THE GOVERNMENT AND THE SOCIAL SECTOR: THE ROLE OF PRIVATE AND PUBLIC INVESTMENT

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I. INTRODUCTION

According to Schumpeter, the only thing you can be sure of is the expansion of bureaucracy.[1] Not everyone thinks this way.[2]

In recent debates about what should be the size and the degree of government intervention in the economy, political scientists and sociologists argue with the same kind of supposed authority, the young among them, defending their arguments with the help of mathematical models more or less recent, more or less complicated, and more or less efficient. For some of them the economic theory of organization and that of incentives legitimize the economists' participation, enriching a debate that has been confined to other social sciences, in particular, political science and sociology.[3]

The role of government in the economy, as well as the costs and benefits of its intervention, are old issues that go back at least to the writings of the eighteenth century classical economists. Today, with the collapse of socialism, the rebirth of new liberalism, and the emphasis on the market economy, these issues are again fashionable in the economic literature.

We can distinguish two viewpoints about these issues. The first one maintains that the government's principal objective is not necessarily to make rapid economic growth possible, but to help to make possible an equitable distribution of what is produced. From this perspective, the success or failure of government intervention wouldn't be measured according to whether developmental goals were achieved, nor would its intervention be condemned in order to achieve distributive objectives, even if in doing so, the rate of growth of the economy would diminish.

On the other hand, the second point of view argues that the rate of growth in the size or in the degree of government intervention takes place in both developed and underdevel-

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oped counties. More over, an unusual hypothesis is advanced: the reason why the government in developing countries is not larger is precisely because they don't have sufficient growth, rather than that the government is large, retarding growth. If one accepts this point of view, the slow economic growth should not be attributed to the rapid growth of government.

Two problems central to these discussions are, first, how to define and measure the presence of government, and second, how to measure the effects of such intervention. To begin with, one has to agree on some definitions and methods of measurement, since often the size or the degree of government intervention is under- or overestimated, depending upon the method used to measure them. Contradictory results found in empirical studies on this issue are often due to the difficulties in defining, measuring, and agreeing on, of what the interventions consist. Part of these problems arises from the fact that interventions are usually multidimensional and that they do not simply consist of the activities of public employees, or the amount of taxes collected, or the public sector expenditures, or the number of laws, rules and norms imposed upon production and commerce, or to the number of government-owned firms that produced goods and services, etc.

The fact is that government intervention in the production and distribution of goods and services takes place in a variety of ways that go from the direct production of goods and services by government-owned firms, to direct participation in commissions to stimulate production, to bureaucratic red tape, to laws that protect (or fail to protect) property, and last, but not least, to the size of the bureaucracy responsible for applying fiscal policies. This variety of actions makes it very difficult to detect, define, and measure the valuables that give form to government intervention in the economy, as well as to evaluate its effects on economic growth.

In Section II of this work we give definitions of what public goods and services are, and we show the differences in public and private productivities. In Section III we mention causes of differences in public and private productivities and the effects that public and private incentives have on them. After we establish the main characteristics of how the government functions, in Section IV we study the way government interventions affect economic development. In this section we also briefly explain the way institutions stimulate rent-seeking and profit-seeking activities and what their impact is on economic development.

In Section V we estimate indices for Mexico that measure the size or degree of government intervention in the economy.

Finally, in Section VI we explore the statistical relationship between the size of government and the rate of economic growth in Mexico. In this section we also advance some tentative conclusions.

II. PUBLIC AND PRIVATE EFFICIENCY
A. Public and Private Goods and Services

It is convenient to distinguish, first, between what is a good and what is a service, and when a good or a service is public or private. To begin with, the distinction between what is a good and what is a service is ambiguous. According to some, a good can be defined as a physical object that can be appropriated and transferred among economic units.[4] On the other hand, a service can be defined as a change in the condition of a person or a good that belongs to someone. The change in the person or the good results from the interaction with another economic unit under the condition of a previous agreement existing between them.[5]

Some authors think that in order to qualify as a service, its production and consumption should take place simultaneously. Others maintain that nothing is interchanged, in a strict sense, in the process of offering a service (for example, not in the same way we interchange goods): A service cannot be given to a person in order to be used later for the same, or another, person. Services cannot be stored.[6]

If one takes into account the above considerations about what can be defined as a good or a service, it becomes still more complicated to define a public good. To do so lightly, is incorrect, or misleading, or both.

To complicate things further, some economists think that the differences between public and private goods are socially constructed, that is, their differences are not determined by general considerations or criteria, nor are they intrinsic, but are decided by the society in question.[7]

On the other hand, transactions between a government producer of goods and services, on the one hand, and consumers, on the other, do not take place through clearly defined rules. When a government produces a service, for instance, there is no common agreement or explicit obligation between the government and the one who pays for the service in such a way as to insure that the service will be

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delivered. A tax instigated as payment for a service does not guarantee that the service will be received, while this would usually be the case when the transaction takes place between individuals, or between individuals and firms, or between firms.

B. Public and Private Efficiency

Regarding public and private efficiency, abundant empirical studies show that public services are always, or almost always, more expensive than private ones. Appendix A shows the results of cost studies for services produced by public and private firms in five countries. This table shows that almost all services produced in the private sector are cheaper than those produced in the public one.

The number of persons employed by the private sector for each one employed by government, can, in principle, be considered a tentative measure of government efficiency. For Mexico in the 1980-1992 period, it was estimated that the government hired one person to attend bureaucratic needs for approximately five individuals employed in the private sector. Looking at this by type of activity, the Agricultural sector was an exception since, in every year except 1982, one government employee attended the bureaucratic needs of more than 100 in the private sector. This tendency seems to be growing in this sector. On the other hand, in Electricity, Gas, and Water, the relation was almost one to one. Other activities were found to fall between these two extremes.

These estimates can be used to measure bureaucratic needs in different activities. From this point of view, agricultural activities have fewer bureaucratic needs, since a bureaucrat can attend the needs of more than one hundred people privately employed in these activities. Electricity, gas and water, in this sense, would be activities that need more from the government, since they require one bureaucrat for each person privately employed in that activity.

When government efficiency is measured by the number of persons in the private sector that are attended to by one government employee, this gives rise to differing interpretations of whether the productivity per person employed in that activity is high or low. For instance, the fact that one government employee attends the needs of many productive farmers could mean that the government employee is efficient, since it has contributed to the farmers' high productivity. On the other hand, the fact that the government employee attends many farmers of low productivity means that the

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public employee is inefficient since he contributed little to the farmers' productivity. Therefore, more government employees would be needed to 'increase governmental productivity.

III. PUBLIC AND PRIVATE PRODUCTION

A. Property Rights

According to this viewpoint, the principal difference between public and private production is the ease by which private property is transferred, while public property transference is relatively difficult.

The fact that property in the public sector is not easily transferred explains why production there is less efficient than production in the private sector.[8] The ease by which property can be transferred, results in efficient production. In the first place, the fact that property in the private sector is commonly owned by one, or by a few people, insures that the owners maintain personal and direct interest that the firms produce in an optimal manner. In the second place, the existence of a shares' market with low transaction costs, stimulates private firms to produce more efficiently, since if they are not efficient, the value of their shares will decrease and become susceptible to takeovers or mergers.[9] It is through this mechanism that the market eliminates inefficient firms. In the third place, the ease by which property can be transferred allows owners to group their assets into branches where goods and entrepreneurial abilities can be better used.[10]

On the other hand, the difficulties through which government property is transferred cause inefficiency. It has been observed that the transfer of government-owned firms brings about increases in the concentration of property and/or benefits small interest groups without administrative or production experience (as unhappily occurred in the infamous reprivatization of banks and financial services during the Carlos Salinos de Gortari administration in 1988-1994).

