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# Disparities in Pace and Form of Rural Development

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# AN ASSESSMENT OF THE CURRENT RELEVANCE OF THE THEORY OF COMPARATIVE ADVANTAGE TO AGRICULTURAL PRODUCTION AND TRADE

## *The theory of comparative cost*

A VERY large part of classical, neo-classical and modern theory of international trade is based on the doctrine of Comparative Cost or Comparative Advantage as originally presented in Chapter VII of David Ricardo's *Principles of Political Economy* (first edition 1817). Ricardo's celebrated wine and cloth example is still quoted in almost every western textbook or treatise on international trade.

It runs as follows: in England a gallon of wine costs 120 hours of work and a yard of cloth 100 hours of work, while in Portugal the cost is 80 and 90 hours respectively for wine and cloth. Portugal thus has an absolute advantage over England in the production of both commodities. But it has a *comparatively* greater advantage in wine than in cloth, for without trade a gallon of wine costs only 0·88 (80/90) yards of cloth in Portugal, while in England the price is 1·2 (120/100). Conversely, cloth is comparatively cheap in England. When trade is opened, transportation cost aside, a common international price of wine in terms of cloth intermediate between the high price in England and the low price in Portugal, say of one yard of cloth per gallon of wine, will result. It is clear that at these 'terms of trade' (1:1) both countries will make a profit: for each 1·2 yards of cloth which it exports England receives 1·2 gallons of wine in exchange while at home it gives up the production of only 1 gallon. And Portugal receives for each gallon of wine 1 yard of cloth while it gives up only 0·88 yards.

This example is, of course, greatly oversimplified, but in the classical and modern literature the simplifying assumptions have been gradually replaced by more realistic ones and thus the theory has become, or so it is hoped, a more adequate model of the real world. The labour theory of value underlying Ricardo's model has been dropped and the modern theory of general equilibrium substituted. The theory

has been generalized for any number of commodities and countries, transportation cost was introduced and the law of increasing (or decreasing) cost has taken the place of constant labour cost. In the Heckscher–Ohlin version the theory of international trade is stated in terms of many factors of production: many different grades of labour, a great variety of land, climate and other natural resources, capital, entrepreneurship, &c.[1] Dynamic factors, growth and development, changes in technology and in factor supply have been introduced, and with the help of the principles of modern welfare economics the precise meaning and limitations of the statement that with trade every country is, or at least can be, better off than without trade have been defined and clarified. On a more technical level, modern mathematical and econometric methods of analysis, including linear programming, input-output analysis and activity analysis have been systematically applied. While in the old classical theory the doctrine of comparative cost occupied a special place outside and apart from the general body of the classical theory—because of the inapplicability of the labour theory of value to international trade in view of the absence of mobility of labour as between countries—today the theory of international trade and the doctrine of comparative cost have been completely assimilated into the general body of economic theory.[2]

Thus a complicated theoretical structure, or system of interrelated structures, has been created. But the family resemblance of the modern version or versions with their Ricardian prototype is unmistakable, just as a modern Cadillac or Rolls Royce belongs to the same family as the Model T Ford.

It is true that the free-trade conclusion which the classical writers drew from the theory of comparative cost has been more and more qualified by modern writers. But it should be remembered that even the early classical writers were aware that there exist exceptions from the rule that free trade is the best policy. Thus the theoretical validity of the infant-industry and terms-of-trade argument for a certain amount of protection was clearly recognized by John Stuart Mill or

[1] It is now generally agreed that there is no conflict between comparative cost and the Heckscher–Ohlin theory—each being a special case of general equilibrium theory. The Heckscher–Ohlin theory is on the whole more general because it recognizes a multitude of factors, but on the other hand it assumes that factors are qualitatively the same in different countries, which is emphatically not true in all cases.

[2] In this process of assimilation the theory of international trade has often forged ahead and has been the instigator and inventor of new analytical instruments which were then taken over by general economic theory.

even earlier. In the modern theory the exceptions from the rule have become more numerous and far-reaching.

It is interesting to observe that in the Socialist countries in Eastern Europe, including the U.S.S.R., more and more attention is given to the advisability of using the principle of comparative cost, or something coming close to it, for the ordering of international trade of the centrally planned countries among themselves as well as between them and the rest of the world, instead of the less-efficient methods now in use.[1]

In the following analysis I shall, however, confine myself to the conditions of the Western world and reference will be made only to the Western literature.

### *The basic postulates of the theory of comparative cost*

The logic of the comparative-cost theory, if properly stated, is unassailable. Any rationally and efficiently organized economy, whether of the individualistic-market type or centrally planned, would organize its international trade in accordance with the canons of comparative cost. In other words, the theory is correct on its own assumptions and those who reject it must do so on the ground that the assumptions are not sufficiently descriptive of the real world.

As I said above, in the original Ricardian statement the model was greatly oversimplified, but the simplifications were progressively and drastically reduced by the work of many theorists of international trade during the almost 150 years since the appearance of Ricardo's *Principles*.

But no theory, however complicated and refined, can offer more than a simplified or idealized picture of the infinite complexities of the real world. Some deviations of the assumptions from the facts are unavoidable but the assumptions must not be wildly unrealistic, if the theory is to have explanatory value.

