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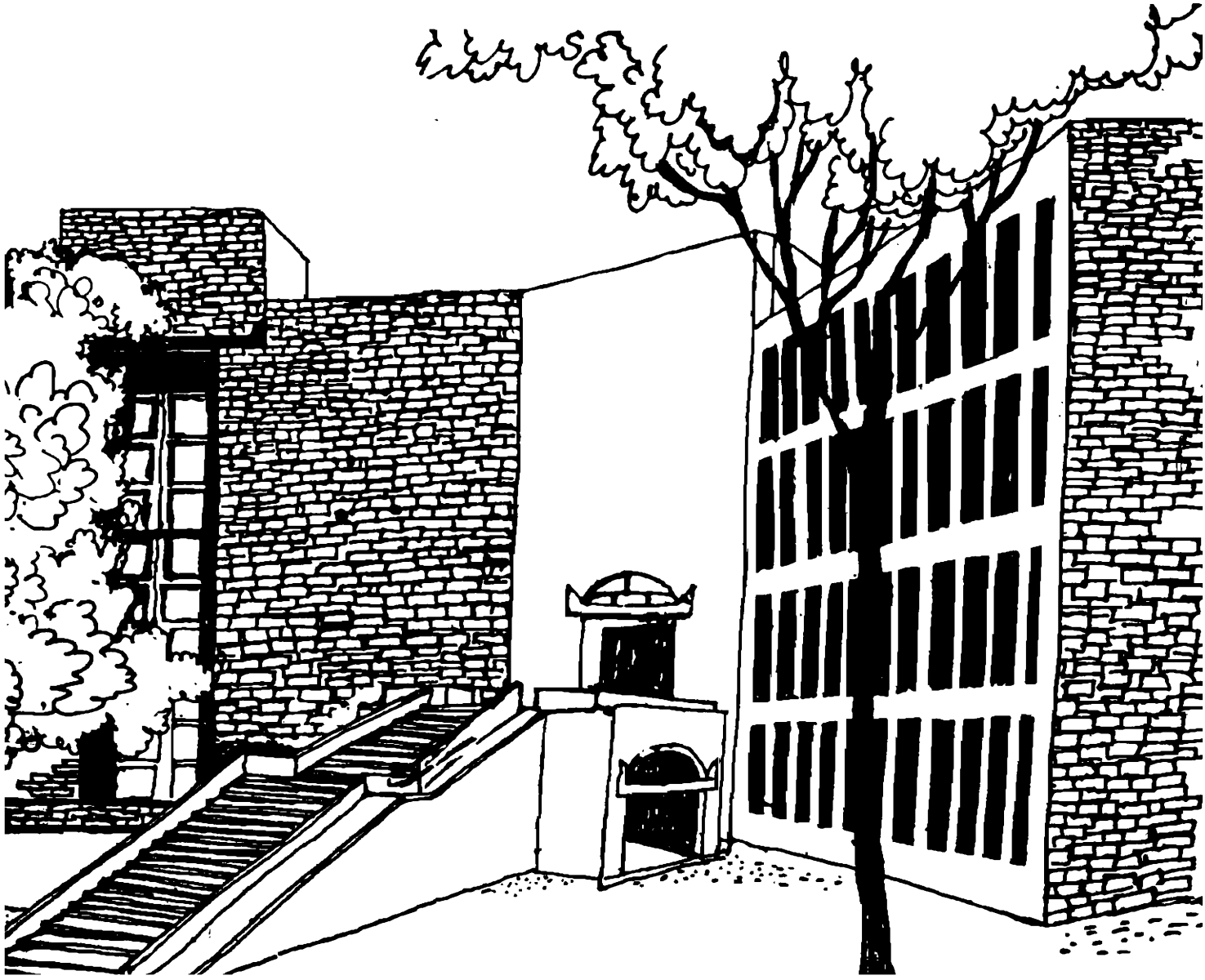

INTERNATIONAL TRADE AND LONG TERM ECONOMIC GROWTH: A FEW ISSUES ON GROWTH STRATEGIES FOR INDIA

By

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International Trade and Long Term Economic Growth: A Few Issues on Growth Strategies for India

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Abstract: For developing economies, technological change and micro level efficiency is as important as capital accumulation as a source of long term economic growth. International trade is an important source of incentives in generating both intentional and by-product technological change by increasing aggregate economic activity (market size) and competitive conditions. In the present context, selective policy intervention on the production side may provide a cutting edge in realizing dynamic gains through trade.

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1. Introduction

The analysis of long term economic growth has emerged once again as the central topic of the mainstream economics as developed countries themselves have to worry about stagnant or slow growth in real incomes during the last twenty years. While in developing economies the main emphasis has been on capital accumulation as the major source of growth, for developed economies it is on technological change. In the context of continuous and rapid technological changes in the international markets how accumulated capital is utilized to generate technological change and higher labour productivity is as important as capital accumulation in developing economies. The endogenous growth theory pioneered by Romer (1986) and Lucas (1988) sheds some light on how technological change is endogenously generated by micro and macro level incentives emanating from market conditions, the policy and institutional regimes.

