

May 2001

**Growth and Inequality:
the Role of Foreign Trade and Investment**

Richard N. Cooper
Harvard University

I. Introduction

This paper addresses the influence of foreign trade and investment on inequality or, more generally, on the distribution of income, with a focus on developing countries. There has been some scholarly debate on the influence on economic growth of economic openness to the rest of the world. Since growth affects the level of poverty and the distribution of income, the trade-growth nexus is also addressed.

"Distribution of income" has several quite different meanings, apart from the issue of the specific measurements that are used to describe it. Economic theory has mainly been concerned with the functional distribution of income, that is, with the returns to different identifiable factors of production and their respective shares in total income of a particular country, such as the share of labor income in national income. Popular and political discourse is more concerned with the size distribution of income, such as the fraction of national income accruing to the top ten percent, or the bottom decile, of residents of the country in question -- and in particular on whether inequality has risen or declined. In recent years, concern with the size distribution of income has extended to the global distribution, where observations are on countries, grouped by per capita income, rather than on individuals.

The two concepts of distribution are related by the ownership of the factors of production, especially land in a predominantly agrarian economy, capital in a modern economy. If ownership of land and capital were evenly distributed across a population, even significant changes in the functional distribution of income would have little impact on the size distribution of income. Somewhat surprisingly, simulated empirical models suggest that the size distribution of income,

while significantly influenced by the overall development strategy and the institutional structure of a particular country, is little influenced by economic shocks or by modest changes in policy within a given strategy (Adelman and Robinson, 1989).

The paper starts with a simple parable of economic change, to fix ideas about the possible consequences for inequality of a single significant shock. It proceeds in section III to review selectively theoretical reasons why and how foreign trade might affect the (mainly functional) distribution of income. It also addresses the possible impact of foreign trade on economic growth. Section IV offers a similar review with respect to inward foreign investment. Section V summarizes some of the empirical work that has been done to identify the impact of foreign trade and investment on growth and on distribution of income. Section VI suggests a simple paradigm to characterize world economic growth over the past half century, and within this paradigm questions whether we should be at all concerned with the global size distribution of income. Section VII offers some concluding remarks.

II. A Parable of Change

Assume a coastline with many traditional fishing villages, each autarchic but economically identical. The only (non-domestic) economic activity is fishing. There are three kinds of fishermen (only males fish): ordinary, superior, and energetic. Superior fishermen have special, non-transferable skills at fishing, e.g. they have better-than-average instincts about where to find the fish. Energetic fishermen work harder (e.g. longer hours) than other fishermen. And of course there is an element of luck in determining the daily and annual harvest by each fisherman, luck being distributed randomly.

Ordinary fishermen earn an ordinary (basic) annual wage in fish, adjusted up or down in any given year by good or bad luck. Superior fishermen earn a superior wage, also adjusted up or down by luck. Energetic fishermen earn the basic wage augmented by their additional effort, again adjusted up or down by luck.

The observed distribution of income among fishermen in any given year is thus determined by the skill premium of the superior fishermen, along with their numbers, the extra effort by the energetic, along with their numbers, and by an element of chance.

This ecological/economic equilibrium is now disturbed by the arrival of (to the villagers) "foreign" ships, engaged in some offshore activity that does not directly involve the villagers. But the ships need a local shore base, for re-supply of food and fresh water, repairs, and crew rest and recreation. They choose one of the villages, perhaps because of its deeper channel, but to the villagers it is by chance; perhaps they pay a distant government for the right to do so, and/or subsequent royalties. The distant government neither collects taxes from nor provides services to the villagers, beyond protecting them from marauders or invaders.

The regular coming and going of ships, let us suppose, destroys the fishing activity, perhaps by driving the fish away, thus depriving these villagers of their traditional livelihood. It does not directly affect fishing in other villages.

On the other hand, the ships and their crews need local services in the form of food preparation (e.g. baking), repairmen, eating establishments, and unskilled labor. None of the new required skills are initially available in the village, but the opportunity set facing the villagers has been drastically altered. Let us suppose that energetic fishermen are those who recognize the possibilities and take steps to acquire the required skills, which command a premium wage. The wage is paid in money, which is used, at least in the early stages, to buy fish from neighboring villages, which are in competition with elastic supply, but charge for delivery, and which in turn use the money to import new goods, thus eliminating their autarchy.

What is the new equilibrium, and how does it compare with the initial situation? Two cases can be distinguished, depending on whether the new demand for labor at the initial basic wage A) falls short of or B) exceeds the available number of fishermen.

In case A), the basic wage will fall enough to employ all the fishermen (since they now need income). Superior fishermen will earn the new (lower) basic wage, since their fishing skills are not transferable to the new activities. Energetic fishermen will earn a new skill premium over

the basic wage, which may leave them with either lower or higher income than they earned as fishermen.

In case B), the basic wage will rise enough to ration the limited supply of labor. Real income will rise if the new basic wage is sufficient to cover the delivery cost of fish from neighboring villages, which we will assume to be the case. Superior fishermen will earn this new basic wage, and energetic fishermen will earn this wage plus a skill premium.

Thus, overall, in case A both ordinary and superior fishermen will be worse off than they were initially; energetic fishermen may be better off, if the skill premium is sufficiently high. The distribution of income, however that is precisely defined, may be more or less unequal than initially, depending on the various wage premia before and after the change, and depending on the number of fishermen in each category, but the element of chance (in this parable) will have been eliminated.

Neighboring villages will clearly be better off, on average, since their incomes will have risen by supplying the new demand for fish (presumably at the expense of other fish predators, micro and macro). If the additional fish are provided solely by the energetic fishermen in other villages, the distribution of income may have become less equal there.

In case B all ordinary workers in our village are materially better off. Superior fishermen will be worse off if the basic wage has not risen enough to cover their loss of skill premium plus the cost of fish delivery. Energetic fishermen will be better off if the new skill premium exceeds their previous extra fishing effort, making no allowance for their leisure or the cost of acquiring the new skills. The distribution of income may be more or less equal than initially, but the relative position of superior fishermen will have deteriorated. The position of neighboring villages has improved even more than in case A.

The arrival of the ships was a major disturbance, destroying previous livelihoods in the village, but also creating new opportunities. In case A, this drastic change leaves the directly impacted village worse off, although perhaps with a more equal distribution of income. In case B, it leaves the village materially better off (i.e. it can consume more fish), although perhaps with

a less equal distribution of income. In both cases neighboring villages are on average better off, although perhaps with less equal distribution of income.

Case B, in my scale of values, is superior to case A, even if it involves greater inequality; and it may well be superior to the initial condition, even though a traditional "way of life" has been destroyed. Those who especially enjoyed fishing have been big losers, although they can perhaps regain that enjoyment by migrating to one of the other villages. Those who especially disliked fishing are of course gainers. Such gains and losses to utility are not captured by the conventional economic measures of output and consumption.

I believe that this parable, especially case B, while necessarily over-simplified and perhaps over-dramatic, captures the essence of economic change brought about by modern technology and globalization. That is, new and better economic opportunities are created for those willing to take advantage of them, but traditional methods of earning a living will generally be made less attractive, and in extreme cases (as here) may become unviable. The aged and the inflexible are likely to be losers, but the young and the more flexible face new opportunities, and on average the gainers will out-weigh the losers. The task of organized society is to assure that they do.

The parable could be extended in several directions, for example by allowing in-migration of labor from neighboring villages, thereby damping the wage increase in our village but also creating rental incomes there, thus introducing land ownership as a factor; or by allowing village women to produce a marketable product, e.g. woven baskets, used both in fishing and by the ships. The post-impact level and distribution of income will then also depend on the price of baskets, on the distribution of basket-weaving effort and talent, and on the covariance of that with pre- and post-impact skill premia. But that would take us further afield than necessary.

The "growth" portrayed in case B may be accompanied by a less equal distribution of income, however that may be precisely measured. Is that necessarily undesirable, assuming that no worker is precluded by law or practice from acquiring the new skills? An element of chance may exist (being in the right place at the right time), but over time effort should prevail. As people acquire new, modern skills, the inequality of income distribution may rise, perhaps for a long time, before it falls, as Kuznets (1966) conjectured. For example, if income distribution is

measured by the ratio of income earned by the top quintile in the distribution to that earned by the bottom quintile, where the latter are engaged in traditional activities, the distribution will worsen until the income of the second decile (the top half of the bottom quintile) begins to rise more rapidly than average.

In every society some workers are more "malleable" than others. Malleable labor can adapt more easily to new opportunities. Non-malleable labor will gain only insofar as demand for that labor rises. Local "elites" may have special talent, well-suited to the pre-impact situation but not easily adapted to change. Thus Chinese scholar-officials in the 19th century generally resisted economic change, since it made their specialized knowledge largely obsolete. In our parable, the superior fishermen can be expected to oppose the new activity, if they have anything to say about it, unless they are "bribed" by those favoring the change (the ships, the distant government, or even the local gainers) to accept it. The main lesson from this parable is that a major disturbance can either reduce or increase average income; it can either reduce or increase inequality of income; and these two effects need not be closely related to one another.

