Trade and Poverty: Is There a Connection?

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A. Introduction

The issue

Openness and trade liberalization are now seen almost universally as key components of the national policy cocktail required for economic growth and aggregate economic well-being. They are believed to have been central to the remarkable growth of industrial countries since the mid-20th century and to the examples of successful economic development since around 1970.

The continued existence of widespread and abject poverty, on the other hand, represents perhaps the greatest failure of the contemporary global economy and the greatest challenge it faces as we enter the 21st century. This essay asks whether the two phenomena are connected. Specifically it asks whether the process of trade liberalization or the maintenance of a liberal trade regime could have caused the poverty that so disfigures modern life, or whether, in fact, it has contributed to its alleviation.

Extreme poverty—living on, say, $1 a day per head—is basically restricted to the developing countries, and so I focus exclusively on them. I also focus largely on the effects of those countries' own trade policies—i.e. how their own openness or trade liberalization might affect their own poverty. In almost all circumstances countries are more affected by their own trade policies than by their partners', and, of course, it is the former over which they have most influence. As will become plain, however, most issues concerning partners' policies or shifts in world markets can be analyzed using the same tools as I discuss below for countries' own policies.

The approach

If trade liberalization and poverty were both easily measured, and if there were many historical instances in which liberalization could be identified as the main economic shock, it would be simple to derive simple empirical regularities linking the two. Unfortunately, none of these conditions is met, and so we are reduced to examining fragmentary evidence on small parts of the argument.[2] The key to interpreting this evidence in terms of the effects of trade on poverty, as well as to designing policies to alleviate any ill effects, is to understand the channels through which such effects might operate. That is, in the absence of clear empirical regularities, we need to develop a theory of how trade shocks might translate into poverty impacts in order to consider how plausible such links look in the light of what we do know about the way economies function; to identify the places in which it would be sensible to seek empirical evidence; and to help us to fit the jigsaw puzzle of fragmentary evidence into a single overall picture.

It will be obvious from the previous paragraph that tracing the links between trade and poverty is going to be a detailed and frustrating task, for much of what one wishes to know is just unknown. It will also become obvious below that most of the links are very case-specific. Hence general answers of the sort "liberalization of type a will have poverty impacts of type *b*" are just not available—poverty impacts will depend crucially on specifics such as why people are poor to start with, whether the country is well-endowed with mineral wealth and what sort of infrastructure exists. Rather the essay will develop a way of thinking about the poverty effects of trade and trade reform, ending up with a series of questions which will help policy makers to predict the effects of specific reforms.

In the broadest possible terms, the essay concludes that trade liberalization is generally a strongly positive contributor to poverty alleviation—it allows people to exploit their productive potential, assists economic growth, curtails arbitrary policy interventions and helps to insulate against shocks. The essay recognizes, however, that most reforms will create some losers (some even in the long run) and that some reforms could exacerbate poverty temporarily. It argues, however, that in these circumstances policy should seek to alleviate the hardships caused rather than abandon reform altogether.

A yardstick for economic policy

The fact that trade reforms can create some losers means that one needs to be explicit about the criteria for judging policy shocks. If one's approach is to condemn any shock that causes even one individual to suffer a reduction in income, it is unnecessary to carry out any analysis. Given the differences of interest between people and the strongly redistributive nature of trade policy internally, virtually any policy will fail this test. Even the requirement that no household fall temporarily into poverty is likely to be extremely restrictive in poor countries. The more utilitarian view that the number of households (or persons) in poverty should not increase may be more appropriate although even then consideration of the depth of poverty is also required.

1 This essay was prepared at the request of the World Trade Organization. It is largely based on research reported in two papers presented as background studies to the World Bank's World Development Report 2000/1 Winters (2000a,b). I am grateful to the UK Department for International Development for financial support and encouragement of the original work, to Xavier Cirera for research assistance, Shoshana Ormonde for logistical help and to Tricia Feeney, Kate Jordan, Caroline Lequesne, Michael Lipton, Neil McCulloch, Andrew McKay, Pradeep Mehta, Chris Stevens, Sally-Ann Way, Howard White, and participants in the World Bank's meeting on 'Openness, Macroeconomic Crises and Poverty' Kuala Lampur, May 10-12th 1999 for comments and advice. The papers draw on field research conducted by Oxfam and the Institute of Development Studies in Africa (Oxfam—IDS, 1999) and Consumer Unity Trust Society in India (CUTS, 1999). I am grateful to their authors for making it available.

2 For example, the fact that trade liberalization in South-East Asia was associated with great strides in alleviating poverty is not sufficient to show that it caused those strides; too much else was going on. Similarly, the (mixed) evidence that liberalization has gone with increasing poverty in Latin America since 1980 is not sufficient to prove the opposite.

I do not seek to define to the appropriate metric for judging policies here, but it is important to be aware in considering the arguments below that all judgements ultimately have to be quantitative, not just qualitative.

What is poverty?

An important aspect of any analysis of poverty is the definition and measurement of the phenomenon itself. While recognizing that there are many legitimate approaches to this, I implicitly adopt here an absolute consumption—or, where necessary, absolute income—metric.[3] In choosing this definition, I am not denying the importance of other aspects based, for example, on human development or social exclusion. I believe, however, that the first step towards understanding the effects of international trade on poverty is to focus on the simplest, most directly-impacted and easily-observable dimension of the question. Besides, the different dimensions of poverty are at least fairly well correlated, so that conclusions about income-poverty will be a reasonable indicator of other aspects.

A second measurement issue is how to combine the individual poor into an index of poverty. The standard approach among poverty-scholars is to define a poverty line and then measure one of three statistics—see, for example, Ferriera and Litchfield (1999). The first is the number of households (or people in households) that fall below the line, possibly expressed as a proportion of population. This is known as the head-count index: it pays no attention to the extent to which people fall below the poverty-line, but essentially asks whether a policy pushes more people from below to above the line than vice versa. The second statistic sums the shortfall of actual incomes below the poverty line across all people or households below the line. It is concerned with the depth of poverty, but values an extra dollar of income equally whether it goes to someone far below the line or very close to it. The final measure sums the squares of the shortfalls and thus gives an individual greater weight in the final index the further they are below the poverty line.

Clearly selection of the poverty line is an important aspect of these measures. Again I do not want to enter this debate, but since I have defined the issue in terms of extreme, or abject, poverty, I am implicitly using a fairly low one. The poverty line is not necessarily the same for all countries—each country will have its own views according to custom, expectation, etc. However, once we have to aggregate across countries—for example, to consider global effects or effects on subsets of developing countries—it becomes difficult to make the case for differences.

There are many reasons why people are poor, and even within broad groups there are huge differences in circumstances between individual households. Thus the effects of most shocks will differ across 'the poor', and a crucial part of any practical analysis must be to identify different interests within that group. A first step towards this is a poverty profile, including information on the consumption and production (including employment) activities of the poor. I do not labour the point about heterogeneity below, but in truth it is hard to over-estimate its importance. Implicitly nearly all the factors discussed will vary *across* the poor within a single country.

While poverty profiles are a necessary input into thinking about the links between trade and poverty, they should not lead us to believe that poverty is a static and unchanging state. There is, in fact, a fairly rapid turnover of families into and out of poverty, and the determinants of those transitions appear to be rather different from those turned up by studies of the static correlates of poverty—Baulch and McCulloch (1999). This is potentially an important insight for our purposes, for if trade affects the transition probabilities it could have significant effects on the stock of 'poor', while apparently having little to do with that stock directly. Understanding these transitions is also a crucial component in designing policy to mitigate any adverse trade or trade policy shocks. Unfortunately, this is not an issue on which I know of any research at present; doing such work depends on first completing the more prosaic static analysis of trade and poverty that is the concern of this essay.

The structure of this essay

I will explore the static effects of trade and trade policy on poverty via four broad groups of institutions: enterprises, distribution channels, government and households. These are schematically arranged in Figure 1, and each is presented in a separate section below. In addition, I will discuss both longer-term dynamics—economic growth—and shorter-term dynamics—vulnerability to shocks and adjustment stresses.

None of the economic analysis for the individual institutions is very complex, but in each case I shall demonstrate the possibility of both pro- and anti-poor influences. Thus when I come to put them together, it will hardly be surprising that there are no general conclusions about whether trade liberalization will increase or reduce poverty. I do, however, derive some results about the sort of circumstances under which the effects are likely to be benign and, with them, the makings of a view about how liberalization can be designed to foster poverty alleviation. Thus the essay concludes with sections on policy implications and on key questions to ask about any trade reform. One of the inevitable conclusions from a taxonomy such as this is that the impacts of trade on poverty will differ across countries. Thus great care is needed in generalizing from one country's experience to another, and policy positions for one country will be quite unsuitable for another.

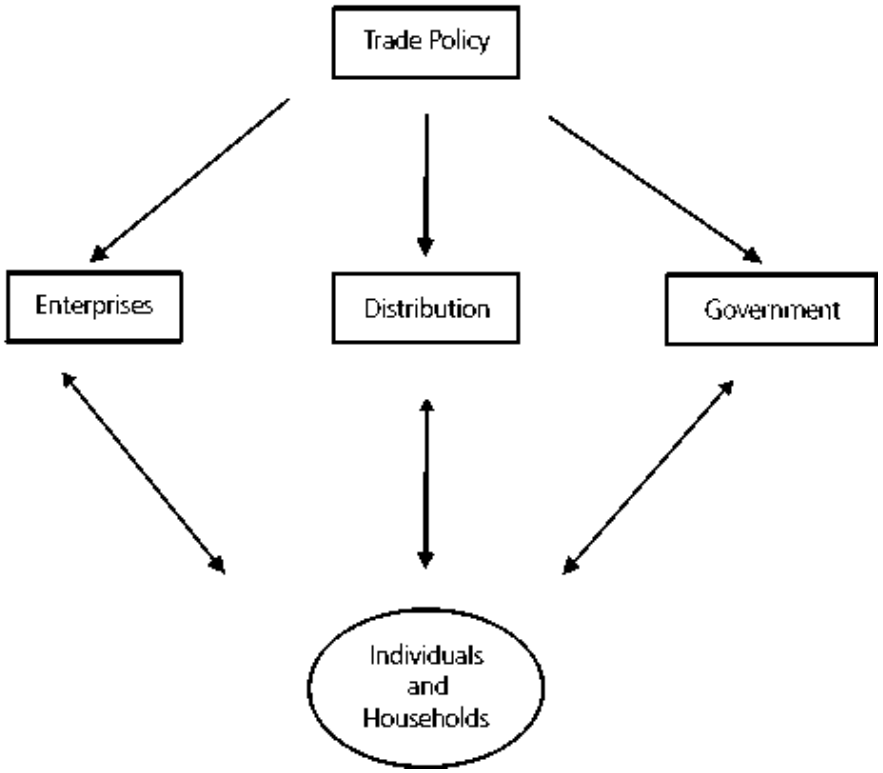
B. The individual and the household

A basic view of the household

It is simplest to start with what economists refer to as the "farm household"—see, for example, Singh, Squire and Strauss (1986). This is not to be taken literally as referring only to people who work the land or the seas, although the rural poor account for the majority of world poverty, but to any household which makes production as well as consumption and labour-supply decisions. By

[3] Baulch (1996) offers a useful account of different poverty measures.

Figure 1: The analytical scheme



focusing on households I am consciously setting aside gender and intergenerational issues, but I will return to these very shortly.

