

Forum

Making economic growth more sustainable

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The paper, “Economic growth, carrying capacity and the environment” (Arrow et al., 1995), under consideration is an authoritative and thought-provoking statement by a group of the world’s foremost researchers in the field. In this short note, I hope to elaborate on several of their key conclusions.

1. Growth-promoting economic reforms and the need for complementing environmental measures

The authors agree that economic liberalization and related policies must be coupled with stricter environmental protection measures. This conclusion is consistent with the results of a recent study (Munasinghe and Cruz, 1994). Liberalizing economic reforms, especially the elimination of subsidies, is generally good for the economy as well as the environment—since it reduces incentives for wasteful use of natural resources. However, unaddressed imperfections (including market failures, policy distortions, and institutional constraints) often interact with the macroeconomic reforms to cause environmental harm. The remedy is not to reverse the reform program, but rather to introduce specific complementary environmental measures that address the hitherto unaddressed imperfections. This point is illustrated below (see Munasinghe, 1995, for details).

Consider a relatively stagnant economy which has open access forest areas, as depicted in Fig. 1.

Initially, the demand for timber is given by the usual downward sloping curve (D_0) in the figure, where the demand is assumed to be a function of both price p and income Y [i.e., $D = D(p, Y)$]. At the effective (subsidized) price p_S which represents the marginal cost of logging, the initial rate of deforestation is Q_0 . Suppose Q_L is the safe limiting rate of deforestation beyond which serious ecological damage occurs. As long as $Q_0 < Q_L$, the situation may continue undetected and uncorrected.

Next, suppose an economic reform package stimulates growth and shifts the timber demand curve outward to D_1 . This “income effect” could be the result of increased domestic demand (e.g., timber required by a construction boom) and/or higher timber exports (e.g., due to trade liberalization and devaluation that make such exports more profitable). Now, the deforestation rate could quickly shift to Q_S , greatly exceeding the safe limit Q_L and causing serious environmental harm.

Clearly, the remedy is not to stop growth, but rather to introduce complementary measures that establish a proper market price for timber. As a first step, property rights may need to be re-established in open access areas and an “efficient” stumpage fee imposed—to eliminate the economic subsidy (ES) and correctly reflect the opportunity cost of the timber. The resulting efficient price (p_E) would reduce the logging rate to Q_E , which still exceeds Q_L . The next step might be to impose an additional

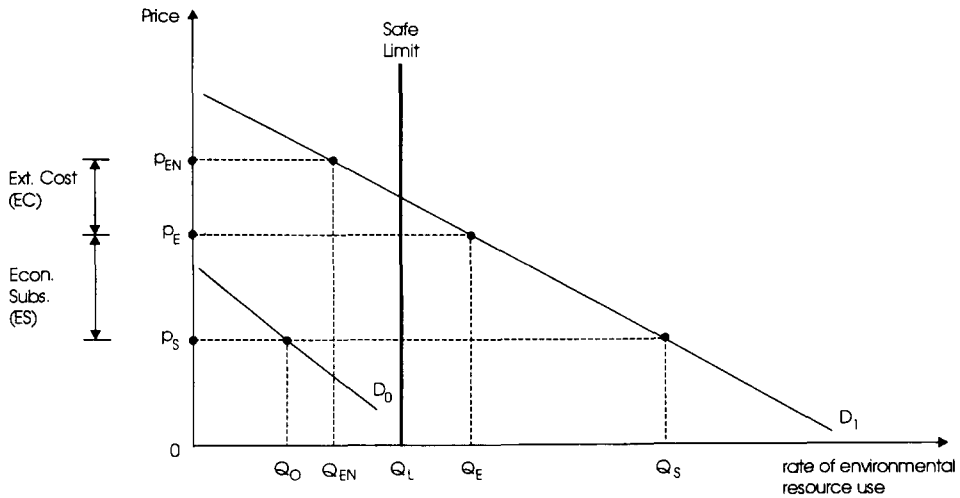


Fig. 1. Environmental damage due to economic distortions.

externality cost (EC) that reflects the loss of biodiversity or damage to watersheds, and thereby establish the full environmentally adjusted price (p_{EN}). The deforestation rate would now fall to $Q_{EN} < Q_L$.

