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Privatization and its Benefits: Theory and Evidence

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Abstract

Privatization has been a key component of structural reform programs in both developed and developing economies. The aim of such programs is to achieve higher microeconomic efficiency and foster economic growth, as well as reduce public sector borrowing requirements through the elimination of unnecessary subsidies. Microeconomic theory tells us that incentive and contracting problems create inefficiencies due to public ownership, given that managers of state-owned enterprises pursue objectives that differ from those of private firms (*political view*) and face less monitoring (*management view*). Not only are the managers' objectives distorted, but the budget constraints they face are also softened. The soft-budget constraint emerges from the fact that bankruptcy is not a credible threat to public managers, for it is in the central government's own interest to bail them out in case of financial distress. Empirical evidence shows a robust corroboration of theoretical implications: privatization increases profitability and efficiency in both competitive and monopolistic sectors. Full privatization has a greater impact than partial privatization and monopolistic sectors show an increase in profitability that is above the component explained by increases in productivity, which reflects their market power. This poses an important challenge for the designers of regulatory policies. The change in employment at the firm level is ambiguous, though firms that are publicly traded show an actual increase in employment level after privatization. Based on the little available evidence, the distributive effects are shown to be sensitive to the market structure. From the macroeconomic perspective, no conclusive evidence can be drawn, but the trends are favorable in terms of public sector deficit, attraction of foreign direct investment, and stock market capitalization. Research on the distributive effects of privatization, as well as its impact on poverty, is needed.

JEL codes: D21, D61, D62, E65.

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1. Introduction

For more than one decade, both developed and developing countries have engaged in ambitious privatization programs. The number of privatization transactions has been growing over the years. According to Shafik (1996) between 1988 and 1993 there were more than 2,600 transactions in 95 countries, yielding $271 billion. During 1996 and 1997, when several emerging markets were still suffering the effects of the Mexican financial crisis, the sale of state-owned assets reached $53 billion in Europe, more than $17 billion in Latin America, U.S., and Canada, and nearly $9 billion in Asia. As an illustration of the relevance of this policy, table 1 shows the change in state-owned enterprises' share in GDP between 1980 and 1997 for all the economies in the world, grouped by income level according the World Bank classification. Even though the change does not only respond to privatization strategies, it is strongly linked to it, as explained below.[1] It reflects a major revision of the role of the public sector as owner of productive assets in the economy.

[Insert table 1 around here]

In terms of the proceeds obtained from privatization, most countries have been successful. Between 1990 and 1996, for example, Brazil, Argentina, and Mexico obtained $22.4, $16.3, and $24.9 billion, respectively, as a result of privatization sales. Smaller countries like Peru, Philippines, and Poland obtained $9.5, 3.7, and 3.8 billion, respectively, during the same period.[2] Table 2 shows the proceeds from privatization for a selected group of countries from 1990 to 1996.

[Insert table 2 around here]

Even though it is important from a macroeconomic perspective, as discussed below, it would be a mistake to assess the relevance of the privatization program of a country by looking at the revenue generated for the government. The set of objectives privatization programs are

[1] In principle, it would be enough to have the private sector growing faster than the public sector to get the same trend.

[2] This figures are taken from the World Development Indicators, published by The World Bank.

meant to achieve is much broader and involve, as a fundamental component, the improvement of microeconomic efficiency. Indeed, in general there are four explicit objectives in those programs:

i) to achieve higher *allocative* and productive efficiency;

ii) to strengthen the role of the private sector in the economy;

iii) to improve the public sector's financial health; and

iv) to free resources for allocation in other important areas of government activity (usually related to social policy).

The first two objectives have a normative rationale and relate to the microeconomic perspective. The first one is related to the increase in aggregate surplus by increasing output and lowering prices (*allocative* efficiency), as well as through a more efficient use of resources within the firm (productive efficiency). The second has to do with the creation of well-functioning markets and an investor-friendly environment in the economy. The last two objectives, related to public sector finance, are the reduction of borrowing requirements and the potential reallocation of expenditure towards social policy areas. Thus, privatization programs ought to be assessed by looking at the extent to which the stated objectives have been achieved. This paper reviews the theoretical arguments behind the belief that privatization can achieve these objectives and provides a survey of the empirical literature which tests whether the effects have been observed in countries that have undertaken privatization policies. Moreover, it shows macroeconomic figures to support the hypothesis that privatization has improved the public sector's financial health in those countries and has created an investment-friendly environment.

From a theoretical perspective, it is known that incentive and contracting problems create inefficiencies due to public ownership. This is so because managers of state-owned enterprises pursue objectives that differ from those of private firms (*political view*) and face less monitoring (*management view*). Not only are the managers' objectives distorted, but the budget constraints they face are also softened. The soft-budget constraint emerges from the fact that bankruptcy is not a credible threat to public managers, for it is in the central government's own interest to bail them out in case of financial distress.

Empirically, the microeconomic empirical research has faced a severe data availability constraint. In this area the literature is still small, yet growing. There are three groups of empirical studies: those based on firm-specific data in different countries with very small samples (*case studies*),[3] studies with a large sample of firms in different sectors for a specific country (*within-country studies*),[4] and cross-section analysis for privatized firms that are publicly traded (*cross-section studies*).[5] Those papers have shown important efficiency gains and productivity improvements in privatized firms --for well-defined measures-- and allow us to evaluate the privatization experience from a microeconomic, partial equilibrium perspective.[6]

The macroeconomic effects of privatization programs are more difficult to evaluate. It is possible, however, to look at aggregate measures --like public sector financial health and the capitalization of the stock market-- and their evolution during the reform period. Given the level of aggregation, it is difficult to isolate the effect of privatization on variables like GDP growth, employment level, and fiscal deficit, because of the diversity of events taking place at the same time.[7] This paper, however, shows the evolution of selected aggregate measures and relates that evolution with privatization, invoking established theoretical principles.

The scope for the evaluation of privatization programs includes, as mentioned above, not only efficiency, but also equity issues. This paper argues that the distributive effect of privatization policies are definitely an area in which more research effort should focus, especially at the empirical level.[8]

The paper has four more sections. The second section is devoted to reviewing the theoretical arguments at the microeconomic and macroeconomic level that support the idea that private ownership is preferred to public ownership. Specific testable implications are proposed as guidelines to the empirical survey. Section three then shows a survey of the micro evidence and presents aggregate data to link the reform process with a healthier macro environment. One of the sectors in which most of the privatization activity is taking place, privatization of infrastructure, is discussed in part four. The last section concludes.

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[3] These include Galal, et al (1994) and Eckel, et al (1997).
[4] See, for example, LaPorta and López-De-Silanes (1998).
[5] Megginson, et al (1994), D'Souza and Megginson (1998), and Boubakri and Cosset (1998), for example.
[6] Chisary, et. al (1997), a within-country study, is the only one with a general equilibrium setting.
[7] This problem is easier to deal with at the micro level when we have accounting data for the firms over time.

2. Theory

The idea that private ownership has advantages over public ownership in terms of being inherently more efficient, as well as that it induces a better public sector financial health is not new. In 1776, Adam Smith wrote:

> "In every great monarchy in Europe the sale of the crown lands would produce a very large sum of money which, if applied to the payments of the public debts, would deliver from mortgage a much greater revenue than any which those lands have ever afforded to the crown…When the crown lands had become private property, they would, in the course of a few years, become well improved and well cultivated" (Smith, 1776, p. 824).

The mechanisms through which those improvements in efficiency would take place, however, and the reason why the government's financial health would necessarily improve were not clear for a long period of time. The theoretical arguments supporting such views are summarized in the next section.

2.1 Privatization and Microeconomic Efficiency: The Original Debate

To date, there is a vast literature in microeconomics that addresses the question of why ownership matters.[9] This question can be re-stated by asking whether and in which ways the decision process of the firm is distorted when the government intervenes. This can be analyzed by looking at the components of the optimization problem: the objective and the constraints, and at how these are affected under different types of ownership structures. Within the microeconomic literature, it has been theoretically established that, under conditions of perfect competition, absence of information problems, and complete contracts, ownership does not matter, i.e., you would observe the same performance of the firms regardless their ownership structure.

The original arguments in favor of public ownership were justified as a solution to the failure of the first of those three conditions: the *market failure* argument. Under non-competitive

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[8] An interesting analysis of distributive implications of privatization of utilities is in Chisari, et al (1997), applied to the case of Argentina.

[9] See, for example, Kay and Thompson (1986); Vickers and Yarrow (1989); Stiglitz (1991); Yarrow (1992); Laffont and Tirole (1993, ch. 17); Willig (1993); Galal, et al (1994); Tirole (1994); World Bank (1995); McLindon (1996); Shleifer and Vishny (1996); Schmidt (1990, 1996); Perotti and Guney (1993); Hart, Shleifer and Vishny (1997); Shleifer (1998); and Nellis (1997).

conditions --characterized by decreasing average costs in the relevant range of demand within the specific market-- the existence of more than one firm is not justified on efficiency grounds. The possibility of exploitation of monopoly power by a private owner created the need for public ownership in those "natural monopoly" sectors. This argument in favor of public ownership was used by important scholars for a long time, as shown by the opinions expressed by Nobel Laureates such as Lewis, Meade, and Allais early in their careers --during the 1940s-- in favor of the nationalization of industries with such characteristics (Shleifer (1998)). The market failure argument, and the perspective that the government takes into consideration social marginal costs, has been called the *social view*.

The formal analysis of information problems and contract incompleteness, and thus the role of incentives in promoting efficiency within the firm, has shown that efficiency losses involved in public ownership are non-negligible.[10] In many cases, they are higher than the gains that can be obtained by solving a market failure problem. This is especially so as the scope of competition becomes larger when the size of the market increases, the economy is open to international trade, and technology develops. Thus, the weakening of the market failure argument and the evidence in favor of the relevance of the other two conditions --asymmetries in information and market incompleteness-- gave rise to a re-thinking of the original views in favor of public ownership.

In relatively competitive markets, the advantages of public ownership were put in doubt. In non-competitive sectors, however, the natural monopoly argument cannot be abandoned as a justification of public ownership without solving one important policy question: how to deal with the possibility of exploitation of market power by private owners. In this regard, the evolution in the theoretical work on regulatory mechanisms and their properties to function as a second-best solution to the above problem showed that there was an alternative to public ownership. It was also shown that, under certain conditions, this solution was more efficient.[11] Thus, the question

[10] The problem of contract incompleteness refers to the impossibility of a contract containing all possible contingencies that may arise. A contract, as detailed and comprehensive as it may be, shall always be subject to *ex-post* conflicts if an unforeseen event occurs.
[11] For an overview of the regulatory literature are Laffont (1994) and Laffont and Tirole (1993).

was translated into how to efficiently impose a regulatory constraint on the decision-making process of the private firms without deterring innovation and cost-reducing effort.[12]

2.2 Incentive and Contracting Problems

One of the views in favor of privatization can be characterized by a moving away from the natural monopoly argument --appealing to the regulation literature-- and considering contracting and incentive problems within the firm as the relevant issues to foster efficiency at the microeconomic level. This perspective is termed the *agency view*.[13]

Within the *agency view*, there are two perspectives on the causes of the existence of poor incentives for efficiency. The first one, termed the *managerial* perspective, tells us that monitoring is poorer in publicly owned firms and therefore the incentives for efficiency are low-powered (Vickers and Yarrow (1989)). The second, the *political* perspective, claims that political interference is what distorts the objectives and the constraints faced by public managers (Shapiro and Willig (1990), Shleifer and Vishny (1994)). Within the managerial view, the impossibility of complete contracts plays a fundamental role in explaining why ownership indeed matters (Williamson (1985), Sappington and Stiglitz (1987)). According to Williamson (1985), the impossibility of writing complete contracts with the private owners would make SOE to function at least as well as privately owned firms (under the same conditions), whereas "selective intervention" by the government when unforeseen contingencies arise could actually result in a socially preferred outcome. The latter argument relies heavily on the "benevolence" of the government, in the sense that it always has the right social welfare function as an objective to be maximized.

2.2.1 The Political Perspective

The *political perspective* argues that distortions in both the objective function that managers seek to maximize (Shapiro and Willig (1990)) and the constraints they face, through the so-called soft budget constraint problem (Kornai (1980, 1986)), result in lower efficiency under public ownership. Public managers, who tend to report to a politician and pursue political careers themselves, incorporate to the objective function aspects related to maximization of

[12] A new question immediately follows: why are inefficient public managers assumed to be efficient regulators? The answer, discussed below, has to do with the cost of inefficiencies or political intervention under regulation as compared to public ownership. Both financial and political costs are higher under the former (see Willig, 1993).
[13] A summary of these social and agency views is in LaPorta and López-De-Silanes (1998).

employment --at the cost of efficiency-- and political prestige (the empire building hypothesis).[14] The reason why managers are able to do that without facing the threat of bankruptcy relates to the second distortion, the soft budget constraint. In any situation in which the firms have engaged in unwise investments, it will be in the interest of the central government to bail the firm out using the public budget. The rationale for this relies on the fact that the bankruptcy of the firm would have a high political cost, whose burden would be distributed within a well-defined political group, like unions. On the other hand, the cost of the bailout can be spread over the taxpayers, a less organized, larger group in society, with diversified interests and preferences. The threat of bankruptcy is non-credible under public ownership.

Under a very simple assumption we can obtain the soft budget constraint result as the equilibrium in the game between the public manager and the central government (or "ministry of finance"). This assumption is that the political loss involved in closing a publicly owned company is larger than the political cost of using taxpayer money to bail it out (or public debt, i.e., future tax collection).[15]

Let us analyze a simple version of such strategic interaction. Consider a decision the public manager has to make of whether to invest or not in a new project. Let us denote this investment by *I* (see figure 1). The alternative decision is not to invest (*NI*). If the decision is not to invest, the central government gets a payoff of zero, and so does the public manager. If the investment takes place, it would be profitable with probability α and non-profitable with probability $(1-\alpha)$. Regardless whether the investment turns out to be a profitable one or not, the manager gets a personal benefit from the expansion of the firm's activities (B), following the "empire-building" hypothesis. Positive profits give an extra-payoff to the manager (P) and give a positive transfer to the central government via *tax* revenue. In the case in which the project fails, the central government faces a decision between two possible actions: to bail the firm out or let it go bankrupt. In the former case, the central government has a negative payoff (S, the subsidy) though the manager still gets the benefit of managing a larger firm. If there is no bailout the manager loses the job and has a negative payoff (-B, loses prestige), whereas the central

[14] The "empire building" hypothesis tells us that managers maximize the size of the firm, for that gives them prestige.
[15] The appropriate equilibrium concept is that of *subgame perfection*.

government faces a political cost of closing the firm (facing union problems, explaining to public opinion why the firm failed, and so on). The political cost is denoted by X in figure 1.

[Insert figure 1 around here]

It is simple to see now that, as long as X > S (the political cost incurred by the central government by closing the firm is higher than the cost of giving a subsidy and bail it out), the manager will always make the investment, regardless the probability of failure. That is a simple case to illustrate the idea behind the concept of the soft budget constraint.[16]

2.2.2 The Managerial Perspective.

Imperfect monitoring is the first cause of low-powered incentives according to the *managerial* perspective. The reason why the managers of state-owned enterprises are poorly monitored has to do with the fact the firms are not traded in the market, as is the case of any private firm. This fact eliminates the threat of take-over when the firm performs poorly. Additionally, shareholders cannot observe and influence the performance of the enterprises (Yarrow (1986), Vickers and Yarrow (1989)). Debt markets cannot play the role of disciplining the managers, because SOE's debt is actually public debt that is perceived and traded under different conditions.

Some have argued that partial privatization can solve this problem without having to pursue full divestiture. Shleifer and Vishny (1996) and others have argued against partial privatization using the *political perspective* as an explanation. Even partial ownership allows the politicians to have an influence on the performance of the firm and give covered subsidies to achieve political goals. The cost of intervention increases as the share of public ownership decreases, full divestiture being an important commitment device to signal no political intervention.[17] According to the model, partial privatization could solve the monitoring problem by making public information that was previously not available. That policy, however, would not be enough to solve the problem of political intervention through "side-payments".

