



Initiative *for* Policy Dialogue

Based at Columbia University 

Working Paper Series

Structural Adjustment and Sustainable Development

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STRUCTURAL ADJUSTMENT AND SUSTAINABLE DEVELOPMENT

Human capital and technology are important factors of production and are essential for economic growth. Preservation of natural capital (environment and natural resources) at adequate levels, on the other hand, is important to prevent long run growth to become unsustainable. The role of research and development (R&D) as well as of education and health care in allowing for continuous increases in productivity and growth has been shown by a large number of empirical growth studies (Krueger and Lindahl, 2001; Barro and Lee, 1994). Perhaps even more important, human capital accumulation is inherently welfare increasing and, moreover, economies that base growth in an adequate balance of human assets and physical assets are more likely to sustain growth in a context of social equity.

Adequate investments in human knowledge and other forms of human capital ultimately allow for the persistence of high rates of return to private investments in physical assets and, hence, to preserve the incentives to continue investing over time. The decreasing marginal returns to private investments can be prevented by expanding human assets that are complementary with physical assets. Economic growth over the long run is thus feasible. Countries that fail to promote human capital sufficiently and rely too heavily on physical capital accumulation for growth tend to be affected by biased income distribution, more poverty, and greater environmental degradation (World Bank, 2000). All this conspires against the chances of sustaining economic growth itself.

Human and natural assets have certain intrinsic properties that are important to assure social equity. There is a key asymmetry between human and environmental assets on the one hand, and physical capital on the other: Human assets, unlike physical assets, tend to disperse more easily across the population. This is in part due to the decreasing marginal productivity of education and health investment in one single individual as a consequence of the limited span of human life. By contrast, human capital may have increasing returns at the aggregate as it is dispersed across the population. Accumulation of human capital naturally leads to its dispersion across the population¹. This dispersion effect is largely responsible for the positive income distribution effects of human capital accumulation. By contrast, physical capital can be almost endlessly concentrated in a few firms or individuals, especially large firms and wealthy individuals that face few restrictions in capital markets and are able to exploit the considerable economies of scale at the firm level that are often available.

¹ The dispersion effect of education is empirically documented by studies that show the normally rapid decline of inequality in education as the average level of education increases. Thomas, Wang and Fan (2000) examine the experience of 85 countries over the period 1960-95 showing that 81 of them have experienced a decline of the education Gini coefficient at a rapid pace. China, for example, experienced over the period 1975-95 a 40% decline in the education Gini while the distribution of physical capital became considerably more concentrated. In Korea the education Gini fell by more than 50% over the same period.

The positive social equity effect is also valid for natural capital. The literature has shown that most of the costs of the degradation of natural capital are primarily paid by the poor, whose income is most dependent on such capital (Dasgupta, 1993). In general, while the wealthy can substitute environmental losses with more private goods, the poor can do this only to a limited extent (López, 2005). Thus, investing in the protection of natural capital is most beneficial to the poor and tends to promote more social equity. In addition, more human capital-driven growth is generally less environmentally demanding than growth based more on physical capital accumulation (World Bank, 2000). Thus, an adequate balance of investments in human assets and physical capital not only tends to be socially equitable but also environmentally friendly, with additional pro-poor secondary effects. Finally, human and environmental assets are likely to play a direct role on welfare in addition to their indirect welfare effect via economic growth. Enhancing human capital in a context of a clean environment are goals by themselves beyond their economic growth effects.

Another important feature of human and environmental assets is that they are much more heavily affected by market and institutional failures than physical assets. The vast positive externalities associated with investments in R&D are certainly well recognized in the literature. Human capital accumulation, apart from also generating positive externalities, is affected by other important market failures especially in developing countries. In particular, common failures in the capital markets and the inherent difficulties in collateralizing human capital means that, in the absence of government intervention, much of the population needs to rely on their own savings to finance even highly profitable investments in human capital. This means that most of the population in poor countries does not have the capacity to implement such investments without *public* support, even if they have high private rates of return. Similarly, the market failures affecting the environment and natural resources associated with inherent difficulties of defining property rights and developing other environmental institutions are also well understood (World Bank, 2003). Of course ill-defined property rights on natural resources are even more pervasive in poor than in rich countries.

All this gives human (including R&D) and environmental assets a public or semipublic good character. The rate and patterns of investment in human and environmental assets are largely dependent on the state. It is mainly through the support to the accumulation of these assets where public policies become most crucial. If the state does not directly or indirectly invest sufficiently in these assets is going to dramatically affect the rate as well as the quality of growth. What is “sufficiently” is something that we consider below.

The significant degree by which market and institutional failures negatively impinge upon the investments in human and environmental assets and the consequent direct or indirect reliance on the government for the provision of such assets, may lead one to hypothesize that there is a tendency to under invest in them². This presumption is strengthened by certain political economy considerations: The state tends to be controlled

² By contrast, accumulation of physical assets, although also affected by externalities and market failures, is more market-driven depending much more on the private sector than on governments.

by economically powerful groups that are likely to lobby governments more for private goods (e.g. subsidies) that benefit them directly than for the provision of public goods of which they share only a fraction of their benefits. Thus there is a risk that spending government financial, human and institutional resources in human and environmental public goods is *crowded out* in favor of government spending in private goods.

In part 1 of the paper we provide empirical evidence for developing countries showing that this crowding out phenomenon is indeed relevant for most of them. Also, we present evidence suggesting that under investment in public goods is in many countries a major distortion that at least in part explains the triple curse affecting the vast majority of the developing countries over recent decades: Slow growth, large social inequities and poverty, and environmental destruction.

In part 2 of the paper we examine the contribution of structural adjustment at the light of the above framework. Structural adjustment, as conceived and promoted by the World Bank and the IMF since the mid eighties, encompasses several policy changes: 1. Macroeconomic stabilization (fiscal deficit reduction, tighter monetary policies), exchange rate adjustments, and opening the economy to short term and long term capital flows. 2. Privatization of state enterprises and, more generally, a significant downsizing of the role of the state in the economy. 3. Increased role of the markets in resource allocation through the removal of price distortions, where trade liberalization and other domestic commodity and factor market price reforms play key roles.

Rather than analyzing how each of the reforms may affect the environment, we instead focus on the following questions: Is structural adjustment likely to correct the under investment in human capital and environmental capital discussed above? Can we identify specific policies within structural adjustment that are likely to particularly affect such under investment? We certainly do not try to be comprehensive in our evaluation of the reforms; we intend, instead, to provide certain insights of, in our judgment, important aspects that previous studies have tended to overlook. The idea is that since behind environmental destruction there is a common policy denominator that also causes social inequities, poverty and slow long run economic growth, focusing on how structural adjustment affects such a common denominator is probably quite useful. In the analysis we will focus mostly on the macro component of the reforms while we shall consider the remaining reforms mostly on a tangential form.

