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INDUSTRIALIZATION STRATEGIES

AND

LONG TERM RESOURCE ALLOCATION

by

Deepak Lal*

UCLA Dept. of Economics
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Address for correspondence:

Department of Economics
University of California, Los Angeles
Los Angeles, CA 90024-1477

Tel: (310) 825-4521
FAX: (310) 825-9528

*Professor of Political Economy, University College London and James S
Coleman Professor of Development Studies, University of California, Los
Angeles.

ABSTRACT

The paper provides a broad historical perspective on the pattern of industrialization and ideas about industrial policy, in terms of different historical phases over the past 200 years. It then re-examines the relevance of the case for free trade in the light of various "new" arguments being advanced for dirigiste industrial and trade policies.

Introduction

Since the so-called "industrial revolution" in Britain, which began in the mid-18th century, industrialization has come to be identified with modernization and self-sustaining economic growth. Most governments in developed and developing countries have sought to promote industrialization, partly for nationalist and militarist reasons and in part for the sound economic reason that it often provides another means for raising output, productivity and incomes even in countries which are not blessed with the older sources of national wealth -- fertile land and natural resources.

Since the beginning of industrialization, debates concerning its proper public promotion have been intimately linked with questions of foreign trade policy and hence the validity of various arguments for protection.

This paper provides a broad historical perspective on the pattern of industrialization and ideas about industrialization strategies in terms of different historical phases over the past 200 years. This is done in the first two sections. In the third section we restate the classical case for free trade as it has been reformulated in the modern theory of trade and welfare, and then examine its relevance in fostering efficient industrialization in the light of various "new" arguments being advanced for dirigiste industrial and trade policies.

1. Historical Phases in Global Industrialization

Broadly speaking, six phases of global industrialization can be delineated, with their distinctive policy discussions and stances.

The first was the mercantilist period during which industrialization first took root in Britain. This was based on innovations in cotton textiles, iron smelting and the steam engine. The removal of internal barriers to trade around 1700 in the U.K. aided this nascent process of

industrialization. But as Adam Smith noted in classic work, the mercantilist system with its controls on foreign trade militated against the productivity gains that were available from a further widening of the market through a growing international division of labor and the specialization it entailed.

Partly due to internal contradictions of the mercantilist system (see Hecksher, Lal and Myint (1990), ch. 11), a process of liberalization of internal controls and trade barriers had also spread across Europe after the French Revolution. After the Napoleonic War, with the developments in steel, and the growth of railways and later steamships, the industrial revolution began to spread beyond Britain. The fall in transport costs and the growing integration of the world economy facilitated a growing international division of labor. It led to the progressive industrialization of Western Europe and the United States while various peripheral areas of white settlement (Canada, Australia and Argentina) began to specialize in producing raw materials and agricultural products for these growing industrial areas.

This period also saw the emergence, under British leadership, of the first liberal international economic order. From 1820 onwards external trade was progressively liberalized in Britain, many European countries and the U.S. This process culminated in the espousal of unilateral free trade as part of its economic ideology by Britain after the repeal of the Corn Laws in 1846. The next 20 years were the heyday of worldwide free trade.

The classical writers in Britain had meanwhile produced the intellectual justification for universal free trade in Ricardo's famous law of comparative advantage, which, as we shall see, despite attacks and counterattacks still provides the enduring justification for the ideal of free trade.

term pattern of resource allocation for maximizing global welfare, and hence the pattern of industrialization in the world economy.

However, with the rise of protection in the U.S. after the Civil War in 1865, Germany, by 1877, had abolished most tariffs, faced the famous coalition of "rye and steel" which led it to abandon free trade soon afterwards, in 1879. France soon followed suit. But a newcomer to the world stage -- Japan -- was forced, under the unequal treaties imposed on it by the opening of the country by Commander Perry, to develop under a virtual free trade regime from 1858-98. This free trade regime, together with the removal of various internal barriers to trade and labor mobility after the Meiji restoration, provided the impetus for early Japanese industrialization, which seemed to follow the first steps on the "ladder of industrialization" began in Britain, with simple light manufactures such as textiles as its major engine.

It was during this phase too, that the so-called "second industrial revolution" consisting of a cluster of innovations based on the greater use and institutionalization of applied science and research became important. What is now called total factor productivity (TFP) (or the Solow residual) came to exert a major influence on overall growth rates, and thence on differences in growth performance between countries. In Britain between 1899-1913, TFP (as estimated by Crafts (1985) p.159) was nought, whereas in the U.S. it rose from 0.35% p.a. before 1890, to 0.84% in 1890-95, and 1.52% p.a. in 1905-22 (David & Abramovitz, 1973). In Germany, TFP in industry and commerce rose from 1.13% p.a. in 1870-1900 to 1.46 p.a. in 1900-13. These differences in U.K and U.S. & German performance have in turn been ascribed to "under investment in education especially scientific and technical education" (Crafts, *ibid*). But as Crafts (1984) has emphasized in his study of

the patterns of development in 19th century Europe (on the lines of Chenery and Syrquin (1975) for contemporary developing countries), it appears that in the 19th century "a plausible picture of Britain's comparative advantage ... is that it was based on exports of horse-power intensive products [in turn dependent on the availability of cheap coal] exchanged for imports of human-capital intensive products". (p.454). If this resulted in lower TFP and hence a worse growth performance (than its competitors), we would have an early instance of a case where dynamic comparative advantage and hence potential growth might have been altered by public policy (in this case through greater provision of technical training and education). This is a theme which will recur in our later discussion.