What are, then, the specific assumptions of the theory of comparative cost? It is not, as is often maintained, completely free mobility of all factors of production inside each country or even free mobility of labour as implied by the Ricardian example. Clearly, many factors of production are not mobile and even labour's occupational and geographic mobility is severely restricted, especially in the short run. Hence a theory that assumed perfect mobility of all factors between regions

[1] For a good discussion of this trend see Alan A. Brown, 'Centrally-Planned Foreign Trade and Economic Efficiency', *The American Economist*, vol. v, no. 2, November 1961.

and industries would be hopelessly unrealistic. In point of fact, however, there always exists a certain degree of mobility of factors of production. An economy completely lacking the capability of reallocating factors of production (complete immobility of factors) is difficult to visualize. It would be an economy capable of producing only one single combination of goods (the production-possibility curve having shrunk to a single point). But the theory would be applicable to that strange world.[1]

What the theory really assumes is competition and flexibility of prices and wages—in the ideal case *perfect* competition implying perfect flexibility of prices. The other basic assumption is absence of 'external economies' and 'diseconomies' in the broad sense. It can be shown that under these assumptions market prices of commodities are equal to the marginal cost of production; factor prices (including wages) are equal to the marginal productivity of the factor; factors that can move, fetch the same price (receive the same wage) in each occupation (allowing for cost of transfer and factor preference for work in different occupations); and lastly and most importantly commodity prices and private (marginal) cost reflect faithfully social cost usually interpreted as social opportunity cost.[2] If one unit of Commodity A has the same value (at market prices) as four units of Commodity B, the society can produce four units of B if it gives up one unit of A or vice versa. It should be observed that the assumption of perfect competition implies wage flexibility and assures full employment. This is now generally recognized even by most Keynesian writers.

### *Deviations from the ideal conditions*

Now it is clear that the 'ideal' assumptions—perfect competition and absence of external economies—are never fully realized. There always exist monopolies, oligopolies and other types of imperfections of competition, wage rigidity, price inflexibility and the like as well as external economies and diseconomies. But the mere reference to the large number and pervasiveness of those 'impurities' does not invalidate the theory. This is true especially in view of the fact that

[1] It would be the theory of barter with fixed quantities of goods, which has been worked out long ago and is part and parcel of general economic theory.

[2] It complicates things, but does not change anything essential, if instead of 'social opportunity' cost we say 'real' cost, as some writers insist. What they have in mind is that allowance must be made also for certain imponderables, such as differential 'attractiveness' or 'irksomeness' of work in different industries which would find expression in wage differentials even for perfectly mobile labour of identical skill.

international trade is likely to diminish or reduce some of the imperfections. Thus industrial or business monopolies and oligopolies tend to be undermined by freer trade; free trade is the best anti-monopoly policy. Only if those imperfections are large, persistent and not distributed at random do they become fatal for the theory.

I shall now discuss the concrete types of deviations from the assumed 'ideal conditions' that have been mentioned in the literature as making the theory of comparative cost inapplicable to agricultural production and trade. I shall discuss these under the headings 'Monopolies and oligopolies in industry', 'Adverse trend in terms of trade', 'Disguised unemployment', 'Technological external economies', 'Dynamic external economies'. Since a large part of world trade consists of an exchange of agricultural (or more generally, primary) products, those deviations or aberrations may occur either in the agricultural or in the industrial sector.

In one very important respect conditions in agriculture are especially favourable for the applicability of the theory of comparative cost. What I have in mind is that in agriculture more than in any other producing sector free competition between a large number of comparatively small producing units is still the rule, except where governments enforce prices higher (or occasionally lower) than the free competitive market price. But the economics of farm price support schemes or any other types of government-managed or controlled agriculture and their impact on international trade is not the subject of the present paper.

### *Monopolies and oligopolies in industry*

It is often asserted that agricultural exporters are as a rule faced with monopolistic or oligopolistic sellers of finished manufactures. This is said to be one of the reasons of the alleged fact that the terms of trade of less-developed countries have shown a secular tendency to deteriorate. Whether such a tendency really exists, I shall discuss later. At this point, I am only concerned with the assertion that business or labour monopolies keep prices of manufactured goods artificially high. This theory has been expounded in numerous publications of the U.N. Economic Commission for Latin America (ECLA) and has been repeated many times.[1] In the ECLA

[1] See, for example, *The Economic Development of Latin America and its Principal Problems*, ECLA, New York, 1950, *passim*; or N. Kaldor, 'Stabilizing the Terms of Trade of Underdeveloped Countries' (mimeographed paper submitted to Rio de Janeiro Conference organized by Yale University, January 1963).

publication the argument is that pricing policies of employers and pressures from labour unions in industries in the industrial countries keep prices up in the face of declining cost due to technological progress. Thus the fruits of progress are not passed on to the consumer but are absorbed by rising wages and profits.

This argument confuses absolute and relative prices. It is, of course, true that progress usually takes the form of rising money wages and stable price levels (or rising price levels and faster rising wages) rather than stable money wages and falling prices. But this is a statement concerning the overall price level, including prices of primary materials and agricultural products, and is quite compatible with competition. It does not prove anything concerning *relative* prices of industrial goods and agricultural products (or primary products).

