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Fiscal Policy and Macroeconomic Performances

The history of public spending and the analysis in a simple model of endogenous growth

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1. Introduction

Recent experiences as a citizen of a bankrupt state pushed me towards understanding the reasons behind a government in debt. As with everything, for a better understanding on how things work, I had to follow the origins of public spending from 1870 up to 1990s and even beyond, and witness historical evidence on how growth evolved. I based my study on the book of Vito Tanzi, and Ludger Schuknecht, *"Public Spending in the 20th Century"*, (Vito Tanzi, 2000) followed by the Endogenous Growth model of Robert J. Barro, (Barro, 1990). I was amazed by the findings but more determined into discovering new ways to reverse dangerous situations which could lead a state into bankruptcy if the government expenditure keeps growing. The main goal should be to reform the government into a better functioning mechanism with less responsibilities in order to obtain much greater financial performances without compromising the quality of a welfare state.

Chapter 2, is based on the book of (Vito Tanzi, 2000) and I discuss the history of public spending and the need for reforms, with successful examples from countries that managed to reduce government expenditure

Chapter 3, is based on the endogenous growth model of (Barro, 1990) with a view of decentralized choices and how the government can optimize growth, before moving on to a planners unrealistic problem.

In the end, on Chapter 4, I will briefly discuss such actions in reforming the state on various countries and what resulted from this on a socioeconomic basis. The uncertainty of the future however cannot guarantee success in any way, although the stronger the foundation the less disturbances we will face. Innovative ways of reforming previous systems will be a challenge. Starting my journey with the review and the historical perspective on growth in different time periods and types of governments, exciting things are bound to follow.

2. Review of public spending on a global perspective

The relationship between public spending in industrialized countries and social welfare has reached a point where the image of continuously growing governments linked with increasing social welfare in various indicators could be a false perception. This might seem logical when making a flashback of this relationship over a period of 125 years, from 1870 to the mid-1990s. More specifically a rapid growth in public spending over the last years, up until the 1980s, is not followed with an additional increase in social and economic welfare. These latest findings question the future of the welfare state. A logical enquiry of what will be given up if the welfare state was to be scaled down is addressed, as well as a comparison of the level of public spending in the early part of the 1900s with those in the present day's developing countries. These findings might come to a surprise as in the early 1900s several industrial countries had yet vibrant and modern economies and societies.

Since public spending is seen as a key element in our research we need to adhere to the effects that it generates. Firstly, an increase will lead to a higher level of taxation, if the government wants to keep a balanced budget, and thus to a fall in the disposable income of individuals. Secondly, individuals will have less incentives to take actions

against various risks to further protect themselves since they rely on public actions instead. If this is true then to some extent this replaces private actions with public actions and thus an increase in public spending will not lead to an increase in public welfare, on the contrary it may even reduce it. The analysis will take place on a historical perspective in the growth of the government and the gains as a result of it before moving on to the role of the state in reforming the government, finishing with experiences from such processes.

2.1 A Historical Perspective

In order for us to have an immaculate view between the 1870 to the mid-1990s we divide this time preference into four parts: from 1870 up to World War I, the interwar period, the period up to 1980s and the most recent years.

I: From 1870 up to World War I

In the nineteenth century dominated the attitude of "let do" regarding the actions of the government. Basically this came as a reaction of governmental interventions causing major distortions resulting in a state with minimal economic functions. This Laisez-Fair dominance was supported by classical economists believing that the role of the government should be limited and more specifically at the allocation of resources. At the time Governments were mostly responsible for organizations such as police, national defense and administration. The beginning of a social state was mainly emerged when education, health and medicine, as well as pensions for retirement came into action due to public pressures for a more active role from the governments. Given that in the last century, public spending was scarce in a number of industrialized countries while growing rapidly in recent years as can be seen from the following (Table I.) this growth does not account for an even greater social state from the early ones in the past.

Table 1. Growth of General Government Expenditure, 1870-1996 (Present of GDP)

	Late 19th century about 1870	Pre-World War I	Post World War I	Pre-World War II	Post World War II			
		1913	1920	1937	1960	1980	1990	1996
General government for all years								
Australia	18.3	16.5	19.3	14.8	21.2	34.1	34.9	35.9
Austria	10.5	17.0	14.7	20.6	35.7	48.1	38.6	51.6
Canada	…	…	16.7	25.0	28.6	38.8	46.0	44.7
France	12.6	17.0	27.6	29.0	34.6	46.1	49.8	55.0
Germany	10.0	14.8	25.0	34.1	32.4	47.9	45.1	49.1
Italy	13.7	17.1	30.1	31.1	30.1	42.1	53.4	52.7
Ireland	…	…	18.8	25.5	28.0	48.9	41.2	42.0
Japan	8.8	8.3	14.8	25.4	17.5	32.0	31.3	35.9
New Zealand	…	…	24.6	25.3	26.9	38.1	41.3	34.7
Norway	5.9	9.3	16.0	11.8	29.9	43.8	54.9	49.2
Sweden	5.7	10.4	10.9	16.5	31.0	60.1	59.1	64.2
Switzerland	16.5	14.0	17.0	24.1	17.2	32.8	33.5	39.4
United Kingdom	9.4	12.7	26.2	30.0	32.2	43.0	39.9	43.0
United States	7.3	7.5	12.1	19.7	27.0	31.4	32.8	32.4
Average	**10.8**	**13.1**	**19.6**	**23.8**	**28.0**	**41.9**	**43.0**	**45.0**

Central government for 1870-1937, general government thereafter								
Belgium	…	13.8	22.1	21.8	30.3	57.8	54.3	52.9
Netherlands	9.1	9.0	13.5	19.0	33.7	55.8	54.1	49.3
Spain	…	11.0	8.3	13.2	18.8	32.2	42.0	43.7
Average	**9.1**	**11.3**	**14.6**	**18.0**	**27.6**	**48.6**	**50.1**	**48.6**
Total Average	**10.7**	**12.7**	**18.7**	**22.8**	**27.9**	**43.1**	**44.8**	**45.6**

Sources: Complied by Tanzi and Schuknecht based on (Fernandez Acha, 1976); (Andic, 1964); (Australia Beraue of Cencus and Statistics, 1938); Institut National de la Statistique [Belgium] (1952); (Brosio, 1986); (United States Bereau of the Census, 1975); (Butlin, (1984)); Norway, Statistic Sentralbryra (1969, 1978); (Delorme, (1983)); (Flora, (1983)); IMF, Statistical Appendix, New Zealand; IMF, Switzerland: Recent Economic Developments (1996); Historical Statistics of Japan (1987); Mitcell, International Historical Statistics (various years); Neck and Schneider (1988); The Netherlands, Central Bureau voor de Statistick (1996); New Zeeland Official (1938); OECD, Economic Outlook (1996, 1997); Italy, Instituto Nazionale de Statistica (1951); Osterreichisches Statistiches Zentralamt (1935)

Around 1870, unweighted average public expenditure amounted to about 10 percent of gross domestic product (GDP). Countries such as the United States, Sweden, Norway and Japan stayed well below this average while the likes of Australia, France, Italy and Switzerland were the big spenders of the game. Since these spenders were considered to be heavily involved in the economy of their state there was a need to address the amount of taxes needed for that. A leading French economist at the time, Paul Leroy-Beaulieu, suggested that a share of 5-6 percent was considered as moderate while a share greater than 12 percent had to be considered "exorbitant" and could damage the growth prospects of an economy.

In the continuation of time the Marxian thinking influenced the social movement in Europe and challenged economists and governments into redistributing wealth from the rich to the poorest ones. By that time primary education was a predominant policy amongst states, while the first social security system was introduced in Germany in the 1880s. This was the first sights on what was soon to be followed by social states offering "protection" to civilians. Reaching up to 1913 and the time before World War I there was an increase in the growth of government spending with just the United States and Japan keeping it steady. Obviously countries preparing for the War, increasing their national defense spending in military and boosting growth expenditure with only the likes of Switzerland and Australia cutting down the expenses. What is even more remarkable at that time is the modernization of Europe with many public works completed such as railroads and metros with such a small share of government spending.

II: The Interwar Period

The aftermath of World War I left countries in ruins, and in need to pay back the war related debt or reparations. This drove up the growth rate to 18.7 in average. It was the time of greater intervention from governments and the end of Laisez-Fair attitude since it was thought as the cause of the Depression. By the end of 1920 many European countries had introduced social security systems while the United States increased public spending on the unemployed and on public works in order to compensate the Great Depression. By 1937, public expenditure rose up to 22.8 in average close to double the 1913 levels. However is should be noted that part of this growth was down to the Depression causing GDP to fall.

III: The Period up to 1980s

The time socialism prevailed becoming popular amongst Western intellectuals and political leaders. To better describe this time period I will use an exact phrase of Bertrand de Jouvenel (Jouvenel, 1952) as found in his book in The Ethics of Redistribution:

Public finance generally is a dull subject, but public finance in the first half of the twentieth century is entrancing: it has been revolutionized and in turn has been the means of a revolution in society. Out of many new aspects of public finance, the two most noticeable are, first, that it has been used to alter the distribution of the national income between social classes, and, second, that the fraction of national income passing through public hands has increased enormously.

Keynes's theory dominated this era providing tools for stabilization as well as plenty of reasons for governmental intervention. Seems like Keynes own prediction that *"the ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else."* The aftermath of the pressure from well-known economists forced governments into greater involvement on goods and services accompanied by new technics in budgeting such as cost/benefit analysis of public projects and expressions like input-output and discounted cash flow. This evolution helped the state into making decisions regarding public money and its effective allocation while at the same time reducing political discretion. For the critical aspect of taxation it was believed that progressive taxation combined with a stable tax base, and no serious disincentive effects, could provide the necessary funding for ambitious policies and expensive projects. It is worth mentioning the fact that at the time nothing negative was found on the impact of high marginal tax rates on the economy.

However the evolution did not stop there and took place in the legislation department as well when many Europeans countries after the World War II accepted welfare rights as constitutional rights. Several countries made strong legal statements to support interventional policies in their constitution, and supreme courts supported such acts whenever there was a need to do so. See Germany in the late 1960s, Italy's article 81, Switzerland 1971 and United States 1946 Employment Act.

It is remarkable that the rapid expansion of public expenditure between 1960 and 1980 occurred when most countries were not at war, there was no depression and the demographic developments were fiscally friendly. This was the period in which basic social security systems acquired some of the characteristics of the welfare state. As seen in the Table 1 the average come about 43 percent of GDP from 28 in 1960, a considerable increase to say the least. Countries with more than 40 percent were consider "the big size governments" such as Austria, France, Germany, Italy, Ireland, Norway, Sweden and the United kingdom leaving only Japan and the United States in the low 30s. This was the golden age of public sector intervention.

IV: The Most Recent Years (the 1980s and the 1990s)

After the rapid growth observed in previous years' skepticism started flowing in the air questioning the effectiveness of the government in allocating resources and distributing them in a well-targeted manner so as to stabilize the economy in the stagflation of the 1970s. The witnessed evolution of new programing and budgeting technics was also questioned. As deficits and public debt rose, actions had to be taken

in order not to become unbearable. The assumption of an overgrown government beyond its justified role "mortgaging" the income of future generations, was made.

This decade favored small governments. Actions were taken with Margaret Thatcher as prime minister of United Kingdom cutting down about 3 percent of public expenditure with regard to GDP. Austria followed with almost a whopping 10 percent, Germany with close to 3 percent and Belgium with another 3 percent as well. Australia, Japan, Sweden, Switzerland, Belgium and the United States with Ronald Reagan as president that practically kept the same level as before. These two different and influential figures opposed against big governments with social and political groups following behind constantly attacking what they considered excessive government spending and excessive welfare states. A strong attack from OECD countries against previous regulations also observed at the time. Although there was a considerable opposition in policy regimes toward less state involvement and cuts in public expenditure not all were successful in slowing down the growth of public spending in quite a few countries. Canada increased public spending by more than 7 percent, France followed with almost 4 percent, Italy with more than 11 percent, New Zealand with 3 percent, Norway with 11 percent as well and Spain with another 10 percent bringing the total average in 1990s to 44.8 percent. It is worth mentioning than the public spending had reached up to 28 percent from 1870 to 1960 and has almost double since then in half that time with the absence of a war during this period. Some of the reasons for these asymmetric developments can be found due to institutional constraints on taxation leading to a slow growth than in those without such binds.

