RESOURCES, TRADE, AND INTEGRATION

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Summary

The theory of international trade has only recently been extended to include natural resources. This extension of trade theory began because of the rise in oil prices caused by the formation of a cartel by the OPEC countries. Much of this literature appeared in the 1970s and 1980s. The resource boom and its consequences in the Netherlands were inappropriately termed the "Dutch Disease." It concerned itself with the effects of resource boom on the composition of output (structural adjustment), appreciation of the exchange rate, and welfare. With the appearance of urban unemployment and slums in many developing countries, internal migration acquired significance in trade and development literature. In this context international trade theory has been extended to analyze issues of regional development and design optimal policies to reduce urban unemployment. In recent years, great emphasis has been placed on globalization and free trade. Economic integration is incorrectly viewed as a mechanism of trade liberalization. Because economic integration represents comparison of sub-optimal policies the second-best theorem starts to be important, hence policies of economic integration cannot be uniquely ranked in terms of welfare.

1. Introduction

The two important theorems of comparative advantage are the Ricardian and the Heckscher-Ohlin (HO) (advantage and trade policy) (see *Comparative Advantage and Trade Policy*). The HO has proven to be the generic model for analyzing a large number of issues and problems in international economics. There have also been numerous

extensions of the Ricardian trade model to generalize it by including specific factors. The term specific factor is used in this literature to denote the immobility of a particular factor from an industry, region or a sector. The specific factor model is associated with the work of Ricardo, Samuelson, Viner, and Jones. Initially, these trade models in their original and extended forms ignored the role of natural resources in international economics. All this changed with the shocks to the world economy that arose in the 1970s and 1980s from changes in the relative price of natural resources and/or from their restricted world availability. An excellent example of such a shock is the emergence of the Organization of Petroleum Exporting Countries (OPEC), which created an oligopolistic market structure to control, and in particular to manipulate, the relative price of oil.

In this context, it is natural to raise the question: how does trade theory incorporate natural resources into its models? To answer this question, two different but not mutually exclusive approaches may be adopted. First, the Ricardian and HO models may be extended to include exhaustible natural resources. In such extensions, the Ricardian and HO theorems will become special cases of the more general model that includes exhaustible resources. The extensions of the traditional models to include exhaustible resources will differ from the old models in important ways. Since the use of exhaustible resources involves time, such models will be concerned with transitions from one state to another depending on which resource is exhausted and how it is replaced by another one. The second approach to incorporating natural resources in trade theory is to discuss them in terms of the literature on Dutch Disease. In this article we shall not discuss the first approach as it is highly technical and not suited for exposition without using mathematics. Moreover, the Dutch Disease has been the subject of more vigorous debate and investigation at both the theoretical and the empirical level. Hence, it is appropriate to discuss and elaborate on the Dutch Disease.

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2. The Dutch Disease

The first question that arises in this context is: why the exotic title, Dutch Disease? It should be stated straight away that resource booms or discoveries in terms of welfare are *not* harmful for the country in question. In fact under competitive conditions, such booms always raise social welfare. The name Dutch Disease derives from the Netherlands experience when it lost its relative competitiveness for its traditional industrial products because of the appreciation of the Dutch florin. The Dutch currency appreciated because the resource boom created de-industrialization of the other sectors. As there are gainers and losers associated with resource booms, the issue of compensating the losers naturally arises in this context. Markets on their own do not compensate the losers. Moreover, there exist other serious concerns about the effects of the resource boom. These relate to structural change, which is defined as changes to the composition of output and in particular decline of the tradable sector (de-industrialization).