1. Under-investment in human and environmental assets

Empirical studies show extraordinarily high rates of return to investments in human and environmental public goods. The literature reports such high returns with an amazing degree of consensus for many countries around the world. Investments in formal education (especially in secondary education), R&D (both in agriculture as well as in other sectors), agricultural extension, air and water pollution abatement, and investments

in the management of certain natural resources are reported to have very high rates of return. The permanence of such high returns per se does not necessarily reflect under investment mainly given the existence of significant non convexities. Non-convexities may imply that the marginal returns to these assets do not necessarily fall or decrease only very slowly with their accumulation. Thus, if this is the case, even a rapid accumulation of the assets would do little to reduce their rates of return. However, given such high returns, one would expect a great emphasis of governments in investing in such assets. Yet, as we shall see, this is not the case. In fact, in the overwhelming majority of the developing countries, investment in human and environmental assets has not even kept up with population growth. That is, per capita human and environmental wealth appears to be declining.

Returns to Education

Two recent surveys, one by Psacharopoulos (1994) and another one, an update of such survey by Psacharopoulos and Patrinos (2002), report findings of hundred of studies around the world that have used a great variety of methodologies and diverse type of data and time periods over the last three decades or so. Despite this variability in data, countries and methodology, there is a high degree of homogeneity of the results for most countries. In fact, the calculated rates of return found in the great majority of the countries analyzed are extremely high. The average private rate of return for investment in primary education is about 20%, while the average social rate of return was about 30%³. Only in a handful of countries the returns to primary and secondary education are both below 15%. In addition, from the evidence for countries that have more than one study, it follows that in the vast majority of them the rates of return to education have not declined over time.

It is hard to imagine discount rates even near these rates as shown by the large number of projects that are implemented with much lower ex-ante rates of return in developing and developed countries alike. Despite these large rates of return, in most developing countries one encounters massive school drop-out rates, especially at the late primary and high school levels. Even in middle income countries such as Chile, Brazil and Mexico, high school drop out rates reach 40% to 50% (World Bank, 2000). Even primary school drop out rates were also high in the 1990s: Chile, 23%; Mexico, 28%; Indonesia, 23%; Philippines, 30%. Similarly, public expenditure per student as a percentage of GDP per capita was extremely low. According to the World Bank (2003) public expenditure per student in primary school was about 8% of per capita GDP in Argentina, 9% in Chile, 7% in Mexico and 2% in Venezuela. This compared to 23% in Korea or the United States.

The high rates of return of schooling and the also high rates of school desertion may be mutually consistent if liquidity constraints prevent parents to afford children education even if it is “freely” provided by the state. This issue becomes more acute

³ Examples of most recent studies: Brazil, 35.6% for primary and 21% for higher education; Uganda, 66% for primary and 28.6% for secondary ; Morocco, 50% for primary and 10% for secondary; Taiwan, 27.7% for primary and 17.7% for higher; India, 17.6% for primary and 18.2% for higher. These are social rates of return, with the exception of India. Private rates are even higher.

when children have an opportunity cost in the child labor market or in subsistence family operations. In fact, certain government programs that reduce the opportunity cost of attending school by children in working age (above 10 or 11 years old) and that reduce commuting time to school by increasing public school density especially in rural areas, have been quite successful in increasing school attendance. Making parents more aware of the value of education and increasing their participation in their children's education is another effective mechanism to promote more school enrollment. All this, however, requires a greater allocation of government resources to education, including not only public financial resources, but *also* human and institutional resources. In a context of a usually tight availability of such resources, this additional allocation of government resources to education obviously needs hard choices in terms of cutting other expenditures or increasing public revenues. Based on the available data on government expenditures per student as a proportion of per capita income, governments in developing countries are not opting for such choices. They seem to have other priorities.

R&D and farm extension

A survey by Alston et al (2000) reviewed almost 300 studies that evaluated private and social rates of return to agriculture R&D and farm extension in about 95 countries. The methodologies and data used varied dramatically across the many studies. The simple mean (social) rate of return for agricultural research among all studies in developing countries was over 50% while the mean rate of return for public expenditures in agricultural extension was even higher, of the order of 80%! In most countries these rates rarely fall below 30%, still obviously a fantastic pay off. Exploiting the fact that there are many countries for which there is more than one comparable study available, the authors concluded that, as in the case of returns to education, there is no evidence to support the view that the rates of return have declined over time. Despite this great social profitability, studies often report that with few exceptions countries are not expanding agricultural R&D and many have indeed drastically cut them back⁴.

R&D in non-agricultural contexts, especially those that emphasize research on the adaptation of foreign technologies also seem to yield very large returns. Countries that are able to more rapidly incorporate new industrial technologies into the productive system have been shown to grow faster than countries that are slower to do so. Although, unlike agricultural research, much industrial R&D is often directly done by the private sector itself, the large positive externalities of such research are by now well documented. Yet well structured and systematic public programs to support industrial R&D by the private sector are seldom encountered in developing countries.

⁴ The case of Peru is illustrative. In the mid nineties the government decided to privatize agricultural research. The government sold 21 agricultural experiment farms where most of the agricultural research in the country was performed. The result, by the year 2000 twenty of the twenty one experiment stations had been transformed into commercial farm operations. Only one remained as an experimental farm. Agricultural research in Peru practically became extinct.

Returns to public investment in pollution abatement and natural resource management

World Bank (2000) examines a great number of studies that report the health benefits of reducing air and water pollution in developing countries. As with the case of the other public goods discussed above, the dollar value of pollution reduction vis-à-vis its cost is highly favorable even if one uses a relatively high time discount rate. Cost benefit analyses for controlling air pollution in many large cities in Asia and Latin America have consistently yielded extremely high rates of returns to such investments (World Bank, 2000; O’Ryan et. al., 2001). The same is true for investments in decreasing urban water contamination including sewage treatment plants and related investments. For example, according to various World Bank studies cited in World Bank (2000), in China a \$40 billion investment in clean water within a 10 year period would yield a present value benefit of \$80 to \$100 billion. In Indonesia a \$12 billion investment would give benefits of the order of \$25 to \$30 billion in terms of present value. Some studies for investment in air pollution control in various countries provide estimates even more favorable than the clean water investment. In China, for example, according to the World Bank, a \$50 billion investment for selected cities could return benefits of the order of \$200 billion in reduced illness and death.