2.2 The Composition of Public Expenditure

The government growth over the previous century has been accompanied by remarkable changes in the composition of public spending and its allocation over government employment, defense, subsidies and transfers, unemployment, health and education. We will analyze each category separately presenting data for further understanding and a broader view of this public expenditure partitioning. For a better comparison I present data from governments' real expenditure in order to obtain a reference point.

Table 2. Government Real Expenditure, 1870-1995 (Present of GDP)

	About 1870	1937	1960	1980	1990	1995
Australia	4.8	5.5	11.2	17.6	17.1	17.5
Canada	…	10.1	13.4	19.2	19.8	19.6
France	5.4	15.0	14.2	18.1	18.0	19.3
Germany	…	21.0	13.4	20.2	18.4	19.5
Japan	…	12.4	8.0	9.8	9.1	9.7
Netherlands	6.7	12.3	12.6	17.9	14.5	14.3
Norway	2.6	3.2	12.9	18.8	21.0	20.7
Spain	4.9	10.7	8.3	12.5	15.5	16.6
Sweden	5.5	10.4	16.0	29.3	27.4	25.8
United Kingdom	…	11.7	16.4	21.6	20.6	21.4
Unites States	2.5	12.9	19.4	18.7	18.9	16.2
Average	**4.6**	**11.4**	**13.3**	**18.5**	**18.2**	**18.2**
Austria	…	…	13.0	18.0	17.8	18.8
Belgium	…	…	12.4	17.8	14.5	14.8

Ireland	…	…	12.5	19.2	15.1	14.7
Italy	…	…	12.0	14.7	17.4	16.3
New Zealand	…	…	10.5	17.9	16.7	14.3
Switzerland	…	…	8.8	12.7	13.3	14.0
Average	**…**	**…**	**11.5**	**16.7**	**15.8**	**15.5**
Total Average	**4.6**	**11.4**	**12.6**	**17.9**	**17.4**	**17.3**

Sources: Compiled by Tanzi and Schuknecht, based on Andic and Veverka (1964); Butlin (1984); Delorme and Andre (1983); Foster and Stewart (1991); Mitchell, International Historical Statistics (various years); OECD, National Accounts (various issues); Okawa Shinohara, Unlmura (1965-79).

It is worth mentioning the fact that real expenditure has been relatively stable as a share of GDP from 1980s and afterwards. Since higher spending, (observed from 1937 to 1960 with more than 7 percent in average), requires higher taxes to finance it imposing real costs to the economy while lowering taxpayers income and standards of living, actions were taken and their impact can be seen from a slight decline of real expenditure from 1980 up to 1995.

I. Public Defense

One of the main characteristics regarding the deviations of public expenditure on defense is obviously war preparations. Countries such as Germany, Italy, France, Japan and the United Kingdom increased their defense budgets in preparation for World War I, followed by the United States in World War II. The decline observed in Japan after World War II was due to the Security Treaty between the United States and Japan (1951). In a few countries (mainly Germany and Spain), a decline in defense spending explains much of the recorded decline in real expenditure for the 1937-1960 period.

Table 3. Public Expenditure on Defense, 1900-1995 (Present of GNP)

	About 1900	1920	1937	1960	1980	1995
Australia	0.2	1.0	0.6	2.4	2.3	2.4
Austria	…	0.7	1.3	1.2	1.2	0.9
Belgium	…	2.4	…	3.4	3.1	1.7
Canada	…	…	…	4.3	1.6	1.6
France	6.5	1.9	5.5	6.3	3.3	3.1
Germany	1.7	0.9	9.6	4.0	2.9	1.7
Ireland	…	5.1	1.2	1.4	1.9	1.4
Italy	7.4	2.7	9.9	2.7	1.7	1.9
Japan	6.0	4.1	5.3	1.0	0.9	1.0
Netherlands	…	…	…	3.9	3.2	2.1
New Zealand	…	…	3.9	1.4	1.6	1.3
Norway	…	0.9	0.8	3.2	2.6	2.6
Spain	…	5.8	3.8	2.9	1.6	1.5
Sweden	…	2.0	1.6	2.8	3.2	2.5
Switzerland	…	…	1.8	2.4	2.1	1.6
United Kingdom	5.4	2.6	5.3	6.4	4.9	3.1
United States	0.8	0.6	1.1	8.8	5.2	4.0
Average	**4.0**	**2.4**	**3.7**	**3.4**	**2.5**	**2.0**

Sources: Compiled by Tanzi and Schuknecht, based on Fernandez-Acha (1976); Andic and Veverka (1964); Australian Bureau of Cencus and statistics (1938); Norway Statistisk Sentrabyra (1969, 1978), Imf, World Economic Outlook (1995); League of Nations Statistical Yearbook (various years); Stockholm International Peace Research Institute, Armaments, Disarmaments and International Security: SIPRI yearbook, 1996; United States Arms Control and Disarmament Agency, World Military Experience Transfers (1996).

II. Government Employment

This category has been criticized like no other recently. An increase can be justified by the expansion of the government into a social state requiring more citizens

for better efficiency on bureaucracy matters. Moreover since the state was responsible for providing the best possible education and health on its citizens there was a need to hire professionals, further expanding the employment database. While this seemed a reasonable explanation, often enough, such reasons were exploit by benevolent governments, mostly for political reasons looking to be re-elected. Noticeable remarks are the 23 percent of Sweden in 1960s, almost double of the average at the time, rising to 26 in the 1980s, declining to 20.9 in 1994.

Table 4. Government Employment, 1870-1994 (Present of Total Employment)

	About 1870	1913	1937	1960	1980	1994
Australia	1.4	1.7	…	23.0	26.0	20.9
Austria	1.9	4.7	7.6	10.6	17.3	22.4
Belgium	2.2	4.8	…	12.2	18.9	19.4
Canada	…	…	…	18.4	18.8	20.4
France	2.5	3.0	4.4	…	20.0	24.8
Germany	1.2	2.4	4.3	9.2	14.6	15.1
Ireland	2.5	2.6	1.8	…	14.5	14.0
Italy	2.6	4.4	5.1	7.7	14.5	16.2
Japan	1.0	3.1	5.0	…	6.7	6.9
Netherlands	3.5	4.6	5.8	11.7	14.9	12.7
New Zealand	…	…	…	17.9	19.2	18.1
Norway	2.2	3.4	4.7	…	23.2	30.6
Spain	…	…	…	…	11.9	15.1
Sweden	2.2	3.5	4.7	12.8	30.3	32.0
Switzerland	2.4	5.7	5.8	7.3	10.7	14.1
United Kingdom	4.9	4.1	6.5	14.8	21.1	15.0
United States	2.9	3.7	6.8	14.7	15.4	14.5
Average	**2.4**	**3.7**	**5.2**	**12.3**	**17.5**	**18.4**

Sources: Compiled by Tanzi and Schuknecht, based on Bird, Bucovetsky, and Foot (1979); Flora et al. (1983); Japan statistical Assosiation (1987); Liesner (1985); OECD Historical Statistics (1992, 1996).

III. Subsidies and Transfers

One of the most remarkable changes in the composition of government spending and a new entry in the past forty years with a dramatic increase was subsidies and transfers. It reflected the increase in social spending for the expanding social or welfare activities of governments in industrialized countries. From a non-existent point in 1970 with a mere 1.1 percent in average, to 9.7 percent almost a century later, to 23.2 percent 36 years afterwards. Subsidies and transfers can be seen as incentives from the state to private sector in order to boost entrepreneurship and attract funds. After 1980, the expansionary trend continued but at a much slower pace. During this time period it is observed for the first time a decline in this field with the likes of Belgium, Ireland, Netherlands and New Zealand cutting down the expenses.

Table 5. Government Expenditure on Subsidies and Transfers 1870-1995 (Present of GDP)

	About 1870	1937	1960	1970	1980	1995
Canada	0.5	1.6	9.0	12.4	13.2	14.9
France	1.1	7.2	11.4	21.0	24.6	29.9
Germany	0.5	7.0	13.5	12.7	16.8	19.4
Japan	1.1	1.4	5.5	6.1	12.0	13.5
Norway	1.1	4.3	12.1	24.4	27.0	27.0
Spain	…	2.5	1.0	6.7	12.9	25.7
United Kingdom	2.2	10.3	9.2	15.3	20.2	23.6
United states	0.3	2.1	6.2	9.8	12.2	13.1
Average	**0.9**	**4.5**	**8.5**	**13.6**	**17.4**	**20.9**

Australia	…	…	6.6	10.5	16.7	19.0
Austria	…	…	17.0	16.6	22.4	24.5
Belgium	0.2	…	12.7	20.7	30.0	28.8
Ireland	…	…	…	18.8	26.9	24.8
Italy	…	…	14.1	17.9	26.0	29.3
Netherlands	0.3	…	11.5	29.0	38.5	35.9
New Zealand	0.2	…	…	11.5	20.8	12.9
Sweden	0.7	…	9.3	16.2	30.4	35.7
Switzerland	…	…	6.8	7.5	12.8	16.8
Average	**…**	**…**	**11.1**	**16.5**	**24.9**	**25.3**
Total average	**1.1**	**4.5**	**9.7**	**15.1**	**21.4**	**23.2**

Sources: Compiled by Tanzi and Schuknecht, based on Andic and Veverka (1964); Norway, Statistisk Setntralbyra (1969, 1978); Delorme and Andre (1983); Foster and Stewart (1969); IMF, Government Finance Statistics (various years); Lindert (1994); Mitchell; IMF, International Finance Statistics (various years); OECD National Accounts (various years); Peacock and Wiseman (1961).

IV. Education

Education is probably the most sensitive sector and has been vaguely argued on whether it contributes to both economic growth and equity as well as social stability and democratic values. Primary education was first introduced by the governments in the middle of the nineteenth century and since then it is perceived as one of the most essential tasks of the government. It is worth mentioning that at present times almost 100 percent of the population on social states is literate. Today, secondary education is mostly free and so is tertiary with just a small portion financed by the state. There have been attempts by some governments (Italy, France) to introduce a fee for the higher education but this action has met stiff resistance from students. However financial pressures might overcome such difficulties. A steady growth of about 1 percent can be observed from the data on Table 6, with Sweden being the leader in educational expenditure.

