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# Government and Growth

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## **Government and Growth**

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### **Abstract**

The relative size of the State in industrialized economies has increased dramatically during the past century giving rise to legitimate fears that such a trend might end up having an adverse impact on growth. This paper explores the relationship between the development of government activities and economic growth. It starts by evoking problems related to the measurement of the public sector before reviewing statistical evidence on the long-term growth of the share of the State in the economy. It then provides a number of explanations for this phenomenon including those pertaining to the functioning of the political system itself thereby pointing towards inefficiencies. The next step is to explore the principal avenues along which government interventions can positively or negatively interfere with the growth potential of the economy. It turns out that while public expenditures – especially those responding to market failures – tend to be favorable to growth, most taxes are growth-hindering. The final part of the paper singles out some pitfalls in the empirical investigation of this relationship. The conjecture is that the nonlinear and possibly endogenous nature of the hypothesized nexus can explain the lack of consensus in empirical studies conducted so far.

JEL codes: E62, H11, H21, H50, O40

Key words: government growth, public expenditure, taxes, economic growth, endogenous growth

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“Government is not the solution to our problem; government is *the* problem” (Ronald Reagan, 1981)

“Increased taxation is the price of growth” (James Tobin, 1966)

## 1. Introduction

The nature of the relationship between the extent of government activities and real economic growth is not only a challenging research topic but also a passionately-debated political issue.<sup>2</sup> Despite the recent financial and economic crisis and the ensuing widely-acclaimed Keynesian-type State interventions in the United States but also in other industrialized countries, the controversy regarding the government's ever-growing role in the economy remains as lively as ever. The debate goes beyond the business cycle time frame and concentrates on the question of the impact of long-term government expansion on the economy's growth potential. Those who press for less government intervention in the economy presume a negative impact on growth. Others who call for a more prominent and extensive economic role for the State see a positive – or at least no negative – relationship. As in many other cases, the reality is less one-sided and the truth lies somewhere in between. At the theoretical level, the relationship can go either way, depending on the nature of the welfare society, the prior share of the government in the economy, the structure of expenditures and revenues, the performance and efficiency of the public sector, etc. Therefore, the question can only be settled on empirical grounds. But as we will see below, there are also caveats in the empirical investigation of the presumed link between government activities and growth, which might explain the wide spectrum of results obtained so far.

This paper is an attempt to clarify the nature of the relationship between the development of government activities and economic growth. It is organized in 6 sections. After this brief introduction, section 2 evokes some pitfalls in the measurement of the size of the public sector and reviews statistical evidence on the long-term growth of the share of the State in the economy throughout the 20<sup>th</sup> century and beyond. Section 3 provides a number of explanations for this phenomenon including those related to the (mal-)functioning of the political system itself pointing towards inefficiencies. Section 4 explores the principal avenues along which government interventions can positively or negatively impact the growth potential of the economy. Section 5 singles out the hurdles in the empirical investigation of this relationship. Finally, section 6 concludes by summarizing the main findings and sketching a path for future action.

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<sup>2</sup> See Yergin and Stanislaw (2002) for the evolution of this debate.

## **2. Long-term public sector growth**

This section discusses briefly the main issues related to the definition of the public sector and the determination of its size before presenting stylized facts on public sector growth.

### **2.1 Measuring the size of the public sector**

There is no unique way of measuring the relative size of the State in the economy. The most widely-used indicators are the ratio of public spending or taxes (each one more or less broadly defined) to GDP or to resident population. Another popular measure of government size is the share of government employees (converted into full-time equivalent) in total employment. Of course, these indicators do not convey the same information regarding the evolution of the State's role in the economy. Besides, none of them can be defined without any ambiguity and independently from institutional features. Obviously, this complicates international comparisons, but even within the same country a wide variation of the estimation of government's share in the economy often nourishes politically-motivated arguments in favor and against State's role in the economy.

The reasons for the difficulty of measuring government's share in the economy are manifold. For instance, the evolution of public sector's share in total employment can falsely reflect that of government activities in the economy if structural changes take place in parallel, say, regarding labor productivity or subcontracting practices. However, difficulties of interpretation are mostly due to uncertainties related to the scope of the definition of taxes and public expenditure used, especially with respect to social security contributions and benefits. In some countries, specific components of social security are regulated by the State but privately organized (e.g. pension funds, health insurance) so that these elements tend to be excluded from the numerator of the government's share. In others, they clearly belong to the State as they are entirely managed by and within the public sector and therefore arguably appear in the numerator of the ratios. Another problem concerns government-subsidized private entities which do not formally belong to the public sector while performing public tasks (e.g. hospitals, transport enterprises, educational institutions). As a general rule, national accounting considers such entities as being part of the public sector if the proportion of State subsidies in total receipts exceeds 50 percent.

Another major difficulty of measurement is the insufficient reflection of the extent of government regulations through the above-mentioned indicators. Given that regulatory activity can replace taxes or expenditure, resulting in an unchanged – if not greater – degree of public intervention in the economy, one can easily notice why conventional measures of government's share in the economy can be misleading. Some 1,000 pages of federal regulations were added each year under the George W. Bush administration. The activity of a quarter of a million Americans consists of just devising and implementing federal rules.<sup>3</sup> Although useful indices measuring the degree of regulation have been developed during the past years (e.g. OECD's product market regulation index), these can only complement and not replace traditional measures such as the expenditure to GDP ratio.

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<sup>3</sup> The Economist, March 19<sup>th</sup>, 2011.

A less-known but equally serious problem is related to the fact that expenditure or tax to GDP ratios are calculated by dividing data from government financial statistics by GDP (including its public component) estimated within the National Accounting framework. Not only this raises an incompatibility problem, but it also suffers from a methodological peculiarity. Given the non-market-oriented character of most government activities, public sector's output (which is part of GDP) is derived from its costs (inputs) rather than its value-added (sales minus intermediate consumption). This might lead to under or overestimation problems in case of major productivity changes (Stiglitz *et al.*, 2009).

