

Summaries

Negative externalities, defensive expenditures, and labour supply in an evolutionary context

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This paper argues that the environmental degradation caused by the external negative effects of economic activity may give rise to increased per capita income. This argument is at odds with the dominant theory of growth which has familiarized economists with the idea that it is the positive external effects of economic activity, and not the negative ones, which constitute the engine of growth. The idea is also at variance with environmental economics, which views the scarcity of environmental goods as a limit to growth, not as a stimulus for it. The reason why such scarcity might be a stimulus for growth is that individuals may react to deterioration of the environment by switching to patterns of consumption based on private goods rather than common environmental resources. They may, that is to say, defend themselves against environmental degradation by using produced goods. In order to produce or purchase the latter, they may have to work harder. The increased production which thus ensues generates a further depletion of environmental goods, to which an increasing number of individuals react by increasing their work effort and output, thereby engendering a self-propelling mechanism in which an increase in output gives rise to an increase in environmental degradation which in turn stimulates the growth of per capita output. This mechanism may furnish an explanation of the sudden increase in the labour supply and aggregate output during industrial revolutions. Moreover, this process may easily produce undesirable growth, in the sense that the well-being of individuals is greater in a situation with lower levels of work effort and output and a better quality environment.

Development strategy and trade liberalization: implications for poverty and environment in the Philippines

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Most thinking on poverty and deforestation in developing countries considers the influence of one on the other, in either direction. However, the two have common determinants in the underlying economic and institutional conditions that set factor and product prices and the incentives for migration and natural resource-depleting activities. These determinants include property rights failures (such as open access to forest lands) but also 'government failures' in the form of economic policies that indirectly promote deforestation and retard poverty alleviation. A general equilibrium approach permits the analytical identification of the influences that such distortions exert on poverty and deforestation pressures. Using a numerical general equilibrium model, we consider the likely effects of the Philippine trade policy reforms of the 1990s, on the determinants of poverty and deforestation. These reforms marked a significant shift away from the import substitution industrialization strategy that characterized post-independence Philippine development policies.

The results suggest that though the short-term impact of reforms would increase poverty, in the longer term trade liberalization would be poverty reducing. Their environmental impact can also be positive, provided liberalized trade is combined with appropriate government action to address market failures.

The Philippine experience with trade liberalization holds several important lessons for the other developing countries. First, the higher level of poverty consequent on trade liberalization, though likely to be a short-term phenomenon, nevertheless highlights the need for well-designed safety nets to protect the poor during the transition, and to ensure maintenance of social and political stability so that reforms are politically sustainable. Second, the nature of the environmental consequences of trade policy reforms depends critically on steps being taken to address market failures, such as property rights on forests and other natural resources. Third, the partial nature of trade liberalization – in practice almost universally the case in reforming countries – can lead to outcomes that may be both unanticipated and undesirable. More broadly, our analysis cautions against making sweeping generalizations about the impact of policy liberalization and greater integration with international markets ('globalization') on poverty-environment outcomes; as shown, implications

of specific policy reform packages can be strongly context-dependent and country-specific.

Anthropogenic climate change in a descriptive growth model

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This paper presents a simple descriptive growth model where production leads to emissions of greenhouse gases (GHGs) which raise the average surface temperature of the earth. The increase in the average surface temperature, for its part, negatively affects aggregate production. The model assumes that disposable GDP, i.e. GDP after taxes, is used for investment, for consumption and for abatement. Consumption is assumed to be a certain share of disposable GDP and the government can fix how much resources must be spent for abatement in the economy. Further, it is assumed that investment goes along with positive externalities which build up a stock of knowledge capital. This brings about constant returns to scale in the aggregate per capita production function and generates positive per capita growth in the long run.

The paper, then, studies how variations in the tax rate and in the abatement share affect economic growth in this economy. This is done for both the model on the transition path and for the economy on the balanced growth path (BGP). Simulations demonstrate that a tax policy leading to less GHG emissions may also raise both the balanced growth and the growth rate of GDP on the transition path (win–win situation). This outcome crucially depends on the damage caused by the temperature increase. However, such a win–win situation can be obtained for damages which are considered as realistic.

In a next step, a specialization of the model is presented which gives the so-called AK model of endogenous growth. For this economy the second-best solution is computed as well as the social optimum. It turns out that both for the second-best solution and for the social optimum countries with a more polluting technology should have higher abatement shares compared to countries with a less polluting technology. Nevertheless, GHG emissions are smaller in countries with less polluting technologies. This holds because the higher abatement share cannot compensate for the less clean production technology.

Corruption, growth, and the environment: a cross-country analysis

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Case studies have suggested that corruption is an important source of environmental degradation, especially in developing countries, but systematic quantitative assessments of the environmental effects of corruption are only just starting to be undertaken.

