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Special Topic I: Structural Adjustment Policies and the Environment

Introduction

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Background to structural adjustment

The oil price increases of the 1970s, the worldwide recession, and developing country debt crisis of the 1980s, led to the adoption of so-called structural adjustment policies (SAPs). These economic reform packages which included stringent monetary and fiscal measures, sought to restore conditions for growth and development by a combination of short-term 'stabilization' and more medium-term 'adjustment' policies for the macroeconomy. SAPs have not always achieved their economic goals, for a variety of reasons. Of greater relevance is the fact that even where economic gains have been realized through structural adjustment, both environmental and social problems have persisted in several countries. The growing sustainable development literature is seeking to identify and remedy development strategies that lead to the unsustainable use of natural resources and the environment. One key question is whether the very economic policies being prescribed to alleviate economic problems are perhaps undermining the environmental resources and social fabric on which the long-term development of nations will ultimately depend.

Economy-wide policy reforms (including SAPs) are designed primarily to achieve broad economic objectives (e.g. improving macroeconomic stability, enhancing efficiency and growth, and alleviating poverty), and therefore, it is not surprising that their environmental and social consequences could be either positive or negative. The papers in this special topic examine the environmental and social impacts of SAPs. They provide rich insights not only into how such linkages actually function, but also about the methodologies and techniques by which they may be traced.

Glomsrød *et al*. focus on adjustment and deforestation in Nicaragua.

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They use a CGE model to examine how macroeconomic management initiatives, including tax reforms, cuts in public expenditures, and improved external balances, influence susbsistence farmers, who in turn exert pressures on tropical forests. Some interesting and sometimes counter-intuitive results emerge, involving tradeoffs among economic growth, environmental harm, and social impacts.

The paper by Holden *et al*. contains a model to study the impacts of SAPs on the production of cash crops, and on shifting cultivation in a remote Zambian village. The absence of labour markets, input supply constraints, and credit rationing, provide analytical challenges. In this case, the SAPs designed to eliminate policy distortions may decrease the profitability of maize production and thereby increase deforestation due to greater emphasis on shifting agriculture.

Hansen and Hansen analyse SAPs implemented by multilateral development banks in the Philippines. They explain how awareness of the linkages between economic policies and the environment has evolved, and become more integrated into macroeconomic management efforts in more recent years.

To provide a framework for the results presented in this special topic and supplement them, we briefly review below some stylized results of other recent studies, focusing on three broad categories of country-wide policy impacts on various indicators of sustainability—beneficial, harmful, and less well-defined. Case studies of the environmental and social impacts of countrywide policies (including SAPs) have been presented in a number of recent articles and volumes (see, for example, Reed, 1992, 1996; Munasinghe and Cruz, 1994; Abaza, 1995; Young and Bishop, 1995; Munasinghe, 1996; Opschoor and Jongma, 1996; Cruz, Munasinghe, and Warford, 1997; and Warford, Munasinghe, and Cruz, 1997.

Some stylized results

It is difficult to generalize about the environmental and social impacts of economy-wide policies, because the linkages tend to be extremely complex and country specific. For example, a recent study indicated that even the purely economic impacts of structural adjustment programs are difficult to trace comprehensively (Tarp, 1993). Nevertheless, in this section we attempt to summarize the main lessons learned within the three categories—beneficial, harmful, and less well defined. In the first group are the so-called 'win–win' policies, where it is possible to achieve simultaneous gains in all three areas of sustainable development (i.e. economic, social, and environmental) when economy-wide reforms are implemented. The second category recognizes important exceptions when such potential gains cannot be realized unless the macro-reforms are complemented by additional environmental and social measures which protect both the environment and the poor. The third and final category consists of impacts that are less predictable, mainly because of the complexity of the linkages involved, and the long-run time perspective.

Beneficial impacts

Several studies indicate that liberalizing reforms which seek to make desir-

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able alterations to the structure of the economy, often will contribute to both economic and sustainability gains (see, for example, Munasinghe and Cruz, 1994). Such changes include the removal of price distortions, promotion of market incentives, and relaxation of trade and other constraints (which are among the main features of adjustment-related reforms). For example, reforms which improve the efficiency of industrial or energy-related activities could reduce economic waste, increase the efficiency of natural resource use and limit environmental pollution. Similarly, improving land tenure rights and access to financial and social services not only yields economic gains but also promotes better environmental stewardship and helps the poor.