Kaldor says flatly 'that the underdeveloped countries are confronted by monopolistic markets in their purchases of manufactured goods, where prices are kept at higher than competitive levels by international private cartels or simply by the absence of price competition among producers operating in imperfect markets'.[1] The author does not give any evidence or quote sources where such evidence could be found. Complaints can, of course, be cited, mainly of earlier periods, about international cartels in certain industrial sectors. Few such complaints have been heard, however, in recent years for the simple reason that international competition in the field of industrial products of every description (consumer goods as well as capital equipment) has become exceedingly keen. While during the immediate post-war years the U.S. had a 'monopoly'—I put it in quotes because U.S. industry never acted or had a chance to act monopolistically—for the quick delivery of many industrial products, today it has to compete with industries in a dozen Western European countries, in Japan, for some products with industries in Russia, Czechoslovakia, East Germany, and in a few cases with the rising industries in some of the developing countries themselves.

To summarize, there is a lot of competition in industrial products in international markets.[2] Less-developed countries (and for that matter developed countries) do suffer, however, from high, often exorbitantly high, monopoly prices charged by highly protected and in most cases extremely inefficient domestic industries, both private

[1] Loc. cit., p. 11.

[2] This is strikingly proved by the low prices at which all sorts of industrial products are available in every one of the few free trade oases around the world—such as Hong Kong, Gibraltar, and some international airports.

and government operated. It would be easy to cite examples of scores of industrial products (including shipping services) produced and sold in less-developed countries at costs and prices several times as high as the prices at which the same or better quality products (or services) could be obtained from abroad.

### *Adverse trend in terms of trade*

I now come to the alleged secular tendency of the terms of trade to deteriorate for agricultural and primary products which in the literature is often referred to as the 'Prebisch–Singer thesis'.[1] If such a secular trend really existed, it would not necessarily be in contradiction to the theory of comparative cost. It would represent a continuing change in the comparative-cost situation and if this change does not come all of a sudden but goes on gradually it is not clear why producers should not gradually adjust to it.

It is a fact, however, that the authors of the theory that such a tendency exists regard it as a criticism of the classical theory. They evidently assume, although that is not made quite clear let alone proved, that private producers not only do not foresee such changes but for one reason or the other also fail to adjust, or adjust only incompletely and belatedly after the change has occurred. Policy makers, on the other hand, alerted by their economic advisers, are assumed to foresee well in advance such changes, their speed and magnitude, and to be able to take the necessary (protectionist) measures for speedy and correct adjustment.

The main reason for the change in the terms of trade (apart from the alleged monopolistic structure of the markets of industrial products mentioned above) is the operation of 'Engel's Law' which states that the percentage of consumer income spent on food is a decreasing function of income.

It is very interesting to observe that there exists a school of thought that teaches the exact opposite of the Prebisch–Singer doctrine—namely, that the terms of trade must inexorably turn against the *industrial* countries because of the operation of the law of diminishing returns in agriculture (and extractive industries). This theory goes back to Ricardo (and earlier writers) and has had a strange fascination for British economists. A. Marshall and J. M. Keynes greatly worried

[1] Raul Prebisch is the author of the ECLA pamphlet quoted above. The just-mentioned pamphlet was largely based on *Relative Prices of Exports and Imports of Under-developed Countries*, U.N., 1949. These two U.N. documents are the basic sources of the theory.

about the British terms of trade and in our time Austin Robinson has taken up the theme.[1]

It hardly needs lengthy arguing that Ricardo's pessimism and Marshall's and Keynes's worries (not to mention Jevons's forebodings of disaster) have proved entirely groundless. But the opposite view—the Prebisch–Singer thesis—is equally untenable. Modern research has clearly demonstrated that no secular tendency one way or the other can be found in the statistical record.[2]

The latest careful, statistical analysis of price trends in international trade is contained in Robert E. Lipsey's important book, *Price and Quantity Trends in the Foreign Trade of the U.S.*[3] This study, carried out with the extreme care about the reliability of the basic data, statistical methods and theoretical analysis which one expects from a National Bureau publication, reaches the following conclusion:

> Two widely held beliefs regarding net barter terms of trade found no confirmation in the data for the United States. One is that there has been a substantial long-term improvement in the terms of trade of developed countries, including the United States; the other, that there has been a significant long-term deterioration in the terms of trade of primary as compared to manufactured products. Although there have been very large swings in U.S. terms of trade since 1879, no long-run trend has emerged. The average level of U.S. terms of trade since World War II has been almost the same as before World War I.[4]

[1] A large part of the literature was recently reviewed by T. Morgan, 'Trends in Terms of Trade and Their Repercussions on Primary Producers', in *International Trade Theory in a Developing World*, ed. by Roy Harrod, International Economic Association, London, 1963, pp. 52–95. Robinson's paper (not mentioned by Morgan), 'The Changing Structure of the British Economy', appeared in the *Economic Journal*, Sept. 1954. The most extreme position was taken by W. S. Jevons in his gloomy book *The Coal Question. An Enquiry Concerning the Progress of the Nation and the Probable Exhaustion of the Coal Mines*, 1st ed., London, 1865. (See esp. chapter xiii of the 3rd ed., edited by A. W. Flux, London, 1906.) Keynes related that Jevons had the courage of his convictions. He 'laid in such large stores not only of writing-paper, but also of thick brown packing paper, that even to-day [1936], more than fifty years after his death, his children have not used up the stock he left behind him of the latter; though his purchases seem to have been more in the nature of a speculation than for his personal use, since his own notes were mostly written on the backs of old envelopes and odd scraps of paper, of which the proper place was the waste-paper basket'. Keynes's *Essays in Biography*, new edition, with three additional essays edited by Geoffrey Keynes, New York, 1951, p. 266.

