



The Policy Roots of Socioeconomic Stagnation and Environmental Implosion: Latin America 1950–2000

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Summary. — The persistence of growth and its equity and environmental effects heavily depend on the composition of asset investments. Physical, human, and natural capital are the key assets behind the development process. Market failures tend to affect the accumulation of such assets asymmetrically, leading to underinvestment in human and natural capital. Public policy in Latin America has generally exacerbated such market failures by promoting physical capital investments using massive public subsidies instead of relying on the expansion of public and semipublic assets that complement physical capital. The result: economic stagnation, deep social inequities and environmental destruction.

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1. INTRODUCTION

Until some time ago, the development literature viewed economic growth as mostly dependent on the accumulation of physical capital and (exogenous) technological change.¹ In addition, economic growth and welfare growth were seen almost as synonymous. More recently, as a result in part of the “endogenous growth revolution” in the mid-1980s, there has been increasing recognition that economic growth is dependent on a variety of assets and not merely physical capital accumulation and productivity. Moreover, long-run growth depends not only on the speed of asset accumulation (including of knowledge) but also on the “blend” of at least three key assets, physical capital, human capital and natural capital (The World Bank, 2000).

It has been shown that the composition of the asset investment portfolio is essential in determining: (a) whether economic growth is likely to be sustained and environmentally sustainable over time; (b) the speed of growth in the long run; (c) the social equity implications of economic growth (López, Anriquez, & Gulati, 2001). There are asset accumulation blends that make significant long-run economic growth with equity possible while others are likely to lead to economic stagnation over the

long run, social inequity and environmental destruction. The emphasis in this paper is on asset accumulation and composition as a source of wealth and productivity growth. The fact that we ignore other more traditional sources of productivity does not mean that we regard the contribution of such sources as unimportant. It only reflects our belief that the literature has ignored for too long the issue of asset composition and its impact on growth, equity and the environment.²

The “right blend” of assets is, of course, achieved if savings are allocated to investments in any of the three assets that have the highest social rate of return so that in the long run the net social rates of return to investments in each asset are equalized. Does a market economy assure such an efficient asset allocation? As shown below, the answer to this question is in general, no. There are market imperfections

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that distort the asset choice and, more importantly, such market imperfections affect some assets more deeply than others. In particular, we argue below that market imperfections have a large negative effect on private agents' investments in human and natural capital while investments in physical capital are less affected by market imperfections.³ Thus, there is a clear role for public policy in mitigating the effects of market failure on asset accumulation choice. A key point argued in the remainder of this paper is that most governments in Latin America have failed to mitigate these market failures and, in a sense, have exacerbated the effects of such failures.

The most pervasive market imperfections impinging upon the asset investment choice are credit market failures affecting especially poor households, and environmental property right imperfections. A consequence of credit market failure is that socially profitable investments, especially in human capital of poor and semi-poor households, may not be undertaken due to lack of financial resources. Similarly, environmental property right imperfections and externalities lead to overuse environmental assets and underinvestment in natural capital as firms that invest in natural capital protection and enhancement may fail to receive the returns to such activities. Insufficient or inadequate public intervention in mitigating the effects of these market failures causes underinvestment in human and natural capital. This, in turn, is likely to cause secular economic stagnation or slow growth. In addition, the economy may remain socially inequitable and environmentally destructive.

A key hypothesis developed in this paper is that environmental and natural resource degradation should be looked at as an integral part of a pattern of growth followed by Latin America, not in isolation. We argue that the disappointing performance of the region in terms of growth, poverty reduction and social equity on the one hand, and generalized environmental destruction on the other, are just two outcomes that have a common root: a policy framework dominated by futile efforts to promote physical (and financial) capital accumulation almost at all costs relying on instruments that tend to exacerbate, rather than address, the above-mentioned market failures.

This has been a loss-loss-loss strategy, causing slow economic growth or even stagnation accompanied by perverse social and environmental effects. Despite the significant policy

changes that took place in the 1980s and early 1990s in the context of so-called structural adjustment, key elements of the old strategy have remained intact or perhaps they have even been magnified. After 50 years of trying such an unsuccessful strategy it is high time to change it! A new approach should emphasize, (i) the transfer of savings from the corporate sector and high-income groups of the economy to the household sector (especially poor and lower middle income households) so that financial restrictions cease to be a binding constraint for human capital accumulation; (ii) effective government enforcement of environmental regulations and public investment in natural capital to allow for environmental and natural resource sustainability; (iii) the promotion of physical capital investments and innovation using long run means such as increased availability and quality of public or semipublic goods that include human and natural capital, rather than short-run instruments such as financial capital subsidies, arbitrary tax concessions and wasting natural resources as a way of enticing investors.

We argue, however, that past policy failures have not been the product only of lack of understanding or information. Rather, at the root of such policy failures is often the interplay of powerful politico-economic interests as well as ideological factors that induce biased policies favoring the interest of the powerful to the detriment of the rest of society. The historical socio-economic inequities that have characterized Latin America lead to deep imbalances in the political lobby capacities between the owners of physical and financial capital *vis-à-vis* the rest of society. In several countries the political lobby of the wealthy has been dominated by a "quick profit" mentality directed to obtain maximum benefits over the short run. Such political imbalances caused biased policies that effectively perpetuated social inequities and environmental destruction. True policy changes resulting in sustainable and equitable development may require that such political lobby imbalances be ameliorated so that the general civic society and grassroots organizations in particular attain a greater weight in the political game. Policy changes may also be facilitated if entrepreneurs with a longer term perspective increase their influence within the traditional political lobby of the wealthy.

The remainder of this paper is organized as follows: Section 2 provides a stylized conceptual framework that allows us to analyze the

historical experience of Latin America from a perspective different from the traditional one; Section 3 presents certain extensions to the core model as a way of increasing its usefulness in policy analysis; Section 4 provides a succinct interpretation of the development experience of Latin America at the light of the conceptual framework developed in the previous sections. Section 5 discusses the role of public policy in shaping certain key characteristics of the historical experience of the region. Section 6 contains certain political economy considerations underlying the growth strategy chosen and Section 7 concludes.

2. CONCEPTUAL FRAMEWORK ⁴

Consider an economy comprising two sectors, a primary sector and an industrial sector. Production in the primary sector uses natural capital as a basic input, as well as labor, human and physical capital. The primary sector extracts natural capital to use it as an input in its production. Production in the industrial sector does not extract natural capital, but it generates pollution that reduces the value of the natural resource as a factor of production and as a consumer good. Industrial sector production is intensive in physical capital; it also uses human capital. Apart from being a factor of production, natural capital is assumed to have a direct positive effect upon the welfare function.

(a) *Investments*

The economy can invest in three assets, physical capital, general human capital, and natural capital. Investment in human capital (consisting in formal schooling and health) enhances the productivity of labor in both sectors by the same proportion. Investment in physical capital is entirely financed by industrialists, while investments in human and natural capital must be financed at least in part by a tax on industrialists and an additional tax on workers' and primary producers' income. The need for financing part of these investments out of tax revenues is due to credit and environmental property rights imperfections that prevent implementation of socially desirable investments in human and natural capital, respectively. The private sector, particularly the corporate sector, invests in physical/financial capital as well as in firm-specific human skills. Private firms, however, do not invest in general

human capital given the semi-public good nature of general human capital. Firm-specific skills and general human capital are complements in the sense that a well-educated labor force in good health can more easily learn specific skills at a lower cost to firms than a labor force that has little general human capital.

Investment in natural capital includes investments such as cleaning-up of ecosystems, tree planting, restoration and protection of aquatic, forest and marine ecosystems, fish replenishment including aquaculture investment, soil protection including terracing, drainage, agriculture following as well as investments in pollution abatement technologies. These investments directly or indirectly contribute to enhance the carrying capacity of ecosystems and the natural environment.

(b) *Market imperfections*

Two types of market imperfection are assumed, (i) a capital market failure that prevents part of the population from financing investments even if their rates of return are high, and (ii) property right inefficiencies and externalities affecting natural assets that cause a wedge between the social and private rate of return to natural capital which, in turn, prevents socially desirable investments in natural assets from materializing. In addition, in the absence of regulation, environmental externalities induce firms to use production methods characterized by too high pollution to output intensities.