III. Influence of Foreign Trade on Growth, Inequality, and Poverty: Some Theoretical Considerations

In a country open to the world economy, the level and composition of its foreign trade, like GDP, the distribution of income, the growth of output, and host of other variables are all determined by the underlying social and political structure, technological possibilities, factor endowments, and household and government preferences across the consumption possibilities that are available. Thus trade is "endogenous," like many other economic variables, and is jointly determined by the structure and "exogenous" variables affecting the economy under consideration, where "exogeneity" itself is determined by the ambition of the structural characterization of the economy. It is thus not possible, in such a framework, to discuss the influence of trade on the distribution of income; both are jointly determined by other factors.

We will take an easier route here, since part of the purpose of this conference is to discover what policy guidance the World Bank and other donor institutions should give to developing

countries, by considering the incremental consequences of a liberalization of a country's imports through elimination of import quotas and/or reduction of tariffs -- i.e. an act of import liberalization is the exogenous change.

Consider a relatively small increment to imports (for concreteness, think of imports of cut flowers into Europe and the USA) made possible by reductions in tariffs. The exogenous change opens up a new range of choice. This development inevitably makes those who initially take advantage of it prospectively better off; otherwise they would not knowingly have taken advantage of it. (If the purchases were merely exploratory, they will stop if purchasers do not like the results).

This gain is initially in (usually non-measurable) utility or satisfaction; there is no necessary impact on the level of output, much less on the rate of growth.

What about the distribution of income? The new possibility for trade enlarges the menu of choice; it often (but not always) does so by lowering price. (For example, cut flowers may be imported profitably only during seasons when domestic production is not available.) If the price of a good falls, that benefits consumers, but it hurts domestic producers of the good or of close substitutes for it. Thus, domestic producers of close substitutes will experience a worsening of their "terms of trade," hence their real income. "Inequality" will increase if these producers are poorer than average; it will decline if they are richer than average. "Poverty" in real terms will rise if the domestic producers are initially just above the "poverty line," however that may be defined.

Of course, over time resources may be reallocated and the structure of domestic output altered as a result of this new trade. Domestic producers may exit production of the import-competing product in favor of now more lucrative productive pursuits. In doing so, they will certainly improve their position with respect to their condition after arrival of the imports (otherwise they would not make the change), and they might even improve their position with respect to the status quo ante, before the new imports arrived. This depends on how lucrative the new pursuits are, which *inter alia* will depend on the new export opportunities opened up, indeed

made necessary, by the requirements for restoration of macroeconomic equilibrium, e.g., through depreciation of the currency.

Of course, if our country is freshly importing a new product, one or more other countries must be exporting it, and that too will affect relative prices and the distribution of income there, and usually output as well.

Economic growth. With a reallocation of resources, the level of our country's output will rise when measured at world prices. It may actually fall, but need not, when measured at the pre-trade domestic prices. (This important point is usually neglected in empirical work on trade and growth.¹) GDP at the new prices will of course "grow," i.e. rise, as the reallocation is taking place. But once the reallocation occurs the "growth" will cease unless it is sustained by one or more of five factors:²

- 1) the redistribution of real income raises the national savings rate, leading directly or indirectly (via the capital market) to a higher rate of investment;
- 2) the relative price of investment goods is reduced, so that a given level of national savings finances greater real investment;
- 3) productive foreign investment flows into the country in greater amount on a sustained basis;
- 4) the redistribution of income or new competitive pressure leads people to attain higher levels of economically useful skills;
- 5) the efficiency of labor and/or capital is continually improved as a result of the new imports, which may convey useful information from abroad as well as enhanced competitive pressure on domestic producers (leading, in our example, domestic producers of cut flowers to improve their efficiency in production, or to discover new products to sell).

The first four of these items could, of course, have negative signs, leading to a reduction in subsequent growth, following the gains from the initial reallocation of resources.

A new trading possibility, brought about by import liberalization or by changes in prices of foreign goods, is closely analogous to an improvement in technology at home: both enlarge the menu of choice, raise the utility of consumers of the products in question, and worsen the terms of trade of producers of competing products. We could substitute "technical change" for "new imports" in the discussion above, and the logic would be similar, except that a change in technology would necessarily lead to some change in the cost structure of domestic output. That raises the interesting question why public debate draws a sharp distinction between imports and technical change. The answer, no doubt, is complex, arising in part because new imports are often more easily identified with changes in policy, while technical change is thought to be less political in origin (which may or may not actually be the case), and in part because technical change (by assumption here) is domestic in origin, whereas imports necessarily come from foreigners, who are easier to stigmatize and who have little or no voice in domestic politics.

Technical change can raise the growth rate through a stream of innovations, but a single innovation generally would follow the pattern sketched above. Similarly, a continuing process of trade liberalization should increase the rate of growth (at world prices) during the period of liberalization and for a time thereafter, due to response lags, as resources are allocated.

The discussion above assumes that no serious market distortions are present.³ It is well known that market distortions can either reinforce or weaken (and even reverse) the impact on output (measured at undistorted prices) of an exogenous change. With market distortions, incentives of both firms and households, who are assumed to respond to the actual incentives they face, may guide their behavior in the wrong direction from the perspective of maximizing output. We will return to this important point in discussing foreign investment below.

The focus so far has been on relatively small exogenous increases in trade. A comparison of free trade with autarchy (no trade) brings another consideration into play: the limited size of the domestic market for all products. If economies of scale or indivisibilities are significant in any sector, this limitation can be important for all but the largest countries. Overall growth under autarchy will be limited by growth in the slowest sectors. Trade can help to break bottlenecks, and permit a country to enjoy economies of scale whether they occur at home or abroad. This

point is not an argument for free trade, but for some trade. The example of North Korea, once richer and more developed than South Korea, should warn everyone against the disadvantages of autarchy, pursued there in the name of juseu (self sufficiency), although of course many policies are involved, not just severe restrictions on imports.

To sum up the argument so far: there is, in theory, no systematic link between trade and sustained growth. Just as there is no single, simple connection between growth and trade (see Cooper(1996b) and the references there cited), there is no single, simple connection between trade and growth. The impact of new trade on growth may well be powerful in some countries; but it can equally be negligible or even negative in others. There is no reason to believe that the impact will be the same everywhere. "Controlling" a cross-country analysis of growth for real investment captures (1)-(3) in the list above, but it does so only by transferring to investment some (much?) of the impact of trade.⁴

This lack of systematic, theoretical connection between trade and growth is potentially important, because growth over time is probably the surest and most effective way to reduce poverty defined against an absolute standard, if not income inequality.

There is, however, an alternative view relating trade, in particular exports, to growth. This view stresses that growth may be constrained by inadequate demand and/or inadequate availability of foreign exchange. This is an old model, not in intellectual fashion these days, but not wrong for that reason.

Export growth can be the leading sector of a growing economy, stimulating investment. Exports can grow either because the world demand for them is growing smartly, or because the country in question is able to increase steadily its share of the world market through a suitable combination of competitive price and quality.

Export production, of course, is constrained in the short run by installed capacity and labor force. But it need not be constrained in the medium run if 1) the supply of relevant labor is elastic, 2) the supply of investible funds is responsive to the public demand for them, either through national (public and private) savings or through funds from abroad, and 3) any serious bottlenecks can be broken by imports of material inputs, machinery, or disembodied technology.⁵

Within this framework, an effective policy for growth would ensure that:

- 1) exports are competitive, with strong implications for exchange rate policy;
- 2) supplies of relevant labor and capital are adequate, with implications for policies toward transportation, education, housing, and financial intermediation; and
- 3) requisite imports are readily available, i.e. not subject to high tariffs or import restrictions.

As a rough generalization, these seem to be the policies pursued by such rapidly growing countries as South Korea, Taiwan, Singapore, and more recently by Mexico and China -- each with significant national idiosyncracies. Some OECD countries have also relied heavily on export-led growth, and Japan continues to do so, as its accumulation over time of an extraordinary \$350 billion in foreign exchange reserves -- through market intervention to inhibit appreciation of the yen -- testifies.

Distribution. Trade can affect the distribution of income directly, without being mediated by its influence on economic growth. It does so by affecting relative commodity prices, hence the real value of consumption, and through changes in commodity prices it may also affect the relative and absolute rewards to factors of production. Indeed, according to the celebrated Stolper-Samuelson theorem, opening a (simple) economy to foreign trade will increase the real income of the owners of the factor of production used intensively in production of the export good, and will reduce the real income of the owners of the factor of production used intensively in production of the good now subject to competition from imports, assuming both goods continue to be produced, regardless of the consumption pattern of either factor. (Whether this change raises or reduces inequality depends on initial ownership of the factors of production.)

This remarkable and elegant result, and the closely related factor price equalization theorem, both arising from the insights of the Swedish economists August Heckscher and his student Bertil Ohlin, have received far more attention from professional economists than they warrant in reality. It assumes competitive markets for goods and factors of production, two goods and two factors with one used intensively in the production of each good, and no specialization in

production. It also assumes homogenous factors of production, e.g. labor and capital, or (these days) unskilled labor and skilled labor, combined in known and stable production functions with constant returns to scale and unique factor intensities.

