*Review Article*

# Technological Dependence and Underdevelopment**

HASSAN A. ZAVAREEI*

A major cornerstone of the structural analysis of underdevelopment is the character and form of technology available to the UDCs, and their implication for economic growth. It has long been recognized that growth in the underdeveloped countries (UDCs) of today differs in substantial ways from that of the early stages of capitalist development experienced in western Europe. The significant technological achievements of European and North American capitalism have contributed vastly to our stock of technical and scientific knowledge. At first glance this technical revolution seems to hold the torch in the path of the fight against poverty and underdevelopment. It is argued that this knowledge can be shared profitably by all UDCs, who can thus 'skip' technological stages given will power, good common sense and efficient management of resources.

The problem is not as simple as transplanting modern technology to UDCs. The stage of development of technology, institutions surrounding it, and international financial and trade relationships create obstacles to the adoption of technology, and once imported it does not automatically lead to development. In fact, the structuralists view modern technology and its institutional trappings as one of the major pillars of imperialist domination. An industrializing country importing this technology would soon be faced with excess capacity and a rigidly monopolized market structure. According to Paul A. Baran

> "If the conditions of economic growth that have prevailed under competitive capitalism have largely disintegrated under advanced capitalism, they have never materialized in the countries of backward capitalism.

*The author is Assistant Professor of Economics, Trenton State College, USA. He would like to thank Harry Magdoff and the URPE staff for valuable comments on an earlier draft of this review.

*******Technological Dependence, Monopoly and Growth* by Meir Merhav. Oxford and New York: Pergamon Press, 1969.

> As Lenin has stressed, capitalism has entered most underdeveloped countries the "Prussian way"—not through the growth of small, competitive business but through transfer from abroad of advanced monopolistic enterprise. Accordingly, capitalist development in these countries was not accompanied by a rise of bourgeoisie and by an overthrow of the feudal domination of society, but rather by an accomodation between the newly arrived monopolistic business and the socially and politically entrenched landed gentry."[1]

Perhaps the more problematic aspect of industrial development is the fact that modern technology is not readily available for purchase as commodities. Technology is monopolized, patented and available only as capital or for the payment of royalties. Thus industrial development with the currently prevailing level of development and property relationships brings with it increased technological and financial dependence on the developed countries (DCs) of the center.

It is to be noted that our focus and that of recent studies has been on the aspects of technology 'external' to the UDCs, i.e., the conditions surrounding the technology available in the international markets. What has not been given sufficient attention is the dynamics of capitalist development as abstracted from these 'external' variables. While fully recognizing the overwhelming role of existing technological control in the process of underdevelopment, it is also necessary to analyze the 'internal' dynamics of this process in UDCs. Put slightly differently, if we are to understand the development of a contradiction, we ought also to understand the dynamics of the opposite poles of the contradiction. But there is also the related and long standing question of whether and to what extent sustained economic development is possible in the context of private enterprise versus socialism. As a partial answer to this question it would be useful to know the limits and dynamics of capitalist development internal to UDCs at the present historical juncture. Merhav's *Technological Dependence, Monopoly and Growth* is a significant contribution to the understanding of a much neglected problem.

The central argument of Merhav's analysis is that capitalist development in present UDCs is apt to reach an early stage of stagnation and monopoly even under the most favourable of circumstances. The main reasons for this tendency are the small size of markets, structural incapacity to produce domestically the needed technology for industrialization, and the relatively large economies of scale in the technology that has to be imported. A number of simplifying assumptions are made in the model to create, a favourable setting for capitalist development. These include the absence of all the pre-capitalist impediments to capitalist growth as well as the political and economic role of foreign interests. While recognizing the significant importance of these factors, Merhav makes the abstractions not only for analytical simplicity,

> ....but also because this is the frame of discourse established by most of the conventional literature on economic development. The model which that literature holds up as a goal, in theoretical discussion and in policy recommendations, is that of private enterprise in its ideal form.

[1]Paul A. Baran. *The Longer View.* (New York: Monthly Review, 1970), pp. 291-292.

Anyone who wishes to take issue with its predictions must therefore discuss it on its own ground. (p. 10).