In this simplest case, we can think of household welfare as depending on income and the prices of all goods and services that the household faces. The former must be measured as so-called 'full income' comprising (a) the value of the household's full complement of time—the maximum amount of time that could be spent working, perhaps 12 hours per person per day—valued at the prevailing wage rate, (b) transfers and other non-earned income such as remittances from family members outside the household, official transfers, goods and services in kind, and benefits from common resources, and (c) the profits from household production

This view defines all the variables that need to be assessed in order to calibrate the effects of an international trade policy shock on income or consumption poverty. Of course, the approach applies to all households and all shocks, but here I concentrate only on households for which poverty is an issue, (i.e. those in poverty before or after the shock, or for whom the probabilities of being in poverty are materially changed) and on shocks emanating from trade policy.

The effect of a single small price change on household welfare depends on whether the household is a net supplier or net demander of the good or service in question: a price rise for something you sell makes you better off. To be more precise, to a first order of approximation, the effect of a very small price change on household welfare is proportionate to its net supply position expressed at current prices as a proportion of total expenditure.

For finite price changes the household's responses to the price change also influence the size of the welfare effect, but they will not reverse its sign. Thus, if the household has alternatives to purchasing a good whose price has risen, it can mitigate the cost of a price rise. Similarly, if it is able to switch towards an activity that has become more profitable, it can increase its gains beyond the first order amount.

Responsiveness is particularly important when one considers the vulnerability aspects of poverty. Policies which reduce households' ability to adjust to or cope with negative shocks could have major implications for the translation of trade shocks into actual poverty. Moreover, fear of the consequences of not being able to cope with negative shocks might induce households to rule out activities that would raise their average income significantly but run greater risks of very low income. Responsiveness is also important because it spreads shocks from the market in which the price change occurred to others, whose prices might not have been affected by trade policy at all. All these factors are considered below.

Generalizing the household

The simplest view of the household just expounded is very useful for getting our thoughts in order, but it is not very realistic. Thus we should consider a number of potential generalizations before seeking to apply it in

practise. Not all will be feasible or relevant in every case, of course, but among the factors to be included are:

(a) Households can provide several forms of labour, so we need to consider their endowments of all these types of labour and the wages they command;

(b) By talking of the 'prevailing wage rate', I imply that there is one wage per class of labour and that it is exogenously given to the household. In particular, this implies that household members are indifferent between working on their own farm or outside it, and that the farm is indifferent between 'home' and 'outside' workers. It is as if the farm (or family business) supplies labour to the labour market and buys it back at the given wage. But this separability might not apply—for example, because there are different costs to monitoring family and non-family workers or because family workers incur transportation costs in reaching other employers. In these cases we need to separate 'home farm' and 'off-farm' activities, with the prices of the former varying according to the 'demand' for them (i.e. their productivity) and the supply of labour to carry them out once outside activities are allowed for.

(c) Once labour can undertake more than one activity, we need a way of allocating time across alternatives. If prices are exogenous the choice is easy—take the activity for which the wage is highest—whereas if 'home' prices are endogenous, time is allocated to equalize returns across activities (including leisure).

These three generalizations allow us to think about the well-documented phenomenon that poor households typically earn income in a large variety of different ways, and that the mix of these may change significantly with trade policy changes. Indeed, the ability to switch between activities is an important aspect of adjusting to potentially impoverishing shocks—see above.

(d) Some activities—and possibly some sales and purchases—may be quantity-constrained. Most obviously, some external jobs may only be available for a fixed number of hours per day—e.g. factory work or service activities such as transportation services. Particularly if trade policy flips some workers from positive to zero hours (or vice versa)—i.e. if policy moves individuals in or out of work—it could have highly significant poverty impacts. The loss of a job is probably the common proximate cause of households descending rapidly into poverty.

(e) Finally, the set of factors of production owned by a household and their associated returns needs to be generalized to include land and other assets. While avoiding issues of long-run dynamics at this stage we need to recognize that such assets generate incomes and thus affect poverty. The unequal distribution of land is an important contributory factor to poverty, and while addressing it is not strictly a matter of trade policy, it clearly affects the outcomes of trade liberalization if the latter affects the rate of return to land.

Genderizing the household

A key extension of the approach above is to recognize the importance of intra-household distribution. It is frequently argued that the costs of poverty fall disproportionately on women, children and the elderly. Two approaches seem possible: either to work on the household and add some analytics for intra-household distribution, or to define welfare changes for individuals and add some analytics to describe inter-personal transfers. The former is probably the more straightforward route, and the fact that the majority of data and the bulk of interventions refer to households rather than individuals suggests that policy makers and legislators see households as the fundamental unit.

The easiest approach is to assume that household activities for generating welfare can be treated quite independently of those for distributing it. The analysis above describes the former, and if the determinants of the distribution of welfare across individuals are not affected by trade policy, the welfare of each person in the household will vary in proportion to the whole in response to a trade policy shock. This would more or less remove gender and age from the analysis and would be very convenient.

Unfortunately, however, the separability just outlined is not plausible, so we need to delve more deeply into the structure of the system, linking up the generation and distribution of welfare. First, shares are likely to vary systematically with total welfare levels—e.g. Kanbur and Haddad (1995). Second, for such separability to be plausible we have to believe that transfers of goods and services within the household will be used to compensate individuals who, because of their (non-transferable) characteristics (especially their suitability for certain types of work), bear the brunt of adverse shocks. If subsistence requirements or culture preclude such transfers, the separate treatment of generation and distribution is no longer feasible and the effects of specific prices or factor shocks filter through to specific individuals.

The distinction made in many traditional societies between "male" and "female" crops or activities is an important link here. So too are the arguments that falling male wages and/or employment can reduce female welfare because females are obliged to increase their work outside the home, but receive little compensatory help with their traditional in-home activities. Clearly the same effects could arise if the outside price of female labour rose—e.g. because of improved export prospects for clothing. If pressure on female labour for cash crops reduces women's input to the family food crops, nutritional standards could also suffer: fieldwork described in Oxfam—IDS (1999) discovered some evidence of these kinds of problems in Southern Province, Zambia, see Winters (2000a) for a brief account.[4]

4 Elson (1991) and Haddad, Hodinott and Alderman (1994) provide useful overviews of these non-separabilities and their consequences, while Fontana and Wood (1999) operationalize some of them numerically.

Unfortunately while the arguments of the previous paragraph seem very plausible, they are very case-specific. Gender and intergenerational issues must be taken seriously, and the consumption and incomes of individual household members may be important in assessing poverty. But no robust and general approach to predicting the effects or even to analyzing them has emerged to date. Thus other than noting that, along with the points in the previous subsection, the gender/intergenerational issues call for attention and flexibility in the application of the basic results, it is difficult to specify how to proceed.

Finally, of course, information on intra-household distribution is difficult to obtain. Since it is almost impossible to disaggregate consumption across household members, it is likely that the best approach to these issues will call on physical indicators e.g. health or nutritional status, and time allocation data.

C. Price changes and the transmission of shocks

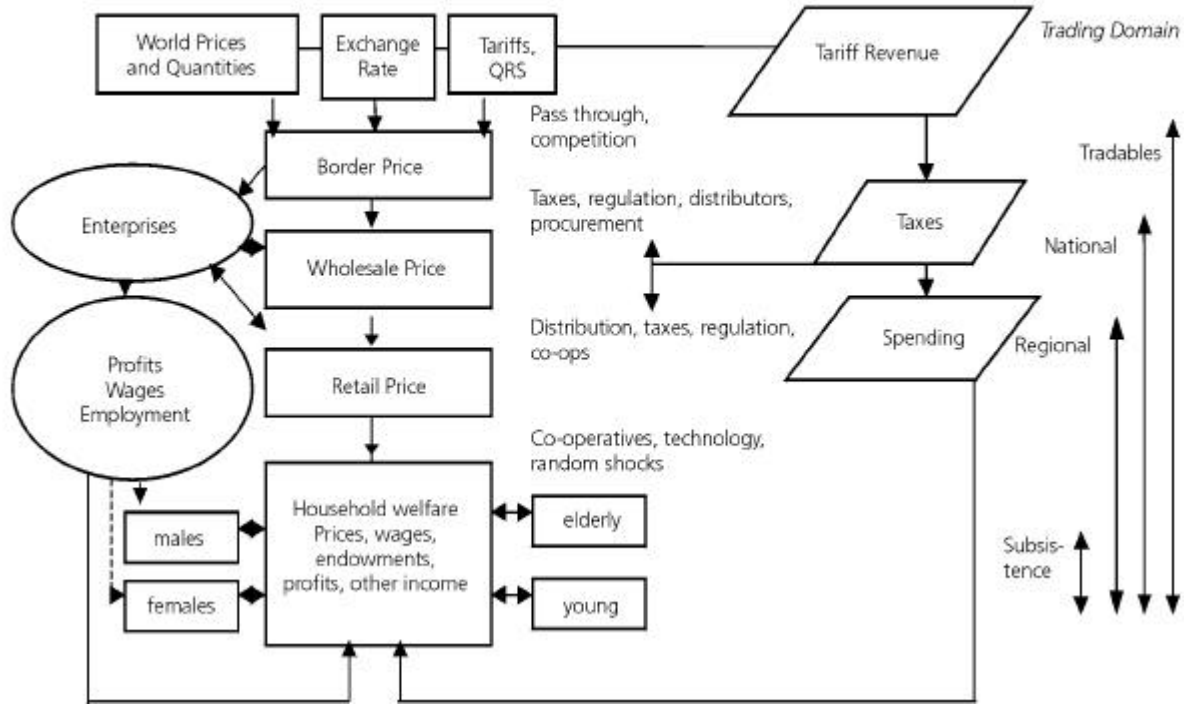
The direct effects of a price change: the distribution sector

I start by considering a change in the tariff facing a single good. Figure 2, adapted from Winters (2000b), summarizes the way in which such shocks might work through to the variables determining household welfare in a target country. Schematically, for any household the figure comprises five columns of information. The elements concerning distribution lie in the middle of the figure where I trace the transmission of price shocks from world prices through to final consumers (in the rectangles), and briefly describe the factors influencing the extent to which shocks at one stage are passed through to the next.

Consider the transmission of price shocks in pure accounting terms. For an import, the world price of a good, the tariff it faces and the exchange rate combine to define the post-tariff border price. Once inside the country, the good faces domestic taxes, distribution from the port to major distribution centres, various regulations which may add costs or control its price and the possibility of compulsory procurement by the authorities. I refer loosely to the resulting price as the wholesale price.

From the distribution centre the good is sent out to more local distribution points, and potentially faces more taxes and regulations. In addition at this point, co-ops or other labour-managed enterprises may be involved. It is useful to distinguish these because their behaviour in the face of shocks could be significantly different from that of commercial firms. I term the resulting price the retail price, although of course market institutions may well not resemble retail outlets in the industrial economy sense. Finally, from the retail point, goods are distributed to households and individuals. Again co-operatives may be involved, plus, of course, inputs from the household itself. More significantly, the translation of price signals into economic welfare depends on the household's characteristics—its endowments of time, skills, land, etc—technology and random shocks such as weather. The last two are important conceptually, because anything that increases the household's productive ability permits it to generate greater welfare at any given price vector.

Figure 2: Trade policy and poverty- causal connection



A corresponding taxonomy can be constructed for export goods, starting at the bottom of the column. An export good is produced, put into local marketing channels, aggregated into national supply of the good and finally sold abroad. At each stage the institutions involved incur costs and add mark-ups, all of which enter the final price. If the export price of the good is given by the prevailing price on world markets, all such additions come off the farm-gate price that determines household welfare.

