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**TARIFF-INDUCED CAPITAL INFLOW
AND IMMISERATION***

by
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Number 71

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TARIFF-INDUCED CAPITAL INFLOW
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Harry Johnson's (1967) paradox of immiserizing growth for a small country with a tariff points to the possibility of immiseration following from a tariff-induced inflow of capital. However, the analysis cannot be carried over identically and fully as Tan (1969), in his subsequent examination of the conditions for Johnson's possibility to occur, has implied.*

Johnson's analysis relates to a comparison of the pre-growth and post-growth situations, both subject to a given tariff. On the other hand, the analysis of tariff-induced capital inflow and (resulting) immiseration requires a comparison of the free-trade situation with the tariff-inclusive, post-growth (via-capital-influx) situation. In this note, we explore this particular comparison and discuss the conditions under which immiseration will follow.

Johnson's Paradox: In Johnson's paradox, illustrated in Figure (1), the pre-growth tariff-inclusive production is at P_t , the given international price-line is $C_t P_t = C'_t P'_t$, the pre-growth consumption is at C_t and welfare is at U_t . With capital accumulation, the production possibility curve shifts from AB to CD, production to P'_t , consumption to C'_t and welfare is reduced to U'_t ($< U_t$). It is clear that a necessary and sufficient condition for such immiseration is that the Rybczynski-line $P'_t P'_t$ be less steep than the international price-ratio $P'_t C'_t$; and a necessary condition for such immiseration is that the output of the exportable good must fall at constant, tariff-inclusive prices (i.e. growth should be ultra-biased in favor of the importable good).

* Bertrand and Flatters (1971) also have, subsequent to Tan's work, explored the conditions for Johnson's paradox to occur when capital accumulation is responsible for the growth. Bhagwati (1968) has provided the general theory of immiserizing growth which reduces Johnson's and other earlier (Bhagwati, 1958) paradoxes to special cases.