The relevance of the existence of "side-payments" through which the government can achieve political objectives at the cost of efficiency is related to another argument in favor of the

[16] Assuming X > S, the manager will invest if $\alpha P+B > 0$, which always holds, even for a probability of failure equal to one.

irrelevance of ownership. Sappington and Stiglitz (1987) provide a result termed the "Fundamental Privatization Theorem" which states that, through mechanism design, an optimal contract can be implemented so that whatever is feasible through private ownership can be achieved through public ownership and vice versa.[18] Two assumption are driving the result: the existence of unlimited side-payments, as in the case of subsidies to "bribe" the private owners, and the existence of complete contingent contracts. Both assumptions are strong. As discussed above, the cost of "bribing" private owners increases as the share of public ownership decreases. It is not clear that the government can give subsidies to the firms that are privately owned in the same way it would do it to SOE's. The second assumption, the existence of complete contracts is actually even stronger.

Though Williamson's original claim is that "selective intervention" makes incomplete contracting a favorable argument for public ownership, when the distortions in the objective function of public managers are introduced, the argument severely weakens. More sophisticated incomplete-contracting models have shown that there are costs and benefits attached to privatization under unforeseen contingencies that cannot be specified *ex-ante*. Laffont and Tirole (1991) based their analysis on the existence of *ex-post* re-negotiation possibilities that led to profitable investments being foregone by public managers. The costs were associated to the need of regulation under informational asymmetries. Shapiro and Willig (1990) used the distortions in the objectives of the public managers (a "malevolent" government) to show the benefits of private ownership under incomplete contracting. Finally, Schmidt (1990) eliminates the assumption of a "malevolent" government and shows the costs and benefits involved in privatization. The fact that bankruptcy is a non-credible threat under public ownership (soft budget constraint, discussed above) makes the managers increase the scale of production, whereas a private manager would face a real threat of failure that induces productive efficiency. These arguments show that privatization has costs that are generally associated to the need of regulation under asymmetric information. The implication is that, under competitive conditions, privatization must result in a net gain.

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[17] In the review of the empirical evidence, we show below that fully privatized firms did perform better than partially privatized companies, under the same competitive conditions (Boubakri and Cosset (1998)).

[18] This result is also Proposition 1 in Shapiro and Willig (1990). For a summary of this debate, see Schmidt (1996).

Taking the argument above to the limit, it has been argued that competition is what matters, putting ownership at a lower level in the hierarchy of policy prescriptions (Stiglitz (1993), Vernon-Wortzel and Wortzel (1989)). Though it is true that important efficiency gains can be achieved through the introduction of competition and the maximization of market contestability via deregulation policies, there are two caveats to this argument. First, the existence of a publicly-owned firm as the incumbent, in most cases subsidized, may deter other firms from entering that market, even when it becomes legal to do so. Real competition would be difficult to introduce under those conditions. Competition implies not only free entry in the market, but also freedom to fail, i.e., the existence of free exit. Maintaining public firms in the market, given the arguments discussed above, would make free exit a non-credible commitment for such firms.

The second argument against the idea that the elimination of legal barriers to entry is sufficient to achieve the desired goals is that in many markets is not possible to have competition because of natural monopoly conditions. In those cases, the introduction of competition by eliminating barriers to entry and exit are not a sufficient condition for the reform to be successful. Many times, changes in ownership are needed complements for the creation of a market environment through the necessary legal reforms and opening to international trade.

An incomplete-contracting model that shows conditions under which public ownership is superior to private ownership is Hart, et al. (1997). [19] The incompleteness of contracts discussed in their model has to do with non-contractible quality, and is applied to the case of prisons. When the scope of competition is limited in terms of consumer choice and the incentives for cost-reduction may lead to a reduction of non-contractible quality, there is a case for public ownership. This is termed "the proper scope of government". Table 3 below summarizes the different perspectives for and against public ownership.

[Insert table 3 around here]

Summarizing the discussion from the microeconomic perspective, we can state the following testable implications:

[19] Also discussed in Shleifer (1998).

Implication 1: Publicly owned enterprises in competitive environments do not perform better than privately owned companies in the same circumstances in terms of profitability and efficiency, and could perform worse.

Implication 2: One should expect important efficiency gains from the change in ownership structure in competitive sectors.

Implication 3: Increases in profitability are not equivalent to increases in efficiency in general. This will only be true in a competitive environment.

Implication 4: Fully privatized firms should perform better than firms that have been partially privatized, under the same conditions.

The evidence presented in section three addresses precisely the empirical validity of these implications.

2.3 Macroeconomic Effects of Privatization

The discussion of the macroeconomic effects of privatization is not as rich from the theoretical perspective as that in microeconomics. There are few theoretical models that link the reform at the microeconomic level --such as privatization-- with macroeconomic performance.[20] There are, however, country studies that show data on the interaction between privatization transactions and macroeconomic variables.[21] The most important reason why this work has not been done extensively is the difficulty to isolate the effect of privatization from other events that have an influence on aggregate measures. We would expect to observe certain trends, but the causality is weak. Similar evidence for which this caveat applies shall be shown below.

The first interaction between privatization and macroeconomics comes from the fact that macro instability, especially large budget deficits, tend to accelerate privatization. The effect of poor public sector financial health on the willingness to reform and on the political acceptability of such reform results in a clear relation between higher public deficits and faster public sector

[20] An important work in that area is Blanchard (1997), analyzing transition economies.
[21] World Bank (1995) shows macro data for several countries. Mansoor (1992), Marcel (1989), Larraín and Vergara (1993), Luders and Hachette (1993), Lefort and Solimano (1993), and López-De-Silanes (1993) are country-specific studies. An interesting theoretical discussion is Mackenzie (1998).

restructuring. The evidence has been shown in Serven, et al. (1994) and López-De-Silanes, et al. (1997), among others.

It is immediately obvious thus to look at the interaction between privatization and public sector financial health. It should be expected that more aggressive privatization programs would lead to lower budget deficits, *ceteris paribus*.[22] Privatization allows the government to raise funds in the short term and eliminates the need of permanent subsidies to previously publicly owned enterprises. The fact that privatization entails necessarily a fiscal gain is incorrect, though under the assumption that firms will perform better and net subsidies will be eliminated -- supported by the micro evidence-- that is a plausible scenario. If firms go from deficit to surplus in their operation, the government will not only eliminate subsidies, but actually start collecting taxes from them. The actual change in the financial position of the government is determined by the difference between foregone dividends and taxes collected from the company. Future higher dividends of the firms under private ownership should also be reflected in the proceeds the government obtains during the sale, corrected for underpricing in the case of public offerings.[23]

The use of the proceeds from privatization determines to a large extent the impact of privatization on public sector's cash flows. If the revenue from the sales is used to reduce public debt, as has been the case in most countries, we would observe lower interest payments and consequently a stronger cash-flow position of the public sector. The common policy advice has been to use the proceeds for once-and-for-all disbursements, especially if those eliminate future negative cash flows, in lieu of using them for permanent expenditure.[24] The effect of privatization on public sector borrowing requirements should be reflected in lower interest rates, which foster investment, growth, and lower inflation.

Another important macroeconomic effect of privatization, especially when it is done through public offerings and mixed sales, is the increase in the level of stock market capitalization and, in general, the development of the financial sector. As shown, for example, in World Bank (1995), SOE's tend to crowd out private investors in the credit market --given that they represent a less risky investment for the banks. Privatization mobilizes resources in the

[22] In the analysis of all these effects, the available evidence is, of course, *mutatis mutandis*.
[23] For a discussion of the determinants of underpricing in privatization public offerings, see Perotti and Guney (1993), Menyah, et al (1995), and López-Calva (1998).
[24] This is due to the fact of the once-and-for-all nature of the revenue from privatization sales. See, for example, Rogozinski (1998).

financial sector, reallocating credit to more productive uses. Finally, from a theoretical perspective, the sale of public sector enterprises would reduce the aggregate level of employment in the short-run, because of the elimination of redundant labor. Unemployment, however, may decrease in the medium and long-run as the rate of growth of the economy increases as a result of the efficiency gains at the micro level and the increasing stability at the macro level.

Privatization has typically been one policy among a set of structural reform policy measures. These measures include trade liberalization, deregulation, financial sector restructuring, and opening to foreign direct investment. Though the effect of privatization as such cannot be isolated, the implications that should guide the analysis of the aggregate data are the following: *ceteris paribus*, privatization:

Implication 5: improves public sector's financial health (lower deficits, lower debt).

Implication 6: reduces the net transfer to SOE's in the aggregate. These transfers become positive if the government actually starts collecting taxes from privatized firms.

Implication 7: has a positive impact on the development of the financial sector.

Implication 8: has a negative effect on employment in the short-run, a positive effect in the medium and long-run.

Variables that specifically capture the effects discussed above shall be shown below.

3. Evidence

The empirical evidence that tests the theoretical implications can be grouped into macroeconomic and microeconomic evidence. From the microeconomic perspective, more concrete conclusions can be drawn. The different types of studies that can be grouped as follows:

i) Case studies that deal with specific firms and their evolution before and after privatization.

ii) Country-specific, cross-industry evidence that looks into performance changes for firms in different sectors within the same country, before and after privatization.

iii) Cross-country evidence that uses data from firms that are publicly traded in different countries to evaluate changes in their financial status, before and after privatization

3.1 Microeconomic Evidence

At the microeconomic level, the empirical evidence strongly supports the view that privatization has positive effects on profitability and efficiency. It also shows that capital expenditures tend to increase after privatization. The evidence on firm-level employment is mixed --though for large firms employment seems to rise after divestiture. When the effect is measured in terms of estimated total surplus in a counterfactual basis, welfare increases in almost all the cases under analysis. Let us analyze the results in detail.

Case studies. The first piece of evidence consists of case studies, among which Galal, et al. (1994) shows comprehensive evidence. The authors show results for twelve privatized firms in four different countries.[25] The methodology is counterfactual and makes projections of the performance of the firms under the privatized scenario and a hypothetical "public ownership scenario".[26] Comparisons between those two situations measure the changes in welfare. Welfare is measured through changes in total surplus, decomposed into several components. From the so-called "basic divestiture equation" --the decision to sell the firm from a cost-benefit perspective--, the changes in welfare are decomposed originally as

$$\Delta W = \Delta S + \Delta p + \Delta L + \Delta C$$

Where ΔW represents the change in total welfare, ΔS the change in consumer surplus, $\Delta\pi$ the change in welfare of buyers, government, and any other shareholders,[27] ΔL the change in welfare of labor, and ΔC is the change in welfare of competitors. Starting from this basic equation, a complication is added by introducing the distinction between domestic and foreign welfare effects.

The results are summarized in table 4. In all the cases except one the net effect of privatization on welfare is positive. Surprisingly, workers gained in all cases through an increase

[25] These countries are United Kingdom, Chile, Mexico, and Malaysia.
[26] A detailed description of the methodology is in Jones, et al (1990) and Galal, et al (1994), chapter 2.
[27] If Z is the payment received by the government during the sale of the firm, and Z_p is the willingness to pay of the buyers, the net gain for buyers is (Z_p-Z), and the government's share is $\Delta\pi$ - (Z_p-Z), therefore the sum of the government's and the buyers' share is only $\Delta\pi$.

in their welfare.[28] Consumer welfare increases in four cases, decreases in five of them, and remains unchanged in the rest. According to the implications stated in the theoretical part, the effect on consumer welfare is sensitive to market structure. The government has a net gain in nine cases, and the buyers of the firms gained in all of them. These firm studies show a clearly positive effect of privatization on total welfare without negative distributive consequences, though this result is driven by the partial equilibrium nature of the analysis. A model that incorporates the distributive effects in a general equilibrium framework, applied to privatization of utilities in Argentina, shall be discussed below.

[Insert table 4 here]

Country specific cross-industry evidence. A second type of studies focuses on one specific country and analyzes evidence across industries. Among these, the most consistent evidence is that for Mexico (LaPorta and López-De-Silanes (1998)) and Slovenia (Smith, et al. (1996)).[29] An earlier work by Barberis, et al. (1996) provided evidence of the effectiveness of privatization of retail shops and small businesses in Russia, following Earle, et al. (1994) that show similar evidence for small businesses in Central Europe.

In the case of Mexico, LaPorta and López-De-Silanes (1998) analyze the performance of 218 enterprises in 26 different sectors, privatized between 1983 and 1991. One of the most important features of this work is that the authors decompose the changes in profitability into price increases, labor reduction, and productivity gains. Changes in taxes paid by the firms are also measured. The analysis addresses two criticisms usually made to privatization: i) that profitability of the firms increases at the expense of society through price increases, and ii) that profitability comes at the expense of workers, whose labor contracts are less generous, involving important layoffs.

The results show that profitability, measured by the ratio of operating income to sales, increased by 24 percentage points. Those gains, on the other hand, are decomposed into the following components:

[28] These includes workers that remained in the company, and the effect is both as wage earners and as shareholders.
[29] Chisari, et al (1997a) analyze utilities privatization in Argentina, but focusing on the distributive effects, as discussed below. Jin and Qian (1998) analyze the relative performance of privately owned firms in Rural China, focusing on the efficiency of township-village enterprises and the influence of the central government in their activities.

i) 10% is due to increase in prices; [30]

ii) 33% comes from laid-off workers;[31]

iii) 57% was induced by productivity gains.

It is also shown that deregulated markets induce a faster convergence of the performance indicators of the privatized firms towards the industry-matched control groups --consistent with the implications stated in the theoretical section. [32] When competitive and non-competitive sectors are compared, not only have the former higher increases in profitability as compared to the latter, but those changes are related to higher gains in efficiency and lower price increases. The privatized firms went from receiving a positive subsidy from the government to a net tax payment after the sale. Table 5 shows the change in selected indicators of privatized firms. The data shown there are corrected by the authors for macro and industry-specific effects so the increase in profitability associated with changes in the macro environment are controlled for.

[Insert table 5 around here]

LaPorta and López-De-Silanes (1998) also carry out a regression analysis. The aim of such regressions is to identify the role of market power and deregulation in determining privatization outcomes, measured by the performance indicators mentioned above. They use three deregulation indicators: i) the existence of state-imposed price and quantity controls, ii) barriers to foreign trade, and ii) restrictions to foreign ownership. In order to analyze the role of market structure the authors use a dummy variable that takes the value of 1 if the "privatization

[30] Changes in product prices are calculated through a *Paasche* index. The price contribution to increases in profitability are calculated through the following formula:

$$Pcontribution = \frac{Sales(1993) - Cost(1993)}{Sales(1993)} - \frac{\frac{Sales(1993)}{1+p} - Cost(193)}{\frac{Sales(1993)}{1+p}}$$

Where sales are defined as net sales, cost is defined as operating costs, and π is the increase in real prices.

[31] The contribution of layoffs is calculated in a counterfactual basis. It is assumed that the firms maintained the redundant labor and the difference between the profits between the observed scenario and the hypothetical-redundant labor one gives the savings. Concretely, the contribution is

$$Contributionoflayoffs = Wage_{pre} * \frac{L_{pre} - L_{1993}}{Sales_{1993}}$$

where $Wages_{pre}$ represents the average wages in the four years before privatization , L_{pre} is the average level of employment in the four years before privatization, L_{1993} is the level of employment in the year of comparison post-privatization (1993), and $Sales_{1993}$ is net sales after privatization.

[32] Firms in the same industry that are privately owned.

prospectus" described the firm as monopolistic or oligopolistic, and zero otherwise. According to the regression results, less regulated markets facilitate the "catch-up" of privatized firms' performance indicators with respect to the market benchmark. The data does not support the view that more concentrated markets induce the firms to increase profitability by increasing prices and lowering quantities. The market power dummy turns out non-significant to explain the change in performance indicators.

Smith, et al (1996) show evidence for Slovenia. They use a country-wide database with privatized firms from 1989-1992. The objective of the paper is to analyze the effect of different types of ownership on performance. The exercise is different to the one discussed above because the authors do not have data for the pre-privatization stage. The results, however, show a clearly positive effect of private ownership on performance. When distinguishing the effects of different types of ownership, foreign ownership has a significant positive effect on performance. Employee owned firms perform well when they are small, but the effect of this type of ownership diminishes with size. Employee-owned firms do better when foreign ownership is also present in the same firm.

Cross-country evidence. Starting with a pioneering work by Megginson, et al. (1994), researchers have used the data available for publicly traded companies that have been privatized to analyze different performance indicators on a cross-country basis. Evidence shall be shown here from Megginson, et al. (1994), D'Souza and Megginson (1998), Boubakri and Cosset (1998), and, for the case of Central and Eastern European Countries, Frydman, et al. (1997, 1998), and Claessens and Djankov (1998).