The owners of publicly owned firms are, in principle, all citizens that pay taxes. This condition gives rise to an ambiguous property relationship that makes the evaluation of public enterprises difficult. For this reason it is not surprising to find that the citizen/owner has little interest in knowing the way his public firm is administered.[11] Also, along with this, one must consider what it takes for a citizen to acquire adequate information (if it exists) about the functioning of a government firm. A citizen has only indirect control of a

government-owned firm through its political representatives, elected, with luck, by him. In order for a citizen to influence the way a public enterprise is run, it has to be by the rules that the political and economic system imposes on him. Maybe, it is for this reason that the common citizen ignores, or simply doesn't care to know, how his public enterprises are run. Given this situation, it is not surprising to find that the people in charge of public enterprises feel unaccountable to anyone and free from the scrutiny of the firms' owners (all taxpayers). [12]

In summary: The ease by which property is transferred in the private sector, gives rise to conditions that force the ones in charge of firms to produce with efficiency, and to maximize the owners' investments. On the other hand, the difficulties incurred when transferring property in the public sector, give those in charge of public enterprises the opportunity to produce inefficiently, since they are not subject to the owners' (taxpayers') scrutiny in order to ensure that production takes place according to the principles of optimization of production and profits.

B.   Public and Private Incentives

The central problem[13] here is to know in what ways, and why, the incentives of high level executives of a large firm (for instance) differ from those of a high level public official. Some, however, argue that this comparison doesn't make sense since one cannot compare the public with the private sector, since government employees receive very low incentives (low power incentives) compared to private employees. Further more, public employees tend to be more oriented towards social work, than employees of the private sector. The difference in incentives between the government and the private sector can be attributed to differences in the method of measuring the variables in question. In the case of a private enterprise, the maximization of profits is well defined, as are the relevant variables to achieve those objectives. On the other hand, government agencies' objectives are usually multidimensional. Frequently, profit maximization objectives are secondary, to other important objectives, like, for instance, the reduction of pollution, the achievement of rapid economic growth, or the diminishment of an unequal income distribution of what is produced. Even though some would argue that the multidimensionality of objectives makes it difficult to establish a system of objectives, this doesn't need to be the case, since it is possible to specify a well-defined

welfare function that allocates the proper weight to all objectives through some political process.

The comparison between private agencies and firms, and those of the government, is still more difficult when one takes into account the fact that government firms are frequently monopolies. This situation makes impossible any comparison, unless the comparison is made with similar monopolic enterprise of another country. [14]

IV. THE GOVERNMENT AND ECONOMIC DEVELOPMENT
A. The Government, Institutions, and Individuals

Recently, attention has been given to the effect government intervention has on the economy through the regulations it establishes on the market.

Traditional macroeconomic theory does not put much attention on the effect that the institutional framework has on the entrepreneurs' and consumers' behavior. This is paradoxical, since entrepreneurs and consumers behave according to the incentives given to them by institutions. [15]

Neoclassical growth theory, for its part, gives great importance to the study of physical and human capital, as well as to technical change. One way to know the nature of the relationship between the institutions that determine the producers' and consumers' behavior, and economic growth, is through the study of the influence that institutions have on technological change. [16]

The problem of economic growth is then, to a great extent, that of the incentives provided to the individuals. Frequently, growth objectives fail because they concentrate on the administrative aspects of firms or on workers training without due attention as to whether the institutions are congruent with technical and administrative efficiency. Very often it is the case that the institutional initiatives, and not the administrative or training, are what fail.

From this prospective, the developing countries' problems are not whether their governments are big, but whether they have sufficient power to apply rules and establish institutions that take away incentives for innovation in the private sector. If this occurs, transferring property from the public to the private sector, for instance, has a limited effect, since the transfer is to an institutional ambiance created by the government that is not conducive to innovation nor to development. [17]

Almost always the rules provided for the economic game, "the principle product of government," according to Douglas North, do not promote growth. Frequently, institutions are established and rules applied which make it possible for the ruling group and its allies to maximize their rents (to be explained later) instead of creating mechanisms, incentives, and institutions that promote growth.

The importance that institutions have on economic growth is beginning to be quantified. In one concrete case, it has been recommended that if some institutional changes are made, production, in some countries, could be doubled.[18] Other studies of countries of the European economic community show the close relationship between the institutional framework, and innovation.[19]

Institutions determine economic development. The government, the principal creator of institutions, has a decisive effect on economic development that goes further than the effect of public expenditure and investment only.

That government intervention influences development can be known through the study of the way institutions and rules applied by the government, determine the entrepreneurs' behavior.

It is said certain institutions stimulate the behavior of so-called "profit-seekers" and others, "rent-seekers."[20] Rent here is understood as an extra payment made to a factor of production above what it would have earned in another use, that is, whatever is paid above its opportunity cost.

B.   Profit-Seekers

According to conventional economic theory, in a market economy the producer specializes in the selection of goods, sectors or methods of production, which allow him to maximize his profits. In acting this way benefits are created for the economy as a whole, since resources are optimally located, and the production and distribution of goods and services are efficiently organized. In this way a price structure is created that expresses the relative scarcity of goods and services. The above benefits for society and for the individual are achieved only when the economic activities take place in a market where there are no interventions that disrupt its functioning, and where an institutional framework exists that respects property.

When the above market conditions exist, rents emerge, but the same functioning of the market makes them disappear through competition with other producers. The original

rent created by the innovative entrepreneur is now transferred from the entrepreneur to the consumers. Working this way assures that extra profits or rents disappear in time, and also assures that each factor of production will receive a compensation equivalent to its marginal productivity and opportunity cost. In summary, the presence of rents or extra profits is what motivates entrepreneurs to initiate an optimal relocation of resources, and hence, the development of the economy.

C.   Rent-Seekers

In an economy with strong government intervention where transactions don't take place through the market, but through a process of privileged allocations, extraordinary rents and profits also are created. However, they are different from those of the profit-seeker type explained above. Rents do not emerge as a result of technical innovation or through the invention of a new product, but by the government's decision to privilege a certain special group. These extraordinary rents emerge by direct political allocation to a group. Rents are really privileges. These rents do not reflect the creation of value added, but the direct appropriation of a value already created. They are a concession on the part of government to a group of citizens or a group of entrepreneurs to the exclusion of everyone else.

The search for these kinds of rents also appears when individuals compete among themselves to receive the largest possible quantity of transfers or subsidies (such as inexpensive credit, special prices for some products, rates of exchange that favor the production of certain goods, rent-control laws, direct subsidies, tax exemptions, preferential tax rates and laws that favor monopolies, etc.).

However, it is highly probable that the rest of the citizens and entrepreneurs will not remain passive, simply observing how the rentist-entrepreneur enjoys its privileges. They will also invest money, time, and other resources in order to obtain the same favors. In other words, they will be dedicated to the search for these rents. In this way the entrepreneur, that generally is the innovative element, is transformed into a conservative one. The whole system is oriented to obtaining a particular income distribution through political maneuvering and a corrupted bureaucracy, instead of adopting new technologies and applying better administrative methods within the firms.[21]

In an economy that gives rise to these types of rents, the entrepreneurs do not try to maximize profits, but try to discover new ways and activities that will give them an opportunity to obtain rents through privileged concessions from the government. Understanding the differences between a society where the rules that regulate economic activities stimulate the profit-seekers, from another that stimulates the rent-seekers, is of great importance for the understanding of the economic development process. On the other hand, it is necessary to know how institutions function so as to be able to distinguish how they stimulate the behavior of economic agents by encouraging, or discouraging, the technological innovation so important to development. It is through this mechanism that institutions can slow down, or accelerate, development.

