

The Possibility of Income Losses From Increased Efficiency or Factor Accumulation in the Presence of Tariffs



Harry G. Johnson

The Economic Journal, Vol. 77, No. 305 (Mar., 1967), 151-154.

Stable URL:

<http://links.jstor.org/sici?sici=0013-0133%28196703%2977%3A305%3C151%3ATPOILF%3E2.0.CO%3B2-B>

The Economic Journal is currently published by Royal Economic Society.

Your use of the JSTOR archive indicates your acceptance of JSTOR's Terms and Conditions of Use, available at <http://www.jstor.org/about/terms.html>. JSTOR's Terms and Conditions of Use provides, in part, that unless you have obtained prior permission, you may not download an entire issue of a journal or multiple copies of articles, and you may use content in the JSTOR archive only for your personal, non-commercial use.

Please contact the publisher regarding any further use of this work. Publisher contact information may be obtained at <http://www.jstor.org/journals/res.html>.

Each copy of any part of a JSTOR transmission must contain the same copyright notice that appears on the screen or printed page of such transmission.

JSTOR is an independent not-for-profit organization dedicated to creating and preserving a digital archive of scholarly journals. For more information regarding JSTOR, please contact support@jstor.org.

THE POSSIBILITY OF INCOME LOSSES FROM INCREASED
EFFICIENCY OR FACTOR ACCUMULATION IN THE
PRESENCE OF TARIFFS²

THE adoption of more efficient technology and the accumulation of factors of production are generally assumed to increase the real income available

¹ For a proof of this proposition, please see Prof. Stigler's "The Theory of Price," p. 303.

² This possibility was first pointed out to the author by J. H. Dales, of the University of Toronto, who developed it in connection with his study of the effects of the Canadian "National Policy" of industrial protection. The formal demonstration presented here was provoked by the disbelief of H. S. Houthakker.

to an economy. But when a country is following a protective policy improved efficiency in the protected industry or accumulation of the factor used intensively in that industry will actually reduce the country's real income, over a range of change set by the degree of protection. This possibility of income-reducing growth is relevant to the fact that countries industrialising by means of protectionist and import-substitution policies are

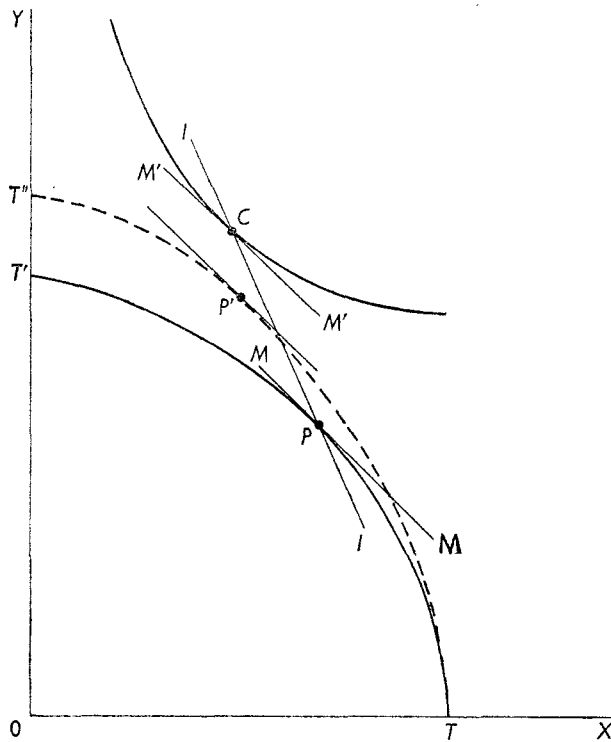


FIG. 1

frequently dissatisfied with the results. This note presents a formal demonstration of the possibility, in terms of the standard Heckscher-Ohlin model of international trade.

Fig. 1 depicts production and consumption equilibrium with the initial technology and factor supplies and the tariff. TT' is the transformation curve, deduced from the standard box-diagram, II is the international price ratio, MM and $M'M'$ are the internal price ratio, which differs from the international price ratio to an extent determined by the rate of protection of Y , and P and C are the production and consumption equilibrium points.

Now suppose that neutral technical progress occurs in the protected Y industry, and in that industry only. As a result, the transformation curve will shift outward except at point T (where no Y is produced) to TT'' ; and

the new equilibrium production point P' must lie to the north-west of P .¹ P' may lie either to the left or to the right of II , depending on the tariff rate, the extent of the technical improvement, and the elasticities of substitution between the factors in the two production functions. The new utility level of the country is given by the community indifference curve that intersects a new II curve through P' with a slope equal to that of $M'M'$. It is obvious, on the usual assumption that neither good is inferior, that the new utility level will be higher if P' lies to the right of II , and lower if P' lies to the left of II . In the latter case the country is made worse off by technical progress in its protected industry. Moreover, it is obvious that for a small enough degree of technical progress in that industry the country must be made worse off, while with a large enough degree of progress it must be made better off, by technical improvement.

If, instead of neutral technical progress in the protected industry, there were an increase in the stock of the factor used intensively in producing the protected product, the transformation curve would shift outward throughout its length; but (by the Rybczynski Theorem) the new equilibrium production point P' would in this case also have to be to the north-west of P , again entailing the possibility of loss or gain of real income, the necessity of loss if the factor increment is small enough, and the necessity of gain if the factor increment exceeds some initial minimum quantity.

The analytical results just presented may be understood in the light of the following considerations. Technical progress increases efficiency and therefore potential output per head; but it also shifts resources towards the industry in which progress occurs. If this is the export industry there is an additional gain from the reduction of waste implicit in the excess cost of protected production; but if it is the import-substitute industry there is an offsetting loss from increased waste through the excess cost of additional protected production, which may more than absorb the increase in potential output per head. Similarly, an increase in the supply of a factor increases potential real output, but also reallocates production towards the industry using that factor intensively; and if that industry is protected and so wastes resources through excess production costs, the shift again involves increased waste of resources, which may more than absorb the increase in potential output per head.

It is an interesting reflection on policy that protectionists usually demand increased protection when comparative advantage shifts against the protected industries, in effect claiming that part of the increased productive potential inherent in such a shift should be spent on the increased support of these industries.

¹ For proof, see Harry G. Johnson, "International Trade and Economic Growth—A Supplementary Analysis," *Arthaniti*, Vol. V, 1–13. The same result will follow from non-neutral technical progress in the protected industry, unless it is sufficiently strongly biased towards saving the factor used intensively in the export industry.

In conclusion, it should be noted that the possibility of income-reducing growth demonstrated here is quite different from the possibility of "im-miserizing growth" developed by Jagdish Bhagwati.¹ The latter is associated with the adverse effects of growth on the terms of trade; the former is associated with the presence of protection, under conditions in which any terms-of-trade effects of growth are excluded by assumption.

HARRY G. JOHNSON

University of Chicago.
