Are We Turning Poor Countries into Pollution Havens?: Understanding the Trade/Environment Debate

Importing tuna from Mexico kills dolphins. Importing wood products from Indonesia and Brazil helps destroy their tropical forests. The North American Free Trade Agreement (NAFTA) will cause pollution-intensive industries to relocate to Mexico, making Mexico a pollution haven. China and India will soon become major sources of CFCs, undermining the Montreal Protocol which attempts to protect the ozone layer.

These are but a few of the alarming claims which have painted international trade as the enemy of the environment. Many environmentalists and policymakers in industrial countries have argued that trade between industrial and developing countries aggravates environmental damage in those poor countries. They have therefore called for trade restrictions to reduce this damage. Quite often this is seen in calls for trade barriers against developing countries which do not "sustainably manage" their own environment (Dean 1992a, 1992b; Braga 1992). This is sometimes combined with demands by industrial countries that developing countries increase the stringency with which they regulate environmental damage, to a level comparable to industrial countries (Dean 1992b; Pearson 1992). In addition, some existing international agreements which seek to limit global environmental problems include trade sanctions against developing countries which refuse to become signatories to these agreements (Enders and Porges 1992; Safadi and Low 1992).

Christians are called to be good stewards of the earth that God has given to us. Since that responsibility does not stop at national borders, Christians may be tempted to join in the advocacy of trade restraints for the good of the global environment. After all, if our trade is worsening environmental degradation—particularly in our poor neighbors' countries—shouldn't we support such policies?

If we Christians follow this line of reasoning, a serious conflict of interest arises. We are also called to care for the poor. The benefits of trade

Author

Judith M. Dean is Associate Professor of Economics, School of Advanced International Studies, Johns Hopkins University. This paper was prepared originally for the Coalition for Christian Colleges and Universities Global Stewardship Initiative, October 1996; revised October 1997.

© Association of Christian Economists

> *...both* **sound** *environmental policy and* **compassionate** *policies toward the poor call for freer, not restricted trade.*

for raising living standards have long been hailed by economists from both ends of the political spectrum (Caves, et al. 1996). Any sort of trade intervention to correct environmental problems will likely reduce incomes in poor countries. Since in many of these countries traded goods account for a large share of GNP, these effects would be significant.

Are Christians facing an irreconcilable conflict? Must we choose between our responsibility to help the poor and our responsibility to be good stewards of the environment? No. This paper argues that both *sound* environmental policy and *compassionate* policies toward the poor call for freer, not restricted trade. Christians should call for appropriate and effective environmental policies which directly address the source of environmental problems. Because trade restrictions do not do this, they will not alleviate environmental problems at best, and will aggravate them at worst. Such intervention will also likely worsen poverty. Supporting policies which open up world markets (rather than closing them) will not only help the poor, but will encourage development of effective environmental policy.

Why is trade seen as the enemy of the environment?

A. Trade may increase environmental damage in developing countries

The costs of environmental damage are a real part of production costs and should be incorporated into a firm's decision making.[1] At present, industrial countries are perceived as having on the whole, more stringent environmental standards for air, water, and other types of pollution which are either emitted during production processes (process pollution) or emitted when a product is consumed (product pollution). It is assumed that more stringent standards are usually more costly to meet,[2] and therefore that the financial burden of pollution abatement costs (or environmental control costs) on firms in industrial countries exceeds that of those same producers in developing countries. The assumption is that with relatively lenient standards developing countries will have a comparative advantage in what one might call pollution-intensive goods (e.g., those goods which tend to generate large amounts of process pollution).

International trade leads to increased specialization in production toward goods in which a country has a comparative advantage. If the premises above are true, trade would cause developing countries to further specialize in pollution-intensive goods, aggravating damage to their environment. For example, further specialization in wood products on the part of Indonesia, Brazil, Malaysia, and Thailand, or agricultural goods in general on the part of African and many other developing countries is seen as aggravating soil erosion, and loss of soil fertility (among other things). Such specialization might also aggravate global environmental problems such as loss of biodiversity from dwindling forests, or harm to the dolphin population from certain types of tuna fishing.

