ON TRANSFER PARADOXES AND IMMISERIZING GROWTH

Part II*

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1. Introduction

In our earlier comment, addressed to Chichilnisky (1980), we considered the error (in the form of an invalid Theorem 1) in her analysis of the transfer problem. We address ourselves here to noting some of the flaws in Chichilnisky (1981).

2. Immiserizing growth

Before we discuss the model itself, we need to reproduce some of the author's statements [Chichilnisky (1981, p. 182)] in regard to the theory of immiserizing growth in Bhagwati (1958, 1968):

"Our results also differ both in assumptions and in policy conclusions from others in the existing formalised trade and growth literature on the immiserising effects of growth [cf. Bhagwati (1968, 1972), Mundell (1968)]. In those works the results emerge from assumptions on international markets such as, for instance, different international elasticities of demand for the goods in which the North and the South specialise: the exports of the South are assumed to have inelastic demand internationally while the exports of the North have more elastic demands. Therefore, as the South attempts to grow more than the North, the prices of the exports of the South fall significantly, thus undermining its growth efforts..."

"The results in this paper have a dual character with respect to those of

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Bhagwati (1968, 1972), since ours depend more on the behaviour of supply of factors of production rather than on the elasticity of demand for goods.

It must be stated that Chichilnisky errs in regard to what Bhagwati (1958) showed as a condition for immiserizing growth in a country. He demonstrated that either an inelastic foreign offer curve, or ultra-biased growth with negative output-elasticity of supply of the importable good when the foreign offer curve is elastic, would make immiserizing growth possible. It is simply wrong to assert therefore that an inelastic foreign offer curve is necessary for immiserizing growth to occur in the Bhagwati case. The asserted 'dual' character of Bhagwati's theorem with that apparently proved in Chichilnisky (1981), with the former depending on inelastic demand and the latter on factor supply, is thus incorrect.

But, apart from this error, there is also no appreciation of the fact that Bhagwati was dealing with domestic, exogenously-specified growth that immiserized the growing country. To explore immiserizing growth in her model, and to explore possible duality with Bhagwati as she claims, Chichilnisky would have to solve for the effect of expansion that is both domestic and exogenous, either due to technical change or due to capital accumulation, on domestic welfare: the way it is done in Bhagwati (1958, 1968) and other works. This, she does not do.

Instead, as she is concerned (1981, p. 178, footnote 11), with the effects on the South of assumed 'shifts in the demand of the North', she should be concerned with the very different issue as to whether growth (or other parametric or policy shift) elsewhere can harm the South. But in that case it should come as no surprise that growth (or other shift) may imply an adverse shift in the foreign offer curve facing a country and therefore the country loses some of the gains from trade and is immiserized relative to the situation prior to this external growth (or other shift). [Indeed, this is precisely the problem that was analyzed by trade theorists in the postwar period when the more rapid growth in productivity in the United States was alleged by Balogh, Williams, Robertson and others as the source of the dollar shortage (in a monetary model) and, hence, of possible immiserization of its trading partners via terms-of-trade deterioration (in a real model).]

Unfortunately, however, even this analysis is erroneous in Chichilnisky (1981) because it is fatally flawed, as is the bulk of the paper, by the false argument that, in the model specified by her, an increase in the demand for the exportable (at each price) would reduce, rather than increase, the (equilibrium) price of the exportable (p. 178, footnote 11):

'Our case reflects, instead, shifts in the demand of the North, that increase the demand for the exportable at each price. This would under traditional assumptions increase the price of the exportable. In our case just the opposite effect takes place.'
The rest of this section is therefore devoted to showing very simply, using a geometric technique developed by Findlay, that this central proposition cannot hold in the model as specified by her; that, in fact, the model is extremely well-behaved indeed in this regard.\(^1\) The model is, in essence, a 2x2x2 model with two points to note: the production functions are characterized by fixed coefficients, and the supplies of factors are variable with respect to rewards, in each country. Let the factors be K and L, and the goods be I and B. Then, the following holds for each of the 2 countries. In any incompletely specialized production equilibrium the goods price \((p_I/p_B)\) determines the factor price ratio \((w/r)\) through the usual zero profit conditions under pure competition and constant returns to scale in production. These in turn determine factor quantities \((K\text{ and } L)\) through the postulated relationships between factor supplies and real factor rewards. Finally, given the factor supplies, output of \(I(Q_I)\) and \(B(Q_B)\) are determined using the condition that factors are fully employed.