In the same vein, there is evidence to show that shorter-run policy measures aimed at restoring macroeconomic stability (i.e. controlling inflation, fiscal deficits, current account imbalances, etc.) often yield economic, social, and environmental benefits, since instability undermines sustainable resource use and especially penalizes the poor. For example, price, wage, and employment stability encourage a longer-term view on the part of firms and households alike. Lower inflation rates not only lead to clearer pricing signals and better investment decisions by economic agents, but also protect fixed income earners. These are essential prerequisites for encouraging environmentally sustainable activities.

Avoiding (unintended) harm

A number of researchers have pointed out how economy-wide structural reforms have had adverse environmental and social side effects (Munasinghe and Cruz, 1994, Young and Bishop, 1995, Reed, 1996, Opschoor and Jongma, 1996). Such negative impacts are invariably unintended and occur when some broad policy changes are undertaken while other hidden or neglected policy, market, or institutional imperfections persist. The remedy does not generally require reversal of the original reforms, but rather the implementation of additional complementary measures (both economic and non-economic) that remove such policy, market, and institutional difficulties. These complementary measures are not only socially and environmentally beneficial in their own right, but also help to broaden the effectiveness of economy-wide reforms (see below). Typical examples of potential environmental damage caused by remaining imperfections include:

Policy distortions: The profitability of natural resource exports may be increased by export promotion schemes. This could encourage excessive extraction or harvesting of a resource, if it were underpriced or subsidized (for example, low stumpage fees for timber). Similarly, trade liberalization could encourage the expansion of wasteful energy-intensive activities in a country where subsidized energy prices persisted.

Market failures: Economic expansion induced by successful adjustment may result in excessive environmental damage—for example, if external environmental harm caused by economic activities (such as air or water pollution), are not adequately reflected in market prices that influence such activities.

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Institutional constraints: The benefits of country-wide reforms could be negated by unaddressed institutional problems, such as the poor accountability of state-owned enterprises (which would allow them to ignore efficient price signals), weak financial intermediation, or inadequately defined property rights. Such issues tend to undermine incentives for sustainable resource management and worsen equity.
Stabilization: The shorter-term macroeconomic stabilization process also may have unforeseen adverse environmental and social impacts. For example, general reductions in government spending are often required to limit budgetary deficits and bring inflation under control. However, unless such cutbacks are carefully targeted, they may disproportionately penalize expenditures on environmental protection or poverty safety nets. Another important linkage is the possible short-term recessionary impact of adjustment on poverty and unemployment, whereby the poor are forced to increase their pressures on fragile lands and 'open access' natural resources—due to the lack of economic opportunities elsewhere. In this case, appropriate measures designed to address the possible adverse consequences of adjustment will be justified—on both social and environmental grounds.

Longer-term and less predictable effects
Economy-wide policies will have additional longer-term effects on sustainability, whose net impacts are less predictable. Some of these effects need to be traced through a general equilibrium framework that captures both direct and indirect links. For example, several studies confirm that adjustment-induced changes often succeed in generating new economic opportunities and sources of livelihood, thereby alleviating poverty and helping to break the vicious cycle of environmental degradation and poverty. Higher incomes tend to increase the willingness-to-pay for better environmental quality which will lead to better protection of the environment. However, while such growth is an essential element of sustainable development, it will necessarily increase the overall pressures on environmental resources. At the same time, properly valuing resources, increasing efficiency and reducing waste, will help to reshape the structure of economic growth and limit undesirable environmental impacts. Finally, environmental policies themselves could have impacts on income distribution and employment.

Macroeconomic issues
Up to now we have not seriously considered altering economy-wide policies merely to achieve sustainability objectives, but instead have chosen to rely on specific complementary measures to mitigate environmental and social harm. We now examine whether circumstances exist, under which even macroeconomic policies might be tailored to satisfy environmental considerations.

Second-best economic policies
Maler and Munasinghe (1996) developed a theoretical model which showed that applying first-best macroeconomic policies to achieve a

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Pareto optimum will not maximize welfare, if an environmental externality exists. In such a case, it is possible to question whether second-best macroeconomic policies might be better—basically, to trade off between broad macroeconomic goals and environmental damage.

More specifically, their analysis confirms the empirical observations made earlier in this paper that it is the combination of growth-inducing economy-wide policies and residual imperfections such as policy distortions, market failures, and institutional constraints which lead to environmental damage. The model also underlines the microeconomic analysis in the previous section, that such imperfections and resultant economic harm may well go unnoticed in a relatively stagnant economy, only to emerge quite visibly when growth rates begin to rise. Maler and Munasinghe explain further that the first-best solution would be to correct the imperfections using complementary policies while pursuing the original macroeconomic reforms. However, if political or other constraints prevent or delay the correction of the policy, market, or institutional imperfections, then second-best macroeconomic policies may be justified—especially in cases where the environmental harm could be significant.