In light of these concerns, policymakers have suggested several ways in which trade restraints could be used to correct these problems (Dean 1992a). One possibility is to impose punitive trade sanctions on countries which do not sustainably manage their environment. Alternatively, tariffs could be levied which raise the prices of imported goods from countries which have lenient environmental standards, thus eliminating their "unfair advantage." The US attempted to impose a unilateral ban on imports of tuna from Mexico due to the destruction of dolphins by Mexican fishing processes. The EU was considering quantitative restraints on imported wood products which would discriminate between exporting countries which were perceived to satisfy EU criteria for sustainable management, and those which did not (Braga, 1992).

B. Trade may create "Pollution Havens"

Some would argue that in addition to further specialization in pollution-intensive goods, developing countries will

find themselves hosts to whole industries which have relocated due to these relatively lenient environmental regulations. Environmental control costs are assumed to be a significant part of the costs of production. Thus, avoidance of such costs via relocation would allow developed country industries to regain their "competitive edge."

This was one of the concerns which led to the environmental side agreement negotiated along with the NAFTA. It was feared that significant industrial relocation would occur from the US into Mexico. Most often US policymakers were concerned about loss of US jobs. But such relocation would potentially turn Mexico into a "pollution haven" for heavy polluting industries. For many this is perceived to be too heavy a cost to pay for freer trade.

C. Trade may undermine international environmental agreements

When we turn to issues such as the potential destruction of the ozone layer due to generation of CFCs (via production or consumption), the problem of environmental degradation becomes global rather than local. That is, damage from the emission of CFCs in one country not only impacts that country's welfare, but spills over borders and impacts the welfare of other countries. A number of industrial countries have initiated calls for international agreements to mutually reduce global environmental problems, such as the Montreal Protocol to reduce CFC emissions. Yet some developing countries refuse to sign on, arguing that the costs to them of reducing CFC emissions to the agreed upon level are too high compared to the benefits they would receive from such reductions (Dean 1992b; Enders and Porges 1992).

This has provoked discussion of blocking trade with non-signatories for two reasons. The first would be as a trade sanction to coerce such countries into signing the agreement. The second would be as a tool to ensure the success of the agreement. Signatories argue that their targets for emissions levels would be undermined without trade restraints against importing goods which generate CFCs from non-signatory countries (Low and Safadi 1992; Blackhurst and Subramanian 1992). For example, if the US agreed to reduce production of products which generate CFCs, but then imported these goods from India, there might be no net reduction in global emission levels.

Why is trade seen as beneficial to the poor?

A. Trade will increase real GNP

If trade is the enemy of the environment then the conflict with caring for the poor is readily apparent. This is because one of the most widely agreed upon conclusions in economics is that international trade raises the overall income of a country.[3] There are two fundamental reasons for this welfare improvement. First, countries have access to many goods at relatively cheaper prices than in their domestic market; they also find more profitable markets in which to sell many other goods. These are known as the gains from exchange. Second, production of goods in which the country has a comparative advantage expands, while those sectors displaying comparative disadvantage shrink. Since this is a reallocation of productive factors from less efficient sectors to more efficient sectors, overall real GNP rises. These are known as the gains from specialization.

Out of the 59 developing countries classified as low-income by the World Bank in 1996, 30 had a 1993 GNP per capita of less than $400 annually (World Bank 1996). Thus expanding national income is critical to raising the welfare of all groups. Twenty-two of these low-income countries had an export to GNP ratio in 1993 of 30% or greater. Thus we would expect that the income effects of increased trade would be significant.

B. Trade will usually increase the employment and earnings of unskilled workers

The major World Bank study on poverty (World Bank 1990) confirms that most of the poor in the developing world live in the rural sector and work in the

Some would argue that... developing countries will find themselves hosts to whole industries which have relocated due to these relatively lenient environmental regulations.

Environmental degradation is generated by either the production or consumption of products, **regardless** *of the market in which they are eventually sold.*

agricultural sector. Whether rural or urban, the poor are characterized by low levels of skill and education. Since the majority of developing countries presently have a comparative advantage in agricultural products and low-skilled labor intensive products (such as textiles, clothing, electronics, shoes), increased trade should be expected to expand these sectors. This means, in particular, that the gains from trade will be concentrated in the sectors in which the poor tend to work. More open trade should tend to raise the profitability of these sectors, expand employment in them, and pull up low-skilled workers' wages.