In determining the effects of world price or trade policy shocks on poor households it is vital to have a clear picture of these transmission channels and the behaviour of the agents and institutions comprising them. For example, sole buyers of export crops (i.e. those to whom sellers have no alternative) will respond differently to price shocks than will producers' marketing cooperatives. Regulations that fix market prices by fiat or by compensatory stock-piling can completely block the transmission of shocks to the household level.[5]

Even more important, all these various links must actually exist. If a trade liberalization itself—or, more likely, the changes in domestic marketing arrangements that accompany it—lead to the disappearance of market institutions, households can become completely isolated from the market and suffer substantial income losses. This is most obvious in the case of markets on which to sell cash crops, but can also afflict purchased inputs and credit. If official marketing boards provided credit for inputs and against future outputs, whereas post-liberalization private agents do not, no increase in output prices will benefit farmers unless alternative borrowing arrangements can be made.

The importance of transmission mechanisms is well illustrated by the contrasting experience of markets in Zambia and Zimbabwe during the 1990s—Box 1 (Oxfam—IDS, 1999). In Zambia, the government abolished the official purchasing monopsony for maize; the activity became dominated by two private firms which possibly colluded to keep prices low and which abandoned purchasing altogether in remote areas. Even if the latter was justified economically in the aggregate, it still left remote farmers with a huge problem. This was exacerbated by the difficulties of their re-entering subsistence agriculture, given that the necessary seed stocks and practical knowledge had declined strongly during the (subsidized) cash-crop period. In Zimbabwe, by contrast, three private buyers for cotton emerged after privatization, including one owned by the farmers. Here the abolition of the government monopsony resulted in increased competition and prices and farm incomes rose appreciably. In a less extreme example Glewwe and de Tray (1989) show how transport and storage costs attenuated price changes of potatoes following liberalization in Peru.

The discussion above prompts three comments. First, and blindingly obvious, is that the effects of liberalization depends on where you set off from. If an import ban plus government monopoly subsidizes remote farmers, the first round effects of liberalization will be to hurt those groups.[6] A second important example of this, based on the analysis of section D below, comes from Hanson and Harrison (1999). They suggest that Mexico's trade liberalization in the 1980s has not boosted the wages of unskilled workers as many had expected precisely because its initial pattern of protection was designed to protect that group. In short, the analysis of the poverty impact of trade liberalization can be no more general than is the pattern of trade restrictions across countries.

Second, usually many goods are liberalized at once, so that the effects on individual households will be the sums of many individual shocks. When some of the goods affected are inputs into the production of others, the net effect is quite complex and it is important to consider the balance of forces. For example, Zambian liberalization raised the selling price of maize in the 1990s, but even where purchasing arrangements continued, input prices rose by more as subsidized deliveries were abolished; as a result, maize farming generated lower returns and output fell. (Oxfam—IDS, 1999).

Indirect effects and the domain of trade

Third, we need to know how the household will accommodate the price changes. This will first condition our view of how serious the shock is: an adverse shock may entail large losses of welfare if no alternative goods or activities exist, or relatively small losses if they do. Similarly positive shocks may deliver great benefits if households can switch their purchases or activities to take advantage of them.

An additional aspect of accommodating a shock is that the act of substituting one good or activity for another necessarily transmits the shock to other markets which may not have been directly affected by a trade reform. Thus it sets off a whole series of second-round effects. A critical consideration in assessing these effects is the domain over which the 'second-round' goods or services are traded, because this defines the range of agents whose behaviour will be altered as these markets come back into equilibrium. The trading domains are summarized on the far right of Figure 2.

The border price of a good that is traded internationally will be largely if not entirely determined by the world price. Hence putting aside any changes in the various margins identified above, the prices of such goods will not change further as the market equilibrates to a shock. That is, there will be no 'second-round' price effects because, in effect, with a world market, all producers and consumers in the world will adjust their behaviour a tiny amount to absorb the changes in the target country.

For goods that are traded on a national market, but not internationally, the second-round quantity shocks will be spread over the whole of the national economy; this too will probably display sufficient elasticity to absorb

5 Lest blocking price transmission seems automatically a good thing, remember that many shocks are positive and that official bodies have a tendency to take a cut out of the price in return for providing the 'service' of insulation.

6 Second round effects could, of course, be positive—see below.

Box 1: Markets—better, worse and missing

The over-riding conclusion of the field research described in Oxfam—IDS (1999) and Winters (2000a) is the critical role of markets in determining the poverty impacts of trade and other liberalizations. Where conditions for the poor have improved this has usually been associated with the better performance of and access to markets. Where they have worsened, faulty markets are generally to blame and in the extreme cases, the problem is often missing markets.

We illustrate this with two cases deriving from trade and associated reforms over the early nineties in Zimbabwe and Zambia.

Cotton in Zimbabwe:

Despite the hesitant and partial nature of formal liberalization *policies* in Zimbabwe, there appeared to be a substantial improvement in market *outcomes* over the period 1991-97, including an increase in competition in the cotton market (Table 1). Before the reforms, the Cotton Marketing Board used its monopsony to impose low producer prices on farmers in order *inter alia* to subsidize the textile industry. In absolute terms, the impact will have been greater for larger farmers, simply because they produced more cotton. But ultimately it probably affected smaller farmers most severely because they lacked the large farms' ability to diversify into other crops such as horticulture.

Following deregulation and privatization, there is now substantial competition between three buyers, one of which is owned by farmers themselves. Again, in absolute terms this must have benefited larger farmers more than small ones, but there have been particular gains for the smallholders. These have included the fact that the buyers have chosen to compete with each other not only on price (which has increased significantly), but also by providing extension and input services to smallholders. While the latter are obviously reflected in the prices that the farmers receive, their provision fills a gap that would otherwise exist in small farmers' access to inputs (including, in this case, information). Hence, the changes have assisted small farmers both through an increase in price and by enabling them to produce more.

Table 1: Changes to markets: cotton in Zimbabwe

Before:

- monopsony buyer (CMB) used low producer prices to subsidize inputs into textile industry;

- commercial farmers diversified into unregulated crops such as horticulture and tobacco; small farmers suffered;

Now:

- deregulation and privatization;

- competition between three buyers;
- some buyers offering input supply;
- prices have risen (in current terms).

Maize in Zambia:

Such changes are precisely what the reforms in Zambia were intended to achieve. But here the result was very different. In the case of maize (Table 2), the better-favoured areas have seen no effective change in market conditions, while the less-favoured regions have witnessed a deterioration. Given that the status quo ante was relatively favourable for smallholders, especially in remote areas, it is easy to see why these changes failed to improve the conditions of poor maize farmers.

Under the old regime, remote farmers were subsidized by those close to the line of rail (through pan-territorial pricing) and small farmers by larger ones with storage facilities (through pan-seasonal pricing). In addition, the agricultural sector as a whole was subsidized by mining. All of these subsidies have now been removed. Remote farmers are unambiguously worse off, whilst larger ones and those close to the line of rail are probably also less well off, since the subsidies from mining probably exceeded the tax in favour of remote areas.

But the deterioration in the situation of remote farmers is substantially worse than would have arisen solely from the removal of pan-territorial pricing. For them, functioning markets have largely disappeared. The status quo ante was one of a sole parastatal buyer; the status quo is that often there is no buyer at all or, if there is, the terms of trade are so poor that transactions occur on a barter basis.

It is difficult to disentangle the relative importance of institutional and infrastructural factors in this market failure. There has been such a sharp deterioration in transport infrastructure that it is difficult for traders to reach areas that are more than a relatively short distance from a major route. It is an open question whether trading would be more active if infrastructure were better, or whether there are also institutional impediments. But in other areas, there are clear institutional constraints on top of the logistical ones.

It might reasonably have been supposed that farmers would react to the change in relative prices of maize inputs and outputs to shift production into crops that are less dependent on imports. This has happened, but only to a limited degree. In some

cases farmers say they have lost either the knowledge or the physical inputs required to shift production back to subsistence varieties and crops.

Table 2: Changes to markets: maize in Zambia

Before:

- subsidized inputs;
- government/co-operative crop purchasing;
- pan-territorial, pan-seasonal pricing;

- growth of (imported) input-dependent production across the country.

Now:

- input prices have risen;
- markets for crops have shrunk (especially away from line of rail and major roads);
- limited availability of sustainable seeds;

- fall in area planted to maize and production;
- only partly offset by growth in more sustainable coarse grains because of consumer preference for maize;

- shift to cotton which is less profitable, but in which 'better' markets exist.

them with rather small resulting price changes. While small, however, the price changes will be widespread and through this mechanism shocks could be spread from one region of the target country to another. If things are traded only locally—say, because of transportation difficulties or because they are services rather than goods—the trading domain is smaller still: the price adjustment will be larger than in the previous cases, but the impact more narrowly focused geographically.

Several authors—e.g. Timmer (1997), Delgado (1998) and Mellor and Gavian (1999)—argue that it is second-round effects that make agricultural liberalization and productivity growth are so effective at alleviating poverty. Their demand spill-overs are heavily concentrated on employment-intensive and localized activities in which the poor have a large stake—for example, construction, personal servants and simple manufactures. These authors' work assumes that developing-country rural economies have excess labour and can deliver extra output by taking on more workers without price increases.[7] This, in turn, means that the increase in income has multiplier effects so that total income in the locality rises by more than the initial impact on the fortunate farmers. The basic insight, however, also generalizes to our situation. As farmers spend their extra income the prices of local goods and services are driven up, increasing the incomes of those who produce them. Whichever model applies—with fixed or flexible prices—the policy conclusion remains that liberalizing world trade in agricultural goods is likely to have strong pro-poor effects.

Positive shocks to the urban economy are also desirable, of course, but will usually result in more diffuse spill-overs—to a wider set of goods and more directly to imports. Imports still generate spill-over benefits—output in the export sector has to grow, because the imports have to be paid for. But if the factors used intensively in the export sector or in domestic sectors on which urban residents spend their income are not among the poorest, the spill-over from urban shocks will be less pro-poor. Of course, in the end the relative benefits of different second-round effects is a matter for detailed empirical investigation case by case.

Finally there are two sets of goods for which explicit prices are not observed, but which nonetheless are important for assessing poverty impacts. First, subsistence activities and goods: of course, by definition these are not subject to direct trade shocks, but they will still be affected by spillovers from goods that are. It is easiest to think of these spillovers in terms of the ways in which inputs of labour and outputs of subsistence goods are impacted by changes in tradable goods' and services' prices. Recall as an example, the spillovers to kitchen-

7 See below for a discussion of whether such changes actually alleviate poverty.

gardening discussed above under the gender dimension of adjustment.

The second set of goods for which we do not observe prices is those that are just not available. While conceptually simple to deal with in our schema—the price of a good is infinity when it is not available—changes in the set create complex measurement problems.[8] They may be important, however, even for the poor, as Booth et al (1993) document in Tanzania. They may also be critical from a policy perspective, as, for example, when non-tariff measures or regulation exclude certain goods from the market. An interesting case-study is Gisselquist and Harun-ar-Rashid (1998) who discuss the restrictions on inputs into Bangladeshi agriculture and show how their relaxation greatly increased the availability of, for example, small tractors and water pumps to small farmers.

Not only are prices affected by spill-overs and the trading domain, but the distribution chain may also be. Agents' and institutions' willingness and ability to pass price changes through will be partly determined by the domain of the market they serve. In practice the information required to predict second round effects is very complex. In many cases, however, the shocks induced by trade policy changes will be sufficiently specific and/or small for us to ignore the second-round effects, and we can focus just on the direct impacts described in rectangles in Figure 2.

D. Enterprises: profits, wages and employment

Three elements of the enterprise sector

The left hand side of Figure 2—the elipses—describes a completely different and equally important link from trade to poverty—that arising through its effects on enterprises. 'Enterprises' includes any unit that produces and sells output and employs labour from outside its own immediate household. Thus as well as registered firms proper, it includes some of the informal sector and larger farms that employ workers part-time or full-time. The important distinction is that outputs are sold and inputs acquired through market transactions. Hence the link in the figure to border, wholesale and retail prices.