Despite the high rates of return to investments in urban water and air pollution abatement, such investments do not seem to have received a high priority as shown by available indicators for cities in developing countries. For example, according to a sample of cities with per capita income below \$2500 for the year 1998, less than 40% treated their waste water, and less than 60% of the population had water or sewage connections (World Bank, 2002).

High returns but low investment in human and environmental assets

The emerging literature on genuine savings is providing a clearer picture of the real changes in wealth over time. The World Bank has provided estimates of *genuine* investment for many countries by adding net investment in human and natural capital to estimates of net investments in physical capital (Hamilton, 2001). Apart from extending the analysis to more than 110 countries, an important modification over previous estimates of genuine savings done by the World Bank is that now measures of change of net wealth are expressed on a per capita basis. Per capita rather than total wealth change is an adequate and consistent measure of welfare change (Dasgupta and Maler, 2002). The measure of per capita genuine savings as defined by Hamilton in his country estimates equals net investment in manufactured or physical capital minus depletion of natural resources plus net investment in education, health and R&D.

The estimates for the year 1997 show that out of 90 low and middle income countries in Asia, Africa and Latin America, 71 (or about 80% of them) exhibit *negative*

per capita changes in wealth. While these estimates cover a large sample of countries the fact that they refer only to one year raises the question of how representative this year might be. An analysis using the same definition of wealth as Hamilton but that covered a 20 year period was performed by Dasgupta (2002). Five Asian countries (Bangladesh, India, China, Nepal and Pakistan) and Sub-Saharan countries over the period 1973-1993 were considered. This analysis shows similar results to Hamilton's. Not only Sub-Sahara Africa has experienced decreased per capita net wealth, but four of the five Asian countries also show negative per capita wealth changes. The only exception is China, which, as in Hamilton's analysis, has managed to accumulate wealth in advance of its population growth.

The overwhelming majority of the countries considered by Hamilton and Dasgupta show positive per capita growth rates for physical capital, implying that the reason for the negative growth rates of total wealth is that human, knowledge and environmental assets are growing at a rate below that of population. That is, as a minimum 80% of the countries considered are experiencing reductions in their per capita human and environmental wealth. Since at least some countries may be compensating the declines of human and environmental assets with positive per capita growth of physical assets, the number of countries experiencing declines in human-environmental assets may be even larger.

By combining the data provided by Hamilton with national account data on gross (physical) capital formation, I calculated the implicit per capita changes in human and environmental assets for the 10 largest economies in Latin America as well as Uruguay and Costa Rica (Table 1)⁵. In calculating rates of capital growth from gross capital formation data, I assumed a 5% depreciation rate and followed the common practice of assuming that the physical capital stock/GDP ratio is 3. Over the period 1990-2001 as well as in 1997, all of them except Colombia experienced positive rates of growth for physical capital per head. In nine out of twelve countries total net wealth per head declined. Only Chile, Costa Rica and Uruguay experienced increases of per capita total wealth. In all ten large countries the rate of growth of per capita human (including R&D) plus environmental assets was negative, with some countries such as Ecuador, Venezuela, Bolivia and Paraguay showing dramatic reductions in excess of 2% per annum. Even Chile, which was the only country among the ten large ones having positive per capita total wealth change, appears to reduce human-environmental assets per capita slightly. Only the two smaller economies, Costa Rica and Uruguay, experienced positive changes in per capita human and environmental wealth, with the former showing an impressive 1% gain and Uruguay a slight increase of 0.2% per annum.

To contrast these numbers with two successful countries, I also present in Table 1 the corresponding estimates for Korea and Ireland. As can be seen, in sharp contrast with the Latin American countries, both Korea and Ireland show positive per capita increases of both physical assets and human-environmental assets. Interestingly, these countries show human-environmental capital growing at a slower pace than physical assets.

⁵ I subtracted estimates of per capita net physical capital formation from the change in total net wealth per capita to obtain estimates for the growth of per capita human and environmental assets.

However, the ratios between the growth rates of human-environmental assets and those of physical capital are less than one to three in Korea and less than one to two in Ireland. We could speculate that perhaps these ratios may be considered an approximation of what “balanced” growth might be to assure sustained economic growth. Also interesting is the fact that Costa Rica is completely atypical to Latin America in this respect. In fact, it is closer to the case of Ireland.⁶

We thus have an important paradox. Despite the apparently large rates of return to human and environmental assets, the emerging literature on genuine savings is showing that the overwhelming majority of the developing countries are reducing the per capita availability of such assets.

Under investment, government financial constraints and public expenditure priorities

The analyses in the previous sections show that most developing countries under invest in public human and environmental goods. Of course the failure of the private sector to exploit these large rates of return is explained by the market and institutional failures affecting these assets that we already discussed. The issue is why governments have not either themselves invested or provided the conditions for the private sector to invest in them. The fact that, according to so many studies, these assets have extremely high rates of return and that public investment in them have, nevertheless, been so sluggish may reflect a significant policy failure associated with failing to exploit such investment opportunities. Could it be that governments in developing countries face such strenuous financial constraints (in part due, for example, to the fact that the countries are poor and have little access to international lending sources) and are thus forced to forego such dramatic investment opportunities?

It turns out that governments in most LDCs spend public resources in dubious investments and unproductive and even perverse subsidies, mostly to the benefit of the rich. Van Beers and de Moor (2001) estimate that developing countries (non-OECD) spend more than 25% of their government revenues and more than 6% of their GDP in

⁶ Using the data in Table 1, I run a regression to explain average annual economic growth of per capita GDP (Gy) over the ten year period as a function of annual average growth of physical capital per head (Gk) and growth of per capita human and environmental assets (Gh). The results are the following (t-statistics in brackets):

$$Gy = 0.024^{***} + 0.46^* Gk + 1.21^{***} Gh; \quad N = 12; \text{ Adj.R} = 0.74; F = 10.47$$

(4.49) (2.09) (5.86)

Thus a one percentage point increase of the rate of growth of human-environmental capital seems to have a much more powerful effect on long term economic growth than a similar acceleration in the rate of growth of physical capital. This would suggest that the slow or negative growth of human-natural capital that so many developing countries have experienced may have implied a considerable loss in terms of long term growth. Of course this is a highly limited and simplistic exercise; it does suggest, nonetheless, that it might be worthwhile pursuing more thorough econometric work using the data emerging from the genuine savings literature.

such subsidies (Table 2)⁷. Ascher (1999) also describes massive subsidies and policy failures in eight developing countries that are not only financially onerous to the public sector but also promote unsustainable use of natural resources and worsen poverty. Just eight countries (Russia, China, India, Iran, Venezuela and Indonesia, South Africa and Kazakhstan) annually spend more than \$17 billion or 0.7% of their GDP (or almost 4% of their government revenues) just in across-the-board subsidies of energy prices (World Bank, 2003).