Despite the fact that credit or capital market failure negatively impinges upon investments in human capital, it does not, significantly affect investment in physical capital. The distribution of physical capital across the population is irrelevant from the point of view of its effectiveness in yielding output and growth. That is, there is close to perfect substitution across physical capital owned by different firms. Hence, imperfections of credit markets may signify that only larger corporations have access to sufficient savings to finance their investments. The bulk of physical capital investment may be concentrated in a subset of firms but this is of little consequence for output, employment and growth. ⁵ Thus, in the case of physical and financial assets there is a "market solution" to capital market imperfections which consists in increasing concentration of investments in the hands of firms that are large enough to be immune to credit restrictions.

This “market solution” may involve static inefficiencies but it may not necessarily lead to underinvestment in physical capital.

The case of human capital is, however, different: By definition, to be effective as a source of productivity and growth, human capital has to be spread across the population. Thus, unlike physical capital, human capital owned by different individuals has only a limited degree of substitution. The limits to asset concentration are much tighter for human capital than for physical capital. Consequently, the “market solution” to financial credit constraints is that households for whom such constraints are binding underinvest in human capital while households unaffected by financial constraints can only partially make up for this underinvestment.⁶ The net result may be underinvestment in human capital.

The asymmetric response to capital market imperfections of physical and human capital explain the origin of an important empirical stylized fact: Physical and financial assets are more concentrated than human assets. Two corollaries follow: (i) Income originated in human capital is more spread than income originated in physical and financial capital; (ii) growth based mostly on physical and financial capital is likely to be less socially equitable than a more balanced growth based on human capital accumulation.

(c) *Sources of growth and sustainability*

A key potential engine of growth is labor-enhancing endogenous technical change, i.e., investment in human capital increases labor productivity in all sectors of the economy. Economic growth is also fueled by physical capital accumulation. As the economy grows, however, it imposes increasing demands upon its natural capital due to the greater level of extraction of natural resources, and the increasing levels of pollution that accompany growth. This threatens not only the sustainability of natural resources but also the continuity of economic growth in the long run. If governments do not raise enough financial resources and devote them to human capital investment and to enforce environmental regulation and invest in natural capital, growth cannot be sustained. Investment in physical assets would decline over time due to the falling marginal productivity of physical capital caused by insufficient growth of human and natural assets that are complements to physical

capital itself. That is, slow growth of human and natural capital eventually leads to slow growth of physical capital and productivity as well, and hence to slow overall growth.

Environmentally sustainable growth can be achieved by adopting adequate pollution regulation on the pollution intensity of output, increasing levels of investment in environmental and natural resources and by endogenous structural change causing the primary sector to shrink relative to the rest of the economy along the growth process. Given the said market failures this cannot happen without government intervention that include: (i) pollution intensity regulation; (ii) adequate taxes on profits to mobilize savings to finance investment in human and natural capital; (iii) direct public investment in environment and natural resources to neutralize the detrimental effects of growth on natural capital.

Though industrial investment contributes to natural capital degradation, growth induced by expansion of the primary sector also causes environmental degradation. In fact, if the industrial sector is more intensive in physical capital than the primary sector and if the pollution intensity of the industrial sector is less than the natural resource intensity of the primary sector, then greater industrial investments cause less natural capital degradation than growth of the primary sector. In this case growth causes the structure of the economy to shift more toward the less environmentally demanding industrial sector. The issue, however, is not so much the impact of industrial investments in natural capital but rather the instruments used to promote them. If the government promotes them via expensive subsidies or low capital taxation, the necessary public investments in natural resources to ensure sustainability may be crowded out thus causing greater resource degradation regardless of the nature of growth.

(d) *Optimal policies*

Optimal public policies are defined as those that effectively address the above market failures. As most income and savings are generated by the owners of physical (and financial) capital, some of these savings should flow to the household sector to finance investments in human and natural capital. Due to credit market imperfections, however, this flow of savings does not happen and the credit market becomes effectively segmented. An optimal tax on the

corporate sector and high-income households permit a redistribution of savings from the corporate/high income sector to the rest of the economy. This tax is effectively an instrument to reduce the credit market segmentation between the corporate/high income sector and the rest of the economy. The tax should be accompanied by the necessary pollution regulation. Part of the tax revenues need to be used in financing the human capital investments of the households affected by the credit market imperfections and another part should pay for enforcing pollution regulation as well as for financing investment in natural capital.

Thus if the government wants to maximize the present value of welfare of the median household, it would set a tax on profits and high income households and regulate pollution intensity at certain optimal levels, and determine an optimal distribution of tax revenues between financing investments in human and natural capital. Suboptimal investment in human and natural capital causes welfare losses and reduces economic growth for reasons to be discussed later.

There is no single level of the tax rate that is optimal but rather an optimal trajectory of such rate over time. Moreover, under fairly general conditions, in a growing economy the optimal tax should be increasing over time. The tax rate should converge toward a certain secular tax rate from below: a richer economy should have a higher tax rate than a poorer one, *ceteris paribus*.

(e) *Wage determination and natural capital*

The primary sector that typically may include agriculture, fisheries, forest extraction, part of the energy sector as well as manufacturing with a high intensity of natural resource inputs, such as food and wood processing, is a key sector in setting the wage rate for the economy. Though the primary sector in most middle-income countries generates only between 10% and 20% of total GDP, it often employs a much greater share of the labor force, usually in excess of 30% and an even greater fraction of unskilled workers. A critical role of the primary sector is to set the most basic opportunity cost for unskilled labor in the economy. As is well known, unemployment in rural areas is usually low so workers that cannot find jobs in the rest of the economy have the possibility of employment in the primary sector as a last resort. Moreover, if the labor market is more or less competitive,

wages in other sectors (correcting for skill levels) are likely to be closely aligned to this opportunity cost.

Degradation of natural capital causes a decline of the productivity of labor in the primary sector and, consequently, on the opportunity cost of the labor force.⁷ This, in turn, implies that natural capital degradation, *ceteris paribus*, is likely to be associated with declining real wages and possibly with increasing poverty. Thus, failure to regulate pollution and to invest in natural assets tends to be ultimately detrimental for workers.

It is often believed that pollution regulation is not good for workers as employment in the firms affected by such regulation falls. If pollution regulation is too loose, however, productive natural capital will degrade which will either reduce the opportunity cost of workers and, hence real wages and/or force government to invest more in natural resources to prevent excessive degradation. This could crowd out public resources that otherwise would go to finance investment in human capital reducing, therefore, human capital expansion especially of the poor that are most dependent on the public sector to finance their investment in human capital. The slowdown in human capital accumulation would cause slower growth and reduced real wages. In addition, pollution under regulation is likely to negatively affect the health status especially of poorer households commonly living in the most contaminated areas.⁸

(f) *Optimal growth*

If optimal policies are implemented, the long-run equilibrium of this economy is characterized by positive growth of welfare over time, with unbalanced growth in assets: Natural capital reaches a stationary level, physical and human capital grow at different and varying rates over time. Growth is also sectorally unbalanced in the sense that the two sectors grow at different rates, with the likely scenario being that the primary sector grows at a slower rate than the rest of the economy. Moreover, gross investments in all three assets (including natural capital) must be positive. That is, environmental sustainability is achieved using *all* instruments available, including environmental regulation *and* increased investments in the environment. The intuition behind this result is that, ruling out certain nonconvexities, corner solutions are rarely optimal. If there are two

instruments available it is often more efficient to use both of them to some extent rather than relying exclusively on one of them.

(g) *Undertaxation of capital and other government failures*

Assume that initially the economy is not in long-run equilibrium because it has too little human capital relative to physical capital. Also assume that the natural resource stock is less than the optimal long-run level of the stock. Suppose that either because of the existence of large capital subsidies or a low nominal tax rate, the effective capital tax rate is suboptimal.⁹ Because the capital tax rate is too low, public revenues are insufficient to finance investments in human and natural capital at the optimal level, while investment in physical capital is excessive to achieve a social optimum. It is possible that the tax rate is so low that it simply does not allow the economy to move in the direction of sustainable growth and human and natural capital decrease overtime instead of rise as would be required if the economy is to achieve a long-run equilibrium with permanent growth.¹⁰

In this case the economy may still grow but exclusively on the basis of physical capital accumulation. Moreover, if natural capital is decreasing and human capital is falling or growing too slowly, for example, it is possible that real wages deteriorate as growth takes place. The fall of natural capital is crucial because, as previously discussed, the level of natural capital plays a vital role in determining the opportunity cost of workers. So a decrease of natural capital may be detrimental not only for producers directly employed in primary activities but also for workers employed in nonprimary industries who may see their real wages erode. Even if real wages do not fall, a declining natural capital may lead to a deep imbalance between a fast growth of (after-tax) profits and wages. That is, corporate tax below the optimal one is detrimental for the environment and for social equity.