Note also that, in the case of the public sector, even a correct measure of output would not be totally satisfactory as ideally one should try to get a grasp of "outcome". Expenditures on health or education are perfect examples of cases where what really counts is the outcome of public interventions (e.g. life expectancy, literacy) rather than output (e.g. number of patients treated, number of pupils taught). The latter is however preferred to input indicators (e.g. number of hospital beds, number of teachers).

Finally, note that problems arise also when disaggregate measures of public sector activity are used. For example, one might split public spending into consumption and investment, the latter being particularly relevant for the growth process. However, difficulties exist in defining public investment outlays as government statistics do not refer to investment in the economic sense.

## 2.2 Long-term growth of the State: stylized facts

Irrespective of the statistical measure used, there is no doubt that the relative size of the public sector in the economy has continuously risen throughout the past century and well into the beginning of the current one. As shown in table 1, the increasing trend has been common among industrialized countries albeit with different intensities. This is one of the most interesting and intriguing economic phenomena of modern times that, oddly enough, also happens to be one of the most widely-ignored by the general public.

Table 1: Public spending in selected OECD countries 1870-2009 (per cent of GDP)

	1870	1913	1920	1937	1960	1980	1990	2000	2005	2009
Austria	10.5	17.0	14.7	20.6	35.7	48.1	38.6	52.1	50.2	52.3
Belgium	na	13.8	22.1	21.8	30.3	58.6	54.8	49.1	52.0	54.0
Britain	9.4	12.7	26.2	30.0	32.2	43.0	39.9	36.6	40.6	47.2
Canada	na	na	16.7	25.0	28.6	38.8	46.0	40.6	39.2	43.8
France	12.6	17.0	27.6	29.0	34.6	46.1	49.8	51.6	53.4	56.0
Germany	10.0	14.8	25.0	34.1	32.4	47.9	45.1	45.1	46.8	47.6
Italy	13.7	17.1	30.1	31.1	30.1	42.1	53.4	46.2	48.2	51.9
Japan	8.8	8.3	14.8	25.4	17.5	32.0	31.3	37.3	34.2	39.7
Netherlands	9.1	9.0	13.5	19.0	33.7	55.8	54.1	44.2	44.8	50.0
Spain	na	11.0	8.3	13.2	18.8	32.2	42.0	39.1	38.4	45.8
Sweden	5.7	10.4	10.9	16.5	31.0	60.1	59.1	52.7	51.8	52.7
Switzerland	16.5	14.0	17.0	24.1	17.2	32.8	33.5	33.7	37.3	36.7
United States	7.3	7.5	12.1	19.7	27.0	31.4	33.3	32.8	36.1	42.2
<b>Average</b>	<b>10.4</b>	<b>12.7</b>	<b>18.4</b>	<b>23.8</b>	<b>28.4</b>	<b>43.8</b>	<b>44.7</b>	<b>43.2</b>	<b>44.1</b>	<b>47.7</b>

Source : The Economist (19.03.2011) based on Tanzi and Schuknecht (2000), IMF and OECD.

\* 1870-1937 central government, 1960-2009 general government



Around 1870, the average share of government spending in GDP was about 10 per cent. Just before World War I, it had slightly risen close to levels considered in those years as being the sustainable limit.<sup>4</sup> Since then, the public sector has grown at a faster pace than GDP. The upward movement was of course facilitated by the two world wars and the Great Depression in between.

The growth was particularly dynamic during the 1960s and 1970s, mainly due to the fundamental change in the general attitude toward the role of the State, more precisely regarding its capacity to solve various economic and social problems and to reduce risks for the citizens (Tanzi and Schuknecht, 2000). During those two decades – called “golden age” of the public sector growth – most social security systems that characterize today’s welfare states were put in place. As a result, transfer expenditure soared, also in comparison to outlays on consumption (goods and services, wages) and investment, especially in European economies.

After euphoria came disillusionment and the ensuing slowdown in government growth during the 1980s and 1990s. While many observers then predicted the definite end of the growth of the State and even its reversal, so far there has been no flattening out of the trend. The relative size of the public sector even hit record levels in the aftermath of the recent financial and economic crisis. During the past century, on average, the share of public expenditure in GDP was multiplied by a factor of approximately 4. Demographic patterns – mainly population ageing that will aggravate public finances through rising expenditures on health and pensions – at least until the 2030s do not leave much hope for any major change in the trend in near future.

### **3. Factors behind public sector growth<sup>5</sup>**

Numerous explanations for government growth can be found in the vast and expanding scientific literature on the subject. Undoubtedly, the growth of government cannot be attributed to a single factor. One should rather look for a combination of different factors including country- or region-specific ones. The main explanatory factors can be divided into two categories: economic and public-choice (political economy). The economic factors intervene either on the demand or the supply side whereas the public-choice approach looks at the interactions.

#### **3.1 Economic explanations**

Generally speaking, economic explanations of the growth of the public sector can all be somehow related to the median-voter theorem (Downs, 1957 and 1961). The median voter’s demand for publicly-provided commodities is supposed to be a function of the individual’s income and tastes as well as relative prices.

##### *Demand-based explanations*

The oldest attempt to explain the growth of the public sector pertains to the first category and is known as Wagner’s (1876) “Law of Increasing State Activity”. According to this explanation

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<sup>4</sup> Pierre-Paul Leroy-Beaulieu, a French economist, wrote in 1888 that 12-13 percent of GDP was the sustainable limit for government’s share in the economy (Tanzi and Schuknecht, 2000).

<sup>5</sup> See OECD (1985) and Garret and Rhine (2006) for a thorough discussion of these factors.