The classical growth model of Solow (1956) is based on the assumptions that technological change is exogenous and it is a public good. The assumptions imply all countries, (both developed and developing) should be on a similar technology frontier because under these assumptions, diffusion of technological change is instantaneous. Obviously, both the assumptions are only partly right because most technological change is endogenous caused by deliberate efforts of economic agents and that it is not a public good. Some technological discoveries might be exogenous caused by random factors, but the aggregate rate of discoveries are endogenous caused by deliberate efforts and the level of economic activity. The non-public good nature of

discovery is one of the major incentives for deliberate efforts in the modern economies and a source of rents to innovators. International trade is one of the major sources of increasing the aggregate economic activity and also incentives for deliberate technological efforts.

The empirical studies of cross country comparisons provide certain stylized facts which show a positive correlation between long term economic growth and variables like trade openness of an economy, government investment expenditure (as against consumption expenditure), and investment in R&D, primary and higher education.[1] Trade openness of economies has been observed to be a major source of growth. In the decade of 1980-90, while the world GDP grew at a rate of 3.2 per cent, world exports grew at 4.3 per cent. For China and India together for this period, GDP grew at 7.6 per cent and exports at 9.8 per cent (Cooper,1995)[2].

In the static framework of the classical trade theory, free international trade does not increase endowment of capital (capital accumulation). Under the assumption of perfectly competitive markets, free trade improves the static allocative efficiency of resources across trading nations, which in turn, increases real incomes. In the trade theory of imperfect competition, trade increases production runs and reduces average costs and prices under the presence of economies

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[1] See Grossman and Helpman (1992), Edwards (1993) for a review of this literature.

[2] Syrquin and Chenery (1989) show that in the period of 1952 to 1983, in a sample of over one hundred countries those with an outward orientation achieved an average output growth rate of 5.22 per cent per annum and an average growth rate in total factor productivity of 2.2 per cent per annum. Those with an inward orientation grew at an average rate of 4.28 per cent and experienced average growth in TFP of only 1.6 per cent.

of scale in production of manufactured goods which, in turn, increases real incomes across trading nations (Patibandla, 1994). In a dynamic framework, increase in incomes leads to increase in savings and investment (capital accumulation). International trade may also generate positive externalities, learning by doing economies and provide incentives for technological change through increased competitive conditions and extension of market size (division of labour). For developing countries, economic growth requires not only factor accumulation but also narrowing technology gap with developed economies. They need to have to certain minimum level of initial industrial, skill and agricultural endowments in order to realize dynamic gains of international trade. Policy intervention could be towards generating these minimum necessary endowments. In the East Asian countries, the selective policy intervention, apart from creating the minimum initial conditions, facilitated generation of dynamic gains and consequently high growth in relatively a very short period of time.

The blanket import substitution policies pursued by India and Latin America in the past, where the policy regime discouraged both exports and imports, were based on the assumption that international trade with developed countries leads to immerserising growth through worsening of terms of trade, based on the Prebisch (1950) and Singer (1950) hypothesis. This paper argues that the several elements of the Prebisch and Singer hypothesis, which has been discredited by a dominant part of development economics literature by citing the East-Asian economies (World Bank, 1990), is still valid for developing economies. However, the solution lies in not blocking trade but a careful selective policy intervention on the domestic production side that provides appropriate incentives for technological change. One of the major differences between the South

Korean and the Indian policy regimes is that while India followed blanket import substitution by keeping its exchange rate highly overvalued, South Korea followed selective import substitution with competitive exchange rates (since 1964). This facilitated in exploiting the initial static comparative advantage in labour intensive industries while the selective policy intervention created dynamic comparative advantage in capital intensive high technology industries (Westphal,1990). This paper argues that the policy in India should encourage exports of industries that have static comparative advantage while simultaneously providing appropriate incentives for technological change. The scope of this paper is rather narrow, as it deals with only certain aspects of the link between trade and growth.

II.a.Validity of the Prebisch and Singer Hypothesis in the Present

The main premises of the Prebisch and Singer hypothesis were; (1) a secular decline in the terms of trade for exports of primary goods of developing economies would result in an ever-growing widening of the gap between rich and poor countries in the absence of industrialization in the poor countries and (2) in order to industrialize the poor countries should protect their infant industries from imports (Edwards,1993).

The essential message of the hypothesis is still valid to developing countries. But how it is absorbed and implemented could be the explaining factor between the success stories of the East Asian countries and the relative failure of India and Latin America. This is illustrated by a comparative analysis of South Korea and India. South Korea and India followed broadly similar industrialization strategy (Datta Chaudhuri,1990). The difference was that while India followed

blanket import substitution by keeping the exchange rate highly overvalued. South Korea promoted exports by maintaining a competitive exchange rate regime (since 1964). This facilitated South Korea to exploit static comparative advantage in international trade by exporting labour intensive goods in the beginning, while the selective policy intervention created dynamic comparative advantage in specific capital intensive sectors through selective and time-bound import protection, provision of capital at differential interest rates, etc. (see Westphal,1990, Pack and Westphal, 1987). As the comparative advantage shifted to modern industries, South Korea's terms of trade improved. Increase in labour productivity and volume of trade resulted in increase in real wages. These dynamics of growth process had a two way causation between trade and growth. In India's case, the overvalued exchange rate mechanism restricted her from exploiting static comparative advantage in labour intensive goods by making exports in general unprofitable. Secondly, the policy mechanism created inefficiency in the use of capital and other inputs in the capital intensive sectors that were promoted. Consequently, the policy regime failed to take advantage of static comparative advantage and to create any significant dynamic advantage in capital intensive sectors (Patibandla, 1993).

