

Luxton, P.

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Environmental Controls, Trade and Resource Flows

by P. Luxton, Coventry *

In the October issue of INTERECONOMICS the author already published an article on "Environmental Issues and the Developing Economies". The present continuation deals with the effects which the adoption of environmental controls in the developed countries may have on the developing economies.

The increasing preoccupation with the environment and the discussion and implementation of policies concerned with environmental quality in the rich industrialised countries has brought into prominence the likely impact that such environmentally related measures will have on the developing economies. Of considerable concern to these economies is the impact that the imposition of environmental controls in the developed countries will have on trade, capital and aid flows and on the world distribution of income. The essential problem here is whether such a trend would leave the developing countries better or worse off on a net basis. However, such issues must be placed in their proper context.

The Proper Context

The major share of international trade and resource flows takes place between the industrialised countries themselves and this is where the major impact of environmental control measures will be felt. Related to this is the fact that it is the developed countries that specialised in the production and export of goods and processes that are environmentally damaging, so that the costs and benefits of environmental control measures will tend to be localised within the industrialised countries themselves. Indeed, much of the literature concerned with international trade and resource flows and environmental controls gives only modest attention to the probable impact of such measures on the developing economies. Consequently, knowledge about such matters tends to be rudimentary and devoid of any empirical content. Nevertheless, certain general

issues of concern to the developing countries are raised, and it is to these that the following analysis will address itself.

Baumol has argued that since preferences for environmental protection compared to other goods are assumed to be less in the developing countries than in the industrialised countries, environmental control in the latter will worsen the world distribution of income¹. For this to be true on the basis of the above statement two very strong assumptions would have to be met. Firstly, that the enhancement of environmental quality in the industrialised countries would, given the trade-off between the environment and other goods, reduce the supply of goods available to the less developed economies whereas less emphasis on the environment would somehow increase the supply of goods available. Secondly, that environmental quality in the industrialised countries is subject to externality and spill-over effects onto the developing countries, which would only be the case with transnational pollution.

Neither of these two assumptions can be defended for the particular case of industrialised and the developing countries. Differences in preferences for environmental quality between the industrialised and developing countries, which undoubtedly exist, are not sufficient to conclude that the industrialised countries' attempts at en-

* Senior Lecturer in Economics, Lanchester Polytechnic.

¹ W. Baumol, Environmental Protection and the Distribution of Incomes, in: OECD, Problems of Environmental Economics, Paris 1972.

vironmental protection would necessarily be regressive to the developing countries. However, environmental control measures in the industrialised countries will, through changes in aid, trade and capital flows have an impact on the developing countries. Whether this impact is positive or negative is a question that must now be considered.

Terms-of-Trade Problems

Taking the case of trade flows, any environmental controls in the industrialised countries that raise export prices will turn the terms of trade against the less developed countries. This would not only be the case with effluent charges but also with subsidies associated with waste reduction if the industry adjusted production downwards, with a consequent increase in unit costs, so that the marginal cost associated with waste reduction was equated with the marginal revenue from the subsidy for reduction. The net effect on the developing countries is unclear, especially if only some of the advanced industrialised countries impose environmental controls which raise export prices. However since the developing countries acquire the majority of their manufactures from the industrialised countries, the former may experience a decline in their terms of trade as import prices rise. This would represent a real income transfer from the developing to the industrialised countries, since the former would have to release a greater volume of real resources in order to obtain a given amount of the imported goods.

GATT² has estimated the cost increases for air and pollution control in the United States for various manufacturing sectors. These averaged out at about 4 to 5 p.c. of total expenditures for new plant and equipment. The value suggests that the export price rises of manufactured goods from the developed countries could be significant in the short run. It cannot, however, be assumed that they would continue as environmentally related cost increases may be offset by increases in productivity. The negative impact on the developing countries of the relative terms of trade changes depend not only upon the traditional "Marshall-Lerner" conditions but also on the structure and extent of competition in international trade and on which countries adopt rigorous environmental control programmes.

The central consideration here is whether the export revenues of the developing countries increase faster than import payments as the export prices of the industrialised countries increase

due to environmental control measures. For example, for the more industrialised developing countries, the increases in prices of their competitors in the developed countries may lead to increased demand for their exports, therefore increased earnings given that their export prices remain relatively stable. The net result depends partly on the magnitude of both import and export demand elasticities and on the cross-price elasticities facing the developing countries. Very little empirical evidence as to the net effect of the relative price changes on the developing countries exists, but tentative conclusions suggest that the change in the payments position for the developing countries may be either positive or negative, but that the net impact is relatively small³.

Environmental Bans and the Risk of Neo-Protectionism

The above analysis concerns the question of price changes as a result of the imposition of environmental controls in the industrialised countries. But such countries could equally well impose environmental standards or simply ban environmentally damaging products. UNCTAD (1972) drew attention to cases of bans on the import of fruit and vegetables carrying traces of DDT and other pesticides⁴. This could have serious consequences for the trading prospects of some developing countries, but generally environmentally damaging goods are manufactured and these do not dominate developed countries' imports from developing countries. It might also be noted that very few goods have been the subject of environmental bans. Even when they have, such as DDT, the prohibition has been selective and very quickly reversed when the adverse effects of the ban were noted. If they are not reversed, there is very little that the developing countries can do about it.

However, concern for the environment in the industrialised countries could shift demand from synthetics to raw materials, perhaps to the benefit of the developing countries who may experience an increase in exports as a result. To a certain extent, however, this favourable effect on the prospects of developing countries could be hindered by an increase in resource recovery and recycling in the industrialised countries, together with any slowing down of growth rates due to greater emphasis on environmental issues. The shift from synthetic to raw materials could also be offset by the industrialised countries' concern to insulate themselves against any further "com-

² GATT, *Industrial Pollution Control and International Trade*, Geneva 1971.