– expressed in today’s terms – the increase in demand for a greater scope of public sector interventions in the economy is a natural consequence of higher living standards and increasing complexity which accompany economic growth. In other words, the income elasticity of demand for publicly-provided goods and services tends to exceed unity (luxury goods).

The evolution of tastes in favor of publicly-provided goods and services can explain the rise in their demand. Rodrik (1998) shows that the more open the economy is, the larger its government tends to be. The basic idea is the following: citizens faced with a larger volatility of income and employment resulting from an increasing degree of openness of the economy might call on government to act as the ultimate insurer of risks through social security, unemployment insurance, etc.

Finally, the role of demand (and supply) was also put forward in an application of Baumol’s (1967) law of unbalanced productivity growth, sometimes referred to as Baumol’s “disease”. According to this explanation, lagging productivity gains in the public sector relative to the private sector – while both sectors are basically faced with the same wage rate – lead to an increase in the former’s relative costs and prices. Because relative demand does not contract accordingly as a result of low price-elasticity and high income-elasticity (Wagner’s law) of public services, government’s nominal share of the economy increases automatically through time.<sup>6</sup> The validity of Baumol’s law is even reinforced by the fact that wages in the (more-unionized) public sector tend to increase faster than in the private sector (Ferris and West, 1999).

#### *Supply-based explanations*

The importance of supply-side factors was first highlighted by Peacock and Wiseman (1963). The authors stressed the role of large-scale social upheavals such as wars and other economic and social emergencies that modify taxpayers’ perception of the “tolerable tax burden”, allowing the government to maintain a higher level of expenditure once the emergency is over (“displacement effect”).

Other authors have dealt with supply-side factors by focusing on the role of government as a redistributor of income and wealth. Kristov *et al.* (1992) reinforce the displacement effect phenomenon by arguing that the closer the middle-class voters feel to the poor, or the slower incomes grow in the economy, the greater the amount of redistribution the government is asked to operate, resulting in the growth of the public sector during such periods. Following a totally different line of argument, Peltzman (1980) explains how, paradoxically, the trend towards a more equal distribution of income can result in higher amounts of redistributive measures. According to his explanation, because candidates promise redistributive policies in favor of various socio-economic groups to win their votes, the more equally income gets to be distributed through time, the greater will be the magnitude of redistribution needed to gain the same degree of political support and get elected. Meltzer and Richard (1978, 1981 and 1983) argue that individuals with lower productivities and incomes tend to vote mostly in favor of high taxes and transfers as they pay relatively less taxes and receive relatively more

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<sup>6</sup> Beck (1979) argues that real government expenditure as a percentage of real GDP (i.e. each one deflated by the appropriate price index) is significantly lower than the same ratio in nominal terms.



transfers. The growth in government size is then explained by the fact that over time the voting population has grown with new entrants coming mostly from the lower income population. Finally, the existence of electoral cycles responding to citizen demands can explain the relative size of the government and its growth (Downs, 1957 and Coughlin, 1992).

### 3.2 Explanations from the public-choice literature

There have also been attempts – in the framework of the public-choice literature – to explain the growth of government in terms of the political decision-making process. The idea is that modern democracies are characterized by an inherent bias towards excessive government size, resulting in inefficiencies and subsequently lower aggregate economic growth.

One of the early explanations draws upon the role of interest groups and coalitions. The benefits of public goods tend to be concentrated on a subset of voters while the costs are more widely spread. The outcome is the formation of voter coalitions by individuals for whom benefits exceed costs and who therefore naturally press for additional provisions (Buchanan and Tullock, 1962). Weingast *et al.* (1981) base their argument on the fact that the benefits of redistributive measures tend to be concentrated within one interest group while its costs are borne by a much larger population. This results in an undue growth of the public sector given that each organized political pressure group has a stronger motivation for claiming an increase in public expenditure in its favor than others have for opposing such moves. Becker (1983) stresses the role of competition among interacting interest groups that increases the power of the special interest lobby and leads to greater special interest spending.

A famous argument from the public-choice school focuses on the role of bureaucracy in government expansion (Niskanen, 1971 and 2001). Bureaucrats have a natural tendency to maximize the size of their budgets. As monopolists they confront legislators who act as monopsonists trying to sanction budgetary demands exceeding citizens' preferences. Like any other bilateral monopoly situation, the equilibrium solution is a negotiated one. However, in this specific case, the bureaucrats have a decisive advantage over legislators given that the former determine their own costs while the latter suffer from informational asymmetries. Other difficulties preventing the legislators from exercising effective monitoring include problems related to the less palpable nature of services as compared to manufacturing, the monopoly provision of services involved which render price comparisons difficult, and the bureaucrats' reluctance to present alternatives. Also the ability to extend the budget beyond the demands made by the legislator depends on the bureaucracy's capacity to misrepresent the true prices and quantities, especially when the budget is large and complex (Mueller, 2003).

The role of bureaucracy is strengthened by the influence of public employee voting behavior on democratic decisions about government expansion. As direct beneficiaries of government expenditures, public employees not only tend to support expansions but they also have a higher propensity to vote in elections. This allows them to exert a disproportionate influence on voting outcomes – especially in direct democracies – and possibly leads to government expansion beyond average citizen preferences.

Other features of decision-making processes can be shown to contribute to the growth of government expenditure. Taxpayers suffer from various forms of fiscal illusion. In other words, they may not be necessarily aware of the full cost of government expansion due to their ignorance of the underlying financing system given the complexity of the tax structure which masks the extent of revenues transferred from taxpayers to government. A well-known mechanism is related to the lack of fiscal discipline. Frequent recourse to debt in order to finance expenditure may give today's taxpayers the false impression that they can benefit from a "free lunch" (unless Ricardian equivalence type of behavior prevails). Another source of illusion might be the "flypaper effect" according to which grants received by one level of government from another are not (totally) offset by a decrease in taxes, thereby resulting in further expenditure growth (Hines and Thaler, 1995). Sometimes, government gets more resources as a result of built-in mechanisms. The fiscal drag mechanism resulting from progressive tax schedules and inflation is a well-known case. Note that even in the absence of inflation tax revenues rise automatically (and more than proportionally) as a result of real growth, providing the government with the opportunity to finance additional expenditure without increasing tax rates.