In the short and medium run, skilled labor and capital are both specialized, not easily transferable to other uses, so they earn "rents" to their specialization, which may be high or low, and which, in a dynamic economy will generally change over time. In the long run all factors may be completely malleable, e.g. unskilled labor may be trained, or amortized capital can be invested in different forms. But in dynamic economies the underlying production function has changed in this same long run, often in unpredictable ways. Thus there is a serious mismatch in the Heckscher-Ohlin framework between the assumption of homogeneous factors of production and the assumption of an unchanged production function.

The 2x2 dimensionality of the Stolper-Samuelson result is also problematic. Attempts to generalize the theorem to \underline{m} commodities and \underline{n} factors of production have produced weaker results. For $\underline{m}=\underline{n}$ in a competitive economy with constant returns to scale, a rise in any particular commodity price will unambiguously improve the real return to at least one factor of production, and unambiguously worsen the return to at least one other factor of production, although it may be difficult in a complex economy to identify prospectively exactly which those factors are. The real returns to other factors will depend on their patterns of consumption, and could go either up or down in response to a change in commodity price. The same proposition holds for $\underline{m}<\underline{n}$. (Jones, 1977, 30-31). For $\underline{m}>\underline{n}$, the link between commodity and factor prices is further attenuated, and stronger assumptions are required to reach generalizations (Leamer, 1995).

A case of special interest is where $\underline{n} = \underline{m}+1$ and each commodity uses in its production a factor specialized to it, while sharing a common factor (e.g. unskilled labor) with all other products. In this case, the percentage change in rewards to specialized factors, up or down, will move by more than the percentage change in prices of the commodities in whose production they are used. This case is of particular interest since, as noted above, many factors, both skilled labor and capital, are likely to be specialized in the medium-run of five-to-ten years or even longer.

Propositions deriving from the H-O framework assume that a sufficient number of identical products, or for some conclusions all products, are produced in the trading countries. In reality, countries typically specialize, partly because of geographic advantage (natural resources, climate), partly because endowments of common factors are too imbalanced to sustain production of all goods. The consequence is that price movements in at least some imported goods can occur without affecting factor prices in the importing country, thus permitting all factors to garner a rise in real income from a decline in the price of those imported goods.⁶

IV. Influence of Foreign Investment on Growth, Inequality, and Poverty: Some Theoretical Considerations

It turns out that a similar agnosticism, or indeterminacy, applies to the influence of foreign investment on economic growth as applies in the case of foreign trade. That is at first surprising, since economic growth is strongly and systematically associated with the rate of investment; insofar as foreign investment augments national investment, it should contribute to growth in economic output. And so it probably does, in general. But not without qualification. And its influence on the distribution of income in the host or receiving country is problematic.

It is useful to distinguish among several different types or motivations for foreign investment: 1) loans from governments or international organizations (foreign aid); 2) export credits; 3) bank loans; 4) portfolio investments in marketable securities by foreigners; 5) foreign direct investment. The last in turn can be sub-divided into resource investments, production slicing for re-export, and investment for local sale, the last usually involving a differentiated product of some kind.

All foreign investments except those directly associated with the importation of goods or services (amounting to deferred payments on imports) augment the spending power of the receiving country (unless offset by macroeconomic policy, which will be assumed not to occur in what follows), which in general will be divided between imports and domestic goods and services. This spending may or may not change relative prices; if it does, considerations such as those discussed in Section III come into play.

In general, one would expect an inward capital flow to lead to a rise in the prices of non-tradable goods and services relative to imported goods and services. If the country is a price-taker on world markets, the price of non-tradables will also rise with respect to export products. This change will affect incomes (e.g. urban land rents) of factors that are used intensively either in non-tradables or in tradables.

A specialized literature discusses the possible influence of foreign investment on the terms-of-trade (export prices relative to import prices) (Eaton, 1989; Cardoso and Dornbusch, 1989). An induced change in terms of trade affects real income for any given level of real output, which may or may not be affected. The terms of trade might improve if the capital inflow leads to a currency appreciation and the domestic prices of export goods do not fall correspondingly (i.e. the country faces a downward sloping foreign demand for its export products); the terms of trade might deteriorate if the foreign investment augments export supply into a world market with supply-sensitive prices. Or the terms of trade may (in the case of most countries, are likely to) remain unchanged. Unchanged terms of trade does not however imply unchanged relative prices, since, as noted above, the price of non-tradables will generally rise relative to prices of imports and exports. This latter effect generates the "Dutch disease" phenomenon, whereby resources are drawn from tradable sectors into non-tradable ones, and exports fall as part of the macro-economic re-equilibration of the economy in response to (continuing) capital inflow, with corresponding changes to factor demands and prices. Distributional effects in turn flow from these changes.

Eaton (1989, pp.1317-47) provides a masterful review of the theory of international capital movements inserted into models of international trade and growth. It is impossible to summarize the results concisely. Not surprisingly, the range of possible outcomes rises with the complexity of the model and with the presence of "distortions" from competitive market equilibrium. Capital inflows may, but need not, raise real national income; and they may, but need not, raise the average national wage even when national income is raised.

Mainline classical analysis of a net capital inflow suggests that the capital stock of the receiving country will be augmented. That in turn will depress the returns to capital (assumed to

reflect, under competitive conditions, the marginal product of capital) within the country, and raise the marginal product of labor and hence the real wage. The foreign investor will be paid the world interest rate or, if the physical capital is directly owned, the (now lower) domestic marginal product of capital, less any taxes paid to the host government. This arrangement works to mutual advantage so long as the marginal product of capital (net of host country taxes) exceeds the world interest rate. The impact on the host country distribution of income depends on the distribution of ownership of domestic capital; if its ownership is more concentrated than is labor income, the capital inflow should lead to a more equal distribution of income, as well as to a higher national income.⁷

This happy picture disappears in the presence of import restrictions protecting a domestic capital-intensive industry in a small economy. An analysis foreshadowed by Johnson (1967) and developed by Brecher and Diaz (1977) shows that capital inflows under these circumstances (and under assumptions similar to those required for the Stolper-Samuelson theorem) will lower national income measured at world prices. This perverse result arises because in addition to the foreign capital, domestic resources (labor) are drawn into the protected industry from the rest of the economy. The (favored) return to capital and hence wages will remain unchanged, output in the capital-intensive industry will rise, output in the export industry will fall, payments will be made to foreign investors at the protected rate of return, and real national income will fall. This possibility is not merely of theoretical interest, since protectionism continues to be pursued by many countries, sometimes with the explicit objective of attracting foreign investment.

A second example where foreign capital inflow may have perverse results both for national income and for the distribution of income concerns commodity aid, especially food aid extended on credit at concessional terms. Food aid, *ceteris paribus*, may depress the price of food in the receiving country below what it would otherwise be. That benefits the urban poor, indeed all net consumers of food. But unless countered by policy it also depresses prices received by domestic food producers. That will lower rural land rents and agricultural wages, thus encouraging migration to the cities. The effects on the distribution of income obviously depend on the relative weights of farm-dependent and other, especially urban, population; on the

ownership of agricultural land; and on various institutional factors influencing the relationship between urban and rural wages. But it is not difficult to construct plausible scenarios in which food aid will make the distribution of real income less equal.

Foreign assistance for infrastructure should raise national income; if it is devoted to the purchase of imported equipment, it will simply augment the domestic capital stock, raising factor incomes all around except for capital in direct competition with the new investment. If it is devoted in part to local construction, it will during the period of construction raise demand for labor, both unskilled and those with relevant construction skills. That will be a transitory effect, but for large projects may last for many years; and when such aid flows continue over decades, they can create the basis for an indefinitely enlarged construction industry.

However, large public construction projects notoriously provide occasions for rake-offs by politicians and officials; as do large direct government or government-enterprise purchases of imported equipment, usually on credit. Such effects need also be included in reckoning the impact of capital inflows on the distribution of income. Bribery and "commissions" are often large and are enjoyed by relatively few, often already privileged, individuals.

Foreign direct investment (FDI) introduces a wider set of issues. Inflows of capital usually accompany FDI, but in some cases they may be its least important feature. It also may bring improved management, new production techniques, quality control, and access to foreign markets that would otherwise be difficult to develop; as well as providing competitive pressures on local producers, in the market for labor as well as for goods and services.

These days much new FDI in developing countries occurs in process manufacturing, whereby some part of a production sequence is undertaken offshore, usually because of lower labor costs; the host country imports unfinished components and exports either assembled finished products or more refined components for further processing elsewhere.⁸ This type of FDI typically adds little to the host country capital stock, apart from work in progress. It hires and often trains local labor, thereby providing employment and typically raising local wages, at least for those working for the foreign firm. Since total employment by foreign firms is rarely more than a small fraction of the labor force, the impact on the distribution of income will be

limited unless the national labor market is tightly integrated, which it rarely is in developing countries. Thus while this type of FDI might in theory raise wages across the board, thus reducing income disparities, in practice it is more likely to raise wages for a small fraction of the labor force, thus perhaps widening income disparities by creating a favored local group. More generally, the likely result will be to improve the absolute and relative position of a group of workers who were already well above the lowest paid, but way below the highest income residents. Thus, it reduces income shares both of the lowest decile and of the highest decile.