The central assumption to the model, of course, has to do with the nature of technology. The technology at hand, imported from the developed countries, has a very definite historical and social character. Far from being neutral, it bears the mark of the private enterprise system which nourished it and which it serves. This technology, adapted to mass consumption in large and relatively affluent markets and to the resources of the developed countries, is large scale, capital intensive, and wasteful of 'cheap' or 'free" natural resources. Thus, UDCs today face a technology that is highly advanced in certain areas of production, neglecting areas of production, levels of complexity and economies of scale where it is most needed.

Among the many characteristics of a 'typical' underdeveloped country, two stand out as significant in Merhav's model, small markets and technological incapacity. Existing markets are small not only because of low per capita income, but also because of small populations which are the heritage of the colonial carving up of nations for reasons that had little to do with the historical background or requirements of a modern nation. These small markets are largely directed towards agricultural products and a few manufactured items of mass consumption. The relatively small share of the market for luxury goods is small in absolute term as well as stems from the middle classes, feudal landlords, small national capitalists, army officers and other government functionaries. The composition of the market is highly diversified, reflecting the composition of demand in the more advanced capitalist countries in a distorted fashion (cars, trips abroad, household durables, and conspicuous consumption). This demand is mostly created, and in turn satisfied, by imports from multinational firms operating in a world market with large scale economies of production.

The low level of development of productive forces in UDCs reflects itself in the size of the industrial sector, poor infrastructure, inadequate communication and transportation, and the absence of a skilled indusrial labour force. Thus there is a structural inability to produce the capital goods needed for growth or to develop the required technology suitable to a particular UDC's resources and needs. The needed capital goods, together with replacement parts, ancilliary processes and a good portion of intermediate products have to be imported. It is this relationship that Merhav calls 'Technological Dependence'.

The setting in which development is to take place is one in which (a) market size is small and diversified, (b) the structural incapacity makes it dependent on the import of capital goods, and, (c) the available technology is large scale and capital intensive. Furthermore, economic development having become a political demand and objective of first priority, the government is assumed to provide and create as a minimum the necessary institutions and climate for capitalist development. The typical UDC turns to industry as the dynamic growth sector because the potential for growth in agriculture is limited. In this context, Merhav considers three theoretical possibilities for capitalist development in the most favourable circumstances. He demonstrates in each case that, after a brief initial spurt, monopoly and stagnation set into stifle further growth.

The first case is analyzed in chapter three and is titled 'Growth in the Pseudo-Closed Economy: (I) The Case of *Laissez-Faire*'. Chapter four considers 'The Case of a Mixed-Enterprise System', while the fifth and the final chapter is titled 'Growth in the Open Economy: (III) The Foreign-Trade Escape From Stagnation'. In the *laissez-faire* case, the government is bent on capitalist development of the economy and works to create suitable institutions and climate but otherwise refrains from interfering with market forces. It is also assumed that there is no shortage of foreign exchange or enterpreneurship, and that there is sufficient economic surplus (in the Baran sense) that can be utilized for investment. Initially this sum is made available by the government and may have been collected through taxation or other means.[2]

The prospective capitalist firm will direct new investment in the established markets of mass consumption with the reasonable certainty that it can undersell domestic suppliers and imports (after transport costs and tariffs). This competitive advantage is largely a function of economies of scale. The capitalist firm is interested in monopolizing the market not only because of the secured profits that go with the ability to set prices, but also because economies of scale will prefer lower unit costs. But given the narrow financial limits of the firm and its technical and organizational ability, together with uncertainties about competition and price behaviour, the firm will tend to 'choose', the scale of production that will give it a large share of the market. Thus it is likely that an oligopolistic rather than a monopolistic structure will emerge. Although Merhav considers both cases, he argues that even if a monopolistic structure is established initially, it will lead to oligopoly sooner or later. This oligopolistic structure is imposed by the nature of the available technology whose minimum optimum scale of production is large compared to the market size of the typical UDC.