Finally, the monopoly power exercised by the government provides additional explanations for public-sector growth. As a monopolist, the executive branch can practice "bundling" of projects which results in higher levels of government output (Tullock, 1959). Bundling and legislator vote trading can ensure the legislative approval of projects that otherwise would not have secured the majority needed. Brennan and Buchanan (1977 and 1980) also adopt the monopolist view of government. Their "leviathan" government maximizes its revenues with citizens exerting no control on the size of the State.

#### **4. Government's impact on growth**

In addition to the inefficiencies of the government itself, its interventions and size may affect economic growth through both sides of the budget, i.e. expenditures and revenues. This section gives an overview of these effects in the framework of the theory of economic growth.

##### **4.1 Growth-theoretical underpinnings**

Although the relationship between State interventions and economic growth has been the subject of a great number of studies in the economic literature, up until recently it lacked a solid theoretical basis in the sense that it was not possible to establish a formal growth-theoretic-based linkage between the two variables. The problem was related to the shortcomings of the neo-classical growth theory (Solow, 1956). According to these models, government policies can impact the rate of growth of the economy during the transitional period to the steady state, but this equilibrium growth rate is determined by the rates of technical progress and population growth, both assumed exogenous.

The development of the endogenous (or new) growth theory (e.g. Romer, 1986 and Lucas, 1988) has provided a sound theoretical basis for the study of the impact of government activities on economic growth. According to this theory, public expenditure and taxes can influence the long-term rate of growth of output per capita (Barro and Sala-i-Martin, 1995). This can take place via various mechanisms that help counter the diminishing returns to

capital accumulation “fatality” which cripples the neo-classical growth theory and makes the growth of output per capita contingent upon the occurrence of exogenous technical progress. In the new growth theory, a sustainable growth of output per capita can result from endogenous variables within the model. Then, various State interventions (via regulation, expenditure or taxation), to the extent that they influence these variables, can have an impact on the equilibrium growth rate of the economy.

Several endogenous growth mechanisms have been explored in the literature. Some of them act through improvements in labor productivity. Investment in new fixed capital can increase labor productivity. Also, labor’s skills and therefore productivity tend to be improved through time as a result of learning by doing. Another important factor is the accumulation of human capital which can enhance productivity directly and indirectly via spill-over effects (positive externalities). Other contributions to the endogenous growth theory concentrate on R&D expenditure, typically modeled within monopsonistic competition type of frameworks (Romer, 1990). Innovations embodied in new capital goods help improve productivity, providing an additional channel through which the diminishing returns to capital fatality can be overcome. The growth-promoting effect of human capital accumulation and R&D tends to be compounded by agglomeration economies (clustering).

Permanent changes in variables such as savings and investment (in fixed and human capital) as a result of government policies lead to a permanent shift in the steady-state growth rate. Therefore, government interventions can have an impact on the long-run growth rate of the economy. Besides, endogenous growth models allow for an analysis of possibly differentiated effects of various types of public expenditure on growth.

#### 4.2 Impact of public expenditure on growth

Here we review the impact of various types of government expenditure on growth, concentrating on changes in terms of allocation of resources.<sup>7</sup> Of particular interest are expenditures which enhance the performance of labor, those that can be considered as free additional inputs used by firms fostering their capital and labor productivity, and those which improve efficiency indirectly through framework conditions like social stability and security.

Note that in addition to the volume of government expenditure, one should ideally also take into account the quality of publicly-provided services. This dimension is even more important for the State as compared to the private sector given that public production is predominantly composed of services. However, the quality is notoriously hard to measure and even harder to compare from one country or jurisdiction to another.

Government spending on education can be growth promoting by increasing labor productivity because of related positive externalities that are not captured by market prices. Social benefits – compared to privately-captured returns – tend to be higher the lower is the level of education concerned, implying varying degrees of public sector involvement. Financial assistance for education helps overcome credit-market imperfections due to informational asymmetries and lack of collateral.

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<sup>7</sup> See Colombier (2004) for an extensive theoretical review of the impact of public expenditure on growth.

In this context, one should also mention active labor market policies that help improve or preserve the capabilities of the unemployed, thereby facilitating their reintegration into the labor market. Family policy and fight against gender-based discrimination can boost female participation rates, providing the economy with much-needed untapped human resources. Such policies have additional positive effects on growth by encouraging women to invest more in the acquisition of human capital (Schubert, 1997).

Government's expenditure on health care mainly responds to the existence of positive externalities but also to informational asymmetries. It exerts a positive impact on productivity by improving performance in the workplace and reducing absenteeism and workdays lost as a result of illness or poor health. A further growth-enhancing effect is through the improvement in the capacity to acquire human capital as a result of better health conditions. One can also include indirect positive effects through the acquisition and preservation of social capital. State's involvement in the field of sports also responds to the same type of preoccupation.

Note that the impact of government's educational and health spending on growth can well be ambiguous. First, the potential productivity-enhancing effects of such expenditure could finally end up being lower than expected in case of a large-scale emigration of workers. Second, this type of expenditure reduces the incentive for households to save privately in order to face such expenses in the future. If total savings diminish as a result of such policies, this will have a negative impact on long-term growth. Third, government expenditure includes transfers through welfare programs. To the extent that these payments lower the price of goods and services, overconsumption might result.