Let us consider an economy that produces both non-traded and traded goods at fixed international prices and an endogenously determined relative price of non-traded goods. By aggregating imports and exports into one composite traded good and similarly aggregating non-traded goods into one non-traded good, the transformation locus for the

economy is drawn as *TT′* in Figure 1. This transformation locus traces out the possible production for traded and non-traded goods, given the availability of factors and technology. The consumption point is shown by e_o, welfare by the social indifference curve *U*, and the relative price of non-traded goods by the slope of the line *AB*. The social indifference curve is a measure of the welfare of the country. Now consider the consequences of a boom in this economy. This boom could be caused by new discoveries of raw materials or an increased supply of the factors of production. Assume the boom occurs in the traded goods sector, so that the transformation surface shifts from *TT* to *TT′* and this shift shows that output of both goods increases at all points with the exception of point *T*. The pre-boom consumption and production were at point e_o. With the boom, at constant prices the production point shifts to e_1 and the consumption point to C_B. The consumption point C_B and the production point e_1 cannot be sustained as an equilibrium since demand is not equal to supply. That is, at the point e_1, the country is producing *OE′* of the traded good and *OD* of the non-traded good, while at the point C_B the consumers demand *OE* of traded goods and *OD′* of non-traded goods. Hence, we have an excess supply of traded goods (supply is greater than demand) and an excess demand for the non-traded good (demand is greater than supply). To restore equilibrium the relative price of non-traded goods and output must increase to clear the excess demand for non-traded goods. Hence, the output of the non-traded goods increases at the expense of the traded goods. Production and consumption occur at point C'_B at the relative price given by the slope of the line *A″B″*. Since the slope of *A″B″* is greater than *A′B′*, the relative price of non-traded goods has risen to restore equilibrium.

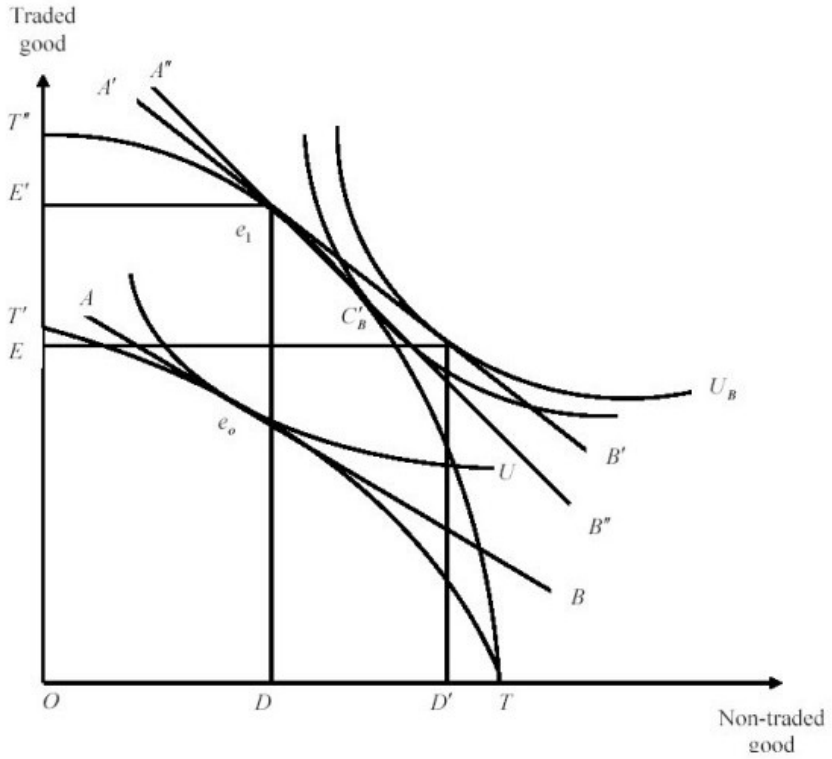

Figure 1. The Dutch Disease

This gives rise to what is known as the Dutch Disease: an increase in welfare; a decline in traded goods output (particularly manufacturing); and an appreciation (a rise in the relative price of non-traded goods) of the real exchange rate, which is defined as the relative price of non-traded goods to traded goods. This story can be made more complicated by considering the effects of the boom in various models, for example, distortionary frameworks like the presence of unemployment, a specific factor model where a boom may require the withdrawal of resources from other sectors, and an inter-temporal framework.

A large number of empirical studies have been undertaken on resource booms in the context of Dutch Disease. Several studies have discussed such issues as how to use the windfall gains from resource booms, how to accommodate structural adjustment in policy making, and how to cope with investments associated with a resource boom.

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Biographical Sketches

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