Table 6. Public Expenditure on Education, 1870-1993 (Present of GDP)

	Total Public Education						Higher Education	
	About 1870s	1913	1937	1960	1980	1993-94	1970-72	1993
Australia	…	…	0.7	1.4	5.5	6.0	1.5	1.2
Austria	…	…	2.5	2.9	5.6	5.5	0.7	1.1
Belgium	…	1.2	…	4.6	6.1	5.6	…	1.0
Canada	…	…	…	4.6	6.9	7.6	2.5	2.2
France	0.3	1.5	1.3	2.4	5.0	5.8	0.7	0.9
Germany	1.3	2.7	…	2.9	4.7	4.8	0.6	0.9
Ireland	…	…	3.3	3.2	6.6	6.4	0.8	1.1
Italy	…	0.6	1.6	3.6	4.4	5.2	0.5	0.8
Japan	1.0	1.6	2.1	4.1	5.8	4.7	0.5	0.4
Netherlands	…	…	1.5	4.9	7.6	5.5	2.1	1.4
New Zealand	…	…	2.3	3.2	5.8	7.3	1.3	1.5
Norway	0.5	1.4	1.9	4.2	7.2	9.2	0.9	1.5
Spain	…	0.4	1.6	1.3	2.6	4.7	…	0.8
Sweden	…	…	…	5.1	9.0	8.4	0.9	1.5
Switzerland	…	…	…	3.1	5.0	5.6	0.8	1.2
United Kingdom	0.1	1.1	4.0	4.3	5.6	5.4	1.4	0.9
United States	…	…	…	4.0	…	5.5	1.3	1.3
Average	**0.6**	**1.3**	**2.1**	**3.5**	**5.8**	**6.1**	**1.1**	**1.1**

Sources: Compiled by Tanzi and Schuknecht, based on Fernandez Acha (1976); Australian Bureau of Census and Statistics (1938); New Zealand Departments of Statistics (1937); Japan Statistical Association (1987); League of Nations Statistical Yearbook (various years), Mitchell (1962); OECD, Educatio at a Glance (1996); [Italy] Instituto

Nazionale di statistica (1951); Unesco , World Education Report (1993); United nations Development Programme, Human Development Report (1996); UN, World Economics Survey (various years).

V. Health and Medicine

Another relatively recent phenomenon regarding public expenditure is the involvement of the government in the health sector. The assumption that public health can contribute to individual well-being and economic productivity gave birth to the rapid development of the health sector combined with the progress of medicine, improved and maintained high health standards for the population. To some countries, public health insurance was one of the first social insurance programs to become available. A closer look at the data on Table 7, reveals a steady growth. On the downside technical progress will most likely raise the costs of health services and will put pressure on public health budgets.

Table 7. Public Expenditure on Health, 1913-1994 (Present of GDP)

	About 1910	About 1930	1960	1980	1994
Australia	0.4	0.6	2.4	4.7	5.8
Austria	…	0.2	3.1	4.5	6.2
Belgium	0.2	0.1	2.1	5.1	7.2
Canada	…	…	2.3	5.4	7.0
France	0.3	0.3	2.5	6.1	7.6
Germany	0.5	0.7	3.2	6.5	7.0
Ireland	…	0.6	3.0	8.4	6.0
Italy	…	…	3.0	6.0	5.9
Japan	0.1	0.1	1.8	4.6	5.5
Netherlands	…	…	1.3	6.5	6.9
New Zealand	0.7	1.1	3.5	4.8	5.7
Norway	0.4	0.6	2.6	6.5	6.9
Spain	…	…	0.9	…	5.8
Sweden	0.3	0.9	3.4	8.8	6.4
Switzerland	…	0.3	2.0	5.4	6.9
United Kingdom	0.3	0.6	3.3	5.2	5.8
United States	0.3	0.3	1.3	4.1	6.3
Total Average	**0.3**	**0.4**	**2.4**	**5.8**	**6.4**

Sources: Compiled by Tanzi and Schuknecht, based on Fernandez Acha (1976); Andic and Veverka (1964); Australia, Bureau of Census Statistics (1938); Norway, Statistisk Sentralbyra (1969, 1978); Census and Statistics Department, New Zealand Official Yearbook (1937); League of Nations, Statistical Yearbook (various years); Lindert (1994); Mitchell (1962); OECD, Social Expenditure, !960-90; Okama et al. (1979): World Bank, World Development Indicators (1997).

VI. Pensions

Providing for the elders is consider as humanitarian act and it wasn't until the late nineteenth century when the involvement of the government firstly appeared. It was Germany, the pioneers that first introduced pension insurance, followed by Italy and France before the end of the eighteenth century. A pattern of a growth in the same chronological period, 1960-80, boosted the expenditure on pensions as it happened in other sectors as well. What was not accounted at the time was the aging of population over sixty years old combined with early retirements. The social states goal on improving the health of the population accounted to a higher prospect of living, while educating the public drove individuals into chasing more leisure time and early retirements. Those aspects combined will cause major distortions in the pension's budget with Belgium, Ireland, Japan, New Zealand and Norway already preparing and showing decline in the growth.

Table 8. Public Expenditure on Pensions, 1913-1993 (Present of GDP)

	About 1913	1920	1937	1960	1980	1990	1993
Australia	…	…	0.7	3.3	4.5	4.2	4.5
Austria	…	2.4	2.4	9.6	11.4	12.3	12.7
Belgium	…	0.3	3.7	4.3	11.2	11.2	10.9
Canada	…	…	…	2.8	3.4	4.8	5.5
France	…	1.6	…	6.0	10.5	11.3	12.3
Germany	…	2.1	…	9.7	12.8	11.3	12.4
Ireland	…	…	…	2.5	5.8	5.8	5.9
Italy	…	2.1	…	5.5	11.7	12.4	14.5
Japan	0.6	0.3	0.8	1.3	4.5	5.9	6.0
Netherlands	…	…	…	4.0	12.6	13.3	13.4
New Zealand	…	…	2.9	4.3	7.7	8.1	8.1
Norway	…	0.1	…	3.1	6.9	8.9	9.0
Spain	0.5	0.9	2.0	…	7.7	9.2	10.4
Sweden	…	0.5	…	4.4	9.9	10.8	12.8
Switzerland	…	…	…	2.3	8.5	8.9	10.2
United Kingdom	…	2.2	1.0	4.0	5.9	6.3	7.3
United States	…	0.7	…	4.1	7.0	7.0	7.5
Average	**0.4**	**1.2**	**1.9**	**4.5**	**8.4**	**8.9**	**9.6**

Sources: Compiled by Tanzi and Schuknecht, based on Fernandez Acha (1976); Aystralia Bureau of Cencus and Statistics (1938); New Zealand Department of Statistics (1937); Institute National De Statistique, Annuaire Statistique de la Belgigue (1952); Japan Statistical Association (1987); League of Nations Statistical Yearbook (various years); Mitchell, International Historical Statistics (1962); OECD, Social Expenditure, 1960-1990 (1985); OECD Social Expenditure Statistics (1996); Osterreichishes Statistisches Zentralamt (1935); Palacios (1996); U.S. Social Security Administration, Social Security Programs throughout the World (1993).

Table 9. Aging Population, Percentage of Population over Sixty Years Old

	About 1900	1930	1960	1990	2020 Proj.
Australia	6.2	9.9	12.3	15.0	22.8
Austria	…	…	…	20.2	28.9
Belgium	9.4	11.8	17.9	20.7	28.7
Canada	7.7	8.4	10.9	15.6	28.4
France	12.7	14.2	17.1	18.9	26.8
Germany	…	…	…	20.3	30.3
Ireland	…	…	…	15.2	20.1
Italy	9.6	10.8	13.9	20.6	30.6
Japan	…	7.4	8.9	17.3	31.4
Netherlands	…	…	…	17.8	28.4
New Zealand	7.2	10.4	12.2	15.2	22.7
Norway	…	…	…	21.2	26.0
Spain	8.0	9.5	16.5	18.5	25.6
Sweden	12.0	12.8	19.7	22.9	27.8
Switzerland	…	…	…	19.9	30.5
United Kingdom	7.4	9.4	15.9	20.8	25.5
United States	6.4	10.4	13.2	16.6	24.5
Average	**8.7**	**10.5**	**14.4**	**18.6**	**27.0**

Source: Palacios (1996).

VII. Unemployment

Unemployment insurance was the latest introduction in the social security systems. Obviously the Great Depression was the cause that triggered this action though unemployment rate has had many distortions thereafter. After post World War I-II, full employment prevailed in most countries mainly because of the reconstruction of the ruined countries and it was not before the oil crisis in 1974 that unemployment had surfaced once more. From 1.3 average in 1937 the expenditure decline to 0.9 percent

on average, growing once more at 1.6 in average in 1996, close to same level as a century ago.

Table 10. Public Expenditure on Unemployment, 1937-1996 (Present of GDP)

	Unemployment Compensation				All labor market programs
	1937	1960	1980	1996	1996
Australia	…	0.1	0.8	1.3	1.8
Austria	…	0.3	0.4	2.1	4.2
Belgium	0.9	0.7	2.6	2.9	4.3
Canada	…	1.5	2.3	1.3	1.9
France	…	0.2	1.5	1.4	3.1
Germany	…	0.1	0.9	2.4	3.8
Ireland	…	0.6	2.0	2.7	4.6
Italy	…	0.2	0.5	0.7	2.0
Japan	…	0.3	0.4	0.4	0.5
Netherlands	…	0.2	0.6	3.4	4.8
New Zealand	…	0.0	0.5	1.2	1.9
Norway	2.3	0.2	0.2	0.9	2.1
Spain	…	…	…	2.1	2.8
Sweden	0.2	0.2	0.4	2.3	4.5
Switzerland	0.6	0.0	0.1	1.3	1.9
United Kingdom	3.2	0.2	0.9	1.3	1.8
United States	2.2	0.6	0.6	0.3	0.5
Average	**1.3**	**0.3**	**0.9**	**1.6**	**2.7**

Sources: Compiled by Tanzi and Schuknecht, based on Australia, Bureau of Cencus and Statistics (1938); League of Nations Statistical Yearbook (various years); OECD Labor Market Policies for the 1990s (1985); OECD, Employment Outlook (1997); OECD Social Expenditure, 1960-90 (1985).

VIII. Conclusions

Through all those fluctuations as observed in all previous sectors we must not neglect to mention the role of interest payments on public debt. To sum up the composition of public spending has changed a lot over the past 125 years in industrialized countries. The most considerable growth was observed between 1870 and 1960 which resulted in an extension of government services, forming the basic social security systems. However from 1960 and afterwards most of the spending growth did not have the desired effect due to political decisions.

2.3 Growth Gains

So far we have analyzed the effects of public expenditure in various sectors and have dictated the reasons of this growth. Most noticeable period came the decades 1960-80, where governments were most trusted to be able to solve plenty of social and economic problems. In this part we will focus on the benefits that followed the growth and observe whether the increased taxation imposed by the governments to the citizens has been a negative factor in increasing their well-being. Furthermore we will try to address the question on whether the growth in public spending did in fact bring a higher level of social welfare.

Firstly we need to recall the growth path so far. In the first part of our observation period, between 1870-1913, real economic growth was high. The Great Depression that followed brought considerable harm to the world economy and the first time unemployment and poverty reached such high levels. After World War II

economic growth increased again with the introduction of legislations and institutions providing a stable economic climate. The oil crisis that followed slowed down once more the economic growth bringing skepticism regarding the Keynesian interventions while taxes begun having their toll as well.

An important observation on people's well-being is unemployment. It cannot be measured just from an economic point of view but also from a social perspective. Studies has shown that unemployed people not being able to contribute to society, suffer over time from low self-esteem and other psychological problems, finding it difficult to participate in the society around them. Between 1870 and World war I, when markets cleared through changing prices and wages, there was practically full employment with relatively little governmental intervention. The Great Depression brought the highest rates of unemployment the world had seen so far with the post-World War II counteracting the effects, bringing back full employment once again. Excessive taxation is considered to be a negative factor contributing to the rising rate of unemployment in recent years bringing with it crime, alcoholism and family strains, putting pressure once more to the budget.

Another way of financing public deficit is through private savings so that private investments remain unchanged. Ricardo's equivalence theorem would predict that people in anticipation of future tax obligations arising from public debt, respond with increasing their private savings. However as Tanzi and Fanizza (Fanizza, 1995) showed in their research in G7 countries, while public deficits and debt increased significantly between 1970 and the early 1990s, private saving stagnated or even declined. The fact that the financing of deficits now absorbed more of private savings than it did in the 1970s combined with the reduction in overall savings due to public borrowing could explain the decline in economic growth.