Even physical capital accumulation is eventually reduced as the lack of a concomitant growth of human and natural capital causes the (marginal) returns to physical capital to fall as physical capital increases. This, in turn, reduces the incentives to invest and slows down economic growth. That is, undertaxation of physical (and financial) capital may lead not only to environmental degradation and underinvest-

ment in human capital but ultimately to economic stagnation.

Undertaxation of physical capital may be due to either low legal tax rates and/or to large subsidies to physical capital. In turn, capital subsidies may entail direct financial subsidies including tax exemptions, credit subsidies, public grants, etc. Subsidies may also be non-financial including concessions of monopoly powers, licenses and, particularly, giving away publicly owned natural resources for free or under charging the corporate sector for their exploitation.¹¹

Underregulation of pollution and of the exploitation of renewable and nonrenewable natural resources is normally related not so much to the lack of environmental laws but rather to weak enforcement of such laws. There is ample evidence of lack of enforcement of environmental laws and regulations in developing countries that are in part attributed to weak environmental institutions (Nolet, 2000; World Bank, 2000, Chapter 4).

Underinvestment in human and natural capital may be due not only to the inability or unwillingness of governments to tax capital at sufficiently high effective rates but also to public expenditure allocations that do not give enough priority to public investment in human and natural capital. Government failures due to bureaucratic inefficiencies, corruption and wrong priorities may contribute to the wasting of a significant part of government revenues. The lack of a clear understanding among policy makers of the crucial responsibility of government in fixing credit market segmentation and environmental externalities may also be a contributing factor. Transferring savings from the corporate/high income sector to the rest of society through the tax/subsidy mechanism and correcting environmental market failure via regulation and direct public investments in environmental protection is not, apparently, regarded as a key role of government. Instead, old notions such as the "promotion of industrialization" are still regarded by many policy makers as the best characterization of their roles.

3. EXTENSIONS

The previous section describes a basic conceptual model for the analysis of government intervention in the context of a growth framework. Such a model is highly stylized and does not consider several issues of importance in

real-world economies. Here we extend the analysis to consider some of these issues.

(a) *Capital taxation and capital subsidies*

The theoretical model of the previous section uses the concept of net taxation defined as taxes less capital subsidies. That is, for the sake of theoretical tractability, it imposes neutrality on the instrument chosen; lowering taxes by one dollar or increasing subsidies by the same amount leads to identical outcomes. In reality, capital subsidies can have significantly different (and more deleterious) effects compared to across-the-board capital tax reductions.

Subsidies are not usually uniformly allocated; instead subsidies favor certain industries over others, certain firms over others. Moreover, part of the subsidies consists in giving exclusive rights over real or financial resources and markets that lead to the creation of market segmentation and monopoly power. Other subsidies consist in underpricing natural resources for firms, which cause resource exploitation beyond socially optimal levels. Finally, subsidies create optimal breeding conditions for corruption. The fact that governments have powers to arbitrarily allocate massive financial and real resources to wealthy firms and individual generates conditions for bribery, and nontransparent political contributions to politicians.¹²

Thus, subsidies are likely to not only be a much less effective mechanism to promote investments than uniform tax reductions but also have much more deleterious effects on economic efficiency, environmental destruction and corruption. Subsidies are less effective in promoting investments because they tend to be capitalized as rents originated in firms' connections with powerful government officers. They cause losses of efficiency because they increase monopoly powers. They contribute to natural capital destruction because natural resources become instruments of subsidization. All this greatly enhances the opportunities for corruption. For these reasons the concept of net capital taxes (taxes minus subsidies) is not used in the empirical analysis below and we instead treat taxes and subsidies separately.

(b) *Financial debt accumulation and other international issues*

The use of massive capital subsidies is in part responsible for the tendency to generate fiscal

deficit and public sector debt. Access to world capital markets considerably facilitates the rapid growth of the public debt. The process may be described as follows: Structural adjustment and increasing economic openness in combination with generous capital subsidies and low taxes tend to spur growth in the short run. This early growth is based mostly on increased investment in physical and financial capital. But, given insufficient attention to the provision of public goods (including education, health, infrastructure, social expenditures, and others) and the rapid depreciation of natural resources, that this early growth process brings about, the marginal productivity of investments in physical and financial capital starts declining after a few years. This causes a deceleration of investment and growth with a consequent reduction of government revenues. The responses of government to the slowdown of growth may take at least two different avenues with dramatically different effects on the economy over the medium term: (i) some governments opt for increasing capital subsidies and reducing taxes even further while at the same time are reluctant to cut significantly the social and public good expenditures; (ii) others cut social and public good expenditures to avoid large fiscal deficits and wait for "more favorable external conditions."

Response (i) often leads to ballooning fiscal disequilibria and dramatic increases in debt service that in turn reduce even further the flexibility of the public sector, that is, to financial unsustainability that may potentially cause financial crises and economic depression. Response (ii) has less dramatic consequences: Chronic slow growth or even stagnation.

The low effective tax rates make fiscal revenues extraordinarily dependent on rapid growth. At the same time, given that governments are committed to large capital subsidies, public expenditures have little flexibility. For these reasons even a mild deceleration of growth tends to create large fiscal disequilibria. In case (i) public debt increases dramatically and the burden of debt service rapidly expands, worsening the crowding out of expenditures in public goods and increasing public deficit. Thus we have a vicious cycle originating in the use of the wrong instruments to promote growth: from capital subsidies and undertaxation to fiscal deficit and debt accumulation to fiscal adjustments that deepen the inadequacy of such instruments thus frustrating the revival of growth and continuously aggravating public sector imbalances.

It has been argued that the option of increasing capital taxes or reducing subsidies is not really available because of the great mobility of corporate capital due to globalization. As companies move to countries where taxes are low and subsidies are large, countries are forced to maintain low taxes and high subsidies.¹³ Although it is true that financial capital mobility has indeed increased dramatically, firms investing in real assets still have an incentive to look at the medium and long-term prospects of the host countries which, for several reasons, including highly imperfect markets for used capital goods, are affected by much greater exit costs.

Though investors in real assets do benefit from low taxes and subsidies they also are likely to see the big picture: that if a government does this beyond a certain point, the health of the economy over the long run will suffer and domestic financial crises *à la* Argentina are likely. This may become a sufficient deterrent for long-term investments to materialize. So countries offering low taxes and large capital subsidies are likely to attract speculative capital, especially financial capital, and less real investment.¹⁴ Unlike real investments, speculative financial investments face few entry and exit costs, which prompts their owners to exploit the short-run benefits offered by governments. Paradoxically, countries that are "too business friendly" may be affected by adverse selection: They tend to attract more financial and speculative capital and less real capital than countries that offer more realistic incentives. Countries relying too much on speculative capital flows face greater risks of financial instability and crises than countries that are able to attract a more balanced mix of capital.

In summary, consideration of international factors is likely to exacerbate the implications of a policy strategy that bases growth incentives on low capital taxes and/or large subsidies. Depending on the fiscal strategy chosen, such a strategy could lead to escalating fiscal deficits and rapid public debt accumulation. The increasing debt and concomitant increase in interest payments reduce the ability of governments to continue promoting growth thus causing stagnation and further erosion of tax revenues. The final outcome is prolonged stagnation, which is qualitatively just the same conclusion obtained when one ignores financial and international debt mechanisms. Consideration of these aspects, however, shows that because of the inherent

volatility of international financial capital flows, it may also cause large financial crises leading not to stagnation but to economic depression.