Early evidence which supports this is found in Krueger (1978). She shows that for many developing countries the labor requirements for exporting industries are much higher than for import-competing industries. Ravallion and Huppi (1991) studied the dramatic fall in poverty in Indonesia between 1984 and 1987. They found that the largest part of this reduction was due to income gains to the rural sector. Though causality has yet to be tested, this period coincided with a shift away from import-substitution industrialization to a more outward looking development strategy. Both tariffs and non-tariff barriers were significantly reduced in Indonesia from the mid-1980s through the early 1990s (Dean, Desai, Riedel 1994). Finally, Blejer and Guerrero (1990) give extensive evidence of the ways in which real exchange rate depreciation in the Philippines (a common policy in a trade liberalization program) led to benefits to lower income groups, largely through its stimulus to the agricultural sector.

C. Trade will improve the quality and accessibility of goods to the poor

In addition to the fundamental gains from trade discussed above, more open markets give a country access to newer technologies, both through imitation and through leasing or purchase. This tends to improve the overall quality of goods available—both imported and domestic.

Quite often trade restraints exist against basic consumer goods such as clothing or household products. In India, for example, there still exists in effect a ban on the import of all consumer good items (Dean, Desai, Riedel 1994). This results in relatively high prices and low quality for these basic items. Since such items make up a larger proportion of the expenditure of poor households, the cost of such trade barriers falls more heavily on the poor. Thus removal of this bias is an additional source of gain for the poorer groups in developing countries.

Trade restraints make poor environmental policy

The brief discussion above highlights the apparent conflict between addressing the negative effects of trade on environment and recognizing the beneficial effects of trade for the poor. This conflict, however, is more apparent than real. To see why, let us return to the three major issues reviewed in part II.

A. Trade restraints are ineffective and costly methods of reducing environmental damage

Trade may indeed aggravate environmental problems, but it is not in itself the root cause of these problems. Environmental degradation is generated by either the production or consumption of products, *regardless* of the market in which they are eventually sold. Trade restraints, therefore, will not directly address the source of these problems. This makes them both ineffective and very costly methods of correcting environmental damage.

To illustrate this, let me use the example of Indonesia's 1986 ban on the export of raw logs (Dean 1995). Though not implemented for an environmental reason, many environmental interests in the industrial world hailed such a policy as a good way of reducing deforestation of tropical forests. The export ban immediately shifted the sale of these logs to Indonesia's domestic market, thus dramatically depressing the domestic price of raw logs. As a result, wood processing industries expanded production, and

relied more heavily on the use of this wood. With the growth of the wood processing sectors, it took only a year or so before the production of raw logs exceeded its previous level. In addition, estimates of the waste involved in domestic processing have been put at a minimum of 10% of annual harvests.

The export ban did not achieve the goal of reducing deforestation. This is because it does not address the root of the problem—internalizing the costs of loss of soil fertility, etc., into the production of logs. In fact, an export ban was even more inappropriate in this case, given that the largest cause of deforestation was land clearing by low-income farmers (Braga 1992). Beyond this, such a ban is extremely costly. The shift in sales from the world market to the local market represented a loss in revenue, and a shift of resources towards industries in which Indonesia did not have a comparative advantage.

Much more effective policies are available. For example, stumpage fees in Indonesia were quite low during this period. An increase in that fee would directly incorporate the environmental costs of deforestation into the price of cutting down a tree. In addition, contract lengths were quite short, and therefore discouraged wise harvesting and replanting. Lengthening the contracts and including replanting requirements would directly impact the problem also. Finally policies which helped raise the incomes of poor subsistence farmers would definitely reduce their incentive to clear forested land. Each of these policies would directly target the sources of the environmental problem, and would therefore help correct the problem in the most efficient way.

Empirical evidence thus far shows no evidence that developing countries tend to have a comparative advantage in pollution-intensive goods (Dean 1996). Evidence from Grossman and Krueger (1993) and Tobey (1990) indicates that trade in goods is not influenced by low pollution abatement costs. The study by Lucas, et al. (1992) actually finds that fast-growing low-income countries which are relatively open to trade have cleaner growth than those which are relatively closed. This evidence suggests that freer trade shifts production in developing countries toward cleaner, not dirtier goods.

B. Trade restraints are not necessary to avoid "Pollution Havens"

The fear that large amounts of industrial flight will occur, turning poor countries into pollution havens appears to be unfounded. There simply is no evidence that this kind of flight is occurring in any significant amount. This is most likely due to the insignificant share of production costs that is attributable to pollution abatement costs in most industries. Even in the US, which is considered to have relatively stringent regulations on many types of industrial pollutants, data show that for most industries, pollution abatement costs are less than 2% of operating costs (Low 1992). Such a small savings is not likely to be sufficient to motivate foreign direct investment (FDI) abroad. Most studies show that variables such as high income levels of the host country, stability of the host country government, availability of good infrastructure, and access to cheaper inputs which are a major part of production costs, are important determinants of FDI.