[2] See esp. C. P. Kindleberger, *The Terms of Trade: A European Case Study*, New York, 1956; P. T. Ellsworth, 'The Terms of Trade between Primary Producing and Industrial Countries', *Inter-American Affairs*, summer 1956; T. Morgan, 'The Long Run Terms of Trade between Agriculture and Manufacturing', *Econometrica*, 1957. I myself have attempted to review the whole problem and to give a comprehensive criticism of the Prebisch thesis in 'Terms of Trade and Economic Development', in *Economic Development for Latin America*, edited by H. S. Ellis, International Economic Association, London, 1961, pp. 275–303, and in *International Trade and Economic Development*, National Bank of Egypt, Cairo, 1959.

[3] A Study by the National Bureau of Economic Research, New York, published by Princeton University Press, 1963.

[4] Ibid., p. 76.

Lipsey goes on to say that the U.S. 'terms of trade have been improving quite steadily since 1951'. This reflects a deterioration of the terms of trade of the less-developed countries.[1] This deterioration is regrettable but it has not been catastrophic as was the deterioration during the Great Depression of the 1930's. It does *not* constitute a trend but a reaction to the exceptionally favourable terms which prevailed as a consequence of the Korean War and massive American stockpiling in the early 1950's, and had come to an end in 1962.

Let me summarize: no secular tendency for the terms of trade to move one way or the other has become visible so far and there is no theoretical presumption that it will in the future. But even if it did happen, it would imply no more than a change in the pattern of the comparative cost which may be detrimental for certain countries, but would by itself not abrogate or contradict the theory of comparative cost.

### *Disguised unemployment*

If it were true that in many countries there exist large masses of agricultural disguised unemployment or surplus labour, we would have a serious deviation from the 'ideal conditions' postulated by the comparative cost doctrine.

The idea of disguised unemployment was probably introduced for the first time into the theory of development of backward countries by Professor P. N. Rosenstein-Rodan in his famous article 'Problems of Industrialization of Eastern and South Eastern Europe' and was then taken over and elaborated by Ragnar Nurkse in his celebrated book, *Problems of Capital Formation in Underdeveloped Countries*.[2] These writers claim that in the densely populated countries of south-eastern Europe and south-east Asia and Egypt 20–25 per cent of the labour force could be removed from the land without causing any reduction in output even assuming that there does not occur a simultaneous improvement in the methods of production such as increased application of capital (machinery, fertilizers, &c.), improved skills and knowledge of the farmer, change in social structure, pattern of ownership and so on. This proviso is important because with these improvements it is of course always possible to increase output per worker.

[1] For details see *World Economic Survey 1962*, Part 1, *The Developing Countries in World Trade*, United Nations, 1963.

[2] Rosenstein-Rodan's paper appeared in the *Economic Journal*, June–Sept. 1943, and has been reprinted many times. Nurkse's book was published in Oxford by Blackwell, 1953.

Disguised unemployment thus means zero marginal productivity of labour. This implies an inefficient distribution of the labour force and means that market prices do not accurately reflect social cost. Concretely, if there exists disguised unemployment in agriculture, it follows that in the market agricultural products are overpriced and industrial products under-priced. Very often the conclusion is then drawn that any measure that artificially stimulates industry (import restrictions, direct subsidies, government operation of industry at a deficit) will bring about an increase in industrial production without causing any decline in agricultural output. This seemingly impossible feat is said to be accomplished by drawing disguised unemployed from agriculture into productive employment in industry.

It should be observed that the policy conclusion that import competing industries can be developed without any reduction in output in the export sector or elsewhere would be incorrect even if there really existed much disguised unemployment in agriculture. The reason is that an industry cannot be operated with unskilled labour alone—it also needs capital and skilled labour, which are always scarce in less-developed countries.[1]

But does disguised unemployment really exist in large quantities? It is fair to say, I believe, that under the cumulative impact of empirical and theoretical criticism, the early enthusiasm that even in the absence of major social changes and improvements in agriculture large masses of labour can be transferred to industry without curtailing agricultural output has largely evaporated.[2] Viner has subjected the theory to a searching criticism and has expressed 'pronounced skepticism as to the existence on a *large scale* anywhere of this phenomenon *if it is taken* literally as usually defined, namely, the existence of zero marginal productivity of labour'.[3] Theodore Schultz has declared

[1] This shows clearly that depression unemployment in developed countries is entirely different from the so-called disguised unemployment in less-developed countries.

[2] Typical of the disillusionment even among the early supporters of the theory is a remark by B. Higgins: 'The early easy optimism about transferring the disguised unemployed from agriculture to industry has disappeared. It is recognized that in many underdeveloped countries static disguised unemployment in agriculture is at a very low level. Substantial numbers could not be released from agriculture without a drop in production, unless the average size of holdings is increased and some degree of mechanization introduced.' See 'Prospects for an International Economy', in *World Politics*, April 1957, p. 466.