Megginson, et al (1994) analyze data for 61 companies from 18 countries and 32 industries that were privatized between 1961 and 1990 --privatized through public offerings. D'Souza and Megginson (1998) compare pre and post-privatization performance of 78 companies from 25 countries --including 10 LDCs-- that faced privatization between 1990 and 1994, also through public offering. Their sample included 14 firms from the banking industry, 21 utilities and 10 from telecommunications. Boubakri and Cosset (1998) use data of 79 companies from 21 developing countries. These firms were privatized between 1980 and 1992 through public offerings. The largest data set is that used in Claessens and Djankov (1998) which consists

of 6,300 manufacturing firms in seven Central and Eastern European countries (Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovak Republic, and Slovenia).

The performance indicators that are analyzed in those papers are related to mean and median levels of profitability, sales, operating efficiency, leverage, capital expenditures, and employment. In most cases, there are controls for whether the markets are competitive or not, regulated or unregulated, and partial vs. full privatization. The main results are shown in tables 6 through 8.

[Insert tables 6 through 8 around here]

The evidence is robust in the direction of a clearly better performance of the firms after privatization. Profitability increases significantly for different specifications, different periods of time and groups of countries. An interesting result is that in both Boubakri and Cosset (1998) and D'Souza and Megginson (1998) profitability increases more in regulated (or noncompetitive) industries, whereas operating efficiency increases less in those cases. It is clear then that higher profitability does not necessarily imply higher efficiency and the link between the two comes from the market structure. The evidence supports the idea that there is a certain degree of market power being exploited by those firms. Capital expenditure (investment) systematically increases in all cases, reflecting both growth and the restructuring that takes place after the sale.[33] Employment increases in all the cases, including developing countries. This evidence on employment seems to be inconsistent with that in, for example, LaPorta and López-De-Silanes (1998). There are two answers to that inconsistency. First, the fact that the cross-country studies analyzed here use only data for firms that were sold via public offerings generates a non-negligible selection bias. One would expect those firms to be the ones with higher potential for profitability. Second, the country-specific study includes data from three years before privatization for all the firms, which could be capturing the elimination of labor redundancy before the sale. In all the cases, fully privatized firms perform better than partially privatized ones.

There is one important caveat to these results. For reasons of data availability and homogeneity, these samples include firms that were privatized through public offerings and are

[33] The "adjusted" results in Boubakri and Cosset (1998) are precisely controlling for those macro and sector-specific factors.

publicly traded in the stock market. This may induce a selection problem that biases the result in the favorable direction. Larger and more profitable firms tend to be privatized through pubic offerings far more than through other privatization methods.[34] That bias, however, does not eliminate the robustness of the results for firms with those characteristics.

For the case of transition economies, Frydman, et al (1997) reported the improvement in corporate performance consistent with the results shown above. Frydman, et al (1998) and Claessens and Djankov (1998) report robust positive performance changes in a large sample of firms in Central and Eastern Europe. In the case of Claessens and Djankov (1998) the sample includes 6,300 firms with a wide range of characteristics. In these cases the caution in terms of the selection bias does not apply. Both Claessens and Djankov (1998) and Frydman (1998) look into the forces that are driving those changes. Concretely, they are interested in a test of the *political view*, i.e., whether the withdrawal of political intervention explains the positive results. The former paper finds significant improvements in total factor productivity and reductions in excess employment in firms without state intervention, controlling for institutional differences and endogeneity of privatization choices. The latter paper, with data for Central Europe, finds evidence that entrepreneurial behavior drives the efficiency gains when state intervention is removed. They confirm the hypothesis that the performance results in privatized companies are a function of greater willingness to accept risks and their freedom to make decisions without state intervention.

In terms of the distributive impact, both Galal, et al (1994) and Chisary, et al (1997a) allow us to reach some conclusions. The latter work has the advantage of being embedded in a general equilibrium framework --a computable general equilibrium model (CGE), though it only analyzes the privatization of utilities for the case of Argentina. The case-studies show no clear losers from privatization. Workers and buyers of the firm get an increase in surplus. Consumers are the one affected in the case of sectors that seem to have less competitive conditions.

In the case of the CGE model, the results are surprisingly positive. Every segment of the income distribution obtains a positive gain from the privatization. Efficient regulation is shown to be a key component in the result. The model originally shows net gains of around 0.9% of GDP, whereas efficient regulation could add an extra 0.35% of GDP as surplus gains. More

[34] See the discussion in López-Calva (1998) and the evidence in Megginson, et al (1998).

research is needed in terms of the distributive impact, especially in a general equilibrium framework.

3.2 Macroeconomic Evidence

As mentioned above, there is no strong evidence of the effects of privatization at the macroeconomic level. It is possible, however, to give an overview of the trends observed in key aggregate variables and relate those to the privatization programs that have been implemented. Along with privatization, other structural reform measures were also put in place in most countries to a certain extent. These policy measures include trade liberalization, fiscal adjustment and tax reform, and weakening of controls to capital inflows, among others. Because of this, it is not possible to attribute the observed patterns to one isolated policy, though we can argue --based on theoretical arguments-- that they are related, given the implications stated in theoretical section.[35]

Graphs 1a and 1b show the decrease in the share of SOE activity as a proportion of GDP. The highest proportion is observed in low-income countries, but also the biggest decline is in that group, with a clear acceleration of the changes during the last four years. We call those "late reformers." Middle-income countries show a level around 6%, about the same as high-income ones, after a period of aggressive reform in which that proportion fell from 12 % (especially for lower middle income).

Low-income countries have privatized later and at a slower pace as compared to middle- and high-income economies. An interesting analysis of this fact is provided in Ramamurti (1999). A related discussion on what causes of "delays" in privatization are is given by Yarrow (1999).

[Insert Graphs 1a and 1b around here]

The data on SOE activity (graphs 2a and 2b) is consistent with the share of SOE employment to GDP. In low-income countries that share fell from around 20% to 10%, in middle-income economies is currently below 100%, after having reached more than 14%.

[Insert graphs 2a and 2b around here]

[35] For the discussion of different macroeconomic aspects of privatization and its effects, see Hachette and Luders (1993); Larraín (1990); McLindon (1996); Rogozinski (1997, 1998); Serven, et. al (1994); Demirguc and Levine

The evidence supporting the claim that privatization reduces the burden on public financing is shown in graphs 3a, 3b, 4a, and 4b. After reform, both low and middle-income countries have succeeded in eliminating net subsidies to public enterprises on average. In the case of middle income countries, SOEs show a surplus in their operation, which can be the result not only of reforms of management and introduction of competition, but also of the fact that the "best" firms are those that have remained in the hands of the government. Examples of those are oil companies and natural monopolies, like electric utilities.

[Insert graphs 3a, 3b, 4a, and 4b around here]

As shown in graphs 5a and 5b, the trend in fiscal deficit is favorable, though still negative, and largely so for the late reformers. The most favorable trend is that of the deficit in upper middle income economies in which the most aggressive reformers can be found, such as Argentina, Chile, Mexico, and Malaysia.

[Insert graphs 5a and 5b around here]

One important effect observed in all income groups is that on the financial sector development (see Demirguc and Levine (1994) and McLindon (1996)). Whereas in high-income countries the capitalization of the stock market remains basically stable, for both low and middle-income economies the reforms have had an impact on that indicator of capital market development (graphs 6a and 6b). The trend is positive in all of them. Upper middle-income countries have reached levels of capitalization similar to those in high-income economies (around 55% of GDP). Lower middle-income economies are around 25%, and the low-income group is about 16%. This mobilization of resources and the consistency of the reforms in many cases have attracted more foreign direct investment. In graphs 7a and 7b, middle income countries show a positive trend in this respect, whereas the low-income group shows an important increase during the later years, those in which the reforms and privatization have been more aggressive.

[Insert graphs 6a, 6b, 7a and 7b around here]

(1994); and World Bank (1993). A model that integrates privatization into a macroeconomic model to analyze the effects of the transition to a market economy --designed for transition economies-- is Blanchard (1997).

Finally, in terms of GDP growth, the pattern is rather stable across income groups --with no clear trend (graphs 8a and 8b). The variability is, however, larger in low-income and lower middle-income economies.

[Insert graphs 8a and 8b around here]

Unemployment, however, shows a very erratic pattern across countries. Aggressive reformers show an increase in the unemployment rate, but so do late and less aggressive reformers. Examples of the former are Argentina and Poland, where the unemployment rate increased by 9 and 8 percentage points, respectively, between 1990 and 1996. Among the latter, we have France and Hungary, where unemployment grew 3.5 and 3%, respectively, during the same period. It is not possible to draw any conclusion in terms of privatization on the overall unemployment rate. Unemployment has shown an increasing trend in recent years in most countries around the world.

Thus, the evidence tells us that structural reform has in general induced positive changes in key macroeconomic variables. Though not all these positive changes can be attributed to privatization nor its specific contribution has been identified, we can conclude that both the public sector's financial health and a better macroeconomic environment have been fueled by the reduction of SOE activity around the world. This has also led to the creation of a better environment for private investment and competition.

Two important caveats are pertinent at this point from a policy perspective. In general, privatization proceeds should not be used in current expenditure or subsidies that require a permanent disbursement. Given that they are a once-and-for-all income for the government, they should be applied to disbursements of equal nature (Rogozinski, 1998).[36] Reduction of public debt, or investment in certain types of infrastructure, are recommended as reasonable alternatives. The proceeds could also be linked to specific budgetary purposes in a transparent way, as was the case in Bolivia in which the income was used to finance the reform of the pension funds.[37]

[36] The relevance of the long-run perspective that ought to be followed when deciding the use of privatization proceeds is also emphasized in Kelegama (1997).
[37] See López-Calva (1998) and Peirce (1998).

4. Privatization of Infrastructure

Infrastructure privatization deserves special mention because of the important privatization activity that has taken place during the last decade. Moreover, infrastructure privatization involves issues related to regulation, long-term growth possibilities of the economy, as well as equity considerations. In the evidence shown above, the sectors regarded as non-competitive, as well those under regulation, are in general in the infrastructure sectors.[38]

4.1 Forms of Private Sector Participation in Infrastructure

There are different degrees of involvement of the private sector in infrastructure projects. In figure 2 we can see that these options go from the usual contracting for supply and civil works under public ownership, all the way to full private ownership through the so called "Build-Own-Operate" schemes (BOO). Among those, the most widely used in practice, and the ones that have proven successful in different countries are the ones termed "Lease-and-Operate" (also known as *affermage* contracts), "Rehabilitate-Operate-Transfer", and "Build-Operate-Transfer" schemes (BOT) (Guislain and Kerf (1995)). Projects under BOT contracts imply the transfer of control without transfer of ownership and are generally used for greenfield concessions. Those concession contracts are usually awarded to private investors for a pre-determined period of time.[39] All these concession-type arrangements involve a public entity (at the level of federal government, state, or municipality) that awards the right and obligation to provide the service to a private investor. The conditions under which the service has to be provided is fully specified in the contract. In the case of BOT schemes, for example, conditions under which the assets will be transferred either to the public entity of to another private investor once the concessions is over have to be spelled out in the contract. These contracts thus are complex and involve regulatory aspects, distribution of commercial and political risks, public guarantees when needed, investment requirements, and the so called "universal service obligations" (USO). The latter, USO, require the private company in charge of providing the service to give access to all groups in the area of the concession, regardless the level of income. In the case of USO, the contract

[38] The infrastructure sector includes, for example, electricity, telecoms, airports, ports, water distribution, natural gas distribution, and toll-roads.

[39] For a thorough review of BOT schemes and its advantages and disadvantages, see Klein (1998). The basic contracting issues are discussed in López-Calva (1998).

must also specify pricing schemes (possibility of cross-subsidies) and mechanisms for public subsidies when they are necessary.[40]

4.2 Determinants of Success: Designing Concession Contracts

From a theoretical perspective, the implications mentioned in the theoretical discussion in terms of the advantages of private ownership hold, provided the appropriate regulatory mechanisms and enforcement. The weaker results in terms of efficiency that the evidence shows in non-competitive (infrastructure) sectors are precisely related to the differences in regulatory mechanisms and regulatory capacity in different situations. Failures in privatization of infrastructure can be explained fundamentally by two types of policy mistakes: first, poorly design of concessions --mainly in the area of distribution of risks and public guarantees, and second, inappropriate regulatory structure and/or weak enforcement by regulatory institutions.[41]

Concessions create the so-called "competition for the market" when "competition in the market" is not feasible. In that sense, those contracts open the possibility of a market-based mechanism to discipline the companies and assure higher efficiency levels and investment. In concession design, the fundamental question is how to allocate risk. In principle, all commercial risk should be borne by the private investors, whereas only political (non-commercial risk) ought to be shared by the public sector, through guarantees. The most “popular” failures, like the concessions of toll-roads in Mexico, are explained by the existence of implicit and explicit guarantees that opened the room for ex-post renegotiation. The latter combined with a poor design of the auction of the concessions that involved bidding over concession period, which led to short concession periods, higher tolls, low demand, and financial trouble.[42]

The design of the regulatory mechanisms and institutions ought to consider the objectives of the government (related to efficiency, investment, and equity issues), as well the restrictions it faces. These restrictions are informational, institutional, technological, and financial. Cross-

[40] Access to the service, in the case of USO, does not necessarily involve access to the network itself, given that there are alternative technologies for the provision of the service (Chisari, Estache, and Laffont (1997)).
[41] For an analysis of concession contracts, their design, and review of the “failures”, see Engel, et al (1997), and Klein (1998). A discussion of the relevance of regulatory capacity and institutions is in Smith (1997).
[42] This is addition to the intrinsic difficulty in forecasting the demand in the case of toll roads. The toll roads under concession in Mexico required a major bailout and went back to public hands, with a high fiscal and political cost (See Engel, et. al (1997) and Ruster (1997).

country studies show important differences in terms of the post-privatization outcome that are explained by differences in regulatory capacity (Levy and Spiller (1997).[43]

Infrastructure privatization is indeed a topic that deserves special attention. In most cases, it involves a repeated interaction between the investors and the public sector, as opposed to privatization in competitive sectors, where the transactions tend to be a one-shot game.[44] These repeated interaction makes necessary to design contracts in a way that reduce the room for ex-post renegotiation, as well as to choose appropriate regulatory mechanisms with credible enforcement.

While distributive and poverty-alleviation issues are a matter of concern in services like electricity, water, transport, and even telecommunications, it is possible to deal with those in the concession design. Exclusion can be dealt with through USO, whereas affordability to poor groups in the population involve the use of subsidies. In general, there will be a trade-off between the existence of a more competitive market with non-uniform pricing, which requires more sophisticated subsidy schemes, and uniform-prices that involve cross-subsidies with a higher political cost but a lower financial cost for the public sector (Chisari, et al (1997b)). The experience shows that restricting cross-subsidies that take place through uniform pricing, while targeting effectively public subsidies, is a difficult policy to implement, though theoretically preferred. Some countries, however, have put in practice effectively the existence of life-line consumption levels that are subsidized, as well as subsidies to network expansion to less profitable areas.[45] In general, the poor will benefit from access to services they did not have in the past. One important mistake in evaluating privatization prospects in infrastructure sectors is the confusion in terms of *willingness to pay* and *ability to pay* by the poor. The former tends to be high when people do not have access to the services and shows the economic value of such access. The latter has to be dealt with through appropriate subsidy schemes.

[43] A discussion of the regulatory mechanisms, with emphasis on informational constraints, is in Laffont and Tirole (1993).
[44] The post-privatization interaction would involve issues of competition policy that are not sector-specific.
[45] Chile is an example in which the subsidy to the fixed cost in electricity provision, for example, is given through a bidding process where interested companies bid over the "minimum" subsidy to provide the service to a specific area.

4.3 A Piece of Evidence

The experience shows by and large a positive effect of privatization of infrastructure. Not only have the private investment flows in infrastructure increased, but important efficiency gains have emerged. Some evidence has been shown in section 3 where, for example, Chisari, et al (1997a) have estimated efficiency gains around 0.9% of GDP that are also consistent with distributive improvements in Argentina. In addition, the evidence by sector in the same country is shown in Tables 9, 10, and 11. Those tables show selected performance indicators of privatized utilities, before and after privatization.