Is there a danger that poor countries will try to lure industries into relocating by imposing little or no environmental regulation? In a series of studies by Wheeler and various coauthors (e.g. Wang and Wheeler, 1996), evidence is presented which shows that even within poor countries, as incomes rise, communities make more formal and informal efforts to regulate abuse of the environment. Lack of such efforts in communities stems more from lack of information on the potential harm from pollutants than from intentional abuse in order to boost industrial production.

C. Trade restraints are not necessary to maintain international agreements

The idea that trade restraints should be used as punitive measures to coerce

[There is] no evidence that developing countries tend to have a comparative advantage in pollution-intensive goods...

...the focus on trade restraints as a solution to environmental problems... distracts the debate from the root causes of environmental degradation...

developing countries into signing international environmental agreements should be something we Christians avoid. Since the costs and benefits of abatement of global "pollution" differ across countries, it is clear that countries are likely to differ as to their desired level of abatement. Consider the Montreal Protocol (MP) as an example. As Enders and Porges (1992) point out, the costs to developing countries of signing the MP are uncertain and probably fairly high. Refrigeration (the principal use of CFCs) is scarce in most poor countries, and yet has significant beneficial health consequences. Alternative refrigerants are very expensive, and owners of these patented technologies may not be interested in licensing them.

To force a country to agree to a targeted abatement level beyond that which it desires is to impose a net loss on that country. It is true that with global spillovers there is a free rider problem. Countries may refuse to bear any of the costs of global abatement, but will indeed benefit from any net reductions carried out by other countries. But imposing an inappropriate common abatement level typically puts too much of the burden on developing countries, hence encouraging them not to participate. Here is a case for negotiation amongst participants as indeed has been done to some extent in the case of the MP.[4]

That trade restraints against non-signatories (usually poorer developing countries) are critical to attain the objective of an international agreement is disputable. In the case of the MP, signatories agreed to both production and consumption reductions within their own borders. Now a consumption tax on products containing CFCs would reduce consumption from all sources (both domestic and imported). This would be non-discriminatory and in line with the principles of the WTO of national treatment. However, the signatories instead chose to limit consumption via reduction of domestic production and bans on imports from non-signatories. They also chose to ban exports to non-signatories. The latter is not necessary at all to attain domestic objectives, and again is a discriminatory measure. In this case, it appears that these trade restrictions are really for punitive purposes (see above) rather than out of necessity to achieve a global objective.

Conclusions

Christians are called to both care for our environment as a gift from God, and care for the poor. On the surface it appears that international trade is detrimental to the first goal. Christians might, therefore, be tempted to join the many policymakers who have advocated restraining international trade between industrial and poor countries, for the benefit of the global environment. But international trade brings many benefits to the poor. For this reason, Christians should carefully examine the issues involved, in order to make wise policy choices.

This paper argues that the focus on trade restraints as a solution to environmental problems is in fact misplaced. At best these policies are unnecessarily costly to a country. At worst they do not even achieve the environmental objective they were intended to achieve. Such a focus distracts the debate from the root causes of environmental degradation, and prevents policymakers from implementing policies which actually address those causes.

For the poor, the consequences of using trade measures to address environmental issues can be particularly great. For many poor countries, tradable goods are a significant share of GNP. The gains from trade are particularly directed toward the sectors in which the poor work. Loss of these benefits are likely to impact the poorest populations disproportionately. In addition, the present use of trade measures to enforce international environmental agreements is in some cases simply punitive—to force non-signatories to sign on. For many developing countries, signing on would mean a net cost (not gain).

Emphasis on more open markets will preserve the benefits of trade for all,

including the poor. It will also allow policymakers to focus on environmental measures which directly target the causes of degradation. These policies will be more effective in achieving environmental goals, and should therefore bring about net gains to countries. Such an emphasis can be preserved even when dealing with global spillover problems. Negotiation which recognizes differences in costs and benefits among nations is superior to punitive trade measures and coercion. When goals differ, a willingness to transfer funds to the net loser (such as through the Global Environment Facility) should help achieve global goals in a more equitable way.

