opposite directions. This would have been a negative relationship, in which as the level of public sector employment rises, the level of unemployment falls. However, this is not what the results indicate; they indicate a strong, positive relationship.

Another finding of this case study was that as the level of people in public employment increases, the level of investment's share of Real GDP per capita, decreases. This is a negative relationship which indicates that, concurrent with Rose's findings, when the government steps in with more jobs, investment declines because public sector wages begin to take up more and more of the countries national product, which is consistent with the third finding of the case study. That, as the percent of public sector employment increases, the government's share of Real GDP per capita also increases. This finding makes perfect sense and is not at all surprising. It is rather a confirmation of previous studies and their findings, as applied to the United States.

Causation

The next part of this paper is going to try and set forth whether there is causation between the size of government growth and economic growth. In order to establish causation, one must be able to identify that the independent variable (for purposes of this study, public sector employment) does in fact come before the dependent variable (in this study, Real GDP per capita), one must identify the causal process, eliminate any alternative rival hypotheses and must be able to support the findings with evidence (Manheim et al 2008). Causation is a much trickier thing to determine, especially with the data presented here.

Causation is much harder to establish, needing more extensive time, data, and calculations. In order to attempt a preliminary, rudimentary test of causation, the following tables (Tables 4-6) have been run using SPSS 17.

Table 4 depicts correlations of Public Sector Employment rates in 1990 with the Real GDP per capita numbers for 1990, 1995, 2000, and 2005 while controlling for general government consumption and the size of government expenditures.

TABLE 4

Public Sector Employment 1990

	Controlling for General Government Consumption Spending as a Percentage of Total Consumption	Controlling for the Size of Government Expenditures, Taxes, and Enterprises
Real GDP per capita 1990	-.534 *	-.719 **
Real GDP per capita 1995	-.554 *	-.699 **
Real GDP per capita 2000	-.523 *	-.722 **
Real GDP per capita 2005	-.466 *	-.703 **

****. Correlation is significant at the 0.01 level *Correlation is significant at the 0.05 level**

The correlation of the 1990 Public Sector Employment on the same year (1990) and future years (1995, 2000, and 2005) all remained significant and strong.

Table 5 depicts correlations of Public Sector Employment rates in 1995 with the Real GDP per capita numbers for 1995, 2000, and 2005 while controlling for general government consumption and the size of government expenditures.

TABLE 5 Public Sector Employment 1995		
	Controlling for General Government Consumption Spending as a Percentage of Total Consumption	Controlling for the Size of Government Expenditures, Taxes, and Enterprises
Real GDP per capita 1995	-.511 *	-.672 **
Real GDP per capita 2000	-.478 *	-.677 **
Real GDP per capita 2005	-.431***	-.648 **
****. Correlation is significant at the 0.01 level *Correlation is significant at the 0.05 level ***.Correlation is significant at the 0.09 level**		

Once again, the relationships all remain significant and at a relatively constant strength.

Table 6 below, was run for the Public Sector Employment Level in 2000 to the level of Real GDP per capita for 2000 and 2005.

TABLE 6 Public Sector Employment 2000		
	Controlling for General Government Consumption Spending as a Percentage of Total Consumption	Controlling for the Size of Government Expenditures, Taxes, and Enterprises
Real GDP per capita 2000	-.440 *	-.606 *
Real GDP per capita 2005	-.411***	-.590 *
****. Correlation is significant at the 0.01 level *Correlation is significant at the 0.05 level ***.Correlation is significant at the 0.09 level**		

It tells roughly the same story as the above two tables (Tables 4-5). What these tables are trying to show is that because the correlation between Public Sector Employment in 1990 is correlated with, not only the Real GDP per capita levels in 1990, but also in 1995, 2000, and 2005 (15 years later) – we can start to establish that the level of Public Sector Employment in a country helps to predict not only the current level of Real GDP per capita, but future ones as well. While by no means a conclusive or end-all-be-all test for causation, it is a good starting point.

Conclusion

The study done above is in no way complete. Further study needs to be done to further explore the effects that public sector employment rates have on the economy. This study is an initial investment into this field of study. In the past, very little attention has been paid to analyzing the exact number of public sector employees and their effects on the economy. Rather, more attention has been paid to the level of consumption by the government, government expenditures, taxes, etc. and their effect on the economy. While these studies are necessary and explain much and are obviously correlated with the size of the public sector (the larger the public sector employment, the higher the levels of taxes, expenditures and consumption of government, etc.), even when these were controlled for, the number of public sector employees still had a negative effect on the economy. This is an interesting finding that should be further explored. If the absolute number of public sector employees is a valid and strong predictor of economic indicators, the process of analysis becomes somewhat simpler, because calculating the number of public sector employees is much simpler (in most cases) then calculating expenditures, consumption levels, etc.

Future studies might be interested in looking at when new government agencies are formed, leading to a large influx of public sector employment, and the agencies short-term and long-term effects on economic indicators, not on GDP per capita, but unemployment levels, investment levels, and the level of private sector employment.