Fine tuning policy reforms

It is also relevant to examine the dynamics of the policy reform process. For example, such reforms might be intensified over a period of time (instead of being suddenly imposed), thereby allowing further time for residual imperfections that degrade the environment to be gradually phased out. In this context, suppose that the environmental damage due to an economic reform program is likely to be rather large. If so, is it possible to adjust the timing and sequencing of macroeconomic and sectoral policy tools, to avoid the worst environmental consequences? It is useful to recall that there is the growing body of literature which examines the pros and cons of timing and sequencing stabilization and adjustment measures—to achieve economic goals but not environmental ones (McKinnon, 1991; Edwards, 1992; and Caprio *et al.* 1996).

Munasinghe (1995) presents an example in which policy reforms are fine tuned to meet environmental requirements. In this case, the economy under consideration requires an exchange rate devaluation and liberalization of trade and capital flows to correct a chronic current account deficit and restore the external balance. At the same time, an increase in the price of state-subsidized energy is warranted to reduce the government budget deficit, eliminate excess demand, and restore the internal balance. Suppose the foreign exchange and trade reforms could be achieved first—e.g., if powerful domestic forces delayed the raising of energy prices. Then, the opening up of the economy might lead to greater foreign investment and expansion of energy-intensive industries which were attracted by the low energy prices. However, this apparent economic gain would also result in wasteful use of (the still subsidized) energy and even more environmental pollution. Therefore, it might be preferable to raise energy prices first, before liberalizing capital and trade flows.

The Munasinghe paper points out that the foregoing analysis is limited by its simple, static, and short-term nature. Nonetheless, some

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environmentally-related arguments such as the above could be used to fruitfully re-examine (and perhaps fine tune) policy reforms.[1] Since hardly any work has been carried out in this area, and country circumstances vary widely, it would be difficult to generalize at this time. At the same time, restraint and good judgment is required to avoid the temptation of making major changes in economy-wide policies merely to achieve minor environmental (and social) gains. Once again, policy options that achieved 'win–win' gains would be the most desirable.

The stage and structure of growth

The Environmental Kuznets Curve (EKC) as a conceptual framework

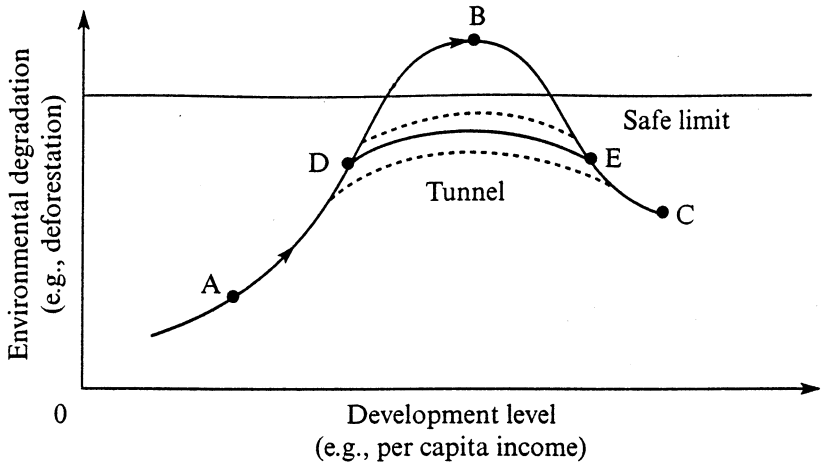
Over a period of time, economy-wide policies also influence the structure and stage of economic growth of a country, which could in turn, also affect the state of the environment. In this context, the recent concern for the environment has revived interest in a generic concept proposed by Simon Kuznets (1955, 1963) over thirty years ago—that as countries develop and incomes rise, certain measures of the quality of life (e.g., the income distribution) might initially deteriorate before becoming better. More specifically, several authors have presented evidence that the level of environmental degradation and per capita income (conventionally measured) might obey the inverted-U-shaped relationship shown in figure 1—dubbed the 'Environmental Kuznets Curve' or EKC[2] (for a review, see EDE Special Issue 1997, and Munasinghe 1997).