Every time one goes from an open market system, to one of direct political allocation, the search for privileges appears. When this type of behavior dominates in a society, the economy loses dynamism. This happens because the institutions that stimulate the search for privileges diminish entrepreneurial effort and entrepreneurial supply. The change in relative prices in the economy caused by the search for privileges diminishes entrepreneurial effort and ingenuity. To say this in another way, the search for privileges and associated rents makes it possible for the entrepreneurial efforts to be substituted for bureaucratic lobbying.

D. The New Institutionalism

The study of the way government affects economic development and how these interventions can be measured, bring us to examine government regulations. When these regulations are known, we can better understand the meaning of the size of government and its effects.[22]

First we should remember the basic functioning of the market. The market is a structure made of a net of institutions that facilitate specialization and commerce that, when working well, take the economy to a higher level of welfare. The market diminishes scarcity through optimal resource allocation through the pricing system. When relative prices between goods and services change, it is the signal for individuals and firms to adjust production and consumption. The effectiveness of the market in solving the problems of scarcity, the optimal allocation of resources, and the distribution of what is produced, depends upon prevalent institutional

frameworks. The most important of these institutions is probably property.

For the market to function, it is necessary that property rights are well defined, that property should be a person's right and attribute, and that there freedom exists to exchange goods and services at low cost among individuals and firms.

In order for the market to fulfill its purpose, the institutional framework in which economic activities take place must have a system of rewards and punishments that stimulate growth. The responsibility of inventing, formulating, modifying and, most importantly, enforcing these rewards and punishments, is the most important government responsibility.

Based on the rent-seeking literature, there is a viewpoint that argues that the market works only if the right institutions exist. Based on this idea, a body of ideas has- re-emerged known as "neo-institutionalism"[23] which emphasizes the importance of institutions and of politics in the economic development process. Before studying the role the government has had in economic development in Mexico, we estimate some indices which measure its size.

V. The Size of Government

There are a number of studies on the problem of how to select the variables that better express the size of government or its presence in the economy.[24]

Frequently, government expenditures or income are used as variables which, according to some, best show the size of government or the degree of its intervention in the economy. These variables are used because they are relatively easy to measure even though adequate indices do not always exist for them. For instance, for both France and Germany, government expenditures as a proportion of GNP are approximately 50%. However, even if government expenditure does not demonstrate it, it is known by other indicators that the French economy is much more highly regulated by the government than the German economy is.[25]

One arrives to this conclusion because government expenditure in the economy is only one indicator, probably not even the best one, to measure the control and influence that the government has on the economy. The rules, permits, regulations and laws applied to production and commerce are frequently better indicators of government intervention in the

economy. Their effects do not necessarily show up as increases in public expenditure.

Even with the above reservations and limitations, we use as our first approximation of the magnitude of government expenditure, the amount paid to government bureaucracy and the number of government employees, as variables that can give us a tentative measure of governmental presence in the economy.[26]

A. The Size of Government as Government Expenditure

The size of government expenditures in all its activities during one year is taken as a measure of its size. Table 1 shows this amount for Mexico in constant 1980 millions of pesos for the 1980-1992 period. Table 2 shows the importance that different activities have as a percentage of total expenditures, that is, the size of government in different activities. According to these calculations, the size of the Mexican government is decreasing in absolute terms. (See second column, Table 1.) The annual rate of government growth measured as government expenditures in different activities is shown in Table 3. As can be seen, the total growth rates were negative from 1981 to 1987, though slightly positive, from then to 1992. The greatest decline in the rate of government growth was between 1980 and 1983, when it was almost a negative 20%.

We can also see that the size of government is declining in most activities. (See Table 3.) Only in a few activities has it grown slightly in the last few years. One noticeable characteristic in the governmental growth rate is a marked fluctuation from one year to another, as is the case in Tourism, Justice, Security, and Fishery, among others. (See Table 3.)

The size of government presence varies according to activity. Table 2 shows that the largest part of the budget at constant prices is allocated yearly in order of importance to the Energy sector, followed by Industrial, Health, Labor, and Education, in that order. This data shows that the size of the government is greatest in absolute terms, in the Energy sector: during the period under study, government expenditures fluctuated between 28.6 in 1981 to 23.9 in 1985 as a percentage of total government expenditures. (See Table 2.)

Regarding the importance that the government has in other areas, one notices that Education, with the exception of 1983-1988, competes in importance with Industry. It is important to point out that the presence of government in

the Rural sector is one of the smallest, except for two years, 1980-1981. Government expenditures in that sector are less than 10% of total government expenditures (if not taking into account the recently invented Solidarity Program).

Table 4 shows the size of government in different activities when it is measured as government expenditures as proportion of GDP. As can be seen the size of the presence of government did not decline even during this period. From 1987 to 1992, government expenditures or government size as proportion of GDP, remained around 17% throughout the period. (See Table 4, second column). The size of government from 1987 to 1992 did not grow more than the economy did, since it continued to be approximately 17% of GDP. On the other hand, the government presence in important areas, like rural development, foe example, diminished from 1980 to 1982. On the other hand, the size of government presence in Education and in Health has remained more or less constant through the period, at 3% of GDP. (See Table 4.).

B. The Size of Government as Payments to Government Employees

Another way to measure the size or degree of government intervention in the economy is by estimating total payments made to its employees, whether they work in the Central or local governments.[27]

Table 5 shows that total payments to government employees as proportion of GDP has declined since 1980. (See Table 5, second column.) On the other hand, we also detect here the importance that the Central Government and public enterprises have in the total remuneration of government employees. (See Table 5, third and sixth columns.)

On the other hand, of the total remuneration to government employees, those made to Education and Public Administration are, by percentage, the most important ones: in 1980 total remuneration's to Educational Service represented 42.3 % of the total government remuneration to its employees. Public Administration and Defense constituted 38.6%. By 1994, this figure was 44.4 %. (See Table 6, column six and nine.) Finally, the total remuneration to government employees amounted to 11.1% of GDP. From this amount, the Central Government received the largest proportion, 5.1 %. (See Table 5).

Remuneration to government employees by institutional level show (see Table 5) that those of the Central Govern-

Year	Total	General Government [2]		Security	Government	
		Central	Local		Enterprises	

Table 5: Government Employees Remunerations as proportion of GDP by Institutional Level [1]

Year	Total	General Government [2]		Security	Government	
		Central	Local		Enterprises	
1980	11.1	5.1	1.4	1.3	3.2	
1981	11.9	5.5	1.5	1.4	3.5	
1982	12.3	5.3	1.5	1.6	3.9	
1983	10.5	4.3	1.3	1.3	3.7	
1984	10.6	4.4	1.3	1.2	3.6	
1985	10.6	4.5	1.4	1.1	3.7	
1986	10.3	4.1	1.4	1.1	3.7	
1987	10.2	4.1	1.2	1.2	3.8	
1988	9.8	3.9	1.1	1.1	3.7	
1989	9.8	4.1	1.1	1.1	3.4	
1990	9.4	4.1	1.1	1.1	3.1	
1991	9.5	4.3	1.1	1.3	2.7	
1992	9.5	4.8	1.2	1.5	2.0	
1993	9.6	4.7	1.3	1.6	2.8	
1994	9.3	4.8	1.3	1.7	2.5	

Source: Own elaboration with data from INEGI

[1]Labor remunerations include all payments, extra time, end of year compenstaions, indemnizations, etc.