ENDNOTES

1 This is a standard case of internalizing the costs of a negative externality generated by a production process.
2 There is no necessary correlation between stringency of standards and higher pollution abatement costs *between* countries.
3 See any standard international economics textbook.
4 Developing countries are allowed to gradually phase in the provisions of the Protocol. See Enders and Porges (1992) for details.

REFERENCES

Blackhurst, R. and K. Anderson. *The Greening of World Trade Issues*. Ann Arbor: University of Michigan Press, 1992.

Blackhurst, R. and A. Subramanian. “Promoting Multilateral Cooperation on the Environment,” in Blackhurst, R. and K. Anderson, eds., *The Greening of World Trade Issues*. Ann Arbor: University of Michigan Press, 1992.

Blejer, M. and I. Guerrero. “The Impact of Macroeconomic Policies on Income Distribution: an Empirical Study of the Philippines,” *Review of Economics and Statistics*, 1990, pp. 414–23.

Braga, Carlos P. “Tropical Forests and Trade Policy: the Cases of Indonesia and Brazil,” in P. Low, ed., *International Trade and the Environment*. World Bank Discussion Paper No. 159. Washington: World Bank, 1992.

Caves, R., J. Frankel, and R. Jones. *World Trade and Payments*. New York: HarperCollins, 1996.

Dean, Judith M. “Trade and the Environment: a Survey of the Literature,” in P. Low, ed., *International Trade and the Environment*. World Bank Discussion Paper No. 159. Washington: World Bank, 1992a.

_____“Trade Policy and the Environment: Developing Country Concerns,” prepared for the Environment Directorate, OECD, 1992b.

_____“Export Bans, Environment, and Developing Country Welfare,” *Review of International Economics*, 1995, Vol. 3, No. 3, pp. 319–29.

_____ “Testing the Effects of Trade Liberalization on the Environment,” Seminar Paper, Centre for International Economic Studies, University of Adelaide, 1996.

Dean, J., S. Desai, and J. Reidel. *Trade Policy Reform in Developing Countries since 1985: a Review of the Evidence*. World Bank Discussion Paper No. 267. Washington: World Bank, 1994.

Enders, A. and A. Porges. “Successful Conventions and Conventional Success: Saving the Ozone Layer,” in Blackhurst, R. and K. Anderson, eds., *The Greening of World Trade Issues.* Ann Arbor: University of Michigan Press, 1992.

Grossman, Gene and A. Krueger. “Environmental Impacts of NAFTA,” in P. Garber, ed., *The US-Mexico Free Trade Agreement*. Cambridge, MA: MIT Press, 1993.

Krueger, Anne O. “Alternative Trade Strategies and Employment in LDCs,” *American Economic Review*, 1978, Vol. 68, No. 2, pp. 270-74.

Low, P. “Trade Measures and Environmental Quality: the Implications for Mexico’s Exports,” in P. Low, ed., *International Trade and the Environment*. World Bank Discussion Paper No. 159. Washington: World Bank, 1992.

Lucas, R., D. Wheeler and M. Hettige. “Economic Development, Environmental Regulation, and the International Migration of Toxic Industrial Pollution: 1960-1988,” in P. Low, ed., *International Trade and the Environment*. World Bank Discussion Paper No. 159. Washington: World Bank, 1992.

Pearson, C. “Trade and the Environment: Seeking Harmony,” prepared for the Environment Directorate, OECD, 1992.

Ravallion, M. and M. Huppi. “Measuring Changes in Poverty: A Methodological Case Study of Indonesia During an Adjustment Period,” *The World Bank Economic Review*, 1991, Vol. 5, No. 1, pp. 57–82.

Safadi, R. and P. Low. “International Policy Coordination and Environmental Quality,” in P. Low, ed., *International Trade and the Environment*. World Bank Discussion Paper No. 159. Washington: World Bank, 1992.

Tobey, J. “The Effects of Domestic Environmental Policies on Patterns of World Trade: an Empirical Test,” *Kyklos*, 1990, Vol. 43, pp. 191–209.

Wang, H. and D. Wheeler. “Regulation of Industrial Pollution in China: a Cross-Provincial Analysis,” Policy Research Department, World Bank, 1996.

World Bank. *World Development Report 1990: Poverty*. New York: Oxford University Press, 1990.

______ *World Development Report 1992: Development and the Environment*. New York: Oxford University Press, 1992.

______ *WorldData 1995: World Bank Indicators*. Washington: World Bank, 1996. ■