II.b.Sources of Growth and Terms of Trade Effect

As mentioned earlier, the blanket import substitution policies of India and Latin American countries were based on the premise of adverse terms of trade effect of free trade with developed countries. The inimical effect of decline in commodity terms of trade on per capita incomes owing to growth in export sectors depends on the sources of growth. If growth is because of increase in inputs like labour, it will cause a decline in per capita income. But if growth is due

to technical progress, decline in commodity terms of trade need not lead to decline in per capita incomes.

The above observation is illustrated through the single factoral terms of trade equation :$(Px/Pm)(X/L)$. Px is the price of exports. Pm is price of imports which is assumed to be constant. X is the output of the exportable commodity. L is the one input used to produce X. (Px/Pm) captures commodity terms of trade and (X/L) refers to labour productivity in producing X. We take the country to be large in the world market for X, so any increase in supply of X leads to decrease in Px. Growth in X can take place because of increase in input of L or due to increase in productivity of L, i.e., technical progress. Growth in X leads to decline in Px owing to increase in supply of exports. If growth in X is because of increase in L, (X/L) could remain unchanged but (Px/Pm) decreases worsening per capita incomes in the exporting sector (the extent of this depends on the elasticity of export demand). If growth is arising from technical progress decline in (Px/Pm) can be offset by increase in (X/L). If increase in (X/L) is more dominant than decline in (Px/Pm), it leads to increase in per capita incomes even if the commodity terms of trade worsen. A simple of example of this is that both the U.S and India export agricultural goods. In the U.S., only 4 per cent of its population shares the income generated in agriculture whereas in India 60 per cent of the population shares the income generated by agriculture. The adverse terms of trade effect on per capita income is more dominant if growth of output is mainly because of increase in labour supply (population).

Standard growth theory shows that capital accumulation leads to increase in labour productivity and wage rate by providing labour to work with capital equipment. If capital accumulation is mechanical, in terms of increasing the number of similar type of machinery, it will be subject to diminishing returns to capital. If capital accumulation is in terms of skills and knowledge acquisition (through learning by doing and investment in education) and embodied technological change, diminishing returns to capital will not take place as shown by the endogenous growth theory. Here, the issue of how accumulated capital is invested and utilized becomes germane. If the accumulated capital is used to bring improved machinery and improved intermediate goods, through investment in knowledge capital, it may lead to increasing returns to capital. Capital accumulation in terms of skill acquisition may be largely related to learning by doing economies (apart from investment in human capital), which, in turn, depends on output growth. For economies with small domestic market for industrial goods, exports function as a source of extension of the market size which facilitate learning by doing and also generation of externalities.

The importance of technological change and its implications on terms of trade and growth in developing countries can be seen in a relatively recent paper by Krugman (1979) also which applies product life cycle theory to shed light on terms of trade between developed and developing countries. Its essential logic is similar to the main elements of the Prebisch and Singer hypothesis. Technological change is concentrated mostly in the North. The terms of trade tend to be adverse to the South because they pay a form of Schumpeterian profits to the innovators in the North in the form of high product prices, where new innovations first occur. On the

product life cycle while the South begins to export the product whose price has fallen, new products will have been developed in the North, which they will sell to the South for prices high enough to cover their wages and to earn some Shumpeterian profits. Hence, an intrinsic aspect of the product life cycle process is that the technology initiating high wage economy reaps high prices for its products relative to technology receiving low wage economies and the profit income is mostly in the North.

Lau's (1996) cross country study shows that for developed countries, technical progress is the main source of growth. In developing countries despite high rates of growth and rapid capital accumulation in some of them, the rate of technical progress have been found to be statistically insignificant. Given these findings he argues that developing countries should look ahead and begin to plan to devote a greater proportion of their resources to indigenous research and development. This is especially urgent given the long gestation periods for and uncertain returns on such investments in intangible capital.

One of the reasons for lack of innovative R&D in India in the past has been attributed to small size of the domestic market and the policy regime (Lall,1987; Desai,1982). R&D investment involves fixed and sunk costs. Access to large market is needed to spread fixed costs and reduce risks. The argument that small domestic market not only constrains R&D investment but also causes production at sub-optimal scales is still valid for many Indian industries. The policy that targets encouraging of R&D efforts towards generating technological change in India need not encompass all industrial sectors. Given certain country specific advantages, specific local

industries might be more successful in generating innovations: for example, soft ware, auto components, and two wheelers, etc. Industries like auto-components and software have a starting (static) comparative advantage owing to availability of inexpensive skilled labour, which facilitate exports. Exports, in turn, extends the market size and reduces the risk element of R&D investment. Furthermore, the extension of market size through exports should increase the cumulative output of exporting firms. This, in turn, can cause significant learning by doing and reduction in costs in those industries.[3] These advantages arise not only through R&D expenditure but also by deliberate efforts by firms towards improving production processes. Competitive export markets will put pressure on firms towards undertaking deliberate efforts. Trade openness may also increase the absorbtion capacity of technologies developed in the advanced nations and generating innovations locally (Grossman and Helpman 1991; Edwards, 1992).