Finally, table 12 shows selected indicators of performance improvement and investment carried out by the privatized telecommunications company in Mexico. This company, TELMEX, was sold under strict investment and performance improvement goals and was awarded monopoly power in local telephony for a pre-determined period of time. The price of the service in that case, however, increased, and that explains the reduction in consumer surplus after privatization as estimated by Galal, et al (1993).[46] The evidence strongly supports the implication that, provided that the appropriate regulation is in place, efficiency gains can be achieved though infrastructure privatization.

5. Conclusions

From the theoretical discussion, several empirical implications are proposed. Let us analyze how the evidence from different studies supports them.

Implication 1: Publicly owned enterprises in competitive environments would not perform better than privately owned companies in the same circumstances in terms of profitability, and could perform worse.

The microeconomic evidence overwhelmingly supports this implication. Country specific data and cross-country data show that privatized firms improve their profitability after the sale, even controlling for macroeconomic and industry specific factors. This result is robust to

different definitions of the profitability indicator, and holds for different market structures. Deregulation policies have been shown to speed up the convergence process of firms to industry standards. Partial privatization has a lower effect on profitability when compared with full privatization. The evidence for Central and Eastern European countries is also consistent with the proposition, and the *political view* --that says that political intervention undermines firm performance-- seems to be confirmed by the data.

Implication 2: One should expect important efficiency gains from the change in ownership structure in competitive sectors.

The micro evidence also confirms that the introduction of competition enhances productivity gains. Firms in more concentrated and regulated markets, though they also go through an important restructuring after the sale, show lower increases in productivity as compared to those that are under the discipline of the market. Eliminating restrictions to foreign direct investment and trade barriers, and government controls on prices and quantities fuels the catch-up of firms to competitive standards.

Implication 3: In general, increases in profitability are not equivalent to increases in efficiency. This will only be true in a competitive environment.

Two facts support this proposition in the data. First, it is observed in cross-country studies that profitability increases more and productivity less in regulated or less competitive sectors. This shows that firms are exploiting, at least partially, their market power. Second, in the case studies we observe that consumer surplus is affected by the degree of competition in the sector, even though total welfare changes are positive.[47]

[46] In the case of public phones, for example, the price of a call before privatization in Mexico City was zero pesos (calls in public phones were free). For a description of the sale of TELMEX, see Rogozinski (1998) and López-Calva (1998).

[47] This is the case, for example, in telecommunications privatization in Mexico, where the consumer surplus fell after the sale. The methodology, however, fails to capture dynamic efficiency gains introduced by technological change and new investments as well as changes introduced to the regulatory framework.

Implication 4: Fully privatized firms should perform better than firms that have been partially privatized, under the same conditions.

Cross-country evidence for developing countries shows that firms that were partially privatized realized lower profitability gains and productivity changes as compared to fully privatized enterprises.

From the macroeconomic perspective, the evidence is much far less strong, and causality cannot be assumed. Important aggregate trends, however, have been identified.

Implication 5: Privatization improves the public sector's financial health (lower deficits, lower debt).

The budget deficit shows a positive trend, i.e., it declines during the reform period. Low-income countries, which are on average less aggressive privatizers during the period analyzed, still have a significant deficit on average. Privatization has represented an important policy tool for fiscal reform.

Implication 6: Privatization reduces the net transfer to SOE's in the aggregate. These transfers become positive if the government actually starts collecting taxes from privatized firms.

The net transfers to SOE's have declined and actually become negative for high-income and middle-income countries. This shows that not only have the subsidies been reduced, but the government has started to collect taxes from previously money-losing firms. This is also supported by the micro evidence. It is only in the case of low-income countries that net subsidies have continued, which is consistent with the fact the SOEs overall balance in those countries is negative. This shows that there room to improve the performance of the late reformers.

Implication 7: Privatization has a positive impact on the development of the financial sector.

Stock market capitalization has shown a steady increase in all country groups between 1987 and 1997. In low-income countries this trend has been accelerated since the early 90s, when privatization transactions started at a faster pace. This change has also responded to the liberalization of the financial sector and opening to foreign investment, but privatization has played a fundamental role in it.

Implication 8: Privatization has a negative effect on employment in the short-run, a positive effect in the medium and long-run.

The effect on unemployment is ambiguous. Unemployment rates vary widely across countries, regardless whether they have privatized or not. The macro instability introduced by the Mexican crisis in 1995 and subsequent problems in East Asia can partly explained the different patterns, as well the particular features of stabilization plans in different countries, like the strict management of the exchange rate in Argentina. The microeconomic evidence is also mixed. For country cases it is shown that employment in privatized firms on average decreased, while cross-country evidence of publicly traded companies shows an increase in average employment.

Finally, it is important to mention the lack of detailed research in the area of the effect of privatization on distribution and poverty. The CGE model discussed above, on the distributive effects of utilities privatization in Argentina, shows a positive result. The case studies carried out by Galal, et al (1993) also allow us to reach positive conclusions from the distributive point of view, though they also highlight the relevance of the market structure for the outcome. In the case of privatization of infrastructure, exclusion *via* either lack of access to the network or pricing is a major concern. Universal service obligations and efficient subsidy schemes are required in that context. The effect of those mechanisms on efficiency, as well as their impact on the standard of living of the poor has not been studied systematically. An important conclusion is that more research is needed in that regard.

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TABLE 1
Change in SOE's activity as a percentage of GDP
(Decrease in percentage points of GDP)

Countries (by Income Group)	**1980**	**1997**	**Change**
Low Income Countries	15%	3%	-12%
Lower Middle Income Countries	11%	5%	-6%
Upper Middle Income Countries	10.5%	5%	-5.5%
High Income Countries	6%	5%	-1%

Source: Estimations based on the World Development Indicators, The World Bank.

TABLE 2
PROCEEDS FROM PRIVATIZATION, 1990-1996

Country	Amount (million dollars)
Argentina	16,327.7
Bangladesh	66.1
Brazil	22,402.1
Bulgaria	434.3
Chile	1,107.3
China	10,411.4
Colombia	4,606.3
Cote d'Ivoire	261.1
Czech Republic	659.1
Ghana	1,368.9
Hungary	8,135.4
India	6,890.0
Indonesia	5,745.7
Kazakhstan	1,659.1
Kenya	334.1
Malaysia	7,443.8
Mexico	24,929.3
Pakistan	3,268.1
Peru	9,524.6
Slovak Republic	1,865.0
South Africa	1,317.3
Thailand	1,773.7
Turkey	2,777.4
Venezuela	6,503.1

Source: World Development Indicators.

TABLE 3
PUBLIC OWNERSHIP: FOR AND AGAINST

	FOR	**AGAINST**
Market failure/ Natural monopoly	**X** *Social View* The government takes into consideration social marginal costs	
Contracting perspective	**X** *Selective intervention* SOEs can do at least as well as private firms and the government would consider social costs in unforeseen contingencies	
Incentive problems		**X** *Agency view*
A. Managerial perspective		**X** Inherent poor monitoring and lack of high-powered incentives under public ownership
B. Political perspective		**X** Political interference distorts the objectives and the constraints of the problem the manager faces

TABLE 4
CASE STUDIES IN FOUR COUNTRIES
(Galal, et al 1994)

Country and Enterprise	Domestic sector						Foreign sector			
	Govt.	Buyers	Consumer	Workers	Others	Net Welfare Change	Buyers	Consumer	Others	World Net Welfare Change
United Kingdom										
British Telecom	2.7	3.1	4.9	0.2	-0.1	10.8	1.2	0.0	0.0	12.0
British Airways	0.9	1.4	-0.9	0.3	0.0	1.7	0.4	-0.5	0.0	1.6
National Freight	-0.2	0.8	0.0	3.7	0.0	4.3	0.0	0.0	0.0	4.3
Chile										
CHILGENER	-1.4	2.0	0.0	0.1	0.0	0.7	1.4	0.0	0.0	2.1
ENERSIS	-1.6	7.6	2.2	3.9	-7.4	4.6	0.6	0.0	0.0	5.2
CTC	8.0	1.0	131.0	1.0	4.0	145.0	10.0	0.0	0.0	155.0
Malaysia										
Malaysian Airline Systems	5.2	2.0	-2.9	0.4	0.0	4.6	0.8	0.8	15.8	22.1
Kelang Container Terminal	37.6	11.5	6.2	7.0	-11.9	50.4	2.9	3.1	-3.0	53.4
Sports Toto	13.6	10.7	0.0	0.0	-13.0	10.9	0.0	0.0	0.0	10.9
Mexico										
Teléfonos De México	13.3	11.4	-62.0	15.6	28.3	6.6	25.1	0.0	17.9	49.5
Aeroméxico	62.3	3.9	-14.6	2.4	-2.3	52.9	1.8	-6.2	0.0	48.5
Mexicana De Aviación	3.5	-1.4	-7.7	0.0	3.2	-2.4	-1.3	-3.3	0.0	-7.0

Note: Figures are percentages. All figures are the annual component of the perpetuity equivalent to the welfare change, expressed as a percentage of annual sales in the last pre-divestiture year.
Source: Table 23-1 in Galal, et al (1994).

TABLE 5
PERFORMANCE CHANGES IN PRIVATIZED FIRMS IN MEXICO
(LaPorta and López-De-Silanes, 1998)

	Changes in industry-adjusted performance					**Competitive vs. non-competitive industries (according to prospectus)**			**Competitive vs. non-competitive (according to market share)**		
	N	Mean Change	s.s. (%)	Median change	s.s. (%)	N c/ nc	Mean Change (Difference)	s.s. (%)	N c/ nc	Mean change (Difference)	s.s. (%)
Profitability											
(Operating income/Sales)	168	0.3532	1	0.153	1	134 32	0.0612		104 62	0.1087	
(Net Income/Sales)	168	0.4127	1	0.2108	1	134 32	-0.1462	10	103 62	-0.0261	10
Operating Efficiency											
Cost per unit	168	-0.1837	1	-0.1527	1	134 32	0.1066	1	104 62	-0.0492	
Log(Sales/ Employees)	166	0.9359	1	0.8966	1	134 32	0.1505		107 62	0.3301	5
Labor											
Log(number of employees)	169	-19.05	10	-24.47	1	136 33	-0.2728	5	107 62	-0.0694	
Assets and Investment											
(Investment/ Sales)	168	-0.0477	1	0.0665	1	134 32	-0.0054		104 62	-0.0048	
Output											
Log(sales)	170	0.4891	1	0.4239	1	136 33	-0.2154		105 61	0.2060	
Net taxes											
Taxes	168	26,441	5	2,161	1	135 33	-7,024	1	106 61	1,013.6	

Note 1: s.s. (%)= statistical significance to a % level., c/nc=competitive, non-competitive.
Note 2: The columns that compare competitive vs. non-competitive show the difference in mean change (ΔCompetitive - ΔNon-competitive).
Note 3: There are two definitions of competitive: 1. According to privatization prospectus and 2. According to market share (>10% is considered non-competitive).
For details on the data and methodology, see part 3 in text.
Source: Tables 5, 6-A, and 6-C in LaPorta and López-De-Silanes (1998).

TABLE 6

PERFORMANCE CHANGE IN PRIVATIZED FIRMS BETWEEN 1961-1990 (Megginson, et al, 1994)

Variables	N	Mean change (after - before privatization)	Median change (after - before privatization)	Significance of Median change (%)	Competitive Industries (c) vs. non-competitive (nc)
Profitability					
Return on sales	55	0.0249	0.041	1	Δc>Δnc
Efficiency					
Sales efficiency	35	0.1064	0.1157	1	Δc>Δnc
Investment					
Capital expenditures/ Sales	43	0.0521	0.016	5	Δc>Δnc
Output					
Real sales	57	0.241	0.190	1	Δc>Δnc
Employment					
Total employment	39	2,346	276	10	Δc>Δnc
Leverage					
Debt to assets	53	-0.0243	-0.0234	5	Δc>Δnc
Dividends					
Dividends to sales	39	0.0172	0.0121	1	Δc<Δnc

Note: Δc/nc = mean performance change of firms in competitive/non-competitive industry (after privatization - before privatization). Median changes are consistent in that column except for employment (in that case Δc<Δnc).

For details on the data and methodology, see part 3 in text.

Source: Tables III and IV in Megginson, et al (1994).

TABLE 7
PERFORMANCE CHANGE IN PRIVATIZED FIRMS DURING THE 1990s
(D'Souza and Megginson, 1998)

Variables and Type of firm	n	Change in mean (after - before privatization)	Change in median (after - before)	Significance of Change in median (%)
Return on sales				
Competitive	48	0.01	0.02	
Non-competitive	30	0.06	0.04	1
Control	34	0.01	0.04	1
No control	37	0.03	0.02	5
Real sales				
Competitive	46	1.33	0.98	1
Non-competitive	28	2.32	2.11	1
Control	35	1.95	2.29	1
No control	35	1.59	0.87	1
Employment				
Competitive	35	-480	-685	
Non-competitive	26	94	-194	
Control	27	-290	-471	
No control	31	16	-810	
Sales efficiency				
Competitive	34	1.23	0.80	1
Non-competitive	27	2.32	2.22	1
Control	28	1.78	2.57	1
No control	30	1.79	0.85	1
Capital expenditure/sales				
Competitive	34	0.01	0.00	
Non-competitive	31	-0.02	0.02	
Control	33	-0.04	0.03	
No control	29	0.03	0.01	
Debt/assets				
Competitive	40	-0.03	-0.06	
Non-competitive	30	-0.11	-0.09	1
Control	31	-0.06	-0.08	
No control	34	-0.08	-0.13	5

Note: "Control" refers to firms that have been privatized by more than 50%.
For details on the data and methodology, see part 3 in text.
Source: D'Souza and Megginson, tables IV and VI.

TABLE 8
PERFORMANCE CHANGE OF PRIVATIZED COMPANIES IN DEVELOPING COUNTRIES
(Boubakri and Cosset, 1998)

Variables and Type of firm	n	Change in mean (after - before privatization)	Change in median (after - before)	Significance of Change in median (%)
Return on sales				
Competitive	41	0.0585	0.0193	5
Non-competitive	37	0.0627	0.0181	5
Full	30	0.0637	0.0145	10
Partial	42	0.0636	0.0191	1
Real sales				
Competitive	42	0.2417	0.1930	1
Non-competitive	36	0.2662	0.1835	1
Full	30	0.2105	0.1625	1
Partial	42	0.2995	0.2343	1
Employment				
Competitive	26	-80.92	117	
Non-competitive	31	323.4	94	10
Full	23	82.6521	88	
Partial	30	303.36	325.5	5
Sales efficiency				
Competitive	26	0.2834	0.2875	1
Non-competitive	30	0.2171	0.2041	1
Full	23	0.1731	0.2290	1
Partial	29	0.3057	0.2456	1
Capital expenditure/sales				
Competitive	22	0.2138	0.0181	5
Non-competitive	26	0.0632	0.0078	
Full	19	0.0957	0.0166	1
Partial	25	0.1818	0.0192	
Debt/assets				
Competitive	42	-0.0379	-0.0117	10
Non-competitive	23	-0.0745	-0.0205	1
Full	20	0.0153	0.0062	
Partial	39	-0.0793	-0.0882	1

Note: Full/partial tell us whether the firms were privatized fully or there was just a partial sale of shares.
Source: Boubakri and Cosset (1998), tables 6 and 7.

TABLE 9
SELECTED PERFORMANCE INDICATORS, INFRASTRUCTURE
WATER CONCESSIONS IN BUENOS AIRES, ARGENTINA
(Crampes and Estache, 1996)

Indicator	Change (May 1993-December 1995)
Increase in Production capacity (%)	26
Water pipes rehabilitated (kilometers)	550
Sewers drained (kilometers)	4,800
Decline in clogged drains (%)	97
Meters upgraded and installed	128,500
Staff reduction (%)	47
Residents with new water connections	642,000
Residents with new sewer connections	342,000

Source: Aguas Argentinas, as shown in Crampes and estache (1996).

TABLE 10
SELECTED PERFORMANCE INDICATORS, INFRASTRUCTURE
POWER CONCESSIONS IN ARGENTINA
(Estache and Rodríguez, 1996)

Years	Generation		Distribution	Transmission
	Spot price ($/MWh)	Thermal availability (%)	Losses (%)	Forced outages (hours)
1992	41.85	48.2	21	1,000
1993	32.12	59.8	20	900
1994	24.99	61.3	18	650
1995	22.30	69.9	12	300

Note: The generation data in 1992 are unweighted averages for October-December only (privatization took place over the period between mid-1992 and mid-1993). Distribution data are from EDESUR (privatized in September 1992). Transmission data are from Transener (privatized in July 1993). MWh is megawatt-hour.
Source: CAMMESA, ENRE, and company annual reports. Taken from Estache and Rodríguez (1996).