[2]General Government includes all offices, departments and other oganisms of public central and local governments. Central Government includes Mexico's city government and other government owned firms. Local Government includes state and municipal government.

ment received approximately three times more than those of local governments, and that those of Governmental enterprises, received twice as much as did those of local governments. The total remuneration of government employees by type of services they provide (see Table 6) show that those working in Education, and Public Administration and Defense received approximately twice as much as those that work in Medical Services.

On the other hand, the same disparity is observed when one classifies remuneration by economic activities. Table 7 shows the number of times that, on average, government employees' remuneration are larger than those corresponding employees in the private sector.[28]

The numbers that one observes in Agriculture, should not be interpreted to mean that government employees working in that sector have higher salaries than those working in other governmental sectors, since this group works with those of the lowest income, in the private sector. These figures explain the large difference (more than four times) between agricultural government employees' average remuneration, and those with whom they work.

C. The Size of Government as the Size of Bureauracracy

Often, when people refer to the size and growth of government, they mean the number, and the increase in the number, of its employees (that is, the number and growth of the bureaucracy).[29]

One may distinguish two basic positions about what government bureaucracy is and how it functions.[30] On the one hand, there are those that consider bureaucracy to be an instrument to obtain social and economic objectives. On the other hand, there are those that consider it an autonomous force whose objectives don't always coincide, and often oppose, those of society's as a whole. From this viewpoint there is no such thing as an enlightened bureaucracy. In spite of these objections, we temporarily take measurements of government bureaucracy as an approximate measure of the size of government.

Table 8 shows the size of government as the total number of government employees, as well as the distribution of these employees by institutional level.[31] The importance of the Central Government clearly stands out here as the most important employer within Mexican government. We can also see that every year throughout the period of study, the

Table 9: Public and Private Employment (For every 1000 people or for every 1000 economically active workers)				
Year	Number of employees for every 1000 people		Number of employees for every 1000 economically active population	
	Government	Private	Government	Private
1980	45.78	294.6	142.8	919.1
1981	48.91	304.9	154.1	960.7
1982	50.71	297.0	160.9	942.2
1983	53.29	283.7	170.0	904.9
1984	55.33	283.9	177.4	910.3
1985	55.52	284.0	178.9	914.8
1986	55.03	274.1	178.5	889.1
1987	54.29	271.4	176.8	883.7
1988	53.07	268.4	173.3	876.8
1989	51.53	266.8	168.7	873.3
1990	50.15	264.4	164.4	866.8
1991	49.33	266.6	161.8	874.6
1992	46.16	263.3	151.4	863.6
1993	43.12	264.2	149.2	856.8
1994	42.15	259.3	147.6	851.6

Source: Own elaboration with data from INEGI.

Central Government employed more that 50% of total labor employed by all Mexican government. After the Central Government, government-owned firms, and local governments follow in importance in that order.

Table 9 shows that, in 1994, for every 1,000 members of the economically active members of the population, approximately 148 worked for the government, and the rest worked in other sectors. This proportion of the economically active population that worked for the government, did not fluctuate much throughout the period, although it tended to decline, beginning in 1986.

Table 10 shows total labor employed by government, as well as those working for the Central and local governments, Security, and Government owned enterprises. This table also shows the importance of each of these categories in total government employment. Throughout the period of interest (1980-1992), more than 50 % of government employment was concentrated in, or belonged to, the Central Government. (The figures in Table 10, column 3, are more than half of that

Table 10: Government Employees as Percentage of Economically Active Population					
Year	Total	General Government		Security	Government
		Central	Local		Enterprises
1980	14.3	8.2	1.9	0.9	3.3
1981	15.4	8.8	2.1	1.0	3.6
1982	16.1	8.9	2.2	1.1	3.9
1983	17	9.2	2.3	1.1	4.3
1984	17.7	9.7	2.5	1.1	4.4
1985	17.9	9.7	2.6	1.2	4.4
1986	17.8	9.8	2.7	1.2	4.2
1987	17.7	9.7	2.6	1.2	4.2
1988	17.3	9.5	2.5	1.3	4.0
1989	16.9	9.4	2.5	1.3	3.7
1990	16.4	9.3	2.5	1.3	3.4
1991	16.2	9.5	2.5	1.4	2.9
1992	15.1	9.3	2.5	1.4	2.0

Source: Own elaboration with data from INEGI. General Government includes all offices, departments and other oganisms of public central and local governments. Central government includes Mexico's city government and other government owned firms. Local Government includes state and municipal government.

of column 2.) These figures explain why, when one talks about the size of government, one is usually referring to the size of the Central Government. In this table, one clearly can observe the diminishing participation of government-owned enterprises in government employment. (See Table 10, last two columns.) The diminishing employment participation of government-owned firms means, of course, a lower government participation in the direct production of goods and services in the economy.

Table 11 indicates the number of government employees for each 1,000 of the population in different sectors or activities. The largest number of government employees for each 1,000 inhabitants is found in Communal, Social, and Personal Services. These categories include Professional Services, Education, Medical, Recreational, Other Services, as

well as those of Administration and Defense. One can notice that it is in these types of services where the government is largest. In 1994, for instance, 42 of each 1000 Mexicans were working for the government in these types of activities. In the second to the last column of Table 11, one can also notice a growing tendency that more and more Mexicans worked for the government in the area of Communal Services. On average, about 50 of every 1000 Mexicans worked for the government. (See Table 11, second column).

Government and private employment per 1,000 inhabitants are shown in Tables 11 and 12, respectively. Here one can observe the contrast between the government and the private sector on job creation. While the government created about 50 jobs for each 1,000 inhabitants throughout the period (see Table 11, column 2), in the private sector, between five to six more jobs were created. (See Table 12, second column.) In the sector of Communal Services, the private sector created twice as many jobs as those created by the government during the same period. (See Tables 11 and 12, column 11 in both.)

On the other hand, government employment as a proportion of the economically active population by institutional level is shown in Table 10. Here we can notice that government employment represented between 14.3% and 17.9% of the economically active population throughout the period. Again, the importance of the Central Government stands out in total governmental employment. (See Table 10, column 3.)

The size of government measured as the total number of people employed by government can be classified according to the type of service provided. In Mexico, throughout the period (1980-1992), Educational Services consistently represented more than 50% of all governmental employees. (See Table 13). Public Administration and Defense, and lastly, Medical Services follow in importance. (See Table 13.)

Table 14 shows the size of government as proportion of the economically active population. According to these estimates, the people employed by the government in its different services represented between 11% and 13.6 % of the economically active population. (See Table 14, column 2.) Educational Services is the type of service that demanded the creation of more jobs and where the presence of government was more noticeable. (See Table 14, column 3.)

Table 15 shows the number of people employed by the private sector for each one employed by the government. In 1994, for instance, for every 6.42 people working in the

Table 14: Government Employees by Type of Service as Percentage of Economically Active Population				
Year	Total	General Government by Type of Service		
		Education	Health Svcs	Public Admin. & Defense
1980	11.0	5.8	1.3	3.8
1981	11.8	6.4	1.4	4.0
1982	12.2	6.6	1.5	44.1
1983	12.7	6.9	1.5	4.2
1984	13.3	7.4	1.5	4.4
1985	13.5	7.5	1.6	4.5
1986	13.6	7.6	1.6	4.4
1987	13.5	7.6	1.6	4.3
1988	13.3	7.5	1.7	4.2
1989	13.2	7.4	1.7	4.0
1990	13.0	7.4	1.7	4.0
1991	13.3	7.5	1.7	4.1
1992	13.2	7.4	1.8	4.0

Source: Own elaboration with data from INEGI

Note: General Government includes all offices, departments, and other organisms of public central and local governments.

private sector, there was one working for the government. One should point out the exception of the Agricultural Sector, where, in 1994, there was one government employee for each 196 privately employed in that sector. From this it follows that it is in the Agricultural Sector where the government presence is the smallest. The opposite happens in Communal Services, where, in 1994, there was one government employee for every 1.91 working in the private sector. In Electricity, Gas and Water Sector, the proportion was almost one to one.