The above observation can be illustrated with the example of the Indian Software Industry. India has strong comparative advantage in Software industry due to skill endowments which has caused exports of software to grow from Rs.50 crore in 1985 to Rs.1,535 crores in 1995 with an average annual growth rate double the world average. The generation of wage and especially profit income through exports of this industry depends on at what stage of the product life cycle the domestic industry is in the context of rapid technological changes in the world market. Investment in R&D and generation of innovations facilitate the industry to be on the initial phase of product life cycle by generating successful innovations and increase profit income of the domestic industry. Initial access to growing domestic and export markets reduces risks and

[3] For example, in the semi-conductor industry, average cost can fall by 20 to 30 per cent every time its cumulative output doubles. See Geroski,1991.

spreading of fixed costs in R&D investment. This is where policy can provide a cutting edge by giving certain incentives for R&D investment by facilitating effective protection of intellectual property rights, fiscal concessions, investment in infrastructure and education, etc. Similar argument may apply to a few intermediate goods industries like auto-components and two wheeler industry which have a very strong and growing domestic demand.[4] As mentioned before, investment in knowledge capital in these industries is subject to strong increasing returns to scale and exports magnify these returns by extending the market size which, in turn, may generate cumulative learning economies.

A few of the above observations are tested empirically on the basis of firm level panel data drawn from the Indian Light commercial vehicles industry. The data is drawn for two major corporations: Tata engineering and locomotives and Ashok Leyland for the period of 1985-86 to 1994-95. The data is drawn from the Confederation of Indian Industry's (CII) annual publications of Top Hundred Companies. We use a simple theoretical model as the basis for the specification of equations for empirical testing.

The Model

We take domestic oligopoly firms to compete in Cournot quantity space in the home market. On the basis of the assumption of small country in the world market, we take domestic firms to be price takers in the world market. The domestic market is protected from imports. Both

[4] Japan, after years of imitating and absorbing foreign technology, became an important innovator in consumer and capital goods in 1980's because innovation is highly essential to retain comparative advantage in continuously changing technological frontiers in the world market.

assumptions are highly justified for most of the Indian engineering industries. We take two firms i and j, but results are generalizable for more than two firms.

The profit function of firms is:

$$\Pi_i = P(x_i + x_j)x_i + P_w x_i^* - (1/2)c_i(x_i + x_i^*)^2 \qquad (1)$$

P is the domestic market price, Pw is the world market price, x_i is domestic sales, x_i^* refers to exports and c_i is the parameter of the cost function.

By solving for the profit maximizing conditions, we get domestic sales and exports in equilibrium as follows;

$$x_i = \{P_w - P()\}/P'() \qquad (2)$$

$$x_i^* = (P_w/c_i) - x_i \qquad (3)$$

From equation (2) we can see that a decrease in c_i leads to increase in exports.

$$c_i = f(R\&D_i, IM_i) \qquad (4)$$

$f' < 0$;

$R\&D_i$ = Intensity of expenditure on research and development

IMi = Intensity of imported intermediates and raw materials in production

On the basis of equations (2) and (4), we hypothesize that increase in R&D expenditure and imported intermediate goods in production leads to reduction in costs and increase in exports.

Empirical Analysis

Measurement of Variables

E/S = exports to sales ratio

$R\&D$ = research and development expenditure/value-added

IM = Imported intermediates and raw materials/value-added

Z = an index of relative firm level production efficiency

Firm level efficiency indices are measured on the basis of Farrell's (1957) production frontier approach. Recent developments in the efficiency frontiers literature show the derivation of plant-specific time-variant technical efficiency indices by using panel data. The production function defines the maximum possible output a firm can realize for a given level of inputs employed, given the technology level. Farrell's method shows relative technical efficiency as the extent of deviation of output realized by a firm (for a given level of inputs employed) from the best practice in an industry. We adopt the model of Cornwell et al (1990) which allows the rate of productivity to vary over time and firms. The residuals of the estimated (Cobb-Douglas) production function are used in deriving the efficiency indices.[5]

[5] See Krishna and Sahota (1991) and also Patibandla(1996a) for a detailed explanation of this methodology.