TABLE 11
SELECTED PERFORMANCE INDICATORS, INFRASTRUCTURE
PORTS OF BUENOS AIRES, ARGENTINA
(Estache and Carbajo, 1996)

Indicator	1991	1995
Cargo (thousands of tons)	4,000	6,000
Containers (thousands of "twenty-feet equivalent units")	300	540
Capacity (Thousands of containers per year)	400	1,000
Operational area (hectares)	65	95
Productivity (tons per worker per year)	800	3,000
Average stay for full containers (days)	2.5	1.5
Cost for container imports (US$ per ton)	450	120
Port tariff for exports (US$ per ton)	6.7	3.0
Port tariff for imports (US$ per ton)	2.1	1.5

Source: Administración Genereal de Puertos. Taken from Estache and Carbajo (1996).

TABLE 12
PERFORMANCE INDICATORS OF THE MEXICAN TELECOMMUNICATIONS COMPANY AFTER PRIVATIZATION

Indicator	1989	1994
Lines in service (Thousands)	4,848	7,990
Rural towns with access to telephone	4,759	16,541
Number of towns with access to telephone	7,320	19,360
Public phones in service	54,936	207,170
Public Phones density (per 1000 inhabitants)	0.7	2.4
Telephone density (per 100 inhabitants)	5.9	9.1
Investment (Millions of pesos)	2,389.4	5,303.3
Investment in service improvement (% of total)[a]	12.9	43.0
Fiber optics network (kilometers)	72.0	12,187.0[b]

Note: The privatization took place in 1990 (transfer of control).
a/ These data are for 1990 and 1993.
b/ That figure corresponds to 1993.
Source: Rogozinski (1997).

FIGURE 1

THE SOFT BUDGET CONSTRAINT

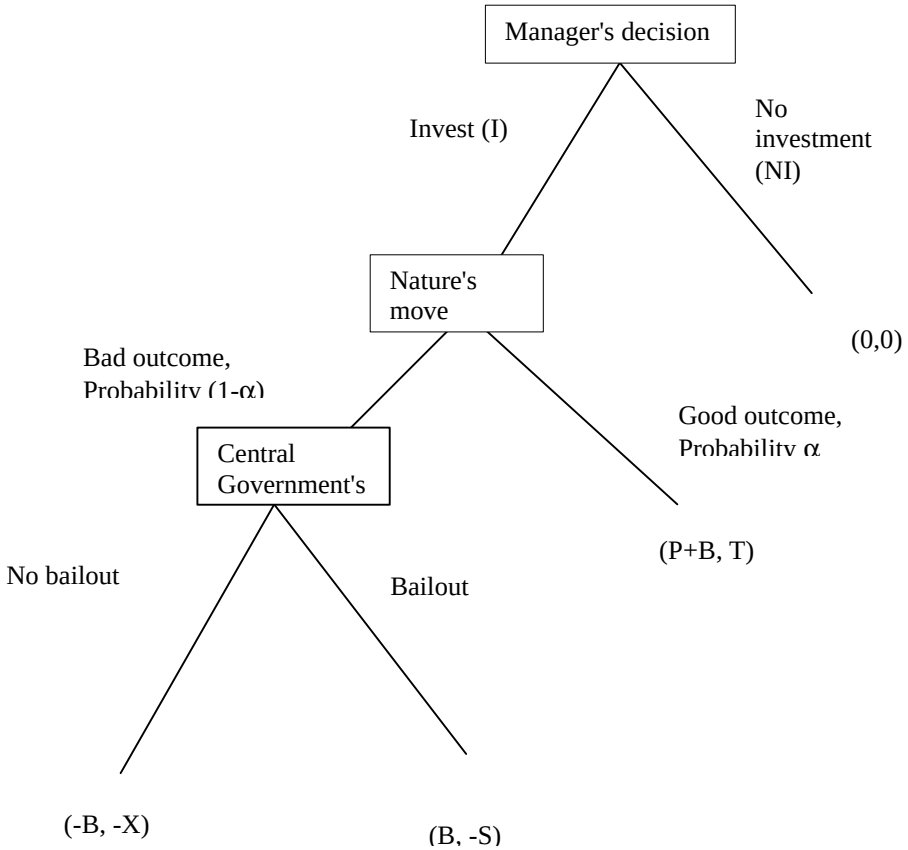
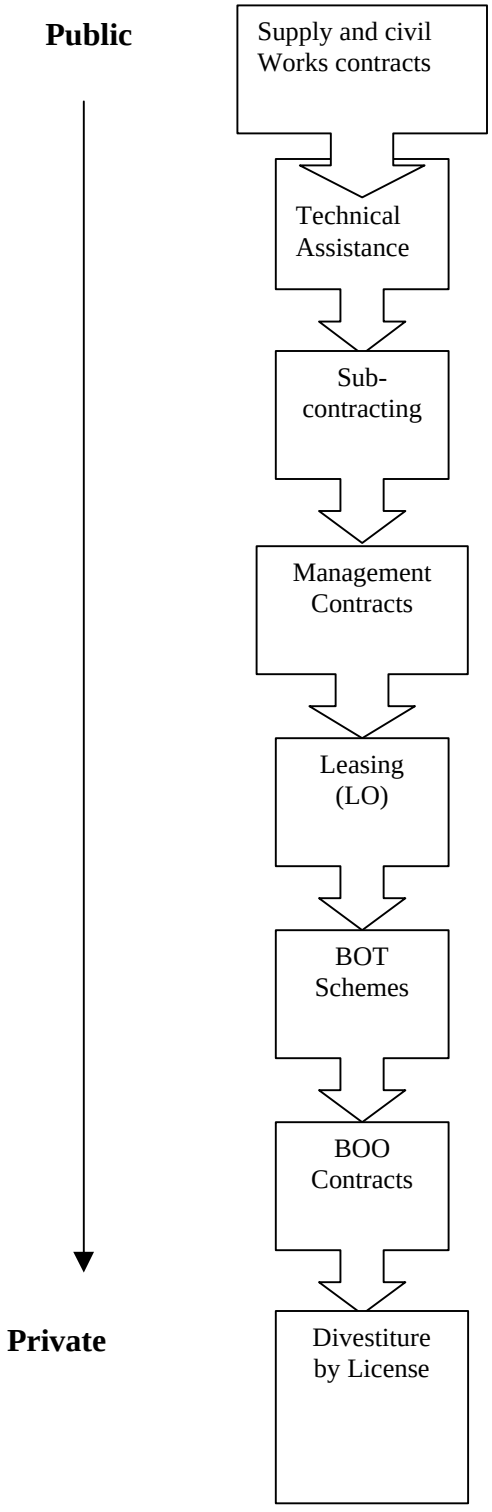


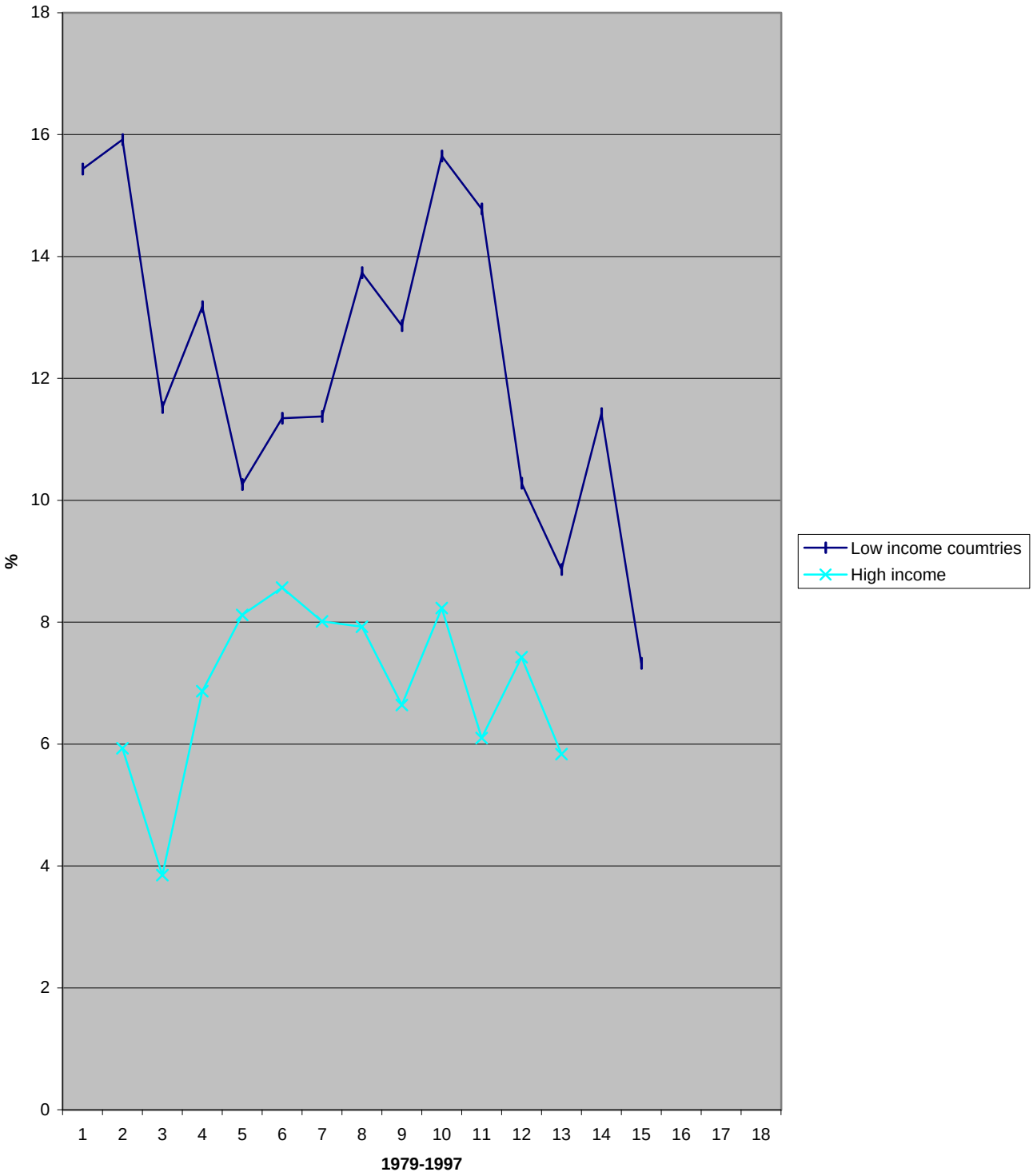
FIGURE 2

OPTIONS OF PRIVATE SECTOR PARTICIPATION IN INFRASTRUCTURE

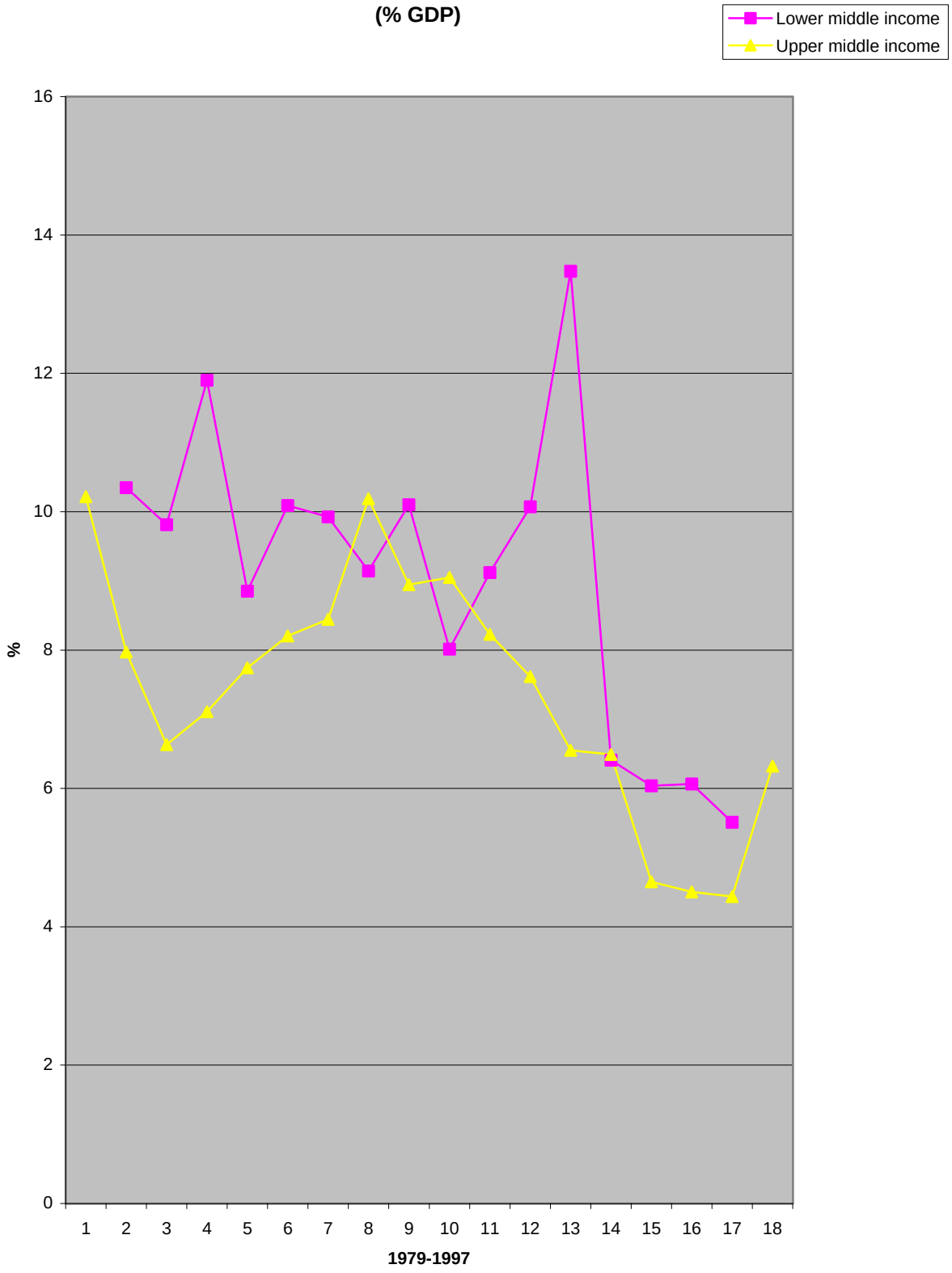


Source: Guislain and Kerf (1995)