The analysis of the enterprise sector requires three elements—demand, firms and factor markets. Demand for the output of home enterprises is determined by income (of which more later), and export, import and domestic prices. The trade prices are largely or wholly exogenous to the average developing country, but domestic prices are endogenous, even if market forces mean that they are actually constrained always to equal one of the others.[9] As noted above, domestic prices will be determined by interactions at several levels, but here we subsume this all into one term, and some goods will be non-traded internationally and so have only domestic prices.

The demand for the domestic good must be matched by supply, which stems from the second element—firms. These divide their output between home and export markets according to relative prices, and determine total output according to those prices relative to costs. Costs, in turn, depend on factor prices (wages, returns etc) and factor input-output coefficients (i.e. the inputs necessary per unit of output), the latter of which depend on technology and again on relative factor prices. If there are increasing returns to scale, input-output coefficients also depend on total output. In accordance with the analysis of households above, factors and their returns need to be disaggregated by type, including caste, gender and skill.

Given total output and the input-output coefficients, total factor demand is given, and this is confronted with total factor supply in the factor markets—the third element. These are equilibrated by movements in factor prices, with the result that employment and wages—the two variables of most relevance to poverty—are determined. Implicit in this view is that the distribution of assets and skills across households is given and that household welfare depends only on factor rewards and employment opportunities. Increasing asset stocks is an issue of economic growth, and perhaps public expenditure (for education and health), both of which we treat below. Redistributing them between households is a separate issue quite independent of international trade policy. The distribution of the employment of factors across sectors, however, is not given. The movement of factors between sectors plays a crucial role in the poverty impact of trade shocks.

The remainder of this section considers two different approaches to enterprise effects—one assuming fixed economy-wide levels of employment for each factor of production so that shocks are reflected only in factor prices (a 'trade theory' approach), and one assuming infinitely variable levels of total labour employment at a given fixed wage (a 'development theory' approach). It observes that neither polar view is wholly correct and that a critical variable for enterprises in the real world is the degree of substitutability in demand between their output and that available via imports.

'Trade theory'—inelastic factor supplies

Of course, all the processes described in the introduction to this section happen simultaneously, but the figure helps to explain some of the critical links. I start with traditional trade theory, in which total factor supplies are exogenously fixed, wages and returns are perfectly flexible and the domestic and foreign varieties of each good are identical.

Price changes, including those emanating from trade policy changes, affect the incentives for enterprises to produce particular goods and the technologies they use. The simplest and most elegant analysis of these incentives—the Stolper-Samuelson Theorem (among the most powerful and elegant pieces of economic analysis

8 Feenstra (1994) has pioneered methods of approaching this problem, particularly in the context of the availability of inputs into production.

9 If the domestic and imported varieties of a good are identical and there are no constraints on sales, domestic prices will equal import prices.

Box 2: Why the Stolper-Samuelson theorem is not sufficient to analyze poverty

The Stolper-Samuelson (SS) theorem, that an increase in the price of the labour-intensive good raises real labour incomes and reduces real returns to capital, is a hugely powerful result of direct and immediate relevance to the link between international trade and poverty. Like all theory, however, it is built on restrictive assumptions, and once these are violated its power and definitiveness are eroded. This erosion does not mean that the theorem has nothing to say—indeed, it is still a vital part of economists' tool-kits—but it does mean that it needs to be supplemented with further, usually case-specific, analysis to draw concrete conclusions.

The basic SS mechanism—derived from a formal model with two goods, two factors and two countries—is that as the price of the labour-intensive good rises, production of it increases, drawing factors of production away from the other, capital-intensive, sector. Since the labour intensive sector wishes to employ more labour per unit of capital than the capital intensive sector releases (by virtue of their factor intensities), this reallocation increases the demand for and the relative price of labour to capital. This change causes both industries to switch to less labour intensive production methods—i.e. to employ less labour per unit of capital—which, in turn, raises the marginal product of labour in both industries. If factors are paid their marginal products, labour receives a higher wage in terms of each good and so, a fortiori, has a higher real wage regardless of its consumption patterns. Similar reasoning shows why capital's real return falls.

The main assumptions in this chain of reasoning are described below, along with a brief indication of what happens when they are violated.

- *The functional distribution of income is not the same as the personal distribution of income:* the income of a given household is only indirectly linked to the returns to various factors of production. It depends on their ownership of the various factors, which is usually very difficult to ascertain empirically. Recently Lloyd (1998) has shown how to generalize SS to the personal distribution of income conditional on both households' endowments and their consumption patterns.
- *Dimensionality:* The very powerful SS result holds only in a '*2 x 2*' model, with 2 factors and 2 goods. Once we move beyond this the results are much weaker. In an *n x n* model each factor has an 'enemy'—a good whose price increases definitely hurt the factor—but not necessarily a 'friend'. In non-square models, with different numbers of factors and goods, unambiguous results are even scarcer.
- *Mobility of labour:* independently of the number of different classes of labour distinguished, each is required to be perfectly mobile between all sectors and regions of the economy—i.e. there are perfect labour markets at the national level. If this is violated—i.e. labour markets are segmented—similar labourers in different markets must be treated as being different factors, and will fare differently from each other.
- *Diversified equilibrium:* to be sure of SS effects, the country must be producing all goods, both before and after the price change in question. If we distinguish many different goods at different levels of sophistication, this is unlikely. If countries do not produce all goods, the basic mechanism can break down and perverse results are possible—e.g. Davis (1996).
- *Differentiated goods:* SS is based on a model in which goods are homogeneous across foreign and domestic suppliers. Many argue that goods are better thought of as differentiated, in which case the critical issue is how closely domestic varieties are substitutable for the foreign varieties whose prices have changed. If the answer is 'rather little', the prices of domestic varieties will be only slightly affected by trade shocks but there will be little quantity response to the price increase for the imported variety, so the terms of trade losses from the price increase will be correspondingly unmitigated.
- *Constant returns to scale and smooth substitution between factors:* If industries are subject to economies of scale, their responses to price shocks will tend to be larger than a CRS approach suggests. Also, under such circumstances it is possible for all factors to gain or lose together, which weakens the inter-factor rivalry aspect of SS. Similarly, if technology is endogenous or if labour can be substituted for other factors only in discreet steps, there may be discontinuities in the way factor prices respond to shocks.
- *Perfectly competitive goods and factor markets:* these are required for the direct and simple transmission of goods price shocks into factor price effects. Once there are economic rents in the system, transmission becomes more complex and difficult to predict.
- *Non-traded goods:* if some goods are non-traded, their prices are no longer determined by world prices plus tariffs, but by the need to clear the domestic market. They will accommodate shocks through both price and quantity responses, rather than just the latter as for traded goods in a small country. This will tend to attenuate the rate at which tradable goods price shocks are translated into changes in the relative demands for different factors.

on any subject)—generates very powerful results indeed. It proves that, under particular conditions, an increase in the price of the good that is labour-intensive in production will increase the real wage and decrease the real returns to capital.[10]

Unfortunately, for all its elegance, Stolper-Samuelson is not sufficient to answer questions of trade and poverty in the real world, and it must be supplemented by more heuristic but less specialized approaches—see Box 2 on 'Why the Stolper-Samuelson Theorem can't analyze poverty'. Its basic insight, however, applies under a very broad set of circumstances. An increase in the price of a good—exportable, importable or non-traded—will increase the incentive to produce it. This will raise the returns to factors of production specific to that good—e.g. labour with a specific skill, specialist capital equipment, brand image—and, assuming that some increase in output is feasible, will also generally affect the returns to non-specific, or mobile, factors. Typically, the returns to at least one such factor will increase and those to at least one other fall. Presuming that the poor have only their labour to sell, the focus for poverty studies is on wage rates—usually on unskilled labour and wages.

Broadly speaking, if the prices of unskilled-labour-intensive goods increase we would expect unskilled wages to increase. As these industries expand in response to their higher profitability, they absorb factors of production from other sectors. By definition, an unskilled-labour-intensive sector requires more unskilled labour per unit of other factors than do other sectors, and so this shift in the balance of production increases the net demand for unskilled labour and reduces it for other factors. If poor households depend largely on unskilled wage earners, poverty will be alleviated by the resulting wage increase (although, of course, head-count indices will vary only if the wage increase moves families from one side of the boundary to the other).

It is important to note that in the previous paragraph, the first-order effect is the total production effect, not any shift in factor proportions. It arises because the industry using relatively more unskilled labour increases its demand for *all* factors while other industries release *all* factors. It is the different compositions of these different sectors' preferred bundles of factors that matters, not any shifts within them.[11] A parallel analysis concerns technical progress. Increases in the general level of efficiency in an industry will reduce its price and/or increase its profitability. This will increase its level of output and thus generally increase demand for the factors that produce it.[12] Factors specific to that sector will benefit, as will mobile factors that are used intensively in the sector. This effect could be offset if technical progress is heavily biased against one factor or another (the factor saved loses out), but if progress is concentrated on only a few sectors it is generally more important to know which sectors and to know their factor intensities, than to know the factor-bias of the technical progress. If, on the other hand, technical progress is uniform across sectors, the composition effects largely cancel out and factor bias is the key to predicting the factor demand effects of technical progress.

In world terms developing countries are clearly labour-abundant, so that freer trade (whether generated by their own or by industrial countries' trade liberalization) gravitates towards raising their wages in general. However, within developing countries it is not clear that the least-skilled workers, and thus the most likely to be poor, are the most intensively used factor in the production of tradable goods. Thus while, for example, the wages of workers with completed primary education may increase with trade liberalization, those of illiterate workers may be left behind or even fall. One of the reasons that agricultural liberalization is such an important goal for future trade policy is that for this sector we can be reasonably confident that low-skilled workers in rural areas—the majority group among the poor—will benefit through the production responses.

It is sometimes suggested—at least implicitly—that the factor intensity approach to the distributional effects of trade policy is refuted by the failure of Latin American liberalization in the 1980s to alleviate poverty. Without denying the need for refinement in the argument, I believe that the alleged surprise arose more from faulty premises than from theoretical failure. Thus, as Wood (1997) argues, by the 1980s Latin America was not obviously the unskilled-labour abundant region of the world economy: both China's 'arrival' in world markets and Latin America's abundant natural resources suggest otherwise. Similarly the growth of outsourcing, for which Northern firms do not find it most efficient to seek the lowest-grade labour, suggests that Mexican exports are now intensive in labour that is relatively skilled by local standards—Feenstra and Hanson (1995). Finally, of course, it may take time for markets to clear. Thus while Chile's liberalizations (trade and otherwise) were associated with worsening inequality over the 1980s inequality measures have now returned to pre-reform levels—and at vastly higher average income levels and lower poverty levels—World Bank (1997) and Ferierra and Litchfield (1999).

'Development theory'—infinitely elastic factor supplies

One exception to the rule that an increase in the demand for a factor increases its wage (real return) is if the factor is available in perfectly elastic supply, i.e. if effectively any amount of the factor can be obtained at the prevailing wage. Then the wage (return) will be fixed exogenously—e.g. by what the factor can earn elsewhere, which is assumed to be unaffected by the trade policy shock that we are considering—and the adjustment will take place in terms of employment.

First, suppose that labour is the elastically supplied factor. Most generally this will be because the formal sector can draw effectively infinite amounts of labour out of the informal sector or subsistence agriculture at the subsistence wage. This is the famous 'reserve army of labour' model propounded by Nobel Laureate W Arthur

10 The Stolper-Samuelson Theorem is described in all international economics textbooks—see, for example, Winters (1991) or, in more detail, Bowen, Hollander and Viaenne (1998). A full account appears in Deardorff and Stern (1994).

