

## II. The advantage of technical progress and the countries of the periphery

It was stated in the preceding section that the advantages of technical progress have been mainly concentrated in the industrial centres and have not directly extended to the countries making up the periphery of the world's economic system. The increased productivity of the industrial countries certainly stimulated the demand for primary products and thus constituted a dynamic factor of the utmost importance in the development of Latin America. That, however, is distinct from the question discussed below.

Speaking generally, technical progress seems to have been greater in industry than in the primary production of peripheral countries, as was pointed out in a recent study on price relations.<sup>1</sup> Consequently, if prices had been reduced in proportion to increasing productivity, the reduction should have been less in the case of primary products than in that of manufactures, so that as the disparity between productivities increased, the price relationship between the two should have shown a steady improvement in favour of the countries of the periphery.

Had this happened, the phenomenon would have been of profound significance. The countries of the periphery would have benefited from the fall in price of finished industrial products to the same extent as the countries of the centre. The benefits of technical progress would thus have been distributed alike throughout the world, in accordance with the implicit premise of the schema of the international division of labour, and Latin America would have had no economic advantage in industrializing. On the contrary, the region would have suffered a definite loss, until it had achieved the same productive efficiency as the industrial countries.

The above supposition is not borne out by the facts. As can be seen in the indexes of table 1, the price relation turned steadily against primary production from the 1870's until the Second World War. It is regrettable that the price indexes do not reflect the differences in quality of finished products. For this reason, it was not possible to take them into account in these considerations. With the same amount of primary products, only 63 per cent of the finished manufactures which could be bought in the 1860's were to be had in the 1930's; in other words, an average of 58.6 per cent more primary products was needed to buy the same amount of

<sup>1</sup> "Post War Price Relations in Trade Between Under-developed and Industrialized Countries", document E/CN.1/Sub.3/W.5.

finished manufactures.<sup>2</sup> The price relation, therefore, moved against the periphery, contrary to what should have happened had prices fallen as costs decreased as a result of higher productivity.

TABLE I

*Ratio of prices of primary commodities to those of manufactured goods (average import and export prices, according to data of the Board of trade)*

Base: 1876-80 = 100

Periods	Amount of finished products obtainable for a given quantity of primary commodities
1876-80	100
1881-85	102.4
1886-90	96.3
1891-95	90.1
1896-1900	87.1
1901-05	84.6
1906-10	85.8
1911-13	85.8
—	—
1921-25	67.3
1926-30	73.3
1931-35	62.0
1936-38	64.1
—	—
1946-47	68.7

Source: "Post War Price Relations in Trade Between Under-developed and Industrialized Countries", document E/CN.1/Sub.3/W.5, 23 February 1949.

During the expansion of the last war, as in the case of all cyclical expansions, the relation moved in favour of primary products. Now, however, although there has not been a recession, a typical readjustment is taking place, with the result that prices of primary products are losing their former advantage.

The pointing out of this disparity between prices does not imply passing judgment regarding its significance from other points of view. It could be argued, on grounds of equity, that the countries which strove to achieve a high degree of technical efficiency were in no way obliged to share its fruits with the rest of the world. Had they done so, they would not have reached their enormous capacity to save, without which it might well be asked whether technical progress would have achieved the intense rhythm which characterizes capitalist development. In any case the productive technique exists and is at the disposal of those with

<sup>2</sup> According to the report already quoted. The figures for the thirties go only as far as 1938 inclusive. The data given are the Board of Trade's average price indexes for British imports and exports representative of world prices for raw materials and manufactured goods respectively.

the capacity and perseverance to assimilate it and increase their own productivity. All that, however, is outside the scope of this report. The purpose is to emphasize a fact which, despite its many implications, is not usually given the importance it deserves when the significance of the industrialization of the peripheral countries is discussed.

Simple reasoning on the phenomenon in question brings us to the following considerations:

*First.* Prices have not fallen concomitantly with technical progress, since, while on the one hand, costs tended to decrease as a result of higher productivity, on the other, the income of entrepreneurs and productive factors increased. When income increased more than productivity, prices rose instead of falling.

*Second.* Had the rise in income, in the industrial centres and the periphery, been proportionate to the increase in their respective productivity, the price relation between primary and manufactured products would have been the same as if prices had fallen in strict proportion to productivity. Given the higher productivity of industry, the price relation would have moved in favour of the primary products.