Publicly-conducted or subsidized R&D activities can positively impact innovation and thereby growth. Like human capital, R&D activities generate important spill-over effects, legitimizing some degree of public intervention without which investment in R&D, especially in fundamental research, would be insufficient. Public support of R&D can take several forms: protection of intellectual property (IP), research conducted within the public sector, and subsidies or tax incentives for private R&D activities. Note that there exists a trade-off and therefore an optimal degree of IP protection as too heavy protection by means of patenting can become counter-productive, hindering researcher access to (fundamental) knowledge and consequently harming innovation and growth.

Private factor productivity can benefit from core infrastructure investment realized by the government. These are, for instance, transport grid, telecommunication networks, payment systems, infrastructure for utilities (energy, water, sewer, etc.), technological parks, etc. All these services are characterized by indivisibilities of supply due to huge upfront fixed (and largely sunk) costs. The resulting natural monopoly type of market organization – mainly related to economies of scale but also to otherwise exorbitant costs of exclusion – justifies some form of State intervention either by direct public provision of the service or regulation of the activities of private firms. During the past two decades, the trend in the OECD countries has been towards less direct implication of the government in such activities and a thorough reform of regulatory frameworks to introduce more competition and help boost growth through innovation (see, for example, OECD, 2007).

More generally, governments can also enhance growth by improving the legal and institutional framework of the country via spending on law and order as well as on (internal and external) security. This effort is essential for ensuring that private economic activity is not hampered and can be conducted within a harmonious, stable and predictable environment. To these spending items one should definitely add social expenditure which is usually considered in the context of the redistributive function of the State. This type of expenditure can have significant albeit indirect implications for the allocation of resources and growth as it helps secure a minimal degree of social cohesion, thus contributing to political stability and a more favorable environment for private sector activities. Failure to act against inequalities and poverty can adversely affect factor productivities and exert destabilizing effects on the society. Note that the impact of these factors is compounded by the fact that too much inequality or poverty tends to discourage low-income individuals from educating themselves and leading healthy lifestyles (Gerson, 1998).

In the same vein, one should mention Keynesian-type government interventions that can play a role in the long-run growth process beyond the well-known and controversial short-run business-cycle stabilization aspects. A standard case is the possible induced growth effect of infrastructure investment undertaken during periods of recession to help stabilize the economy. Another example concerns government policies against cyclical unemployment. If unemployment is characterized by some degree of hysteresis, then the failure to intervene during business-cycle downturns creates long-term unemployment which tends to persist even when the economy reverts to its long-term growth path. The multiple causes of hysteresis are now well-documented and fit many European economies. The most convincing explanation refers to human capital depreciation that takes place during long unemployment spells, carrying the risk of transforming the jobless into unemployables (Pissarides, 1992).<sup>8</sup>

To summarize, one can say that, in general, public expenditure tends to have a positive – or at least no negative – impact on growth. There are of course limits to this assertion which brings us to believe that there is an optimal volume of public spending. Beyond a certain threshold, additional spending in many areas becomes excessive and unduly diverts resources away from the private sector, hampering growth. For example, in many countries defense spending considered as growth-promoting during the cold-war era may have become wasteful and growth-stifling since. Also, government spending can have adverse effects on private savings and investment. Debt-financed public expenditure crowds out private investment by increasing the cost of capital for firms. Total savings by private households may be reduced because of social security transfers, thereby negatively affecting private investment. Finally, as discussed above, the size of the State in the economy may well have overgrown as a result of built-in mechanisms within the political system. In that case, a reduction rather than an increase of public spending would be growth-promoting.

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<sup>8</sup> Among the explanations of this phenomenon, one can mention the “insider-outsider” model which stresses the conflict of interest between employed and unemployed and the fact that wage negotiations take into account mainly the interest of the former. Another possible cause is the insufficiency of investment during recessions which delays job creation and prevents the absorption of cyclical unemployment during recoveries. A powerful argument refers to the perverse effect of labor protection policies and legislation – especially those regarding hire-and-fire and wages – as a result of which firms might have become unwilling to recruit during recoveries.

The most important limit to the positive impact of government expenditure is however set by its financing pattern, mainly via taxation, that almost always creates distortions and hinders growth. This is the problem to which we now turn.

#### 4.3 Impact of public revenues on growth

The impact of taxes on growth is intimately connected to the concept of distortion. Generally speaking, tax distortion refers to any reaction by economic agents to changes in relative prices induced by taxation (Hagemann *et al.*, 1988). Taxes introduce a “wedge” between before- and after-tax prices of products or factors of production. When the amount of this gap is different from one good or factor of production to another, relative prices change. This modifies the behavior of economic agents in a way that transforms the respective shares of taxed products or factors, resulting in a new allocation of resources in the economy. In a large number of cases, distortions cause economic inefficiencies, the exceptions being restricted to cases where taxes help internalize externalities (e.g. “green” taxes). Differences in the tax burden affecting factors of production can lead to economic inefficiencies and a lower level of output, whereas applying different tax rates on final goods modifies the structure of consumption and reduces aggregate well-being. In many cases, these tax-induced changes negatively affect the growth potential of the economy.

##### *Taxation and factors of production*

The most distortive tax is the income tax levied on labor and capital income, usually at progressive rates.<sup>9</sup> It distorts the allocation of time between labor and leisure. As a result of the introduction of an income tax, the after-tax return to labor (after-tax wage rate) falls, provoking a possibly large substitution effect in favor of leisure that might ultimately lead to a decrease in the number of hours worked. This outcome is reinforced by the degree of the progressivity of the tax schedule. But given that the wage rate of the worker depends on the productivity of labor and that the latter is raised by investment in human capital, the labor income tax can exert an additional negative impact on growth by discouraging investment in human capital (Myles, 2000). Moreover, taxes can affect the labor supply decision via other mechanisms such as the consumption tax to the extent that it is (partially) shifted on to consumers, thereby reducing the real wage rate.