The EKC hypothesis is intuitively appealing. Thus, at the low levels of per capita income associated with pre-industrial and agricultural economies, one might expect rather pristine environmental conditions relatively unaffected by economic activities at the subsistence level. As development and industrialization progressed, the increasing use of natural resources and emission of pollutants, less efficient and relatively 'dirty' technologies, high priority given to increases in material output, and disregard for or ignorance of the environmental consequences of growth, would have all contributed to increasing environmental damage. This argument might be relevant for middle-income or newly industrializing countries (NICs)—especially where growth rates of GNP exceeding 5 per cent per annum are commonplace. In the final post-industrial stage (corresponding to the mature western economies), cleaner technologies and a shift to information- and service-based activities, the growing ability and willingness to pay for a better environment, improved internalization of environmental externalities, and greater financial surpluses that could be used to pay for a more pre-emptive approach to environmental protection, might be expected to result in reduced environmental degradation.

[1] Extending this line of reasoning, it may be reasonable to consider avoiding certain macroeconomic policies altogether—in extreme cases where potentially irreversible and catastrophic environmental damage would occur.

[2] For some forms of environmental degradation, the EKC may have different shapes (e.g., N- or S-shaped).

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Source: Adapted from Munasinghe (1995)

Figure 1. *Sustainable policies can 'tunnel' through the Environmental Kuznets curve (EKC).*

Tunneling through the EKC

A major motivation for more systematically examining the links between economy-wide policies and the environment, based on analysis of past growth patterns, is the search for environmentally sustainable development paths in the future. The EKC approach provides a convenient framework to represent some of the lessons of experience. Unfortunately, empirically estimated EKCs have relied mainly on cross-section data, which raise serious doubts about how well they might capture the growth–environmental characteristics of a single country. Therefore, in this section, we refer to the EKC in the context of a specific type of environmental degradation, observed over a period of time in a single country.

First, if the EKC hypothesis holds true, the early to middle stages of economic growth could be quite detrimental from both the environmental and social view points of sustainable development. In particular, low-income groups might be even more adversely affected than Kuznets had originally predicted on the basis of income inequality alone, to the extent that the poor also suffer more due to environmental degradation. This would require appropriate policy responses, especially on the social side. Second, the extent to which decision makers ought to devote their limited time and resources towards designing and implementing policies for sound environmental management, could well depend on the extent to which the driving forces underlying the EKC are susceptible to such policies. In other words, if environmental damage is a structurally determined and inevitable consequence of economic growth, then attempts to avoid such damage in the early stages of development might be futile.

In contrast, the evidence set out earlier suggests a more proactive approach whereby the developing countries could learn from the past

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experiences of the industrialized world—by adopting sustainable development strategies and measures which would permit them to build a strategic 'tunnel' through the EKC, as shown in figure 1 (Munasinghe 1995c).[3] Thus, the emphasis is on identifying policies that will help delink environmental degradation (of a specific type) from growth (in a given country), so that environmental harm will be reduced along the development path. With such a focus, the EKC becomes useful mainly as a metaphor or organizing framework for policy analysis, rather than an exercise in econometric estimation.

A basic model of the market for environmental quality developed by Munasinghe (1997) shows how economic imperfections (which make private decisions deviate from socially optimal ones) could lead to the high peak B in the path ADBEC in figure 1. Thus the adoption of corrective policies that reduce such divergences and thereby reduce environmental damage, would permit movement through the tunnel ADEC. Avoiding the peak of environmental damage at B would be especially desirable to prevent irreversible environmental harm (e.g. loss of bio-diversity).

In other words, the tunnel would enable developing countries to short-circuit more conventional development paths (such as ABC in the figure), which merely mimicked the evolution of the western market economies. This approach is quite consistent with the fundamental insight provided by the analysis and empirical results presented earlier—that imperfections in the economy could combine with growth-inducing economy-wide policies to cause environmental harm, and result in sub-optimal development paths like ADBEC. Therefore, complementary policies that removed such imperfections would be needed to protect the environment and shift the path towards the more optimal tunnel DE.[4] More, generally, successful 'tunneling' would require the following steps:

1. Every effort should be made to adopt 'win–win' policies that provide simultaneous economic, environmental, and social gains—in particular, this will require more systematic analysis to identify the environmental and social impacts of economy-wide policies;
2. Unintended but harmful environmental and social impacts should be addressed through complementary measures, rather than by reversing successful economic reforms; and
3. If the threat to sustainability is serious enough, even economy-wide policies might be reshaped appropriately—for example, by modifying the timing and sequencing of reforms.