Since one of the roles of the social state is the allocation of resources and income distribution we should not fail to mention such an important factor. The difficulty of finding historical data makes it even harder to make conclusions, though from Kraus, Flora and Pfenning (Peter Flora, 1983) we observe that income distribution has improved in several European countries between the early twentieth century and 1975. However it is not clear whether cultural and social factors played a more important role than public expenditure in determining income distribution. Moreover there seems to be two different ways in which public policies can improve income distribution. Firstly with expenditure policies aiming to increase the productive potential of the poorer elements of the population, and secondly via direct redistribution of income with the use of taxes.

To sum up, the growing government role, by 1937, helped with the improvement of social indicators to a great extent while unemployment was still a major issue in most countries as a remnant of The Great Depression. Up until 1960 most of the social problems resulting from the Depression seems to have been fixed. For the period up to 1960 the economic boost resulting from Marxian thinking had led to measurable improvements in social and economic indicators. It was the period in which the social state grew up significantly. However after the 1960, progress has been slowed down or even reversed contrary to a continuous expansion in public spending in many countries.

2.4 Size and Performance of the Government

So far we have made analyzed and compared government expenditure with regards to GPD as a percent in each different sector. In this part we will have a different view on governments' financial performance. To do so we will divide them in three different categories depending on the level of public expenditure in 1990. Therefore governments with public expenditure exceeding 50 percent of GPD will be consider as "big governments", while those spending somewhere between 40 and 50 percent of GDP will be regarded as "medium-size governments", and lastly those below 40 percent of GDP as "small governments".

Table 11. Size of Government and Public Expenditure Composition, about 1960 and 1990 (Present of GDP)

	Industrialized countries						
	Big governments		Medium-sized governments		Small governments		Newly industrialized countries
	1960	1990	1960	1990	1960	1990	1990
Total expenditure	31.0	55.1	29.3	44.9	23.0	34.6	18.6
Consumption	13.2	18.9	12.2	17.4	12.2	15.5	9.1
Transfers and subsidies	11.9	30.6	10.4	21.5	6.9	14.0	5.7
Interest	1.5	6.4	1.3	4.2	1.3	2.9	1.5
Investment	3.1	2.4	3.2	2.0	2.2	2.2	2.7
Expenditure by function							
Health	2.6	6.6	3.0	5.9	2.3	5.2	1.8
Education	4.5	6.4	2.9	5.6	3.4	5.0	3.3
Social security	13.5	19.5	9.6	13.9	6.2	7.9	1.0
R&D	…	2.0	…	1.6	…	2.0	…
Environment	…	0.6	…	0.8	…	0.7	…

Sources: Compiled by Tanzi and Schuknecht, from previous tables.

Having a closer look at Table 11, we observe that in 1990 big governments spend about 55 percent of GDP from 31 they used to spend in 1960, while in medium-sized governments it rose from about 29 percent to almost 45. A considerable increase happened in small governments as well with roughly 12 percent of GDP raise. On average big governments spend about 20 percent of GDP more than what the small governments did. The difference in public expenditure levels is more or less the result in what governments spend on transfers, subsidies, and on interest on public debt. Besides that, public consumption and investment do not differ much between country groups. Taking the analysis into depth and observing each sector separately the surprising result is that small governments have performed better than the large ones in many of the areas we compare.

Firstly, looking at the economic performance indicators on Table 12, we don't see considerable differences in growth on real GDP regardless a decline among the different size of governments. The biggest drop can be seen in the big spenders reaching just above a 2 percent drop. Medium-sized and small governments had almost identical declines. What is interesting is that the medium-sized governments had the highest

increase in PPP over those 30 years. Inflation rates had no major differences worth mentioned.

Secondly, we need to account for the existence of a world capital market playing a role on the interest rates, while differences in the financial positions of countries can be understood by looking at the risk premium paid by countries in international bond markets. It was the big governments that paid 37 base points in premium, with just 2 base point for the small governments. A huge deference worth mentioned.

Labor markets indicators are also important with unemployment the most noticeable policy challenge for industrialized countries. While in 1960s unemployment was not much of an issue with an average of about 5 percent among governments, has turned out to be considered as a major issue reflecting the social state with consequences when it reaches high levels. From the data on Table 12, we observe that the small governments have managed to keep unemployment to a lower level than the rest. Youth unemployment rates are concerning as well and can indicate a reduced capital base if they can't get any work experience or useful professional education.

Regarding social indicators, health and education, we should not neglect to mention the fact that all the countries in our group are considered to be among the top twenty in the world. However small governments' fare better from the others with a sixth place in the rank, combining lower expenditure with lower infant mortality rate without lower life expectancy. It is obvious that small governments have done a lot better in this sector. The educational sector would definitely need more data, like indicators that compare the quality of education, so as to further analyze the effects of spending. So far it does not look like differences can be found that correlate from increased spending.

Moving on to the environmental indicators, a more recent and important issue for industrialized countries. Pollution has caused significant concerns and has given rise to "green" movements. In response to this governments have put environmental protection cleanup programs, emission standards as well as the sale of pollution rights. Expenditure does not seem to differ much between the three different types of governments, though the big spenders seems to have better results in those indicators.
As we proceed towards the income distribution, one would expect that high levels of public spending should have their strongest impact on income distribution. After all Gini coefficients support that hypothesis, despite the small deviations among the three groups. It seems that in this area, big governments have fared better without having a significant impact from the rest.

Lastly, regarding social stability indicators, divorce rates give prominence of social stability while emigration can be used as an indicator for the hope of a better life in another country. Medium-sized governments top the charts with the best results in divorce rates with the decline in emigration probably related to the equalization of GDP among industrial countries.

Table 12. Size of Government, Economic Performance, Financial Indicators, Labor Market, Health, Education, Environment, Distributional and Social Stability Indicators in Different Country Groups, about 1960-1990

	Industrialized countries			
	Big governments	Medium-sized governments	Small governments	Newly industrialized

							countries
	1960	1990	1960	1990	1960	1990	1990
Economic performance indicators							
Real GDP growth (in percent, 1960-68, 1986-94)	4.1	2.0	4.0	2.6	3.7	2.5	6.2
Standard deviation of GDP growth (1961-68, 1986-94)	1.5	1.6	1.7	2.1	1.9	1.9	…
PPP-based per capita formation (in percent of GDP)	3,291	18,280	2,977	17,297	3,928	20,448	16,673
Gross fixed capital formation (in percent of GDP)	23.4	20.5	21.1	21.3	19.6	20.7	31.2
Inflation (in percent, 1960-68, 1986-94)	3.6	3.9	3.7	3.7	3.4	3.7	15.3
Government financial liabilities and interest indicators							
Public debt	47.5	79.0	37.4	59.9	46.4	53.3	13.5
Implicit pension liabilities (in percent of GDP)	…	113.0	…	112.0	…	53.3	…
Real interest rates	1.7	3.9	2.8	4.6	1.3	4.0	…
Risk premium on government debt	…	37.0	…	27.0	…	2.0	…
Labor market indicators							
Unemployment rate (in percent, 1996)	2.9	8.5	4.6	11.9	2.7	6.6	2.9
Youth unemployment rate, age 15-24 (in percent)	…	16.0	…	19.0	…	13.0	…
Women in administrative and managerial positions	…	38.0	…	33.0	…	49.0	17.0
Rank in UN Human Development	…	11	…	13	…	6	31
Health							
Government expenditure	2.6	6.6	3.0	5.9	2.3	5.2	3.3
Life expectancy	72.0	77.0	70.0	77.0	71.0	77.0	75.0
Infant mortality/1000 births	23.0	6.7	29.0	7.1	22.4	6.4	8.6
Education							
Government expenditure	4.5	6.4	2.9	5.6	3.4	5.0	3.4
Illiterate population as percent of population age 15+	9.3	1.2	13.3	1.2	2.2	1.0	5.9
Secondary school enrollment (in percent)	55.0	96.0	51.0	100.0	61.0	92.0	85.0
Mathematical ability of secondary school students	…	515.0	…	523.0	…	533.0	607.0
Female tertiary enrollment ratio, 18-23 years (male=100)	63.0	101.0	63.0	79.0	58.0	100.0	76.0
Environment indicators							
GDP (US dollars) per energy unit	0.7	4.8	0.7	4.7	0.6	5.9	4.5
Greenhouse gas emissions per capita (world median=1)	…	4.7	…	4.6	…	5.9	…
Waste recycling (as percent of consumption)	…	42.2	…	33.2	…	36.8	…

Income distribution and equalization							
Income share of lowest 40 percent of households	15.6	20.1	16.9	18.7	17.1	17.3	15.3
Gini coefficients	33.7	32.1	34.4	33.4	32.4	37.6	42.1
Share of transfers to poorest 20 present of households (in percent of total transfers)	…	22.2	…	25.2	…	33.6	…
Income equalization via taxation and transfers	…	2.7	…	2.2	…	2.1	…
Social stability indicators							
Prisoners/100,000 people	…	23.0	…	58.0	…	123.0	…
Juveniles (in percent of total prisoners)	…	6.0	…	5.0	…	2.0	…
Divorces (in percent of marriages contracted, 1987-91)	…	33.0	…	29.0	…	36.0	…
Suicides by men (per 100,000 people)	…	21.0	…	23.0	…	22.0	…
Emigration (in percent of total population)	0.6	0.2	0.3	0.8	0.2	0.1	0.1

Sources: Compiled by Tanzi and Schuknecht, based on OECD, Economic Outlook (1994, 1995, 1996); OECD, Historical Statistics, 1960-90 (1991); OECD, National Accounts (1995); United Nations, Human Development Report (various years); Botani (1996); Kanbur (1991); World Bank, World Development Report (various years); World Bank, Social Indicators of Development (1996); Bruno, Ravallion, and Squire (1996); Gwartney, Lawson, and Block (1996); OECD, Trends in International Migration (1994); and previous tables.

After this briefly analysis of the data on Table 12, we conclude that on balance, small governments did not produce "less" desirable socioeconomic indicators than big governments. Especially in areas such as economic performance, labor markets and on governments' financial liabilities, small government countries seem to produce better results than the rest. Besides, all governments achieved a higher level in terms of public spending than in the early part of the nineteenth century, reaching to a conclusion that public spending might not be a correct answer to many socioeconomic problems and with intelligent policies public spending can be reduced.

2.5 Newly Industrialized Countries

So far we have compared the different types of governments regarding their spending habits, concluding that small governments have gotten better results with less public spending. Thereafter it is only logical to make a comparison with newly industrialized countries so as to acquire a view on whether governments need to rethink their role and even reform from a fresh perspective. We introduce Chile, Korea and Singapore, three entirely different countries regarding the way they function, especially Singapore which is considered as one of the freest economic areas in the world today. We will examine the spending patterns and government performance indicators for these three countries that had been growing very fast until they ran into the financial and economic crisis of 1997-98. What these three countries did differently is that despite the fact that many industrialized countries were creating welfare states while experimenting with Keynesianism, they were pushing growth and pursuing policies that relied on market and economic incentives and kept government spending small and

lean. Furthermore, Korea had the most interventionist approach to development but has still managed to keep public spending under tight control, while Hong Kong had the opposite, the noninterventionist approach to the extreme, abandoning this policy after the Asian crisis by intervening in the stock markets through the purchase of shares.

In these newly industrialized countries much emphasis was placed on human capital formation with governments taking a leading role in providing and financing much of the primary and secondary education and some tertiary education as well. Health and education for the poor was promoted by targeted government support, but user fees remained important. *"Social responsibility to the needy is accepted, but the work ethic must not be weakened by social policies and redistributive fiscal policies"* (Haddon-Cave, 1984). Similar concerns kept welfare benefits limited in the emerging social security system in Korea (Financial TImes, 1995).

Since this group of countries had limited government role, the composition of public expenditure consists of, one third on subsidies and transfers, and the remaining third on interest payments and public investment. In fact, similarities can be found on this expenditure composition with the one prevailing in 1960 in some of the industrialized economies. It is worth mentioning that these newly industrialized countries had no reported budget deficits until the Asian crisis.