Exactly analogous reasoning would apply if we considered fuel prices and polluting emissions from urban transport. In this case, p_s might be a subsidized diesel price, p_e the equivalent import (or export) opportunity cost, p_{EN} the full price including a

tax to cover the externality cost of air pollution, and Q_L the health-determined safety standard.

This rather simple example helps to clarify how the expansionary effects of economic reform policies could combine with hitherto neglected economic distortions to cause environmental harm. The parallel introduction of complementary measures that address the specific distortions would allow the broader reforms to go forward without adverse environmental

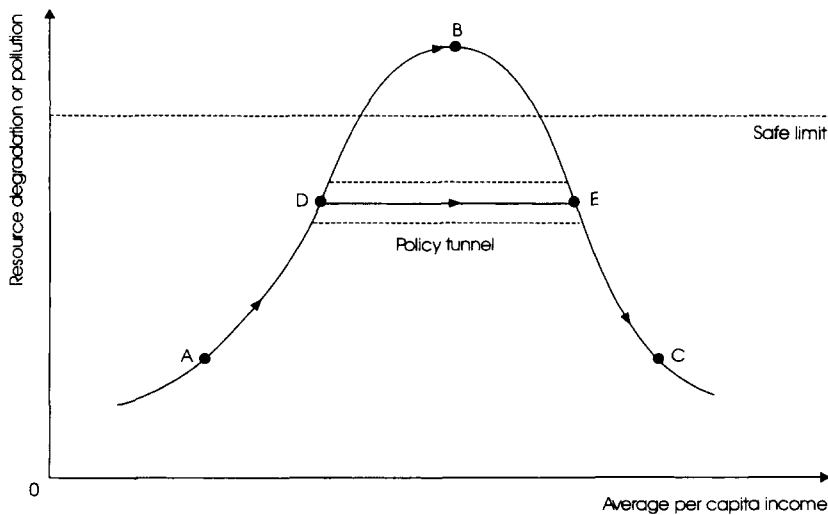


Fig. 2. The debate on the environmental Kuznets curve.

impacts. The additional environmental measures would need to be built (ex-ante) into the reform package, rather than introduced as an afterthought.

The previous example raises the issue of increased environmental burdens imposed by growth and greater resource use. Nevertheless, growth is a prime imperative for developing countries—especially ones with large numbers of poor and destitute people. Fig. 2 represents a stylized view of the environmental Kuznets curve argument (the inverted-U referred to by the authors)—that resource degradation or pollution will increase initially with growth and then eventually decline.

The question of the existence of the curve is not the relevant one. Even if such a curve characterized past growth, there is no reason for countries to passively accept “historical determinism” along their future development path. Thus, a poor country starting at A need not feel obliged to pass through the peak of environmental degradation at B, in order to reach C. As discussed in the previous section, the effective articulation of growth-oriented policies with appropriate complementary measures could help to

alter the structure of growth and limit environmental harm. In effect, lower income countries could learn from the experience of wealthier nations and adopt policies that permitted them to “tunnel” through the curve (along the path DE in Fig. 2).

In the preceding discussion, we have not seriously considered altering economy-wide (macroeconomic and sectoral) policies merely to achieve environmental objectives, but instead have chosen to rely on specific complementary measures to mitigate environmental harm. For illustrative purposes, however, suppose that the environmental damage due to an economic reform program is likely to be rather large. In such a case, is it possible to adjust the timing and sequencing of macroeconomic and sectoral policy tools, to avoid the worst environmental consequences?