In addition to the intra-temporal work-leisure choice, the income tax also distorts the inter-temporal consumption-savings decision of the individual. In a standard two-period new-growth-theory type of model, the introduction of an income tax diminishes the after-tax return to savings, causing an increase in consumption of period  $t$  and therefore a reduction in savings (which allow consumption of period  $t+1$ ). Given that total disposable income is adversely affected by the tax, private consumption tends to fall in both periods. The reduction of savings restricts physical investment and exerts a depressing effect on capital accumulation and steady-state growth of the economy. In the absence of restrictions on international capital movements, the outcome could even be worse as a result of capital flight. The negative impact on growth can be further strengthened if physical capital is essential for the production and acquisition of human capital.

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<sup>9</sup> See Atkinson and Stiglitz (1980).

Capital income taxation also includes taxes levied on profits which affect the investment decision of firms.<sup>10</sup> Profit taxes tend to increase the user cost of capital, thus exerting a negative impact on private-sector capital outlays. This can cause an insufficient level of capital stock and hamper growth. Other features of the tax system such as tax credits, deductions allowed for depreciation, rules admitted for the evaluation of goods sold from inventory and provisions regarding loss carry forward also affect the user cost of capital.

A less prominent distortion caused by taxation of income is related to the differentiated taxation of factors of production in general and of capital income in particular. In many countries there exist significant differences between marginal effective tax rates on capital income depending on the type of investment involved, the source of financing and the location of the firm. Convergence of after-tax real rates of return on substitutable assets results in a misallocation of productive resources and a lower productivity of the capital stock compared to the case where capital income receives the same tax treatment irrespective of its form and origin. Differential tax treatment can have negative implications for growth at the regional level but also in cases where investment in key productive assets (such as IT equipment) or sources of financing used by highly innovative firms (equity financing) receive a less favorable tax treatment.

Note that many tax distortions tend to be aggravated by inflation. Inflation increases the user cost of capital for firms because of depreciation at historical – rather than replacement – cost. It also raises the tax burden if firms use the FIFO (first-in, first-out) method for evaluating their inventories. Finally, inflation favors consumption over savings under regimes that tax nominal interest receipts while exonerating nominal interest payments.

#### *Other tax distortions*

One can also identify some less-known tax distortions that can cause inefficiencies and hurt growth. From the growth-theory perspective, one important effect is the impact of taxation on risk taking (Denison, 1979). Taxation favors less risky investments and R&D projects. As long as government shares gains, but not losses, with the investor, relatively risky projects tend to have lower expected net values. Certain promising avenues for growth will therefore remain unexplored. Although the literature on the impact of taxes on risk taking does not allow to conclude unambiguously on this issue, one can assert that the more asymmetric a tax system is regarding its treatment of gains and losses, the higher is the probability of an adverse effect of taxation on the propensity to engage in risky ventures (Boadway, 1979).

Uncertainty related to future taxes is another factor to be mentioned that can interfere with the allocation of resources and the growth path of the economy. Although investment is essentially a forward-looking process and involves many uncertain parameters, the mere possibility of changes in tax rates and other related provisions during a project's lifetime introduces yet another source of uncertainty that has to be dealt with. Tax changes can *ex post* render suboptimal investment projects selected on the basis of prevailing tax laws. Probably more than any other policy domain, tax policy changes are hard to forecast as a function of past observations.

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<sup>10</sup> See, for example, Jorgenson and Yun (2001).



Taxation of capital gains upon realization – rather than accrual – constitutes another way taxes create inefficiencies and harm growth. Under a regime where capital gains are taxed only when assets are sold, the holders of such assets have an incentive to postpone the realization of their gains (“locked-in” effect). There are at least three reasons why the locked-in effect can lead to inefficiencies and impact negatively the growth potential of the economy (Stiglitz, 1983). First, it increases the volatility of the assets involved in comparison to other forms of investment and therefore reduces their attractiveness. Second, in cases where financial assets confer to their owners a certain degree of influence on corporate decisions, it prevents the passage of assets to those who would be most capable of managing them. Third, when the return on an investment project takes the form of capital gains, its termination date might be artificially delayed to reduce the present value of tax liabilities. Under a progressive income tax system, inflation strengthens this phenomenon as capital gains are usually taxed in nominal terms.

Note that taxation, via the establishment and management of a tax system but also the tax-compliance mechanism, generates administrative costs which by themselves constitute a waste of productive resources.<sup>11</sup> Compliance costs intervene on different levels (Sandford, 1981). First, understanding the features and the requirements of the tax system implies additional costs when a new tax law is introduced or when the existing framework is revised. Second, the obligation to pay taxes imposes on firms largely unavoidable costs related to the necessity to maintain an adequate accounting system. Compliance costs are even higher under systems requiring the employers to levy withholding taxes on behalf on tax authorities. Note that because of the largely fixed nature of compliance costs, these tend to weigh heavily on smaller firms. Given that a large number of highly innovative firms are relatively small (and financially fragile) entities, these costs can exert a negative impact on innovation and growth.

To summarize, income taxes including personal income taxes on labor and capital income, business taxes, payroll taxes and social security contributions are the most distortive. In contrast, consumption taxes and various property taxes such as those on wealth, real-estate, bequest and gift are the least distortive. Therefore, in order to judge the degree of harmfulness of taxes with respect to growth, one should consider not only the total tax burden (e.g. percentage of taxes in GDP), but also the structure of the tax system as well as the compliance costs imposed on taxpayers.

