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Omens from the Terms of Trade – Expectations about the Next Few Years

by John Levi, Belfast*

The international economic development over the last century was characterised by various kinds of cycles. This article focusses on cyclical changes in the net barter terms of trade between primary products and manufactured goods. By comparing and contrasting the present circumstances with those of previous cycles the author seeks to shed some light on expectations about the next few years.

The division of world trade into the two categories of primary products and manufactured goods is of course an over-simplification, and it has become less and less realistic in recent years. There has been the painful realisation that fuels can no longer be treated like coffee, copper, cotton, etc., but it has also become apparent that the major distinguishing features of the two types of good, namely low barriers to competition in primary production and relatively high barriers in manufacturing industry, have become less pronounced. Manufacturing has become much more widespread, while qualitative changes have become very rapid. Homogeneous “manufactured” goods, such as fertilizers, steel sheets, rods, etc., are behaving like primary commodities; more value is being added in the processing of primary products before they are exported; and so on. Nevertheless, simplify we must if we are to grasp the underlying forces at work in world trade; the primary versus manufactured dichotomy provides a framework of analysis with which we can focus on the “real” changes in trade, while keeping in the background monetary and institutional factors. The changes in the structure of trade are shown in Table 1 and the long series of the terms of trade in Figure 1.

Let us begin with a hypothetical analysis of the major economic forces generating the terms of trade time series of Figure 1, and then go on to compare reality with theory.

One of the essential, or defining, characteristics of manufacturing is that of processing, or adding value to, primary products, to produce intermediate and final goods. As has already been noted the distinction between the two categories of product has become less and less clear in recent years, and this has to be born in mind, but it does provide us with a simple first step in analysis.

The Terms of Trade Cycle in Theory

One fundamental effect of a period of rising terms of trade will be to exert downward pressure on value added in manufacturing industry. Attempts will no doubt be made to relieve this pressure, in particular by cost-plus pricing, but the failure or success of this is indicated by the degree to which the terms of trade remain high relative to immediately previous years, or even go on rising. Thus the profitability of manufacturing will tend to be reduced, offset to some extent by reducing labour costs, by lowering wages or wage increases, employment or both. In addition, an economy which can be characterised as an exporter of manufactures and an importer of primary goods will experience a deflationary effect due to increased leakage of income spent on imports.

The other side of the coin is that “real” prices of primary products are rising and so, presumably, will the profitability of primary production. One would thus expect the net effects of a rise in the terms of trade to be reduced investment in manufacturing and perhaps an

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Table 1
Per Cent Shares in World Trade Value

Year	Food	Non-Food Agricultural	Minerals	Manufactures		
1913	27.0	22.7	14.0	36.3		
1927	24.3	21.5	15.8	38.4		
1937	23.0	21.0	19.5	36.5		
1950	23.0	34		37		
1960	18.0	29		53		
	Food and Beverages	Raw Materials excl. Fuels	Fuels	Manufactures		
1970	13.2	10.6	9.3	64.7		
1975	11.9	7.6	19.3	59.4		
	Food, Animals, Beverages & Tobacco	Crude Materials, Oils & Fats, excl. Fuels	Fuels	Chemicals	Machinery and Transport	Other Manu- factures
1979	10.6	7.4	20.4	7.7	26.9	25.2

Sources: 1913-1960: A. G. Kenwood, A. L. Lougheed: *The Growth of the International Economy 1820-1960*, George Allen and Unwin, 1971; 1970-1975: U.N. Monthly Bulletin of Statistics; 1979: U.N. Yearbook of International Trade Statistics.

excessive capital stock and surplus capacity, while capital formation in primary production would tend to rise.

We would also expect the demand by primary producers for manufactured goods, both capital and consumer, to increase, but whether this would completely or only partially offset the depression of manufacturing value added and profitability depends on things like income distribution and is not possible to assess a priori; however, observation suggests that the effect is in general only partial.

A reversal of the trend in the terms of trade should then follow because supplies of primary products would rise as a result of new investment, while supplies of manufactured goods would tend to contract, as would the demand for primary products. The timing of this reversal, its magnitude and its duration would depend on many circumstances such as the longevity of the capital stock and on government policies. For example, at one extreme, tropical tree crops tend to have a long gestation period and a very long duration (e.g. cocoa trees bear fruit for thirty years or more), while current costs tend to be low. At the other extreme, some mineral operations, especially in high wage economies, may tend to be shut down rather promptly once real output prices fall such that revenues are below running costs.