(c) *Poverty and income distribution*

As we indicated above, nonsustainable and unsustainable growth is highly deleterious for the poor and for social equity. Indeed growth that is excessively dependent on physical capital accumulation with slow growth of human capital and rapid environmental degradation is almost definitionally equivalent to growth that is unstable and ineffective in reducing poverty (World Bank, 2000). Insufficient expansion of human capital means that most poor people will not be able to achieve skills that would allow them to become nonpoor and levels of health that increase their chance of working productively over their working life. Natural resource deterioration affects the productive capital of the poor disproportionately, especially in rural areas where a significant part of the extremely poor are located thus reducing their potential to benefit from economic growth (Dasgupta, 1995). Finally, increasing ambient pollution also affects the health of the urban poor disproportionately as they usually live in the most polluted areas of the city and have the least means to face pollution. The consequent deterioration of the health of the poor affects their human capital and, consequently, their ability to increase their income during the growth process.

As previously discussed, the very features that prevent the benefits from economic growth to favor the poor are also responsible for the lack of persistence of economic growth and, eventually, stagnation. If positive growth is not particularly effective in reducing poverty, economic stagnation is certainly highly detrimental to the poor. After going through a physical capital dependent/natural resource exploitative growth boom, countries commonly end up deeply in debt with severe fiscal disequilibria as a consequence of budgetary costs and ultimately vain efforts by governments to boost physical/financial investments through direct and indirect subsidies. The impact of the induced stagnation, recession and necessary fiscal corrections falls disproportionately on the poor as social services are cut back and education and health expenditures are reduced even further.

(d) *Population growth and unskilled labor*

In several countries of Latin America (e.g., Central America) rapid population expansion has been a major factor causing environmental degradation. Natural capital destruction is not only the product of economic growth-cum-low investments in natural capital and inadequate environmental regulations, but also of rapid population increases even in the absence of economic growth pressures. Population growth has a double effect on the wages of unskilled labor: (i) the usual effect associated with increasing labor supply that reduces real wages; (ii) increased pressure on natural resources causing their degradation that reduces the opportunity cost of workers that further cut real wages for the unskilled.

The natural capital destruction caused by population growth itself leads to the reduction of the marginal product of physical investments that use natural capital as complementary factors of production. This induces governments to spend even greater public financial and nonfinancial resources to “promote” investments in physical/financial capital as a way of compensating firms for the degraded natural resources. Thus, rapid population growth aggravates the process described above as it induces governments to spend even more public monies in subsidies leading to a more intense crowding out of public expenditures in human and natural capital. In general one would expect that countries that have experienced the fastest rates of population growth would have to spend more public resources to attract the same level of capital investments than countries exhibiting slower population growth.

(e) *Global values of environmental services*

Several countries in Latin America are particularly rich in natural resources that provide significant services to the world as standing ecosystems. In particular, tropical forest ecosystems generate two important global services, carbon sequestration and biodiversity. These values are potentially much larger than the values obtained by exploiting certain forests through conventional means for the sake of timber, mineral extraction, agricultural and livestock exploitation (López & Ocaña, 1999). Consequently, this could imply that the preservation of many tropical ecosystems for the sake of obtaining global values may be more profitable than its exploitation through con-

ventional means. But, while the institutional and market conditions to realize the conventional values of ecosystems already exist, institutional and market conditions that allow global services to materialize are just beginning to emerge.

International trade in environmental services between industrialized countries and developing countries still rich in biodiversity and carbon sequestration capacities could greatly increase the benefits of environmental sustainability in developing countries. North–South trade in global environmental services could be mutually beneficial for the North (industrialized countries) and South (developing countries). The cost of reducing carbon emissions in the North is much higher than in certain countries in the South which could produce similar services through the enhancement and preservation of tropical ecosystems. Countries in the South can also greatly benefit as the North would be in many cases willing to pay the South more for protection and enhancement of ecosystems than for the product of their conventional exploitation (López, 1998). Consequently, there is potential for mutually beneficial North–South trade in environmental services. But such trade requires the development of international and local institutions that are still in early state of development.

(f) *Defensive expenditures*

As ambient pollution worsens and natural resources degrade, people do try to replace these lost environmental services with man-made goods that are substitutes for such services (Antoci & Bartolini, 2001). The affluent can afford to substitute environmental services while such substitution is more difficult in the case of less economically powerful segments of society. For example, as air pollution worsens in lower areas of the city, the affluent build new houses in higher areas where the air is cleaner. As local beaches become more contaminated, the wealthy vacation in more remote areas and/or in foreign resorts where it is more costly to go. As commercial fish species become extinct, corporations invest in aquaculture to cultivate such species, a possibility that is generally more difficult for artesanal fishermen who must simply accept the economic damage of the scarcity of naturally grown fish.

When natural forests become sufficiently degraded many natural products such as wild fruits, nuts, animals, fuelwood, etc. become

scarce, thus prompting firms to produce more coal to substitute for natural fuelwood, tree plantations to substitute the lost timber products, etc. Deforestation and degradation of watersheds and river basins that supply water to cities force large investments in water purification and treatment that would either not be necessary or be much less costly if watersheds were in pristine condition.

These examples, have certain common elements: (i) products and services that at a point in time were more or less freely produced by nature such as air/water purity, recreation, fish and forest products become unavailable as economic growth takes place; (ii) substituting such natural products and services for man-made products and services requires more costly productive inputs that otherwise would have been used for other purposes; (iii) while a high proportion of the natural services and raw materials were not accounted for as income as there was no market for them (clean air and uncontaminated beaches generally have no economic price even if they are scarce; raw fish and in site natural forest products are also not priced if exploited under more or less open access regime, etc.), the new products and services are very much part of the national accounting system. Thus, part of the "new" outputs and services generated as economic growth takes place are not really new but simply newly accounted for in the conventional growth statistics; ¹⁵ (iv) in most cases the loss of environmental services can be replaced to the benefit of the affluent but the poor generally cannot access the goods and services that replace the natural ones as they are much more expensive items. That is, while the affluent are able to substitute natural for man-made goods and services, the poor generally cannot.

The fact that segments of society are able to respond to environmental degradation via defensive expenditures means that environmentally destructive growth is reflected in national statistics as "faster" growth than environmentally benign growth. More importantly, environmentally destructive growth fuels "more growth" as conventionally measured. And such "increased" growth itself promotes even faster environmental degradation and, therefore, more defensive expenditures and more national account "growth." That is, a vicious cycle of environmentally destructive growth—defensive, expenditure—more environmentally destructive growth is generated if governments do not implement adequate environmental regu-

lation and if it fails to invest in the protection of natural ecosystems.

4. LATIN AMERICA: 1950–2000

As the vast majority of the countries considered "developing" in the 1950s, the development experience of Latin America since then has been largely frustrated. The economic stagnation of the region is a fact that is by now a commonplace in practically all analyses of the region.

(a) *Slow per capita income growth*

During 1950–98 per capita income in Latin America has increased from US\$2,100 to US\$3,500 (expressed in purchasing power parity of 1987); that is, at an annual average growth rate of 1.3%. More important, the trend has been a reduction rather than an acceleration of growth rate. While in 1950–70 the growth rate was 2.2% per annum it fell to 0.1% in 1980–98. Even in the 1990s when many countries in the region went through their much acclaimed structural adjustment, that included elimination of many government-induced distortions and dramatically increased the role of markets, the annual per capita growth rate was a mediocre 2%, below the rate prevailing in 1950–70. ¹⁶

Economic stagnation describes not only the average picture of the region but there is an amazing degree of homogeneity across countries. In fact, only seven countries experienced growth rates between 2% and 2.5% per annum over 1950–98. All others had growth rates below 2%.

(b) *Highly inequitable growth*

Economic stagnation has been accompanied by the most inequitable income and wealth distributions among all continents in the world. Among a group of 14 of the largest countries in Latin America, all but five of them have income Gini coefficients above 0.53, including Brazil, Paraguay, Ecuador and Chile with Gini coefficients above 0.57, a degree of income concentration surpassed by very few countries around the world (World Bank, 2000).

Between the mid-1980s and late 1990s, the income distribution as measured by the Gini coefficient has worsened in seven out of 13 countries for which comparable data exist

(Jamaica, Guyana, Perú, Colombia, Costa Rica, Honduras and Mexico), has marginally improved in two (Brazil and Chile) and it has significantly improved only in Dominican Republic, Panamá, Guatemala and Venezuela (IDB, 2000).