Looking at the health and education sector, we observe that spending has been relatively high compared to the industrialized countries in 1960s. This, in some way, reflects the priorities of these countries on high education and on human capital. In fact,, Korea in 1990, spend 6 percent of GDP on education, equating the average of the industrialized countries, creating one of the most formally educated population in the world, as can be seen in the educational attainment row on Table 13. Social security spending of 1 percent of GDP is only a small fraction on what the industrialized countries used to spend. This reflects a significant private sector participation in health, education and social security in some of these countries.

The economic performance of these newly industrialized countries has been impressive in the long run. According to Table 13, real economic growth averaged 6.2 percent over the last decade, making it almost three times greater than the average growth in industrialized countries. This rapid growth had an effect on the per capita GDP on the basis of purchasing power parity (PPP), reaching US$ 14,580, about 70 percent of the current per capita income in the industrialized countries. In order to achieve these results, investment in newly industrialized countries in excess of 30 percent of GDP, was exciding but a considerable margin the investment levels in industrialized countries. With high saving rates providing for high investments, Korea managed to present saving rates of around 35 percent of GDP. Furthermore with public investment of about 3 percent, or only 10 percent of total investment, it was clear that private investment has been driving the economic growth in these countries. Another positive macroeconomic variable, like inflation, has been declining and has averaged 2.5 percent in Singapore.

In the areas of mortality and health the differences are very small with only Chile reporting a higher infant mortality rate with it though being the lowest among nonindustrialized countries, and similar to one in Hungary and Poland, two countries that spend twice as much compared to Chile. Educational standards have improved significantly as well, reaching those in industrialized countries. The income share of

the poorest 40 percent of households on average is lower but not by much. The about 1.5 percent difference is close to meaningless.

Table 13. Government Performance Indicators, Selected "Small" Governments, and Newly Industrialized Countries, Early 1990s (present of GDP)

	Industrialized countries			Newly industrialized countries		
	United States	Japan	Switzerland	Chile	Korea	Singapore
Economic indicators						
Economic growth (percent, 1991-5)	2.3	1.3	1.6	7.4	9.5	8.8
PPP-based per capita GNP (US$, 1995)	26,980	22,110	25,860	9,520	11,450	22,770
Inflation (1991-5)	3.2	1.4	3.2	13.9	6.2	2.5
Gross public debt (1994-5)	64.3	81.3	48.2	17.4	8.0	15.2
Labor market indicators						
Unemployment (mid-1990s)	5.4	3.3	4.7	4.6	2.4	2.7
Social and distributional indicators						
Life expectancy (1995)	77	80	78	76	72	77
Infant mortality (per 1,000 live births)	9	4	6	12	10	4
Secondary school enrollment ratio	97	96	91	70	93	84
Educational attainment (mathematics scores, eighth grade students, 1994)	500	605	545	…	607	…
Income share of lowest 40 percent of households (about 1990)	15.4	17.7	18.1	10.5	19.7	17.3

Sources: Compiled by Tanzi and Schuknecht, based on Australia, Bureau of Cencus and Statistics (1938); League of Nations Statistical Yearbook (various years); OECD Labor Market Policies for the 1990s (1985); OECD, Employment Outlook (1997); OECD Social Expenditure, 1960-90 (1985).

In conclusion, newly industrialized countries have generated almost identical levels of socioeconomic indicators as industrialized countries did so far, while rapidly catching up on areas still lagging behind. The impressive characteristic is that these performances have resulted from much lower spending levels than those in the industrialized countries with small governments, an alarming finding to say the least. The obvious question of the "proper" future role of the state will be the main focus moving on.

2.6 The Future role of the State and the Reform of the Government

We have so far witnessed that, by around 1960, with public spending below 30 percent of GDP, the majority of the industrialized countries had reached adequate levels of social welfare. This contribution was very significant. However the rapid growth of public spending that followed was not accompanied by a further increase on social and

economic objectives. At the same time, todays newly industrialized countries show relatively high levels of socioeconomic indicators with a fraction of the spending from industrialized countries. For anything lagging behind they leave it up to the private sector to fil the gap.

Previously we implied that a government can reduce its size while maintaining the same levels on social and economic indicators. The reduction in public spending and ultimately in the level of taxation will leave citizens with more money on their pockets and allow them to use this money in ways that can improve their welfare in a more direct way. This reduction on tax rates may alter expectations, in favor of private sector, about the future investment climate for both real and human capital and for new activities. This reform, in general, can generate considerable long-term benefits if they result in higher economic growth, but in order to appear convincing, these reforms must be permanent and promising.

Inadequate fiscal rules in policymaking have promoted the growth of inefficient spending and creating high fiscal deficits. Therefore a need for a fundamental shift in fiscal policy is greatly important. Since there is no precise road map to reform we rely on budgetary institutions and more strict government budget constraints aiming to improve the quality of expenditure programs. Budgeting institutions that strengthen incentives for reasonable fiscal policies have been identified as important essentials for efficient expenditure programs and for the control of fiscal deficits. (See, inter alia, Milesi-Ferretti, 1996, and Alesina and Perotti (Alberto Alesina, 1995a) 1995a.) Moreover the absence of any fiscal illusions in processes, reporting of outcomes, and institutions is now considered of great importance. (George Kopits, 1998). This need for strong monitoring agencies, following the success of many independent central banks in successfully controlling monetary expansion, combined with the failure the national ministries to monitor spending has given birth to the idea of an independent mechanism that could take away discretion from politicians in overseeing fiscal policies. These kind of mechanisms can be found nationally, internationally (for example in European Union, the European Monetary Union), or even worldwide by the International Monetary Fund (IMF).

With appropriate reforms and inventive government regulation, the majority of social insurance needs, alongside health and pension, could be satisfied by the private sector, reducing that way the need for public spending. Some social activities, like providing for the poorest, could be supported by the public. The only difficulty lies on where exactly to draw the line between government and private sector. It seems natural that this line could deviate with time and, possibly across countries. An important factor will be the performance of the market economy, since the better it is working, the less extended will be the role of the public sector. Moreover, a more efficient public administration and the less important are rent-seeking activities, the greater could be, if all other stay the same, the role assigned to the public sector. Reducing the public sector may reduce the disincentive effects of taxation and could stimulate growth. To sum up, public expenditure as a share of GDP could be lowered substantially without necessarily compromising social and economic welfare.

What comes as a concern by economists is that a reduction of public expenditure could have negative effects in terms of growth, employment, and political support, due to a reduction in aggregate demand, which in turn may reduce output and raise

unemployment, creating many socioeconomic problems. However in order to counterbalance these recessionary effects, a drop in real interest rates, as a result of higher public savings and lower unit labor costs from lower tax burdens, could have a positive impact on the supply side.

So far there have been distinguished two types of fiscal adjustments from Alesina and Perotti, McDermott, and Wescott and Perotti (C. John McDermott, 2006), from a large sample of countries and longer adjustment periods in various OECD countries. These two types are:

- Those that relied on expenditure reduction, mostly by a reduction on subsidies and transfers and on government wage bills.
- and those that relied mainly in higher revenue without any major expenditure reductions. Basically keeping the expenditure stable but increasing GDP so as to lower the percentage rate.

All these studies measure successful adjustment in terms of durable reduction in debt and fiscal deficits, however, it is more likely that this adjustment will take a long time to plan and implement, as well as establish the necessary credibility.

It is obvious that any change from the previous situation will create winners and losers opposing to this alternation. This can be true when the objectives of reforms and the reasons for them have not been well clearly communicated and understood from the public. To lessen the negative responses compensation for large losses and insurance against catastrophic events should be considered. The reforms goal and objectives should not be to destroy the basic social safety nets.

Lastly but not least, the time frame in which this reform will take place is of most importance. A lag of the implementation after the announcement might give the appropriate time to facilitate the reform, but it may also lead certain groups losing gains from this implementation to organize actions so as to reverse the decisions regarding the reform. Gradual implementation could lessen the costs of adjustment and the number of losers. This, however, creates new stakeholders in the continuation of reform. For example, private companies need time to prepare for the privatization of enterprises, public services, or pensions if they will invest in these new opportunities. This can be in favor of the implementation of reform because if opposition forces threaten to derail reform, these private companies will lobby against that.

Of course we should not neglect to mention the important role of fiscal rules and institutions in need for a secure and stable environment without any shadows, in order for them to be effective. These rules and institutions play an important role in order for government to be small and efficient. These institutions can push governments into a path where governments can prioritize spending in its main objectives, and to spend in an efficient manner.

To sum up, governments should focus on maintaining their performance while at the same time reducing much of their role in providing goods, services, and in insuring against some risks. This new role should aim in the implementation of appropriate rules, both for economic actors and for their own policies. International pressure for small and efficient governments will help towards this direction. Political implementation, however, is an important constrain that needs to be addressed and strengthened with fiscal rules and institutions providing great help and guidance whenever needed.

2.7 The game plan for Public Expenditure Reduction

So far we presented facts and argued that in recent decades governments have taken responsibilities and often tried to accomplish more objectives than what they could perform, in an efficient way, ending up in spending much more than necessary and creating deficits. Thus, the need to reform themselves so as to operate in a more efficient way was mandatory. This will allow them to focus more effectively in their main objectives without sacrificing much in terms of socioeconomic indicators. This reform, or should we say this allocative role of the government, could and should be smaller than what it has been in most countries. Therefore many public enterprises and even many infrastructures can in principle be privatized. The following Table 14, shows some ideas in which this reform may take place. These ideas have been borrowed mainly from World Bank reports. We might not agree with all of them, but they could provide interesting options for governments to start with. We should point out that privatization does not eliminate the role of the government and it just changes it role in many of these areas.

Table 14. Blueprint for Government Reform of Various Expenditure Programs

Public Expenditure	Reform Options
	Goods and Services
Subsidies to state-owned enterprises	Privatization usually better than management or performance contracts or direct government operation. Regulate/subsidize to avoid monopolies, quality problems, externalities, distributional/community conflicts.
Other goods and services	Widespread privatization possible, very few areas producing genuine "public goods" Regulate/subsidize to avoid monopolies, quality problems, externalities, distributional/community conflicts.
	Social security and social services
Education	Dual public and private secondary and tertiary education providers with consumer choice via vouchers Privatize tertiary education with extended scholarship system for equity reasons and with access to credit to finance education. Strengthen competitiveness/lower costs of public system through out-contracting, private and public funding.
Health	Mandatory (public or private) for catastrophic illness insurance and for basic health packages. No model clearly best for cost and quality control; strengthen incentives for quality and cost control
Pensions	Reform pay-as-you-go schemes with higher retirement age and streamlined benefits and eligibility. Introduce multipillar system; public equity-oriented minimum coverage; funded mandatory occupational and private plans for additional coverage, funded voluntary pillar.
Unemployment	Mandatory public insurance with minimum coverage Out-contracting of job search and training support

	Labor market liberalization with more flexible wage and/or employment regulation

Sources: Complied by Tanzi and Schuknecht based on Gomez-Ibanez and Meyer (1993); World Bank, Averting the Old Age Crisis (1994a); World Bank, Bureaucrats in Business: The Economics and Politics of Government Ownership (1995).

Any of these actions do not guarantee success without effective and efficient regulations so as to prevent mismanagement, or create monopoly rights, or even destroying the environment. This analysis will move on to the privatization of public enterprises and the costs and benefits that may arise from this, (see Table15 and Table 16), it will continue to the reform of the education, pensions and lastly at the health sector.