#### 4.4 Government’s own inefficiencies

Given that the government sector accounts for a large chunk of GDP, inefficiencies within the State itself affect automatically and significantly the growth performance of the economy as a whole. In section 3 we reviewed several political mechanisms that lead to an inflated, and therefore inefficient, public sector and bureaucracy. Another problem is the lack, or at least insufficiency, of incentives for public servants and managers compared to their private sector

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<sup>11</sup> Many studies have shown that these costs can be considerable. In the U.K., for instance, tax-related costs are estimated at 1.5 per cent of GDP. Compliance costs of all regulations are believed to be much larger, between 10 and 20 per cent of GDP (The Economist, *op. cit.*).

counterparts. Here we briefly mention two factors that can mitigate State inefficiencies: decentralization and outsourcing.

One can identify at least two mechanisms through which fiscal decentralization is expected to affect positively government efficiency. First, a higher degree of control reduces the incentives for incumbents to pursue their own interests by increasing the risk of not being reelected (Salmon, 1987). Second, yardstick competition among sub-national and local entities allows citizens to better evaluate the performance of their officials by providing them with relevant benchmarks for comparison (Besley and Case, 1995). Henceforth, fiscal decentralization tends to enhance public sector performance and efficiency by enabling the citizens to either vote officials out of office or just vote “by their feet”.<sup>12</sup>

As for recourse to outsourcing, it has the advantage of exposing the production of services in the government sector to competitive pressure. Unless public production is as efficient as private production, the task is subcontracted to the private sector. The activities best suited for outsourcing are those for which transactions costs of contracting are relatively low. This is the case for standardized – or at least easily definable – outputs (e.g. garbage collection).

## **5. Evidence from empirical studies**

Government interventions can impact economic growth basically through three channels: the quantity as well as quality of the factors of production, the combination of factors used in the production function, and the production process itself. Given the theoretical arguments reviewed above, the answer to the question of whether government activities serve or hinder growth can therefore only be empirical.<sup>13</sup>

Starting with the path-breaking study by Barro (1990), the impact of government interventions on economic growth has been subject to a great number of empirical investigations. However, based on a large array of evidence gathered so far on this issue, it is difficult to detect a clear-cut relationship between aggregate public spending/revenues and growth, both at the international and the individual country levels.<sup>14</sup> This can be explained *inter alia* by the fact that until now empirical studies have paid little attention the direction of causality between the relative size of the public sector and economic growth as well as to the non-linearity of the relationship.

A major difficulty is that it is hard to ascertain the direction of causality between the two variables. An expanding public sector can just as well be a cause or a consequence of weak growth. The latter is the type of causality underlying Wagner’s law. To take a recent example, the exceptionally low growth rates of the Swiss economy during the 1990s (lowest among all OECD countries) are often associated to the increase in the relative size of the public sector. However, this increase has largely been the result – rather than the cause – of anemic

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<sup>12</sup> Note that, theoretically, one cannot exclude a negative effect of decentralization on growth as a result of diseconomies of scale but also the lower quality – in terms of human capital – of civil servants at the local/regional level in comparison to the central government and their higher risk of being subject to pressure from special interest groups.

<sup>13</sup> See Kirchgässner (2006) for an excellent critical review of the empirical literature.

<sup>14</sup> See, for example, Sala-i-Martin (1997), Tanzi and Zee (1997), Agell *et al.* (1997) and Bassanini and Scarpetta (2001). More recently, a meta-analysis conducted by Nijkamp and Poot (2004) did not allow to establish clearer results.

growth. In particular, the spectacular and unprecedented surge in Swiss unemployment in the early 1990s brought about the need for new public programs and heavier government involvement in this field.

Another serious problem is related to the fact that most studies ignore the possible non-linearity of the hypothesized nexus. It is therefore not surprising to observe contradictory and mostly non-robust results (Fölster and Henrekson, 1999 and 2001). Intuitively, there can be no harmonious relationship between the relative size of the State and economic growth. A zero share of the public sector means chaos and would be hardly compatible with economic development. The same is true when the government accounts for 100 percent or more of GDP. This suggests an inverted U-shape type of relationship between government's size and economic growth, rather than a monotonous locus. Therefore, one can speculate on the existence of an "optimal" size of the State that maximizes growth (Mittnik and Neumann, 2003). Below that threshold, development of governmental activities is favorable to economic growth while beyond that point any further expansion of the State becomes detrimental to growth. Note that if the relationship is Laffer-shaped and characterized by a flat intermediate portion instead of a single peak, then a statistically non-significant result might mean that the government size falls within the optimal range.

It would be illusory to think that there is a unique optimal level of government size in the economy. This optimal size crucially depends on the society's conception of the welfare State. As in Scandinavian countries, a relatively high level of government involvement in the economy can be compatible with decent rates of economic growth provided that the State produces goods and services efficiently in response to market failures. For instance, free or highly-subsidized child-care services allow more women to enter the workforce and can help increase birth rates. A safe conjecture is that there exists a specific optimal size of the government corresponding to a given model of welfare State. Besides, one should take into account the quality of government in determining the optimal size of the State (La Porta *et al.*, 1999).

To avoid problems related to institutional differences, especially those regarding the contours of the welfare State, a solution would be to test the link between government and growth at the sub-national level within a federalist country. But this type of investigation remains marred by the reversal of causality problem. To the extent that sub-national entities provide more or less the same volume of public services, higher-income entities will have lower shares of government expenditure and taxes than lower-income ones.

A possible source of bias might be that in most cases either public expenditure or taxes – rarely both – are considered as explanatory variables in growth equations. In other words, the interactions between the two sides of the ledger (i.e. budget constraint) are not correctly reflected in many empirical studies. One should keep in mind that more than the magnitude of State activity, what really matters for the citizen is the balance between the price paid in form of various levies and the public services received in return.

In spite of the frustratingly inconclusive nature of the empirical evidence on the impact of aggregate spending on growth, a few certainties remain. One is the fact that independently of the size of public expenditure and taxes in the economy, frequent and large changes in

government policy is detrimental to growth. Brunetti (1998) shows a negative and significant impact of the volatility of fiscal and monetary policies on growth in a cross-country perspective.