The papers in this special topic provide further support for such a tunneling approach. Glomsrød *et al*. argue that improving the macroeconomic fiscal balance in Nicaragua will lead to a win–win outcome, with both

[3] There is some resemblance to the turnpike approach to optimal growth, explored in the 1970s (Burmeister and Dobell 1971).

[4] Given that policy regimes vary widely across countries and over time, an EKC estimated using cross-section (or pooled) data is likely to be a composite of many paths. Even an EKC based on time series data for one country will reflect the effects of a range of time-varying policies.

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economic and environmental gains (in terms of forest conservation). In particular, their modeling indicates that reducing public expenditures has the additional advantage of promoting growth without penalizing the rural poor (i.e., an economic–environmental–social, 'win–win–win' result). On the other hand, Holden *et al*. analyse a case involving a Zambian village, where the introduction of structural adjustment reforms apparently leads to unintended environmental harm. More specifically, trade liberalization and the removal of (fertilizer) subsidies results in a reduction in the profitability of maize production and a consequent increase in deforestation (due to shifting cultivation or '*chitemene*'). Clearly, there is a role for complementary policies here—to protect the forest areas, without reversing the adjustment process (which has other economic benefits).

Finally, Hansen and Hansen use the Philippines example to show that the multilateral development banks have learned from the early experiences of structural adjustment programs, and are now increasingly relying on complementary policies to limit the collateral environmental (and social) damage.

We may conclude that a better understanding of the links between economy-wide policies and the environment (along the lines pursued in special topic I) would facilitate the efforts of decision makers seeking more sustainable development paths, which encompass economic, environmental, and social gains.

References

Abaza, H. (1995) 'UNEP/World Bank workshop on the environmental impacts of structural adjustment programmes—New York, 20–21 March 1995', *Ecological Economics* **14**(1): 1–5.

Caprio, G. Jr., I. Atiyas, and J.A. Hanson (1996) *Financial Reform*, Cambridge: Cambridge University Press.

Cruz, Wilfredo, Mohan Munasinghe, and Jeremy Warford (1997), *The Greening of Economic Policy Reform*, Vol. II (Case Studies), Washington, DC: World Bank.

Edwards, Sebastian (1992), 'Structural adjustment and stabilization: issues on sequencing and speed', EDI Working Papers, Economic Development Institute, World Bank, Washington DC.

Kuznets, Simon (1955) 'Economic growth and income inequality', *American Economic Review* 49: 1–28.

Kuznets, Simon (1963), 'Quantitative aspects of the economic growth of nations, VIII: The distribution of income by size', *Economic Development and Cultural Change*, **11**: 1–92.

Maler, K.G. and M. Munasinghe (1996) 'Macroeconomic policies, second-best theory, and the environment' in M. Munainghe, ed., *Environmental Impacts of Macroeconomic and Sectoral Policies*, Washington, DC: World Bank.

McKinnon, R.I. (1991), *The Order of Economic Liberalisation*, Johns Hopkins University Press, Baltimore MD.

Munasinghe, Mohan and Wilfredo Cruz (1994), *Economywide Policies and the Environment: Lessons from Experience*, Washington, DC: World Bank.

Munasinghe, Mohan (1995) 'Making economic growth more sustainable', *Ecological Economics* **15**: 121–124.

Munasinghe, Mohan (1996) 'An overview of the environmental impacts of macroeconomic and sectoral policies', in M. Munasingh, ed., *Environmental Impacts of Macroeconomic and Sectoral Policies*, Washington, DC: World Bank.

https://doi.org/10.1017/S1355770X99000029 Published online by Cambridge University Press

Opschoor, J.B., and S.M. Jongma (1996) 'Structural adjustment policies and sustainability', *Environment and Development Economics*, 1: 183–202.
Reed, David. (1996) *Structural Adjustment, the Environment and Sustainable Development*, London: Earthscan Publishers.
Reed, David, ed. (1992), *Structural Adjustment and the Environment*, Boulder CO: Westview Press.
Tarp, Finn, (1993), *Stabilization and Structural Adjustment: Macroeconomic Frameworks for Analyzing the Crisis in Sub-Saharan Africa*, New York: Routledge.
Warford, Jeremy, Mohan Munasinghe, and Wilfredo Cruz, (1997), *The Greening of Economic Policy Reform*. Vol. I (Principles). Washington, DC: World Bank.
Young, C.E.F. and J. Bishop (1995) Adjustment policies and the environment: a critical review of the literature', CREED Working Paper Series No. 1, IIED, London, UK.

https://doi.org/10.1017/S1355770X99000029 Published online by Cambridge University Press