As the variables are mutually inter-dependent and there could be simultaneity in relationships, we estimate the causality in different stages (the correlation coefficient between R&D and export intensity variables is as high as 0.51 for this industry). There could be a two way causality between the efficiency variable and export intensity especially if there are economies of scale in production and dynamic external economies in export activity. High degree of production efficiency is required to compete in the international markets and exports extend the market size and reduce average costs of production if economies of scale are present and also information and technology externalities that arise through export activity leads to reduction in costs to exporting firms. Since we are making use of panel data and *R&D* and *IM* variables could be reliable instrumental variables, the following exercises do provide reliable results. *IM* variable can be treated as exogenous because increase in the use of imported intermediates could be a result of the trade policy reforms in terms of drastic reduction in import duties on intermediate goods. The decision to invest in R&D by firms might be a result of degree of domestic competition. Increase in domestic competition makes firms to undertake cost reducing efforts and investment in R&D and imports of inputs are made towards cost reduction. R&D investment may also be determined by the extent of imports by firms if it is towards adapting imported technology to local conditions. In other words, we can take costs of firms depend on R&D and IM; R&D investment is a function of degree of competition. The competitive dimension operates mostly from the domestic market and also export markets depending on the degree of export orientation of firms (Patibandla, 1996a). Since exports can take zero values and the efficiency is bounded to values between zero to one, ordinary least squares estimates provide biased results. We use Tobit maximum likelihood method in estimating the following equations.

$$(E/S) = 0.065\ (Z) \qquad (5)$$

$$(7.6)^*$$

log likelihood = 36

$$(E/S) = 0.32\ (IM) + 1.57\ (R\&D) \qquad (6)$$

$$(2.68)^* \qquad (2.65)^*$$

log-likelihood = 38

$$Z = 6.3\ (IM) + 12\ (R\&D) \qquad (7)$$

$$(5.1)^* \qquad (2)^*$$

log-likelihood = -3.2 $\qquad N = 18$

Figures in the brackets are *t* values.

*Significant at 0.01 level.

The above results have a reasonably high degree of statistical significance. The signs associated with the estimated coefficients support the main propositions of the model. As it can be seen from the equation (7), research and development expenditure intensity explains export intensity positively. In other words, research and development is extremely important towards achieving export success in relatively high technology manufacturing industries.

In most Indian firms, R&D expenditure had been and still is marginal. A quick reading of the data of company balance sheets (from the CII's publications) shows that a few of Indian

companies appear to be increasing R&D expenditure in the recent years, which is a healthy trend (for example, Bajaj and TELCO). Most of the R&D activity might be still adaptive (adapting imported technology) rather than innovative. Increase in this activity also leads to learning by doing and by-product technological innovations. But for these learning effects to be dominant, certain conditions have to be met: industry has to grow at a sustained rate, firms have to make deliberate efforts, domestic market has to be competitive and also complementary industries, infrastructure and institutions have to exist.

In a highly protected domestic market, oligopoly firms would tend to restrict production for realizing monopoly profits which makes them X-inefficient in production. Import policies can be used to discipline domestic producers to behave competitively and increase production and invest in technological efforts (in the absence of a competitive domestic market mechanism). This point is put forward in the following section.

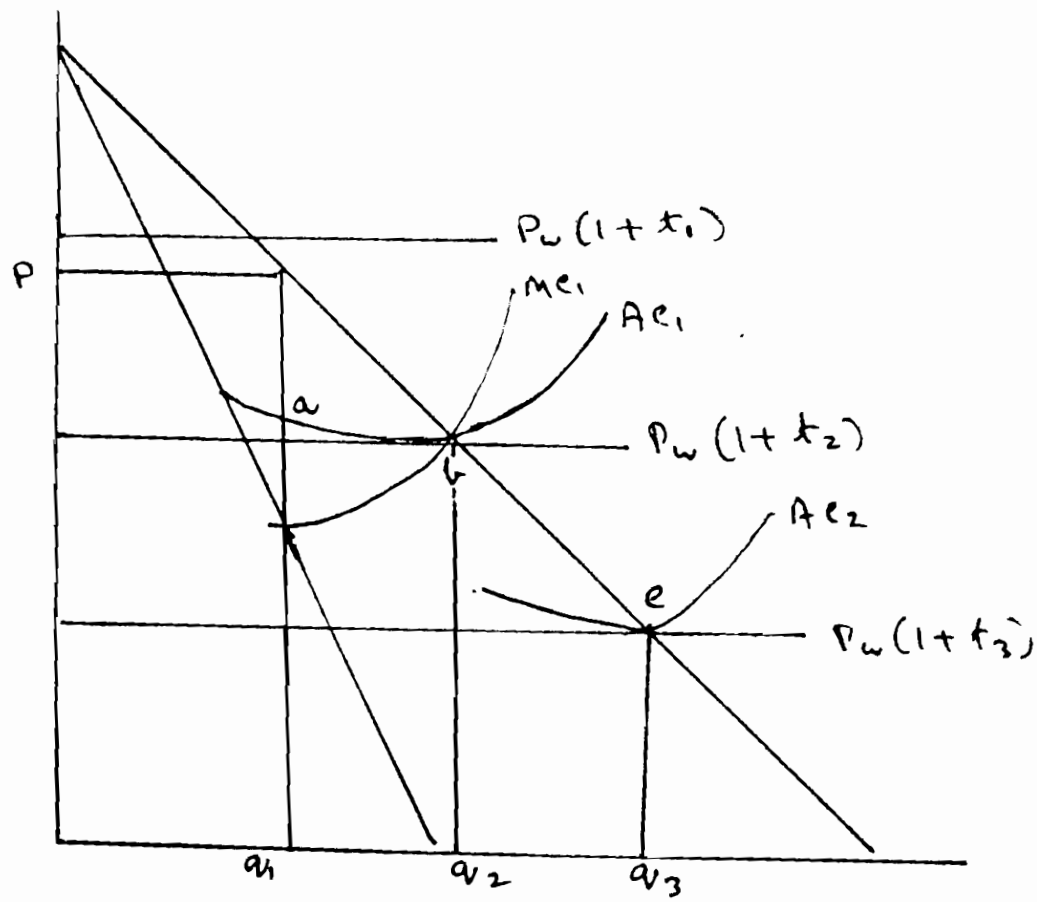
III. Import Tariff Policies and Domestic Producer's Response