I. Privatizing, investment, services, and public enterprises.

Difficulties resulting in the implementation of privatization rely on the fact there seems to not be a clear-cut between public and private goods. This corresponds to governments still playing an important role in many areas. Nevertheless, there are areas in which privatization can replace direct government involvement. Examples follow:

- It seems that privatization is more desirable when there is potential for competition. In passenger transport, for example, private bus transportation is more desirable when several bus companies compete for customers. However, privatization of roads in rural areas might not be desirable.
- Enterprises that produce goods and services are easier to privatize than those generating public goods. However, there have been examples for the opposite such as telecommunications mostly due to technological reasons. For example, telephone services are now provided by the private sector.
- Cost-recovery potential from user charges must be high. Once more telecommunication is a good example.
- Absence of social policy objectives promotes privatization. Again a good example is a comparison of telecommunications and rural roads, where provision is much preferred in the first case.
- Environmental externalities may require government intervention in the provision of certain goods, such as sanitation.

Based on these criteria, the World Bank has ranked the potential for privatization of certain services and industries, (as we can see in Table 15), and produced a marketability index ranging from "1" for goods and services that are lest suitable for privatization to "3" for goods and services that are most marketable.

Table 15. Assessing Benefits of Private versus Public Provision of Goods and Services in Infrastructure

	Potential for competition	Characteristics of Goods and services	Potential cost recovery from future charges	Public service obligations (equity concerns)	Environmental externalities	Marketability Index*
Telecommunications						
Local services	Medium	Private	High	Medium	Low	2.6
Long distance and value-added	High	Private	High	Few	Low	3.0
Power/gas						
Thermal generation	High	Private	High	Few	High	2.6

Transmission	Low	Club	High	Few	Low	2.4
Distribution	Medium	Private	High	Many	Low	2.4
Gas production/transmission	High	Private	High	Few	Low	3.0
Transport						
Railbed and stations	Low	Club	High	Medium	Medium	2.0
Rail freight and passenger services	High	Private	High	Medium	Medium	2.6
Urban bus	High	Private	High	Many	Medium	2.4
Urban rail	High	Private	Medium	Medium	Medium	2.4
Rural roads	Low	Public	Low	Many	High	1.0
Primary and secondary roads	Medium	Club	Medium	Few	Low	2.4
Urban roads	Low	Common property	Medium	Few	High	1.8
Port and airport facilities	Low	Club	High	Few	High	2.0
Port and airport services	High	Private	High	Few	High	2.6
Water						
Urban piped network	Medium	Private	High	Many	High	2.0
Nonpiped system	High	Private	High	Medium	High	2.4
Sanitation						
Piped sewage system	Low	Club	Medium	Few	High	1.8
Condominial sewage	Medium	Club	High	Medium	High	2.0
On-site disposal	High	Private	High	Medium	High	2.4
Waste						
Collection	High	Private	Medium	Few	Low	2.8
Sanitary disposal	Medium	Common property	Medium	Few	High	2.0
Irrigation						
Primary and secondary networks	Low	Club	Low	Medium	High	2.4
Tertiary (on farm)	Medium	Private	High	Medium	Medium	1.4

*Source: World Bank, World Development Report: An infrastructure for Development (1994). *Average for five indicators quantified as in World Bank, World Development Report, 1994.*

The indices show that there is no reason to publicly provide long-distance telephone services. Moreover, intercity buses, rail services, or electricity generation are equally suitable for privatization. On the contrary, gas production and distribution as well as waste collection have high marketability.

In general privatization has better chances of succeeding when it promises high efficient gains. For example privatization of assets can bring noticeable revenue. From these gains, probably from privatization in the sales price or through higher tax revenue, governments can yield considerable net revenues. Also in order to get a higher price from the sale of assets, the government may agree to leave some monopoly rights to the purchaser, resulting in a reduced efficiency of the competition and to the economy accordingly. Table 16, provides insight on recent experiences in privatizing goods and services.

Table 16. Private versus Public Provision of Goods and Services

Activity	Case; Country	Private performance compared to public sector	Efficiency lead of private sector
Airlines	Private vs. public domestic airline; Australia	+	Private Efficiency index 12-100% higher
Banks	Private vs. public bank; Australia	+	…
Bus service	Private vs. public busses; Germany, United kingdom, United States	+	Private providers have 20-60% lower
Cleaning services	Public vs. private contracting; Germany	+	Private providers 30-40% cheaper
Debt collection	Public vs. private contracting; United States	+	Private two-thirds less expensive per dollar collected
Electric utilities	Electricity production; United States	+,-	Private provision ranges from "slightly more expensive" to 30-40% cheaper
Fire protection	Public vs. private contracting; United States	+	Private provisions 30-40% cheaper per capita
Forestry	Public vs. private forests; Germany	+	Private labor productivity twice as high as public
Hospitals	Public or non-profit vs. private hospitals; United States	+,-	Mixed results on efficiency
Housing	Public vs. private construction; Germany, United States	+	Private providers about 20% cheaper
Insurance	Public vs. private life insurance; Germany	0	No cost differences, private service quality better
Ocean tanker repair	Navy vs. commercial servicing; United States	+	Private provider less than half the price of U.S. Navy
Railroads	Public vs. private railroad; Canada	0	No productivity differences
Refuse collection	Public vs. various private modes; various countries	+,0	Private provision 0-30% cheaper
Savings and loans	Public vs. private institutions; United States	+	Private operating costs 10-35% lower
Slaughterhouses	Public vs. private firms; Germany	+	…
Toll road construction	Public vs. private construction; France	+	Private builder 20% cheaper
Water utilities	Public vs. private suppliers; United States	+	Private operation 15-60% cheaper
Weather forecasting	Public vs. private service; United states	+	Private service 33% cheaper

*Sources: Complied by Tanzi and Schuknecht based on Ibanez-Gomez and Meyer (1993) and Mueller (1989). * += private provision cheaper and/or better; 0= no significant difference in performance between public and private sector; -= public provision cheaper and/or better.*

II. Education

Education has been discussed extensively with all the positives resulting from a good educational system that provides equal opportunities, strengthen capital endowment and income distribution. (See Tanzi, 1998b.) What needs to be discussed are attempts on reforming tertiary education, where it generates less obvious externalities. Private universities could yield budgetary savings and relieve some of the costs of the public sector.

What distinguishes tertiary education from primary and secondary is the fact that higher education provides students with knowledge that cannot be directly attained from an economic perspective by the government, thus it is considered, at least a part of it, to be private economic investment. This is the main reason, among others, for governments to introduce the possibility of tuition fees. This could relieve some of the stress on the budget.

What is true so far is the fact the some of the top Universities in the World are public ones, with the private sector not behind in a somewhat mixed result on who has the upper hand in this confrontation. Public provision on tertiary education does not instinctively mean lower quality education. Proponents of private education insist that public provision develops no externalities that could not be emulated by private provisions. Therefore private sector could provide this service efficiently (Blomqvist, 1989). Of course public universities are not a perfect working mechanism. When there are no incentives for the students to complete their studies then it is logical that some may study "forever". Moreover there should be incentives for the teachers as well to keep raising their level of work and not oversee this as a non-threatening lifetime employment. Research is a field were governments can directly gain from and this could be a field for comparison against the private sectors universities. Competiveness between public and private tertiary education should only drive higher education into a higher level. With current demand of even better higher education, heading towards the future this demand will get even greater putting more pressure to budgets, probably strengthening the private sector, questioning the future of potential savings for the budget. (Psacharopoulos, 1992).

III. Pensions

As we have mentioned previously, the rapidly aging populations is at least alarming in all industrialized countries. The share of people aging over sixty years old is currently close to 20 percent and it is estimated to be almost 30 in 2020, while pension expenditure as a share of GDP is currently at 10 percent in industrialized countries, reaching 15 percent in Austria and Italy. Future financial pressure will increase, making it very difficult for further extensions on benefits or eligibilities. A reform in this sector seems mandatory, but in order to reform we first need to understand how the currents pension systems work, their faults as well as some of the positives.

Two different pension systems have been established in the majority of industrialized countries, the pay-as-you-go and the defined-benefit public systems. The characteristic of defined-benefit systems lie on the fact that currently working generations provide for the elderly ones currently on pension, as the pay-as-you-go is a more direct one, as individuals provide for themselves. Regarding the negatives is that these systems can be costly in budgetary terms and can have adverse effects on growth due to lack of savings. In order for governments to be able to provide for high benefits, high payroll taxes need to be imposed, driving in many cases small enterprises underground. Furthermore early retirement causes distortions due to the fact that many benefits came as a proportion of their recent earnings and not from lifetime contributions. A solution to this is if effective retirement age was raised. Moreover in some cases government obligations on pensions matches those on debt and even surpasses it.

There have been guidelines regarding pension reform, based on a blueprint from the World Bank staff, in a study titled "*Averting the Old Age Crisis"* (World Bank, 1994a). In this study the World Bank presented a revolutionary pension system based on full funding and defined contributions. It gives private sector a strong role while at the same time entrusting government with an important regulatory role. In this blueprint World Bank was inspired by the pension system in Chile with some of these features finding their way in this blueprint. What this defined contribution system proposes is the employee, the employer, or even both, make contributions in an individual account. Individual accounts are set up for participants and benefits are based on the amounts credited to these accounts (through employee contributions and, if applicable, employer contributions) plus any investment earnings on the money in the account. In defined contribution plans, future benefits fluctuate on the basis of investment earnings. The positives resulting from this is that it gives a strong role to the private sector without compromising the important regulatory role of the government.

The World Bank study and the Chilean reform come into handy for the transformation of at least some parts of pay-as-you-go system. This new system should maintain a safety net against poverty in old age. What the World Bank suggests is a three-pillar system similar to the one in Chile.

- A mandatory, public managed pillar, financed by tax revenue, providing a minimum pension as safety net.
- A mandatory, privately managed, defined contribution system with individual accounts reflecting the accumulated contributions by the participants. These contributions would be equal to a legally defined fraction of the income of the participants and will be placed in the hands of private managers to invest them with minimum risk. At retirement these accumulated assets will them be returned as an extra income over the minimum guaranteed pension from the government for the remaining period of life.
- Voluntary contributions to savings accounts for those preferring even higher assets at retirement, or individual insurance preferences.

In this system the role of the government changes drastically while it continues to play an important role. First of all, the government guarantees a minimum pension as safety net. Second, the government will decide the share of wages and salaries required for the retirement accounts. Third, it can regulate the managers of these retirement funds to limit risk taking. Lastly, the government would decide on limitations on what kind of assets the managers can invest to.

This transition to a defined-contribution system would increase fiscal transparence. Moreover, with the reduction on taxes the private sector might find profitable to employ more workers, therefore relieving unemployment. Another positive will be the fact that these contributions can be seen as saving rather than taxes. These actions could stimulate the economic performance of the government. It is also worth mentioning the fact that since the funds will be out of the hands of the politicians, any pressure or attempt of manipulating the funds in order to gain political influence such as reelecting is now out of the question.

The government will of course face problems regarding this transition as to where exactly to pull the line that distinguish those entering the new system from those that will stay with the old one. Obviously there has to be a government fund providing for

those following the old system. By downsizing the current pension system before moving on to the new one will help towards a smoother transition. However, in order for this transition to work and for people to embrace the new system, it needs to be accompanied by properly informing and educating the public so that it can be supported by the public and trusted as well.

IV. Health

Health sector is another sensitive subject with considerable potential for government reform that could reduce public expenditure. Government should not refrain from its role on providing basic preventive care, and against catastrophic illnesses. Moreover governments should play in important role in providing vaccination against infectious diseases. Beyond that, there is any specific form one should follow for a profitable reform. Regulation is of most importance as well since it has been proven that private unregulated systems make it difficult for high-risk patients to receive treatment and medical care. Reforms in this sector have been done in subsectors in such way where the results can be more obvious and measurable. Such examples can be found in the United Kingdom and New Zealand where the governments buy health care, and health service providers compete for such contracts. Moreover in some countries patients have a choice among different insurance companies, selecting the one that best suits for them, a choice to finance the residual risk themselves. Another example has been found when incentives are given to doctors, such as performance contracts, when costs are kept under control. It seems that there are ways in which the public spending on health care can be scaled down and become more efficient and more easily financed in the future, while keeping the cost in low levels. The regulatory role of the government however, needs to be more important.

