

Summaries

Structural adjustment and deforestation in Nicaragua

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Around 1990 Nicaragua entered a period of economic stabilization and adjustments after many years of social and economic turbulence. Markets had been deregulated, the domestic currency deflated, public expenditures reduced, and the tax system reformed. The focus of this paper is on the impact of structural adjustment policy on deforestation in Nicaragua. We question how particular policy elements like tax reform, reduced public expenditures, and improved external balance affect the pressure on the tropical forests of Nicaragua by subsistence farming. For this purpose we employ a computable general equilibrium (CGE) model incorporating an informal food-producing frontier sector, advancing into forest land.

A key feature of this model is that the income level at the agricultural frontier is determined by the price of basic grains, and not directly linked to the alternative cost of labour within the market economy. This means that deforestation for subsistence farming is particularly sensitive to distributional aspects which affect the level of private consumption, the demand for food, and food prices.

Improving the fiscal balance by cutting public expenditures or by means of a sales tax reform both enhance economic growth and conservation of forests. The former policy is efficient in stimulating growth, while the latter is efficient in conservation. While the rural income level is conserved under reduced public expenditures, it is being eroded by the sales tax increase, through a demand-induced decline in prices of basic grains. With low prices on basic grain, a salary in the market economy is seen as increasingly beneficial, because cheaper grain means additional options for consumption beyond subsistence level in the cities where the real wage is constant; i.e., the opportunity cost of staying at the frontier is rising. Thus, the forest conservation associated with a rising sales tax is driven by a general rural poverty increase.

A flexible urban wage setting would generate more rapid deforestation than a fixed urban real wage regime. The economy would grow at a considerably higher rate, but the rural wage level would not be much higher

than in the reference scenario. A significant increase in food prices would cancel out the potential benefit from improved and less uncertain income opportunities within the market economy. Subsistence farming would be increasingly attractive under the new price regime. A conclusion is that rapid growth does not guarantee more forest conservation, as illustrated under the flexible urban wage regime.

Some policies initially intensify the clearing of forest land, but turn out to ease the pressure on forest capital over time. This tradeoff between short- and long-term effects should be taken into account under policy formation. An argument for accepting a short-term increase in deforestation could be positive distributional effects.

Integrating environmental concerns into economy-wide policies in developing countries: the role of multilateral development banks

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This study addresses the role of multilateral development banks and their effectiveness in bringing environmental considerations into structural and sectoral adjustment programmes in developing countries. It addresses a series of complex issues showing that such programmes cannot be meaningfully studied in isolation from other aid cooperation and government development programmes. Studying the Philippines provides insights into policy climate evolution, the dynamics and diversity of such programme lending and how its design can affect resources' management and the environment in benign or adverse ways.

There are signs of lasting environmental awareness and accompanying priority changes in Philippine policies since the late 1980s. Much of this is due to change of regime and reorganization of interministerial committees addressing macroeconomic issues. The influence of the Brundtland Commission Report is also stressed. The Philippine Programme for Sustainable Development is clear manifestation of this trend. Nevertheless, the continuous involvement and increasingly coordinated multilateral actions of the banks and the IMF in the stabilization and adjustment process, supported by their project lending and that of bilateral donors and NGOs, must be seen as an integral part influencing this evolution.

The key findings examined in detail that extend beyond the Philippine case, can be summed up as follows:

In the early adjustment programmes, few if any explicit efforts were launched to mitigate adverse or enhance benign environmental effects for environmental reasons. Since 1987 such explicit environmental concerns have become an integral part of adjustment programmes, and where they seem to be missing, one will most likely find complementary lending operations by the Bank or by other agencies or by the government itself taking charge of such measures in a coordinated way. This is required by the new World Bank Operational Directives. We conclude that the Bank's as well as the Asian Development Bank's environmental profiles in policy-based lending have taken on a profound deepening over the last 15 years.

Adjustment programmes today are carefully negotiated in order to ensure government ownership. Without government ownership, such programmes are considered doomed to failure.

Many donors are involved in projects and programmes that are intertwined in time and space in a given country. It would therefore be ineffective to design an adjustment programme not giving latitude to other donors' efforts. The so-called Consultative Group of donors meet regularly and closely coordinates aid to borrowing countries. This coordination has made the efforts, increasingly effective over the years, in placing various environmental and social covenants and compensatory measures where they are most appropriate. One should therefore not categorically demand a complete set of environmental covenants to be included in every adjustment loan agreement. One might even conceive of new adjustment loans completely void of environmental covenants and concerns, if these have been carefully taken care of in the overall coordination process between the government and the donor community. If anything, the perfect coordination may be so time consuming that the original goal of adjustment lending as a quick disbursing financing modality may be missed.

Structural adjustment and market imperfections: a stylized village economy-wide model with non-separable farm households

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Impacts from adjustment policies on peasants and the environment became policy issues in the 1990s. The peasants represent the main link

between the economy and the environment as the environment or natural resource base is a key input in their production systems. High transaction costs and imperfect information cause persistent market imperfections in remote rural economies, even after policy distortions have been removed. Typical market imperfections include missing markets, seasonal markets, rationing, thin markets, and interlinked markets. The existence of these imperfections complicates the macro–micro–environment linkages and analysis of policy impacts.

The purpose of this paper has been to develop a general village economy typology which captures these linkages and show how it can be used to develop a village economy-wide model for a remote Zambian village. The model is used to analyse impacts from adjustment policies on the village economy, local resource use, and living conditions. In particular the model is used to predict the effects of the policy changes on deforestation by the extensive *chitemene* shifting cultivation system practiced by peasants in Zambia.