More evidence on the importance of public subsidies to corporations and to rich producers is emerging in some countries as improved data on public finances is becoming available. A study for Brazil, for example, shows that just the federal government spent in 1998 more than 6% of GDP and almost 30% of the total federal government revenues in this type of subsidies, including credit subsidies to corporations, financial grants, tax holidays and others (Calmon, 200). Additional subsidies are also provided in the form of foregone government revenues related to publicly-owned land, natural resources and other patrimonial assets belonging to society given free of charge or for a nominal fee to powerful economic groups with government connections. In addition, it appears that state governments in Brazil also provide important subsidies⁸. It is quite clear that most of these subsidies are not particularly geared to positive technological or other desirable spillovers associated with firms' investments. A recent study has shown that much of the tax incentives provided to corporations in Brazil do not, in fact, promote investments (Estache and Gasper, 1995). They instead generate rents.

A recent study looks at the allocation of public expenditures in rural areas and its consequences for the rural development in 10 Latin American countries (López, 2004). The study shows that over the period 1985-2000, on average the countries spent about 55% of their total government budget for the rural sector in private goods or subsidies mainly to the wealthy (commodity programs, investment subsidies, credit subsidies, and others). Only about 40% of the rural government budget was spent on public goods including education, health, R&D, roads and the environment.

That corporate subsidies, at least in the form in which they are usually allocated, do not generally promote investment or more R&D has been shown by several studies in various countries. Empirical studies using detailed firm level data by Bregman et.al. (1999) for Israel, Fakin (1995) for Poland, Lee (1996) for Korea, Harris (1991) for

⁷ To compare, OECD countries spend about 15% of government budgets and 3.4% of GDP in similar subsidies.

⁸ There is no systematic data on subsidies provided by state governments in Brazil. The little evidence available, however, shows that they have not stayed much behind the federal government in their generosity towards big business: According to Alves (2001), three agreements made by Mercedes-Benz with the state of Minas Gerais, General Motors with Rio Grande do Sul, and Renault with the state of Parana had a total fiscal cost of about US\$850 million in terms of soft loans, tax exemptions, financial grants, land grants and others. These investments yielded between 4,500 and 5,500 new jobs at a fiscal cost to Brazil of US\$150,000 and US\$190,000 per job. According to Alves, most subsidies were the result of states competing among each other to attract the investments, which would have been made in Brazil anyways even without subsidies. The subsidies were a payoff to a common strategy by large corporations to stimulate "tax wars" among states.

Ireland and several others have shown that subsidies and corporate tax concessions are at best ineffective to promote investment and technological adoption and, in some instances, even counterproductive. Crowding out of private investment as a consequence of the subsidies may occur. Firms that do not receive the subsidy (in most cases the subsidy is received by a subset of the firms in an industry, not by all), may easily postpone profitable investments if they believe that with some more lobbying they may persuade the government to give them an investment subsidy in the future.

The above findings are econometrically corroborated in the López (2004) study for the rural sector in Latin America. He found that increasing the share of non-social subsidies in rural government expenditures greatly *reduces agricultural per capita GDP, increases rural poverty* and promotes a pattern of agricultural growth that is based more on agricultural land expansion than on intensification. In countries where there are forests remaining this extensive pattern of growth means a greater expansion of the agricultural frontier causing *more deforestation*. That is, subsidies in rural areas are detrimental for long-run growth of agriculture, social equity and the environment; this can be called the *triple curse* of non-social subsidies.

The previous discussion allows us to discard the explanation that governments in developing countries fail to invest more in high yielding public goods such as human capital, technological innovation and the environment because they are poor or because of tight financial constraints. Governments under invest in assets that have such high rates of return while, at the same time, spend a large portion of their revenues in low yielding or even counterproductive subsidies. So this is a problem of wrong priorities rather than of poverty. It is therefore natural to search for governance failures as an explanation for this phenomenon.

Governance failures

An important study by Deacon (2002) sheds light on the issue of how certain categories of governance affect the provision of public goods. Using a sample of 90 countries over the period 1972 to 1992 (with the following breakdown of the observations: 36% democracies, 54% dictatorships and 10% mixed), Deacon shows that the provision of several public goods including secondary school enrolment, access to safe water and sanitation, lead in gasoline and roads dramatically improves in democracy vis-à-vis dictatorship and other intermediate forms of governance. These results were obtained controlling for per capita income and population size.

The magnitude of the governance effect on the provision of public goods is impressive: Full democracy relative to dictatorship means an almost 30% increase in the portion of population having access to safe water and 40% increase in sanitation. Secondary school enrolment increases by about 10% in democracy vis-à-vis dictatorship but, even more importantly, the income elasticity of enrolment is twice as high in democracy relative to dictatorship (0.40 versus 0.20). Similar results hold for lead in

gasoline, which decreases over time at a much faster rate under democracy than under dictatorship. Using more continuous indicators of democracy, Deacon shows a monotonic relationship towards greater supply of public goods, *ceteris paribus*, as the form of governance moves from dictatorship towards full democracy. Thus, these results suggest that under investment in public goods is at least in part explained by governance failures associated with lack or insufficient degree of democratization.

Why the style of governance can be such a crucial factor to affect the supply of public goods? A plausible hypothesis is that the more democratic a regime is the greater is the involvement of the civil society in controlling how governments use public resources and that a dictatorial regime is much more prone to be manipulated by small power groups in their favor than democracies. This study distinguishes among fairly broad categories of governance. One may further hypothesize, however, that even within full democracy one may find a variety of regimes more or less prone to yield to especial interest groups. Government accountability and the ability of the civil society to monitor and supervise the allocation of public resources appears to be an important factor in determining the extent of the under investment in public goods.

Returning to Table 1, where we report annual growth estimates of per capita human, technological and environmental assets for the Latin American countries, it can be seen that the four worst cases correspond to Venezuela, Ecuador, Paraguay and Bolivia (all of which showing rates of decrease of at least -2%) . Although all countries in this sample may be considered to have democratic regimes, it is clear that these four are among the countries in the region where the degree of manipulation of the state by power groups is most acute. These are countries where adequate channels for the civil society are least perfected and, consequently, where the degree of accountability and transparency of the government has been most inadequate. Interestingly, three of these four countries (Paraguay, Ecuador, and Venezuela) were the only countries in this sample that experienced negative annual growth rates per head over the period 1990-2001 (Ecuador, -0.4%; Paraguay, -0.6%; Venezuela, -0.6%) despite that all four showed positive and comparatively large growth rates in physical capital per head (Ecuador, 3.5%; Paraguay, 1.6%, Venezuela, 1.5% and Bolivia, 1.0%). In addition, the study by López mentioned above finds that Ecuador, Paraguay and Venezuela were among the countries that spent the greatest share of their public rural budget in non-social subsidies over the period 1985-2000.