[3] *Stability and Progress in the World Economy*, The First Congress of the International Economic Association, London, 1958, p. 50. Italics in original. See also his earlier article, 'Some Reflections on the Concept of Disguised Unemployment,' in *Contribuições à análise do desenvolvimento econômico, Essays in Honor of Eugenio Gudin*, Rio de Janeiro, 1957.

flatly that he knew of no evidence for any poor country that would suggest that a transfer of even a small fraction, say 5 per cent, of the labour force from agriculture to industry could be made without reducing output.[1] Berdj Kenadjian has carefully checked the original studies on which Rosenstein-Rodan's estimates of 25–20 per cent of surplus labour in eastern Europe were based as well as other statistical 'measures' of disguised unemployment and has found them entirely inadequate and defective.[2]

What remains then of the theory of disguised unemployment? No more than the less exciting, non-paradoxical and well-known fact that the average and marginal productivity of labour in agriculture in poor countries is exceedingly low, often lower or even much lower than in industry. It is probably also true in many cases that the difference in productivity and efficiency as between industry and agriculture is greater in backward than in highly developed countries.[3]

The gradual rise of productivity and efficiency in agriculture is, of course, an essential aspect of economic development and there is sometimes scope for large and occasionally even spectacular improvements resulting from comparatively small investments in material or human capital.

As far as the theory of comparative cost is concerned, all this means is that the pattern of comparative cost changes and may be changed by policy measures. The dynamic aspects and alleged shortcomings of the theory of comparative cost in the context of a changing world are discussed in the next but one section.

### *Technological external economies*

External economies and diseconomies are a catch-all for all those influences flowing from the expansion or contraction of one firm or industry to other firms or industries of which the market for one

[1] 'The Role of Government in Promoting Economic Growth', in L. D. White, ed., *The State of the Social Sciences*, Chicago, 1956. See also his *Transforming Traditional Agriculture*, chapter 4, 'The Doctrine of Agricultural Labor of Zero Value', New Haven, Conn., 1964.

[2] B. Kenadjian, 'Disguised Unemployment in Underdeveloped Countries', unpublished Ph.D. dissertation, Harvard University, 1957. A small part of this thesis was published under the same title in *Zeitschrift für Nationalökonomie*, vol. 21, pp. 216–23, Vienna, 1961. One of the basic mistakes of almost all statistical measures of disguised unemployment is that they make no or insufficient allowance for the extreme seasonality of agriculture. See also Yong Sam Cho, *'Disguised Unemployment' in Underdeveloped Areas*, with special reference to South Korean agriculture, University of California Press, Berkeley, 1963.

[3] The comparative backwardness of agriculture under primitive conditions was one of the main tenets of Friedrich List.

reason or the other does not take any or sufficient cognizance—non-market interactions for short. Thus the existence of 'externalities' signifies a 'market failure' and a deviation from the ideal conditions postulated by the pure model of comparative cost.

External economies play a great role in modern development theory and practice and have come to cover a great variety of circumstances, some trivial, some important. Only the important cases and distinctions can be mentioned here.[1]

Viner distinguishes between what he calls 'technological' and 'pecuniary' external economies. According to him, pecuniary external economies do not constitute a deviation from the ideal conditions because they are reflected in market prices. The modern writers mentioned above claim that in the dynamic context pecuniary external economies become 'real', i.e. represent a market failure.[2]

Let me first discuss the technological external economies which the modern writers tend to interpret as a 'static' concept and then the so-called 'dynamic' external economies. Examples of external economies can be found in agriculture as well as in industry, but it is generally assumed that the latter are more important. The often quoted case of bees and apples is an example of an agricultural external economy. The apple-grower provides food for bees and the bees polinate the apple blossoms. But since the apple-grower cannot charge a bee for nectar in the blossoms or the beekeeper for the services of his bees, these valuable services find no expression in market prices. The example is not well taken. The apple-grower may well hit on the bright idea of keeping his own bees. More important is the case of a possible change in climate through deforestation or the creation of a dust bowl through excessive ploughing. Other examples of external diseconomies are the pollution of the air and water from factories. These surely are matters of importance which may have international

[1] The concept was first introduced by A. Marshall in his *Principles*. Viner discussed it from the international trade standpoint in his *Studies in the Theory of International Trade*, New York, 1937. The most influential modern writings are P. N. Rosenstein-Rodan, 'Problems of Industrialization of Eastern and South Eastern Europe', the *Economic Journal*, June–September 1943 (variously reprinted); 'Notes on the "Big Push" ', in *Economic Development for Latin America*, International Economic Association, London, 1961; and Tibor Scitovsky, 'Two Concepts of External Economies', *Journal of Political Economy*, April 1954, reprinted in *The Economics of Underdevelopment, A Series of Articles and Papers*, edited by A. N. Agarwala and P. Singh, Oxford University Press, 1958.

[2] It should be observed that the definitions of these various concepts are not quite precise and uniform. In particular, it is not clear whether Rosenstein-Rodan and Scitovsky use the term 'pecuniary' in the same sense as Viner, although they refer to him. But this is not the occasion to go into this matter at greater length.

implications (if the respective industries happen to be export or import industries) and may affect the comparative cost situation. But these conditions are usually dealt with by special administrative or legislative action and need not be further considered here.