While the proportion of the population living in extreme poverty (population living with less than US\$1 per day) has practically remained unchanged at about 20% between the mid-1980s and late 1990s (The World Bank, 2000), the absolute numbers of poor have continued to increase. About 40% of the population live with less than US\$2 per day. During the 1990s poverty has, in fact, been reduced in several countries. But with the exception of Chile where poverty fell by almost 50%, in all other cases poverty reduction has been modest, less than 10%. In Colombia and Brazil poverty rates remained practically unchanged and in Peru poverty rates increased by more than 15% during the same period.

(c) *Slow growth of human capital*

A proxy for the evolution of human capital is education. Education has increased at an extremely slow rate. During 1960–98 the average level of education of the population over 25 years of age has increased from 3.2 to 5.0 years of schooling, or about 1.2% per annum. More importantly, the pace of education growth has slowed down in the more recent decades compared to earlier ones. Over the 1990s the schooling level only increased from 4.7 to 5.0 years at the rate of 0.6% per year, exactly one-half that for the whole period! Men born in 1960 have average schooling of 7.7 years while the cohort born in 1970s only have eight years of schooling (IDB, 2000).

Table 1 shows the annual growth rates of education for 1962–98 compared to GDP per capita and growth of physical capital for four of the largest Latin American economies. Apart from the slow growth in GDP, striking features

for all four countries are the slow growth of education over time and, perhaps more importantly, the tremendous imbalance between the growth rate of per capita physical capital and education. In Brazil, per capita physical capital grew 12 times faster than education, in Chile almost seven times faster, in Argentina almost six times faster and in Mexico more than four times faster. There is no reason to expect that physical and human capital should grow at similar rates but the massive gap between the two rates may reflect suboptimal allocations of investment resources. For comparison the ratio of the physical capital growth rate to that of education over the same period was about 2.5 for industrial countries.

(d) *Dramatic decline of natural capital*

Data on the evolution of natural capital are much scarcer, but the existing evidence points in the direction of a significant degradation of the environment and the natural resources. During the 1990s, 14 countries of Latin America were among the 40 in the world with the most rapid rate of deforestation. Nine of these 14 countries experienced deforestation rates above 2% per annum while five of them showed deforestation rates of between 2.5% and 7% (The Economist, 2001).

Several studies on genuine savings (defined as the rate of savings after due account is taken of the depletion of natural resources and damages caused by pollution, adding investments in human capital) have been recently implemented. They show a major discrepancy between the net saving rate as defined in national accounts and the genuine saving rate, thus indicating substantial losses in natural capital which are not entirely offset by the effect of human capital increases. According to World Bank (1997) estimates, genuine savings for Latin America were 10.4% of GDP in the 1970s declining to 1.9% during the 1980s, and increasing to about 5% during the first half of the

Table 1. *Economic growth and the evolution of assets in the four largest Latin America economies, 1960–99 (annual percentage rates)*

	GDP per capita growth (%)	Growth of physical capital per capita (%)	Growth of education (%)
Argentina	1.13	2.35	0.41
Brazil	1.80	2.45	0.20
Chile	2.16	1.68	0.25
Mexico	1.35	2.26	0.53

Source: World Bank.

1990s. These rates (especially those of the last two decades) are among the lowest across all regions of the world, being higher only than those estimated for Africa.

A dramatic example of low genuine savings in Latin America is the case of Ecuador. According to a World Bank study (Kellenberg, 1996), natural capital depreciation over 1970–90 amounted to \$7.8 billion (in 1987 dollars) or about one full annual GDP if a depreciation method to estimate genuine savings is used. That figure grows four times, to \$37.5 billion (also in 1987 dollars) if a user cost method is utilized.

The fact that net savings rates as defined by national accounts are more than twice the genuine rates indicate that net physical capital accumulation has been the overwhelming component of genuine savings. Gross domestic investment (in physical capital) was above 20% of GDP in practically all the major economies in Latin America during the first half of the 1990s. Assuming a physical capital to GDP ratio of 2.5 and a 5% annual depreciation this implies that physical capital was growing at a rate in excess of 7% per year during the first part of the decade. Recent data, however, indicate that physical capital accumulation has dramatically decelerated over the last four years. Thus, consistent with the predictions of the conceptual model presented above, fast growth of physical capital combined with slow growth of human assets and the degradation of natural assets have led a reduction of incentives to continue investing in physical capital itself.

A rough estimate of the rate of natural capital degradation can also be obtained using a very basic growth accounting framework. We use the indicated long-run average annual per capita growth figures of: 1.3% for GDP, 1.2% for human capital per capita, 3% per capita growth of capital. We assume shares in national income consistent with those estimated by the World Bank for the region of 60% of GDP for

capital income and, therefore, 40% of GDP for human and natural capital. Assuming that a 40% share is distributed equally between human and natural capital with no productivity growth, the growth rate of natural capital per capita has been –4.5% per annum.¹⁷ If productivity growth is assumed at 1% per annum then the implicit degradation of natural capital reaches 7.5% per annum.

The above finding is consistent with existing empirical evidence on the “residual” estimates obtained by several growth accounting analyses implemented for Latin America and other areas. This residual that is usually attributed to “total factor productivity” is often found to be negative for Latin America. Bosworth, Collins, and Chen (1995), for example, found that the contribution of “total factor productivity” to growth per capita in 1970–92 was negative on the order of –0.55% per annum (Table 2). Hoffman (2000) shows similar low or negative total factor productivity for several Latin American countries. Of course, the authors did not include natural capital in their growth accounting exercise. This negative “total factor productivity” may in fact capture a large degradation of natural capital as shown in the previous analysis.

5. HOW POLICIES HAVE CONTRIBUTED TO THIS PATTERN OF GROWTH

Policies seem to have played an important role in inducing the pattern of growth described in the previous section. We focus on a number of key policy issues that in our view have been most important in forging such pattern of growth. The key issue appears to be that governments in the region have generally failed to recognize fully their essential roles in reducing the impact of market failures in the economy.

Slow growth of human capital and progressive degradation of natural capital over time is

Table 2. Contribution of “total factor productivity” to per capita growth; Latin America and other regions 1970–92 (annual percentage)

	Annual output per capita growth rate	Contribution of total factor productivity
Latin America	0.57	–0.55
Industrial countries	1.66	0.57
South Asia	2.18	0.83
East Asia (excluding China)	4.28	0.79
Africa	0.00	–1.15

Source: Bosworth *et al.* (1995).

at the heart of the frustrated development experience of the region. Instead of concentrating their efforts in raising enough public revenues to finance the necessary investment in human and natural capital and the necessary institutional capacities to effectively enforce environmental regulation, governments have focused on the generation of an expensive and often incoherent system of short-run incentives to promote investments in physical capital. Government financial and human resources have been minimized by undertaxing capital income and wasted in massive subsidies to the corporate sector in a futile effort to promote investment and economic growth.¹⁸ The promotion of capital has not only crowded out essential public investments in human and natural assets, but some of the incentives to physical (and financial) capital have resulted in the wasting of natural resources and, to a lesser extent, the lack of enforcement of environmental regulation, as a means of boosting the profitability of physical capital investments.

We now provide some empirical evidence and illustrations of the above hypotheses. Much more detailed country studies are needed to provide proper empirical support for such ideas. Yet some of the ensuing illustrations hopefully may persuade the reader that the indicated policy failures are real, and that they have had something to do with both the lack of persistence and lack of sustainability of economic growth in the region.

(a) *Capital undertaxation and subsidies*

Several estimates of corporate subsidies for the exploitation of natural resources and the energy and industry sectors have recently been provided (Ascher, 1999; Myers & Kent, 2001; Van Beers & de Moor, 2001). Among these the most comprehensive and also the most conservative are the estimates provided by Van Beers and de Moor. They estimate that non-OECD countries gave public subsidies amounting to \$340 billion per annum in 1994–98 or 6.3% of GDP (Table 3). This is equivalent to more than 30% of all government expenditures, significantly larger than the 5.5% of GDP that non-OECD countries spent on education and health combined during the same years! It is important to note that while OECD countries spend twice as much as the fraction of GDP on education and health that non-OECD countries spend, the latter group of countries spends almost twice as much as the fraction of GDP in subsidies that OECD countries spend. So, the low share of investments in human capital in non-OECD countries may not only be a problem of low income but also of policy priorities that emphasize corporate subsidies at the cost of less investment in human capital.