Because of the decline in the terms of trade, the profitability of manufacturing should be restored, and we might expect increased investment therein, mirrored by low or zero net investment in primary production.

However, as is well known, investment behaviour in private manufacturing industry tends to be rather volatile and more dependent on "animal spirits" than current economic circumstances. Thus the recovery of manufacturing may well be delayed unless perhaps stimulated by government.

Eventually, however, and as the terms of trade continue to remain low or even decline further, even purely private entrepreneurs will start to invest. The longer is this delay and the longer the terms of trade remain depressed, the more will productive capital in primary production have depreciated or even have been scrapped.

In any event manufacturing recovery will be met with a rise in the terms of trade again, its timing, magnitude and duration depending on the length of time since the previous boom, the rapidity of industrial recovery, etc. So here we reach the beginning of another cycle, and the process is repeated.

Empirical Evidence

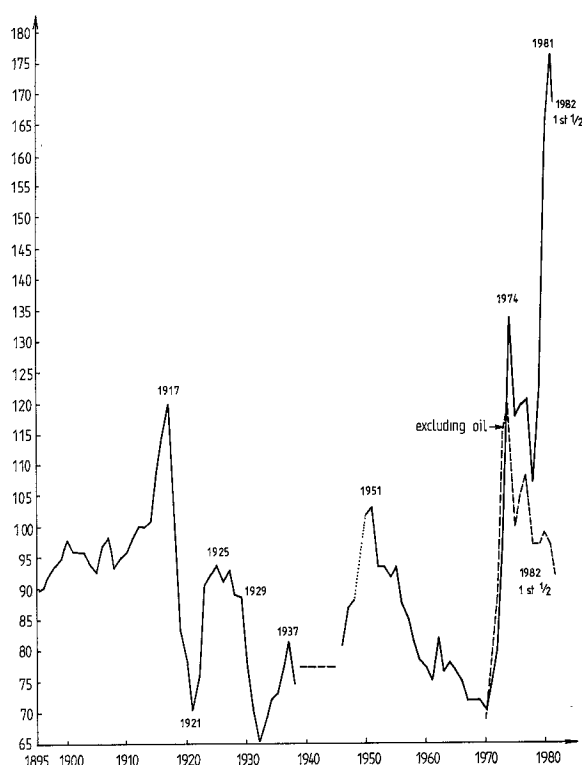
The underlying cycle of alternating investment in primary production and manufacturing, interacting with the terms of trade, is broadly discernible over the last hundred years and perhaps longer. There is probably also some link with the long Kondratieff cycles, but that is outside the scope of this paper.

It is suggested that there have been three major cycles, although we are still living through the third. These are:

- the Boom during the years up to and into the First World War, followed by the Great Depression (by "Boom" is meant a rise in the terms of trade);
- the Boom beginning in the Second World War and peaking circa 1951 (The "Korean War" Boom), followed by a period, not of depression, but very rapid growth;
- the very rapid Boom of the early seventies, prolonged by the special circumstances surrounding oil; what will follow in the eighties and beyond, is of course a leading question and will be returned to below.

It is not so much the similarities of these three cycles that are of interest, but rather the differences and the questions they raise. Why, for example was the aftermath of the Korean War Boom an unprecedented and immediate worldwide expansion of industry, with little unemployment or inflation? Was it because of post-Keynesian full employment policy, and might therefore the Great Depression not have happened if similar policies had been pursued from the end of the First

Figure 1
Net Barter Terms of Trade between Primary
Products and Manufactured Goods
 (1913 = 100)



Sources: From 1950 U.N. Monthly Bulletin of Statistics; 1895-1913 and 1921-1938 W. A. Lewis: World production prices and trade, Manchester School, May 1952; 1914-1920 UK primary import prices to manufactures export prices, P. T. Ellsworth: The terms of trade between primary-producing and industrial countries, in: *Inter-American Economic Affairs*, Vol. 10, No. 1, 1961, based on W. Schiöte: *British Overseas Trade from 1700 to the 1930s*, Blackwell 1952, Appendix Table 26; 1946-1948 U.N.: *Relative Prices of Imports and Exports of Underdeveloped Countries*, U.N. 11, B. 3, 1949, Table 5.