11 In fact, if the wage for unskilled labour increases, all sectors will switch to slightly less unskilled-labour intensive techniques of production.

12 Only if demand is inelastic will the increase in demand fail to outweigh the savings in factors implicit in the greater efficiency.

Box 3: Trade, poverty and the labour market—the simple analytic

The classic link between international trade and poverty in developing countries is via the labour market. If opening up to international trade allows a country to export more labour-intensive goods and replace local production of capital and skill-intensive goods by imports, it increases the demand for labour—typically in the formal sector. (Of course, if the country is not a labour-abundant one, or trade policy previously favoured labour very strongly, liberalization may not boost labour demand). If poverty is concentrated among people who are actually or potentially part of the labour market, increasing demand will help to alleviate poverty. But how, and whether, it does so depends significantly on how the labour market operates.

Consider two extreme assumptions. In Figure 1, I assume that the supply of labour to the formal sector is completely fixed. When the demand for labour shifts out from DD to D'D', employment can not increase and the market must be brought back to equilibrium by an increase in wages from w0 to w1. If some of the workers in this market were poor-or were part of poor families—the increase in wages has a direct and beneficial impact on poverty. This is the classic "Stolper-Samuelson" result that appeared to work so strongly in East Asia over the 1970s and 80s.

The second extreme is illustrated in Figure 2, where the supply of labour is perfectly elastic at the prevailing wage. Now an increase in labour demand is accommodated by increasing employment to L1, with no change in wages. The effect on poverty depends heavily on what the additional workers were doing before accepting these new jobs. If they were engaged in subsistence activities—agriculture, scavenging—and earning the equivalent of w0 initially, there is no change in their situation. Only if the switch into this labour market were so great as to significantly reduce labour supply to the subsistence sector and hence raise its "wage" for everyone would be a poverty impact. This is no less than the case of successful development, through which whole economies are transformed over a period of decades. Trade liberalization is an important part of the process, but it is not the only one.

The alternative—and more common—case is that the wage in the formal sector exceeds the subsistence wage—possibly because it grants access to social services. In this case the workers who transfer to that sector experience a direct wage increase which almost certainly alleviates poverty. This is the situation in the Zambian Copperbelt where each mining job is reported to support 14 dependants (Oxfam—IDS, 1999) and in India, where the formal sector manufacturing wages are substantially above the poverty line (CUTS, 1999)

Figure 1

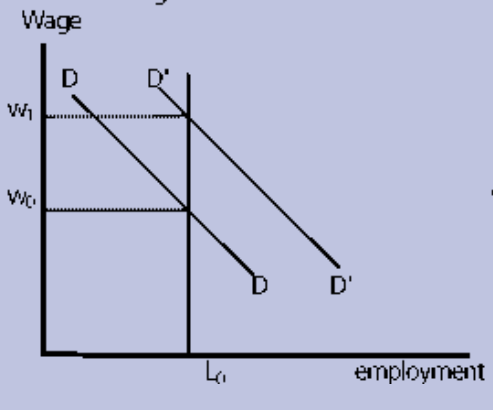
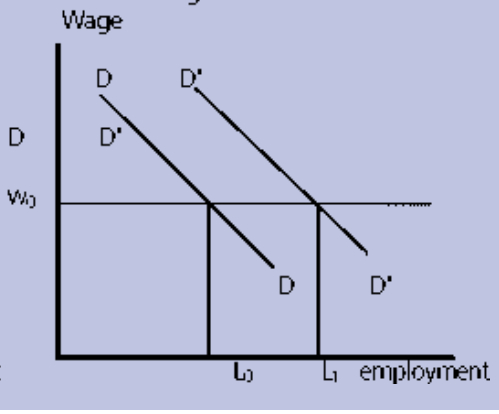


Figure 2



Lewis (1954). Of course, if the formal wage is no more than the subsistence wage (as the model strictly implies), this transfer will have very little effect on poverty. Poverty will only be alleviated if the loss of labour in subsistence agriculture allows the workers remaining in that sector to increase their 'wage', either because the sector begins to run out of labour (the case of successful development) or because the workers had negative social product in that sector (e.g. overcrowding).

Another case where the supply of labour is effectively infinite is where the formal sector has an enforced minimum wage, at which lots of people are willing to work. In this case we can presume that as labour transfers to the formal sector it earns a higher wage and that, as a result, some poverty is alleviated. If trade liberalization raises the value of the marginal product of labour in the formal sector, e.g. by raising the price of an exportable output, it reduces the employment cost imposed by the minimum wage and alleviates poverty. If, on the other hand, trade reform reduces the value of the marginal product and thus reduces employment, it has adverse consequences. Box 3 summarizes the alternative analytics of the labour market.

One possibility that bears some thought is that trade reform could increase measured or perceived poverty even though it raises unskilled wages in the formal sector. Suppose, following Harris and Todaro (1970), that workers migrate from rural areas to urban areas until the subsistence wage and the expected wage in the city are brought into equality.[13] Then, if the subsistence wage is unaffected by a trade reform, any rise in the actual city wage that it induces must be balanced by a higher probability of unemployment in the city. Thus in expected value terms the trade reform would be beneficial (actually

13 The expected wage is the actual wage multiplied by the probability of finding a job at that wage.

benefiting existing urban workers, who would receive a wage increase, and imposing no expected cost on migrants from the subsistence areas). However, if the urban poor are more readily measured or observed than the poor on rural subsistence farms, this could lead to the appearance of greater poverty.

In fact, neither of the polar extremes—of wholly fixed or wholly flexible labour supplies—is likely to be precisely true. Hence in practical assessments of the effects of trade shocks on poverty, determining the elasticity of labour supply and knowing why it is non-zero, is an important task.

A possible indicator of the relative importance of the sorts of effects just described comes from CUTS, (1999). Using the years 1987/8 to 1990/1 to reflect pre-liberalization performance and 1991/2 to 1994/5 post-liberalization performance, CUTS finds formal manufacturing sector employment in India growing faster after liberalization, and wages more slowly: employment at 3.8% and 9.4% and wages at 8.1% and 7.0% respectively. Similar results apply at the sectoral level. However, as Winters (2000a) observes, the success of the reserve army model in explaining the evolution of formal manufacturing in India is not really surprising: the sector accounts for only about 1.3% of the Indian workforce!

A much more perplexing aspect of the Indian reform of 1991 is that it appears to have been associated with a significant *decline* in employment in informal manufacturing, especially in labour intensive sectors. This decline outweighs the increase in formal employment and seems to have been concentrated in the rural areas. In Winters (2000a), I speculate that the most likely explanation—if, indeed, the data are to be believed—is that the real depreciation that accompanied liberalization (which will have raised the prices of traded relative to non-traded goods) switched output from non-tradables to tradables and that the former are disproportionate users of the informal sector. If true, this reminds us that poverty impacts must consider the fate of the non-tradables sector as well as that of tradables.

From a poverty perspective, of course, the important question is what happened to those who lost their informal jobs. If they could move back into subsistence or other agriculture at approximately the same wage, not much happened to them in poverty terms, and the observed increase in formal jobs seems to offer a net gain. If, on the other hand, the loss of an informal job signals a descent (deeper) into poverty, the net effects of these changes is negative for poverty alleviation. Unfortunately, we just do not know the answers to these questions, although other data in CUTS (1999) shows that wages in the informal sector are quite often below poverty levels. Formal sector wages, on the other hand, seem to be uniformly substantially above poverty levels.

Capital might also be available in infinite supply—e.g. say, from multinationals at the world rate of return. In this case the inflow of capital into the liberalized sector is likely to boost wages and/or employment, which will increase the welfare benefits and, if they exist, the poverty alleviation benefits, of a trade liberalization. It is important to remember, however, that if capital inflows make for larger effects when sectors gain from liberalization, they are equally likely to increase them in sectors that lose.

The latter is not to say, however, that capital mobility causes otherwise avoidable losses from trade liberalization. When capital has been attracted into a country by distortionary policies—e.g. tariff protection and tax holidays—the inflow could have been immiserizing. Then, while the outflow resulting from the reform of these policies will impinge directly on workers in the affected sector, the overall welfare effects taking account of spill-overs to other sectors will be positive—and larger than if there had been no immizerising investment to undo. If the distorted sector was particularly crucial in addressing poverty, however, it might be that such liberalization worsens poverty, at least in the short-run until the affected workers have found alternative jobs and/or the government has diverted some of the gains elsewhere in the economy into poverty alleviation policies in the stricken sectors.

Of course, if our target country does not face exogenously given prices for every good, developments in the enterprise sector will affect the prices faced by consumers and hence feed back into column 2 of Figure 2. For tradable goods this is probably not a major consideration because few developing countries have significant market power over the medium and long terms, but for non-tradables it will be important. Given weak infrastructure and trading institutions, many goods and services are effectively non-traded in the developing world; their prices will be determined by the need to equate local supply and demand and by the influence on supply of endogenous changes in factor prices.

Differentiated products

An important distinction in the analysis of the enterprise sector is whether or not goods are homogeneous across foreign and domestic suppliers. Homogeneous goods must have the same prices, and so international trade defines the prices of both traded and domestic varieties. Trade prices essentially determine internal producer and consumer prices and analysis is straightforward. The alternative view is that goods are differentiated, so that each variety faces its own separate downward-sloping demand curve, with links between goods depending on the degree of substitutability between varieties. In this case the transmission of trade policy shocks to domestic prices is less direct, usually affecting more goods but by less than in the homogeneous goods case. This typically also attenuates the shock to factor prices, because, as more goods are affected, the net shifts in the relative demands for different factors are less extreme. (The more goods involved, the more likely are changes in factor demand to be off-setting.) The degree of substitutability between domestic varieties and those traded varieties that are affected by the trade reform becomes a critical parameter in this view of the world—see Falvey (1999): the higher it is, the more the shock is focused on the related domestic varieties.

As I noted at the end of the preceding section, a trade reform will sometimes be sufficiently straightforward that it will not be necessary to trace all the connections

mentioned here, but rather focus on just a very few of them. This can only be determined case-by-case, however.

E. Taxes and spending

The right hand set of boxes in Figure 2—the trapezoids—illustrates the third of the major static links between trade and poverty: via taxes and government spending. The common presumption is that falling revenues can squeeze social expenditures and hurt the poor, but, in fact, this is far from inevitable.

For most countries, the early stages of trade liberalizations in the 1980-90s entailed converting quantitative restrictions and regulations into tariffs and reducing high tariff rates. Particularly when the latter was accompanied by a reduction in the scope of tariff exceptions and exemptions it was as likely to increase tariff revenue, as to reduce it—Pritchett and Sethi (1991) and Hood (1998). Thus in this first stage, concerns over revenues can be over-stated, although, of course, the effective *increase* in taxation implied by reducing exemptions could raise prices. If these increases in prices impinge heavily on the poor, they could worsen poverty even if they increase economic welfare overall—particularly if the government is not efficient in spending the revenue it collects. On the whole, however, given that exemptions are mainly granted to the rich and influential, it is unlikely that their loss is anti-poor.

Eventually, however, trade liberalization will reduce tariff rates so far that government revenue falls. This triggers the more common worry that the government, finding its revenue constrained, will curtail expenditure on social and other poverty alleviating policies and/or levy new taxes on staple and other goods consumed heavily by the poor. Given the association between structural adjustment, stabilization, liberalization and poverty over the 1980s, these worries have some historical basis, but it would be mistaken to assume that the association is immutable. It is clear, however, that governments must display care and maintain a clear focus if they are to ensure that this indirect route does not have adverse effects on poverty. Experience in East Asia over the late 1990s suggests that pro-poor expenditure can be at least partially protected even in the face of far larger shocks than a trade reform.