VI. The Government in Economic Development
A. Antecedents and International Studies

The problem of measuring the effect that the size of government has on economic development is, to a great extent, a problem of measurement. However, not everyone understands it as such. Instead of measuring, they prefer never-ending ideological discussions impermeable to empirical evidence.

The study of the factors that contribute to development is also wide and controversial. This is why one cannot unequivocally affirm whether or not the presence of government in the economy helps development.[32] Some models explicitly show the expansion of the public sector as having only negative effects on the economy,[33] and state that an inverse relationship exists between economic growth and the size of the government sector.

Other studies[34] advance the hypothesis that public expenditures "crowd out" private investment and, in doing so, reduce the long-term rate of growth of the economy. These studies give special attention to the mechanism through which high taxes have negative effects on savings and investment. During the period studied (1961 - 1972), an inverse relationship was found between government expenditures and investment. In a recent study,[35] an inverse relationship was also found between economic development and public expenditure as a proportion of GDP. Other economists argue[36] that the government could compete with the private sector to such a degree that production and employment could diminish in the private sector.

On the other hand, others reject the hypothesis that public expenditures necessarily reduce economic development. They point out that government expenditures on some social items actually increase the rate of growth of develop-

ment.[37] After numerous statistical tests, they conclude that a negative statistically significant relationship between government expenditures and economic growth is not highly probable. To the contrary, it is observed that there exists robust statistical evidence of a positive relationship between some items of government expenditure, especially social transfers, and economic growth in the medium term. Recent studies[38] of Conte and Daffat attempt to measure a relationship between economic development and the size of government, while on their part, Landau and Marsden obtain a negative relationship between these variables. On the other hand, Ram, Singh and Sahni, Gemmell, and Conte and Darrat, find either a positive relationship, or no relationship to exist.

Moreover, Conte and Darrat maintain that without a structural model, one cannot know in the regression analysis, if one is identifying the effect of economic growth on government development, or vice versa. After making some tests on the direction of causality, they find evidence of causality in both directions. Regarding the issue of the influence that the size of government has on growth, they find that the results show low statistical significance. Further more, they found results contrary to what was expected. This leads us to conclude that analyses that use regressions could result in spurious results. In the empirical analysis we carried out on Mexico, we followed the cointegration method that reduces the probability of obtaining spurious conclusions.

A debate has been going on for a while about whether or not government intervention in the performance of the private sector entails too high costs. It has been generally accepted that the benefits of government intervention compensate these costs. Recently, the emphasis has switched from this approach, to the study of the negative effects of government intervention on efficiency, on individual incentives, and on the market's ability to perform the necessary adjustments for the optimal allocation of resources. From this perspective, the amount and structure of government expenditures and taxes are seen as distorting effects in the resource allocation process.

In this approach, little trust is placed in the government's positive role in the economy, and more is placed on the idea of a dynamic and competitive private sector that promotes economic development. From this perspective, a large and growing public sector is seen as a poor substitute for a dynamic private sector, and not as its compliment.

B. Growth and Development

One can confidently argue that there is not sufficient empirical evidence to conclude unequivocally, what is the effect that government intervention has on economic development. A number of quantitative variables, like some externalities, institutions, and public goods that are difficult to measure, make uncertain the evaluation of the influence that government has in its role as regulator of the economy, creator of institutions, provider of public goods, and employer of labor.

Taking into account the previously state reservations, we attempt to measure some of these variables, applying statistical techniques that give us quantitative measurements of the influence that government has in economic development.

The statistical tests applied here take into account the problems that arise when econometric models employ time-series such as GDP, government expenditures, private investment, and most macroeconomic variables that follow a tendency and/or seasonality.

C. Statistical Problems[39]

When one studies the statistical interactions among macroeconomic variables, it is vital to discover the long-term relationship between two macroeconomic variables. To discover the influence of one variable (or vector of variables "X") on one variable (or vector of variables "Y"). Expressed in another way, we are interested in finding a consistent estimator of P for the following
regression:

$$Y_t = \beta X_t + \varepsilon_t; \varepsilon_t = Y_t - \beta X_t$$

where "X" is a variable, or a group of variables, that expresses a measurement of the size of the public sector, while "Y" represents one economic development variable. A problem arises, however, when either variables, or one of them, does not have a fundamental feature: stationarity. This is a serious problem, since, in general, the lineal combination of two series that are not stationary, is not stationary, either. Because of this, e won't have the desirable white noise qualities, making β's estimator inconsistent.

It is well known that the majority of macroeconomic series such as GDP, Public Expenditures, Investment, Consumption, etc., are not stationary because they have a clear tendency and/or they have seasonal behavior (for instance, sales or

consumption indices). The problem of nonstationarity is also well known[40] and can be solved by successively differentiating the timeseries until they are made stationary. One can then estimate a model where the dependent variable is not* Y_t, but Y_{t-1}, and the independent variable is not *X_t. but X_t -X_{t-1}, or differences of larger order, depending upon the behavior of the original series. These type of models - in differences- help us to know the short-term relationship between X and Y, although they obscure the long-term relationship between variables since their tendencies disappear.

However, when one estimates a model in differences, one doesn't have to give up finding the long-term relationship between two or more nonstationary variables. According to cointegration analysis, a model of the original form

$$Y_t = \beta X_t + \varepsilon_t$$

can be directly estimated without having to differentiate the variables if it happens that "X" and "Y" are cointegrated, in which case the estimator of β is estimated by Ordinary Least Square methods as such that the linear combination.

$$\varepsilon_t = Y_t - \beta X_t$$

is white noise, even though both "X" and "Y" are not stationary. In this instance, the estimator b is consistent implying that it tends to the value of b faster than the usual estimator by Ordinary Least Squares.

Saying this in another way: It is said that two variables are cointegrated if they have "common stochastic tendencies," reflecting the fact that their tendencies are such that they do not separate much through time. On the other hand, if two series are not cointegrated, they depart more through time and no long-term equilibrium relationship will be found between them. In this case, the regression of "Y" on "X" would be spurious, and since their estimators are inconsistent, only their short-term relationship will be found in these kinds of models.

D. Estimations for Mexico
The short digression on how nonstationary series should be dealt with is important since it points out the fact that unless certain conditions are met in the relationships among the variables, we won't find authentic and consistent long-term

relationships between the size of government, and economic development. These conditions can be formulated in one expression: If the variable that is chosen to express the performance of the economy, and the one that is selected to measure the size of government, are not cointegrated, one will not be able to find a long-term relationship between them since there is no long-term equilibrium between them. Under these conditions, one would only be able to measure the relationship that exits between them in the short run through some model in differences.

1. The Variables
Our statistical analysis was made using the following variables:

Measurements of Government Size

GTOT = Total Government Expenditures. Measured in Thousands of 1980 Pesos.

GCONS = Government Expenditures in Public Administration and Defense, Excluding Education and Medical Expenditures. Measured in Thousands of 1980 Pesos.