Taxes on capital income in Brazil yielded less than 2.4% of GDP in fiscal revenue in the early 1990s (Estache & Gaspar, 1995). This represented an effective tax of less than 5% of the total capital income of the country, which

Table 3. *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 industry sectors</i>			
Energy	80	160	240
Road transport	200	25	225
Manufacturing 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).

should be compared with a legal profit tax rate of more than 30%. That is, tax exemptions, tax holidays, tax collection failures due to weak tax administration, etc., have implied a dramatic loss in government revenues as foregone capital taxes. Conservative estimates put just these losses at 20% of all tax revenues.

In addition, the Brazilian government has provided massive direct and indirect subsidies to the corporate sector. Grants and free concessions for the use of natural resources including forests, mining and fisheries have been frequently used (Binswanger, 1991; World Bank, 2000). Government subsidies for converting Amazon forest lands to ranches amounted to more than US\$700 million (Binswanger, 1991).

In Chile, taxes on capital produced revenues in 1994 equivalent to less than 3% of GDP (Silva, 1997). This implies an effective tax on capital income of about 6%, well below the legal capital tax rate of 15% (World Bank, 2000). Royalties and stumpage fees are practically nonexistent in Chile. It is estimated that in Chile the private copper sector alone saves more than US\$500 million a year in royalties. Private copper mines, which have obtained billions of dollars in profits, paid practically no taxes over the 1990s (World Bank, 2000).

In Costa Rica, low royalties and lax enforcement of forest regulations combined with government incentives to convert forests to pastures are estimated to have caused more than US\$4 billion in losses over the 1970s and 1980s and to have reduced GDP growth by 1.5–2.0% a year (Ascher, 1999). State wood processing in Honduras costs more than \$240 million in losses by the late 1980s (Pickles, 1989). Fossil fuel subsidies in Venezuela were about 66% of the market price totaling 4% of GDP or 25% of total government revenues (World Bank, 1997). In Mexico the fossil fuel subsidy in the same period was 16% of the market price with a fiscal cost equivalent to 0.7% of GDP or 3.4% of fiscal revenues (World Bank, 1997).

Industrial subsidies in Latin America also appear to be extremely large although there are no hard numbers. The automobile industry, for example, has absorbed huge amounts of public subsidies in Brazil, Argentina and other car-producing countries in Latin America. Per job fiscal costs in Brazil have been estimated at \$340,000 for certain automobile plants. State subsidies to the main airplane manufacturer in Brazil have been in the billions of dollars (World Bank, 2000), despite that several studies

have shown few positive externalities or spillovers arising from such manufacturing in Brazil.

(b) *Evaluation of the impact of public subsidies*

Although no detailed econometric studies about the impact of subsidies and tax concessions on capital exist for Latin America, analyses performed elsewhere unambiguously show that such schemes are at best ineffective in promoting long-run growth and at worst simply counterproductive. (See, for example, Beason & Weinstein, 1996 for Japan; Bergström, 1998 for Sweden; Bregman, Fuss, & Regev, 1999, for Israel; Fakin, 1995 for Poland; Fournier & Rasmussen, 1986 for the United States; Harris, 1991 for Ireland; Lee, 1996 for Korea) These studies unanimously show the economic waste that these programs entail. Investment subsidies according to these studies elicit a very marginal investment response. Moreover, because they are arbitrarily allocated across industries and firms they induce significant distortions and deadweight losses. There is no reason to expect that capital subsidy programs that have shown to be wasteful elsewhere are going to be any more beneficial in Latin America.

(c) *Public investment priorities*

Public expenditures in human capital (education and health combined) rarely reach more than 8% of GDP in Latin America. According to World Bank data, total public expenditures in education and health over the 1990s have fluctuated between 4% of GDP in Mexico and Brazil to 12% in Costa Rica. In Chile such expenditures reach less than 6% while in Colombia constitute only 4% of GDP (Lloyd-Sherlock, 2000). These levels are quite low when compared with levels generally above 15% of GDP in OECD countries and especially given the slow pace of human capital accumulation that such allocations have generated. Moreover, given that the prime rationale for public spending in human capital is found in the existence of credit market failures that prevent poor households from financing profitable human capital investment, one would expect that governments in developing countries should spend even greater resources (as a proportion of GDP) in human capital than developed countries. This is so because the

proportion of poor households able to finance their human capital investment out of their own savings is probably much smaller than in developed countries as the extent of capital market failure is much greater in developing countries.

Apart from the issue of small allocations of public expenditures to human capital formation, there is the issue of their allocation among the various groups in the population. There is an apparent failure to reach the poor households, which are the ones that face the full impact of credit market failures. In fact, according to recent studies, public expenditures in human capital as well as other social sectors (including social security and housing), benefit much more the richer segments of society than the poor (Lloyd-Sherlock, 2000; World Bank, 2000).

The low public priorities assigned to health and education have also caused a low level of productivity of the public resources used in such sectors as shown by recent studies in Chile and elsewhere. One argument against increasing public allocations to such sectors has been that first one has to deal with the problem of efficiency and next with the issue of resources. This is seemingly a reasonable argument except that much of the low productivity arises out of the great resource scarcity that these sectors face. Poor quality of teachers, for example, is due in part to low pay incentives for good teachers. Good teachers earn low wages due in part to inadequate pay scale and evaluation of teachers (an “inefficiency” which is hard to improve with tight education budgets anyway) but also due to low absolute wages caused by low salary budgets.

Data on public investment in natural capital are quite scarce. But empirical evidence around the world does show that the social rates of return of investments for controlling air and water pollution are quite large (World Bank, 2000, Chapter 4). According to this and other World Bank studies, investing in clean urban water typically pays itself by the net benefits within 4–5 years or less. The same is true for investments to control for air pollution. The permanence of such large rates of return accruing to investment in natural capital suggests significant underinvestment in natural capital.

Recent estimates for Chile put total public expenditures on environmental regulation and protection at about \$300 million per year (O’Ryan, Miller, & de Miguel, 2001). This amounts to only 0.4% of GDP and about 2% of

total public revenues. Young and Roncisvalle (2000) estimate for Brazil that authorized expenditures on environmental activities in 1995–2000 fluctuated between 0.7% and 1.4% of the total federal budget, or between 0.1% and 0.2% of GDP. Although these figures do not include expenditures of the states, these are just authorized expenditures, which does not mean that they were actually spent. The existing data for Chile and Brazil confirm the very low priority that investments in natural capital have in these countries.

Although data on public investment in natural capital are not generally available for other countries in the region, the genuine saving and natural capital depreciation data for Latin America provided earlier are suggestive in this respect. The large gap between genuine savings and net domestic savings suggests a dramatic depreciation of natural capital. This, in turn, indicates that natural capital is not only exploited very intensively but also that governments invest little in natural capital.

6. POLITICAL ECONOMY ISSUES: WHY GOVERNMENTS PERSIST IN USING A FAILED POLICY MODEL?

We do not pretend here to provide a comprehensive political economy explanation for the insistence of governments on implementing policies that have failed over so many years. One aspect that should be emphasized, however, is that though these policies are generally perverse for the vast majority of the population, there are groups, especially among the richest and economically most powerful elites in society that have obtained large dividends out of such policies. These are the groups that have become enormously rich by benefiting from tax exemptions, tax holidays, financial grants, cheap public credit, free access to natural resources, almost unlimited effective rights to pollute air, water, etc. The priority given to these programs has effectively implied that billions of dollars of public resources have been channeled to them instead of directing them to promote human and natural capital as well as other public goods.

At the root of these biased priorities for the use of public resources there are political and ideological elements that vary in importance across countries. There is also a factor associated with democracy and (lack of) participation of the civil society in the resource allocation

decisions. In addition, as influence in policy decisions is heavily based on economic power, the resulting political economy equilibrium is highly unbalanced in favor of the economic elites. Apart from the dramatic lack of balance in political lobby capacities, the nature of the lobby itself is important. The most perverse policies often originate in countries where the hegemonic lobbying forces are dominated by groups that have little long-run stake in the country (financial speculators and, in general, capital owners that face few entry and exit costs). Moreover, in several countries in the region the lack of credibility that government project among the economic elites (in turn, due to a track record of breaking commitments and political instability) is a factor behind the dominance of short-run "quick profit" considerations among the political lobby.