A further question under this heading is whether trade liberalization restricts a government's ability to manage spending and taxation in a way that impacts poverty. To start again at the less obvious end of the question, a trade liberalization bound at the WTO makes the price-reducing effects of tariff cuts less reversible: it constrains the government's (and its successors') ability to manipulate policy in arbitrary ways. Given that such manipulation very often redistributes real income from the poor to the rich, and that uncertainty reduces the incentives to invest, the constraints are likely to be beneficial. Put more positively, WTO may allow governments to tie their own, or their successors', hands in ways that would otherwise be politically impossible.

Much more common is the fear that bindings and/or commitments at the WTO prevent governments from pursuing pro-poor interventions. For example, if price variability is a problem it has been argued that the ban on variable levies, which stabilize the domestic prices of internationally traded goods, could hurt the poor by subjecting them to greater uncertainty. It is sometimes argued that the Uruguay Round Agreement on Subsidies precludes production subsidies that could stimulate output and development—see, for example, the positions of India and Korea during the negotiations—Croome (1995, p201).[14] Moreover, consumption subsidies—a more promising anti-poverty tool—were not affected by the Round. There is a slight danger that the Agreement on Agriculture could undermine food subsidy schemes. This occurs if countries' nominal subsidy requirements have increased above low base year levels of support, and if direct consumption subsidies can not be substituted for the production-based subsidies that the Agreement constrains. But again, few developing countries face such problems.

All these arguments are essentially specific examples of the analysis above: they are trade interventions whose direct effects can be traced via the distribution and enterprise sectors. In addition, however, they have systemic effects because they affect whole classes of policies. For example, even if some particular subsidies would be advantageous, given the difficulty of identifying these cases and preventing their capture by interest groups, a blanket ban may be advantageous. Alternatively if governments have established good reputations for using trade policy contingently to stabilize the real incomes of the poor, blanket bans may raise perceived uncertainty in sectors that have not, to date, been subject to intervention. Clearly making such determinations in practice is going to be very complex, and all one can do is plead that they be made on the basis of the evidence on, rather than the theoretical potential of, government performance.

Finally, some have argued—e.g. Rodrik (1997)—that increased openness reduces governments' abilities to raise revenue because mobile factors can no longer be taxed so readily. If so, social and redistributive expenditure could be under threat. In its direct form this argument applies only to factors that can move locations in response to taxation (or other) incentives, so international trade policy is only indirectly relevant. For example, the general reduction in trade barriers since the mid-1980s has made it easier to 'cut up the value chain', which presumably fosters capital mobility.

On the trade side, increasing world competition makes it more costly for an individual country to tax exports in terms of both eroding the tax base and distorting production patterns. However, it is not clear that individual countries have ever had much scope for such taxes in manufactures, which is where trade barriers have come down most strongly in recent decades. An example where a country's own policy rather than world conditions (others' policies) matter would be if reducing

[14] The Agreement does restrict production subsidies in principle but for developing countries the disciplines are relatively weak. A trading partner would have to demonstrate actual harm before acting against them, which seems very unlikely for the sort of subsidies that might help to alleviate poverty.

tariffs on a good made it more difficult to tax local producers because they could more plausibly threaten to move off-shore and supply the market from abroad. In this case overall efficiency considerations would still mandate the tariff cut. However, if, for some reason, consumption of the good could not be taxed instead of production (and remember that the tariff cut will have reduced consumer prices, so there will be space for the former) there is a danger of governments losing revenue. Of course, as I noted above, falling revenue does not inevitably lead to declining poverty-alleviation.

An inability to tax capital is clearly a problem for governments intent on redistributive policies, and it clearly reduces the set of available options. It should not, however, be taken as precluding all possibilities. First, most countries collected only a small proportion of their revenues from capital taxation even when their economies were very closed. Second, in fact, many governments subsidize inward investment rather than fret about not being able to tax it. Third, there are other redistributive policies which are not vulnerable to this difficulty. For example, for tackling poverty, Bowles (1999) lists land reform, re-assigning property rights implicit in use of the commons, public-brokered risk sharing, greater accountability in the provision of public services, and removing or reducing discrimination. None of these is easy, but they certainly show that taxing capital is not the only route to helping the poor.

F. Shocks, risks and vulnerability

The static analysis that I have presented so far compares two perfectly stable scenarios, but, in reality, the real world is full of shocks. Thus we should ideally try to deal more directly with the effects of trade liberalization on the *chances* of falling into poverty (or of emerging from it) in an uncertain world. We need also to recognize that economic actors' responses to these probabilities may, in turn, feed back onto the static effects just discussed.

The simplest analysis of risk supposes that both foreign and domestic economies are subject to independent random shocks. By increasing foreign exposure, trade liberalization increases the weight of foreign relative to domestic shocks in the determination of domestic welfare.[15] The simple notion of risk spreading suggests that at low levels of trade, further trade liberalization would tend to reduce overall risk because it is very unlikely that both international and domestic conditions would both be very good or both be very bad together—i.e. they would tend to off-set each other. However, if foreign shocks are much greater than domestic ones, risk could increase, and if foreign and domestic shocks were strongly positively correlated, the off-setting will be rather weak.

The most obvious application of the independent risks approach is if farmers produce a crop which a trade liberalization transforms from a non-tradable into a tradable good. Postponing for now any consideration of price stabilization policies, this change seems most likely to reduce overall variability since in addition to the risk spreading argument, most world markets are more stable than local ones because they already aggregate a lot of off-setting shocks. Another possibility, however, is that liberalization leads farmers to switch from crop x (subsistence food, say) to crop y (cash crop). Their overall risk then switches from that for x to that for y, and thus could obviously increase. However, if this switch is made knowingly and has no spill-over effects beyond the farmers who make the decision, it is not obviously welfare worsening, for even if the risk increases, the returns might do so too. Thus, just as with the rural-urban migration example above, higher expected welfare might be associated with increasing observed poverty if farmers accept higher risk in order to reap higher returns but periodically suffer the bad luck that that entails.

Of course, the switch from subsistence to cash crops may not be made knowingly (governments do not always convey information on risk accurately) and there may be important spill-overs. Oxfam—IDS (1999) report how, in rural Zambia, switches to maize as a cash crop apparently eliminated the knowledge and seed supplies required for subsistence varieties, preventing farmers from reverting to traditional methods when the cash crop market disappeared. Additionally, switches between crops may have serious implications for intra-household income distributions. If, for example, adult males receive the returns from cash crops but females and children bear the risks of failure in terms of nutrition or schooling, the decision to switch could worsen female and child poverty, and may even not be welfare enhancing for the household overall. The important point analytically, however, is that not every ex post descent into poverty is the result of an ex ante flawed trade liberalization.

An alternative lens on the previous paragraph is the observation that the inability to bear the risks entailed in producing cash crops can explain the unwillingness to pursue higher average returns created by trade and hence may explain some apparently disappointing supply responses to trade reforms. If they face catastrophe if things go badly, the poor may not be able to afford to be entrepreneurial—Morduch (1994). The policy implication of this is to call for serious consideration of whether the inability to bear risk reflects distortions in, for example, asset ownership or in capital markets. Creating a guaranteed minimum level of real income through policies such as standing public employment schemes could increase the supply responses and income benefits of trade liberalization significantly—see section I below.

One fear is that, because trade liberalization (especially in the context of a WTO Round) alters the set of feasible policies, it affects the ability of governments to operate price stabilization policies. Thus, for example, if prior to liberalization domestic food prices were stabilized by varying the restrictiveness of trade policy (e.g. variable levies, or by allowing imports only in periods of shortage), moving to a fixed tariff could increase domestic instability.

[15] Foreign shocks are, of course, transmitted through the links discussed above. As above, they will pass through different amounts of the risk onto the poor according to the specifics of the case—e.g. much if a sector makes heavy use of casual labour, little if price shocks are mostly absorbed by an official purchaser of export crops. Thus sectors with apparently similar distributions of international shocks can have very different implications for the probability distribution of shocks facing the poor.

Thus, for example, the Uruguay Round constraints on variable levies or on export subsidies could increase instability, and hence poverty, in certain economies even if they raise average incomes. It is not clear how important this possibility is, however: I know of no documented cases that it has actually occurred.[16]

Turning briefly to country-level data, there is a presumption that more open economies suffer more heavily from terms of trade shocks, e.g. Rodrik (1998) and that this, in turn, slows their development or worsens their welfare. The first part of this question has at least two elements. First, if openness encourages specialization one would expect the net barter terms of trade (the ratio of import to export prices) to become more volatile with openness. In fact, this appears not to happen—see Lutz and Singer (1994), and also Easterly and Kraay (1999), who find that very small countries have no worse volatility than larger ones. Second, a given volatility in the terms of trade implies a greater volatility in national income the more open the economy, and we expect openness to increase with trade liberalization (and also as country size falls). This second element does receive empirical support—Rodrik (1998) and Easterly and Kraay (1999).

An important related question is whether more open and liberal economies generate larger or smaller domestic shocks; this could go either way. Krueger (1990b) argues that openness encourages better policy positions in general. Rodrik (1998), on the other hand, suggests that more open economies have greater volatility in total income, which suggests that the terms of trade element dominates the local shocks elements. However, income volatility does not necessarily imply greater consumption volatility, for open economies may be better able to smooth consumption (and investment and government spending) by importing. Thus, overall, trade liberalization has somewhat ambiguous implications for macro-economic stability.

The connection between trade liberalization and risk and vulnerability is clearly very important and yet is very poorly researched. One can certainly find examples in which adverse shocks have led to some people falling into poverty that they may have plausibly avoided in the absence of reform, but such observations alone do not constitute a case against liberalization. As well as the trade-offs between individuals that we noted above in the static results, we need to consider the trade-offs for any individual over time and between states of nature. It would be perfectly rational to voluntarily increase the ex ante risk of poverty in return for a sufficiently higher average income.

G. Economic growth, development and technology

Economic growth is the key to permanent poverty alleviation. It is also strongly related to contemporaneous reductions in poverty—see, for example, Bruno, Ravallion and Squire (1996) or Roemer and Gugerty (1997). Unless growth seriously worsens income distribution the proportion of the population living in absolute poverty will fall as average incomes increase. The balance of the evidence seems to be that although growth can be associated with growing inequality (or economic decline with narrowing inequality), the effects on poverty tend to be dominated by the advantageous direct effects of growth—see, for example, Demery and Squire (1996) on Africa. This effect also appears to generalize to the very poor (below $1 per day)—Ravallion and Chen (1996) or Bruno, Ravallion and Squire (1996), although, at such very low levels of income, small shocks loom large, and Demery and Squire (1996) find hints of contrary evidence in Africa. In recent work, Dollar and Kraay (2000) have found that the incomes of the poorest fifth of the population grew one-for-one with GDP per head in a sample of 80 countries over four decades. This was as true of growth induced by openness to trade as of that due to other stimuli. Possibly lying behind these results, but possibly independent of them, is that it is generally easier for the government to raise the resources for poverty alleviating policies if incomes are higher and/or growing.

Overall, therefore, if there is any truth in the claims that openness enhances growth, we might reasonably expect it to have beneficial effects on poverty through that route alone. Certainly we should require very strong case-specific information that a particular trade liberalization seriously worsened income distribution before adopting the contrary view. On the other hand, it is well to note that 'neutral' growth has to be strong if it is to stabilize the *absolute* number of poor in an expanding society. Each year output growth has to keep pace with population growth and then to add some more to pull the incremental numbers of poor out of poverty. Thus relying on growth and the growth effects of trade liberalization is probably not sufficient to address poverty problems over the medium term. Conscious policy is also required.