The post-1870 period also saw the emergence of new arguments for protection, and what Schumpeter called "the defeat of liberalism". The most important argument for protection advanced was for infant industry (or infant economy) protection, is associated with the names of Hamilton in the U.S. and Liszt in Germany. This still finds an echo in our day (see Section 3 below).

The period from 1913 to 1950, encompassing two world wars and the Great Depression, can be looked upon as one in which the international trading system, which had transmitted the growth impulse around the world (through the liberal economic order), broke down. Many developing countries particularly those in Latin America which had been integrated into the 19th century world economic order suffered disastrous collapses in their terms of trade. They thereafter became suspicious of the classical case for free trade and increasingly turned inward, progressively using more direct controls to foster import substituting industrialization. This period also saw the rise and implementation of the model of autarkic and forced industrialization

pioneered by Stalin in the Soviet Union, which, too, was to have considerable resonance in the industrialization policies of many developing countries after World War II.

The post-World War II period, till the first oil shock of 1973, marked a new golden age of world wide growth, industrialization and expanding international trade. Based in part on the backlog of innovations which had not been converted into new products and processes in the interwar period, there was another "industrial revolution" based on the development of consumer durables for mass consumer markets. The rise of the multinational corporation led to the evolution of international trade and specialization based on the product cycle (see Vernon (1966)).

During this post-war golden age, industrialization spread across the world. But initially there was a paradox. Nearly all the OECD countries participated in the booming global economy through a process of liberalizing the controls on foreign trade and payments they had instituted during the inter-war period. This process was underwritten by explicit agreements for liberalizing trade under the auspices of various GATT trade rounds. By contrast, most developing countries turned inwards. In this they were influenced in part by their experience of the collapse of world trade in the 1930s; the seemingly shining example of successful industrialization under dirigisme in the Soviet Union; the almost universal economic nationalism to be found, in particular, in the newly independent countries; and by the emerging "new development economics" which appeared to denigrate the classical case for free trade in favor of import substituting industrialization not merely under state direction but also state ownership. In the 1960s some countries, notably the so-called Gang of Four (South Korea, Taiwan, Hong Kong and Singapore), bucked this trend and switched policy.

The dramatic effects of the resulting outward orientation in leading to rapid industrialization and equitable growth in these economies is now part of the folklore of the economics of development.

The subsequent two decades can be looked upon as the marking intermittent but gradual movement away in most of the Third World, from "inward" to "outward" looking policies. This was accompanied by what has been called the "neoclassical resurgence" in development economics, which seemed to provide the intellectual basis for the reapplication of the classical prescriptions for economic development, most memorably developed in The Wealth of Nations. But given the pendular swings in opinion that have characterized the free-trade versus protection debate which lies at the heart of the question of industrial strategies for efficient long run resource allocation, new "protectionist" arguments which go under the name of the "new trade theory" and "selective industrial strategy" are being presently propounded.

II. Industrial Growth, Productivity and Structure

Fig I charts the post-war rates of manufacturing value added in developed and developing countries (1950-85). Since 1960 the growth rates in manufacturing have been much higher in the South than the North. The Southern growth rate was maintained till the second oil shock (1979) whereas that in the North faltered after the first oil shock of 1973. The growth rates of total output and of labor productivity in the North in the period 1950-73 were "higher than in the whole of period 1870-1950, and in the case of the war damaged economies of Europe and Japan, sometimes twice or three times as high" (UNIDO (1985) p.9).

The growth rates of manufacturing output and employment by ISIC categories for the period 1963-79 for the North and South is given in Table

1. The "South outperformed the North in all the branches of manufacturing except furniture and fixtures, plastic products and other manufactures" (UNIDO op cit p.12).

But this average performance conceals large divergences in performance amongst the group of Southern countries. Table 2 gives the growth rates in industry, and export, for a sample of 21 developing countries which are part of a multicountry comparative study of the political economy of poverty and growth co-directed by the present author and Hla Myint. Two points need to be made. First, the growth rates given are at market prices, and as Little, Scitovsky, Scott showed in their classic study of trade and industrialization in protected economies, these growth rates at distorted market prices overstate the true contribution of industrial growth to national welfare. For that, estimates of value added at world prices would be required and these are not available. But from Little et al.'s estimates for 1950-64 for their 6 countries (Argentina, Brazil, Mexico, Pakistan, Philippines, Taiwan; see their Table 2.13), it is apparent that this factor can be of considerable importance in forming any judgment about industrial performance in various developing countries. Thus protection besides lowering the efficiency of resource allocation and hence the long run rate of industrialization, also implies that observed rates of growth in protected economies would be overstated.