FDI traditionally has not been in process manufacturing, but rather in exploiting the natural wealth of the host country (minerals, or climate and land suitable for agriculture such as bananas or rubber), or in making branded products for local sale and possibly regional export (e.g. soft drinks, cosmetics, pharmaceuticals). Or the FDI may be in a maintenance and repair unit for complicated and branded imported equipment (e.g. high rise elevators). Here the analysis is more complicated, because in the first case rents are typically earned, and in the latter two cases competition is imperfect, sometimes very imperfect. In these cases there are economic rents that can be shared in various ways, subject to explicit or implicit bargaining and to taxation. How exactly the rents are shared affects both the total gains to the host country from the FDI, and the domestic distribution of those gains. For instance, mineral extraction may be heavily taxed, with the revenues disposed of in many different ways. Or the foreign firm may pay exceptionally high wages and commissions in order to build worker loyalty and local political support for the enterprise. As noted above, however, if the FDI was stimulated by protection against imports, its contribution to real national income may actually be negative, even while it is privately profitable because of the high domestic product prices.

Caves (1999) observes that firms are much larger in rich countries than in poor ones, considers the obstacles to growth of domestic firms, and addresses the potential for spillovers from FDI that could benefit domestic firms by reducing the obstacles to their growth. He conjectures that the most helpful spillover from FDI may be simply to demonstrate to domestic firms what is feasible, and that this effect is likely to be greater in countries pursuing an outward-oriented trade strategy than in countries relying heavily on import substitution.

V. Empirical Evidence on Trade, Investment, and Inequality

_____ Theoretical considerations address the impact of trade or investment on the distribution of income within countries, not between countries. This section will first address the impact of trade on (mainly US) domestic income distribution, then will turn to the evidence for distribution among countries, and finally will turn to the evidence regarding foreign investment.

Domestic Income Distribution

From the mid-1970s to the mid-1990s the United States experienced a substantial widening of the distribution of income. Some of this involved changes in family structure, toward more single-parent families, and thus in part is a measurement or definitional issue -- and may itself be related to higher incomes and employment opportunities for women. But earnings of full-time male employees also experienced a substantial increase in dispersion; for instance, the ratio of male earnings at the ninth decile to those at the first decile increased from 3.18 in 1979 to 4.35 in 1995 (Freeman, 2000, p.38) (This trend seems to have reversed in the late 1990s). The figures have been extensively analyzed from many perspectives. Wage dispersion increased not only across educational level, but within skill categories as well. Indeed, those at the bottom of the scale, without high school education, experienced a decline in real income, an extraordinary development in an economy at high levels of employment where real per capita output grew by 50 percent over the two decades.⁹

To what extent can this increased dispersion be attributed to foreign trade? The first point to note is that foreign trade developments that hit the United States, especially the rapid growth of exports of manufactured goods from developing countries, were also generally experienced by Europe and Japan, albeit to lesser degree. With the notable exception of Germany, other rich countries also experienced some widening in dispersion of male earnings over the 1980s; but the widening was generally considerably less than that in the United States (Freeman, p.38). However, in Japan and many European countries, unlike the United States, unemployment grew over this period, suggesting that pressures similar to those leading to wider

wage dispersion in the United States may instead have led to increased unemployment in Europe and Japan, also concentrated among those with lower education or skills.

An extensive professional literature has developed on the reasons for increased wage dispersion in the United States, and in particular on the portion that foreign trade might explain.¹⁰ The motivating thought is that increased imports of manufactures from developing countries, due partly to continuing trade liberalization, mainly to policy changes in the exporting countries leading to greater engagement in the world economy, in effect enlarged world "endowments" of unskilled labor and thus, via imports of labor-intensive goods, put downward pressure on wages of unskilled labor in rich countries, pressure that resulted in unemployment in countries where for institutional reasons relatively low wages could not be reduced further. The Stolper-Samuelson theorem was at work.

This is an attractive hypothesis, but it cannot stand close scrutiny. The Stolper-Samuelson theorem operates on factor prices through changes in commodity prices, and the changes in commodity prices required to explain reduced wages of unskilled workers cannot be robustly observed. Various less straightforward channels of causation linking trade (especially imports of manufactures) to pressure on unskilled wages have not fared much better in the empirical literature. Cooper (1996a) examined US imports, production, and employment in textiles, apparel, and leather industries -- the three tradable sectors that rely most heavily on unskilled labor -- and concluded that over the 1980s only about ten percent of the relative decline in wages of unskilled workers, who are also employed massively in the non-tradable retail sector, could be explained by imports. Other studies, very different in approach, produce results of similar magnitude. Most studies attribute the bulk of the increased wage dispersion to technical change that has increased the premium for greater education. Some of this technical change can be identified directly at the plant level (e.g., Krueger, 1993; Jensen and Troske, 2000), but technical change is difficult to measure adequately and much of the attribution is inferential or anecdotal.

Blanchflower and Slaughter (2000,p.78) conclude their able review of the impact of foreign trade thus:

"The methodological issues surrounding the proper way to gauge trade's role have not been resolved. Nevertheless, what is important to emphasize is that the large majority of studies to date -- regardless of their methodology -- find only a small role for international trade in rising U.S. income inequality. Product prices, labor shifts, trade flows: All these data have been analyzed in different ways, and the recurring conclusion is that trade has not mattered much."

Immigration has also been an important feature of the US economy during recent decades, on a much larger scale than was experienced since before 1920. Numerically much immigration has been of relatively uneducated, unskilled workers, mainly from Mexico and other origins in Latin America. A significant literature on the impact of immigration on US wage dispersion has also developed, again relying on a variety of methodological approaches. It is usefully summarized by Camarota and Krikorian (2000), who in their own work find a negative impact of 7-10 percent on wages of unskilled workers; other studies show a somewhat larger impact. But that is a different channel from foreign trade or investment.

Within in the Heckscher-Ohlin framework policy-induced increases in labor-intensive exports would be expected to reduce the demand for labor-intensive production in capital-rich importing countries, and this would reduce the total demand for unskilled labor, leading to a reduction in the unskilled wage and an increased dispersion of income. But the same forces would be expected to increase production of labor-intensive goods in the exporting countries, and that in turn under similar conditions should increase the relative wages of unskilled workers and thus reduce income dispersion in those countries. This does not seem to have happened. Wages of unskilled manufacturing workers in developing countries with rapidly growing exports do indeed seem to have risen, and poverty has declined, but wages of skilled workers seem to have risen even more, contrary to expectation within the H-O framework. Chile, Colombia, Mexico, Turkey, and Venezuela, among others, have experienced increased wage dispersion based on education (Wood, 1994; World Bank, 2001). A number of explanations are available, but all involve compromising that framework in significant ways. Mexico experienced a substantial increase in wage dispersion in the late 1980s, following Mexico's trade liberalization but before introduction of NAFTA, with the premium on education rising significantly, and the wages of

non-production workers rising relative to production workers in the northern part of the country, where FDI tends to be concentrated. Since the USA is far the largest trading partner of Mexico, this is difficult to interpret in conventional Stolper-Samuelson terms, unless trade liberalization was concentrated in labor-intensive industries (which it was) and the relative price of labor-intensive products, mainly apparel, declined (which they did not). See Cragg and Epelbaum (1996), Feenstra and Hanson (1997), and Hanson and Harrison (1999).

An example where foreign trade arguably had a strong influence on the distribution of income is Argentina, which historically has been a successful exporter of grain and beef, two products which also comprised "wage goods" of the Argentine population. A liberal trade policy could be expected to raise the domestic price of these wage goods, and also to raise the rental returns to productive agricultural and grazing land. Land ownership was concentrated, so a liberal foreign trade policy would redistribute income from many workers, especially urban workers, to few farmers and land-owners. It has been argued that this structural characteristic might explain Argentine protection against imports for decades following the 1930s (Diaz, 1970; Findlay, 1984; Leamer, 1987). Such explanation of course implicitly assumes the rental income could not have been effectively taxed and used to finance public expenditure and even some domestic redistribution. One of the world's rich countries in 1950, Argentina grew only about half the world's average rate during the next four decades.

Distribution of Income Across Countries

Complaints are frequently registered that the world distribution of income has become more unequal in recent decades, meaning that the "gap" between rich and poor has not been closing. Measurement of the "gap" is not always defined, but sometimes it explicitly refers to the difference between average income in one or more poor countries and average income in one or more rich countries (see, e.g., World Bank, 2001, p.51, which compares per capita GDP in the 20 poorest countries with that in the 20 richest countries). By this standard the gap is not only widening, but it will continue to widen for a long time, short of some global catastrophe. Growth of a respectable ten percent in a country with a per capita income of \$1000 will produce an initial

annual increase of \$100, which will equal the annual increment in a country with a per capita income of \$10,000 that grows at a meager one percent. Any growth higher than one percent will initially widen this gap between the two countries.

Economists usually focus on growth rates rather than arithmetic increments. If the second country above grows at a reasonable three percent, the arithmetic difference in incomes in the two countries will continue to grow for 16 years; but in the long run higher growth rates win, and the poor country is "converging" on the rich country from the beginning in geometric terms -- that is, the ratio of the second country's income to that of the first will decline continuously (at unchanged growth rates). After 35 years, income in the two countries will equalize at \$28,000.