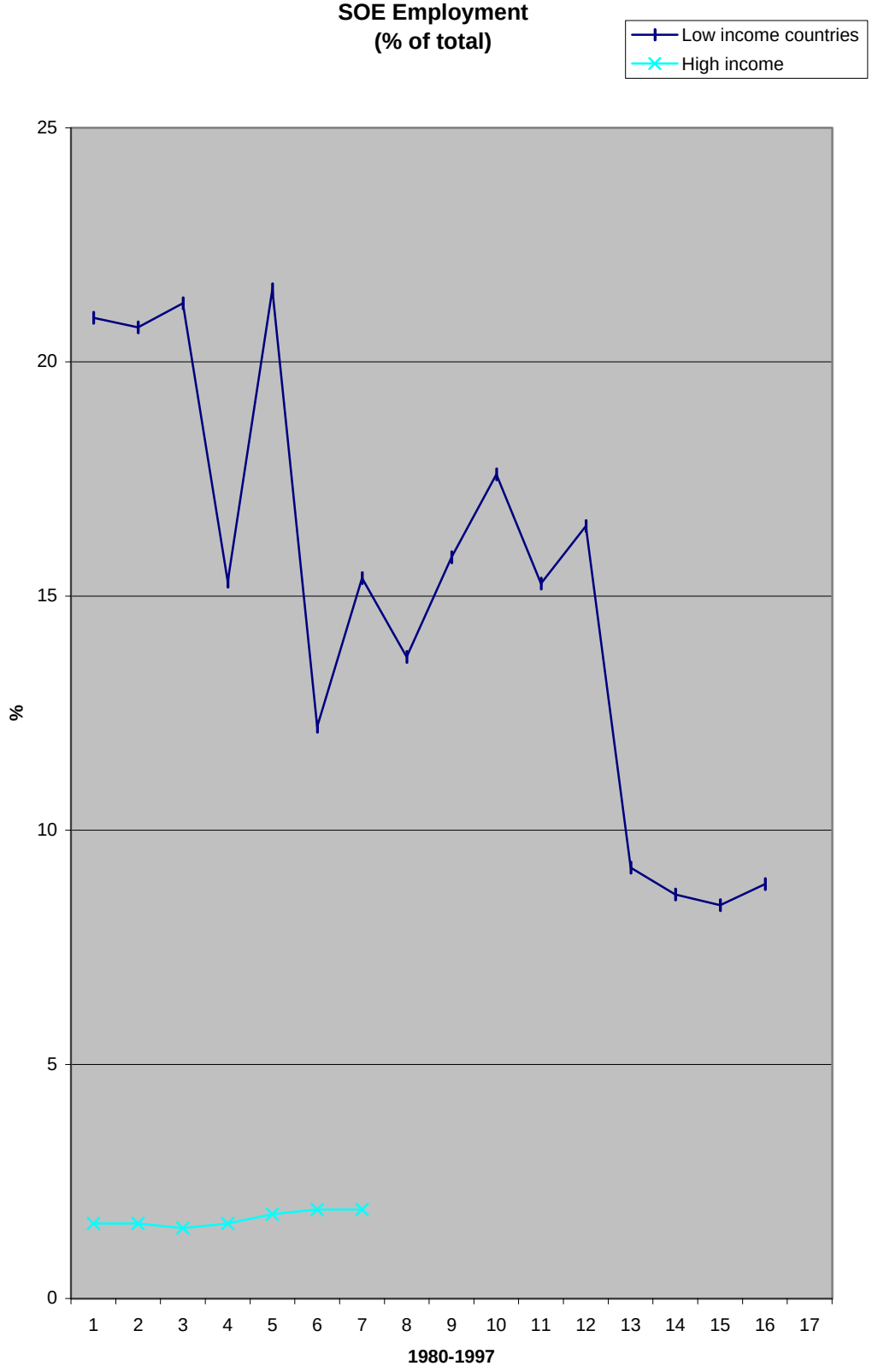
Graph 1a
SOE actvity
(% GDP)



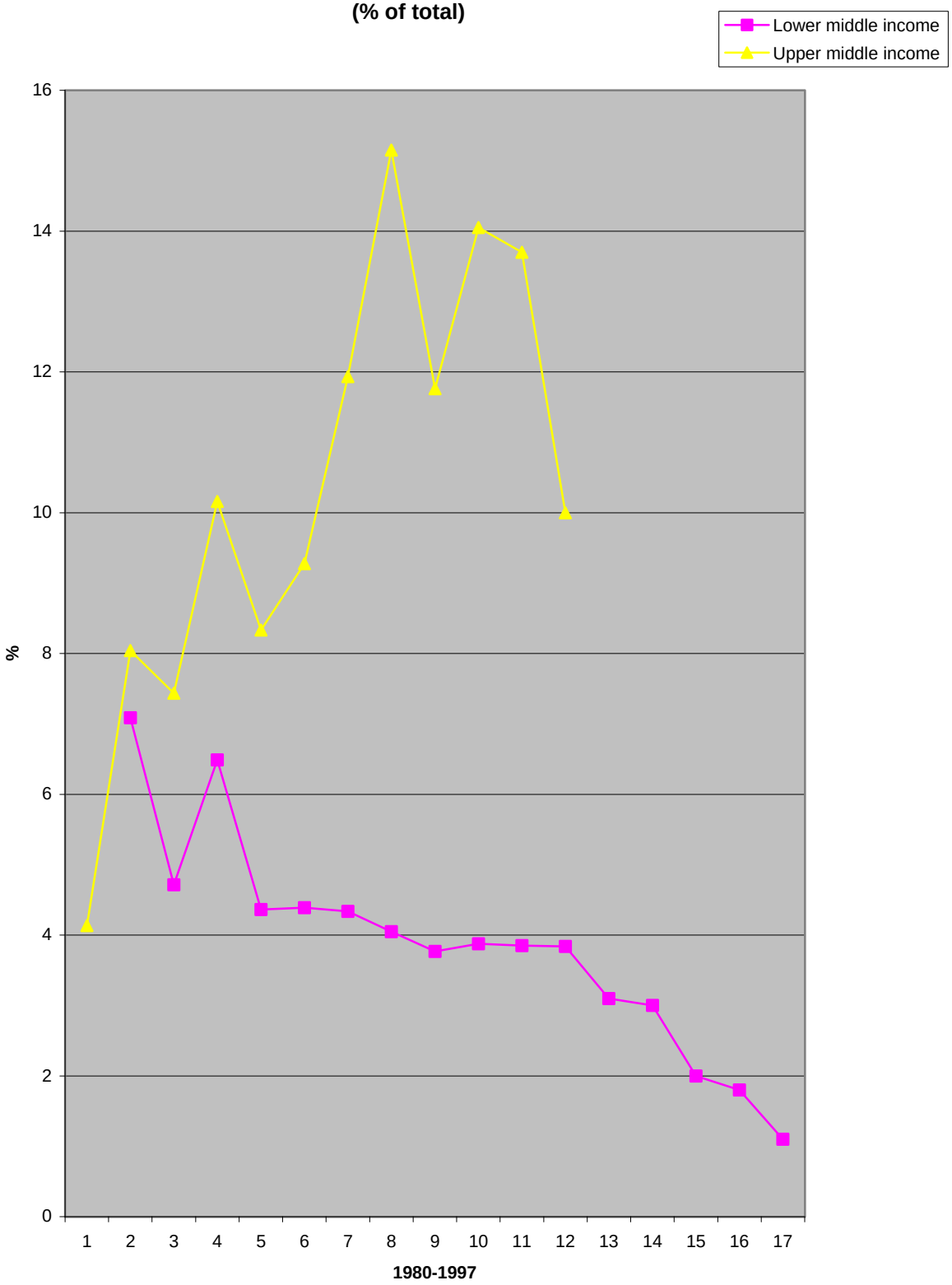
Graph 1b
SOE actvity
(% GDP)



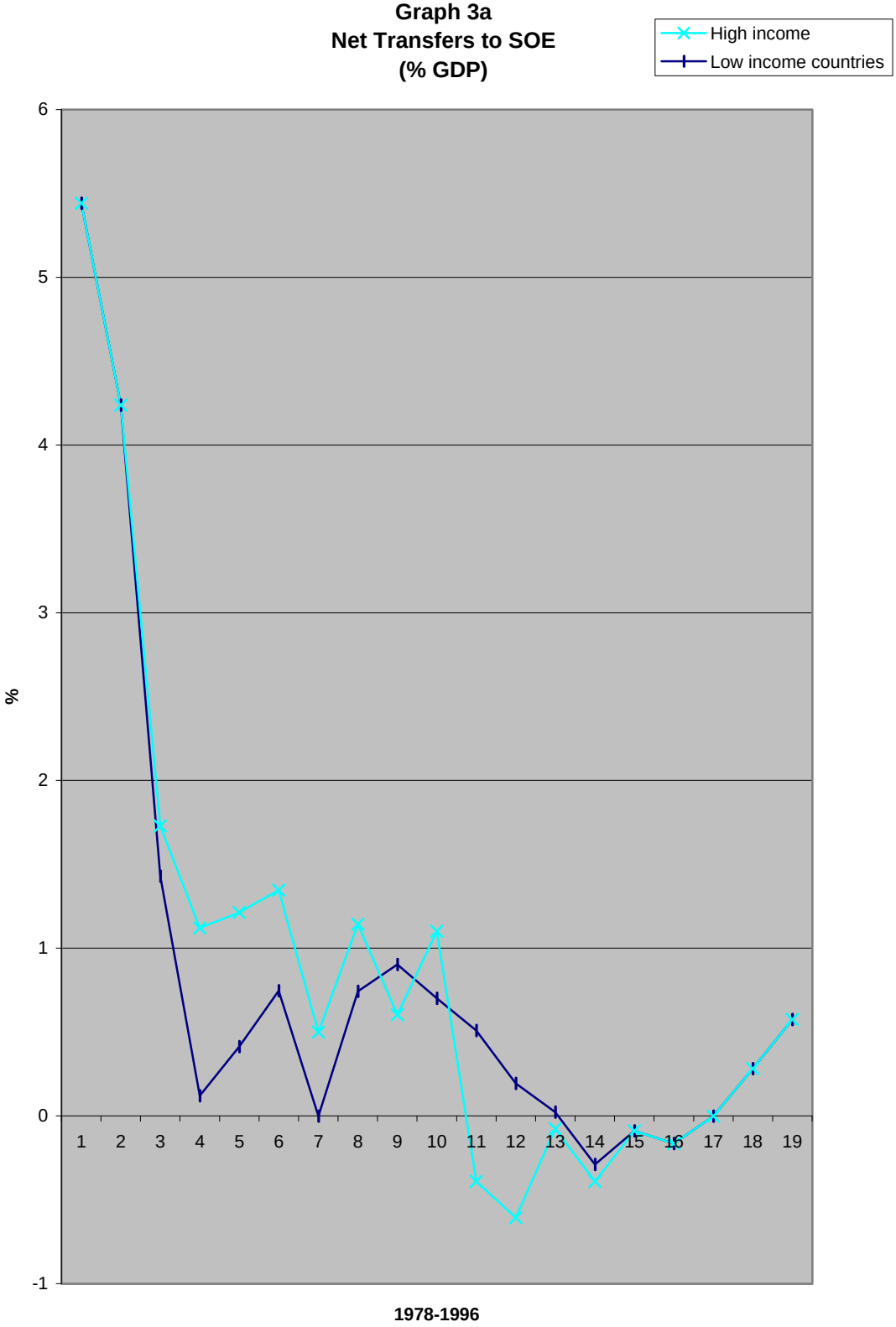
Graph 2a
SOE Employment
(% of total)



Graph 2b
SOE Employment
(% of total)

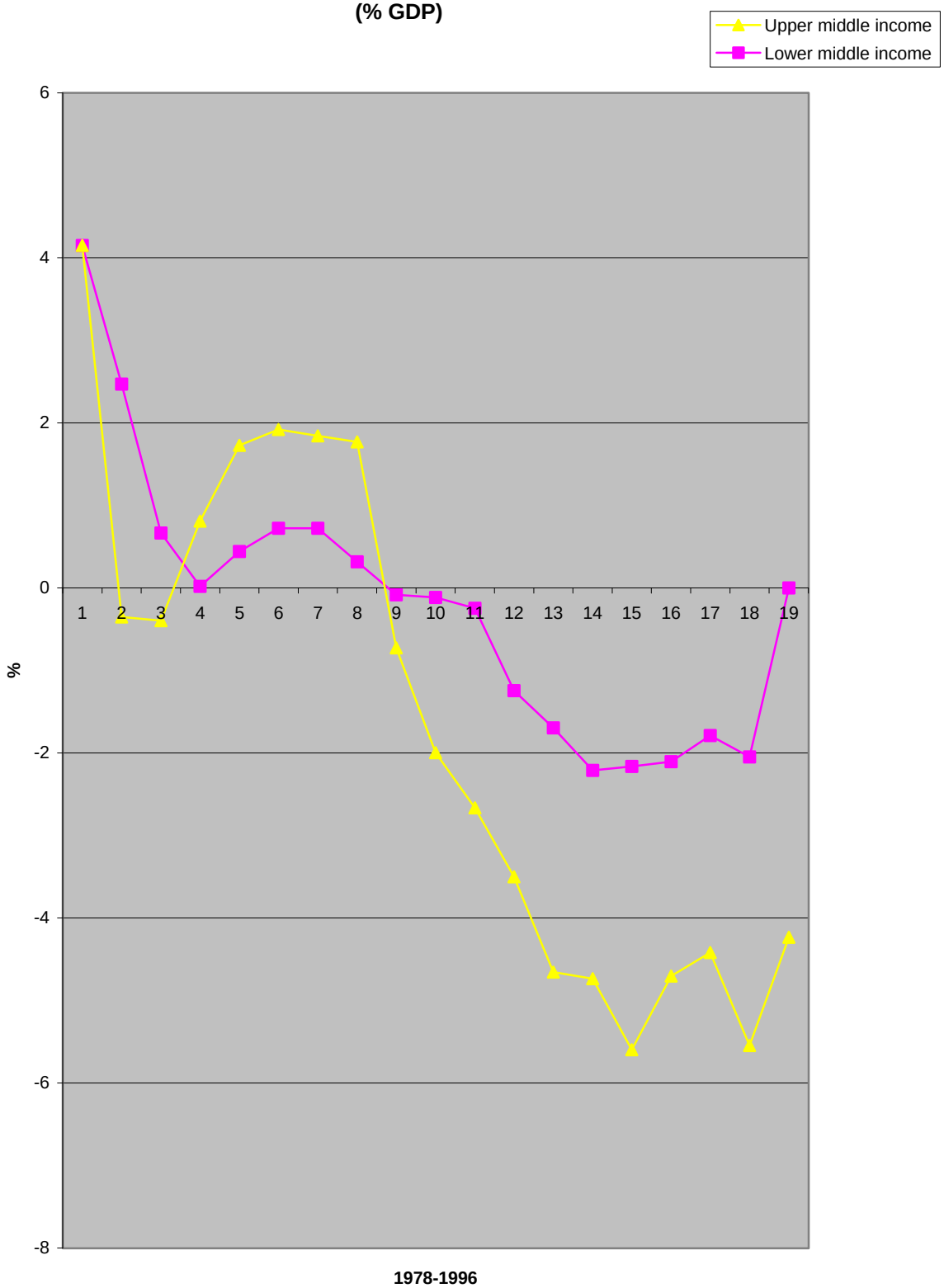


Graph 3a
Net Transfers to SOE
(% GDP)