*Third.* Since, as we have seen, the ratio actually moved against primary products in the period between the 1870's and the 1930's, it is evident that in the centre the income of entrepreneurs and of productive factors increased relatively more than productivity, whereas in the periphery the increase in income was less than that in productivity.

In other words, while the centres kept the whole benefit of the technical development of their industries, the peripheral countries transferred to them a share of the fruits of their own technical progress.<sup>3</sup>

<sup>3</sup> "Post War Price Relations in Trade between Under-developed and Industrialized Countries", document E/CN.1/Sub.3/W.5, pp. 115-116:

"A long-term deterioration in terms of trade, such as has been found to obtain for primary producers over a long period, may be an effect of differences in the rate of increase in productivity in the production of primary commodities and manufactured articles, respectively. If we can assume that the deteriorating terms of trade for under-developed countries reflect a more rapid increase of productivity in primary commodities than of manufactured goods, the effect of worsened terms of trade would, of course, be less serious. It would merely mean that, to the extent that primary commodities are being exported, the effects of increased productivity are being passed on to the buyers of primary articles in the more industrialized countries. Although statistical data on differential rates of increase in productivity of primary production in under-developed countries, and production of manufactured articles in industrialized countries, are almost entirely lacking, this explanation of the long-term changes in terms of trade which were observed in this study may be dismissed. There is little doubt that productivity increased faster in the industrialized countries than primary production in under-developed countries. This is evidenced by the more rapid rise in standards of living in industrialized countries during the long period covered, from 1870 to the present day. Hence, the changes observed in terms of trade do not mean that increased productivity in primary production was passed on to industrialized countries; on the contrary, they mean that the under-developed countries maintained, in the prices which they paid for their imported manufactures relative to those which they obtained for their own primary products, a rising standard of living in the industrialized countries, without receiving, in the price of their own products, a corresponding equivalent contribution towards their own standards of living."

Before explaining the reason for this phenomenon, which is so important to Latin America, it would be well to consider how the effects of increased productivity are transmitted.

For this purpose, an illustrative example is presented in table 2, in which it is assumed that the indexes of productivity, per man, are greater in industry than in primary production. For the sake of simplification, both are supposed to make an equal contribution to the finished product.

TABLE 2

*Illustration of the distribution of the benefits of technical progress between the centre and the periphery*

	Primary production (1)	Industrial production (2)	Total production <sup>a</sup> (3)	Ratio	
				(1) x 100 (3)	(2) x 100 (3)
<i>Assumption:</i> Productivity increases in accordance with the following indexes:	100 120	100 160	100 140	— —	— —
<i>First case:</i> Costs decrease as productivity rises and prices decrease with costs, without any rise in income:	100 83.3	100 <sup>b</sup> 62.5 <sup>b</sup>	100 71.4	100 116.7	100 87.5
<i>Second case:</i> Costs decrease as in the first case, but income increases as follows:	100 120	100 180	100 150	100 80	100 120
Changes in prices following the increase in income:	100 99.9	100 <sup>b</sup> 112.5 <sup>b</sup>	100 107.1	100 93.3	100 105

<sup>a</sup> Figures relate to the finished products. See explanation on page 18.

<sup>b</sup> Part of the price representing value added by the manufacturing process.

It has been assumed in the first case that, with an increase in productivity, from 100 to 120 in agriculture and from 100 to 160 in industry, incomes of entrepreneurs and productive factors do not rise, but costs fall. If prices are reduced *pari passu* with costs, the decline in the price of primary products is less than that in the case of manufactured goods, as is shown by the corresponding indexes. Consequently, the ratio between the two moves, in favour of the primary products, from 100 to 116.7.

This is precisely the ratio that would have allowed the increase in final production to be shared equally by the primary producers and the industrial centres. In fact, if there is an increase in primary productivity

from 100 to 120, and if, as has just been seen, 100 primary products can now be exchanged for 116.7 manufactured articles, it means that primary producers can now obtain 140 instead of 100 of those products, or, in other words, that the increase has been the same as in the case of final production, an increase obviously obtained by the industrial producers also.

There is a marked difference in these results when, in the second case, incomes are altered. It is assumed that, in industry, the increase in income is greater than the increase in productivity and that, in primary production, both increases are equal. As a result, the price ratio moves against primary production, from 100 to 93.3, so that primary products, despite the increase in productivity from 100 to 120, can buy only 112.0 final products, as against 100 previously. On the other hand, a similar calculation shows that industrial producers can now obtain 168 final products as compared with the 100 they bought before.

