



The Terms of Trade Fifty Years Later - Convergence and Divergence

By Hans W. Singer

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**Readers' attention is drawn to an article by Alfred Maizels on a related theme and entitled "New Evidence on the Terms of Trade" which appeared in South Letter No. 27, Vol. 4, December 1996.*

The purpose of this note is to set the theory of a long run tendency for prices of primary products to decline in relation to manufactured products into the more general context for which, this note argues, it was originally intended.

The simplest version on which the discussion has perhaps unduly concentrated is the simple proposition regarding barter terms of trade as quoted in the previous sentence. In this sense it has become known as the Prebisch-Singer thesis (PST). With given and mutually agreed definitions of what constitutes primary commodities and what constitutes manufactures this proposition can be statistically tested. This has been widely done, with the evidence generally pointing, (especially when the analysis includes the recent period since 1980), to the thesis being verified and supported, or at least not refuted. For this it does not matter very much whether the data are interpreted as a persistent declining trend or as essentially stationary with intermittent downward breaks. The general policy conclusion would be to emphasise the importance for developing countries of diversification of exports into manufactures as intensively and rapidly as possible -- in other words industrialization. In this the PST fitted into the mainstream of development thinking at the time of its publication (1950) and the period immediately afterwards. Development and industrialization were treated as virtually synonymous. Significantly, the seminal paper by Rosenstein-Rodan in 1943 was entitled 'Problems of Industrialisation of East and South East Europe'.

The PST itself does not involve any view on whether the shift towards industrialization should be by way of export promotion for manufactures or by way of import substitution for previously imported manufactures. In the conditions of 1950's and 1960's a tendency to give preference to import substitution was natural since a) developing countries had to build up a domestic production capacity in order to export manufactures and b) they would find it initially easier to produce for an existing and known domestic market than for an unknown global market.

A first and simple extension of the PST was to move from a proposition related to different kinds of commodities to a proposition related to different kinds of countries. As the share of manufactures in the exports of developing countries increased it became increasingly necessary to break with the identification of the terms of trade between primary commodities and manufactures with the terms of trade of developing

countries with more industrialized and richer countries and to undertake separate studies of the manufacture-manufacture terms of trade. These studies suggested that diversification into manufactures -- while it was recommended as part of industrialisation, reduction of risks of price volatility, creation of employment, as well as future savings of imports -- was not in itself an escape from deteriorating barter terms of trade (as distinct from income terms of trade). Research has tended to establish that manufacture-manufacture barter terms of trade of developing countries were deteriorating as well as primary-manufactured barter terms of trade, in recent years perhaps even faster. The kinds of manufactures which developing countries could export in the early stages of development were different from the kind of manufactures which they imported from developed countries. The manufactures exported by developing countries tended to be technologically simpler than the manufactures imported from developed countries. Hence the extension of the PST from commodities to countries also involved a shift from emphasis on industrialization and diversification to an emphasis on building up technological capacity, entrepreneurial skills, and of 'human capital' in general. Without such a technological capacity, a shift into manufactures required foreign investment or aid.

The PST, taken by itself, (and leaving aside the case of rich oil exporters), would create a presumption (although no certainty) of divergence within the world economy. Other things being equal, falling terms of trade for poorer countries and improving terms of trade for richer countries would mean greater international inequality between countries. Other things of course would not be equal. In particular, if the deteriorating barter terms of trade are accompanied by increased income terms of trade (that is, if the volume of exports expanded so heavily as to outweigh the decline in barter terms of trade) while the opposite was the case for the countries which had improving terms of trade, the PST would be compatible with convergence rather than divergence. However the presumption of the PST was that this would not be the case. On the contrary, it was assumed that the income elasticity, as well as the short-run price elasticity, of primary commodities was lower than for manufactures, hence the income terms of trade would contribute even more to international divergence than the barter terms of trade. However, it deserves to be emphasised that the PST -- although statistically mainly discussed in terms of barter terms of trade -- was intended as a contribution to the analysis of income terms of trade. Hence the emphasis on lower price elasticities and income elasticities for primaries in the early formulations of the PST. The tendency for lower income elasticity than for manufactures (e.g. Engel's Law) is well established and largely uncontroversial. Even if the income terms remain constant (that is, expansion of export volume maintains export revenue in the face of declining barter terms of trade) this would still amount to international divergence, since the poorer countries would have to mobilize greater resources for the increase in export volume. These increased resources would have to be diverted from domestic consumption or investment, increasing divergence between countries in the world economy.