GCAPIT = Gross Government Capital Formation, Expenditures in Education + Medical Expenditures. Measured in Thousands of 1980 Pesos.

BUROCR = Number of Persons Employed in Public Administration and Defense Excluding Education and Medical Services. Measured as the Number of Paid Jobs.

Measures of Economic Performance
GDP = Gross Domestic Product. Measured in Thousands of 1980 Pesos.

Other Variables
INVERS = Gross Private Fixed Capital Formation. Measured in Thousands of 1980 Pesos.

The source of information for these series was the National Institute of Statistics (INEGI). Most series go from 1960 to 1996 with the exception of GCAPIT and GCONS, which were published after 1970.

These measurements of the size of government attempt to capture the externalities and positive benefits that are

attributed to government, especially through the variable GCAPIT (Gross Government Capital Formation, and expenditures in Education and Medical Services), as well as the negative effects that are attributed to the growth of the government administrative apparatus and through bureaucracy, especially in the variables GCONS (Government Expenditure in Public Administration and Defense) and BUROCR (number of people employed in Public Administration and Defense), as well as the total net effect of government intervention through the variable GTOT (Total Government Expenditures). The variable that measures the performance of the economy, the GDP, measures behavior of the economy as a whole, and allows us to know the net effect that changes in the size of government have on the economy. The variable INVERS is used to compare the influence that the private and public sectors have on the performance of the economy.

2. Statistical Tests

As was previously mentioned, in order to be able to determine the long-ten-n relationship between the size of government and economic performance, first we must verify if the variables in question are stationary. If they are not, it is necessary to verify if they are cointegrated. Since all the series with which we work show a clear growth tendency in the long run, it is trivial to verify that they are nonstationary. This is why we proceed to verify the type of nonstationary process that characterizes them. This is necessary since, for the cointegration test to be valid, all variables should follow the same process. In order to verify this requirement we apply the unit root test for each of the series under the hypothesis that they will follow a random walk process of the type:

$$X_t = \gamma + X_{t-1} + \mu_t$$

where g is a constant and μ_t is a white noise. This random walk process is known as a random walk with drift, and it is common to assume it in macroeconomic series. For this we apply the augmented Dickey-Fuller Test to each of the variables. Table 16 shows the results of these tests.

Table 16: Results for the Augmented Dickey-Fuller Tests for Unit Roots

Variable	GTOT	GCONS	GCAPIT	BUROCR	GDP	INVERS
Dickey-Fuller Statistic	-1.4933	-1.6494	-2.5606	-1.7596	-0.5013	-1.7229
Null Hypothesis: $X_t = \gamma + X_{t-1} + \mu_t$	Accepted at 99%	Accepted at 99%	Accepted at 99%	Accepted at 99%	Accepted at 99%	Accepted at 99%

Once the hypotheses that the series are nonstationary and that they follow the same random process, are validated, we proceed to apply the cointegration test between each of the variables of government expenditures, and the GDP variable in order to find out which ones have a consistent long-term relationship with the GDP. Since the test was applied to pairs of variables (the GDP variable with each variable of government expenditure), the cointegration tests were done in a simple manner[41] in two steps: in the first, we estimated the following regression by Ordinary Least Squares:

$$Y_t = \beta X_t + \varepsilon_t$$

where Y_t is GDP, and X_t is the variable that indicates the size of government. Through this process we estimated four regressions, one for each of the following variables: GTOT, GCONS, GCAPIT, BUROCR. In the second step we completed the cointegration tests where we applied the augmented Dickey-Fuller Test of Unitary Roots to the residuals of each equation. If series are cointegrated, the residuals of the regression Y_t on X_t should be white noise. Table 17 shows the results of the cointegration tests.

Table 17: Cointegration Results with GDP

Variable	GTOT	GCONS	GCAPIT	BUROCR
Dickey-Fuller Statistic of Residuals	-2.1411	-2.0368	-1.7302	-1.7596
Null Hypothesis: $Y_t = \beta X_t + \mu_t$ μ_t is white noise (X_t, Y_t are cointegrated)	Accepted at 85%	Accepted at 85%	Rejected at 99%	Rejected at 99%

Two series are statistically cointegrated only if there exits strong evidence that supports this hypothesis, given the fact that the degree of cointegration depends on how the tendency varies in one variable in respect to the other variable in the long run. If this is not so, divergences, even for short periods of time, will cause that, in the application of the corresponding statistical test, the hypothesis of cointegration will be rejected. An illustrative example is that of private investment in Mexico where the integration test had a value of -2.60124, permitting the acceptance of the cointegration hypothesis with only a 90% confidence level. The results seen in this table support what was found by other authors.[42]

From these results, one can say that there is evidence of cointegration between GDP and Total Government Expenditure (GTOT), and between GDP and Expenditure in Public Administration (GCONS). In spite of this, the evidence of cointegration can be considered weak since there is a 15 % probability of error in accepting this hypothesis. For the other variables of government expenditure, we can reject with high probability the hypothesis of cointegration with GDP. Perhaps, these results can be explained by the fact that government expenditures in Administration are easier for the government to control in the short run, than are investments in physical and human capital.

Summarizing what we have found up to now: There is no robust statistical evidence of a stable long-term relationship between the growth of GDP and the growth of the Mexican government. On the other hand the regression of GDP with some variables (GTOT, GCONS, GCAPIT, BUROCR) would give us spurious results, since the selected variables do not reflect the long run effects of externalities and other institutional variables.

The short-term relationship, however, can be consistently estimated by a model in differences in which tendencies are eliminated for the GDP and for government expenditure variables. The model to be estimated by Ordinary Least Squares would be the following:

$$Y_t - Y_{t-1} = \beta(X_t - X_{t-1}) + \mu_t$$

or

$$Y_t = \beta \ X_t + \mu_t$$

where Y_t is GDP and X_t represents the different government expenditure variables described above. Table 18 shows the estimations of the coefficients of the above equations.

Table 18: Short-Run Relationship Between GDP and Government Size					
Results for the Regression:					
$Y_t - Y_{t-1} = \beta(X_t - X_{t-1}) + \mu_t Y_t = PIB, X_t =$					
variable for the size of the public sector					
Variable X_t	β Estimated	"t" Statistic for β	Probability of β insignificance	R squared	Durbin-Watson Statistic
GTOT	3.1892	10.1336	0.0000	0.7884	1.8181
GCONS	1.6993	9.4789	0.0000	0.7562	1.5467
GCAPIT	9.3845	11.7303	0.0000	0.7927	1.9196
BUROCR	0.5748	3.4526	0.0028	0.6952	1.5009

Estimation Method: Ordinary Least Squares.

Table 18 shows that the short run models in differences have, in general, a more acceptable fitting, since, with the exception of the regression between changes in GDP and changes in BUROCR, all explain more than 75 % of the variations in GDP. On the other hand, the Durbin-Watson Statistic rejects the hypothesis of autocorrelation for the GTOT and GCAPIT, while the BUROCR and GCONS fell into an area of uncertainty. For the purpose of this paper, the most important thing is to have found that, in every case, there is a positive relationship in the short run between the variables that measure the size of government, and GDP. This relationship with GDP is clearer for total government expenditures, and, above all, with government expenditures in physical and human capital. Although the relationship with GDP is also positive for the variables that intend to measure expenditures in Government Administration, it is statistically less significant, and is still less significant for Government Capital Formation.