³ R. C. D'Arge, *Trade, Environmental Controls and the Developing Economies*, in: OECD, *Problems of Environmental Economics*, Paris 1972.

⁴ UNCTAD, *Impact of Environmental Policies on Trade and Development*, Report by the Secretariat, Santiago, TD/130, 1972.

modity power" exercises as well as searching for and exploiting whenever possible their own resources of raw materials. One major consequence of concern here is the rise of "neoprotectionism".

Historically, the industrialised countries have introduced trade barriers against the exports of developing countries as soon as the latter have begun exporting at competitive prices, and this may be repeated if environmental controls adversely affect their competitive position. Such a worry is expressed in the Founex Report to the extent that as concern switches from the product to the environment, it would be the beginning of the worse form of protectionism (para. 55)⁵. The question that arises here is the extent to which protectionism reflects the legitimate concern of the developed countries for their environment and the extent to which it is used as an excuse to exclude foreign competition. If the latter is the

⁵ Founex Report, Development and the Environment. Papers of a Panel of Experts convened by the Secretary-General of the United Nations Conference on Human Environment, Mouton, Paris 1972.

⁶ R. C. D'Arge, A. V. Kneese, Environmental Quality and International Trade, International Organisation, Vol. 26, No. 2, 1972.

case, not only will trade protection reduce trade, but will nullify the real objectives of environmental management⁶.

Effects on Comparative Advantage

The above discussion links in with the effects of environmental controls on comparative advantage. If the rich industrialised countries attach a higher priority to environmental quality than the developing economies, assuming differences in preferences and assimilative capacities, then this is tantamount to saying that the developing economies have a comparative advantage in producing environmentally disruptive goods. This is not to say that the developing countries should ignore environmental considerations. Indeed, it is persistently argued that the developing countries should search for less environmentally disruptive patterns of growth, but that, in order to achieve more rapidly growing domestic incomes, the developing countries may adopt a lower level of environmental standards. Thus pressure would exist for the more environmentally disruptive processes to locate in the "softer" developing economies,

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with the associated benefits on growth and development through increased employment and the multiplier process and backward and forward linkages. To the extent that the threshold of assimilative capacity for the developing economies is still far removed, an assumption that is itself questionable, these flows of capital may make themselves felt over an extended period of time.

However, the above benefits of the shift of comparative advantage towards the developing countries of the more environmentally damaging processes may, to a certain extent, be illusory. It could lead to problems of the dual economy type, especially if the environmentally damaging process is simply part of a production chain, the remainders of which are located in the industrialised countries. Part of the industrialised countries' domestic production would be located in the less developed economy, with very little linkage to the rest of that economy. It could also lead to problems of profit repatriation, especially with respect to multinational corporations. Secondly, the processes locating themselves in the developing economies may not accord with their factor endowments. Processes that use the environment intensively also tend to be capital intensive and capital, in the less developed economies, has a high opportunity cost. Finally, the comparative advantage model only indicates tendencies to specialise. Whether it takes place or not cannot be deduced without explicit knowledge of demand factors. If, for instance, the relative demand for environmentally less damaging products is higher in both groups of countries than for environmentally more damaging products, then production in both groups of countries will shift towards the former category of products.

Effects on Aid and Technology Transfer

Finally, the effects of environmental controls in the industrialised countries on aid and technology transfers have to be considered. As far as aid is concerned, the fear has been expressed that as a result of the cost increases due to environmental controls in the industrialised countries there will be a reduction in the funds available for aid. The assumption here is that government expenditure in the developed countries is relatively fixed, thus environmental control costs in these countries will come partly at the expense of aid for the developing economies. Rough estimates for the costs of pollution control in the United States have shown that should the Government bear the full cost, this would involve an 8 p.c. per annum increase in government expenditure, but to the extent that the polluter must pay principle is adopted, this reduces to 3 to 4 p.c. per annum

the increase in government expenditure. Such levels would be unlikely to have any pronounced effect on the level or change of foreign aid funds.

An associated worry here is that in their aid programmes, the industrialised countries may attempt to impose their environmental standards on the developing countries. This has led to the principle of additionality being advocated⁷. Should environmental considerations result in major increases in the costs of development projects, further funds should be made available. These funds would then be additional to normal development aid. The rationale here is that action to mitigate the adverse environmental consequences of development are justified by their long term benefits, whereas in the short run it would impose an unbearable strain on existing resources. However, such funds should be geared to the environmental needs of the developing economies rather than to standards in the industrialised countries.

A point to note is that the argument for additional funds breaks down if the environmental benefits emanate from the development project itself or if environmental action is taken to eliminate problems that would otherwise jeopardise the success of a development project. In both cases, environmental improvements have their own economic justification, the environment and development do not conflict even in the short run. An associated problem here concerns the transfer of technology which, because of environmental concerns in the industrialised countries, may become more expensive and even less suited to the needs of the developing economies. This technology transfer problem is, however, probably exaggerated since pollution control equipment is either embodied in new capital design and, as such, does not really alter costs or it is an appendage which can be bought or not.

To summarize, a few conclusions may be drawn from the above discussion. The adoption of environmental controls in the developed countries will have some effect on the developing economies through changes in trade, resource and technology flows, but any conclusions here must be very tentative and await the outcome of future empirical examinations. On balance, although environmental controls in the industrialised countries may create some difficulties for the less developed economies in the short run, in the longer run they may benefit slightly from a prolonged transfer of resources as comparative advantage changes to take account of the increased concern for the environment in the industrialised countries.

⁷ S. Macleod, *Financing Environmental Measures in Developing Countries: The Principle of Additionality*, IUNC Environmental Policy and Law Paper, No. 6, 1974.