TARIFF-INDUCED CAPITAL INFLOW 
AND IMMISERATION*

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Jagdish N. Bhagwati

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massachusetts institute of technology

50 memorial drive

cambridge, mass. 02139
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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.
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 \( P^t C^t \), is characterised by production at \( P^t \), consumption at \( C^t \) and welfare at \( U^t \). The tariff-plus-capital-influx equilibrium is, with the foreign-capital-augmented production possibility curve \( CD \), at \( P^t \), \( C^t \) and \( U^t \) \((< U^f)\) and shows, in consequence, immiseration. The transition from \( U^t \) to \( U^t \) can be built up through the four elements we have already distinguished:

(i) the tariff shifts production from \( P^t \) to \( P^t \) along \( AB \), leading to a decline in welfare from \( U^f \) to \( U^t \); this is the result of the production distortion;

(ii) the influx of foreign capital shifts production, at tariff-inclusive prices, from \( P^t \) to \( P^t \) and therefore welfare from \( U^t \) to \( U^t \); this welfare-shift, identical with the one underlying the Johnson paradox (which
Free trade, at given terms of trade $P^C$, is characterised by production, consumption and welfare at $P^C$, $C^f$ and $U^f$. The tariff induces capital inflow; the resulting production, consumption and welfare are at $P_t$, $C_t^4$ and $U_t^4$ respectively. The difference between $C_t^3$ and $C_t^4$ represents the consumption bundle chosen by the owners of foreign capital.
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 $U^2_t$ to $U^3_t$; 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 $U^4_t$. **

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 $U^4_t$ 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 $U^2_t$, which would be the production loss associated with the tariff, but now taken at CD; (iii) go from $U^2_t$ to $U^3_t$, which is the consumption loss; and (iv) go finally from $U^3_t$ to $U^4_t$, which would be the loss from netting out the reward to foreign capital.
References