Second, in the post war "golden age" the world wide boom pulled most developing countries along, irrespective of the policy induced distortions in the working of their price mechanisms resulting from the almost universal protectionism they had adopted in the first decade after 1950. It was in the more turbulent conditions in the world economy (beginning in 1973 but accentuated after the second oil crisis of 1979), that the inflexibilities

in production and trade structures engendered by their past dirigiste trade and industrial policies, led to differences in overall and industrial growth performance. A rough and ready indicator of this (for our sample of 21 countries) is provided by correlations between the industrial growth rates (G_I) in 1965-80 and 1980-85, and a "distortion index (D) developed by Aggarwal, and also shown in Table 2. The estimated OLS regressions are:

$$1965-80 : G_I = 12.83 - 2.96 D \quad R^2 = 0.09 \\ (2.09) (1.03)$$

$$1980-85 : G_I = 17.35 - 8.13 D \quad R^2 = 0.47 \\ (3.14) (3.14)$$

(Figures in brackets are T ratios)

Finally, we can obtain some idea of the changing industrial structure in developing countries, developed countries and the world in terms of a schema devised by UNIDO and reproduced in Fig. 2. This shows the changing value shares of 16 manufacturing branches in the overall change in manufacturing output, along 16 rays.¹

As the UNIDO report notes, plastic products are growing in value share at the world level, largely because this was the fastest growing branch in developed countries. Industrial growth appears to be much more balanced in the developing countries taken as a whole. But again, this aggregate hides important differences between countries (see UNIDO, op cit.)

Ever since the pace of technical innovations was determined by institutionalized R&D in the post-1870 period, a crucial question concerning industrialization strategies has been the role of technical progress in determining the overall (and, in particular, the industrial) growth

¹ Along each of the sixteen rays, 1000 measures the base year (1965) level. If the overall growth was taking place evenly in all branches, then one would observe a series of concentric circles. Thus the distortion of the shape away from a perfect circle tells us where change is occurring.

performance of economies. The growth accounting techniques pioneered by Solow and extensively applied and refined by Dennison and others, has been applied to a number of developing and developed countries. Chenery et al. (1986) have provided a useful summary of the available 57 country studies, covering 39 countries around the world, of the sources of growth. Fig. 3 provides a summary picture of the results. This shows that most developed countries fit within the "A" cluster, with relatively low growth of the primary factors (labor and capital) and with total factor productivity (TFP - the Solow residual) accounting for 50% to 70% of overall growth. Japan, as in so much else, is an exception, in both having double the average growth rate (G_V) for a developed country and a higher proportion being accounted for by growth in factor inputs.

The developing countries fall into two groups. The larger one, group B, has low TFP growth (between 0.5% and 2.0%) and most of the output growth is due to increased factor inputs. The smaller group C, consisted of 3 of the 4 so-called Gang of Four, Southeast Asian high performers and Japan. They had much higher rates of overall growth (G_V) over 10%, based on both higher factor inputs and TFP than other developing countries. It is the purported industrial targeting in two of them (Korea and Japan) which, it has recently been argued, led to their high TFP growth rates, and which is being used to resurrect a variant of the Listian argument for infant industry protection.

While Chenery et al. looked at the contribution of TFP and factor inputs in overall growth, Nishimizu and Page (1987) have looked in terms of growth accounting at the performance of particular industries at the ISIC

two digit level for 18 countries between 1956-82.² Their results on the sources of overall industrial growth are summarized in Fig.4 which is similar to the Chenery et al. diagram, except now the 45° lines show the level of total output (industrial) and the three rays from the origin "show the combinations of TFP growth and total factor input growth, that give the share of TFP growth indicated" (Page (1990) p. 113). The results are similar to those found by Chenery et al. for economy-wide growth. Their industry level growth accounting, however, allows an analysis of variance in TFP rates among industries and countries. This shows that "as income per capita rises, differentials in TFP growth rates among individual industries decrease markedly. And, although significant inter-country variations in productivity performance arise within well-defined industries, sharing a largely common technology and rate of technological change, differences among industry- specific rates of TFP growth are not significant within individual countries. In short, there is greater variability among countries in TFP performance than among industries within individual economies". (Page (1990) p.112-3).

They also find some support for the infant industry argument, namely that the average annual rate of TFP growth in industry declines as per capita income increases. If India, Zambia and the Philippines (which had negative TFP growth in industry) are excluded from their sample, a significant statistical relationship between TFP growth in industry and GNP per

²There is, however, one general issue raised by these growth accounting studies which needs to be considered. This is whether so-called "outward orientations" in trade policy leads to higher TFP and hence overall growth performance. As Bhagwati and Srinivasan have argued, there is no reason to believe that TFP rates in import substitution industries are lower than in export industries, and hence no conclusive evidence on the efficiency of outward orientated reforms can be derived in this way. For a survey of studies of TFP and trade reforms see Havrylshyvn (1990).

capita (shown by the solid line in Fig. 5) emerges.

But this then requires some explanation for the "outliers". One of these, India, in terms of its initial conditions in 1950 -- an early start in industrialization in the mid-19th century leading to a substantial and relatively diversified industrial sector by the time of independence, an elastic supply of skilled labor, and a potentially large domestic market -- could have been expected to have had high TFP growth. Moreover, its dirigiste system of controls was based in part on the type of "industrial strategy" which, it has been recently suggested, accounts for the better productivity performance of NIC's, such as Korea and Taiwan, (Wade, Amdsen) and Japan (Chalmers-Johnson). Yet this "industrial strategy" has clearly failed in India (see Ahluwalia, Lal (1989)). As Little et al. and the subsequent comparative studies by Bhagwati and Krueger, Donges et al., and Balassa and associates have shown, and as Page (1990) rightly sums up: "within the group of developing countries, ... the extreme variability of both average and industry-specific rates of productivity change -- as well as their relative contributions to output growth -- point to policy-based as opposed to structural explanations." We, therefore, need to examine the changing views about the appropriate industrial strategy which is closely linked to trade policy.