An interesting question therefore is whether national per capita incomes have been converging in this geometric sense. Put another way, have countries that were relatively poor 30 or 40 years ago experienced higher growth rates than those that were relatively rich. An extensive literature on this question developed in the 1990s, stimulated partly by the growing availability of national income and related data for many countries, cumulated over a period long enough to examine economic growth empirically, and partly by the (re)discovery of "endogenous growth theory," that is, growth that is not determined solely by growth in the labor force and the capital stock augmented by autonomous technical change, but where growth itself sustains further growth, through economies of scale or endogenous technical change, brought about through learning-by-doing or by growth-induced expenditures on applied research (Romer, 1986).

Barro (1997) provides a useful review of the main results of this research. Formally, drawing on a sample of over 80 countries, he tests whether per capita income in 1960 had a negative impact on the growth in per capita income over the period 1960-1990. Convergence, or catch-up, implies that poorer countries should on average grow more rapidly than richer ones. The results show that initially poorer countries did not on average grow more rapidly than richer ones; there is no statistically significant relationship. But if one controls for a number of growth-relevant variables poorer countries did grow more rapidly. This has been called conditional convergence -- conditional on having similar steady state growth paths, which in the empirical work are assumed to depend on such variables as level of secondary education attainment, life

expectancy (as a proxy for general health), rule of law, democracy (a rough proxy for freedom), fertility, government consumption (a proxy for tax and other policy distortions), and inflation (the last three entering with negative influence). Controlling for these basic factors, some degree of convergence is evident, although it takes place slowly, at 2.5 percent a year (i.e. half of a given gap would be closed in 27 years). Investment rates are known to be highly correlated with growth rates, but they may be determined by the same underlying factors as growth, so Barro does not consider them a primary determinant of growth.

Barro is careful to point out that a tendency toward convergence does not automatically imply a move toward greater equality among nations: that depends also on the disturbances to which economies are constantly subjected. For a given distribution of disturbances, persistent convergence is consistent with a constant degree of inequality, just as regression of the heights of sons, relative to their fathers, toward the population mean does not imply that eventually all men will have the same height.

This analysis accords little or no role to foreign trade or investment, or to trade policy. The only "open economy" variable in Barro's analysis that produces a statistically significant result is the terms of trade, which directly affects real income, not output. But empirically an improvement is conducive to higher growth, in part by stimulating more investment.

Openness and Growth

An extensive literature has also developed on the influence of "openness" or "being outward oriented" on growth rates across countries. This literature is of interest here both because differential growth rates among countries affect the global distribution of income over time, and because growth rates affect the reduction of poverty, and possibly the distribution of income, within countries.

To take the latter point first, Dollar and Kraay (2000) have demonstrated a robust relationship between average income in the lowest quintile and mean national income within 80 countries over a period of four decades. Concretely, poor people (defined as those in the lowest quintile) in rich countries are materially better off than poor people in poor countries, with high

reliability. More relevant for the discussion here, growth in average per capita income (PPP basis) can reasonably be expected to raise average income in the poorest quintile roughly in proportion, indeed by proportionately slightly more. This general result does not seem to vary over time, or between rich and poor countries, or between crisis and non-crisis periods (where "crises" are measured at five year intervals). Moreover, it does not seem to be very sensitive to the usual determinants of growth, such as those discussed in the preceding section.

In short, growth seems in general to be good for the poor, both in reducing their poverty and in maintaining their position in the income distribution. Empirical generalizations of course are not universal laws; examples can be found where income of the poorest fifth did not keep up with growth in average income. But these cases are not typical. Moreover, there is only one case in the sample examined where income of the poor grew significantly (12 percent) while average income fell by more than one percent. The generalization could thus be rephrased to "growth is (almost) always necessary for serious alleviation of poverty, even if not always sufficient."

What then is the contribution of trade to growth? A number of authors, using different approaches, have found growth to be enhanced by foreign trade, or openness, or trade liberalization (see Dollar (1992), Sachs and Warner (1995), Edwards (1998), Ben-David (2000, based on earlier work), among others).

A general methodological problem arises in determining the impact of trade on growth, because as noted at the outset trade and output are determined simultaneously. Each author develops his own surrogates for measuring the degree and character of openness, and each surrogate is open to disputation. Indeed, Rodriguez and Rodrik (2000) have provided a withering critique of the studies mentioned in the preceding paragraph, raising serious doubts about whether the authors have demonstrated what they claim, viz. that pursuit of liberal trade policies has enhanced growth. They persuasively find fault with the surrogates elected by the various authors, or with their choice of data to analyze, or with their specification of the model to be fitted.

Frankel and Romer (1999) also find a significant impact of openness on levels of per capita income. To avoid the problem of simultaneity, they construct an index of trade possibility, based on geographic factors, and find that the possibility of trade as they measure it is strongly

correlated with per capita income. They also find that actual trade is positively correlated ($r = .62$) with trade possibilities, and that trade possibilities enhance income through three diverse channels: greater capital stock, greater stock of education, and higher total factor productivity. But they explicitly caution against using their results to draw inferences for trade policy, which brings different factors into play.

Drawing on the new growth theory, Ades and Glaeser (1999) conjecture that greater openness, by breaking constraints imposed by the extent of the domestic market, should be associated with higher growth. More particularly, they hypothesize that initial levels of per capita income should have a greater (positive) impact on growth for economies that are relatively closed than for relatively open economies, since the latter are less bound by the extent of the domestic market. Growth over the period 1960-1985 in 66 countries, divided equally between relatively closed and open on the basis of their ratio of trade to GDP, broadly confirm their hypothesis: the relationship of growth to initial per capita income is significant for relatively closed economies, statistically insignificant for relatively open ones.

In view of what was said in Section III it would be surprising indeed if in all instances trade liberalization led to greater growth, as distinguished from a once-for-all rise in output. It of course could happen. The model of export-led growth, in either its demand or its supply (bottle-neck breaking) version, could be generally applicable. Or "liberal trade policy" may simply be a proxy for a complex of more liberal policies, with fewer distortions and less government intervention in the functioning of markets.

Rodriguez and Rodrik mainly provide technical critique of a number of studies that have concluded, empirically, that liberal trade fosters growth. They suggest that alternative specifications and definitions of variables would be preferable. In fact, however, their critique generalizes to virtually all country cross-section regressions. Thanks to the patient and persistent encouragement and pressure by international organizations on member countries to provide economic (and other) data in a standardized format, we now have data for over 100 countries, in ever lengthening time series. These data have proved irresistible to analysts to test broad generalizations that earlier were supported only by general theory backed by anecdotes or case

studies. And they have been useful for debunking some of those generalizations, as Dollar and Kraay have done with the widely believed view that modern economic growth leaves the poor behind.

But the countries on which we have observations have a diverse grab-bag of political arrangements, the only common element being seats in the United Nations and other international organizations. Some are cohesive units for collective decision-making. Others are miscellaneous left-overs from European bargaining on imperial boundaries unable even to maintain domestic order, the prime requisite for functioning government. Most lie between these extremes. In other words, as far as formulation and execution of policy are concerned, our data are not drawn from the same universe, even though they may appear in the same accessible data base. In addition to the fact that countries are not drawn from the same (relevant) universe, proper analysis requires a general equilibrium framework, with joint determination of most economic variables. Even the policy variables, normally considered exogenous in economic modeling and estimation, may be endogenous. Some countries take IMF/World Bank advice, while others, offered comparable advice, do not accept it -- or they accept it rhetorically, but do not implement it. In a comprehensive model, this difference between acceptance and rejection should be explicable; but that fact, from an econometric perspective, implies specification error and biased estimates. (See Lundberg and Squire (2001) on the problem of simultaneity.)

The key policy issue is whether for each country, starting where it is, some liberalization of trade (or foreign investment) would improve its economic performance. The answer to that question cannot be found in cross-section country regressions, however carefully they are specified, but rather in detailed analysis of the country under study.

Foreign Investment, Growth, and Inequality

Far less empirical work has been done on foreign investment than on foreign trade, in part because data are neither so copious nor so detailed. Dobson and Hufbauer (2000) estimate conservatively, "on a parsimonious reading of the [unnamed] literature," that outstanding foreign debt adds about one percent of its value to GDP, and outstanding FDI adds three percent

(ch.1,p.34). Altogether, they suggest that foreign capital contributed 0.9 percent of GDP annually to developing countries by the end of the 20th century. This significantly outweighs the annual 0.5 percent of GDP they estimate was lost through financial crises in the 1980s and 1990s, even if all the losses were (erroneously) attributed to foreign capital.

The rich countries provided over \$700 billion (in dollars of 1995 purchasing power) in economic assistance to poor countries over the period 1970-1995. Dollar and Pritchett (1998) find that economic aid alone did not foster economic growth at all -- an appalling result, even allowing for the fact that much aid was given for political support to particular countries or governments, not necessarily to increase growth or reduce poverty. From the perspective of economic development, much aid seems to have been simply wasted. However, aid given to countries that pursue effective economic policies can increase economic growth significantly. Thus, aid can contribute to growth in a policy environment that encompasses both the good management of economic policy and setting suitable developmental objectives. Aid alone cannot assure the right policy environment; the government must desire economic development, or improvements in health or education, and act accordingly. Vigorous economic growth, in turn, always reduces poverty, even when it enriches some people more than others.