The most important case of an external economy is, in my opinion, the creation of a skilled labour force in the broad sense, including supervisory and entrepreneurial labour. This case refers to industry and constitutes the basis of the well-known infant industry argument for protection.

The argument runs as follows: an efficient industry depends largely on the existence of an efficient labour force of different levels of skill and accomplishment. Less-developed countries are short of that vital resource, even if it were true that there existed a large reservoir of disguised unemployment of unskilled labour in agriculture or elsewhere. But unskilled and inefficient labour can be trained. To some extent this can be accomplished by public education and to some extent through the initiative of private producers. But the training of unskilled labour is a lengthy and costly process and for the private producer it is a risky investment, because the skill of workers is not appropriable; there are no mortgages on labour, as Rosenstein-Rodan puts it. Once the worker has acquired higher skill he will ask for a higher wage commensurate with his increased marginal productivity, or he may quit and take a job elsewhere. It is therefore justifiable for the government to subsidize industry either directly by grants or indirectly by means of import duties so as to enable the protected industries to employ initially inefficient and therefore expensive labour in the expectation that eventually an efficient, skilled labour force will be trained which will enable the industry after some time, possibly as long as a generation, to stand up to foreign competition. The process is best described as an investment in human beings, implying, as every type of investment does, a temporary sacrifice. The temporary burden stems from the fact that the products in question could be obtained more cheaply from abroad, so long as domestic labour has not reached a sufficient level of efficiency and skill.

This, to repeat, is the familiar argument for infant industry protection which has been accepted, in principle, by J. S. Mill, Marshall, Taussig and other neo-classical writers. There remain, of course, a host of debatable questions and disagreements concerning scope, importance, practical application, dangers of misapplication and misuse, &c., which cannot be discussed here. But the possibility or

even likelihood of such situations existing has been admitted even by many free trade economists and to the extent to which it is valid, it can be construed as a deviation from the ideal conditions postulated by the comparative cost theory; in other words, as a factor causing a divergence of private and social cost. Private costs in these cases can be said to be 'too high' because they do not make allowance for this kind of external economy.

### *Dynamic external economies*

I now come to what Rosenstein-Rodan and Scitovsky and following them many modern theorists and practitioners of economic development regard as the most important kind of external economies. I follow Scitovsky's presentation, which is as good as any, and has had a great influence on development theory.[1]

One reason 'for the inapplicability of general equilibrium theory [which includes the theory of comparative cost] to the problems of investment is that the former is static or equilibrium theory, whereas the allocation of investment funds is not a static problem at all'. Thus, if industry A invests and expands, it is bound to have pecuniary repercussions on any or all of the following industries: (1) on industries which produce intermediate goods (machinery, materials, &c.) used by A; (2) through cheapening of A's own products, on industries which use A's products as intermediate goods; (3) on industries on whose products factors used in A spend their additional income; (4) on industries 'whose product is complementary in use to the product of A', &c.[2] Producers are unaware or are not interested in these pecuniary external economies or diseconomies to which their investments give rise and hence 'private profitability understates social profitability'.[3] 'These limitations can be fully removed only by simultaneous expansion' of all industries. Only 'complete integration of all industries', that is to say comprehensive central planning, would 'eliminate all divergences between private profits and public

[1] The following quotations are from *The Economics of Underdevelopment, A Series of Articles and Papers*, pp. 303–6.

[2] Repercussion (1) is what development theorists and economic historians now often call 'backward linkage', (2) is 'forward linkage', (3) and (4) one might call 'lateral or horizontal linkage'.

[3] It should not be overlooked that in the case of *dis*economies private profitability overstates social profitability. This is important because it precludes the easy *a priori* conclusion, which often creeps in, to the effect that although we may not know the magnitude of the external effects, we know at least their direction, namely, that private profitability *understates* social benefits, which would imply that some protection is always good.

benefit'. The 'argument can be restated' as follows: 'In the market economy prices are the signalling device that informs each person of other people's economic decision' and thus guides production and investment decisions. 'Market prices, however, reflect the economic situation as it is and not as it will be. For this reason they are more useful for coordinating current production decisions . . . than . . . for coordinating investment decisions, which have delayed effects . . . and should be governed . . . by what the future economic situation is expected to be. . . . Hence the belief that there is need either for centralized investment planning or some additional communication system to supplement the pricing system as a signalling device'.

This analysis rests, in my opinion, on a misunderstanding of the working of a dynamic, decentralized market economy. It ignores the functions of the entrepreneur in the market economy and understates his capability to foresee the consequences of his actions, it misinterprets the role of equilibrium theory (including the theory of comparative cost) and greatly overestimates the help that dynamic theorizing and programming can give to development policy.

Economists usually define the entrepreneur as the innovator who introduces new processes or new products, pushes into new territories (e.g. the builder of a railroad), or taps new demand (by reducing the price), or makes use of cheap labour supplies (by setting up a factory in the country). If he introduces an entirely new product, he obviously cannot be guided by the current price because there does not exist any. If he produces a cheaper or better version of an existing product, he cannot possibly assume that the existing price will remain unchanged, he must try to guess the future price and take into consideration reactions of rivals, imitators, producers of competing or complementary products.

The interrelations, interactions and repercussions in a modern economy are, of course, tremendously complicated and if we did not have 200 years of capitalist development to look back to, we might well doubt the possibility of such a complex system having been created and functioning largely by the unplanned interactions of millions of independent individuals and firms.