Earlier we have referred to several studies showing how weak and insufficient is public environmental monitoring and enforcement in Latin America. The proximate causes are usually identified as lack of financial and human resources of the agencies nominally in charge of such tasks. Behind these proximate causes there is the lack of political willingness to invest public resources in these activities. It is not a problem of lack of funds, but rather it is an issue of political priorities that induce governments to spend public resources in other activities instead, including large capital subsidies.

More generally, the biased allocation of public resources in favor of powerful economic interests may obey to several factors:

(a) Political support and corruption. Remaining in power (under both democratic and nondemocratic regimes) is costly. Governments need to convince people that they are efficient, compassionate, transparent, concerned about social welfare, etc. To do this they can either be truthful and/or they can spend large amounts of resources on government propaganda to keep the general public misinformed and, in democracies, to finance political campaigns. In reality they seem to opt for a combination of policies, some of them consistent with social welfare improvements and many others not. A key source of political support is the corporate sector, which is willing to provide such contributions in exchange for direct and indirect public subsidies. Government officials obtain implicit or explicit bribes in return for favors to those rich enough to bribe them.¹⁹ To a

large extent corruption is both the cause and the effect of a policy system based on capital subsidies as the main instrument to stimulate economic growth. Such a system which puts billions of public dollars up for grab provides an ideal breeding ground for corruption. At the same time the more corrupt a government is the greater is its disposition to use capital subsidies.

(b) International and national recognition. High-level government figures seek recognition as a means to remain in power and to be rewarded with respect (including high lecture fees) and influential positions after they have left government. One of the best ways of obtaining this is by maximizing short-term GDP growth (as measured by conventional national accounts) at all costs, even if such growth cannot be sustained once the current government abandons power or if its effectiveness as a means to enhance social welfare is negligible or frankly immiserizing. Biased policies and subsidies favoring the rich owners of capital is one instrument to achieve short-term GDP growth at least as measured by national accounts. In particular, as argued in Section 3, the elimination of services provided by natural capital is likely to accelerate production in the short run as a consequence of the need to replace such natural services with man-made services. Hence, the use of environmental degradation as a means to subsidize capital may play a double role of stimulating investment in the short run and creating "space" for the production of the services foregone through environmental degradation.

(c) Ideology. One reason some governments follow a pro-physical capital and anti-human and natural capital bias is ideology. The idea that development is synonymous with investment in physical and financial capital is so ingrained among certain policy makers that it has come close to become a fetish. The key role of the state is considered to be the promotion of physical/financial capital accumulation at all costs frequently using quick pay-off instruments.

Ideological biases are reflected in the following phenomenon: Policy makers readily recognize the role of investments in physical capital as a source of new jobs but they tend to recognize less the job creation potential of investment in human and natural capitals (or at times they perceive them as "nonproductive" jobs). In countries plagued by high unemployment

ment as most in Latin America, politicians are permanently compelled to create more jobs. They try to do this by throwing public resources to supporting physical/financial investment and leaving little to support human and natural capital investments. Few studies show the job creation potential of investments in human and natural capital and comparing them with job creation of conventional investment in physical/financial capital. This dearth of such studies has perpetuated what appears to be a mistaken perception even among well-meaning politicians.

Rarely have politicians and even government economists considered neutralizing market failures as a main task for the state and even more rarely have they fully appreciated that whether or not the state deals with market failures may make the difference between sustained growth and stagnation, between social equity and injustice, between environmental sustainability and destruction.

7. CONCLUSIONS AND IMPLICATIONS FOR INTERNATIONAL ORGANIZATIONS

Fifty years of frustrated development in Latin America beg a change of the development strategy. We have argued that, despite significant policy adjustments through the so-called structural adjustment, certain fundamental factors of this strategy have not really changed. The new approach calls for making the offsetting of the effects of credit and environmental market failures the centerpiece of government intervention in the economy. As part of such an approach this calls for a drastic reallocation of public expenditures: greater financial transfers to the poor and lower middle-income groups in the form of much increased education, health and social investments to reduce the impact of capital market imperfections on human capital formation. It also calls for increasing effective protection of the environment and greater investment in natural capital to strengthen the ability of natural capital to absorb the increasing impacts of economic growth. All this must be financed by substantive reductions of explicit and implicit subsidies to physical and financial capital.

It is postulated that the best way of preserving the incentives for investment in physical/financial capital is by attaining a highly educated and physically healthy labor force,

able to acquire new specific skills provided by the corporate sector at low cost, and by assuring an abundant and healthy supply of natural capital, and other public goods, not by increasing capital subsidies or by undertaxing capital. The massive capital subsidy approach usually becomes a trap: Large direct or indirect capital subsidies crowd out public investment in human and natural capital. This causes scarcity of human and natural capital, which, in turn, reduces even further the profitability of physical capital as vital assets that are complementary to physical capital become scarce. To prevent further erosion of the profitability of physical capital, even more subsidies are often considered necessary. Thus a vicious cycle or trap is sustained.

Will such a change in strategy require an inordinate degree of government intervention in the economy? Not really, and certainly not compared to the current situation. It is a matter of changing the nature of intervention rather than of increasing it. The new approach requires the progressive elimination of the massive direct and indirect subsidies to capital, including environmentally destructive subsidies and the use of these resources to deal with the market failures by rapidly increasing public investments in human and natural capital. It does not necessarily require much new environmental regulation but rather a genuine effort to enforce existing regulations nor does it require new taxes but rather enforcing existing tax laws.

Past mistakes associated with undercollection of capital taxes, undercharging for government services to the well-off, low royalties for natural resources, and massive capital subsidies have led to chronic fiscal deficits that, since the early 1990s, have been financed mostly with increasing public indebtedness. After several years following this policy, the result has been a significant fiscal burden caused by the need to serve a large debt. In some countries a large proportion of the government budget is currently spent in servicing the debt. This limits their ability to reallocate resources to priority areas. For countries that have such large stocks of debt it is even more urgent to move toward the elimination of subsidies to corporations and to the wealthy. Relying on the traditional approach to fix fiscal imbalances, cutting public expenditures in social sectors and education while keeping the so-called development expenditures more or less intact, can only worsen the slow growth trap and even the fiscal problems in the long run.

The needed dramatic policy changes may not take place unless certain key changes occur:

(a) A much greater equilibrium is achieved in political participation and lobbying so that the community organized is able to exert political counterbalance to the currently overwhelming political weight of the large corporate sector and the wealthy in affecting public policies and public expenditure allocations. It may also require a change in the approach of the traditional lobby forces to emphasize a more long-term view: Business organizations should be able to internalize the fact that if they induce governments to adopt excessively generous policies toward them, they are risking their own profits over the long run. If governments fail to invest sufficiently in public and semipublic goods, profits are not likely to be sustained over the long run.

(b) More efforts are spent in institutional change that promote greater involvement and fiscalization of the public sector by the civil society. Efforts to increase and improve the flow of information and transparency of public policies are important in this respect.

(c) Institutional capacity in the public sector and the agencies dealing with education, health, social sectors and the environment need to be dramatically strengthened to increase the productivity in such sectors. The ability to collect taxes in many countries should also significantly improve as it has successfully already happened in a few countries in the region.

(d) Policy makers have to discard old and obsolete development ideologies and the social groups that most directly benefit with the new strategy need to be developed into a force of change to counter traditional political lobby efforts.

(e) The new strategy, especially its environmental sustainability component, will also need adequate international conditions, namely, (i) the development of North-South conditions for trade in environmental services as opposed to purely of goods produced through conventional exploitation of natural resources; (ii) expanded international cooperation and assistance to promote the institutional changes described above; (iii) the technical and financial support of international organizations that must take a leadership role by placing their advice within the context of a clear set of long-run objectives.