Borensztein et al.(1998) examine the influence of FDI on economic growth in 69 developing countries over the period 1970-1989. They find, after controlling for other variables, that FDI makes a positive contribution. But the more significant finding is that this contribution interacts strongly with the amount of secondary school education, such that at the average level of secondary schooling in their sample (0.9 years for males over age 25 in 1980) "an increase of 0.005 in the FDI-to-GDP ratio (equivalent to one standard deviation) raises the growth rate of the host economy by 0.3 percentage points per year."(p.125) This linkage to schooling is not present for domestic investment. They also find that FDI has a positive effect on domestic investment, not a negative one. FDI also seems to be associated with a significant reduction of capital flight, according to the findings of Kant (1996).

Moran (1998), summarizing the work of others, reports that FDI in manufacturing is overwhelmingly concentrated in industrial sectors of high concentration, that is, low competition.

He summarizes three detailed studies on the impact of FDI on national income. Reuber (1973) found for 45 subsidiaries in 30 (mostly rich) countries that nearly three quarters had production costs higher than those of their parents, suggesting that the firms could have satisfied host country demand from home country production, but did not because of restrictions on imports. These are circumstances in which FDI can actually lower host country GDP. Lall and Streeten (1977) on examining 88 subsidiaries in six developing countries found that two-thirds had a positive effect on national welfare, but that one-third had a negative effect. Encarnation and Wells (1986) evaluated 50 proposed direct investments in a single country, valuing inputs and outputs at world prices, and found that roughly two-thirds (the exact ratio depending on assumptions regarding shadow prices) would have increased the country's welfare, and roughly one-third would have reduced it. In all three studies, the negative effects arose in areas of low competition.

These studies are all dated, and in particular pre-date the tremendous growth in FDI in developing countries (indeed, also in developed countries) that occurred in the 1980s and especially the 1990s. They also largely pre-date the extensive growth in FDI associated with production slicing, that is, locating different production processes for a single end product, or class of end products, in different countries according to their costs of production. Some formerly poor entities began direct investment abroad, most notably Hong Kong and Taiwan in China. During this period considerable trade liberalization also occurred as a result of the Tokyo (1979) and Uruguay (1994) Rounds of multilateral trade negotiations, and the extension of free trade areas, most notably the creation of NAFTA and the association agreements of the European Union with prospective new members. But the use of anti-dumping charges and rules of origin associated with regional trade agreements create new opportunities for trade diversion and hence socially sub-optimal location of foreign investment. Thus FDI should be reviewed again in the much altered current environment.

Apart from its effect on GDP, FDI can also have distributional and other local effects. It is widely accepted that FDI in developing countries typically pays higher wages (and better fringe benefits) than domestic firms in the same industry and location. Whether this narrows or widens the distribution of income depends on all the other factors that influence the distribution of

income, but in some cases it seems to have created an economic elite of favored workers. Foreign firms are also more likely to pay local taxes, except when (as often in developing countries) they have been granted tax holidays or other special revenue privileges (Hanson, 2000).

Foreign firms may bid up the price of relatively skilled labor in the host country, and thus bid such workers away from domestic firms. In the long run this may encourage educational attainment, but in the medium run it may worsen the economic condition of domestic firms, and depress the local return to capital, with distributional implications. Aitken and Harrison (1999) find on examining data for over 4000 plants in Venezuela between 1976 and 1989 that foreign participation raises productivity in recipient plants, especially those with under 50 employees. They also find, however, that the productivity of domestically-owned plants is negatively affected, thus providing no support for the argument that FDI creates positive spillovers for domestic firms. They summarize "on balance, our evidence suggests that the net effect of foreign ownership on the economy is quite small."(p.617) They report similar results from a comparable study of Indonesian firms, with the difference that the positive effects on joint venture firms seem more decisively to outweigh the negative ones on domestically-owned firms.

It seems difficult to generalize the distributional impact of foreign investment. To the extent it stimulates growth, it is likely to reduce poverty. But the impact on the distribution of income will also depend on how much local wages are raised, how much local returns to capital are depressed, and the initial distribution of income among the relevant groups in the country in question.

VI. Should We Be Concerned about Global Inequality?

It is often simply taken for granted that global inequality is undesirable, and therefore that an increase in global inequality is undesirable. Rarely is it stated exactly why increases in global inequality are undesirable, and therefore whether the way it was brought about makes any difference. I do not want to make an affirmative case for global inequality, but I believe the mechanism whereby global inequality is increased is important for how we evaluate it. In

particular, global inequality brought about by an uneven process of economic growth, each country finding its own way toward development, may not be undesirable, and is certainly less undesirable than global inequality brought about in other ways, e.g. through war and conquest, and than greater global equality preserved by lack of growth in richer countries.

Consider a world divided into two groups of countries: (A) rich and growing, and (B) poor and stagnant. The two groups are connected through mutually beneficial trade. Growth requires a complex array of conditions to be met, in particular a stable social system (low domestic turmoil) with general education and growth-supporting incentives for effort, saving, and risk-taking. Any small country can benefit, in addition, by engaging in foreign trade to help overcome bottlenecks to growth that would arise under autarchy; and all countries can benefit from importing successful technology and management techniques, to avoid having to rediscover all improved techniques at home (although some rediscovery is probably useful, and is more likely to result in productive local adaptation).

Let us suppose that one by one countries establish the conditions for growth, and they switch from category B to category A. During the period of switching they will experience an exceptionally rapid period of growth. What are the consequences of this simple process for the global distribution of income? If we measure that conventionally as the ratio of the top quintile or decile to the bottom quintile or decile, or as the share of the bottom quintile in total world income, we will discover that the world distribution of income will become increasingly unequal as more countries switch from B to A, until some of the countries that are in the bottom quintile themselves begin the switch.

As a broad characterization, this is the history of the world economy during the last half century. In 1950 relatively rich countries were confined to western Europe and the former British regions of settlement: Australia, Canada, New Zealand, and USA. Then some countries began to grow rapidly, making the switch, in the framework sketched above, from B to A. A number of countries now unambiguously in the rich category were relatively poor fifty years ago -- Italy, Spain, and Japan, to name three large ones -- although even then they were richer than some other parts of the world. Over the intervening decades many countries have made the switch, including

the poorer European countries and a number of east Asian entities. Others look as if they have joined the process, including some Latin American countries, China, and possibly India.

A crude calculation of world income growth and inequality can be made by pretending that every resident of each country earns the average per capita income of that country (admittedly a gross simplification, in view of the substantial income disparities within countries, and the large variation among countries in degree of disparity). Maddison's (1995) estimates of per capita income along with population estimates can then be used to calculate the median world income (50th percentile) as well as income at the 20th and 90th percentiles. On this basis median world income grew by 3.5-fold, or over 3 percent a year, between 1950 and 1992 -- no mean achievement.¹¹ Income at the 20th percentile grew by 2.0 percent a year, a respectable rate by historical standards, but well below the median. Per capita income at the 90th percentile grew at 2.3 percent a year -- slower than the median, but faster than the poorest group. The 90/20 ratio rose from 11.5 to 13.3 over this 42 year period, indicating less equal distribution of income in 1992 than in 1950; but the 90/50 ratio fell from 7.8 to 5.8 over the same period of time, indicating a narrowing of (geometric) disparities between the well-to-do and the median world citizen.¹² These figures support the notion of gradual switching from B to A.¹³

Setbacks are still possible, but the process as a whole has taken on an inexorable character. People want to be richer. We now know more or less how to achieve greater wealth, and the hard tasks are in the details of implementation. In particular, a major lesson of recent experience has been that ultimately the key to prosperity is a well-educated and disciplined but flexible populace, not, as used to be thought, a generous endowment of natural resources. The latter can be helpful in starting the process, but excessive reliance on resource rents can turn out to be an inhibition to durable growth and prosperity.

The process, while inexorable, has also been uneven, because recognition and establishment of the conditions for growth have occurred in different countries at different times. The result has been an increase in global inequality on the measurements indicated above, or on transformations of them, such as the variance of per capita income across countries, which has risen over recent decades.

But is this something we should worry about? It would be nice to have all countries move from B to A, and very likely that will eventually occur. But the necessary conditions cannot be imposed from outside; they must be discovered, and embraced, by each country or other collective decision-making entity. In the meantime, we certainly do not want to slow down the switching process, even though for some decades that will imply a growing inequality in global income distribution.

Some people may argue that such worsening itself will threaten the switching process. It would take this paper too far afield to expound the possible mechanisms, and the evidence against them. Apart from some possible local effects (e.g. two contiguous countries, only one of which is growing), I am not inclined to give them much credence.¹⁴

Growing inequality can be blunted or even reversed by income transfers from rich to poor. That suggestion implicitly lay behind many G-77 proposals of the 1970s. But on-going income transfers (as distinguished from episode-related humanitarian assistance, or technical assistance to foster development, or loans to help build infrastructure) create a climate of dependence and ultimately resentment that is not healthy either for donors or recipients. And in any case income transfers on the vast scale necessary to affect the usual measures of global income inequality would, at least in the near future, be politically inconceivable.

