IMF Research Bulletin

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Special Topic

Greening the Tax System

Muthukumara Mani

Environmental policies in countries are often bolstered by economic incentives. Basic principles established by the economist A. C. Pigou tend to support the use of market instruments such as taxes or tradable permits, in preference to a more conventional regulatory approach, as a way of reducing environmental degradation. Using taxation as an instrument for environmental policy, however, opens up many important issues in terms of revenue recycling, international competitiveness, and natural resource management. This article discusses recent research on these issues undertaken by the IMF Environmental Team (Fiscal Affairs Department).

Pigovian environmental taxes, set at the level of marginal social damage, have the advantage of inducing firms and individuals to reduce pollution at the level where the costs of doing so are the least.[1] Ligthart (1998a) analyzes the question of how to set optimal fiscal policy when the tax system must perform the dual task of internalizing externalities, on the one hand, and raising revenue to finance public goods, on the other. The second-best optimal environmental tax is, surprisingly, shown to lie *below* the first-best Pigovian tax, as preexisting tax distortions exacerbate the overall efficiency costs of an incremental increase in the pollution tax.[2]

The use of revenues from such taxation practices has also come under scrutiny. Ligthart (1998b) concludes that using the revenues from environmental taxes to cut other taxes may yield employment and environmental dividends if the tax burden can be shifted to agents outside of the labor market, such as onto capitalists, transfer recipients, and foreigners.[3] In practice, however, instead of being used to secure a "double dividend" by also reducing distortionary taxes, revenues from environmental taxes often seem to be earmarked for particular spending programs. Brett and Keen (2000) argue from a political economy perspective that earmarking funds for announced programs—usually ill-advised on efficiency grounds—may enable politically weak "green" politicians to amenably raise environmental tax revenues in the face of political uncertainty.[4]

The environmental implications of trade have also received considerable attention. Fredriksson and Mani (2001) develop a political economy framework to show that trade integration, in general, *increases* environmental taxes by reducing industry lobbying efforts. However, in order to realize the full effects of trade liberalization, they argue that the political system needs to be relatively stable.[5] The use of trade measures such as tariffs and export taxes or outright bans for promoting environmental objectives has also been analyzed. In a recent study on Costa Rica, Kishor, Mani and Constantino (2001) show that eliminating log-export bans could generate considerable economic as well as environmental benefits, provided the resulting increased demand is met from *sustainably managed* forests.[6]

Taxation-based approaches to environmentally sound forest management have also been studied. Leruth, Paris, and Ruzicka (2001) argue that, given the complex nature of factors that influence a given level of exploitation—ranging from logging techniques, to site-specific characteristics such as topography and proximity to urban centers—the basic Pigovian framework may not work for forest and timber taxation. It is not always possible to devise a tax targeted at curtailing the socially damaging activity itself without affecting the output.[7]

[1]John Norregaard and Valerie Reppelin, "Taxes and Tradable Permits as Instruments for Controlling Pollution: Theory and Practice," IMF Working Paper 00/13, 2000.

[2]Jenny E. Ligthart, "Optimal Fiscal Policy and the Environment," IMF Working Paper 98/146, 1998a.

[3]Jenny E. Ligthart, "The Macroeconomic Effects of Environmental Taxes: A Closer Look at the Feasibility of 'Win-Win' Outcomes," IMF Working Paper 98/75, 1998b.

[4]Craig Brett and Michael Keen, "Political Uncertainty and the Earmarking of Environmental Taxes," *Journal of Public Economics* Vol. 75, pp. 315–40, 2000.

[5]Per G. Fredricksson and Muthukumara Mani, "Trade Integration and Political Turbulence: Environmental Policy Consequences," IMF Working Paper 01/150, 2001.

[6]Nalin Kishor, Muthukumara Mani, and Louis Constantino, "Economic and Environmental Benefits of Eliminating Log Export Bans: The Case of Costa Rica," forthcoming IMF Working Paper 01/153, 2001.

[7]Luc Leruth, Remi Paris, and Ivan Ruzicka, "The Complier Pays Principle: The Limits of Fiscal Approaches Towards Sustainable Forest Management," *IMF Staff Papers*, Vol. 48, No. 2, 2001.

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APPENDIX: EXISTING ANDPROPOSED CURRENCY UNIONS ANALYZED IN RECENT IMF STUDIES

European Monetary Union (EMU): Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, and Spain.

Central and Eastern European Countries potentially joining EMU: some of the countries that have been analyzed as an illustration include Albania, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, FYR Macedonia, Poland, Romania, the Slovak Republic, and Slovenia.

North American Free Trade Area (NAFTA): Canada, Mexico, and United States.

Mercosur: Argentina, Brazil, Paraguay, Uruguay, and associate members Bolivia and Chile.

Association of South East Asian Nations (ASEAN): Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam.

Gulf Cooperation Council: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates.

Eastern Caribbean Union: Anguilla, Antigua and Barbuda, Dominica, Grenada, Montserrat, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines.

CFA Franc zone: Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo, members of the West African Economic and Monetary Union; and Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea, and Gabon, members of the Central African Economic and Monetary Community.

West Africa (ECOWAS): a proposed union including The Gambia, Ghana, Guinea, Nigeria, and Sierra Leone, and possibly, at a later stage, those other members of ECOWAS currently using the CFA franc (Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo).

Rand Common Monetary Area: Botswana, Lesotho, South Africa, and Swaziland.

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