The move from barter terms of trade to income terms of trade is a stepping stone to move towards factorial terms of trade (single or double). If productivity in the exports of developing countries -- whether commodities or manufactures -- improves sufficiently there could still be increases in welfare and factor incomes even in the face of declining income or barter terms of trade. However, to change divergence to convergence it would be necessary for technical progress to be faster in the poorer countries than in the export industries of the richer countries. Necessary but not sufficient. The PST argues that one must also include the possibility that the fruits of technical progress are differently distributed in different types of countries. Specifically, the PST argued that there is a tendency for the results of technical progress in the richer countries to be retained in the form of higher incomes, while the benefits of technical progress in the export industries of poorer countries result mainly in lower prices.

While this differential way of distributing the fruits of technical progress would make no overall national difference (higher real incomes in both cases, whether by way of higher incomes or lower prices), internationally it does make a difference leading to yet greater divergence between rich and poor countries.

If the assumptions of the PST are accepted, the richer countries would benefit both ways: as producers of exports in the form of higher incomes and as consumers in the form of lower import prices. The argument is that in the case of primary commodities and simple manufactures there is more intense competitive pressure in world trade forcing exporters to pass on increases in productivity to consumers, whereas, in the case of the higher-technology manufactures exported by richer countries, the stronger labour markets combined with a cost-plus marking up system of prices, ensure that gains from productivity accrue more to the producer. Thus the shift from barter or income terms of trade to factoral terms of trade does not help to reduce the impact of the PST in the direction of international divergence between countries.

Here we have arrived at the real objective of the PST, that is, to argue that there is a tendency for international trade and investment to contribute to international divergence rather than convergence. There are of course many other factors contributing to divergence or convergence. The PST leaves open the possibility that other forces making for convergence are stronger and overrule the tendency towards divergence. However the PST, by pointing in the direction of divergence, served to modify the then prevailing optimistic view that there must be convergence, that is that the developing countries would grow faster than the richer industrial countries. What were the arguments for this prevailing optimistic assumption of convergence?

One argument was to assume a more favourable capital-output ratio (COR) in the poorer countries. If capital was scarce in relation to labour and natural resources in the poorer countries it would have a higher marginal productivity. Each unit of capital could be combined with more labour and natural resources producing a more favourable COR. Arthur Lewis, in his assumption of unlimited labour supplies arising from hidden unemployment in agriculture in developing countries, was also contributing to this assumption of a low COR. Hence his famous statement that it would be sufficient to increase investment from very low to still relatively low investment rates (e.g. 12 per cent of GDP). In the absence of reliable data, a constant and favourable COR of 3.1 was assumed. By contrast in the rich countries capital was relatively abundant and would come up against diminishing returns. Also, developed countries have a higher level of existing capital assets: more of their saving is absorbed by replacement investment than in developing countries.

Another argument for convergence was seen in the fact that the developing countries could use the existing technology made ready for them by the industrial countries without having to go to the cost and pains of Schumpeter's 'creative destruction'. Instead the technology would be presented to them free on a plate. This would help them to catch up with the richer countries.

A third argument was historical experience, which shows that catching up is a possibility for individual countries and that examples of convergence occur in the world economy. Friedrich List had shown the way to Germany to catch up with England by way of infant industries initially protected, and other European countries followed in the post-war period. The most recent have been the East Asian tigers, where there was either no initial tendency towards declining terms of trade or these were overruled. Recent research tends to show the existence of stronger technological capacity, especially in human capital, in the tiger economies, enabling them to retain the fruits of technical progress and move rapidly into the more knowledge-intensive types of manufactured exports, thus avoiding deteriorating terms of trade.

The assumption of a tendency towards global convergence, implicit in the neo-classical production function, the theory of comparative advantages and the Stolper-Samuelson thesis of an equalization of factor prices, can be and has been statistically tested by a number of analysts. The general result has been that, on a global scale -- that is, including all developed and developing countries for which data are available -- there is no visible tendency towards convergence. Convergence would require that the initial per capita income level of countries should be negatively correlated with subsequent growth rates; but no such firm negative correlation has been found. Naturally much depends on the choice of initial and terminal dates, but

generally speaking the findings support divergence rather than convergence, particularly for very long time periods and also particularly for the most recent 20 or so years. What convergence has been found is among the limited group of industrial countries, for example among the OECD or EU countries. It is, however, questionable whether the undoubted catching up of the poorer EU countries (e.g. Greece, Portugal, Ireland and Spain) has been due more to the various and often generous subsidies from wealthier EU countries, rather a natural tendency towards convergence. On a truly global scale divergence rather than convergence seems the rule, and to that extent the PST is in line with the empirical data.