There is a growing body of literature that seeks to examine the pros and cons of timing and sequencing stabilization and adjustment measures—to achieve economic goals (for a recent review, see Edwards, 1992), but not environmental ones. One may adapt some of this past work to obtain basic insights that

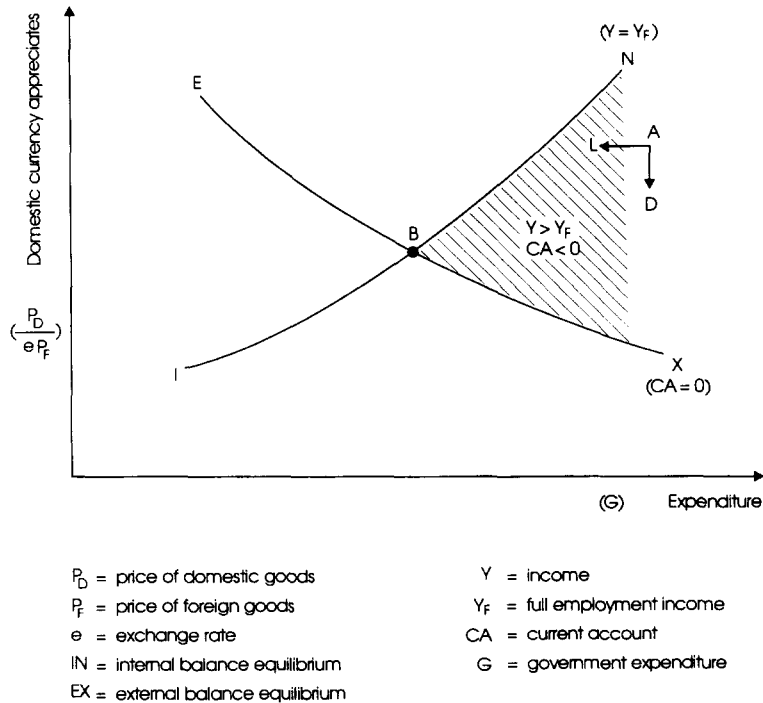


Fig. 3. Timing and sequencing of economic policies to reduce environmental damage.

help to deal with environmental issues (Munasinghe, 1995).

Consider Fig. 3, in which the x -axis indicates aggregate expenditure in a national economy (e.g., government expenditure) and the y -axis reflects the effects of domestic currency appreciation (e.g., the ratio of domestic goods prices to foreign goods prices weighted by the exchange rate). Suppose that the initial state of the economy is at point A (within the shaded quadrant), below the line of internal balance (IN) and above the line of external balance (EX). In this situation, economy-wide policy reforms would seek to move the economy towards the equilibrium point B by reducing both: (a) the current account deficit (since $CA < 0$); and (b) the excess demand (since $Y > Y_F$).

A movement in the (downward) direction AD could be achieved by a currency devaluation and removal of trade barriers, while a shift in the (leftward) direction AL would occur if government subsidies were eliminated (e.g., by raising subsidized energy prices). Suppose that the reforms affecting AD could be achieved first and AL somewhat later—due to powerful vested interests (e.g., transport or industrial lobbies). In this case, trade liberalization alone might lead to greater foreign investment and expansion of energy-intensive industries, but at the cost of excessive use of (the still subsidized) energy and higher levels of pollution.

Clearly, the foregoing analysis is limited by its simple, static and short-term nature. Nonetheless, some environmentally-related arguments such as the

above could be used to fruitfully re-examine (and perhaps modify) the timing and sequencing of policy reforms. Since hardly any work has been carried out in this area, and country circumstances vary widely, it would not be possible to generalize. At the same time, restraint and good judgment are 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 achieve “win-win” gains would be the most desirable.

The foregoing examples indicate that the authors' arguments on economic growth and the environment are indeed the basis for promising applied research work and empirical investigation—leading to practical and useful policy prescriptions that will move us a step closer to sustainable development.

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