III. Industrial and Trade Policy

Following the publication of the magisterial comparative study by Little, Scitovsky and Scott in the late 1960s, both subsequent theoretical development and further comparative work on trade and industry seemed to have led to the so-called neoclassical consensus on the appropriate policy for trade and industry. The starting point is the classic case for free trade, modified by possible second best considerations. This was the theory

of trade and welfare developed in the 1950s and 1960s.³

The static case for free trade is simple and powerful. The removal of barriers to foreign trade expands the feasible set of consumption possibilities by, in effect, providing an indirect technology for transforming domestic resources into the goods and services that yield current and future utility to consumers. This static case does not involve any necessary commitment to laissez-faire. It is recognized that so-called "endogenous" domestic distortions may require appropriate domestic public interventions for their correction, but these interventions will not include interventions in foreign trade. Industrial promotion may hence be justified, protection will not be. It is also recognized that when a country has monopoly (monopsony) power in its foreign transactions and can (on either current or capital account) feasibly influence its relevant terms of trade, taxes or subsidies on trade may be justified. This "optimal tariff" argument provides the only "first best" justification for foreign trade intervention from the viewpoint of national welfare (in the absence of foreign retaliation). The so-called "new" or "strategic" trade theory (see Krugman) will be seen to be in essence a variant of this argument.

The dynamic version of the law of comparative advantage incorporates investment in line with a country's changing comparative advantage, which minimizes the present value of the resource costs of its future demands. By widening the market, foreign trade also allows a country to exploit economies of scale. Furthermore, the competitive pressures exerted by imports (or the need to export from increasing returns to scale industries for which the domestic market is too small) prevent the emergence of welfare-reducing

³The pioneers of this theory were Meade, Haberler, Bhagwati-Ramaswami, Johnson and Corden. The latter still provides the best synthesis and summary of the theory.

domestic monopolies and induce domestic producers to improve quality and reduce costs. In terms of the recent theory of industrial organization, foreign trade increases contestability in existing or incipient monopolistic industries (see Baumol et al. (1982), Helpman & Krugman (1985)).

Finally, to the extent the static gains are saved and invested efficiently, they will grow over time, while the introduction of new goods and (more important) new technology through foreign trade can effect an economy's rate of technical progress and hence its long run equilibrium rate of growth.

This neoclassical consensus which seemed to have been vindicated by the growing empirical evidence on the effects of alternative foreign trade regimes on economic performance⁴, has recently come under attack from various directions.

The first is a resurrection of the Listian type of argument for infant industry protection. As is well known (see Corden, Baldwin (1969)) the infant industry argument requires some form of dynamic external economies for its justification. If these exist, there will be grounds for government intervention. But the first best policy will be some appropriate domestic subsidy rather than protection from foreign trade, following the central tenet of the modern theory of trade and welfare that in dealing with domestic distortions it is best to deal directly with the distortion; intervention in foreign trade being at best a third or fourth best policy.

A necessary condition for infant industry intervention to be justified is that the inputs per unit of outputs decrease more rapidly in that industry (or in other words its total factor productivity increases) both

⁴A survey is provided in Lal & Rajapatirana (1987). Also see Havrylyshyn (1990) for a survey of the literature looking more explicitly at the connection between TFP growth and trade regimes.

relatively to: (a) its foreign competitors, and (b) other industries in the country. But this condition is not sufficient for, in addition, it is necessary that the discounted net present value of the losses incurred during the high cost phase are recouped during the post-infancy phase to earn at least the social rate of return to investment in the economy (see Krueger-Tuncer (1982); Bell et al. (1984)).

The TFP test, which provides only the necessary conditions for justifying infant industry promotion, was applied by Krueger and Tuncer to a sample of Turkish industry for 1963-76. They found there was no tendency for input per unit of output to fall more rapidly in more protected industries. Similarly in a survey of the productivity performance of infant industries in a number of developing countries, Bell et al. (1984) concluded:

There is little evidence about productivity growth among infant industries in today's less developed countries. But the evidence does suggest that many infant firms have failed to reach international competitiveness -- or if they have once reached it, have failed to maintain it. This inference is consistent with the record of overall industrial performance in these countries. It is also consistent with findings from various studies of the costs of protection in developing countries. (p.123)

However, as Bell et al. note, none of the studies they surveyed, explicitly estimated any externalities generated by the relevant firms for other firms (and vice versa). One of the more important externalities, that is adduced in support of the infant industry case, is labor training. Assuming that workers cannot borrow against the returns to prospective human capital, they will be unable to finance the costs of any on the job training that develops general skills. If firms are to bear the cost of training in general skills, they may suffer a loss and hence be unwilling to provide the training, which, nevertheless, is socially (at shadow prices) desirable. A social cost benefit study of labor training in the public sector in India

(Charkvavarati (1972)) did find that the social rate of return to training was positive (and greater than the social discount rate) even though the private rate of return (to the firm) was negligible or negative. Public subsidization of labor training in industrial enterprises may thus be a valid form of industrial promotion, even though protection of industry (for the usual reasons of "getting to the heart of the matter") will not be.