There are, of course, some notable exceptions to such a simple picture of divergence. In the first place, there have been some conspicuous examples of catching up by initially very poor countries (Korea, Taiwan). In the second place, there is some evidence of conditional convergence over more recent periods for countries with similar levels of education and technological capacity. Thirdly, and perhaps most important, there is some evidence of convergence for more recent periods if we take as our unit of comparison not countries -- counting small and large countries equally -- but persons. In that case, such large countries as China and India dominate the picture and both these countries in recent years have experienced faster overall rates of economic growth than the technological leaders. In that sense there has been some recent convergence for the typical poor persons in the world. (However, for these large super-countries, international trade -- and even more so the barter terms of trade -- are (at least directly) less important for their total GNP performance than for smaller countries. Hence, in the context of this note, the fact of recent convergence by persons is less of a refutation of the possibility that international trade could be an element of divergence than its undeniable great importance in the assessment of overall convergence and divergence would otherwise imply.)

In the immediate post-war period, during the 1950's and 60's, a convergence assumption did not seem implausible: the developing countries were able to keep up even with the then high growth rates of the industrial countries in the Golden Age of reconstruction and rehabilitation aided by the massive investment support of the Marshall Plan. (It must not be forgotten that the rapid catching up of Korea and Taiwan was also supported by massive aid during the crucial early periods). The idea of 'stages of development', introduced by Walt Rostow, also lent itself to the idea that countries were more or less predestined to go through these various stages and end up in a state of general convergence, although this of course was by no means necessarily inherent or intended by Rostow.

The PST thus introduced a discordant element in the optimism of convergence. It argued that there are also elements of divergence operating in the world economy. Today this would no longer be such a heretic proposition as in 1950. It is not unusual now to say that more recently divergences or inequalities between countries have increased as well as within countries. The New Growth Theory emphasises that investment has increasing rather than decreasing returns, that knowledge and technology feed upon themselves -- those with access to and understanding of advanced knowledge and technology have the best chances of improving their knowledge and technology further. It would be widely agreed that the globalization process has its losers as well as winners, and that the losers tend to be the poorer and more vulnerable countries and groups within countries. Such terms as 'vicious circles of poverty', 'marginalization of Africa', 'poverty traps', 'social exclusion', 'endogenous growth' etc. permeate the development literature.

A further new element has been added to support the PST, that is, the debt pressure under which the poorer countries are compelled to export and earn foreign exchange at any price. The 'fallacy of composition' ensures that the efforts of each country individually to improve its income terms of trade by increasing its own market shares must be at the expense of other countries under similar pressure which simultaneously try to increase their own individual market share. The practice of the IMF and World Bank to urge countries to be outward-oriented and improve their debt servicing capacity and balance of payments by increased exports, and to do this on a country-by-country basis and without much co-ordination between

the different structural adjustment programmes, further strengthens the 'fallacy of composition'. The vastly increased power of multinational corporations to shift production between developing countries, or out of developing countries altogether, introduces another element of 'racing for the bottom' in production and export costs -- in fact further supporting the PST. In all these respects the PST can be said now to have joined the mainstream.

One indication of this is that the PST is now incorporated, both implicitly and explicitly, in the advice given by the Bretton Woods Institutions to developing countries. They are warned to be prudent even when export prices are temporarily favourable and to guard against currency overvaluation and Dutch Disease, with all the unfavourable impact on the rest of the economy and all the dangers of macroeconomic instability which a sudden boom in a major export sector could imply. They are warned to remember that the outlook for commodity prices is not favourable and that windfalls will tend to be temporary, with the subsequent relapse likely to be greater than the temporary windfall. This is exactly the warning which the PST would give. The emphasis on volatility is fully compatible with the PST. Even if a long-term declining trend is established it would be in the order of perhaps around 1 per cent a year -- calculations differ -- whereas year-to-year fluctuations may average something in the nature of 15 per cent a year. In some ways, therefore, volatility is a much greater and more immediate problem for macroeconomic policy in developing countries with a long-term declining trend. As distinct from the failure of diversification into manufactures to offer a reliable escape from declining long-term terms of trade, in the case of volatility there is a certain escape. The volatility of prices or unit costs of manufactured exports is distinctly lower than for primary commodities, although it is higher than the volatility of the exports of manufactures from the more fully developed countries.

The policy conclusion from this would be one that has also been reached by others starting from a different and wider perspective than starting with the PST. It would be that poorer countries with static comparative advantages in (non-oil) primary commodities, or in low-tech manufactures, would be well advised to try to create different and more dynamic comparative advantage in higher-tech manufactures or services. Otherwise, they may well be caught in the trap of deteriorating terms of trade and may be at the wrong end of the distribution from gains from trade and investment. Hence the conclusion emphasises the importance of education, development of skills, and of technological capacity. In the light of recent mainstream thinking on growth and trade there is nothing startling about this conclusion. But it is worth noting that the PST works in the same direction and strengthens this conclusion.

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