What about trade liberalization and growth? Controversy rages. There is evidence that, even allowing for adjustment strains, liberalization typically boosts growth in the relatively near term—e.g. Operations Evaluation Department (1992), Greenaway et al (1998). Whether this reflects just a one-off improvement in efficiency or long-run increase in the latter's rate of growth is not clear, however. The former is still worth something, but it is the latter that really matters.

There is widespread belief that openness, fairly broadly defined, stimulates growth. Frankel and Romer (1999) is among the most recent and most convincing of studies advancing this view, although some of the other more commonly cited studies—e.g. Dollar (1992), Sachs and Warner (1995), Edwards (1998)—have received pretty rough treatment recently from Rodriguez and Rodrik (1999). Moreover, from the perspective of this paper it is important to note that these latter studies include open trade (the *result* of trade liberalization) as only one of several indicators of openness and one which generally seems to weigh rather lightly in the overall result—e.g. Harrison (1996).

In part, I believe, the weakness of the empirical link between liberal trade and growth reflects the great

16 And would be pleased to hear if such cases exist.

difficulties of measuring trade stances once one comes inside the boundary of near autarchy: for example, tariffs need to be aggregated, quantitative restrictions assessed and then aggregated, and the degree of credibility level of enforcement measured—see Winters (2000c). Overall, the fairest assessment of the evidence is that, despite the clear plausibility of such a link, open trade alone has not yet been unambiguously and universally linked to subsequent economic growth. It has certainly not, however, been identified as a hindrance. Moreover, trade liberalization has a positive role as part of a package of measures promoting greater use of the market, more stable and less arbitrary policy intervention, stronger competition and macro economic stability. With the exception of the last, an open trade regime is probably essential to the long-run achievement of these stances, and it probably helps with the last as well (Krueger 1990b). Thus, taken as a whole, trade liberalization is a major contributory factor in economic development.

Any link from openness to growth probably operates at least partly by enhancing technical progress: for example, by making new inputs, new technologies, or new management techniques available to local producers. Such flows could arise from trade—either imports or exports—or from direct flows of technology from abroad.

The evidence that access to imports enhances performance is quite strong—Esfahani (1991) and Feenstra et al (1997)—while that which postulates a link from exporting to technology is, surprisingly to some, weaker. While macro studies and case-studies have suggested links, detailed and formal work based on enterprise data is doubtful: Bigsten et al (1999) find links for Africa, while Kraay (1997) is ambiguous for China and Tybout and Westbrook (1995) find nothing for Latin America. Similarly it is quite difficult to prove that FDI boosts efficiency e.g. Haddad and Harrison (1993). In both cases the problem is one of causation: efficiency and exporting are linked because efficient firms export, FDI and efficiency because investors choose efficient firms and sectors. While there is undoubtedly a connection between openness and the dynamism of an economy, it is more complex than economists sometimes choose to believe. Openness probably needs several concomitant policies or conditions before it will generate growth.

Of course technological flows need not depend just on trade or commercial transfers of know-how; they may arise autonomously or through direct interventions in research and development in favour of developing countries. An example of the latter is the green revolution, which produced and disseminated high-yield varieties of grain to many parts of the developing world. While most commentators hold the green revolution to have been a significant step forward in poverty alleviation, the mechanisms identified are quite complex. For example, non-farmers have sometimes been major beneficiaries via increased demand for purchased inputs where local industries existed to satisfy the demand for consumption goods and equipment—Moseley (1999)—or where demand for local services increased—Mellor and Gavian (1999). Both are examples of significant inter-market spill-overs. Alternatively, income has been transferred from farmers to net buyers of food through policies that forced agricultural output to be domestically absorbed rather than exported—see Quizon and Binswanger (1986) on India.

A very sensitive issue in the area of openness and technology is intellectual property—TRIPs. The Uruguay Round TRIPs agreement certainly results in developing countries having to pay more for using certain technologies, and in those cases will both reduce income and curtail the use of the technologies. On the other hand, the increased rewards may stimulate the flow of technology to developing countries, although, to date, firm evidence to that effect is lacking. The commercialization of intellectual property may also bias it away from meeting the needs of the poor, since collectively they represent such a small market. Thus coterminous with the creation of intellectual property rights, serious attention should be paid to the older publicly funded sources of technology, and to ensuring that IPRs do not shut off routes for the cost-effective development of crop technologies and health products for the poor. The critical examples of this are, perhaps, South Africa's difficulties in acquiring anti-AIDS cocktails at reasonable cost and the failure of pharmaceutical companies to work seriously on malaria.

It seems impossible at present to make convincing generalizations about how technology and trade liberalization might interact in their effects on poverty. However, I would re-iterate the argument in section D that the sectoral composition and factor intensities of the affected sectors will be major factors in determining those effects, not whether in any particular industry, the technology is labour-using or labour-saving.

Growth does not appear explicitly in the analytical scheme of Figure 2, but it should not be forgotten on that account. Growth will affect relative prices as well as the incomes generated by the enterprise sector both in terms of average wages and rates of return and the number of people working in that sector. By generating greater demand, growth will assist governments to raise revenue. To the extent that growth is based on technological improvements it will affect the incomes generated by the enterprise sector as well as increase the output that farm households can generate at any given price level.

H. Short-term adjustment

Adjustment costs

Trade liberalization is generally held to have long-run benefits, but it more or less requires adjustment in a country's output bundle to achieve them. If adjustment is costly, liberalization could lead to periods of decline and/or poverty before things get better.

For assessments of the overall economic benefits of liberalization, the distinction between the social and private costs of adjustment is critical. The former are net losses to society, through, for example, higher unemployment. The latter are private costs that are counterparts to private gains elsewhere—for example, the loss of jobs that existed only by virtue of subsidy or distortion. For the purposes of poverty impact analysis, however, the distinction is less significant. Our question is just whether individuals or households slip temporarily

into poverty as an economy adjusts to open trade, and what can be done to prevent this and help them if they do.

The most significant adjustment problem lies in factor markets, especially employment, and so I concentrate on that. There are two separate questions: how long do spells of unemployment/underemployment last and who suffers them. (It is the nature of adjustment or transition costs that they are temporary. Permanent losses are strictly the business of previous sections, although, of course, in practice it requires great confidence in one's analytical and empirical tools to claim to be able to separate permanent from temporary job loss ex ante.)

How long does unemployment last?

The key to answering this question lies in the speed of labour turnover and the flexibility of the labour market. Unfortunately, there is apparently very little research directly on labour turnover in developing countries—Matusz and Tarr (1998). The latter suggest that, in industrial countries (where liberalization more frequently entails the contraction of a sector, not its demise), it is surprisingly rapid in most circumstances. If so, unemployment of displaced workers will be relatively short-lived. In some cases workers displaced from low-paid jobs not only found new jobs quickly, but at higher wages—Jacobson (1978). In developing countries such benign effects are also a realistic possibility, although the evidence is based on aggregate employment data rather than surveys of workers. For example, Mauritius has successfully combined a limited trade liberalization (in an Export Processing Zone) with poverty reduction—see, for example, Milner and Wright (1998), who identify increasing unskilled and female wages as exports boomed. Panama is another case: a strong liberalization of trade in 1996/7 and of domestic regulations in previous years led to a decrease in unemployment (16.2 to 13.2 in one year) and to reduced poverty as informal sector wages rose and poor workers entered formal employment. Harrison and Revenga (1998) find manufacturing employment increasing almost immediately after half the liberalization's they study; the other half are mostly transitional economies in which much more than trade liberalization was happening and in which the general retrenchment created a very unfavourable environment for trade-displaced workers.

Life is not necessarily so rosy, however, even in "regular" (i.e. non-transition) liberalizations. Workers may suffer long-lived and deep losses of income if they have previously enjoyed very high levels of protection or if they had built up strong firm-specific human capital. For example, Jacobson et al (1993a,b) find that the US workers laid off after long job tenure earned 25% below their pre-dismissal wages after five years. Rama and MacIsaac (1999) find that employees displaced from the Ecuadorian Central Bank in 1994 had regained on average only 55% of their pre-dismissed salaries after 15 months despite generally low unemployment levels. Mills and Sahn (1995) found that of Guinean public sector workers laid off over 1985-88, half of those who found new jobs increased their earnings. However, their average unemployment duration exceeded two years and fully 30% of them were still unemployed by 1992.

Where major reform is undertaken, it is frequently argued that things must get worse before they get better. Fiscal retrenchment is necessary immediately and the 'old ways of doing things' comprehensively dismantled in order to lend credibility to the claim that new ways will emerge. Under these circumstances it is hardly surprising that transitional unemployment occurs, and the key factor in its duration will be the institutional structures for new activity to grow. The latter include such things as the freedom to establish new firms, the ability to obtain service by utility companies, the security of property rights and the existence of credit markets. They do *not* include policies to delay change by protecting employment and existing employers except, possibly, in the very short run. Such delays undermine the credibility of reform and hinder the development of new activities, as, for example, we saw in Poland over 1990-91 (Winters and Wang, 1994) and India over the early nineties (CUTS, 1999).

The conclusion is, yet again, that it is difficult to generalize about how deep and how durable transition losses will be. One needs to know about the specific circumstances of the affected sectors. It does seem likely, however, that costs will be greater the more protected the sector originally was and the greater the shock. In particular, labour markets suffering very large shocks can become dysfunctional because even normal turn-over ceases as incumbents dare not resign for fear of not finding a new job. Thus major reforms—e.g. transition—or concentrated reforms—e.g. closing the only plant in a town—do seem more likely to generate transitional losses through unemployment than more diffuse reforms. On the other hand, it is precisely the sectors with highest protection or the economies with most widespread distortion that offer the greatest long-run returns to reform.

Transitional unemployment and poverty

Transitional unemployment (or declining rewards for skills) is unfortunate for anyone who suffers it, but it does not necessarily lead to poverty. Individuals who have lived beyond the reach of poverty for some time will generally have assets, or access to credit, with which to smooth consumption. Thus for such individuals it is only longer shocks that fall within the remit of this paper. The poor, on the other hand, will have very few assets, and so will be unable to smooth over even short spells of unemployment. Hence, even switching from one unskilled informal sector job to another could cause severe hardship, especially if temporary stress led to permanent or semi-permanent consequences, such as losing one's place in the queue for rented housing or education services. This suggests that attention to transitional unemployment should mainly be focused on those who were poor or near-poor initially. This is not always the case in practice, for typically the middle class will be more articulate and more influential politically than the poor.

I. Trade and poverty: the policy implications

This paper is primarily about the positive economics of trade policy and poverty (i.e. the facts, as we can best infer them), but ultimately these are of interest mainly because they inform the normative question of 'what

should we do'. I conclude, therefore, with a brief discussion of some of the policy issues involved.

The discussion above suggests that trade liberalization can have both positive and negative effects on poverty. If poverty alleviation is a major goal of national policy, it is important to think how international trade policy can be harnessed to assist it. This section briefly considers some possible policy responses starting with trade policy and moving through to a broad set of what I call complementary policies. It does not deal with the trade-off between poverty and other goals, but it starts by re-iterating that even within the poverty arena trade-offs exist.

Judging policy

If one is to enter the debate, one needs a yardstick against which to judge policy. If that is to condemn any shock that causes even one individual suffer a reduction in income, it is unnecessary to carry out any analysis. Given the heterogeneity of households and that trade policy is strongly redistributive between people in the domestic economy, all policies will fail this test. Even the requirement that no household fall temporarily into poverty is likely to be too restrictive to permit any action in poor countries. The more utilitarian view that the number of households (or persons) in poverty should be reduced is more appropriate. Even this, however, needs to be mediated by attention to the depth of poverty and to the different ways in which different dimensions of poverty respond to shocks.