At present, intermediate goods have been subject to lower tariffs at about 30 per cent and consumer goods are given higher protection at 60 per cent (advalorem). If domestic oligopoly firms producing final goods are provided with imported inputs and technology at lower tariffs, it does not make logic to allow them to restrict domestic supply and charge higher prices because of higher import protection.

Text book theory of tariffs shows that imposition of tariff on imports reduces domestic consumer surplus and increases producers surplus by increasing domestic production. If the domestic market is characterized by oligopoly or monopoly market structure, reduction in tariffs till a critical level causes increase in domestic production and reduction in domestic price by reducing the market power of domestic producers. This result is applicable to consumer goods industries in India in which the market structure is oligopolistic. Increase in domestic production due to reduction in tariffs increases demand for and production of intermediate goods which, in turn, could generate positive external economies.

The above observation is illustrated by Fig.1. We illustrate this by taking a domestic monopoly producer. But the main results are applicable to oligopoly market structure in which in equilibrium there is a positive deviation between price and marginal cost (a la Cournot). In Fig.1, D is the domestic demand curve and MR is the corresponding marginal revenue curve. MC and AC are marginal and average costs curves. t refers to tariff rate on imports. $t1$ is the initial tariff rate. With $t1$ level of tariff rate on imports domestic producer would do monopoly pricing at P and produce $q1$, at sub-optimal capacity by keeping ab level of under-utilized capacity. Reduction in tariff rates to a critical level of $t2$ increases domestic production from $q1$ to $q2$, forcing domestic producer to behave like a competitive industry. Production at $q2$ causes optimal capacity i.e., production at the lowest point on average cost curve. Any further reduction in tariffs could eliminate domestic producer. This is subject to the condition that cost curves remain unchanged. The interesting side of this story is that if there is a time sequence to further reduction in tariffs from $t2$, it may cause a downward shifts in cost curves by making domestic

Fig. 1



producers to undertake deliberate technological and organizational efforts towards reducing costs (Patibandla, 1996b). This is illustrated as following. At time period *1*, when the tariff rate is *t2*, the policy makers announce that at a future time period *2*, the tariff rate will be reduced to *t3*. The domestic producers will know that if they do not reduce costs to at least *AC2*, they will be eliminated by imports. This, in turn, can induce domestic producers to undertake systematic technological and organizational efforts towards reducing their costs of production. The shifts in cost curves is treated as a long-term effect. The reduction in costs and increase in output (to *q3*) of final goods could generate positive externalities by increasing demand for domestically produced intermediate goods.

An empirical example of the possibility of the above outcome is given in Jacobsson and Alam (1995) who did a micro level comparative analysis of set of Indian and South Korean engineering industries. In the case of the hydraulic excavators industry, they observe, "... while in the case of India, the protection from imports seemed indefinite, the Korean government clearly set a limit on the protection." The threat of import competition made the South Korean producers make systematic technological efforts towards reducing costs which made them highly competitive. In the case of the Indian industry, the policy signal of indefinite protection made the producers complacent and inefficient. [6]

[6] One caveat to this observation is that the ability of the tariff policy in sequencing tariff reductions requires an understanding by the policy makers of the time frame required for domestic producers in undertaking technological efforts to become internationally competitive.

IV. Implications of Export Policies

As the policy provides certain incentives for technological change for generating dynamic comparative advantage in relatively high technology industries on the production side, it should not provide any impediment or disincentive to industries that have static comparative advantage in exports. This is particularly important in overcoming both domestic and external savings constraint for long run economic growth as the policy intervention on this front may cause persistent current account deficits and also redistribution of income.