2.8 Conclusions

So far we have talked about the history of public spending from the late nineteenth century to the end of twentieth century. We have analyzed the growth of public spending throughout different periods over these years focusing on what the countries did and how their governments performed, before moving on to a closer look on how the public spending on each sector, (employment, unemployment, health, education, etc) evolved. We categorized these governments into three types, small, medium-sized and big governments, according on their level of public spending with small governments out performing in many sectors the other two, driving us into a consideration on whether the increasing growth of government expenditure was meaningful. Before questions this though, it was obvious that we make a comparison on socioeconomic indicators between small governments and newly industrialized countries spending even less than small governments in the public sector. The results were alarming, since these newly industrialized countries were not far behind as social welfare states and were rapidly catching up on areas they were lagging, with private sector playing an important role. These facts drove us into consideration that there is a way to reduce public spending without compromising the social welfare state. Future financial pressure will only stretch budgets to their limit increasing deficits with the need for regulations to the current systems looking more probable than ever.

3. An Endogenous Growth Model

In this model I assume constant returns to scale on a broad concept of capital. I extend this model so that it includes tax government services that affect production or utility. Growth and saving rates correspond with utility-type expenditures. With an income-tax, the decentralized choices lead to too little growth and savings but if the production function is Cobb-Douglas, the government can still optimize and satisfy a natural condition for productive efficiency.

3.1 Setting up the model

I will start with an endogenous growth model, optimizing households and firms, which relies on constant returns to capital. The main objective for them is to maximize overall utility, as given by

$$U = \int_0^{\infty} u(c)\, \mathrm{e}^{-pt}\, dt,$$

where c is the consumption and $\rho > 0$ is the constant rate of time preference. I also assume that population which corresponds to the number of workers and consumers, is constant. The utility function that each household-firm has access to is,

$$u(c) = \frac{c^{1-\sigma} - 1}{1-\sigma},$$

where $\sigma > 0,$ so that marginal utility has the constant elasticity $-\sigma$. The production function that each household-firm has access to is

$$y = f(k),$$

where y is output per worker and k is capital per worker. I assume that in this model each person works a given amount of time. Now for each household-firm the maximization of overall utility indicates that the growth rate of consumptions at each point in time is given by

$$\frac{\dot{c}}{c} = \frac{1}{\sigma} \cdot (f' - \rho)$$

where f' is the marginal product of capital. To continue with this I assume constant returns to capital, therefore

$$y = Ak$$

where $A>0$ is the constant net marginal product of capital. So far we have a perspective of capital in a broader view containing human and non-human capital. This way, production could yield constant returns to scale in the total of capital, but diminishing returns in either input when taken separately. In this scenario there is no steady ration between the two types of capital, therefore in order to examine the steady-state growth we need to have constant returns to scale in the two types of capital taken together and not separately. The assumption that the economy operates in optimum way, that is technology is sufficiently productive to ensure positive steady-state growth, but not so productive as to yield unbounded utility.

My goal is now to modify this analysis so as to incorporate a public sector. I assume that g is the quantity of services provided to each household-firm. For the time

being I assume that these services are provided for free. What is very important is that in order to create a positive linkage between government and growth I consider the role of these public services as an input to private sector. For doing this I now have constant returns to scale in g and k together but diminishing returns when taken separately. Overall, production relates decreasing returns to private input if government inputs do not expand in a parallel manner.

The production function, given constant returns to scale can be written as

$$y = \Phi(k, g) = k \cdot \Phi\left(\frac{g}{k}\right),$$

where Φ satisfies the usual conditions for positive and diminishing marginal products, so that $\Phi' > 0$ and $\Phi'' < 0$. To further my analysis and reach into conclusion I assume that the production function is a Cobb-Douglas one, so that

$$\frac{y}{k} = \Phi\left(\frac{g}{k}\right) = A \cdot \left(\frac{g}{k}\right)^{\alpha} \Rightarrow y = A \cdot g^{a} \cdot k^{1-a}$$

where α is the share of g on *y*, and $0 < a < 1$.

The need to clarify concerns regarding the specification of public services as an input to production arises. First of all, government should be seen as one doing no production and owning no capital. For whatever the government needs, buys output from private sector directly including battleships, sewers, services etc. Secondly, if public services are non-rival for the users then what really matters for the individuals, is the total number of government purchases rather than the amount per capita.

As Robert J. Barro (1990) says *"The general idea of including g as a separate argument of the production function is that private inputs, represented by k, are not a close substitute for public inputs. Private activity should not replace public activity if user charges were difficult to implement."*

I assume that government expenditure is financed by a flat-rate income tax

$$g = T = \tau y = \tau \cdot \kappa \cdot \Phi\left(\frac{g}{k}\right),$$

where *T* is government (aggregate) revenue, τ is the tax rate, and *g* is (aggregate) revenues. This equation constrains the government to run a balanced budget, meaning it neither finance deficits nor run surpluses.

The marginal product of capital can be calculated by taking the derivative of *y* with respect to *k* in the production function as follows.

$$y = k \cdot \Phi\left(\frac{g}{k}\right),$$

$$\frac{\partial y}{\partial k} = \Phi\left(\frac{g}{k}\right) + \mathrm{k} \cdot \Phi'\left(\frac{g}{k}\right) \cdot \frac{-g}{k^2} \Rightarrow \frac{\partial y}{\partial k} = \Phi\left(\frac{g}{k}\right) + \Phi'\left(\frac{g}{k}\right) \cdot \frac{-g}{k} \Rightarrow$$

$$\Rightarrow \frac{\partial y}{\partial k} = \Phi\left(\frac{g}{k}\right) - \Phi'\left(\frac{g}{k}\right) \cdot \frac{g \cdot \Phi\left(\frac{g}{k}\right)}{k \cdot \Phi\left(\frac{g}{k}\right)} \Rightarrow \frac{\partial y}{\partial k} = \Phi\left(\frac{g}{k}\right) - \Phi'\left(\frac{g}{k}\right) \cdot \frac{g \cdot \Phi\left(\frac{g}{k}\right)}{y} \Rightarrow$$

$$\Rightarrow \frac{\partial y}{\partial k} = \Phi\left(\frac{g}{k}\right) \cdot \left(1 - \Phi'\left(\frac{g}{k}\right) \cdot \left(\frac{g}{y}\right)\right) = \Phi\left(\frac{g}{k}\right) \cdot (1 - \eta),$$

where $\eta = \Phi'\left(\frac{g}{k}\right)\cdot\left(\frac{g}{y}\right)$ is the elasticity of y with respect to g (for a given value of k), so that $0 < \eta < 1$.

What results from this, is the fact that the producer assumes that changes in his quantity of capital and output do not lead to any changes in his amount of public services. Now with a flat rate income tax τ, the return is $(1-\tau)\cdot\left(\frac{\partial y}{\partial k}\right)$, where $\frac{\partial y}{\partial k}$ is given for the above equation. This leads to the growth rate of consumption at each point in time as

$$\gamma = \frac{\dot{c}}{c} = \frac{1}{\sigma}\cdot\left[(1-\tau)\cdot\Phi\left(\frac{g}{k}\right)\cdot(1-\eta)-\rho\right].$$

The economy has no transitional dynamics and is in a position of steady state growth, in which all quantities grow at the rate γ. Given a starting amount $k(0)$, the initial quantity of consumption is

$$c(0) = k(0)\cdot\left[(1-\tau)\cdot\Phi\left(\frac{g}{k}\right)-\gamma\right],$$

where γ is given from the above equation.

In order to find the governments' share of public expenditure for productive efficiency on output (GPD) I work as follows. Firstly I modify the Cobb-Douglas production function reaching to this

$$y = A\cdot g^{a}\cdot k^{1-a} \Rightarrow \frac{\partial y}{\partial k} A(1-a)\cdot g^{a}\cdot k^{-a} = A(1-a)\left(\frac{g}{k}\right)^{a}.$$

Secondly I further modify the government expenditure equation by substituting the production function

$$\mathrm{g} = T = \tau y \Rightarrow \frac{g}{y} = \tau \Rightarrow \tau = \frac{g}{A\cdot g^{a}\cdot k^{1-a}} \Rightarrow A\tau = \left(\frac{g}{k}\right)^{1-a} \Rightarrow \frac{g}{k} = (A\tau)^{\frac{a}{1-a}}$$

Lastly, I substitute my previous modifications from the above equations into the growth rate of consumption equation through mathematical processes

$$\gamma = \frac{1}{\sigma}\left[(1-\tau)\cdot A\cdot(1-a)\cdot(A\tau)^{\frac{a}{1-a}}\right] \Rightarrow \gamma = \frac{1}{\sigma}\left[A^{\left(1+\frac{a}{1-a}\right)}\cdot(1-a)\right]\cdot\left[\tau^{\frac{a}{1-a}}-\tau^{1+\frac{a}{1-a}}\right] \Rightarrow$$

$$\gamma = \left[\frac{1}{\sigma}A^{\left(1+\frac{a}{1-a}\right)}\cdot(1-a)\right]\cdot\left[\tau^{\frac{\alpha}{1-\alpha}}-\tau^{1+\frac{\alpha}{1-\alpha}}\right],$$

I then take the derivative of consumption with respect to tax rate τ

$$\frac{\partial\gamma}{\partial\tau} = 0 \Rightarrow \left[\frac{1}{\sigma}\cdot A^{\left(1+\frac{a}{1-a}\right)}\cdot(1-a)\right]\cdot\left[\frac{a}{1-a}\cdot\tau^{\frac{\alpha}{1-\alpha}-1}-\left(1+\frac{\alpha}{1-\alpha}\right)\cdot\tau^{\frac{\alpha}{1-\alpha}}\right] = 0 \Rightarrow$$

$$\Rightarrow \tau^{\frac{\alpha}{1-\alpha}}\cdot\left[\frac{\alpha}{1-\alpha}\cdot\tau^{-1}-\left(1-\frac{\alpha}{1-\alpha}\right)\right] = 0 \Rightarrow \frac{\alpha}{1-\alpha}\cdot\tau^{-1}-\frac{\alpha}{1-\alpha} = 1 \Rightarrow \alpha\tau^{-1}-\alpha = 1-\alpha \Rightarrow$$

$$\Rightarrow \tau^{-1} = \frac{1}{\alpha} \Rightarrow \tau = \alpha$$

We also need to show that the second derivative is negative, $\frac{\partial^2\gamma}{\partial\tau^2}<0$,

$$\frac{\partial^2\gamma}{\partial\tau^2}=\frac{1}{\sigma}\cdot\left[A^{\left(1+\frac{\alpha}{1-\alpha}\right)}\cdot(1-a)\right]\cdot\left[\frac{a}{1-a}\cdot\tau^{\frac{\alpha}{1-\alpha}-1}-\left(1+\frac{\alpha}{1-\alpha}\right)\cdot\tau^{\frac{\alpha}{1-\alpha}}\right]\Rightarrow$$

$$\Rightarrow\frac{\partial^2\gamma}{\partial\tau^2}=\frac{1}{\sigma}\cdot\left[A^{\left(1+\frac{\alpha}{1-\alpha}\right)}\cdot(1-a)\right]\cdot\left[\frac{1}{\tau}-\tau^{\frac{\alpha}{1-\alpha}}\right]\Rightarrow\frac{\partial^2\gamma}{\partial\tau^2}<0$$

Meaning that, for the government to maximize the growth rate, it sets its share of gross national product, g/y, to equal the share it would get if public services were a competitively supplied input of production with setting $\tau=\alpha$.

