

Summaries

Regional integration and the environment

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Regional trading arrangements have become increasingly popular among both developed and developing countries. At the same time, environmental issues have assumed greater prominence in economic policy discussions. This paper explores the interaction between regional integration arrangements and environmental pollution in a formal model. The set-up we consider has three countries. Two of these countries form a preferential trading area by lowering the tariffs on each other's goods while retaining the tariffs on imports from the third country. There are three types of goods which are produced by all three countries. Each country exports one type of good and imports the other two. It is well known that with the introduction of preferential trading in such a set-up, under certain conditions, the gain from increased imports from the partner country outweighs the reduction in imports from the non-partner country, leading to an improvement in national welfare.

We introduce environmental considerations and pollution into this set-up. Pollution can occur from the production of the importable or exportable good. Incorporating pollution leads to two issues of analytic interest. First, what implications does the inclusion of environmental pollution into the traditional analysis have for the welfare economics of regional integration? Implementation of regional arrangements impacts the output mix which, in turn, influences the level of pollution in the member countries. Because pollution affects welfare, the traditional results on preferential trading are likely to alter. Second, is there a case for inclusion of environmental policies in free trade area arrangements? If so, under what circumstances?

Our results can be summarized as follows. First, in the presence of pollution, the traditional result regarding preferential trading and welfare need not hold. The relationship between preferential trading and welfare depends critically on the level of the extant domestic pollution charge and the direction of trade. If the pollution charge is too low and the country exports the product which generates pollution, welfare may decline upon the introduction of preferential trading. Second, even if the pollution policy is

chosen optimally, the introduction of preferential trading may lower welfare. Lastly, coordination of environmental policies within a regional arrangement makes sense only if pollution is transnational. When pollution is strictly national, each country is better off setting its environmental policy in isolation.

Resource depletion and economic sustainability in Malaysia

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The historical record suggests that countries with abundant natural resources suffer a disadvantage in economic development. One possible explanation for the apparent curse of natural resources is that resource-rich countries have not invested enough in reproducible capital to offset resource depletion. Natural resources are a form of capital, which, if depleted, must be either replenished or substituted if countries are to expand their asset base and sustain their consumption levels.

Malaysia is a particularly interesting country for examining this issue. Although it is one of the most resource-rich countries in the world, its per capita GDP growth rate during the last three decades has been among the highest in the world. But the very extraordinariness of Malaysia's resource-richness raises a troubling question: is the country indeed on a sustainable growth path, or has it managed to keep growing simply by developing new resources? Malaysia is also an interesting case because it offers an opportunity to investigate the sustainability issue not only nationally but also at a subnational level.

Net investment (gross investment minus depreciation of physical and natural capital) and net domestic product (NDP; GDP minus depreciation of the two types of capital) were estimated for Malaysia and its three constituent regions (Peninsular Malaysia, Sabah, Sarawak) for all years during 1970–90. The estimates reflected depreciation of two categories of natural resources, mineral and timber, which were the most important ones in the country. Depreciation of natural resources was measured by the theoretically correct measure: Hotelling rent, not total rent, which overstates depreciation and has typically been used in previous studies.

At the national level, per capita net investment was found to be positive in all years but one. Hence, per capita total capital stocks increased in Malaysia during the 1970s and 1980s, despite the depletion of the country's mineral and timber resources. Per capita consumption levels appear to

have been more than sustainable. This was not the case in all three regions. Per capita net investment was positive in Peninsular Malaysia in all years, but it was negative in every year after 1975 in Sabah and in every year but one after 1983 in Sarawak.

If net investment was truly positive in Peninsular Malaysia and for the country as a whole, then per capita NDP should have risen over time. This was found to be the case. In Sabah and Sarawak, however, per capita NDP fell in many years, often by substantial amounts. It was not much higher at the end of the period than at the beginning. Although all three regions achieved high rates of GDP growth during 1970–90, apparently only the Peninsula increased its sustainable consumption level substantially.

The lesson for other resource-rich countries is to emulate Peninsular Malaysia's example, by adopting economic policies that results in the productive reinvestment of a substantial portion of resource rents. Sabah and Sarawak have instead grown by simply raising their natural resource output and consuming much of the rents thus generated. The problem the two states face is not depletion of natural resources, but overconsumption of resource rents. Unfortunately, for various reasons, they will probably find it difficult to increase investment. Although Malaysia's development appears to be sustainable at the national level, it might not be so in all sub-national regions.