Structural adjustment and under investment in human and environmental assets

Structural adjustment has focused mostly on macroeconomic stability and on increasing economic efficiency, especially of price efficiency. Specific objectives were the reduction of the role of the state in the economy and replacing the state allocation of resources with a more market-oriented allocation. Liberalization and deregulation of the capital account, trade liberalization, and elimination of price controls and privatization of

state enterprises were the main mechanisms used to achieve the above objectives. The pre-adjustment situation was typically characterized by widespread price controls, high trade protection and extreme inefficiency of state enterprises. In addition, several countries were affected by significant macroeconomic instability and endemically high inflation rates. In this context it is not surprising that at least some of the reforms may have contributed to reduce price inefficiency. Moreover, certain reforms (perhaps most prominently trade liberalization, the elimination of price controls and the eradication of hyperinflation and other forms of macroeconomic disequilibria) may have contributed to set up conditions that are at least necessary to enable more rapid economic growth over time. From the post-reform experience of many countries that implemented structural reforms (among the most faithful reformists were the Latin American countries that we have considered above with some detail), however, it follows that the structural changes were not indeed sufficient to promote sustained and sustainable economic growth over time.

In fact, below we argue that while some reforms did contribute to generate conditions for economic growth over the long run, a few of them have apparently been counterproductive. More importantly, we postulate that the conception of structural adjustment used an unnecessary narrow definition of efficiency, focusing mostly on price efficiency. The emphasis was on static efficiency gains that provide mostly once-and-for-all increases in income (although such gains can be distributed over a number of years appearing as faster growth). Much less emphasis was placed on dynamic efficiency gains that may generate the conditions for faster economic and sustainable economic growth over the long run and even less emphasis was placed on social equity.

The vital issue regarding the efficiency in the allocation of public resources was largely neglected. In particular, the allocation of government resources to public goods and to overcoming market imperfections vis-à-vis allocations to private goods were mostly ignored or simply took a back seat in the reform advice from international organizations. As we discussed earlier, the low priority that governments give to investing in public goods is a major dynamic inefficiency that conspires against rapid productivity growth, private investment and, ultimately sustainable growth. Judged from this perspective, some of the reforms, in particular those that promoted sweeping cuts in fiscal deficits without giving much attention on how to cut the deficit, and the abrupt liberalization of capital inflows and outflows, have apparently contributed to exacerbate the deep imbalances that have historically characterized the allocation of public resources in most developing countries. That is, have contributed to consolidate rather than eradicate the triple curse effects.

Cutbacks of the fiscal deficits

One of the pillars of structural adjustment was the rapid reduction of government deficits as part of the macroeconomic stabilization program. While the goal of reducing unsustainable deficits as a necessary component to achieve macroeconomic stability was obviously essential, the mechanisms used to achieve it had important consequences. The usual approach was to cut those public expenditures that were easiest to do. Almost

inevitably the public programs that were cut or drastically reduced were those which had the weakest political constituencies. Cutting subsidies to the rich or closing important tax loopholes, or reducing tax evasion, was politically difficult as the groups that benefited out of all this were those able to lobby and bribe politicians most effectively. Reducing investments in public goods was easier than cutting both current expenditures and, especially subsidies to the well-off. Similarly, reducing social expenditures and safety nets favoring the poorest and least influential sectors was also easier. Cutting the existing rather mild environmental programs that helped manage and supervise the environmental impact of large energy, mining, irrigation and other projects was particularly easy and politically convenient. These resources are often controlled by powerful economic groups which are pleased to see such “regulatory nuisances” out of their way.

The literature that evaluates structural adjustment illustrates the process by which fiscal accounts are brought into equilibrium. A study by ECLAC (1989) evaluates structural adjustments taking place in the early and mid eighties in several countries in Latin America. It concludes that adjustment policies failed to protect social expenditures as fiscal austerity was imposed to stabilize the economy. Moreover, the adjustment policies pursued in the 1980s led to cutbacks in current expenditure allotments for managing and supervising investment in sectors such as infrastructure, irrigation, mining and energy. The fiscal adjustment reduced the already limited funds available for environmental impact assessments and the supervision of projects to control their environmental impacts.

Other studies attributed the enormous increase in air pollution in many cities in Latin America to reductions in expenditures in cleaner public transportation while at the same time retaining heavy subsidies on the use of gasoline and other petroleum derived fuels (Reed, 1992; Ten Kate, 1993). A study by the World Bank (1994) for African countries that have undertaken adjustment, found significant declines in government social expenditures, including expenditures in education and health, despite that in the pre-reform period such expenditures were already quite low by comparison to other countries of similar levels of development. Similarly, Stryker et.al. (1989) found that in Sudan and other African countries, fiscal adjustment led to reduced funding for institutional reform such as land titling and other measures to improve property rights as well as to a reduction of public resources available for forest protection and reforestation.

A recent evaluation of fiscal adjustments by the IMF itself gives at least partial support to the above points (IMF, 2003). This report uses both a cross-country sample of 146 countries for the period 1985-2000 as well as detailed desk studies for 15 specific IMF-supported programs. The cross country econometric analysis concludes that, after controlling for other factors, the presence of IMF-supported program does not reduce public spending in either health or education⁹. However, the detailed country specific

⁹ The cross country data base includes a great variety of programs, some at least formally targeting poverty reduction: Enhanced Structural Adjustment Facility and the Poverty Reduction and Growth facility, Stand-By arrangements and Extended Fund Facility Arrangements. They include not only fiscal deficit reduction typical of structural adjustment programs, but also other types of programs. In fact, according to the report in 40% of the cases, the fiscal deficit was allowed to widen. This heterogeneity of the cross country data

study shows a different picture. It finds that only one-third of these programs even considered social programs that need protection, “.....Performance criteria were rarely used to support social measures...” and “...spending categories most critical to vulnerable groups come under pressure and are likely to be pre-empted by other expenditures ...” (p.16). In addition the report recognizes that on the revenue side little attention was granted to income tax evasion reduction, curtailing discretionary exemptions (i.e., subsidies) and improved tax administration. Next we quote an extraordinary recognition that the fiscal adjustment in the way usually implemented may contribute to worsen the overall orientation of the public system to favor vested interests to the detriment of the provision of public goods:

“This evaluation finds that efforts in this area (curtailing discretionary exemptions and reducing tax evasion) by the IMF have not been forceful enough, both in the context of programs and in surveillance, **particularly if they affect powerful vested interests.** Often tax administration reforms have focused on the technology side rather than on politically more difficult actions, such as legislation to empower agencies to pursue tax evasion forcefully and for the system to be less prone to political interference” (IMF, 2003, p.18; highlighted by myself).