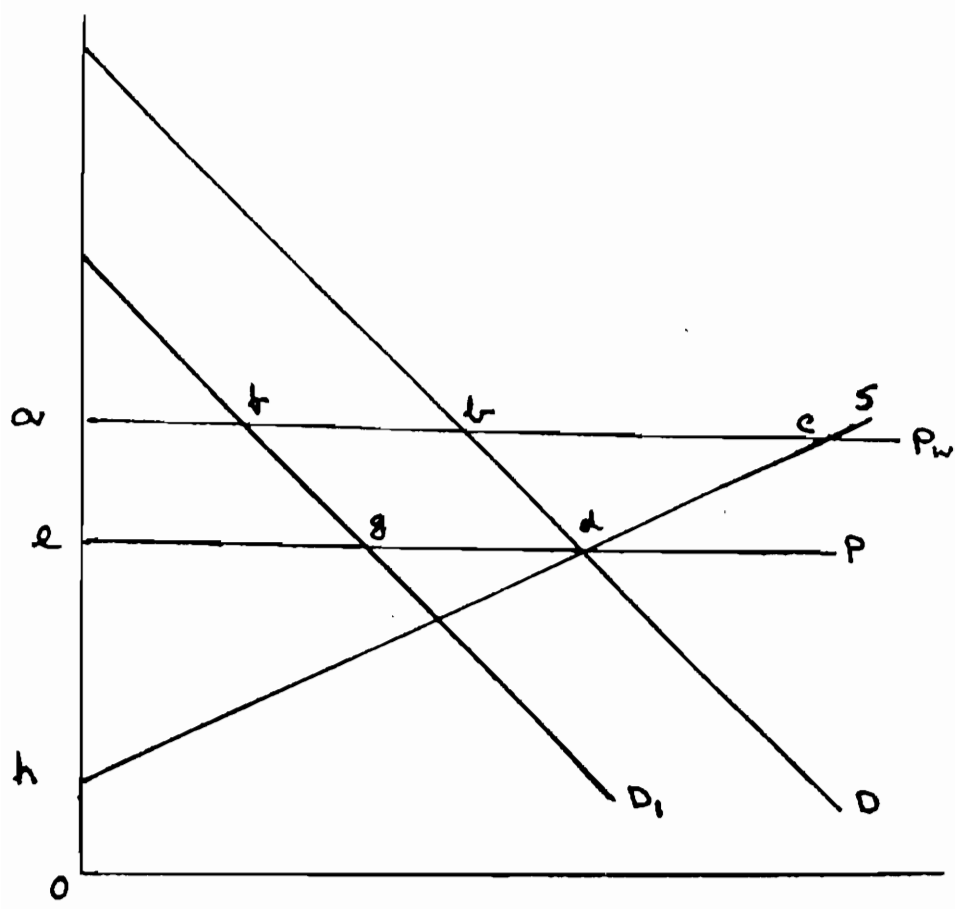
In the past and present, exports of certain agricultural commodities and raw materials and intermediate goods are blocked both directly and through overvalued exchange rate to facilitate domestic value-adding (and also to keep wage goods prices low with an inherent bias towards urban consumption). This policy is rather erroneous because it will not only lead to redistribution of income, dead weight loss in the transfer but also encourage inefficient value-adding process in the manufacturing sector. We illustrate this by taking a simple partial equilibrium framework.

Take commodity X, which can be consumed directly by households and also can be converted into commodity Y by value-adding in the manufacturing sector. Direct consumption of X is done by both poor and rich households while the value-added good Y is consumed only by richer consumers. A simple example is rice: which is consumed both by poor and rich households. But rice converted into processed food is consumed by the richer consumers. Another example is potatoes and potato chips.

In Fig.2, D represents total demand and S is total supply of X. DI is the demand curve representing the direct consumption by households. The residual of this from the total demand curve represents the demand for X to produce Y by value-addition. Pw is the world price of X, under the assumption that the home country is a price taker in the world market. If X is freely allowed to be exported, ac amount of X will be produced out of which ab is consumed domestically and bc is exported. The producer surplus is represented by the area of ach. Take the case when the policy does not allow exports either by over-valued exchange rate or by direct controls and restricts the domestic price to P. Consequently, producers of X loose the producer surplus to the extent of $acde$. A part of this represented by $abde$ is transferred to domestic consumers of X : $afge$ is transferred to direct consumers of X and $fbdg$ is transferred to producers and consumers of Y. bcd represents the deadweight loss which does not accrue to anybody. The restriction on exports results in redistribution of income away from producers of X, say agriculture, to consumers. A part of this transfer, $fbdg$ goes to richer consumers (of Y) and also profit income of producers of Y if the production of Y is characterized by non-competitive market structure with excess profits.

Y can be domestically consumed and a part of its output can be exported. The export competitiveness of Y may arise because of lower price of X, (which is the raw material), rather than because of competitiveness of value-addition. If this is the case, it gives incentive for inefficient value-addition. Y's export competitiveness should arise out of efficiency in value-adding rather than because of keeping the domestic price of X lower than world price.

Fig. 2



If the policy objective is to protect poorer household consumers, the public distribution system should be stronger and targeted. Restricting exports simply leads to net redistribution of income, dead weight loss, and disincentive for producers of X to increase supply by investing in technology and other productivity enhancing methods which should shift the supply curve down and benefit both domestic producers and consumers. The above illustration applies to several commodities like rice, cotton, leather, etc, whose exports are not allowed freely with the objective of encouraging domestic direct consumption and value-adding.

Negative Externalities in Production and Exports

The welfare enhancing outcome of free trade in the trade theory depends on the assumption of absence of negative externalities in production. If there are strong negative externalities in production of exporting commodities and export price does not reflect the social costs, increase in output through trade is welfare-inferior to the domestic economy. In the context of market reforms in developing economies, free trade may shift resources to labour intensive sectors like dye stuffs, leather goods, fish farming etc, where negative externalities in production are very dominant. If exports in these sectors are price elastic, the effect will be even more dominant by making domestic producers to undertake cost reducing efforts by violating environmental standards. The policy intervention should be on the production side rather than letting importing countries impose environmental tariffs. The imposition of these tariffs may cause a double effect of subsidizing of consumers in developed countries by developing countries as the tariff revenue goes to foreign governments. If tariffs are imposed on price, it will make things even worse by

making domestic producers keep (average cost of production and) price lower by violating environmental standards (Patibandla and Shukla, 1996).