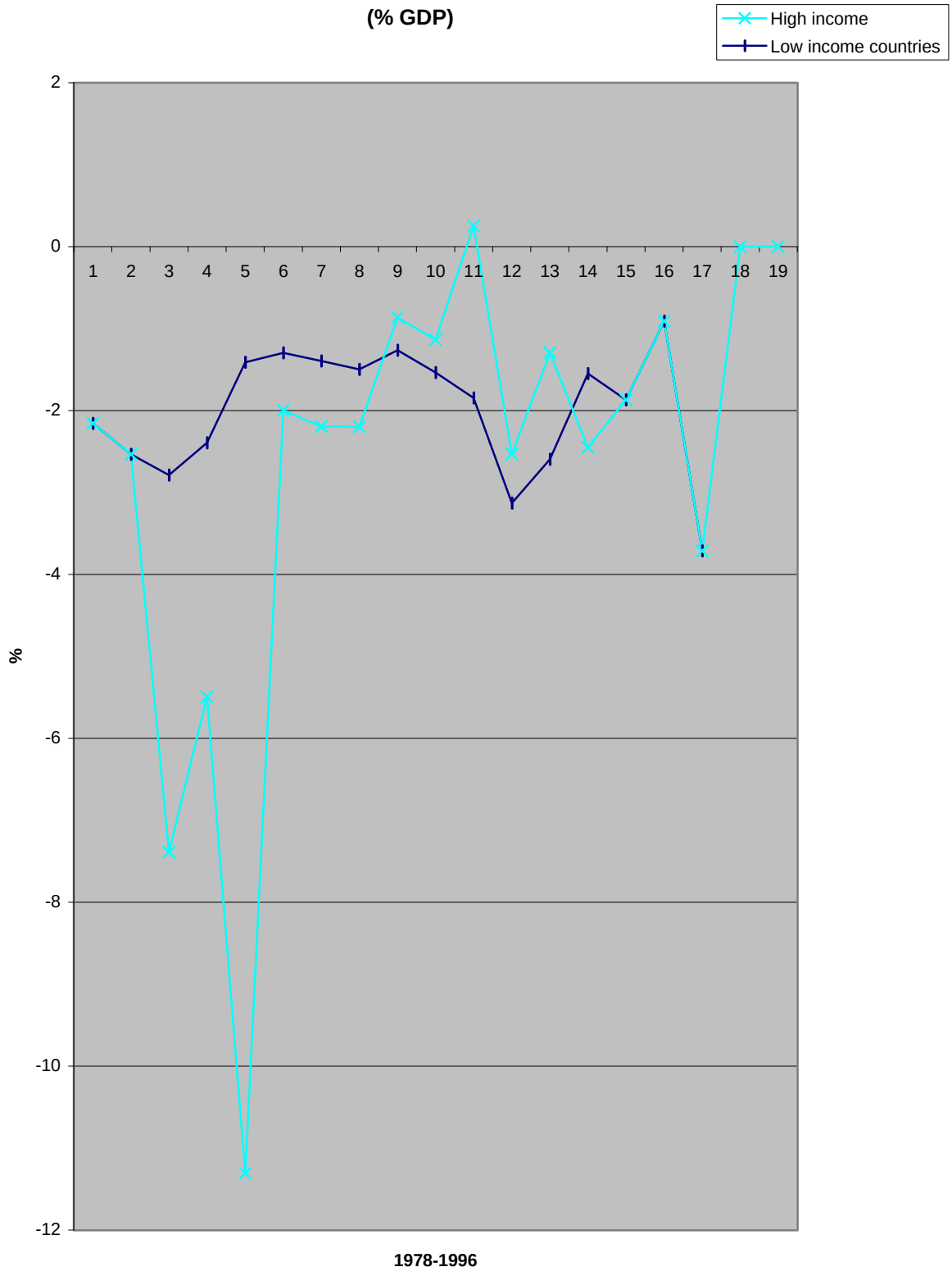


1978-1996

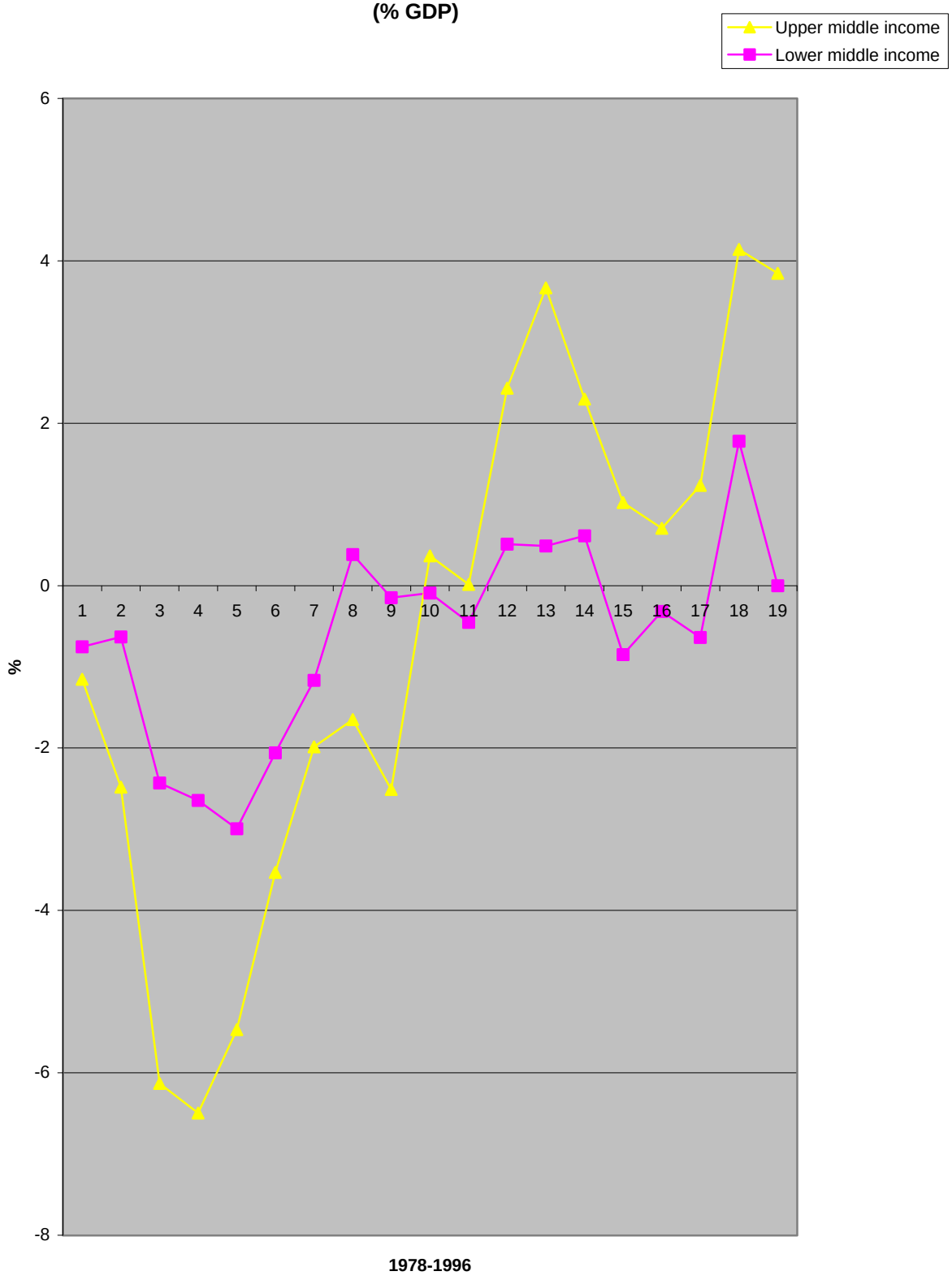
Graph 3b
Net Transfers to SOE
(% GDP)



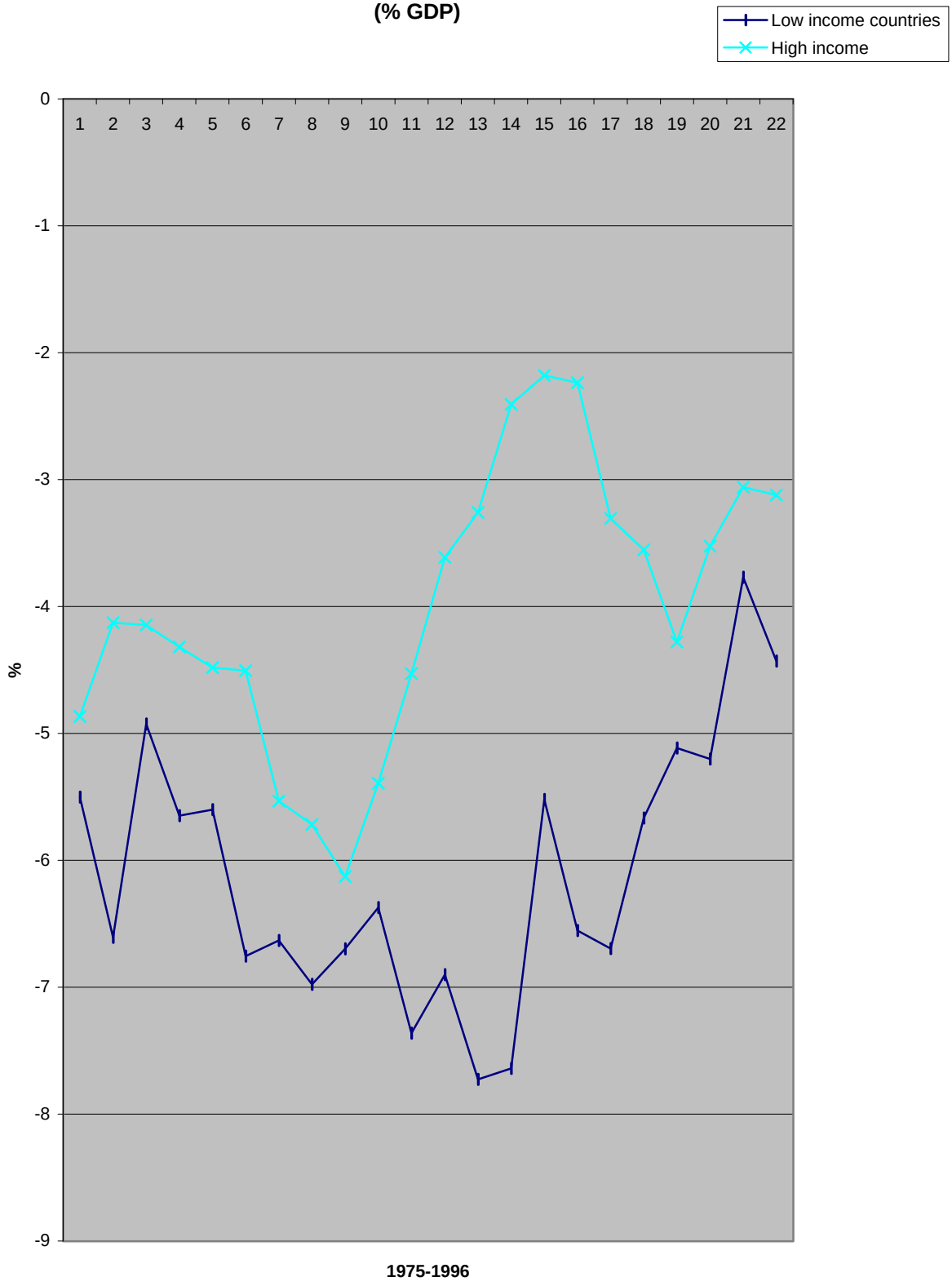
Graph 4a
Overall SOE Balance Before Transfers
(% GDP)



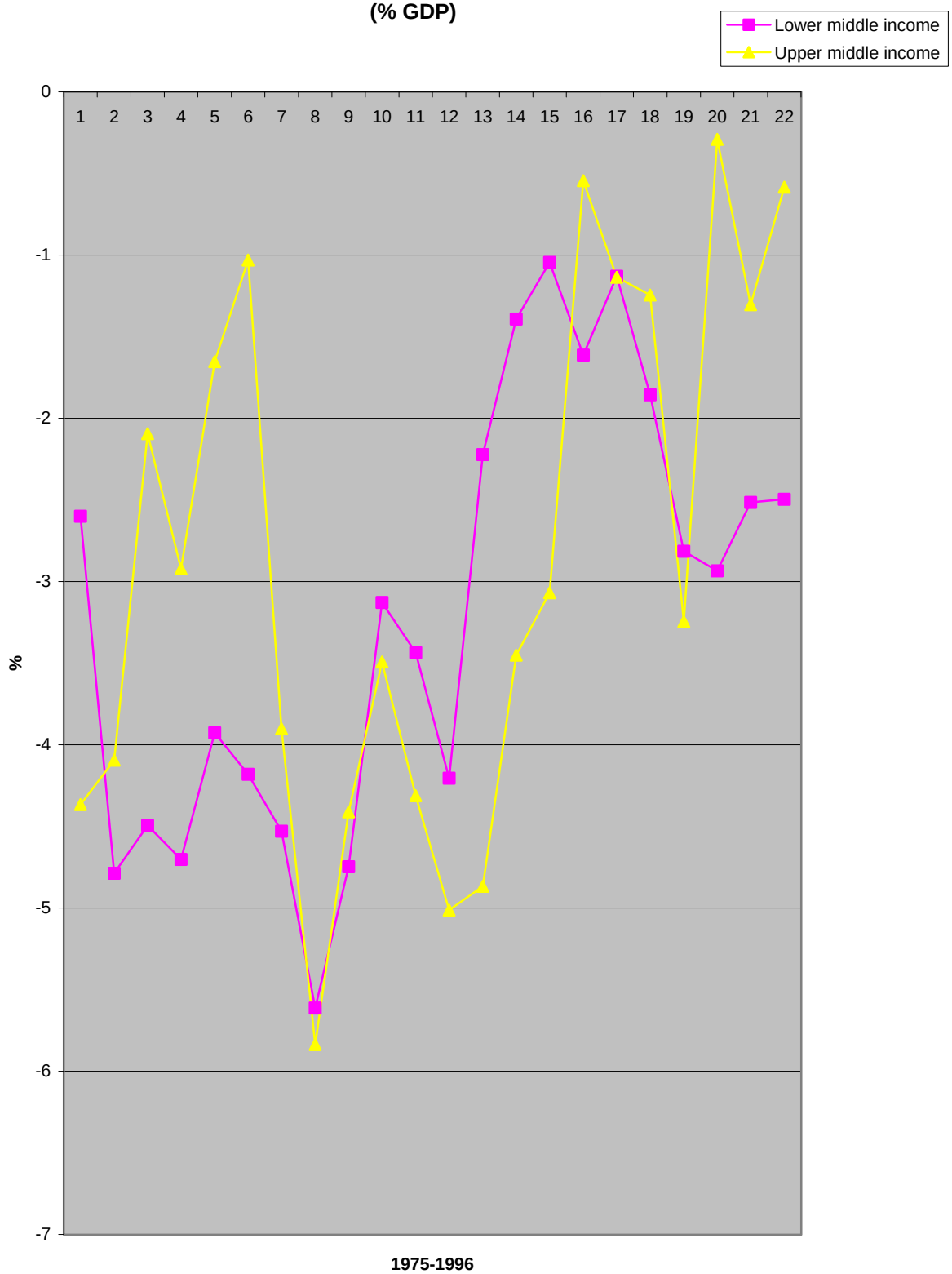
Graph 4b
Overall SOE Balance Before Transfers
(% GDP)



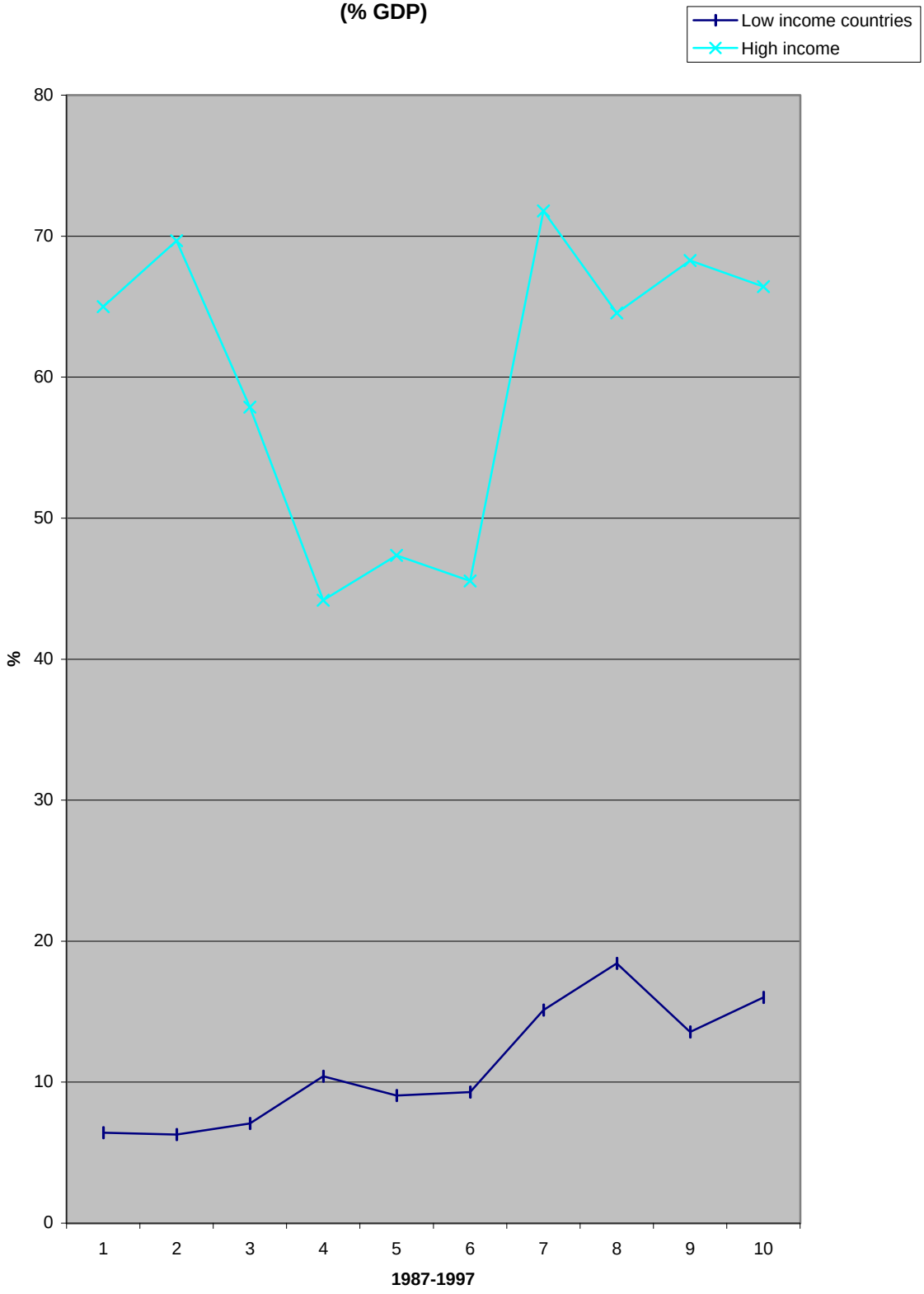
Graph 5a
Fiscal Deficit
(% GDP)