VII. Conclusions

The results of this survey of theory and evidence are inconclusive, perhaps leading to an agnostic view on the relationship of foreign trade and investment to world economic growth and its distribution. There are no compelling theoretical reasons to believe, in general, that trade promotes growth (as distinguished from an increase in real income) and the empirical work purporting to make a connection at the country level has been heavily criticized on methodological grounds. The theoretical case that foreign investment should stimulate growth, and even diminish world and host country inequality of income, is stronger; but the actual history of foreign assistance, some of which was supposedly targeted on improving growth, is disappointing in this regard. And foreign direct investment historically has been drawn by natural

resources, by trade barriers, and by low domestic competition -- which gives little confidence that direct investment has either enhanced growth or reduced inequality in income distribution. Nonetheless, some aggregate evidence credits FDI with a significant growth-enhancing impact, especially where adequate skills are locally available.

Despite the overall ambiguity of theory and evidence, it strains credulity to believe that trade liberalization did not play a significant role in the growth of the world economy in the second half of the 20th century. Taken as a whole, this period offers the best economic performance in human history, far better than the often-cited second half of the 19th century. More people, and a higher proportion of people, were lifted out of poverty than ever before, as reflected in the sharp decline in the proportion of workers engaged in agriculture. To be sure, factors other than trade contributed. Despite numerous conflicts, 1950-2000 was a relatively peaceful period. Thanks to the Keynesian revolution in economic thinking, with its macroeconomic perspective, macroeconomic management was markedly better than previously. And in the late 1940s the world installed a formal framework for economic cooperation among countries, embodied institutionally in the General Agreement on Tariffs and Trade (absorbed into the newly created World Trade Organization in 1995), the International Monetary Fund, and the International Bank for Reconstruction and Development. Trade liberalization was of course an important product of this cooperative framework, especially the GATT. (The World Bank however financed many import-substitution projects, especially in the 1960s and 1970s.)

Given that trade grew twice as rapidly as gross world product, it is difficult to believe that trade was wholly a product of economic growth. Or, to put the matter another way, it is difficult to believe that the world economy would have grown as rapidly as it did if trade barriers had remained at their high levels of 1950.

It is of course possible to argue that the trade barriers of a country's trading partners are important to its growth, while its own barriers are not. That would be consistent with the "export-led" approach to growth, so long as the import barriers do not restrain exports via any of the channels by which they might do so -- over-valued exchange rate, macroeconomic imbalance, diverting resources from production for export, or by blocking imports crucial to export

performance. That case can perhaps be maintained for any single country, or even for a group of economically small countries, who thus become free riders on a liberalizing world economy. More arguably, it could be tenable for all developing countries so long as the rich countries grow, maintain open markets, and continue to dominate the world economy. But future growth of the world economy will depend increasingly on developing countries, especially with the aging of Europe and Japan. Thus trade liberalization by the larger and more rapidly growing developing countries is increasingly necessary for others to thrive. Both logic and empirical evidence suggest a strong link between economic growth and alleviation of poverty.

While cross-country studies purporting to link trade liberalization to economic growth have been persuasively criticized on methodological grounds, I would nonetheless offer the rebuttable presumption that a country wanting to develop should tie itself to the world economy. It should ensure that exports remain competitive in price and quality, and that domestic production is not severely insulated from foreign competition, which otherwise would result in misuse of scarce capital (including foreign capital) and rent-seeking behavior by businessmen who should be concentrating on improving their businesses.

The presumption is rebuttable in that circumstances in a particular country at a particular time might lead to unwanted and unacceptable consequences from such an opening, possibly of a distributional nature.

Finally, I conclude that inequality per se, especially global inequality, should not be a focus of great interest or research. Undesirable consequences may well flow from greater inequality in particular circumstances in particular locations, especially if the growing inequality lacks legitimacy because of the way it was generated. We should then focus on the most efficacious ways to avoid or mitigate the undesirable consequences, or on the lack of legitimacy, not on the inequality as such. Greater global inequality, on the usual measures, is a natural consequence of uneven growth. We cannot have even growth since not all countries are ready to sustain it at the same time. Uneven growth is better than none. The key questions are whether people's lives are improving and whether they can look forward with hope for further

improvement for themselves and their children. That is the perspective of most individuals, who are not concerned with aggregate statistics on global inequality.

References

- Adelman, Irma, and Sherman Robinson, "Income Distribution and Development," in Chenery and Srinivasan, 1989.
- Ades, Alberto R., and Edward L. Glaeser, "Evidence on Growth, Increasing Returns, and the Extent of the Market," Quarterly Journal of Economics, 114 (August 1999), 1025-1046.
- Aitken, Brian J., and Ann E. Harrison, "Do Domestic Firms Benefit from Direct Foreign Investment? Evidence from Venezuela," American Economic Review, 89 (June 1999), 605-618.
- Barro, Robert J., Determinants of Economic Growth, Cambridge, MA: MIT Press, 1997.
- Ben-David, Dan, Hakan Nordstrom, and L. Alan Winters, Trade, Income Disparity, and Poverty, Geneva: World Trade Organization, 2000.
- Blanchflower, David G., and Matthew J. Slaughter, "The Causes and Consequences of Changing Income Inequality," in Fischlow and Parker, 2000.
- Bliss, Christopher, "Trade and Development," in Chenery and Srinivasan, 1989.
- Borensztein, E., J. De Gregorio, and J-W. Lee, "How does Foreign Direct Investment affect Economic Growth?" Journal of International Economics, 45 (June 1998), 115-136.
- Camarota, Steven A., and Mark Krikorian, "The Impact of Immigration on the U.S. Labor Market," in Fischlow and Parker, 2000.
- Cardoso, Eliana A., and Rudiger Dornbusch, "Foreign Private Capital Flows," in Chenery and Srinivasan, 1989.
- Caves, Richard E., "Spillovers from Multinationals in Developing Countries: the Mechanisms at Work," June 1999, processed.
- Chenery, Hollis, and T.N. Srinivasan, eds., Handbook of Development Economics, vol. II, Amsterdam: North Holland, 1989.
- Cline, William R., Trade and Income Distribution, Washington: Institute for International Economics, 1997.
- Cooper, Richard N., Comment on A. Sapir's "Who is Afraid of Globalism: the Challenge of Adjustment in Europe and America," 2001, processed.
- Cooper, Richard N., "Foreign Trade, Wages, and Unemployment," in Herbert Giersch, ed., Fighting Europe's Unemployment in the 1990s, Berlin: Springer Verlag, 1996.
- Cooper, Richard N., "Is Growth in Developing Countries Beneficial to Industrial Countries?" Annual World Bank Conference on Development Economics 1995, Washington: World Bank, 1996.
- Diaz-Alejandro, Carlos, Essays in the Economic History of the Argentine Republic, New Haven: Yale University Press, 1970.

- Dobson, Wendy, and Gary C. Hufbauer, World Capital Markets: Challenge to the G-10, Washington: Institute for International Economics, processed, July 2000.
- Dollar, David, Lant Pritchett, and others, Assessing Aid: What Works, What Doesn't, and Why. New York: Oxford University Press for the World Bank. 1998.
- Dollar, David, "Outward-Oriented Developing Economies Really Do Grow More Rapidly," Economic Development and Cultural Change, 1992, pp.523-544.
- Dollar, David, and Aart Kraay, "Growth Is Good for the Poor," World Bank, processed, March 2000.
- Eaton, Jonathan, "Foreign Public Capital Flows," in Chenery and Srinivasan, 1989.
- Edwards, Sebastian, "Openness, Productivity and Growth: What Do We Really Know?" Economic Journal, 108 (March 1998), 383-398.
- Encarnation, Dennis J., and Louis T. Wells Jr., in Theodore H. Moran, ed., Investing in Development: New Roles for Private Capital? Washington: Overseas Development Council, 1986.
- Findlay, Ronald E., "Growth and Development in Trade Models," in R.W. Jones and P.B. Kenen, Handbook of International Economics, vol. 1, Amsterdam: North Holland, 1984.
- Fishlow, Albert, and Karen Parker, eds., Growing Apart: the Causes and Consequences of Global Wage Inequality, New York: Council on Foreign Relations, 2000.
- Frankel, Jeffrey A., and David Romer, "Does Trade Cause Growth?" American Economic Review, June 1999, pp. 379-399.
- Freeman, Richard B, "The New Inequality in the United States," in Fischlow and Parker, 2000.
- Gomory, Ralph E., and William J. Baumol, Global Trade and Conflicting National Interests, Cambridge, MA: MIT Press, 2000.
- Grossman, Gene M., and Elhanan Helpman, Innovation and Growth in the Global Economy, Cambridge, MA: MIT Press, 1991.
- Gurr, Ted Robert, ed., Handbook of Political Conflict, New York: Free Press, 1980.
- Gurr, Ted Robert, People versus States: Minorities at Risk in the New Century, Washington: United States Institute of Peace, 2000.
- Hanson, Gordon H., "Should Countries Promote Foreign Direct Investment?" processed, September 2000.
- Helleiner, Gerald, "Transnational Corporations and Direct Foreign Investment," in Chenery and Srinivasan, 1989.
- Helpman, Elhanan, Monopolistic Competition in Trade Theory, Special Papers in International Finance No. 16, Princeton University, June 1990.