True, any innovation, large or small, in fact any adaptation to a change, carries uncertainties and risks with it. The distinction between current production and investment decisions is one of degree only. It is therefore misleading to say that equilibrium theory applies to current production and not to investment—it

applies to both or to neither. Some risk is unavoidable and the bolder the innovation, the more durable the capital equipment involved, the greater is the risk and uncertainty.[1] If the entrepreneur has misjudged his chances, he will suffer losses which will force him to retrench or to try to correct his mistakes. If he has judged right, he will make profits; this will encourage him to go on and will induce others to imitate the innovator. The innovational process and entrepreneurial role in it has been vividly described and trenchantly analysed especially by Schumpeter.[2] The competitive process with its system of awards and penalties provides a severe test for any entrepreneur, in fact for every producer, and separates unmercifully success from failure. But the equilibrium theory of the competitive mechanism, whether static or dynamic, is not, and is not meant to be, operational in the sense of being capable of guiding the entrepreneur to profitable new ventures. It is not a substitute for entrepreneurial qualities—vision, judgement, drive and persuasiveness, and for that matter does not enable the managers in centrally planned economies to function efficiently without those qualities.

### *Trade theory versus growth theory*

It has become fashionable to compare trade theory and growth theory and to assert that contradictory conclusions and advice for development policy can be derived from these two approaches.[3]

According to Chenery, 'Growth theory contains at least four basic assumptions about the underdeveloped economies that differ strongly from those underlying the comparative cost doctrine: (1) factor prices do not necessarily reflect opportunity costs with any accuracy; (2) the quantity and quality of factors of production may change substantially over time, in part as a result of the production process itself; (3) economies of scale relative to the size of existing markets are important in a number of sectors of production; (4) complementarity among commodities is dominant in both producer and consumer demand.'[4]

[1] Forward markets, insurance and other devices distribute risks and shift them from the weak, the timid, the inexperienced, to the strong, the venturesome and knowledgeable—but cannot eliminate them altogether.

[2] Let me recall the fact that Karl Marx himself has described the innovational and developmental power of the free enterprise system, of the bourgoisie as he often calls it, in truly dithyrambic language, especially in the *Communist Manifesto*.

[3] See especially Hollis B. Chenery, 'Comparative Advantage and Development Policy', in *The American Economic Review*, March 1961; and Joseph E. Haring, 'Dynamic Trade Theory and Growth in Poor Countries', in *Kyklos*, vol. 16, 1963, fasc. 3. In these two papers, a large part of the literature is reviewed.

[4] Loc. cit., pp. 21–22. Echoed by Haring, loc. cit., p. 376.

In my opinion, the contrast between trade theory and growth theory is greatly overdrawn in the quoted passage. Of course, the pure comparative cost model has to be qualified to allow for deviations from the ideal assumptions, especially for the existence of external economies (the real ones, not the imaginary ones!). If that is done, there still remains enough room for differences of emphasis and judgement of magnitude and of likelihood of this or that happening either in concrete cases or in general—differences between individual trade theorists and growth theorists; but there is no basic conflict between growth theory and trade theory as such.

Let me go through the four differences listed by Chenery.

(1) Seems to relate to the existence of disguised unemployment. Realistically this reduces, as we have seen, to the proposition that in poor countries productivity of labour is especially low in agriculture, but that by appropriate measures, which practically always involve more or less heavy investment (i.e. waiting), methods of production can be improved and labour can be trained and made more efficient. As far as international trade is concerned, the case is fully covered by the external economy–infant industry qualification of the comparative cost theory.

(2) This assumption is not in contradiction to the theory of comparative cost. That the pattern of comparative cost changes over time because the quality and quantity of factors change, is obvious and classical theorists, especially J. S. Mill, have stressed that trade itself, 'the production process itself' in Chenery's words, tends to change the quality of factors. This again is implied in the infant industry theory. The possibility should not be overlooked, however, that the export industries may be the most promising 'learners'. In that case a trade subsidy, rather than a trade restriction would be indicated.

(3) The importance of scale relative to the size of market has been a standard argument for freer trade with trade theorists beginning at least with Adam Smith. Practically all later writers mention it along with comparative cost proper.

(4) Clearly refers to the so-called dynamic pecuniary external economies. This theory was discussed in the preceding section and was found wanting.

On one important issue growth theorists have split. Rosenstein-Rodan (loc. cit.) and R. Nurkse have derived (from assumption 4) the postulate or theory of 'balanced growth' to the effect that develop-

ment policies must aim at developing all or many industries at the same time. This becomes the theory of the 'big push', if the assumption of minimum size of efficient plant in each industry is added. Others have put forward the theory of 'unbalanced' growth.[1]