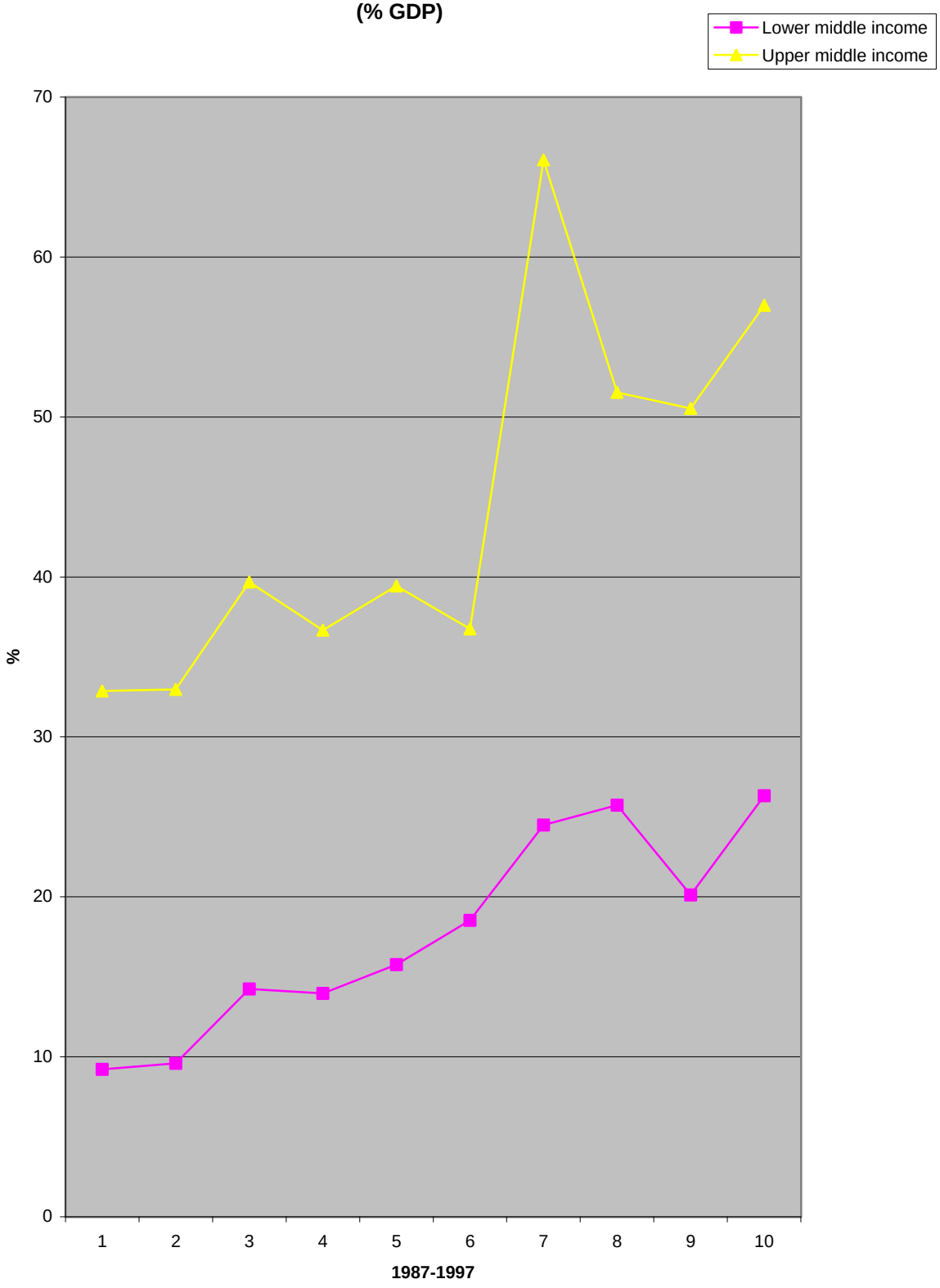
Graph 5b
Fiscal Deficit
(% GDP)



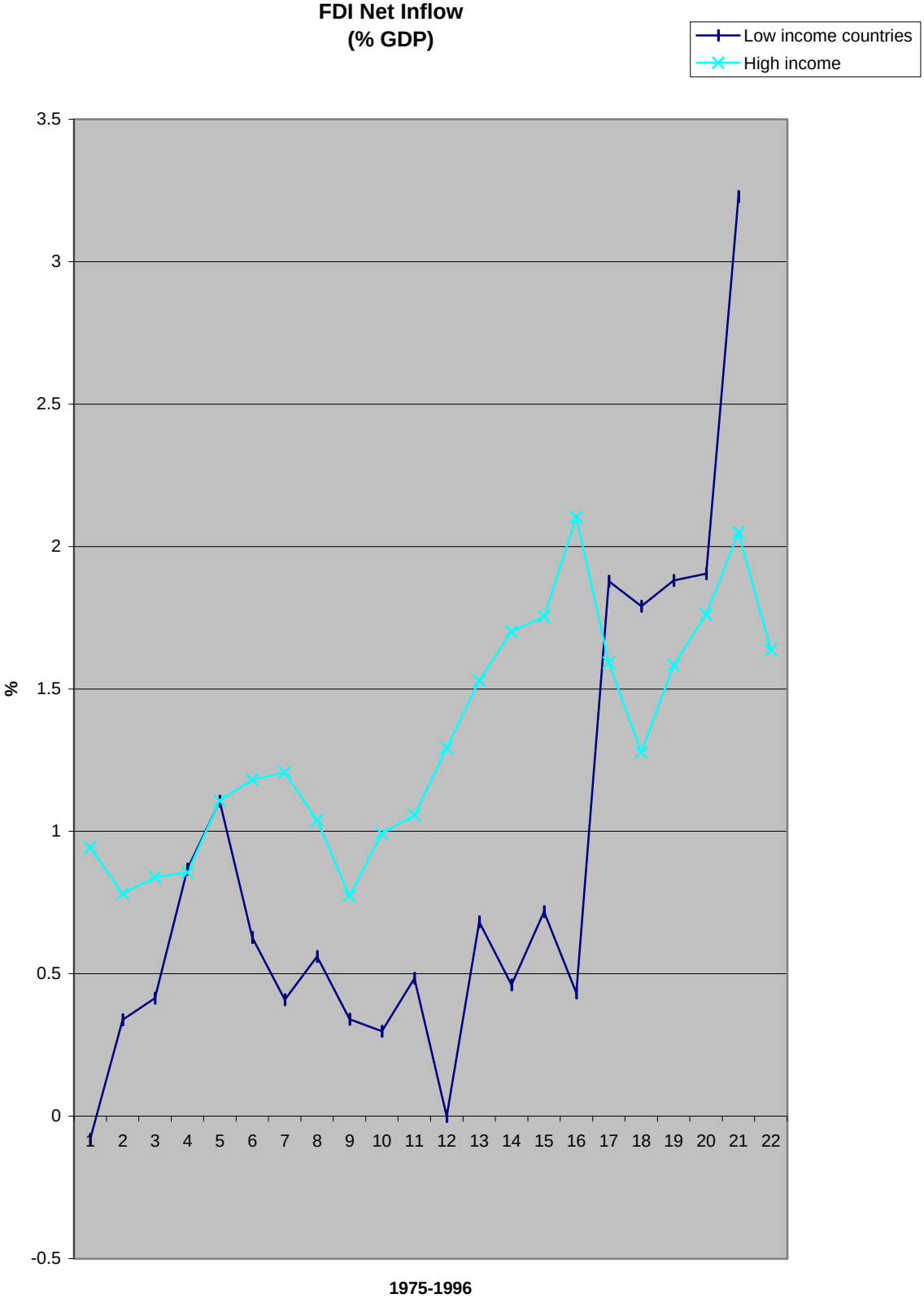
Graph 6a
Stock Market Capitalization
(% GDP)



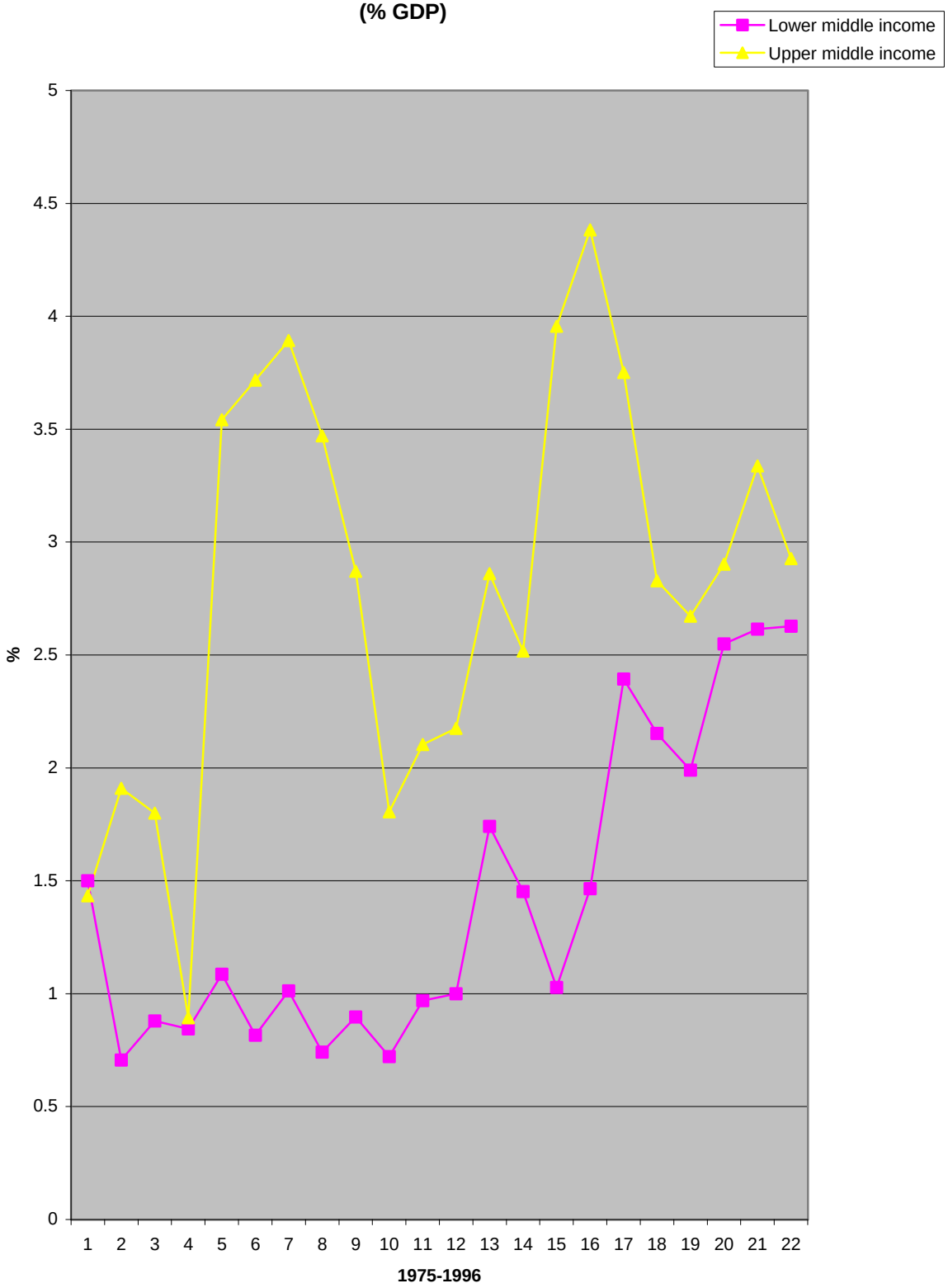
Graph 6b
Stock Market Capitalization
(% GDP)



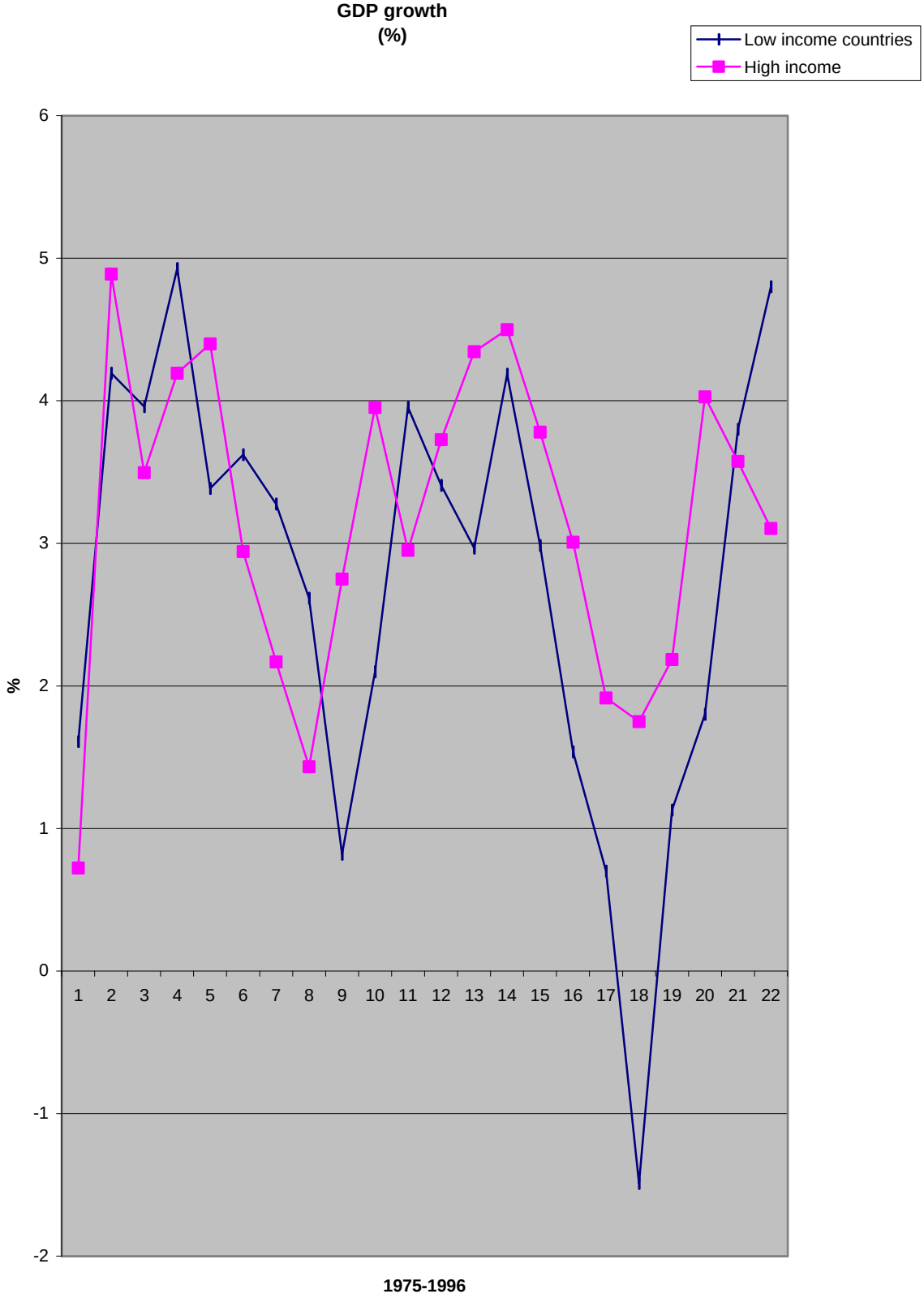
Graph 7a
FDI Net Inflow
(% GDP)



Graph 7b
FDI Net Inflow
(% GDP)



Graph 8a
GDP growth
(%)



1975-1996

Graph 8b
GDP Growth
(%)