Hertel, T., and W. Martin, "Liberalizing Agriculture and Manufactures in a Millenium Round: Implications for Developing Countries," The World Economy, 23(4):455-69 (2000).

Homer-Dixon, Thomas F., Environment, Scarcity, and Violence, Princeton University Press, 1999.

Jones, Ronald W., "Two-Ness" in Trade Theory: Costs and Benefits, Princeton International Finance Section, Special Papers in International Economics No. 12, April 1977.

Kant, Chandler, Foreign Direct Investment and Capital Flight, Princeton Studies in International Finance No.80, April 1996.

Krueger, Alan B., "How Computers Have Change the Wage Structure: Evidence from Microdata, 1984-1989," Quarterly Journal of Economics 108 (February 1993), 33-60.

Krugman, Paul, Development, Geography, and Economic Theory, Cambridge, MA: MIT Press, 1995.

Kuznets, Simon, Modern Economic Growth, New Haven, CT: Yale University Press, 1966.

Lall, Sanjaya, and Paul Streeten, Foreign Investment, Transnationals and Developing Countries, Boulder, CO: Westview Press, 1977.

Lawrence, Robert Z., and Matthew J. Slaughter, "Trade, Jobs, and Wages: Great Sucking Sound or Small Hiccup?" Brookings Papers on Economic Activity, 1993, No.2, 161-226.

Leamer, Edward E., The Heckscher-Ohlin Model in Theory and Practice, Princeton [University] Studies in International Finance No. 77, February 1995.

Leamer, Edward E., "Paths of Development in the Three-Factor N-Good General Equilibrium Model," Journal of Political Economy, 95 (October 1987), 961-999.

Maddison, Angus, Chinese Economic Performance in the Long Run, Paris: OECD, 1998.

Maddison, Angus, Monitoring the World Economy 1820-1992, Paris: OECD, 1995.

Martin, W., and Peter Warr, "Explaining Agriculture's Relative Decline: a Supply-side Analysis for Indonesia," World Bank Economic Review, 7(3):381-401, September 1993.

Moran, Theodore H., Foreign Direct Investment and Development, Washington: Institute for International Economics, 1998.

Moran, Theodore H., "Foreign Direct Investment and Good Jobs/Bad Jobs: the Impact of Outward Investment and Inward Investment on Jobs and Wages," in Fischlow and Parker, 2000.

Reuber, Grant, Private Foreign Investment in Development, Oxford: Clarendon Press, 1973.

Rodriguez, Francisco, and Dani Rodrik, "Trade Policy and Economic Growth: A Skeptic's Guide to the Cross-National Evidence," processed, May 2000 [earlier version, CEPR DP 2143].

Romer, Paul, "Increasing Returns and Long-run Growth," Journal of Political Economy, 94 (October 1986), 1002-1037.

Sachs, Jeffrey D., and Howard J. Schatz, "Trade and Jobs in U.S. Manufacturing," Brookings Papers on Economic Activity, 1994, No.1.

Sachs, Jeffrey D., and Andrew Warner, "Economic Reform and the Process of Global Integration," Brookings Papers on Economic Activity, 1995, No.1, pp. 1-118.

Scheve, Kenneth F., and Matthew J. Slaughter, Globalization and the Perceptions of American Workers, Washington: Institute for International Economics, 2001.

Wood, Adrian, North-South Trade, Employment, and Inequality: Changing Fortunes in a Skill-Driven World, Oxford: Clarendon Press, 1994.

World Bank, World Development Report 2000/2001: Attacking Poverty, Washington, 2001.

Endnotes

¹ Maddison (1998, p.151) finds that the growth of China over 1952-1978 would be 4.7 percent a year using 1987 value-added weights, compared with an official growth rate of 6.1 percent. Chinese figures weighted manufactures much more highly than agriculture than would be warranted either by world prices of the 1950s or by post-reform Chinese prices, imparting a significant upward bias to measured growth. Maddison also recalculated Chinese inflation, resulting in a further reduction in his measure of Chinese growth over this period to 4.4 percent a year.

². Here "growth" is defined as the common-sensical increase in output over time, not in terms of growth rates of a hypothetical economy in steady-state conditions, beloved by growth economists. The latter "growth" is sensitive only to labor force growth and autonomous improvements in techniques of production.

³. Such that there is a divergence between market prices and social costs and benefits.

⁴. The "new growth theory" and its open-economy counterparts emphasize endogenous sources of growth: self-reinforcing economies of scale, external economies that stimulate production of competing or up- and down-stream firms, learning-by-doing, induced applied research, and the like. In short, any factors that prevent diminishing returns to capital from setting in. Any change in factor prices that can help stimulate one or another of these processes of course contributes to future growth, while changes that inhibit these processes will detract from growth. See Romer(1986), Helpman(1990), Grossman and Helpman(1991), Krugman(1995), and Gomory and Baumol (2000). Greater openness can contribute to this process by increasing the extent of the market, permitting economies of scale, of whatever nature, to be enjoyed more readily. See Ades and Glaeser (1999).

⁵. A formal variant of this approach, focussing on supply rather than demand constraints, involves opening the von Neuman growth model, with its noted turnpike theorem, to foreign trade. This model emphasizes input-output relationships, and with elastic supplies of labor (indeed no factors in fixed supply) it can be shown that a maximum growth rate can be achieved by organizing production and re-investment in a particular way for most of the journey between two points of time not too close together -- i.e. moving the economy to the fast-paced "turnpike" for most of the journey. For an economy facing fixed world prices, opening the economy will in general result in a higher maximum growth rate. The reason is simple: the possibility of trade, of exporting some products and importing others, widens the range of transformation technologies, and thus reduces bottlenecks to period-to-period growth. See Bliss (1989, pp.1230-34), and the references there cited.

⁶. Jones (1998) offers a nice example of how, within the H-O framework, specialization can lead to results the opposite of the conventional intuition. If two freely trading countries, A and B, each produce two of three possible goods with unique factor intensities under competitive conditions, labor growth in A will lead A to produce more of the most labor-intensive good and less of its capital-intensive good (the middle good in the world economy). Lower world supply of the latter good will raise its price (unless offset by an altered structure of demand). The higher price will lead B to produce more of that good, which is B's labor-intensive good, thus raising wages in B. Here an expansion of labor in A (and in the world) has led to an increase of wages in B, contrary to the usual expectation.

7. In the case of a small open economy with homogenous factors of production and no non-tradables, where commodity prices are fixed in the world market and techniques of production are unchanged, a capital inflow will raise national output, and will result in a shift in the composition of output toward the capital-intensive industry but will leave factor returns and hence the distribution of income unchanged, i.e. GDP will rise but GNP will not. This result flows from the Rybczynski theorem, a dual of the Stolper-Samuelson theorem discussed in Section III. Relying on an analogous mechanism, capital accumulation has been invoked to explain the decline in agricultural employment in developing countries. See, e.g., Martin and Warr (1993).

8. Sometimes trade policy discourages the purchase of local inputs, other than labor. Foreign firms are given duty-free import rights for their inputs, while comparable domestically produced imports are protected against competition for domestic sale. Import liberalization can then increase domestic value-added. See Hertel and Martin (2000).

9. It is frequently claimed that average US earnings showed no increase from the mid-1970s to the mid-1990s. This contention is difficult to reconcile with the fact that consumption per capita in the United States, in real terms, increased by 2.2 percent a year over the same period. For a partial reconciliation that casts doubt on the claim of no real increase in average earnings, see Cooper (2001). What is important here, however, is not the average level of US earnings, but the indisputable increase in their dispersion.

10. See for instance Lawrence and Slaughter (1993), Sachs and Schatz (1994), Wood (1994), Cooper (1996a), Cline (1997), and Fishlow and Parker (2000).

11. The median world income grew more rapidly than the average (mean) growth in per capita income of 2.2 percent a year because population was growing considerably more rapidly in poor countries than in rich ones.

12. The median world citizen, on the assumption made here, was Indonesian in 1950; s/he lived in China in 1992. The 20th percentile was Indian in both years. The 90th percentile was British in 1950, French in 1992. These positions were calculated from population data and per capita income in 1990 international (PPP) dollars in Maddison's (1995) sample of 56 countries from all continents, pp. 194-206.

13. A similar calculation for 1987-1999, drawing on World Bank data, suggests that the 90/50 ratio dropped from 7.7 in 1987 to 6.6 in 1999; during this period and using this data set, however, the 90/20 ratio also dropped over the same period of time, from 17.1 to 10.2. The countries at the 20th, 50th, and 90th percentiles in 1987 were India, Indonesia, and Japan, respectively; in 1999 they were India, China, and France. Calculated from World Bank, World Development Report, for 1997 and 2000/2001, annex Table 1.

14. See Homer-Dixon (1999), and Zimmerman in Gurr (1980) for the influence of intra-country inequality on violence.