Chenery points out that the balanced-growth theory holds only if we assume 'an elastic supply of either capital or labour'. 'If we assumed fixed investment resources instead of an elastic supply, the same set of factors provide an argument for concentrated or unbalanced growth.'[2] In the first sentence the 'either-or' should be replaced by 'and'. As I have pointed out elsewhere the theory of balanced growth 'is contradicted by the patent fact that industrial advance is usually limited by lack of capital, including "social framework investments", insufficient supply of entrepreneurship, of skilled, trained and disciplined labour and not by insufficient demand.'[3] Put differently, the balanced-growth theory says or implies that there is not enough investment for the reason that private producers underestimate their investment opportunities because they are unaware of the external pecuniary economies which they would enjoy if they all expanded production simultaneously. If this were the major difficulty we would be lucky indeed; for it would be easy to stimulate investment by means of easier money, which is always possible in poor countries where money is invariably tight. Unfortunately, the real trouble is not insufficient *demand* for investment funds due to the small size of the market, but insufficient *supply* of capital, in other words, insufficient saving; this deficiency is not so easy to correct.[4]

Finally, let me stress once more a very important source of disagreement between economists (rather than between trade and growth theory) that is rarely brought out into the open.[5] Many or most

[1] The literature is reviewed by Chenery and Haring. Nurkse's views were first put forward in his famous book, *Problems of Capital Formation in Underdeveloped Countries*, Oxford, 1953. His mature thinking on the issue is contained in two papers, 'Balanced and Unbalanced Growth' (1957), and in posthumous remarks on 'Unbalanced Growth' (1959). (See his Collected Essays, *Equilibrium and Growth in the World Economy*, edited by G. Haberler and R. M. Stern, Cambridge, Mass., 1961, pp. 241–81.) In these later writings, Nurkse considerably toned down his earlier somewhat dogmatic statement.

[2] Loc. cit., p. 21.

[3] 'Critical Observations on Some Current Notions in the Theory of Economic Development', *L'industria, Revista di economica politica*, ed. by F. di Fenizio, Milan, 1957, p. 376. (Reprinted in *Readings in Economic Development*, ed. by T. Morgan, G. W. Betz, N. K. Choudhry, Belmont, California, 1963, pp. 231–9.)

[4] A case can, of course, be made for compulsory saving. But this is something else again.

[5] It is, for example, not openly faced although clearly implied in the articles of Chenery and Haring.

classical or neo-classical theorists had an implicit faith in the efficiency of the competitive-market system and assumed that private entrepreneurs are aware of, and try to guess and anticipate, indirect effects and repercussions of their collective actions. No one, of course, assumes perfect foresight—losses, crises, depressions and the business cycle itself are strong reminders that foresight is imperfect and mistakes are wellnigh unavoidable. Public policy can and should try to reduce ignorance by spreading information and making markets 'transparent'; it should mitigate the consequences of miscalculations by counteracting deflationary shocks, by increasing the mobility of factors of production and by promoting the flexibility of the economy to adapt to new circumstances, especially by counteracting price and wage rigidity.

On the other hand, many modern writers on growth and development, even those who are not out-and-out critics of the individualistic market economy and advocates of compulsory central planning assume, implicitly more often than explicitly, that the planners with the aid of modern methods of economic analysis can foresee all the indirect effects of expansion and thus avoid mistakes and losses much better than the competitive market.

This surely raises weighty and complicated problems which cannot be further discussed here. If there were time, I would argue that the market system, wherever it was given a chance, has done amazingly well. Forty years ago, when the world had little experience with comprehensive central planning, it was understandable that comparisons were invariably made between the *actual* market system with all its faults and imperfections (including those introduced by faulty government interference) on the one hand and an *ideal* type of planned system on the other. Today, this procedure can no longer be justified. We must compare the two systems as they actually are and not the ideal type of one and an actual example of the other. I believe that in such a fair comparison the free market economy comes off quite well.

One more remark to forestall a possible misunderstanding. This is not meant to be a plea for *laissez-faire*. Even in a free market economy there is obviously plenty of work left for the government to provide indispensable services in the field of education, health, maintenance of law and order, communication, &c., as well as to assure the smooth functioning of the competitive market including monetary arrangements.

*Summary and conclusions*

The classical principle of 'comparative advantage' has become an integral part of the modern equilibrium theory of international trade. Like every theory, it presents but a simplified and idealized model of the infinitely complex real world. The basic assumptions of the comparative-cost theory are stated and the possible deviations of the real world from the 'ideal' conditions are then discussed under the following headings: 'Monopolies and oligopolies in industry', 'Adverse trend in terms of trade', 'Disguised unemployment', 'Technological external economies', 'Dynamic external economies' and 'Trade theory versus growth theory'. The conclusion is reached that—numerous, small, unsystematic and hence unimportant deviations from the 'ideal' conditions aside—the theory requires one major qualification. Allowance must be made for that type of external economy on which the infant industry argument for protection is based: the training of a skilled labour force in the broad sense, including the 'learning process' of supervisory and entrepreneurial labour. Policies to achieve this aim can be aptly described as 'investment in human beings' implying, as every investment does, a temporary sacrifice.

The extremely popular theory that the so-called 'pecuniary' external economies which, as Viner has shown, do not constitute a divergence between social and private cost, become 'real' and do represent such a divergence in 'dynamic contexts', in particular whenever investment decisions are involved, is critically examined and found invalid.

It has become fashionable to see a sharp conflict between trade theory and growth theory and to assert that contradictory conclusions concerning development policy can be derived from these two approaches. It is argued in the present paper that the conflict disappears if trade theory is qualified or amended so as to take into account the possibility of the external economies mentioned above.

Thus the overall conclusion is that the theory of comparative advantage applies to the modern world including modern agriculture.