A Case of Existence and Non-existence of Trade Equilibrium in The Leontief Trade Model

Topic: IO Theory: Input-Output Price Model
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Trade theories are of several varieties: Classical Ricardian, Heckscher-Ohlin-Samuelson (HOS), Krugman engender intra-industry trade theories under increasing returns to scale, and linear trade models of Leontief variety. The paper comes under this last variety of trade theory.

From its very beginnings international trade theory has been formulated in the context of a general equilibrium perspective. The standard protocol has been to first work out the general equilibrium of autarkic economies on the assumption of given endowments, technologies and tastes and preferences. The autarkic equilibrium contains solutions of domestic relative prices and determine the pattern of comparative advantages. Next the international trade equilibrium, if it exists, is worked out to find the international terms of trade and the post-trade outputs of commodities. Finally, derivative results like the welfare gains etc. are extracted.

This paper also follows the standard protocol of international trade theory. However, there are some important departures so far as the assumptions are concerned. Firstly, capital in its value connotation is not considered as an â€œendowmentâ€• in the Leontief-trade model; in other words, the distribution between physical capital and value capital is strictly adhered to. Thus, the paper speaks of the physical endowments of individual capital goods in relation to labour ratios. Secondly, since capital goods are treated as produced commodities, the assumption that the same physical size of each capital good is employed both pre- and post-trade becomes unsustainable. The paper however supposes full employment of labour in the pre- and post-trade situations.

Excepting these departures, the attempt is to mimic as closely as possible the assumption of the standard Heckscher-Ohlin-Samuelson neoclassical trade theory. Thus, the paper supposed that there are two static competitive economies with given Input-Output coefficients and labour coefficients producing two commodities by means of constant returns production functions and consuming them by means of homogenous of degree zero functions that are identical in both countries. After illustrating a case of non-existence of trade equilibrium due to a mismatch between endowments and requirements of labour, it elaborates on Leontief trade theory where trade equilibrium is shown to exists.