But it is important to note that the presumed externality -- often labelled a pecuniary externality -- in the case of labor training, actually turns out to be a case of a distortion in the working of the capital market. It is the correction of this distortion which requires government intervention and not the existence of a pecuniary externality per se.

This illustrates the slippery notion of externalities; namely the uncompensated side effects of a producers or consumers activity on other economic agents. Two theoretical points need to be kept in mind in their identification.

The first is a distinction made by James Buchanan and Craig Stubblebine between Pareto-relevant and Pareto-irrelevant externalities. Pareto-relevant externalities are said to be present when, in a competitive equilibrium, the marginal conditions of optimal resource allocation and hence for Pareto-efficiency are violated. Then government intervention may be required. But not all the side-effects on consumers and producers in a highly interdependent market economy will result in Pareto-relevant externalities.

The second distinction, due to Jacob Viner, is between pecuniary and technological externalities. Pecuniary externalities are those in which one individual's activity level affects the financial circumstances of another. But this does not imply any resulting misallocation of resources. Consider,

for example, a perfectly competitive economy in which there are continuous shifts in tastes and technology. Suppose that some group increases its consumption of whisky; the price rises, and this affects the welfare of other consumers of whisky. This has no significance for the efficiency of the economy, which ex hypothesi is perfectly competitive and hence (in the jargon) Pareto-efficient. Or suppose there is a cost-saving invention by one producer. He increases his output and reduces his price. Through market interdependence other producers lose rents and are hurt, and consumers gain (consumer's surplus). It is readily shown that the consumer gains and those of the cost-reducing producer are always greater than the losses of the inefficient producers. What is more, the cost-reducing producer must not take account of the losses of the inefficient producers, for if he did, he would restrict output and would therefore be behaving as a quasi-monopolist; thus the industry's output level would be suboptimal.

Pecuniary externalities are therefore synonymous with market interdependence and the price system. They must be Pareto-irrelevant. By contrast, technological externalities are interdependencies between economic agents which are not mediated through the market, and hence not reflected in relative prices. A well-known example is the smoke emitted by a factory which raises the costs of a nearby laundry.

Apart from technological externalities (non-market interdependence) the other main potential cause of market failure is "increasing returns due to indivisibilities or peculiarities of the production function" (Arrow and Scitovsky (1969) p. 183). The discussion of externalities particularly as regards industrial policy in developing countries, was greatly muddled by Scitovsky's definition of "pecuniary externalities" which cause market failure, owing primarily to economies of scale (increasing returns), and the

long lag with which market prices transmit information about investment decisions" (Arrow and Scitovsky, op cit., p. 184). These are not pecuniary externalities in Viner's sense. These sources of potential market failure are more properly described as being due to the presence of increasing returns and what may be called imperfections in futures markets, so that future prices, on whose estimates investment must be planned, do not exist.

Both these sources of potential market failure are of importance in the recent revival of the case for what is called selective government intervention in industrial policy (see for instance Pack & Westphal (1986) for the most cogent statement of this case). It may therefore be useful to see what theory tells us about the relevance of these two sources of potential market failure in an open economy, before we turn to the examples of Japan and South Korea which are usually cited as cases of successful industrial dirigisme.

It has been well-known since Graham (1923) (and proved by Grandmont and McFaden (1972)) that in the standard neoclassical open economy general equilibrium model, increasing returns that are external to individual firms but internal to an industry still allow a perfectly competitive equilibrium, but that domestic output valued at constant prices may be lower in a trading equilibrium compared to autarky if with trade there is a decline in the output of industries with increasing returns to scale.

With increasing returns to scale internal to the firm (that is, with decreasing costs over the relevant range of output for an individual firm) it is well known that the market for its output cannot be perfectly competitive (with price equal to marginal cost). There has been a recent flurry of theoretical activity to model the ensuing imperfect market structures and their implications for both the positive and normative theories of trade

(see Helpman and Krugman). Some development economists (Stewart (1984); Helliner (1988)) have drawn the implications from this so-called "new" or "strategic" trade theory that the policy prescription of the post 1970s neo-classical resurgence (namely outward looking policies are optimal for developing countries), is invalid.

In an important paper, Markusen and Melvin synthesize the results on the gains from trade in the presence of increasing returns and differentiated products (a summary of the various models is available in Helpman (1984), while Srinivasan provides a survey which looks in particular at the relevance of these models for developing countries). They identify 3 types of models that have been developed. The first, are with homogeneous goods and with increasing returns to scale (IRS) external to individual firms. The second, are with homogeneous goods and with IRS internal to individual firms; and third, models with differentiated products produced under monopolistic competition. They show that in all 3 cases GFT may not occur for the same two reasons. As is well known, in the standard neo-classical trade model with constant returns to scale and perfect competition, the free trade price line, is tangential to the economy's production frontier (implying marginal cost pricing) and also forms a separating hyperplane to the production set. In all the three type of "new" trade theory models, the IRS goods have marginal costs lower than price, so the tangency condition breaks down, with the free trade price line cutting the production set at the free trade point. Second, even if the tangency condition is satisfied (that is marginal costs equal price), the IRS could lead to non-convexities in the production set, so that even a price plane, which is tangential, may not form a separating hyperplane to the production set. They then show:

With respect to the tangency conditions, results (generally well known) show that losses from trade may occur if trade contracts

the IRS industries. The intuition is fairly straightforward. With prices greater than marginal costs in autarky, the economy is already under-producing the IRS goods. If trade reduces production further, the economy may be moving away rather than towards its optimal production mix. We suggested that a sufficient condition for GFT is that trade have a certain rationalising effect on production. This is a rather crude notion to the effect that surviving industries expand output more than in proportion to the number of IRS industries lost due to the opening of trade. We argued that this is in fact a reasonable outcome (although hard to define rigorously) provided that trade does not decrease the total resources devoted to the IRS industries.

Non-convexities present a more difficult problem. On the one hand, we are able to show that the same expansion of all IRS industries that is sufficient for GFT in the convex case continues to be sufficient in the presence of non-convexities. Further, this result does not rely on restrictive functional forms, specialization in production, or on average-cost pricing in the IRS industries. On the other hand, the weighted increase in the outputs of the IRS industries that is sufficient in the convex case is no longer sufficient with non-convexities. We are thus still without a sufficient condition for GFT in the realistic case in which trade expands some IRS industries and contracts others.

If theory is inconclusive, what of the empirical evidence?

An OECD study surveying the empirical research on trade liberalization and imperfect competition found that the gains from trade were greater under imperfect as compared with perfect competition. No empirical support was found for the view that there would be greater gains from trade intervention when there was imperfect competition (see Richardson (1989)).

There is little comfort for protectionists or dirigistes in this conclusion.

However, protectionist policy conclusions have been drawn from the "new" strategic trade theory models, particularly in the notorious "Kodak" papers.⁵ These are in essence based on a very simple notion (most sharply brought out in Krugman (1987)), that as the monopolistic or oligopolistic firms (which exist under (IRS)) enjoy excess profits (with prices above

⁵ By Krugman & Dornbusch. A concise and hard-hitting critique of the "new" trade theory is Haberler (1989).

marginal costs), the government is in a position to shift profits from foreign to domestic firms by either subsidising domestic firms or else by putting import restrictions on the products of their foreign competitors. As Krugman, one of the progenitors of this theory argues, the relevance of the theory is however likely to be limited. First, it is necessary to have reliable models of oligopolistic behavior (which are unavailable) to determine the optimal policy. Second, the general equilibrium effects on the rest of the economy of the targeted industries need to be known. Third, there is (as with the optimal tariff argument) the threat of tariff retaliation and a trade war. Fourth, with the ubiquitous rent seeking by special interests, the Olson problem arises: "The kinds of interventions that the new trade theory suggests ... will typically raise the welfare of small, fortunate groups by large amounts, while imposing costs on larger, more diffuse groups. The result ... can easily be that excessive or misguided intervention takes place because the beneficiaries have more knowledge and influence than the losers" (Krugman (1987)). As a general policy free trade, he therefore argues correctly, is likely to be second best even from the viewpoint of the national weal!

The new trade theory, however, is claimed (Helliner (1985)) to have even greater relevance for "small" developing countries which have some foreign oligopolies earning rents in the home market. The government can, through an appropriate tax-subsidy policy (like a two part tariff), not only shift these rents to domestic consumers but also get the foreign monopolist to finance the subsidy. (See Srinivasan for an outline of the model and why it is unrealistic.) Various other arguments that have been advanced in the context of the new trade theory are surveyed by Srinivasan, and need not concern us. As he concludes, most of these recent outpourings

... do not contradict the presumption that outward orientated policies that promote competition and efficiency will be beneficial. Indeed, given that concentration in industry and oligopolistic behaviour by firms in the domestic market have often been created by the set of policies pursued as part of the import-substituting industrialization, it is not profit diversion from foreign, but the promotion of competition and improvement in the efficiency of the operation of domestic firms that is important. (p.21)

This leaves the "pecuniary" externalities associated with increasing returns which were used by Scitovsky and Rosenstein-Rodan to advocate programs of "balanced growth" and "big pushes" in the 1950s. The arguments being advanced for industrial strategies by, for instance, Pack and Westphal (1986), are of the same ilk. But these "pecuniary" externalities are Pareto-irrelevant. If they were Pareto-relevant, then as Scitovsky noted "the complete integration of all industries would be necessary to eliminate all divergences between private profit and public benefit" (p. 249) or, as Rosenstein-Rodan advocated, "the whole of industry to be created is to be treated and planned like one huge firm or trust" (p. 204). This so-called coordination of investment plans is, of course, nothing else but the planning syndrome -- the search for a centrally determined investment plan which takes account not merely of current but all future changes in the demand supply of a myriad of goods. It is now known that because of imperfect information and irreducible uncertainty, no market economy can ever attain the intertemporal Pareto efficient outcome of the Utopian Arrow-Debreu theoretical construct, where there are markets for all "commodities" indexed by date and state of nature till Kingdom come. But neither can the planners achieve this outcome, as Hayek and Mises pointed out years ago in the debate about the efficiency of Soviet type central

planning.⁶ The recent collapse of this system world-wide is a resounding empirical confirmation of the validity of the Austrian insight that in the real world imperfect markets are superior to imperfect planning.