Now, let \(p_I/p_B\) increase. We can then see that, if I is the K-intensive good, \(w/r\) falls, therefore \(K\) increases and \(L\) falls. Therefore, as in the argument underlying Rybczynski theorem, \(Q_I\) increases and \(Q_B\) falls. Therefore, given Walras’ law so that we concentrate on the I market, we see in the fig. 1 that \(Q_I\) is a monotonically function of \(p_I/p_B\). As for demand for I, this is assumed constant.\(^2\) Therefore \(D_I\) is a vertical line. Now, add both countries to get aggregate \(D^A\), \(Q^A\) curves, as in fig. 2.

One could not therefore get a stronger result; the equilibrium is unique and evidently Walras-stable. Now consider the North to have an increased demand for South’s exportable good B, as in Chichilnisky. This is equivalent to the \(D^N\) curve shifting to the left to \(0\). We then get the orthodox conclusion that \(p_I/p_B\) must decrease with increased demand for the B good.\(^3\)

\(^1\)We are indebted to Findlay who demonstrated clearly the well-behaved nature of the Chichilnisky model and hence the error of her contrary assertions, by producing the simple argumentation we have used in the text. This error and several other problems afflicting the details of the Chichilnisky analysis, have been noted by Saavedra-Rivano (1981) in a thorough comment.

\(^2\) Cf. Chichilnisky (1981, p. 168): ‘In contrast with other two good factor two region models, here it is assumed that in each region the demand for the investment/luxury good \(I^D\) is exogenously given. As in the following I will be used as a numeraire \((p_I = 1)\), this implies that in effect this demand is fixed in nominal terms; in real terms \(I^D\) is then a negatively sloped function of its price \(p_I\). While this assumption is rather useful to simplify the computations, it is not essential to prove the main results: more general downward sloping demand curves for \(I^D\) can be postulated without changing the main features of the model’ (our italics). In the text, we have interpreted this to mean that the investment demand is constant. However, if it is drawn with a negative slope, then the argument in the text is even reinforced and does not help Chichilnisky anyway.

\(^3\) Walrasian instability can, of course, be obtained by suitably changing demand conditions, as known to economists since the work of Johnson many years ago, which formally analyzed income distribution in a general-equilibrium context. But, as Findlay and Saavedra-Rivano note, even this basic change in the model of Chichilnisky cannot yield the conclusion that, in a Walras-stable market, the specified increase in \(B\)-demand in the North will reduce the equilibrium price of the \(B\) good!
Fig. 1

Fig. 2
Unfortunately, therefore, the Chichilnisky assertion to the contrary must be quietly buried. And, since this assertion is central to her paper, we must necessarily reject the theoretical and policy conclusions drawn in the paper as well.

4It should be stressed that the question whether Walrasian stability can be defined differently from the conventional sense in which we use that stability assumption is totally extraneous to the error noted in Chichilnisky. First, the fallacious assertion about the effect of the rise in the North's demand for the $B$ good leading to a fall in the world price of the $B$ good is made by Chichilnisky at equilibrium, and quite independently of the adjustment mechanism (stable or unstable) that one may care to specify. She writes (1981, p. 171): 'It should be noted that the results of this paper are obtained at the equilibria of the model. Therefore they are independent of the adjustment process followed to attain equilibrium.' Second, in contrasting her results with those of Bhagwati and others. Chichilnisky never attributes the differences partly or wholly to differences in the stability assumptions between her and these other authors. On the other hand, Samuelson, Johnson, Jones, Bhagwati and others do consider Walrasian stability in the conventional way.

References