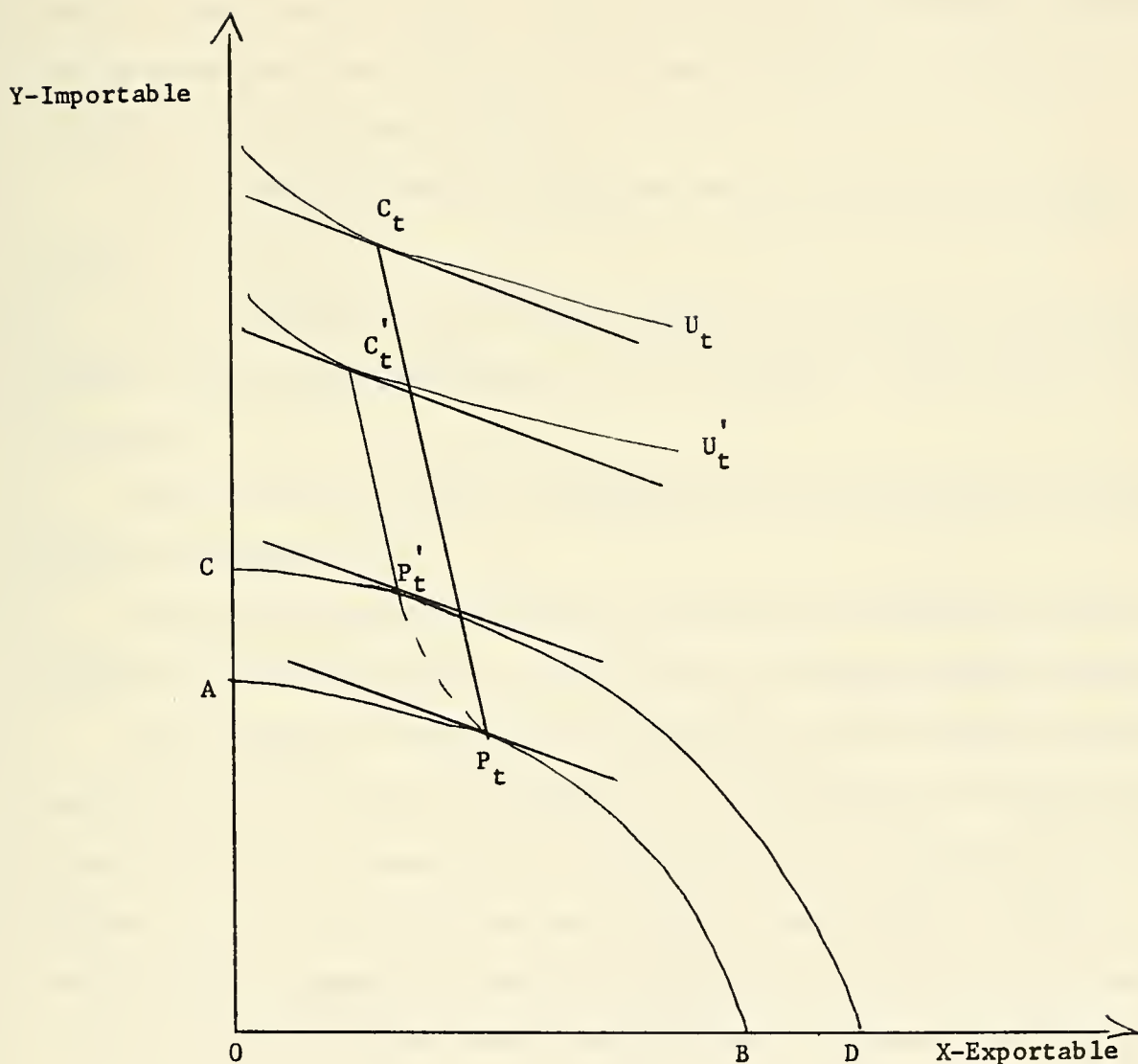


Figure (1)

Illustrated here is the Johnson paradox: growth with a tariff, for this small country, shifts the production possibility curve from AB to CD, production from P_t to P'_t , consumption from C_t to C'_t and welfare from U_t to U'_t .

Tariff-induced Capital Inflow: When, however, we wish to examine the conditions under which the possibility of immiseration will emerge if we have tariff-induced capital inflow, we have the following four welfare elements in the transition from an initial free-trade situation to the tariff-and-capital-inflow-inclusive situation:

(i) the tariff imposes a production cost by distorting the prices faced by producers;

(ii) the capital influx implies "growth," at constant tariff-inclusive domestic prices faced by producers, which may imply a welfare gain or a welfare loss;

(iii) the tariff imposes a consumption cost by distorting the prices faced by consumers; and

(iv) the tariff-induced capital influx earns a reward which must be reckoned as a cost and hence a welfare loss to the tariff-imposing country.

These elements are illustrated in Figure (2). The initial free-trade equilibrium with production possibility curve AB and the fixed international price-line $P_f C_f$, is characterised by production at P_f , consumption at C_f and welfare at U_f . The tariff-plus-capital-influx equilibrium is, with the foreign-capital-augmented production possibility curve CD, at P_t , C_t^4 and U_t^4 ($< U_f$) and shows, in consequence, immiseration. The transition from U_f to U_t^4 can be built up through the four elements we have already distinguished:

(i) the tariff shifts production from P_f to P_t^1 along AB, leading to a decline in welfare from U_f to U_t^1 ; this is the result of the production distortion;

(ii) the influx of foreign capital shifts production, at tariff-inclusive prices, from P_t^1 to P_t and therefore welfare from U_t^1 to U_t^2 ; this welfare-shift, identical with the one underlying the Johnson paradox (which

involves immiserizing growth under a given tariff), may be positive (as in Figure (2)) or negative (as in the Johnson paradox);

(iii) consumption must also be shifted because it will occur at tariff-inclusive prices; this reduces the economy from U_t^2 to U_t^3 ; and finally

(iv) the return to the foreign capital inflow, measured at EF amount of Y-goods in domestic prices,^{*} will reduce the economy still further to U_t^4 .^{**}

It is clear, therefore, that the tariff-induced-capital-inflow immiseration requires far less stringent conditions than the Johnson case. The latter must rely entirely on effect (ii) being negative, this being a necessary and sufficient condition for the immiserizing phenomenon. On the other hand, in the present case, effects (i), (iii) and (iv) being necessarily negative, effect (ii) can be positive and yet be compatible with immiseration, as is in fact depicted in Figure (2). It should be possible to set down formally the necessary and sufficient conditions for immiseration in this case; but this has not been attempted here.

* While capital will earn the value of its marginal product, the return would have to be modified by phenomena such as corporation taxes. We must therefore take the net return into account.

** An alternative way to get from U_f to U_t^4 would be to (i) go from U_f to U_f^* on assumption that capital has come in but that we are still in free trade; this would be done by putting the international price-line tangent to CD and then tangent, in turn, to U_f^* ; this is necessarily a welfare gain; (ii) go from U_f^* to U_t^2 , which would be the production loss associated with the tariff, but now taken at CD; (iii) go from U_t^2 to U_t^3 , which is the consumption loss; and (iv) go finally from U_t^3 to U_t^4 , which would be the loss from netting out the reward to foreign capital.

References

- T. Bertrand and F. Flatters, 1971, "Tariffs, Capital Accumulation and Immiserizing Growth," Journal of International Economics, I, November.
- J. Bhagwati, 1958, "Immiserizing Growth: A Geometric Note," Review of Economic Studies, 25, June.
- J. Bhagwati, 1968, "Distortions and Immiserizing Growth: A Generalization," Review of Economic Studies, 35, October.
- H. G. Johnson, 1967, "The Possibility of Income Losses from Increased Efficiency or Factor Accumulation in the Presence of Tariffs," Economic Journal, 77, March.
- A. H. Tan, 1969, "Immiserizing Tariff-induced Capital Accumulation and Technical Change," Malayan Economic Review.