The reduction of investments in public goods as well as social and environmental public expenditures that fiscal adjustment tend to impose upon most countries undergoing structural adjustment, appear to magnify the under investment in human, technology and environmental assets that often existed prior to the reforms. Macroeconomic stability is doubtless a necessary condition for achieving sustained economic growth and welfare improvements. However, reliance on cutting public goods as well as social and environmental public expenditures to reach fiscal equilibrium imposes an unnecessary cost to achieve such goal. This added cost is not only a social cost. It means worsening a distortion that, as we have seen before, is one of the causes of long term economic stagnation and environmental degradation in most developing countries. Instead of inducing governments to cut the fiscal deficit by eliminating unproductive subsidies and transfers to corporations and rich individuals and instead of increasing tax revenues by improving collection and charging rents and royalties for access to natural resources belonging to society at large, governments were prompted to reduce key expenditures in public goods with deleterious long term welfare effects. That is, the fiscal adjustment missed the opportunity of integrating the conventional short run goals (fiscal equilibrium) typical of fiscal adjustment with desirable long term objectives (reallocate public sector priorities from supplying private goods to providing more public goods).

To be sure, as macroeconomic stability is achieved, it is possible to reactivate social programs and, in fact, a few of the countries that underwent adjustment have done so in a limited way. But the failure to use better fiscal tools to cut public deficits has meant increased poverty a more degraded environment and, in general, a worsening of the private good-public good supply distortion. Even more important, the approach used to some extent validated an even more unbalanced control of the state by economic elites

may explain why the econometric exercise failed to capture an effect for education and health public expenditures.

that now obtain powerful external support to their objectives of reducing state environmental supervision and lowering the weight of social expenditures in the fiscal budget, which means a greater share of subsidies targeted to them. As “normal” times return and governments gradually are able to increase public expenditures again, the new more favorable (to the economic elites) shares in the public budget are easy to preserve. Thus the short run dynamics of fiscal adjustment leaves at least one permanent effect: the system by which public resources are allocated becomes even more biased toward subsidies and other private goods directed to the wealthy. The control by small but economically powerful elites of the state is consolidated thanks to the implicit and, at times explicit, external support that such elites receive through the way in which fiscal adjustment was implemented. The new political economy conditions mean that under investment in public human and environmental goods becomes now more difficult to address.

Liberalization of the capital account and interest rate policies

Many countries were induced to eliminate most controls on capital movements. This naturally has had positive effects on foreign direct investment and technological transfer. But the insistence of international donors in reducing or eliminating even mild restrictions on financial capital movements causes further macroeconomic consequences that have been discussed at length by several analysts (Stiglitz, 2003). One of the consequences of this has been a large increase in economic instability, which now has a different origin from the old macroeconomic instability, but not because of this is less pernicious. As documented so well by the experience of Latin American countries such as Argentina, Brazil, Mexico and others over the last two decades, serious macro economic crises have taken place at least twice every decade. That is, the historical pattern of periodical balance of payments-cum-exchange rate crises has not been broken. It appears that the lack of control of speculative capital mobility has replaced fiscal imbalances and the consequent cumulative monetization of fiscal deficit as a major factor in promoting these crises.

Also, recent structural adjustment programs have encouraged developing countries to adhere to international (ie., GATS and WTO), regional (through NAFTA and others) and bilateral agreements that protect the profitability of foreign investment. A main mechanism is the use of arbitration tribunals that in general have powers to dictate resolutions that superimpose those of domestic courts. Arbitration is often non-transparent, mostly not subject to appeal and is often biased in favor of protecting foreign investors (Mann, 2004). In particular, Mann shows that recent arbitral rulings have been motivated by the principle that “legitimate and reasonable expectations” of investors must be protected.

The consequence of this has been to considerably limit the countries’ right to set macroeconomic, environmental and social policies that could result in foreign investors attaining profits below their “legitimate and reasonable” expectations at the time of investing. The result: Many countries that have introduced economy-wide policies that violate such expectations are now being subject to international demands for

compensation in arbitral tribunals. According to Solanes (2004), Argentina is facing a damage demands from foreign firms amounting to a total of \$16 billion as a consequence of the exchange rate devaluation which caused reduced profits mainly to utilities and other foreign firms. The same author describes several less dramatic examples of other countries also facing large demands for compensation as a consequence of changes in general policies.

In part as a consequence of the almost unlimited openness to speculative capital, countries tend to become dependent on them during “good times” so that they are deeply affected by the inherent cyclical fluctuations of these financial speculative flows (Griffith-Jones, 1998). The implication of this is that every few years they need a new fiscal and monetary adjustment. Many of the issues concerning the impact of fiscal and monetary adjustment discussed in the previous section apply again. In addition to the fiscal adjustment discussed earlier, a usual response to the crises is a drastic tightening of monetary policy and consequent exorbitant increases in interest rates in a usually vain effort to make the country again attractive to financial capital. That is, any possible progress made in reducing the under investment in public goods that could take place when the economy is normalized, is quickly lost when the new fiscal and monetary adjustment becomes again necessary. Thus, there are two issues: First, an environment of periodical macro economic imbalances is maintained and, second, such imbalances are corrected using inadequate means. The continuous short run macro adjustments effectively impede real progress to correct the massive distortion associated with under investment in public goods.

Apart from macroeconomic instability, the unrestricted opening to speculative capital brings about a tendency among the countries to offer increasingly more beneficial conditions to foreign capital. A “race to the bottom” may in part be intensified by the increased openness of individual countries to foreign financial capital inflows. This phenomenon is empirically documented by an OECD study that looks at the experience of several countries (Oman, 2000). The increased dependence of developing countries upon short term financial flows raises the market power of foreign capitalists willing to invest in developing countries vis-a-vis the individual countries. This, in turn, means more favorable conditions to foreign capitalists and smaller benefits for the host countries, including less tax revenues. Even Chile, which had successfully implemented a mild tax on speculative foreign capital for many years decided to eliminate it. After the latest crisis affecting foreign capital inflows in Latin America, Chile decided that it had to be more competitive in attracting foreign capital, which required that Chile become more a tune with most of the other countries in the region which impose no restrictions whatsoever. The move was, however, costly to the government as the tax, despite being in place for several years was still at the time that it was eliminated yielding important tax revenues (Agosin, 1997). What are going to be the costs in terms of increased macroeconomic instability associated with greater susceptibility to international financial fluctuations remains to be seen.