C. Dynamic Multiplier Analysis
Even if the cointegration tests showed that it is not possible to establish a statistically consistent long-term relationship between the growth of the economy and the size of government, it is possible to explore the impact on growth of changes in the size of government expenditures, as well as the effect of a peso spent by government or by private

investment, on the economy. Even when the analysis won't allow us to establish a long-term relationship between GDP and the size of government, we are able to measure the short run net effects of a change in government expenditure policy.

Through the use of dynamic multipliers[43] one can compare the dynamic response of a variable, in our case GDP, to a change in another variable such as government expenditures or private investments. What follows is an application of an equation found in the so-called "St. Louis Model"[44] that in our analysis and for a period of, for instance, four years, can be written as:

$$\frac{Y_t}{Y_{t-1}} = \sum_{i=0}^{i=4} g_i \frac{G_{t-i}}{G_{t-i}} + \sum_{i=0}^{i=4} p_i \frac{INV_{t-i}}{INV_{t-i}}$$

where G_t is a variable that measures government expenditure, INVT is private investment, and g_i and p_i are the government expenditure and private investment multipliers in time $t = y$. The summation of these coefficients is the long run multiplier that, in our case, measures the long run net effect that a peso of government expenditure or of private investment would have in a five year period. This model is estimated as a four degree polynomial with distributed lags, including four lags for the change of GDP caused by change in private investment (INV), as well as the three measurements used to represent the size of the public sector (GTOT, GCONS, and GCAPIT). Table 19 shows these results.

From the value of these coefficients, we infer that throughout the period of five years, public investment always had a positive impact in each period, and a net average multiplier of about 0.45 (see Table 19, Models 1, 2, & 3, second column, last row). A peso spent as investment by the private sector generated an increase in GDP of 45 centavos throughout five years. The results for government expenditures are different in that they depend on the type of government expenditures being examined. While one additional peso of total government expenditure increased GDP by approximately 39 centavos throughout the five year period (see Table 19, Model 1, first column, last row), the impact is lower when the government expenditure is a bureaucratic expenditure, since these generated only 19 centavos throughout the five year period. It is interesting to notice that these expenditures had a negative affect beginning the third year (see

Table 19, Model 2, column 1, rows 3, 4 & 5). In other words, one peso spent today in the bureaucracy, will negatively affect output in the third, fourth and fifth years. Perhaps the most important empirical finding of this study refers to the expenditures in physical and human capital: One peso spent on these items generated a larger dynamic impact than private investment did, which indicates the importance of government in the economy as creator of physical and human capital (compare the value of the coefficients of the public and private sector in Table 19, Model 3.)

Table 19: Results for Public Expenditure and Private Investment Dynamic Multipliers

$$\frac{Y_t}{Y_{t-1}} = \sum_{i=0}^{i=4} g_i \frac{G_{t-i}}{G_{t-i}} + \sum_{i=0}^{i=4} p_i \frac{INV_{t-i}}{INV_{t-i}}$$

Model 1:

Y_t = GDP; INV_t = Private Investment;

G_t = Total Government Expenditure (GTOT)

$G_0 = 0.19085\ (3.4567)$	$p_0 = 0.21485\ (5.5678)$
$G_1 = 0.15478\ (1.7892)$	$p_1 = 0.11450\ (4.9517)$
$G_2 = 0.10278\ (2.3658)$	$p_2 = 0.05578\ (1.3840)$
$G_3 = 0.03879\ (0.7295)$	$p_3 = 0.02514\ (0.9391)$
$G_4 = 0.0085\ (-1.0059)$	$p_4 = 0.03387\ (2.1413)$
$G_5 = 0.0874\ (-0.9511)$	$p_5 = 0.01547\ (0.2816)$
$\sum g_i$ =0.3913	$\sum p_i$ =0.45634

Estimation Method: Polynomial Distributed Lags

using Ordinary Least Squares. "t" Statistics in parentheses.

Table 19 Model 2:

Y_t = GDP; INV_t = Private Investment;

G_t = Government Expenditure in Consumption (GCONS)

G_0 = 0.23010 (5.2749)	p_0 = 0.20023 (4.1015)
G_1 = 0.04789 (2.0582)	p_1 = 0.12398 (3.6141)
G_2 = 0.00875 (0.8596)	p_2 = 0.06981 (2.2527)
G_3 = 0.01960 (-1.9504)	p_3 = 0.05514 (0.9391)
G_4 = 0.02223 (-0.6073)	p_4 = 0.01547 (1.4244)
G_5 = 0.05027 (-1.7789)	p_5 = 0.02380 (0.7431)
g_i =0.19464	p_i =0.47843

Estimation Method: Polynomial Distributed Lags
using Ordinary Least Squares. "t" Statistics in parenthe

Table 19 Model 3:

Y_t = GDP; INV_t = Private Investment;

G_t = Government Capital Expenditures (GCAPIT)

G_0 = 0.17951 (4.3105)	p_0 = 0.19540 (3.9547)
G_1 = 0.11689 (2.2796)	p_1 = 0.10601 (2.0103)
G_2 = 0.09562 (1.9108)	p_2 = 0.03924 (1.1459)
G_3 = 0.03602 (2.0559)	p_3 = 0.05869 (0.5019)
G_4 = 0.01625 (0.7586)	p_4 = 0.02142 (1.3434)
G_5 = 0.05103 (1.2157)	p_5 = 0.00780 (0.1559)
g_i =0.49532	p_i =0.42856

Estimation Method: Polynomial Distributed Lags
using Ordinary Least Squares. "t" Statistics in parenthe

VIII. CONCLUDING REMARKS

Based on the results of our statistical tests, one can arrive to the following tentative conclusions on the effect that the size of government has had on Mexico's recent economic development.

1. From the cointegration tests, one concludes that it is risky to say what is the nature of the long-term effect of the size of government on economic development in Mexico. This is probably because the economic variables used don't capture the externalities and long run nonquantifiable effects that are part of the factors through which the government affects the economy.

2. The short run relationship between the size of government and the growth of the economy was found to be positive for all the variables we used as indicators of government size. One must point out, however, that the influence is lower when we estimate it with government expenditure on Bureaucratic / Administrative expenditures, and considerably higher when estimates were made with government expenditures on physical and human capital (expenditures in education, health, or investment in infrastructure).

3. Regarding the issue of the comparison of whether a peso spent by private investment generates a larger net effect than if a peso is spent by the government, our dynamic multiplier analysis showed that the net affect throughout the five year period was larger when the investment was private. The difference was wider when the comparison was with a peso of total government expenditure, and even larger yet, when the comparison was with government administration, the least productive of all types of expenditures (both public and private). Still worse, after the second year, these types of bureaucratic expenditures generated negative affects on the growth of GDP. However, contrary results were found when comparing private investment with government expenditures in physical and human capital: One peso spent by the government on these items, had a larger positive effect on growth, that one made through private investment.

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4. As a general conclusion, one can say that the effect of the growth of public investment on the growth of the economy was positive and larger than what was generated by private investment. The investment in education, health, and infrastructure undertaken by the government, generate externalities that are larger than those generated by investments of the private sector. However, one must point out that even if an increase in the size of the bureaucracy has beneficial effects in the short run, in the medium term it has negative effects on growth.