It should be noted that, whereas the primary producers can increase their acquisitions of final products less than they increase productivity, industrial producers benefit more than they should in relation to the increase in their productivity.

It follows, logically, that if the increase in income in primary production had been assumed to be less than, instead of equal to, the increase in productivity, the price ratio would have dropped still further against the primary producers.

The deterioration of 36.5 per cent in the price ratio between the eighteen seventies and the nineteen thirties suggests the possibility of a phenomenon of that kind.

In short, if, in spite of greater technical progress in industry than in primary production, the price relation has moved against the latter instead of in its favour, it would seem that the average income, *per capita*, has risen more in industrial centres than in the producer countries of the periphery.

The existence of this phenomenon cannot be understood, except in relation to trade cycles and the way in which they occur in the centres and at the periphery, since the cycle is the characteristic form of growth of capitalist economy, and increased productivity is one of the main factors of that growth.

In the cyclical process of the centres, there is a continuous inequality between the aggregate demand and supply of finished consumer goods. The former is greater than the latter in the upswing and lower in the downswing.

The magnitude of profits and their variations are closely bound up with this disparity. Profits rise during the upswing, thus tending to curtail excess demand by raising prices; they fall during the downswing

tending, in that case, to counteract the effect of excess supply by lowering prices.

As prices rise, profits are transferred from the entrepreneurs at the centre to the primary producers of the periphery. The greater the competition and the longer the time required to increase primary production in relation to the time needed for the other stages of production, and the smaller the stocks, the greater the proportion of profits transferred to the periphery. Hence follows a typical characteristic of the cyclical upswing: prices of primary products tend to rise more sharply than those of finished goods, by reason of the high proportion of profits transferred to the periphery.

If this be so, what is the explanation of the fact that, with the passage of time and throughout the cycles, income has increased more at the centre than at the periphery?

There is no contradiction whatsoever between the two phenomena. The prices of primary products rise more rapidly than industrial prices in the upswing, but also they fall more in the downswing, so that in the course of the cycles the gap between prices of the two is progressively widened.

Let us now look at the explanations of this inequality in the cyclical movement of prices. It was seen that profits rise in the upswing and decrease in the downswing, thus tending to offset the disparity between demand and supply. If profits could fall in the same way in which they rose, there would be no reason whatsoever for this unequal movement. It occurs precisely because they cannot fall in that way.

The reason is very simple. During the upswing, part of the profits are absorbed by an increase in wages, occasioned by competition between entrepreneurs and by the pressure of trade unions. When profits have to be reduced during the downswing, the part that had been absorbed by wage increases loses its fluidity, at the centre, by reason of the well-known resistance to a lowering of wages. The pressure then moves toward the periphery, with greater force than would be the case if, by reason of the limitations of competition, wages and profits in the centre were not rigid. The less that income can contract at the centre, the more it must do so at the periphery.

The characteristic lack of organization among the workers employed in primary production prevents them from obtaining wage increases comparable to those of the industrial countries and from maintaining the increases to the same extent. The reduction of income—whether profits or wages—is therefore less difficult at the periphery.

Even if there existed as great a rigidity at the periphery as at the centre, it would merely increase the pressure of the latter on the former, since, when profits in the periphery did not decrease sufficiently to offset the inequality between supply and demand in the cyclical centres, stocks

would accumulate in the latter, industrial production contract, and with it the demand for primary products. Demand would then fall to the extent required to achieve the necessary reduction in income in the primary producing sector. The forced readjustment of costs of primary production during the world crisis illustrates the intensity that this movement can attain.

The greater ability of the masses in the cyclical centres to obtain rises in wages during the upswing and to maintain the higher level during the downswing and the ability of these centres, by virtue of the role they play in production, to divert cyclical pressure to the periphery (causing a greater reduction of income of the latter than in that of the centres) explain why income at the centres persistently tends to rise more than in the countries of the periphery, as happened in the case of Latin America.

That is the clue to the phenomenon whereby the great industrial centres not only keep for themselves the benefit of the use of new techniques in their own economy, but are in a favourable position to obtain a share of that deriving from the technical progress of the periphery.

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