The reason lies in the role of entrepreneurship and decentralized forecasting in a world of irreducible (Knightian) uncertainty. Unless planners can foretell the future better than entrepreneurs, there is no reason to believe and plenty of evidence from the gigantic mistakes⁷ by planners, to disconfirm the view that investment decisions based on planners forecasts will be better than those of a myriad of entrepreneurs, about the likely future changes in technology, tastes and resources, and hence on the demand and supply and relative prices of different goods.

How can this be squared with the purported perfection of "planners" in Japan and S. Korea?⁸ It is undoubtedly the case that these economies (for instance, unlike Hong Kong), are not examples of classical laissez-faire. Dirigiste industrial policies have been followed, and seemingly have been highly successful given their exceptional growth performance. But this begs

⁶For the continuing skeptics one need only note that recent estimates of TFP growth in the USSR show that from 1970 TFP (which was never more than 1.6% pa) became stagnant and from 1975 was negative (see Ofer (1983)). This is increasingly seen both by the Soviets themselves and outside observers, as a systemic problem flowing in large part from that dirigiste form of industrial planning, whose justification was the "coordination failure" highlighted by Scitovsky and Rosenstein-Rodan. Desai and Martin (1983) have, moreover, estimated the inefficiency arising from interbranch misallocation of capital and labor deployed in Soviet Industry and find it ranges from a low of about 3-4% to a high of 10% of efficient factor use. Moreover, this inefficiency is rising over time. For China, another command economy, also presumably capable of overcoming the "coordination failure", Chow (1985) found that the increase in industrial output was mainly due to an increase in capital inputs, rather than of improvement in technology, or efficiency.

⁷For U.K. examples in the promotion of high tech industries, see Henderson.

⁸See Chalmers-Johnson, Amsden.

the question whether the good performance has been due to, or in spite of, their industrial dirigisme. To assume that the two are causally linked is like assuming that, quite often because witch doctors are seen and believed to have made efficacious cures, their remedies are the causes of the patient's recovery.

This last statement is not merely rhetorical. For the advocates of successful industrial dirigisme in Japan and South Korea have singularly failed to provide any evidence of a replicable mechanism whereby the industrial planners in these countries succeeded in efficient "industrial targeting", whereas others, most notably India, but also countries like Brazil, Turkey or Mexico, have failed. Unless the Korean and Japanese bureaucrats are more prescient than their fellows in other countries -- and why should they be -- there is no logical reason provided for their success.⁹

In fact, there is evidence that far from bring prescient the South Korean planners clearly made mistakes, particularly in promoting the development of heavy industry in the 1970s. But unlike their counterparts

⁹ The best assessment of Japan's astonishing post-war economic resurgence remains the collection of essays in Patrick and Rosovsky (eds) (1976). The essay by Trezise and Suzuki clearly shows that there is little merit in the arguments of Chalmers, Johnson, Wolfren et al, about the omniscience of Japanese bureaucrats, and MITI in particular, in Japan's post-war industrialization. The crucial ingredient, according to Caves and Uekusa, was the importance of entrepreneurship. As Trazise & Suzuki note:

It is not credible that these talented men [the numerous business innovators and managers] really could have been closely guided and directed by a cadre of civil servants, however well educated, or that their vision and skills could have been adequately exploited within a tightly managed, essentially bureaucratic system. (p. 810)

They also note the many mistakes made by the bureaucracy and they aptly conclude:

considerations of this kind suggest a healthy scepticism toward assigning to Japan's civil service capabilities not visible in other bureaucracies. (p. 778)

in other developing countries, they saw and corrected their policy errors fairly quickly. Similarly, Singapore, another relatively dirigiste but outward looking country, sought to jump a few rungs on the ladder of comparative advantage by legislating higher wages. The adverse impact on its growth performance led to a speedy correction of its mistake.

The important and interesting question about the dirigisme found in many NIC's is not, as is often alleged (against all logic and whatever patchy and inconclusive evidence on relative TFP rates etc that is available), the nature of the superior skills of their industrial planners in picking industrial winners, but why they did not make the mistakes of many other countries in promoting inappropriate industrialization (that is not in line with their dynamic comparative advantage), and when they did, why was there swift recognition and rectification of these mistakes. The results from a multi-country comparative study of growth and poverty that Hla Myint and I have recently completed for the World Bank suggest some possible answers.