The savings rate is given by

$$s=\frac{\dot{k}}{y}=\frac{\dot{k}}{k}\cdot\frac{k}{y}=\frac{\gamma}{\Phi\left(\frac{g}{k}\right)},$$

which shows that in the Cobb-Douglas case savings maximize when $\tau=g/y<a$, (corresponding to $\Phi'>1$) seeming logical for the individuals to increase their savings for reassuring reasons acting as a safety net, when government services are low enough to be alarming for the public. The main objective for the government is to maximize the utility-social welfare. Because the utility is always in a steady state growth we can compute the attained utility as long as $\tau=g/y$ is constant. With the growth rate of consumption constant, the integral can be simplified to produce,

$$U=\frac{\left[c(0)^{1-\sigma}\right]}{(1-\sigma)\cdot\left[\rho-\gamma\cdot(1-\sigma)\right]}$$

The condition that utility by bounded, ensures that $\rho>\gamma\cdot(1-\sigma)$.We can use the initial quantity of consumption $c(0)$ from previously as well as the growth rate of consumption γ, so as to determine the share of government in GDP that maximizes U. The initial level of consumption can be written as

$$c(0)=\frac{k(0)}{1-\eta}\cdot\left[\rho+\gamma\cdot(\sigma+\alpha-1)\right]$$

Substituting it into the above equation of utility we come up to a relation between U and γ.

$$U=\left[\frac{k(0)}{1-\eta}\right]^{1-\sigma}\cdot\left\{\frac{\rho+\gamma\cdot(\eta+\sigma-1)}{(1-\sigma)\cdot\left[\rho-\gamma\cdot(1-\sigma)\right]}\right\}^{1-\sigma}$$

It seems that if η, the elasticity of y with respect to g, the effect of γ on U is positive for all values of $\sigma>0$. That means, the maximization of U corresponds to the maximization of γ. It follows that the productive-efficiency condition, $\Phi'=1$, determines the relative size of the government that maximizes utility, if the technology is Cobb-Douglas. We should not fail to mention that different sizes of government have different effects on the growth rate γ. An increase in τ reduces γ, a dominant characteristic of big governments while an increase in g/y raises $\partial y/\partial k$ which it turn raises γ, and this force dominates when governments are small.

3.2 The planner's problem

So far the results on the size of the government were solutions to second-best policy problems. The decentralized choices of saving turns out to generate outcomes that are not Pareto optimal. In order to compare the decentralized outcomes we create a hypothesized scenario. Let's just assume that government chooses a constant (random) expenditure ratio, g/y, and can then dictate the consumption choices of each household so as to maximize the representative producers attained utility. The planned growth of consumption now is

$$\gamma_p = \frac{\dot{c}}{c} = \frac{1}{\sigma} \cdot \left[\left(1 - \frac{g}{y} \right) \cdot \Phi \left(\frac{g}{k} \right) - \rho \right]$$

To maintain g/y, an increase in y by one unit requires an increase in g by g/y units. The term Φ(g/k), which is the effect of k on y, is adjusted by the factor 1-(g/y) to calculate the social return on capital. The derivative of γ_p from the above equation, with respect to g/y is

$$\frac{d\gamma_p}{d\left(\frac{g}{y} \right)} = \frac{\Phi \left(\frac{g}{k} \right) \cdot (\Phi' - 1)}{\sigma \cdot (1 - \eta)}$$

It shows that maximizing growth corresponds to maximizing utility in the planning case. The difference is that this time the planner sets g/y so that Φ'= 1, regardless of the form of the production function. My now social margin return on capital can be found in the planner's growth rate of consumption, in the terms within the brackets and to the left of the minus sign. The difference between the previous private choice and this planner's solution is the presence of (1-η) in the former. The income tax seems to play an important role in the growth, regarding the decentralized choices described previously, leading to too little growth.

It seems a logical enquiry on whether the command optimum can be reached by replacing the income tax in the environment of decentralized choices, with a lump-sum tax. By doing so the marginal return on capital now is $\partial y / \partial k$ rather than $(1-\tau) \cdot \partial y / \partial k$ In this case households would chose to optimize the growth rate of consumption

$$\gamma_L = \frac{\dot{c}}{c} = \frac{1}{\sigma} \cdot \left[\Phi \left(\frac{g}{k} \right) \cdot (1 - \eta) - \rho \right]$$

The difference now between γ and γ_L is the absence of the term (1-τ) inside the brackets. Households, with the lump-sum tax, now respond to a higher return on capital by choosing a higher rate for consumption. It seems that the lump-sum taxation actually supports the command optimum if g/y is set optimally so that Φ'=1.

Resulting form this is that for large governments (g/y well above α) the outcome under income taxes dominates the one under lump-sum taxes. This is because citizens have incentives to expand output by an additional until because the government will respond with increasing its expenditure by g/y units.

4. Empirical evidence of reforming the government in various countries

Through financial pressures various countries have already gone a long way in reducing the form of the state. Some of the reform were performed in dramatic ways and the reform was difficult at times but the end result seems to have worked its purpose. Two important examples in changing the policy regime are New Zealand and Chile. Moreover a number of OECD countries which have undergone reforms, will be discussed and analyzed as well. It is obviously that there isn't a universal flawless way that guarantees the reform and that a successful reform in one country could easily be a failure in another.

I. New Zealand

A country considered as one of the most protectionist and interventional one in the early 1980s, where its economic growth and living standards were far behind most of the western economies at the time. It wasn't until 1994, that New Zealand decided to undergo one of the most radical economic reform programs of any OECD countries, reducing the public sector and significantly increasing the role of the private sector.
Towards its reform program New Zealand had to reform fiscal policy as well. (IMF, 1996b; Massey, 1995; Cangiano, 1996; Evans, Grimes and Wilkinson with Teece, 1996 and Scott, 1996). Firstly the government withdraw for the production of goods and services and the majority of enterprises were commercialized and then privatized. National airlines, banks, telecommunications and the steel industry were now in the hands of the private sector. The reduction of subsidies with the introduction of fees as well as the tax system, which was greatly simplified with marginal tax rates reduced and the tax base broadened, soon followed. The retirement age was raised from sixty to sixty five years old and at the education sector fees on university education were introduced as well. Public administration was restructured as well, with performance contracts on a new task focused expenditure management with a clear definition of policy goals.

Since government run deficits, the Fiscal Responsibility Act (1994), established the rules and objectives for fiscal policy which required the government to run surpluses until a viable debt level was reached. Balanced budgets will be required afterwards. Tax rates are to be stable and the main objective of the independent central bank is to stay within the agreed inflation target.

These reform efforts were not visible in the early days and it took close to five years for these reforms to have an effect in the long run. In fact, public expenditure increased and reached it top value in 1988 at over 45 percent on GDP, indicating that, in the short run, drastic reforms might require higher spending. However, by the 1994, spending had declined by 10 percent of GDP. One of the main reasons of this decline was the reduction in subsidies and transfers, which were reduced by 25 percent of GDP in 1988 to just 13.2 percent in 1994. The industry also declined from 14 percent of GDP to only 3 percent in 1992. Moreover social welfare spending declined by 2 percent of GDP of GDP between 1991 and 1994. Although budget cuts were implemented in most sectors, spending on health and education was protected.

Table 17. Public Expenditure Development and Government Reform: Chile and New Zealand (Percent of GDP)

	Chile		New Zealand	
	1982	1995	1988	1994
Public expenditure				
Total expenditure	34.1	19.9	45.6	35.7
Government consumption	10.8	8.8	11.5	15.4
Interest	0.5	0.7	7.2	5.7
Transfers and subsidies	20.6	10.0	24.8	13.2
Capital expenditure	2.2	3.2	2.1	1.3
Overall deficit (+/surplus)	-2.3	3.9	-1.6	3.3
Health	1.8	2.5	3.0	5.6
Education	4.0	2.8	5.7	5.6
Economic and social indicators				
Real GDP growth	0.3	8.2	1.4	3.3
Gross fixed capital formation	16.2	23.0	21.5	18.0
Inflation	21.8	16.6	11.6	1.9
Unemployment rate	13.8	5.3	4.9	6.2

Source: Tanzi and Schuknecht (1997b)

II. Chile

Chile is another country that radically reformed its economy and economic policy. What drove this country into such a reform were the events in 1970s that resulted in high inflation as well as high fiscal deficits. In the next fifteen years Chile undergone though a mixture of constitutional and quasi-constitutional reforms that fundamentally changed the character of the Chilean economy.

The new 1980 constitution helped towards this reform, which guarantees property rights and limits the role of government to a discretionary regulator. Government started privatizing public enterprises, pension and health care systems and decentralized education and health. The main phase of privatization occurred in 1984. We have previously discussed in detail the reform taking place in the pension system, that is now followed as an example form various countries, as well as in education and health. Those reforms resulted in a decline in expenditure from 34 percent of GDP in 1982 to less than 20 percent of GDP in 1995, as can be seen in Table 17.Again the biggest decline can be found on subsidies and transfers. These reductions on expenditure generated surpluses that helped to finance some of the transitional reforms.

III. Belgium

A simple example of a country undergoing reforms mainly due to the Maastricht Treaty setting strict fiscal eligibility criteria for entering the European Monetary Union. Total expenditure declined from over 60 percent of GDP to 51 percent. However this reform wasn't followed by bold changes in the country's fiscal policy.

Table 18. Public Expenditure Development and Government Reform: Selected countries (present of GDP)

	Belgium		Ireland		Portugal	
	1983	1996	1983	1994	1984	1994
Public expenditure						
Total expenditure	60.5	51.1	53.2	43.8	46.0	45.4
Government consumption	14.8	11.5	19.3	15.8	14.3	17.6
Interest	9.4	8.7	9.1	7.5	9.2	5.8
Transfers and subsidies	33.0	28.6	30.9	23.4	16.6	16.4
Capital expenditure	4.5	2.3	3.8	2.6	4.5	6.6
Overall fiscal balance	-2.2	-3.4	-15.6	-2.3	-9.6	-5.9

Main fiscal reform areas	Investment; goods and services	Social security; subsidies; civil service; tax system	Privatization; budgetary institutions; debt management

Sources: Tanzi and Schunecht (1997); IMF, Belgium: Selected Issues (1997); IMF, United Kingdom: Recent Economic Developments (1996).

IV. Ireland

Ireland is an example of a country with an astonishing debt of 130 percent of GDP, low growth and high unemployment with the need of fiscal consolidation mandatory. Maastricht Treaty provided a strong external incentive for Ireland to reduce its public expenditure and get its fiscal house in order. Ireland in some ways followed the path of New Zealand and Chile, were major economic and fiscal reform became politically feasible. However this rapid reform was not followed with the same pace after 1994. Total expenditure declined from 53 percent of GDP in 1983 to 43.8 percent in 1994. As with many countries, reduction on subsidies and transfers contributed a lot with a reduction of about 7 percent of GDP. Capital spending was mainly linked with the availability of funds from the EU. All these actions resulted in a considerable reduction of debt to less than 70 percent of GDP in 1997, approaching the upper limit set by the Maastricht Treaty of 60 percent of GDP.

V. Portugal

Portugal is a model country for European transition economies. The most recent economic problems occurred in the early 1980s, with the support of the government for public enterprises and interest rates having a toll in the budget. Since then Portugal moved for a quasi-social economy to a market economy with sound public finances. Fiscal reforms included both institutional and policy reforms.

5. Final conclusions

What I have observed through the journey of the growth of public spending is that social pressures for a more involving state that provides services for the public has led the way to deficits. Mostly because of political conveniences, situations went out of hands. Transparency of reforms should be regarded as the main focus in order for these reforms to have a positive effect on socioeconomic indicators. Of course, the connection between the state and social welfare should not stop to exist. A different perspective on the exact role the government should have, must be supported with substantial communication and understood by the public. The effects are always reversible, the only thing required for a change to a better and more efficient state is the will and the determination for innovative reforms with the scope of a brighter future.

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