Appendix A

Public and Private Cost Differences

Activity Author	Organizational Unit	Findings
1. Airlines: Davies (1971, 1977)	Australia/sole private domestic vs. its lone public counterpart	Efficiency indices of private 12 to 100% higher
2. Banks; Davies (1982)	Australia/one public vs. one private bank	Sign and Magnitude of all indices of productivity favor private banks
3. Bus Service: Oelett (1976)	Municipal vs. private bus service in selected West German Cities	Public bus service 160% higher cost per km than private equivalents
Kitchen (1986)	Municipal department vs. privately contracted service in Ontario municipalities	Statistically significant lower costs per km under privately contracted operation
4. Cleaning Services: Bundes-rechnungshof (1972)	Public production vs private contractin out in West German post office	Public service 40 to 60% more costly
Hamburger Senat (1971), Fisher Menshausen (1975)	Public production vs. private contracting in West German public buildings	Public Service 50% more costly than private alternative
5. Debt Collection: Bennett & Johnson (1980)	U.S. General Accounting Office Study/Federal govt supplied service vs. privately contracted for equivalents	Government 200% more costly per dollar of debt pursued
6. Electric Utilities Meyer** (1975)	Sample of 60 to 90 US utilities/public vs. private firms	Very weak indication of higher costs of private production
Moore (1970)	Sample of US utilities 27 municipal vs. 49 private firms	Overcapitalization greater in public firms. Total operation costs of public production higher
Spann* (1977)	Four major US cities - public (San Antonio, Los Angeles) vs. private (San Diego, Dallas) firms	Private firm adjusted for scale as efficient and probably more so with respect to operating cost investment (per 1,000 kwh)
Wallace & Junk	By regions in US/public vs. private firms	Operating costs 40 to 75% higher in public mode. Investment (per kwh) 40% more in public mode
7. Fire Protection; Ahlbrandt (1973)	Scottsdale, Arizona (private contract) vs. Seattle area (municipal) fire departments	Municipal fire departments 39 to 88% higher cost per capita

7. Fire Protection; Ahlbrandt (1973)	Scottsdale, Arizona (private contract) vs. Seattle area (municipal) fire departments	Municipal fire departments 39 to 88% higher cost per capita
8. forestry: Bundesregierung Deutschland (1976)	Public vs. private forest harvesting in West Germany, 1965-1975	Operating revenues 45 DM per hectare higher in private forests
Pfister (1976)	Public vs. private forests in the state of Baden-Wurttemberg	Labor input twice as high per unit of output in public compared with private firms
9. Hospitals; Clarkson (1972)	Sample of US hospitals/private non-profit vs. for profit	"Red tape" more prevalent in non-profits. Greater variation in input ratios in non-profits. Both suggest higher cost of non-profits.
Lindsay (1976)	US Veterans Administration vs. proprietary hospitals	Cost per patient day less in V.A. hospital
Rushing (1974)	Sample of 91 short stay hospitals in US mid-South region/private non-profits vs. for-profit	Substitution among inputs and outputs more sluggish in non-profit hospitals
Wilson & Jadlow (1978)	1,200 US hospitals/producing nuclear medicine/government vs. proprietary hosptials	Deviation of proprietary hosptials from perfect efficiency index less than public hospitals
10. Housing: Muth (1973)	Construction costs in US cities/private vs. public agencies	Public agencies 20% more costly per constant quality housing unit
Rechungshof Rheinland Platz (1972)	Public vs. Private cost of supplying large public building projects in the West German state of Rheinland Platz	Public agencies more costly than private contracting
Scheineder & Schuppener (1971)	Public vs. private firm construction costs in West Germany	Public firms significantly more expensive suppliers
11. Insurance Claims French (1976, 1979)	US Social Security Admin contracting out of Medicare claims/mutuals vs. pro-prietary insurance firms; mutuals vs. "other non-profit" (largely Blue Shield) vs. proprietary insurance firms	Mutuals 45 to 80% more costly than proprietary firms but less costly than "other non-profits"
12. Insurance Sales and Finsinger*	5 public vs. 77 private liability and life firms in West Germany	Quality and services of private insurances higher than those of the public ones

13. Ocean Tanker repair and Maintenance: Bennett & Johnson (1980)	US General Accounting Office/Navy vs. commercial tankers and oilers	US Navy from 230 to 500% higher
14. Railroads: Caves & Christensen* (1980)	Canadian National (public) vs. Canadian Pacific (private) railroads	No productivity differences recently, but CN less efficient before 1965, the highly regulated period
15. Refuse collection: Collins & Downes*	53 cities and municipalities in the St. Louis County area. Missouri/public vs. private contraction out modes	No significant cost differences
Columbia Univ Grad School of Business Stud: Savas (1974, 1977a, 1977b, Stevens (1978), Stevens & Savas (1978), Edwards & Stevens (1976)	Many sorts of US cities/municipal vs. private monopoly franchise vs. private non-franchise vs. private non-franchise firrms.	Public supply 40 to 60% more expensive than private, but monopoly franchise only 5% higher than private non-franchise collectors
Petrovic and Jaffee (1977)	83 cities in Midwestern US/public vs. private contracting out modes	Cost of city collection is 15% higher than the price of private contract collection
Hirsch* (1965)	24 cities and municipalities in the St. Louis City-County area. Missouri/public vs. private firms	No significant cost differenes
11. Insurance Claims French (1976, 1979)	US Social Security Admin contracting out of Medicare claims/mutuals vs. pro-prietary insurance firms; mutuals vs. "other non-profit" (largely Blue Shield) vs. proprietary insurance firms	Mutuals 45 to 80% more costly than proprietary firms but less costly than "other non-profits"
12. Insurance Sales and Finsinger*	5 public vs. 77 private liability and life firms in West Germany	Quality and services of private insurances higher than those of the public ones
Kemper & Quigley (1976)	101 Connecticut cities/private monopoly contract vs. private non-franchise vs. municipal firms	Municipal collection costs 14 to 43% higher than contract, but private non-franchise 25 to36% higher than municipal collection
Kitchen (1976)	48 Canadian cities/municipal vs. privately contracted firms	Municipal suppliers more costly than private firms
Savas* (1977c)	50 private vs. 30 municipal firms in Minneapolis	No significant cost differences

Pier, Vernon & Wicks** (1974)	26 cities in Montana/municipal vs. private firms	Municipal suppliers more efficient
Pommerehne (1976)	102 Swiss municipalities/public vs. private firms	Public firms 15% higher unit costs
Spann (1977)	Survey of various US cities/municipal vs. private firms	Public firms 45% more costly
Bennett & Johnson (1979)	29 private firms vs. one public trash collection authority in Fairfax County, Virginia	Private firms more efficient
16. Savings and Loans; Nicholas (1967)	California Savings and Loans/co-operative or mutuals vs. stock companies	Mutuals have 13 to 30% higher operating costs
17. Slaughter houses: Pausch (1976)	Private vs. public forms in 5 major West German cities	Public firms significantly more costly because of over-capacity and over-staffing
18. Water Utilities: Crain & Zardkoohi (1978)	112 US firms/municipal vs. private suppliers, case study of two firms who each switched organizational form	Public firms 40% less productive with 65% higher capital labor rations than private equivalents, public firm that became private experienced an output per employee increase of 25%. Private firm that became public experienced and out-put per employee decline of 40%
Mann & Mikesell	US firms/municipal vs. private suppliers	Replicates Meyer's (1975) electricity model, but adjusted for input prices. Found public modes more expensive by 20%
19. Weather forecasting: Bennett & Johnson (1980)	US General Accounting Office study/US Weather Bureau vs. private contracted-for service	Government service 50% more costly

Source: T.E. Borcherding, W. Pommerehne and F. Schneider, "Comparing the Efficiency of Private and Public Provision: The Evidence from Five Countries," in Nationalokonomie, Journal of Economics, Supplement 2, 1982, by Springer-Verlag, pp. 130-133, and author's compilation from the literature.

Notes:
 (*) No significant differences in costs or efficiences
 (**) Public sector less costly or more efficient

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