We have used an open economy theoretical framework with three factors of production (land, labor and land) due to Krueger and Leamer. This allows a classification of countries in terms of their initial resource endowments (c 1950) into labor abundant, land abundant, and intermediate, with reference to the aggregate world endowment of the 3 factors of production. The resulting model provides a richer menu of possible efficient development paths than the standard 2x2 Hecksher-Ohlin model. The latter is mainly relevant for labor abundant economies. For them, it implies the standard prescription of developing labor intensive industries, and then moving up the ladder of comparative advantage with capital accumulation. On this development path, real wages rise and hence there is unlikely to be any

conflict between the needs of the economy and the polity (irrespective of its different forms). The major task for the government is to provide an adequate infrastructure to reduce the transaction costs of the relatively small scale organizational units which will predominate in the earlier stages of this development path. In a sense this growth path is the easiest to follow. This is largely because the incremental comparative advantage of the country is self-evident, as are the infra-structural requirements. Moreover, if the country is small, the limited size of the domestic market makes reliance on foreign trade inevitable. This makes it less likely that any grave departures from the free trade resource allocation will emerge -- irrespective of the degree of "dirigisme" of the government. There seem to be two reasons for this. First, given the small size of the domestic market, any departures from the free trade allocation is unlikely to lead to vertical import-substitution (into the inputs required by domestic industry). Hence, when the costs of inappropriate import-substitution become clear, it will be easier to switch the policy regime, by creating an "as if" free trade regime for exporters by allowing them to obtain their inputs at world prices. There will be no domestic import substitute producers of such inputs and hence their lobbies preventing their competitive import. By contrast, in larger countries, or those with more intermediate resource endowments, such a switch in policy regime will be politically difficult as it would hurt the interests of inefficient import substitute intermediate goods producers.¹⁰ Mistakes can thus be more easily rectified as part of a learning process, because the political costs of

¹⁰ For a discussion of the relative difficulties of India adopting Korean tactics to switch trade regimes, see D. Lal: "Ideology and Industrialization in India and East Asia," in H. Hughes (ed): Achieving Industrialization in East Asia, Cambridge, 1988.

rectification are likely to be low.

A labor abundant country's growth path is likely to be easier for a second reason. Its incremental comparative advantage is readily apparent to economic agents both in the public and private sector. In this sense "industrial winners" are more obvious, and the consequences of picking losers (or policies which stimulate losers) more immediate -- as with Singapore's ill-advised and ill-fated attempts to jump a few rungs on the ladder of comparative advantage through an artificial raising of wages. The propensity towards dirigisme of most Third World states can thus be satisfied at low cost in such countries, and their governments can gain the kudos of visiting academics for their rational dirigisme in having promoted the obvious winners. But as any dirigisme has deadweight costs, there will still be some, though perhaps small, costs of substituting public for private action. There may be additional costs if hubris sets in and the "planners" depart from the obvious and seek to promote industries which do not fit the country's incremental comparative advantage.¹¹

Similarly, the comparative advantage of a large land-abundant country is also likely to be relatively obvious, but much more difficult, to realize. This is for two reasons. First, with a high supply price of labor (compared with the labor abundant countries) due to its more favorable labor-land ratios, once such a country seeks to industrialize, its incremental comparative advantage is likely to lie on the relatively capital

¹¹ An example is the promotion of heavy industries in South Korea in the mid- 1970s. See K.W. Kim: "South Koreas," in C. Saunders (ed): The Political Economy of New and Old Industrial Countries, Butterworth, 1981. Also of the Gang of Four, the efficiency of capital seems to be the highest in Hong Kong (see Findlay and Wellisz (1990)). Moreover, as Scitovsky has noted, the particular form of Korean dirigisme has led to needless concentration of wealth and power in a few major industrial groups favored by the planners compared with Taiwan.

intensive rungs of the ladder of comparative advantage. As the development of such industries is likely to require lumpy investments, scarce skills and imported technology, it may be difficult to develop such industries without at least some public promotion. The dangers of "bureaucratic failure" endemic in such promotion may then lead to a failure to realise their economic potential.

Second, with increasing population, if the rate of capital accumulation is not high enough, then their efficient development path could contain segments where real wages need to fall. Thus, unlike the unilinear (rising wage) development path of the labor abundant countries, land abundant countries might find that they first have to move onto a higher rung of the ladder of comparative advantage, then slide down a few rungs (if capital growth is not rapid enough), before proceeding on a similar unilinear path as their labor abundant cousins. This required "equilibrium" time-path of real wages could, however, pose some serious political problems if the polity is subject to factional democratic pressures. We could get a polity which seeks to resist the "equilibrium" real wage adjustments by turning "inward" and hence comes to be at odds with its comparative advantage.

The intermediate group of resource endowment countries have the most difficult development paths. First, their incremental comparative advantage is not so apparent. Hence, "mistakes"¹² are not easily recognized, nor rectified -- particularly if the "mistakes" have been made by the public sector, which in the absence of any bankruptcy constraint, resists the exit of inefficient firms. Second, like the land-abundant countries the

¹²The reason for putting the term in quotes is that if incremental comparative advantage is not apparent, then the mistakes cannot be ex ante ones. They can only be identified with hindsight and so it becomes doubtful if they are mistakes!

intermediate groups are also likely to face situations in which their polities are at odds with their comparative advantage.

Conclusion

Our conclusion can be brief. In the by-now long history of industrialization around the world, it is apparent that by and large an outward-orientated trade regime which embodies the classical law of dynamic comparative advantage aids efficient industrialization. But there is still an important role for government in providing that essential economic framework -- a legal system ensuring clear property rights, a monetary constitution which assures monetary stability -- which allows the entrepreneur (who is ultimately at the heart of the growth process) to do his/her job. In addition, it is in the provision of these essential public goods and quasi-public goods such as infrastructure, together with the development of human resources (education, training, health), that governments should ideally confine their necessarily limited capabilities. To urge them to undertake selective industrial policies, as many voices are currently recommending, is a snare and a delusion.