World War? Or were there special circumstances attached to each era, so that the Great Depression in some form was perhaps inevitable? Indeed, is another Depression in the eighties inevitable, or could it be avoided, with employment, world trade and rapid growth restored, using another "Bretton Woods" system and Keynesian policy? Needless to say, we could hardly come up with clear answers to these questions, but there is no harm in raising them and in doing a little exploration.

Returning to the Boom period around the turn of the century, how do the facts compare with the hypothetical analysis? Trade was expanding very rapidly, with the spread of railways and steamship transport. New primary products were in demand, such as rubber, cocoa and palm oil, and there is plenty of evidence for significant increased investment in productive capacity

in primary goods as it became more and more profitable.¹ Much of this investment was in the form of still more railways and ports, other investment was in opening and improving mines, especially copper, tin and nickel, and oil wells, and finally there were massive increases in the acreages of agricultural exports such as sugar and wheat and in the planting of tree crops such as rubber, coffee, cocoa and palm oil. These last products were a special case, since they do not begin to yield until a few years after planting, but then go on yielding for some decades; there was thus a very high degree of overproduction, since it was seldom worth uprooting the trees to plant something else when real prices fell. So excessive productive capacity tended to last perhaps right through to after the Second World War in some cases. But the major effect was the confluence of record heights of production and extremely low terms of trade during the thirties.

A few statistics for individual products illustrate this process. Systematic planting of rubber trees began about 1905-10 and production increased from 118,000 tons in 1913 to 400,000 tons in 1919. Brazilian coffee exports rose from 12 million (60 kg) bags per year in 1910-19 to 15 million bags per year in the thirties, while the unit value rose from \$14.4 in the first period to \$20.1 in the twenties, falling to \$10.6 in the thirties. Indeed the secondary, short-lived boom of the twenties boosted still further the increase in primary productive capacity, including the non-ferrous metals and petroleum.

Astonishing Differences

The happenings of the twenties and thirties are well-documented, so we shall concentrate on the evidence for the investment cycle. Apart from a short-lived recovery in the United States, ending in 1929, most of the world's manufacturing industry was bereft of investment until the early thirties, when the terms of trade fell to all-time record low levels. Probably industrial expansion could have occurred on a much wider scale and earlier (as in the fifties and sixties: see below). The fact that it did occur in several countries without a major primary goods bottleneck supports this. Industrial growth was rapid in Germany, Russia, Japan, China and Latin America, governments in the last region deliberately switching from primary to manufactured goods, largely because of the terms of trade.

There is a gap in the terms of trade series during the Second World War, but there are clues suggesting the "ghost" beginnings of a Boom which continued until the

¹ Cf. P. T. Ellsworth: The terms of trade between primary-producing and industrial countries, in: *Inter-American Economic Affairs*, Vol. 10, No. 1, 1961.

Korean War peak of 1951. One such clue was the more-than-doubling of US real farm incomes from 1940 to 1943 to a level which was more or less maintained until 1951, and not since equalled except in 1973.² In British Asia in the early forties the price of rice rose rapidly from 1940 to 1943 and beyond causing, among other things, the Great Bengal Famine.³

The fifties and sixties were a quite extraordinary era in the history of the world economy. At first sight it looks like a period of response to the forties Boom much like the stylised one we described earlier, and it is; but the differences are astonishing. Again there was the investment response in primary production followed by rapidly increasing supplies. But in the post-Keynesian world, the capitalist's "animal spirits" became eclipsed by the new-found macro-economic power wielded by states to maintain full employment. Instead of a slump like the thirties we witnessed the most rapid rates of economic growth in world history.

The Rôle of Oil

The truly amazing thing is that despite this unprecedented growth, particularly in manufacturing industry, and lasting for twenty years, the terms of trade fell steadily over the entire period. In other words the supply of primary products outpaced even this very

great rise in manufacturing. Indeed, one could say that the high industrial growth rates were made possible largely because of abundant supplies of primary goods.

At the heart of all this was oil, which most economists failed to realise until the events of the seventies forced its attention upon us. In particular, investment in oil wells in the Middle East began to yield a very prolific harvest in the post-war years, investment that was no doubt stimulated to a great extent by the forties Boom.⁴ World crude oil production increased as follows: 250 million tons (1945); 500 million tons (1950); 1,000 million tons (1960); 2,000 million tons (1968). The price of oil was approximately constant from 1955 to 1970.