Also, a much more coherent pattern is observed at the disaggregate level. This strand of research has investigated the specific effect of certain categories of expenditure (Temple, 1999). For example, Kneller *et al.* (1999) and Bleaney *et al.* (2001) find positive effects on growth of expenditure on infrastructure such as transports and communications. More recently, the existence of a positive but slight correlation between growth and spending on education, research or transport infrastructure for the OECD countries was established by Colombier (2004).

## **6. Conclusion**

In this paper we reviewed both theoretical and empirical evidence on the relative growth of the State and its possible implications for economic growth. We first stressed that measuring the size of the public sector is a risky business. In particular, the existence of “gray zones” might explain to a certain extent the controversies around government’s role in the economy. We then went on to argue that, no matter which definition or indicator is used to gauge the relative size of the public sector, the latter has risen inexorably, if not always smoothly, in relative terms in almost all industrialized countries during the past century. Although one can guess that such a trend cannot go on forever in market-based economies, the fact that it has not slowed down towards the end of the past century despite growing skepticism regarding the economic role of government should be a legitimate matter of concern for citizens.

The investigation of the causes of the relative growth of the State allowed us to identify some purely economic factors stressing the role of demand and supply, but also a series of other convincing arguments suggested by the public-choice literature. The latter pinpoint a certain number of built-in democratic political processes that tend to inflate the size of the public sector and create inefficiencies. The idea is that the government has grown beyond what the desires expressed by the citizens and the characteristics of publicly-provided goods and services could possibly justify.

After a brief reminder of the appropriate growth-theoretic framework of reference provided by the endogenous growth models, we reviewed the possible impacts of government spending and revenues on the economy’s growth potential. While most government expenditures tend to be favorable to growth as long as they respond to market failures, many taxes, especially those on personal income and business profits, create distortions in individual decisions regarding labor supply, savings and investment (in physical and human capital as well as in R&D) and therefore might constitute serious obstacles to growth. The empirical evidence is however largely inconclusive, except for the impact of specific categories of spending on growth. While expenditure items such as education and core infrastructure tend to favor growth, those on defense often turn out to be growth-hindering. Finally, one should also bear in mind that inefficiencies of the public sector itself can negatively affect growth. These inefficiencies can be partly overcome by fiscal decentralization and outsourcing.

What do these findings suggest regarding the future of the State’s role in the economy? One major conclusion is that there is no such thing as a “one-size-fits-all” State. As long as

citizens get enough “bang for the buck” in terms of government services, basically any size could fit. However, admitting that the relationship between government activities and growth is Laffer-shaped, a continuously growing share of the State will inevitably end up becoming harmful to growth. There are signs that in most cases the public sector has swelled beyond necessity and become inefficient. But this should not be taken as a fatality. The government can be scaled down without reneging on its commitments. In fact, studies show that small governments generally fare better in terms of efficiency and even performance.<sup>15</sup>

How can this downsizing be realized? One can distinguish three stages in the reform process leading to a “leaner but not meaner” State. The first stage – probably the less difficult to implement because it encounters relatively little opposition from citizens – consists of improving public management practices. Inter- as well as intra-national benchmarking can help governments at various levels become more efficient. Whenever possible, decentralization and outsourcing should be used to improve the quality of government services and gain in terms of efficiency. E-government solutions can also help, subject to limits imposed by the nature of publicly-provided services.

The second stage involves a much-needed drastic simplification of the regulatory framework. Although, technically speaking, this movement – sometimes improperly qualified as deregulatory rather than *re-regulatory* – has been under way in the OECD countries during the past two decades, it has been rather sluggish due to fierce opposition by vested interests. While some progress has been achieved on various fronts, other areas have witnessed a densification of regulation (e.g. environmental policy). Also, within the European Union, the effort realized at the national level has been offset by a thick layer of regulation imposed at the supra-national level. A solution would be to use sunset clauses so that all regulations expire automatically after a time limit unless they are explicitly extended.

The third and final stage of reform, which is going to be politically the most difficult to realize, consists of a thorough review and downscaling of government expenditure and taxes. On the expenditure side, the challenge is to limit the scope of government services, especially entitlements. This will require a lot of political will and courage, but unless fundamental reforms are undertaken soon, unfavorable demographic headwinds will ruin all other efforts towards a more efficient and growth-friendly State. To take the area of pensions as an example, the list of required reforms is clear: lifting the retirement age rather than increasing employee and employer contributions, replacing pay-as-you-go systems by those based on capitalization, using the defined-contribution rather than defined-benefit principle, etc. Realization of these reforms is however another story.

On the tax side, the recipes are well-known: more simplicity and less distortion. The tax system can be considerably simplified and rendered more transparent if its use is primarily limited to raising revenue for the State to finance expenditure and not for other (laudable) purposes such as redistribution.<sup>16</sup> Furthermore, the tax revenue necessary for the State to carry out its duties should be levied by causing the least distortion possible and minimizing administrative as well as compliance costs. This will require a restructuring of the tax system

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<sup>15</sup> For example, see Afonso *et al.* (2003).

<sup>16</sup> The U.S. tax code has grown from 1.4m words in 2001 to 3.8m in 2010 (The Economist, *op. cit.*).

mainly by shifting the burden from income to consumption taxes. Moreover, the level of taxes can be reduced at the same time as cuts in public spending by eliminating fiscal churning wherever possible. Fiscal churning is best illustrated by the case where the same individual pays taxes and receives an equivalent amount of benefits through transfers. While canceling out these flows leaves the financial situation of the individual unchanged, it reduces the distortions caused by taxes (and transfers) and saves the economy valuable resources used by the administration for enforcing both tax and transfer schemes.

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