Although capital openness leads to easier access to international funding sources for the government in the short run, the increased frequency of macroeconomic crises and

the reduced benefits to host countries that such capital inflows bring about, means that over the long run fiscal revenues may, in fact, decrease. This, in turn, implies a restricted availability of fiscal resources for public goods and consequently may induce a worsening of the under investment in public goods, including reduce investment in the management and the protection of natural capital. In addition, the frequent crises and the policy responses unquestionably reduce the potential for economic growth. A dramatic example: The 35 % increase in per capita income of Argentina during 1990-98, the “miracle years”, was more than completely wiped out in the ensuing crisis over the next 4 years. So Argentina has had two lost decades. The 1980s was lost as a consequence of massive economic inefficiency caused by price distortions and extreme macroeconomic instability associated with the prevailing pre adjustment policies. The 1990s was lost too in large part because of misguided macro policies largely induced by adjustment policies.

In a context where the underinvestment in public goods is worsened, it is not surprising that the likelihood of further environmental degradation and slower or even negative improvements of human capital and knowledge is enhanced. The decline of per capita human and environmental wealth and the slow rates of economic growth in the Latin American countries may in part be a reflection of the increased dependence on financial capital inflows and of the misguided policy response to macroeconomic crises built in the very conception of structural adjustment.

The new emphasis on poverty and social equity of structural adjustment

Over the nineties the World Bank and other international institutions began to focus on poverty reduction and even on measures to reduce inequality and increase education expenditures (World Bank, 2004). Unfortunately the prompting of governments to spend more on social programs and education has not been coupled with an advice to reduce non-social subsidies as well. In fact, governments with the tacit or explicit support of international organizations have continued to protect a great volume of financial, human and institutional resources devoted to the supply of subsidies to the wealthy.

Thus the strategy of expanding education and social programs while keeping subsidies intact can be financed only if: (i) A reduction in the provision of other public goods is curtailed; (ii) taxes are increased; (iii) government borrowing and thus more debt; (iv) any combination of the above. Alternative (i) obviously implies that the overall issue of under provision of public goods is not solve and, therefore, much of the triple curse remains in place. Alternative (ii) may help solving the under supply of public goods but its efficiency and even its net equity effect are questionable. The reason is that the tax system in most developing countries is very inefficient and socially regressive as a consequence of high levels of tax evasion and extreme reliance on indirect taxes (World Bank, 2004). Finally, alternative (iii) may attempt against the sustainability of growth and cause over the long run an even greater restriction on the supply of public goods. Increasing government borrowing (often in the international markets) may be adequate as a short run strategy. However, relying too much on such an approach increases the debt service thus restricting the availability of government resources to finance public goods.

Worse still, it could easily trigger a severe financial collapse once international conditions become tighter such as during the 1997 Asian crisis which affected most third world countries. In the end strategy (iii) may cause recession, unemployment and the collapse of the programs themselves¹⁰.

3. Conclusion

With the important exception of China and a handful of other countries mainly in Asia, the vast majority of the developing countries have been over the last two decades affected by a rather dismal performance. Slow economic growth, deep social inequities and persistent poverty, and rapid environmental degradation have been features characterizing the experience of most countries. We have argued that behind the three evils of economic stagnation, social inequity and environmental degradation there is a massive policy failure that is rarely discussed in this context: Governments have failed to invest enough in public goods such as R&D, human capital and the management of the environment despite that such investments have very high rates of return. Instead they spend a significant part of their resources in subsidies and other private goods of dubious economic value. The available empirical evidence strongly suggests that in most developing countries there is serious underinvestment in public goods. The availability of certain important public goods has not kept pace with population growth in the overwhelming majority of developing countries. This decline in publicly supplied wealth per head, which has not been offset by the generally positive growth rates of privately supplied assets (mostly physical capital), appears to at least in part explain the dismal performance of a large number of developing countries.

We suggest that evaluating structural adjustment within this framework is appropriate. A conclusion is that while structural adjustment has allowed correcting certain distortions existing prior to the reforms, in general the adjustment has failed to set up the conditions for sustained and environmentally sustainable growth. The early reforms focused too narrowly in addressing one form of economic efficiency, price efficiency, and in reducing macroeconomic imbalances without adequately protecting both social spending and, more generally, the supply of vital public goods that were already under provided before the reforms. The more recent structural reforms have promoted investments in poverty alleviation and human capital. However, by not simultaneously promoting enough cuts of government subsidies to support the financial, human and institutional costs that such programs entail, the effectiveness of such approach has been limited and in some cases have contributed to unsustainable public debt and economic collapse.

¹⁰ Argentina over the first half of the nineties is a good example of the borrowing approach; Argentina increased during such period both social programs and non-social subsidies quite rapidly, using mostly foreign borrowing as a key mechanism to finance the ever increasing fiscal expenditures (with the enthusiastic approval and support of the IMF and the World Bank). Once the financial crisis arrived Argentina eventually faced the dried up of foreign funds and with the need to service a huge foreign debt thus triggering devaluation and one of the deepest economic depression ever seen in Latin America. The crisis brought a great worsening of poverty and social equity.

In the end, far from addressing under investment in public goods, structural adjustment contributed to worsening such under investment. Moreover, it also contributed to create political economy conditions that make even more difficult to change the traditional government approach. A strategy of reducing government expenditures in private goods, including unproductive subsidies, as a necessary step to expand investments in public goods, may be more difficult as a consequence of the political economy legacy of structural adjustment.