Beyond the initial spurt in economic activity resulting from the stimulated investment wave, stagnation tends to set in for at least two reasons. The first stems directly from technological dependence, and the second from the monopolistic structure of the market, itself resulting from the nature of importable technology. We know that the purpose of production in a capitalist economy is accumulation through the intermediary of profits. What does the capitalist firm in the UDC do with the profits remaining after the consumption of the capitalist class is met? Investment expenditures of the firm, by definition of technological dependence, are mostly directed toward imports of capital goods and thus fail to proportionately expand the domestic markets and hence demand. This is especially so because there is no direct relationship between imports and exports. Thus market size fails to grow in line with the accumulation needs of industry. At the same time, this stagnationist tendency is aggravated by the rising capital intensity of investment.[3] Thus investment opportunities tend to diminish with rising profit shares.

Premature stagnation could set in also as a restult of the monopolistic structure of the industrial sector. A firm seeking investment outlets is inclined

[2]By assuming adequate availability of foreign exchange and savings, the model thus circumvents the set of problems associated with Chenery's two-gap model.

[3]Merhav is here referring to the Harrodian 'knife-edge' problem which could have been expressed more adequately in Marxian terms.

to turn to expanding its share in its own industry. Aside from the initial phase, however, when demand is keeping up with profits while the domestic or imported rivals are being forced out of the market, the firm is apt to run out of profitable investment opportunities in its own industry—largely again because of economies of scale and the shape of the demand curve.[4] One possible alternative out of this impasse would be for the firm to diversify. But the same situation and tendency prevails in other industries, and firms will find an increasingly limited market size sooner than their counterparts in the developed countries.

Alternatively, firms could seek out to move into the areas of luxury consumption or investment could move backwards into intermediate and capital goods. But here too, markets are not only much smaller and scale economies are larger, investment outlets will be exhausted for very much the same reasons. In short, an industrializing private enterprise UDC with small markets and a dependence on foreign technology is faced with early stagnation and monopoly. Here we can barely touch on the remainder of this interesting and important book.

One could argue that the government could take a more active stance without significantly altering the existing relations of production. This could vary from protectionist measures to deficit financing of public works to the development of a 'mixed' system. Analyzing this alternative in chapter four, Merhav comes to the same conclusion as before: Government intervention is at best a delaying influence. The fifth and the final chapter, on the 'Foreign-Trade Escape from Stagnation', is probably the most interesting section of the book. At first, Marx's two sector 'schema of expanded reproduction' is applied to the case of UDCs. Whereas Marx's equilibrium condition for intersectoral trade applies to a closed economy, here we find that the export sector is substituted for the capital goods sector with some fascinating implications. Then follows an analysis and evaluation of the terms of trade controversy, a discussion of comparative advantage theory, possibilities of exports of manufactured goods, and the feasibility of economic integration. The conclusion, arrived at in very convincing terms, is the same: '..even under favourable conditions growth is likely to level off long before the level of affluence of the more developed countries even begins to be approached'. (p. 196.)

In summary, what we have here is a most interesting and valuable essay on the stagnationist tendencies in the UDCs given favourable set of conditions for capitalist development. These assumptions enable Merhav to attack bourgeois development economists and demonstrate the impossibility of sustained growth, leave alone development, in a capitalist context. That the analysis utilizes the method, jargon, assumptions, models and style of bourgeois economics to demonstrate the above thesis make the study even more valuable. More of this type of work needs to be done.

This mode of analysis and presentation, however, also represents the major weakness of the analysis. The model is highly theoretical and is full of restrictive assumptions. This abstraction does not render the analysis useless. Much of the dynamics discussed here, when taken independently, are very real

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[4]For a full analysis of the reasons for this and other tendencies the reader should refer to the book, especially chapters 3 and 4. Here we can only give broad outlines of the argument.

and important and enhance our understanding of imperialist domination. But it is important to realize that the model, leaving out the role of technological dependence as a pillar of imperialist domination, cannot be applied to the real world situation without significant modification.

It should be noted in closing that economies of scale are generally exagerated. Often the scale in technology is a function of large scale markets growing out of monopoly capitalism's drive for accumulation. Advertising and patenting play a major role in this expansion of the market. It is not inconceivable for even a small UDC to limit or arrest the stagnationist and dependency tendencies within the framework of capitalism, although admittedly the odds are high. Examples of the UDCs experiencing rapid 'growth' today under more stringent conditions than set by Merhav point to the need for some reevaluation and rethinking. This, in the light of the dependence of the DCs on diminishing natural resources imperialist rivalry and rising nationalist sentiments, adds a different dimension to the problem.