This analysis also applies to goods produced from common property resources for which current market prices do not reflect future (costs) demand and supply because of market failure. Under these possible outcomes, it is better for domestic government to impose an optimal tax on the production side of these sectors even if it reduces output and exports.

V. Implications of Short run Capital inflows

To recapitulate, management of competitive exchange rates is very crucial for not only exploiting static comparative advantage but also generating of dynamic advantage in selective industries. In order to generate incentives for growth through trade, exchange rates should reflect the productivity of the real economy rather than short run movements in the financial sector. Improper exchange rate policies might generate more instability and are inimical to growth than import controls. Over valued exchange rate can generate instability by causing trade deficits that are unsustainably large and therefore balance of payments crisis (Rodrik,1996).

Recent financial sector reforms in India that provide incentives to short term capital inflows would do more harm than good by causing less desirable macro economic effects like monetary expansion, inflationary pressures, exchange rate appreciation and current account deficits. Exchange rate should be adjusted only for long run shifts in productivity rather than letting them to fluctuate because of movements in short run of capital flows. Short term flows of capital also

cause other harmful effects, as they reduce domestic interest rates and increase consumption and reduce domestic savings and cause current account deficits.[7]

VII. Conclusion

In the context of increasing integration of economies and rapid technological changes, the issue of economic growth in developing economies has to incorporate several other important variables apart from capital accumulation. For catching up developing economies, allocating capital for intentional technological efforts and increasing labour productivity is as important as capital accumulation. In the absence of technological progress, the terms of trade for developing economies will always be worse as they have to pay high prices for the products of innovating economies. As shown by the endogenous growth theory, technological change requires incentives emanating from both macro and micro level factors. International trade is an important source of these incentives in generating both intentional and by-product (externalities) technological change by extending market size (aggregate economic activity) and increasing competitive conditions. In order to realize the dynamic gains of trade, developing economies need to have certain minimum industrial, agricultural and skill endowments which requires government investment in infrastructure, primary education and complementary institutions. Selective policy intervention on the production side may provide a cutting edge in realizing the dynamic gains.

[7] The recent Mexican crisis of December 1994 is mainly due to exchange rate mismanagement with high levels of short run capital inflows.

Micro level production efficiency and technological activity is very much dependent on the macro level condition of aggregate economic activity. The role of international trade is increasing the aggregate economic activity by increasing the size of the market. But the gains through trade can be realized and magnified only when there is vibrant domestic market base.

The past policy regime in India created a macro environment which restricted realization of static comparative advantage in exports. This, in turn, caused external and internal savings constraints by generating persistent current account deficits and redistribution of domestic income. Apart from this, it did not create incentives for significant technological change in the modern sectors towards generating dynamic comparative advantage in trade.

The generation of dynamic comparative advantage in modern industries through technological change requires investment in social and knowledge capital and also deliberate technological efforts on the part of firms. In the past and also in the present the investment in social and knowledge capital and infrastructure has come mostly from government and revenues for government investment are generated from a highly regressive tax structure. The notable side of the story is while the average rate of profit in the Indian corporate sector had been very high at about 30 per cent (the corresponding figure for the South Korean firms is only 4 per cent, see World Bank, 1989), most firms in the corporate sector have been observed to be zero tax paying and invest very little in social and knowledge capital. The Indian corporate sector continues to be myopic with a very little investment from it in R&D and social infrastructure. The policy at the present juncture has to design and implement a carrot and stick mechanism that makes firms

to invest in knowledge and social capital and undertake deliberate technological efforts. Import and export policies that reflect global competitive market mechanism could be an important part of this strategy. Import policies that give greater access to technology and intermediate inputs to firms should at the same time discipline firms to make deliberate technological efforts towards improving efficiency. As shown in this paper, a sequential reduction in tariffs on imports on final goods could function as a stick (disciplinary mechanism) towards firms to undertake deliberate technological efforts. Furthermore, investment in R&D and technology increases wage levels of scientific skilled labour, which, in turn, provides incentives for technological skill acquisition by labour. For example, a dominant reason for the best-trained engineering graduates going for management education in India at present is because of the distorted incentive mechanism. A very low investment in R&D by the corporate sector depresses salaries to the scientific manpower and high investment in marketing increases wage levels to marketing managers. This, in turn, makes an engineering graduate to acquire an MBA degree in marketing instead of going for a scientific job which is basically a cumulative loss to the economy.

There are a few specific domestic industries which are skill intensive and have strong and growing domestic demand base. This gives them a starting comparative advantage in exports. For terms of trade to be favourable, these industries should be on the technology frontier. An element of policy support in terms of providing incentives for R&D investment and technological efforts in these industries might be quite effective in providing an cutting edge to be on the technology frontier in the world market.

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