What my study has established thus far, rudimentary though it may be, does have implications for the United States today. Henry Teune (1982) in his book, Decentralization and Economic Growth discusses how the idea that larger government (centralization) can lead to a stronger and better economy came about. He states that “In the post-war period the association among centralization, economic growth, and economic equality was argued on theoretical grounds and given empirical documentation, but most important, was vindicated by experience” (Teune 1982, 102). Specifically, the widely held belief that FDR’s initiatives (the New Deal) brought about the economic prosperity of the post-WWII period and saved the United States from an even longer and more daunting depression than the Great Depression. Likewise, Bruce Smith (1983) in his book, Changing Public-Private Sector Relations: A Look at the United States discussed how

The New Deal is notable, first of all, for the constitutional revolution that opened the way for an enormous expansion of national power. The power to tax and spend for the general welfare, the demise of substantive due process and

the expansion of governmental authority under the commerce clause, and the elimination of the constitutional no man's land between federal and state power are among the dramatic developments that transformed the role of government in American society (Smith 1983, 154).

Smith also points out (as does Teune) that it was "The coming of World War II – the last of our wars to have had beneficial effects on the nation's economy – [that] lifted the country out of the economic stagnation of the 1930s, which had deepened once again toward the end of the decade. The war swept the nation to an unprecedented prosperity, and the prosperity did much to foster the illusion that the New Deal, Keynesian economics, and governmental policies had 'solved' the problem of prosperity" (Smith 1983, 156).

This illusion that the New Deal, government intervention, and public sector employment leads to economic prosperity seems to be deeply implanted into the American psyche. However, Teune's position is that "…beginning in the 1960s governmental centralization began to shift its role from a contributing to a dampening factor in the processes of economic growth" (Teune 1982, 93). The reasoning for this reversal of its positive effect is in industrialized countries, where "… more governmental centralization is not possible for a number of reasons, including the most general one that social and economic diversity has reached a point whereby increased hierarchical control yields diminishing returns" (Teune 1982, 95). He states quite candidly in his book that, "If the U.S. federal government expands as it has since 1960, relative to the expansion of the private sector, it will at some point absorb the private sector…" (Teune 1982, 95). With the findings of my study in mind, if the public sector continues to grow, if more and more agencies come to fruition, then the effects on our Real GDP per capita may continue to decline, our economic freedom will decline and our overall economic prosperity may diminish significantly.

Bibliography

Adam Smith. "The Wealth of Nations." http://www.adamsmith.org/the-wealth-of-nations/ (accessed November 5, 2009).

Alan Heston, Robert Summers and Bettina Aten, Penn World Table Version 6.3, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, August 2009.

Almond, Gabriel A. "Capitalism and Democracy," in Comparative Politics Annual Edition 09/10, edited by O. Foiona Yap, 149-155. New York, NY: McGraw Hill, 2010.

Bhagwati, Jagdish. 2007. In Defense Of Globalization. New York: Oxford University Press.

Dar, Atul and Saleh Amirkhalkhali. "The Impact of Government Size on Economic Growth: A Time Series Cross-Country Study." Development Policy Review 17 (1999): 65-76.

Evans, Peter and James E Rauch. "Bureaucracy and Growth: A Cross-National Analysis of the Effects of 'Weberian' State Structure on Economic Growth." American Sociological Review 64 (1999): 748-765.

Friedman, Milton. 2002. Capitalism and Freedom. Chicago: The University of Chicago Press.

Gwartney, James and Robert Lawson. "Economic Freedom of the World 2009 Annual Report." http://www.freetheworld.com/2009/reports/world/EFW2009_BOOK.pdf (accessed November 9, 2009).

Jeffery D. Sachs. The Earth Institute Columbia University. http://www.earth.columbia.edu/ articles/view/1770 (accessed February 4, 2010).

LABORSTA Internet: Public Sector Employment (E). http://laborsta.ilo.org/apply8/data/ sectore.html (accessed October 8, 2009).

Library of Economics and Liberty. "Adam Smith: The Concise Encyclopedia of Economics." http://www.econlib.org/library/Enc/bios/Smith.html (accessed November 5, 2009).

Manheim, Jarol B., Richard C. Rich, Lars Willnat, and Craig Leonard Brians. 2008. Empirical Political Analysis: Quantitative and Qualitative Research Methods. New York: Pearson Longman.

Methodology: Freedom of the World Index. http://www.freedomhouse.org/template.cfm? page=315&ana_page=166&year=2002 (accessed November 9, 2009).

Rae, Garvin. 2008. Poland's Return to Capitalism: From the Socialist Bloc to the European Union. London, UK: Tauris Academic Studies.

Riedl, Brian. "Why the Stimulus Failed: Fiscal Policy Cannot Exnihilate New Demand." National Review, September 7, 2009, 34-37.

Rose, Richard. "What If Anything Is Wrong with Big Government?" Journal of Public Policy 1 (1981): 5-36.

Saunders, Peter. "Public Expenditures and Economic Performance in OECD Countries." Journal of Public Policy 5 (1985): 1-21.

Schumpeter, Joseph A. 1950. Capitalism, Socialism and Democracy. New York, NY: Harper Perennial.

Smith, Adam. 2004. The Wealth of Nations. New York, NY: Barnes and Noble, Inc.

Smith, Bruce L.R. "Changing Public-Private Sector Relations: A Look at the United States." Annuals of the American Academy of Political and Social Science 466 (1983): 149-164.

Teune, Henry. "Decentralization and Economic Growth." Annuals of the American Academy of Political and Social

Science 459 (1982): 93-102.

Endnotes

[1]See Appendix A for a list of countries tested.
[2]See Appendix B
[3]See Appendix B