References

- Agosin, M. (1997), "Managing Capital Inflows in Chile". *Estudios de Economia* 24.
- Alston, J., M. Marra, P. Pardey, and P. Wyatt (2000). "Research Return Redux: A Meta-Analysis and the Returns of R&D". *Australian Journal of Agricultural Economics*, 44, 1364-85.
- Alves, M. (2001). "Guerra Fiscal e Financas Federativas no Brasil: O Caso do Sector Automotivo", Instituto de Economia, Universidad de Campinas, Campinas, Brazil.
- Ascher, W. (1999). *Why Governments Waste Natural Resources-Policy Failures in Developing Countries*. Baltimore: Johns Hopkins University Press.
- Barro, R. and J. Lee (1994). "Losers and Winners in Economic Growth". In *Proceedings of the World Bank Annual Conference on Development Economics 1993*. World Bank, Washington, DC.
- Bregman, A., Fuss, M., and Regev, H. (1999). "Effects of Capital subsidization on Productivity in Israeli Industry". *Bank of Israel Economic Review*, 77-101
- Calmon, P. (2003). "Notes on Subsidy Evaluation in Brazil", Unpublished, World Bank, Washington, DC.
- Dasgupta, P. (1995). *An Inquiry into Well-Being and Destitution*. Oxford: Clarendon Press.
- Dasgupta, P., and K-G Maler (2002). "Decentralization Schemes, Cost-Benefit Analysis, and Net National Products as a Measure of Social Well-Being". *Environment and Development Economics*.
- Deacon R. (2002). "Dictatorship, Democracy, and the Provision of Public Goods", Department of Economics, University of California, San Diego
- Economic Commission For Latin America, ECLAC (1989). "Crisis, External Debt, Macroeconomic Policies and their Relation to the Environment in Latin America and the Caribbean", Paper prepared for the meeting of Experts on Regional Cooperation in Environmental Matters in Latin America and the Caribbean, UNEP, Brasilia.
- Estache, A., and Gaspar, V. (1995). "Why tax Incentives do not Promote Investment in Brazil. In A. Shah (Ed.), *Fiscal Incentives for Investment and Innovation*. Baltimore: Oxford University Press.
- Griffith-Jones, S. (1998). "How to Protect Developing Countries from Volatility of Capital Flows". *Institute of Development studies*.

- Hamilton, K. (2002). "Dictatorship, Democracy, and the Provision of Public Goods", The World Bank, Environment Department, Washington, DC.
- IMF, Independent Evaluation Office (2003). "Fiscal Adjustment in IMF-Supported Programs". International Monetary Fund, Washington, DC.
- Krueger, A., and Lindahl, H. (2001). "Education for Growth: Why and for Whom?" *Journal of Economic Literature*, 39.
- Lee, J.W. (1996). "Government Intervention and Productivity Growth". *Journal of Economic Growth*, 1(3), 392-415.
- López, R. (2004). "Why governments should stop Non-Social Subsidies: Measuring their Consequences for Rural Latin America". University of Maryland, College Park.
- López, R. (2005). "Intragenerational vs Intergenerational Equity: Views from the South". In Simpson, D. and M. Toman (eds.), *Scarcity and Growth*, Resources for the Future, Washington, DC.
- Mann, H. (2004). "International Economic Law: Water for Money's sake?" Paper Presented at the I Seminario Latino-Americano de Políticas Públicas, Brasilia.
- Oman, C. (2000). "Policy Competition for Foreign Investment." OECD Development Centre, Paris.
- Panayotou, T. and C. Sussangkarn (1991). "The Debt Crisis, Structural Adjustment and the Environment: The Case of Thailand". Paper prepared for the World Wildlife Fund Project on the Impact of Macroeconomic Adjustment on the Environment, October.
- Psacharopoulos, G and H Patinos (2002). "Returns to Investment in Education: A Further Update" World Bank Policy Research Working Paper #2881, Washington DC.
- Psacharopoulos, G. (1994). "Returns to Investment in Education: A Global Update". *World Development*, 22(9), 1325-1343.
- Solanes, M. (2004). "Contratos y Acuerdos Internacionales de Inversión". Economic Commission for Latin America, Santiago, Chile.
- Stiglitz, J. (2002). "Development Policies in a World of Globalization" Paper presented at the Seminar "New International Trends for Economic Development", BNDES, Rio de Janeiro, Brazil.
- Stryker, J., et. al. (1989). "Linkages Between Policy Reform and Natural Resource Management in Sub-Saharan Africa". Unpublished, Fletcher School, Tuft University. June.

Ten Kate, A. (1993). "Industrial Development and the Environment in Mexico". Policy Research Working Paper #1125, World Bank, Washington DC. Ascher, W. (1999).

The World Bank (2000). *The Quality of Growth*. Oxford University Press, Washington, DC.

_____ (2003). *World Development Report 2003. Sustainable Development in a Dynamic World*. World Bank and Oxford University Press, New York, NY

Thomas, V., Y. Wang, and X. Fan (2000). "Measuring Education Inequality: Gini Coefficients of Education". Working Paper, World Bank Institute, Washington, DC.

Van Beers, C., and de Moor, A. (2001). *Public Subsidies and Policies Failures*. Northampton, MA: Edward Elgard.

Table 1. Per Capita Annual Asset and GDP Growth Rates for Selected countries in Latin America (1990-2001).

	Growth of Physical Capital per Capita	Growth of Human & Environmental Assets Per Capita	Growth of Net Total Wealth Per Capita	Per Capita GDP Growth
Mexico	2.0 %	-0.6%	-0.1%	1.5%
Paraguay	1.6 %	-1.8 %	-1.0 %	-0.6 %
Chile	3.0 %	-0.6 %	0.2 %	4.9 %
Ecuador	3.5 %	-2.6 %	-1.3 %	-0.4 %
Costa Rica	1.4 %	1.0 %	1.1 %	3.0 %
Peru	1.8 %	-0.8 %	-0.2 %	2.6 %
Uruguay	0.0 %	0.2 %	0.1 %	2.2 %
Argentina	0.0 %	-0.5 %	-0.4 %	2.4 %
Colombia	-0.6 %	-0.7 %	-0.7 %	0.8 %
Bolivia	1.0 %	-2.0 %	-1.6 %	1.4 %
Brazil	2.0 %	-0.6 %	-0.1 %	1.4 %
Venezuela	1.5 %	-4.0 %	-1.5 %	-0.6 %
Comparators				
Korea	3.5 %	1.2 %	1.8 %	4.7 %
Ireland	2.7 %	1.7 %	2.0 %	6.8 %

Table 2. The Global Costs of Public Subsidies per Year, 1994-98 (US\$ Billion)

	OECD	Non-OECD	World
<i>Natural Resource Sectors</i>			
Agriculture	335	65	400
Water	15	45	60
Forestry	5	30	35
Fisheries	10	10	20
Mining	25	5	30
Subtotal	390	155	545
<i>Energy and Industrial Sector</i>			
Energy	80	160	240
Road Transport	200	25	225
Mining Industry	55	-	55
Subtotal	335	185	520
Total	725	340	1065
Total in % GDP	3.4	6.3	4.0

Source: Van Beers and de Moor (2001)