There are two distinct ways in which corruption may affect environmental quality. On the one hand, corruption may reduce the stringency of environmental regulation or the effectiveness with which environmental regulation is enforced, thus leading to higher pollution. On the other hand, corruption has been found to reduce prosperity. As prosperity (per capita income) is an important determinant of cross-country differences in pollution levels, there exists an indirect linkage between the degree of corruption and the level of pollution prevailing in a country. The two types of effect of corruption on pollution may differ in sign. Especially, the lower level of economic activity to be expected when the corruption level is high may in some cases imply a lower level of pollution. The total effect of corruption on the environment is therefore ambiguous a priori.

Given this background, the purpose of the study is twofold. In a first step it examines how corruption affects pollution at given levels of income, through corruption's effect on the formation and enforcement of environmental laws (direct effect). In a second step it investigates the influence of corruption on pollution via corruption's impact on income (indirect effect) and adds the indirect effect to the direct effect to obtain the total effect.

Using six indicators of ambient air and water pollution for 106 countries, jointly with corruption and income data, it is found that pollution is monotonically increasing in corruption. In terms of the indirect effect which contributes to this overall result, corruption may reduce or enhance pollution, depending on the income level. However, even if corruption reduces pollution via its effect on income, this indirect effect is invariably dominated by the direct effect.

From a policy point of view, the most important result appears to be that, for most pollutants, the effect of corruption on pollution is particularly strong in low-income countries. Reducing corruption is therefore especially important for the less developed regions. By reducing corruption, low-income countries could considerably improve both their economic and environmental conditions. With rising income, a better environmental quality would become desirable and 'affordable'. At the same time, lower corruption would allow this demand for a better environment to become

satisfied in terms of stricter environmental laws and stricter enforcement of these laws. Reducing corruption therefore seems to be of key importance for improving environmental quality, especially in developing countries.

Inducing the adoption of conservation technologies: lessons from the Ecuadorian Andes

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This paper examines a resource conservation program managed by the international non-governmental organization CARE in the Ecuadorian Andes. Unlike other conservation programs that use subsidies and other incentives to induce conservation, CARE encourages farmers to adopt alternative agricultural activities and alter practices in a manner that complements resource conservation. Farmers are offered a menu of options for improving resource conservation and increasing income generated from agriculture, and plans for adoption are decided in conjunction with farmers on a case-by-case basis. The objective of this paper is to determine the success of this system in inducing the adoption of conservation measures. In particular, we want to answer two questions. First, are farmers more likely to adopt conservation measures, such as terraces, if they also alter their agricultural practices? Second, was the CARE program successful at improving the management of natural resources in the Andes?

To answer these questions, a household survey was administered to 530 households in 44 communities of the Ecuadorian Andes. The survey included detailed information on household demographics, assets, income sources, organizational affiliation and the adoption of conservation measures, and new agricultural practices. Furthermore, the household management of natural resources was assessed and an intensity of adoption of resource conservation practices was determined. These data were analyzed in two steps in order to address the two questions posed above. The first question was answered by examining the adoption of terraces and, in particular, how terrace adoption was linked to the adoption of new agricultural practices. The second question was answered by analyzing the influence of participation in the CARE program on the intensity of adoption of resource conservation practices.

The results from the analysis of terrace adoption clearly show that altering the agricultural system induces the adoption of terraces. That is, farmers are more likely to adopt terraces in combination with measures

that improve agricultural profitability. This suggests that this is a viable method for inducing conservation measures. The analysis also indicates that terrace adoption is affected directly by a number of factors but also indirectly through the factors that influence the adoption of new agricultural practices. For example, the results show that the availability of male labor increases the probability of terrace adoption. This is a direct effect. However, a household's distance to an urban market is negatively associated with adoption of new agricultural practices; that is, houses that are further from markets are less likely to alter agriculture. Since the evidence shows that altering agriculture increases the probability of terrace adoption, then being further from markets decreases the probability of terrace adoption. This is an indirect effect. In understanding the pattern of terrace adoption, both direct and indirect factors must be considered. These results show that adoption of conservation measures was positively associated with alterations in the agricultural system. The next step is to determine whether this methodology was successful in improving resource management. The results from the analysis of the intensity of adoption of resource conservation measures strongly suggest that CARE was successful. Controlling for other factors, participation with CARE increased the intensity of adoption by over 50 per cent.

Overall, the analysis of CARE's approach suggests that this is a viable alternative to offering farmers incentives and subsidies for resource conservation. One difficulty in using this type of program to induce conservation is that it requires identifying changes to the agricultural system that will complement conservation and improve short-term profitability. This requires significant information on local markets and opportunities and is more likely to be successful in areas with higher agricultural potential.