The village economy typology is developed in transaction cost and differentiation space where transaction costs refer to the degree of isolation from the outside world and differentiation refers to the internal differential access to resources. This leads to a classification of six basic categories of village economies with models representing these economies. Where there are endogenous markets and a social differentiation causing some households to be surplus producers and others to be net buyers of commodities and/or sellers and buyers of inputs, there will be local general equilibrium effects requiring a village CGE model to predict policy impacts. With extremely high transaction costs there will be no trade or only local exchange (when there is local differentiation). With lower level of differentiation and lower transaction costs there may be little or no internal exchange and some external trade. The economy may then be represented by one or several (to represent the low level of differentiation) non-separable farm household models. Our case study village falls in this category ('Chayanovian village economy' with abundant land—no land market—an almost non-existent labour market, a rationed credit market, and external markets for some outputs). Villages well integrated into outside markets (low transaction costs) may be represented by one or several (where there is significant differentiation) separable farm household models.

The results of model simulations show that there may be considerable indirect effects from adjustment policies on the environment. The removal of policy distortions does not necessarily lead to well-functioning markets in remote areas. Rather than improving the terms of trade it may lead to worsening terms of trade in this case. In northern Zambia the consequence was a decrease in the profitability of maize production and this caused households to increase their *chitemene* production as illustrated by the model simulations. This has environmental implications as it leads to increased deforestation when or where the carrying capacity of the *chitemene* system is exceeded. Empirical findings fit well with these model predictions.

Applying economic instruments in developing countries: from theory to implementation

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The history of environmental policy in developed and developing countries alike has been one of 'command-and-control' (CAC)—of reliance on legal or administrative sanctions to enforce regulations. Where monitoring and enforcement (M&E) have been effective, marked environmental improvements have been achieved, but for many developing countries weak enforcement remains an Achilles heel. Although the economic inefficiencies of CAC have long been recognized, at first policy makers moved only slowly towards greater reliance on economic instruments (EIs). Lately, interest in—and experimentation with—EIs has blossomed, not least in developing countries. This is often part of a broader thrust towards regulatory reform and greater reliance on markets. Use of EIs does not, however, automatically resolve problems of weak M&E: EIs can be quite information intensive and require strong institutional capacity to implement.

Experience with applying EIs extends over two decades in a few developing countries. Almost always, EIs have been grafted on to a pre-existing regulatory framework. While historical inertia may be at work, there can be sound political economy arguments for adopting a mixed approach. For example, while a non-compliance fee levied only on discharges exceeding mandated standards may be less efficient than a simple charge applied to all units of pollution, the latter may be politically unfeasible if existing polluters oppose it as an excessive cost burden. Also, on their own, price-based EIs like pollution charges can leave policy makers (and environmentalists) uncertain about whether environmental targets will be achieved.

Dealing fairly with incumbents is a widespread preoccupation of environmental policy design. In the case of tradable permit schemes, most governments have opted for some form of 'grandfathering', allocating a portion of permits to existing polluters or resource users. Whether the permits are given free of charge or carry a price determines the distribution of capital gains between government and permit holders. In the case of charge schemes, special treatment of incumbents could negate their efficiency benefits, but pre-announcement of the charge would allow incumbents time to retire old capital stock, thereby easing adjustment.

With growing experience in implementing EIs, governments have sought to improve on instrument design. In the case of charge schemes, for example, moving from non-compliance fees to graduated charges—lower (but still positive) if within standard, higher otherwise—ensures that even polluters complying with standards have some incentive to improve

environmental performance. Local experimentation with a new EI can reduce learning costs and the risk of failure. Earmarking of charge revenues can be phased out as pollution control comes to be accepted as part of the normal costs of running a business.

The trends observable in many developing countries towards more educated populations and open political systems are likely to continue with rising prosperity. Already, this has opened the way in some countries for greater resort to public opinion and purchasing power as instruments of environmental policy. Where private enterprises value their reputations, the threat of adverse publicity can prove an effective deterrent to bad environmental practices. Similarly, the prospect of positive publicity can encourage sounder practices.

Environmental considerations in tax policy design

JOHN WHALLEY

In this paper I discuss how environmental considerations seem likely to impact on the design of tax policy in both developed and developing countries in the next few decades, especially if environmental considerations become more important in non-environmental policy design as many expect. I go beyond recent literature on environment and tax policy which stressed double divided issues (see Goulder, 1995 and Bovenberg and Goulder, 1996), and wider environmental tax interactions (such as Smith (1992) and McMorran and Nellor (1994)) argue that some of the basic tenets that have underpinned tax policy design for 30–40 years will be subject to challenge on environmental grounds. This may result in a substantial reconfiguration of tax structures around the world in the decades ahead.

I argue that, more than anything else it is the tax design doctrine of neutrality that is likely to come under stress. Neutrality as an objective of tax policy has remained strongly entrenched, as evidenced by the drive to more broadly based value added taxes around the world, and eliminate incentives and accelerated depreciation in corporate taxes. Environmental considerations in policy design are largely reflected in uninternalized externalities, whose correction through a Pigouvian tax is what is called for. The essence of such policy concerns is that it is the particular rather than the general that is involved, with special tax treatment needed for certain production processes over others, the activities of certain plants or

industries (including location) over others, and certain types of consumption activity over others, as much as if not more so than different treatment for products and industries.

In addition, I argue that the informational requirements for the implementation of any tax scheme designed to internalize externalities are large, and that equity issues will also likely take on a new dimension as environmental considerations enter tax policy.