International aid organizations may play a leading role in promoting the discussion and debate of new approaches to development in a systematic way. Many of the ideas presented in this paper are simple but may require much persistence to be more widely accepted in the policy world. As usual, the new approach would have to clear several obstacles in order to even start to have policy impact: First is the ideological barrier. Old and deeply ingrained preconceptions are extremely difficult to change. Second, powerful economic interests both within government and in the private sector that have benefited dramatically from the old model are likely to constitute another formidable barrier to change. Third, implementing institutions, especially those public institutions in charge of monitoring and enforcing programs and investing in the environment will need to be developed and/or perfected.

I see four areas that may be important for international organizations over the medium term:

(i) More efforts on the *international front*. Here there are several priority activities that include: promoting and supporting the international monitoring and diffusion of information on government corruption and other nontransparent practices; more participation in arrangements to reduce international competition across countries to attract foreign investments on the basis of public subsidies; greater involvement in the development of new or emerging international institutions that may allow for greater North-South trade on environmental services including carbon sequestration and biodiversity.

(ii) Gradual shift in the *country lending and technical support priorities*. More emphasis should be given to supporting the private sector (*broadly* defined) thus increasing its share in the volume of international lending and technical support. At the same time, the definition of the private sector should be broadened to include organizations of the poor, community organizations, nongovernmental organizations (NGOs), ethnic organizations and others. Within the conventional support to the private sector by international organizations, such as the World Bank and Inter-American Development Bank, a significant reallocation of such support from the corporate sector to social and civil organizations should take place.

(iii) *A shift of the international support to governments* increasing the emphasis on public investment in the social sectors (education, health, social security, etc.) and the environment and reducing the support for conventional “development” expenditures.

(iv) Promote more *country research*. It is very difficult to provide good lending and especially good policy advice if it is not backed by appropriate socioeconomic research. The evaluation of public expenditure allocations, measurement of public subsidies to corporations and the wealthy and shedding light on the implementation of reforms including sequencing, pace, institutional demands, etc.,

are important areas where more knowledge is needed.

To be sure, none of the tasks enumerated above are “new” to international aid organizations. They have been active in several of these areas, particularly in (iii) and to some extent (ii). The issue is not whether such organizations are active at these tasks but rather it is a matter of priorities. Obviously to act in these areas in a significant way, other areas need to be curtailed. This is the real choice, whether international organizations are willing to focus their work more in such an agenda to the cost of curtailing their more traditional activities.

NOTES

1. The neoclassical growth model pioneered by Robert Solow’s famous contributions provided the intellectual support to these views.
2. Much controversy exists about the roles of total factor productivity (TFP) *vis-à-vis* asset accumulation as sources of growth. Several empirical studies have found that even in the rapidly growing East Asia countries, TFP has not been nearly as important a source of economic growth as asset accumulation has been (Collins & Bosworth, 1996; Kim & Lau, 1994; Krugman, 1996; Young, 1995). Others have pointed to methodological refinements that could significantly alter the conclusions reached by the above authors (Klenow & Rodriguez-Clare, 1997; Nelson & Pack, 1998). Controversy also exists regarding the importance of human capital as a source of growth. While a large literature using micro-level data has shown the value of education as a source of household income (since the pioneering works of Mincer (1974), many others have confirmed these findings), some recent crosscountry studies have found low or even negative effects of education on growth (Pritchett, 1996, and others). This rather perplexing result, however, appears to be due to major data problems encountered by cross-country studies. Krueger and Lindahl (2001), show that, after accounting for measurement errors, the effects of education on income growth across countries is at least as great as microeconomic estimates of the rate of return of schooling.
3. One would expect that if an economy underinvests in two of the three assets, it would necessarily overinvests in the other. But, the total volume of savings available for investments is not fixed. Market imperfections may induce lower savings and/or a deviation of part of the savings abroad.
4. This section is a nontechnical version of the analysis developed by López *et al.* (2001) using a formal multiasset endogenous growth model.
5. In the long-run firms face little if any diseconomies of scale.
6. As documented by the empirical literature (e.g., Psacharopoulos, 1994) individuals experience decreasing marginal product of schooling due among other things to obvious life cycle factors (including the limited span of life). This impedes human capital concentration beyond a certain point.
7. There is some empirical evidence regarding the impact of natural resource degradation on the real wage of unskilled workers. López (1997, 2000) for example, found that a 10% reduction of soil biomass induces a reduction of the marginal product of labor employed in rural areas of the order of 1.5–2.0%.
8. See, for example, UNDP (1998), which provides empirical evidence for several countries showing how air and water pollution disproportionately affect the poor. See also Dasgupta (1995).
9. We focus here on “capital taxes,” which should be interpreted as encompassing taxes on all revenues of the high income (and high saving) households. Given that most of their income is usually derived from physical and financial capital, we focus here on profit taxes.
10. Cases of massive decline of natural capital are well documented. Periods of decline of human capital are less well documented but are more frequent than one would

expect if, education, for example, is measured considering its quality as represented by standardized tests or other means.

11. See Ascher (1999), Myers and Kent (2001) and Van Beers and de Moor (2001), for empirical evidence on the existence of massive environmentally destructive subsidies provided to the corporate sector as an incentive to promote capital investment.

12. The importance of this last point cannot be overemphasized. During the 1990s Germany offers a prime Example: The reconstruction of the former DDR was implemented through gigantic subsidies to firms, perhaps on a scale never seen before in history. Coincidentally Germany has been transformed into “die Schmiergeld Republik” (“the Republic of the Bribes”) as the prestigious *Der Spiegel* magazine called it in its front page. Since the mid-1990s the cases of confirmed bribery have increased almost six-fold (*Der Spiegel*, March 18, 2002).

13. See, for example, the article by Kenneth Rogoff in *The Economist*, August 3–9, 2002, pp. 62–64.

14. A famous German automotive investor has said that to invest in areas of the former East Germany, he needs more infrastructure and a more educated labor force, not subsidies.

15. The “genuine savings” concept has been a useful tool to understand this phenomenon. By accounting for changes in the value of environmental assets as well as other assets, studies using this concept have shown that wealth even in fast growing countries has declined or grown at a much slower pace than what conventional national accounts lead us to believe (Hamilton, 2000; Hamilton & Clemens, 1999).

16. This without including the rather disastrous 1998–2002 period.

17. Assuming a growth accounting framework (under constant returns to scale),

$$\dot{y}/y = \alpha_K \dot{K}/K + \alpha_H \dot{H}/H + (1 - \alpha_K - \alpha_H) \dot{R}/R + \dot{A}/A$$

where α_i ($i = K, H$) are the share of capital and human capital in national income, \dot{y}/y is per capita annual income growth, \dot{K}/K and \dot{H}/H are annual per capita growth of capital and human capital respectively, \dot{R}/R is annual per capita growth of natural capital and \dot{A}/A is annual productivity growth. Using $\dot{y}/y = 0.013$, $\dot{K}/K = 0.03$, $\dot{H}/H = 0.012$, $\alpha_K = 0.6$, $\alpha_H = 0.2$, and $\dot{A}/A = 0$ we obtain that $\dot{R}/R = -0.045$. If we assume that $\dot{A}/A = 0.01$ (a 1% annual productivity growth) we obtain that $\dot{R}/R \approx -0.08$. That is, this simple growth accounting procedure suggests that natural capital has been degraded at fast rates of the order of 4.5–8% per year.

18. In many cases, e.g., Argentina, undertaxation of capital and the wealthy arises not because tax rates are particularly low but because of a chronic lack of capacity of governments to collect taxes. This lack of capacity is often regarded as a “technical problem” that is fixed by “institutional building,” but in reality it is also likely to be linked to political economy factors that generate “incentives” to government bureaucrats to spend little effort in collecting taxes from economically powerful groups. So, inadequate tax collection may be regarded as just one other instrument to undertax capital.

19. The importance of corruption as a source of perverse government allocations and distortions has been thoroughly analyzed both conceptually (e.g., López & Mitra, 2000; Mookherjee & Png, 1995) and empirically (Kaufman & Zoido-Lobaton, 1999). In addition, a number of recent works have developed rigorous political support models. Since the pioneering work of Bernheim and Whinston (1986), a number of authors have applied their model to a variety of government policy biases such as those arising from overweighting the income of large corporations that provide political campaign contributions to the government in the government’s objective function (Fredriksson, 1997; Grossman & Helpman, 1994, 1995).

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