The availability of oil to countries other than the USA was boosted by the imposition of a quota on oil imports into the United States in 1959 (the result of successful lobbying by American oil firms to protect the profitability of domestic production). Another important American policy that helped generate the downward trend in the terms of trade was farm price support, causing huge surpluses of grain in particular in the late fifties and early

² Financial Times, 16 April, 1982.

³ A. K. Sen: Poverty and Famines, Oxford 1982.

⁴ P. R. Odell: Oil and World Power, Penguin Books, 6th edition, 1981.

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sixties, surpluses that were used in the mid-sixties to help cushion the blow of very bad harvests in Asia, especially India.

What we would expect to have happened in accordance with our stylised account has, broadly speaking, happened. Because of the declining terms of trade in the fifties and sixties primary production was neglected, productive assets allowed to depreciate, and greater attention was paid to boosting industry throughout the world. Major grain exporters such as the USA moved away from surplus-generating price support policies. A quasi primary industry artificial fertilizer production increased output enormously from the mid-sixties, only to be faced by prices that were so low at the beginning of the seventies that plants were being shut down.⁵ The domestic control over mineral operations initiated by foreign companies was increasing, one ultimate result being the market power of OPEC in the last decade. These and other broadly contractionary phenomena in primary production coincided with accelerating aggregate money demand in the major industrial countries, and the rapid spread of manufacturing throughout the world. A Boom therefore was always likely and signs of its beginning can be seen in the two or three years before the first oil shock.

Recent Changes in the World Economy

It is now that our simple cyclical investment model is running out of credibility because of major changes in the way the world economy operates. Oil has really become a third category of product, accounting for about 15 per cent of world trade value in 1980, and the market power of OPEC is still evidently very considerable despite weaknesses owing to the poverty of some members, the drop in demand due to recession and the rise of alternative sources of energy. In addition large public sectors, the disappearance of the discipline imposed by fixed exchange rates, and the uncontrolled expansion of Eurodollars have meant that although there has been a slump in manufacturing as expected, it has also been accompanied by inflation, indebtedness and great uncertainty. Not surprisingly, as in the interwar period, countries are becoming more protectionist. Furthermore, although increased investment has taken place in primary production or substitution it has evidently not been sufficient to push primary prices down enough to make manufacturing once again profitable.

Even excluding oil, as Figure 1 shows, the terms of trade in 1981 were still well above the levels of the fifties and sixties and that in a general world recession.

Moreover if we allow for the rapid improvement in the quality of manufactured goods recently, the ratio of price index numbers understates some form of quality-adjusted terms of trade. We might have expected greater investment in non-oil primary productive capacity during the seventies when the terms of trade were high, as in past cycles. But an inhibiting effect must have been the oil price rise; in other words, "real" prices of non-oil primary products should be deflated by an index that includes the price of oil as well as the prices of manufactured goods. To put oil in perspective, perhaps it is as well to recall that it accounts – as already stated above – for some 15 per cent of the value of world trade, that since 1970 its price has risen roughly 1,500 per cent, while prices of manufactures have risen roughly 200 per cent and prices of non-oil primary products roughly 250 per cent. (During the seventies, fuel exports grew by 29 per cent, non-fuel primary exports by 64 per cent and manufactured exports by 96 per cent.)

Conclusions

All in all then, these observations do not bode well for recovery in the eighties, and indeed most people seem to be resigned to another period of depression. Significant reflation simply through state manipulation of aggregate demand would appear to be limited by the even now high terms of trade (despite current weakening), and by its likely rapid rise in the face of a general attempt to bring back industry towards capacity and expand output. The high level of the terms of trade suggests that there has not been enough investment in primary productive capacity or in substitutive production such as home insulation. Thus a likely policy conclusion is that such investment would be a necessary condition for industrial recovery.

Additional evidence against the feasibility of what used to be conventional macro-economic policy is the view now common that unemployment will remain high, helped by technological improvements, such as robots. On the contrary, one must conclude that the heart of economic policy should be one of complete restructuring, not just of industrial economies, but of industrial society. The following kinds of change would seem not only desirable but essential: a reduction in working hours; a reduction in commuting to offices by substituting electronic communication and information storage; a reduction in private car mileage; much greater investment in the production of, substitution for, and economy in the use of, not only energy, but primary products in general, etc. etc.

⁵ B. F. Johnston, P. Kilby: *Agriculture and Structural Transformation*, Oxford 1976, Chapter 3.