In practical circumstances, it is also important to recall that it is easier to identify losers from trade policy than potential gainers. The losers from reform are identifiable, concrete and personified—Krueger (1990a)—whereas the gains are diffuse and appear merely prospective and theoretical. Only in a proportion of cases can one confidently identify the sectors that will gain (e.g. when large export taxes are removed), and even then, although one might identify capital or resource owners who stand to benefit, it is almost impossible ex ante to name the workers who will fill the new jobs and/or benefit from pay rises. Couple this with a natural tendency to place greater weight on (and hence to be more vocal about) declines in welfare than on equal increases, and it is easy to see how attitudes towards liberalization policy are biased towards antipathy. Moreover it is usually the case that the poor are much less able to articulate their concerns than the middle and elite classes.

None of this should be construed as saying that all criticism of trade liberalization is misguided and biased, but it is a warning that the volume of opinion is not a sufficient indicator of the true merits of a policy change. It also re-emphasizes the importance of political leadership in explaining the relative merits of different policies, even difficult and subtle ones like trade liberalization!

Trade policy

Consider, first, how trade reform itself might be managed from a poverty perspective. One response to the fear that a trade liberalization will cause poverty is "don't do it", but this is not satisfactory. While it has proved hard to isolate the effects of liberal trade on economic growth empirically, there is widespread agreement that it has an important role to play. It not only brings advantages directly but it is also important in the constellation of polices designed to ensure efficiency and competition in markets, and transparency and predictability in policy-making. Thus in the long run liberal trade assists poverty alleviation and should figure in the poverty-conscious government's armoury.

Another response is "don't do it all: while everyone is in favour liberalization in general, certain sectors or products should be exempt". In fact, all countries have such exceptions—e.g. agriculture in Europe, clothing in the United States—but that does not necessarily make them good economics. There undoubtedly are cases where an isolated intervention in trade would be beneficial to immediate economic welfare and/or to poverty alleviation. However, given the difficulties of identifying these cases, of preventing their capture by interest groups and of avoiding the systemic signal that lobbying for intervention pays, it is unlikely to be beneficial overall to try to pursue them. Thus while one does not need to progress all the way to free-trade to reap the benefits of liberalism, the case for planning a series of exceptions is not strong. One needs very strong evidence of the efficacy of such interventions, and this is, on the whole, missing. Simply appealing to the experience of East Asia is not persuasive. It is not beyond dispute that their trade interventions were important or beneficial (Lee, 1995, suggests the very opposite for Korea), and it is far from certain that other countries have the policy-making institutions to be able to replicate East Asian policy stances effectively.

A third response is "don't do it now". This is a more useful response in some circumstances. For example, trade reform in the midst of recession seems likely to suffer more, and more durable, transitional unemployment than reform in a boom; where investment is necessary to allow the production of export-quality goods, time may be desirable to permit it to occur. There is, however, a world of difference between committing to policies with long adjustment periods and postponing liberalization because 'the time is not ripe'. The key is credibility that reform will actually occur. Adjustment costs may be lower if adjustment can be spread somewhat through time, but they are probably enlarged if adjustment is resisted in the hope that the threat of liberalization will go away. It is notable that some trade reforms have been accelerated once they have been launched—e.g. implementation of free trade in the EEC, of the Kennedy Round tariff cuts, and of the tariff cuts planned in the ASEAN Free Trade Agreement—usually at the behest of the private sector. This presumably reflects the fact that, once it is accepted that reform will occur, business is keen to adjust rapidly.

Thus sequencing a major trade liberalization is probably desirable—just as, say, the Uruguay Round permitted long adjustment periods. This should not merely entail postponing the largest adjustments longest, however, but should pay attention to the different adjustment needs of different sectors and to the interactions between different parts of the package. For example, if the inputs and outputs of a particular sector

are liberalized at very different rates, the sector could face either negative incentives for production during the transition (if tariffs on the output fall faster than those on inputs) or excessively positive ones. Whatever the transition period, credible commitment to the final goal is important, for without it neither current nor potential production activities will look desirable and there will be a diversion of effort into lobbying.

Specific compensatory policies

If trade liberalization causes poverty among certain sections of society, a natural response is to ask whether society can not offset the effect directly. Despite their theoretical attractions for economists, governments are not generally attracted to simple budgetary transfers because of their cost, their transparency (and the transparency of their abuse) and the appearance that they do little to cure 'the problem' that the individuals face. Rather assistance is usually offered, if at all, in terms such as retraining, relocation assistance, and temporary income support. In fact, while they probably do have a contribution to make, even these approaches face severe difficulties. Official retraining has mixed success under any circumstances; worse, there are problems in separating those cases where trade is to blame from those where it is not.[17] Thus unless one is willing to underwrite almost any adjustment, identification of cases is a major difficulty.

Making a general commitment to compensate individuals for adverse shocks is most unattractive, however. It has potentially huge cost and it shifts private risk to the public sector, with all the attendant problems of people taking on extra risk precisely because they keep any gains while the government gets the losses. It is not the role of the state, nor is it feasible, to absorb every negative shock that might afflict individuals. On the other hand it is difficult to make a moral case as to why trade shocks warrant adjustment assistance while other do not.

A further complication is giving compensation in a way that encourages rather than discourages adjustment. European agricultural policy is essentially designed to protect farmers from the consequences of their declining competitiveness in food production, and yet it has the effect of rewarding current not ex-farmers. Compensation is no longer so strongly related to farmers' current output, but because it is paid only to those who keep their farms it has the effect of supporting farming as an activity.

In cases where trade liberalization leads to the loss of jobs, government can insist on, and perhaps help to finance, redundancy payments. These can help some people to avoid poverty, but is not guaranteed to do so as shown by the so-called 'new poor' in Zimbabwe who failed to use their money productively and ended up among the poor (Oxfam—IDS, 1999). Moreover, redundancy payments typically reward past service not current need and so are not particularly well targeted for poverty purposes.

General compensatory policies

These policies—often referred to as safety nets—are designed to alleviate poverty from any source directly. They replace the problem of identifying the shock with one of identifying the poor. Ideally, countries should already have such programmes in place. Indeed, a major part of their effect arises from their mere existence rather than their use: they facilitate adjustment by assuring the poor that there is a minimum (albeit barely acceptable) below which they will not be allowed to fall. If trade-adjusting countries do already have these schemes, they have the advantages over tailor-made schemes of automaticity, immediacy and a degree of 'road-testing'. Sensibly constructed, safety-nets need not entail huge expenditure: there is rather little chance of people using them by choice if the thresholds are set low enough; and, since relieving poverty is more or less universally recognized as a responsibility of the state, there is little argument about the legitimacy of such interventions.

Targeting is a major problem for safety nets, for the middle classes are often better able to access them than are the poor. Moreover, a major trade shock could put severe financial pressure on them. However, Ravallion (1999) offers some useful thoughts on setting them up. Workfare is a good start, provided that the wage is low enough, that there is little or no administrative discretion in its application, and that the tasks set are seen to be of communal interest. In fact, Ravallion suggests that local communities select the projects to be undertaken under workfare and that the richer ones should also be asked to co-finance them. Workfare needs supplementing, however, by schemes to provide food to people such as the elderly and infirm who cannot work, and for children —e.g. food-for-education schemes. These supplementary schemes may be tripped on and off according to need, but should have a permanent infrastructure and sensitive and quick triggers. Expenditure on safety nets is almost by definition counter-cyclical, and so it will need firm commitment by government to ensure that the money does not dry up in times of greatest need.

Safety nets can not be the only response to the threat of increasing poverty from trade liberalization, but, they are an important part of it. They can generally be better targeted than other polices and they are not very distortionary of market forces. If countries do not have them already, they should consider setting them up as part of the context for a trade reform that may create short-term poverty. They should not, however, be trade-shock-specific.

Complementary policies

Complementary policies are those which it would be useful to have in place or to implement simultaneously with a trade liberalization. They are not directly compensatory, but are rather designed to ease the adjustment strains and help households avoid poverty by allowing them a greater degree of economic viability.

17 See Decker and Corson (1995) on the USA's Trade Adjustment Assistance Program. This doubles unemployment insurance cover from 26 to 52 weeks for workers certified as displaced by trade liberalization. After serious abuse in its early years when it was merely a transfer—over 70% of claimants went back to work for the employer from whom they were said to have been displaced—a training element was added. This had the effect of screening out claimants who did not want/need training, but apparently did nothing to increase the earning power of recipients.

Box 4: Creating markets in Africa

The IDS—Oxfam fieldwork in Africa turned up several examples of external assistance in creating apparently viable markets of use to the poor. For example:

Horticulture in Zimbabwe

Whilst horticulture is relatively underdeveloped in most of the smallholder areas, an increasing number of resettled and communal households are now becoming involved as producers of the main crops. This has primarily been the result of 'Outgrower' schemes and the sourcing or subcontracting by the large-scale commercial farms. The Horticultural Promotion Council (HPC) estimates that around 3,000 smallholders are now growing for export on a contract basis, accounting for approximately 10% of Zimbabwe's exports. (These small-scale 'outgrowers' tend to supply the four main pack-houses in Zimbabwe, which are the large-scale producers looking for added volume and to diversify risk). The HPC established the Smallscale Linkage Programme in January 1999, designed to provide communal and resettled farmers with the knowledge and skills to produce high-value, out-of-season export crops. Quality is a critical issue. Study of the Mbare fruit market demonstrated that communal and resettled farmers sold limited amounts of produce to Harare Produce Ltd., and the remaining (deemed 'sub-standard') to the local market.

Craft products

Women interviewed in the Sese communal area, involved in the production of pottery, were being linked to European markets through the Craft Enterprise Programme executed by the Rural Unity for Development Organization. The programme covers more than 165 households. In addition to servicing the export market, the women were trading in the domestic market to tourist resorts and along the major roads. They noted significant growth in the export sales of pottery, which enter duty free in the European and US markets. An added incentive for sales to these markets, is that the buyers meet the cost of transportation. Annual income for these women was very low, even by subsistence standards, but it is still a useful supplement to their households.

Source: Oxfam—IDS (1999)

Strictly, these policies include very general prescriptions for addressing poverty, such as the distribution of productive assets, adequate education and health provision, and the encouragement of civil society and participation and voice among the poor. However, I restrict this brief discussion to those that refer rather specifically to reaping the benefits and avoiding the costs of trade liberalization.

The critical issue in the poverty impacts of trade liberalization, especially for surprises therein, is the functioning of markets. A trade liberalization needs to be preceded by thought about whether any markets are likely to fail and accompanied by monitoring of the same. Policies designed to ensure that markets continue to function or develop where required seem likely to have high pay-off for both aggregate income and for poverty alleviation. Among the important factors identified by Winters (2000a) are:

Infrastructural support

Potential opportunities for poor producers to benefit from a more open trading regime have been lost because critical infrastructure was either absent or had deteriorated. In both Zimbabwe and Zambia remote farmers have found their opportunities constrained by an inability to reach major market centres. In the same way, many of the benefits of relaxed retailing regulations and the availability of new and/or cheaper goods have been confined to urban and peri-urban areas.

Market institutions

Just as important are failures in market institutions. The poor frequently seem unable to attain the economic mass required for the establishment of markets that once established may be viable. Policy should aim at the creation of the market as an institution, not the ongoing subsidization of market activity. Part of facilitating the poor's participation in markets may be finding means to allow them to combine very small consignments of inputs or outputs into reasonably sized bundles. This is not the poor combining to achieve a measure of market power, which is not usually realistic, but of reducing transactions cost sufficiently to make it worth dealing with them. Box 4 cites two examples of market support from Oxfam-IDS's African field-work.

Missing credit markets

Development economics has many examples of missing credit markets preventing development, and the same phenomenon is visible in responses to trade liberalization. Thus, for example, achieving minimum consignment size might entail hiring draught power or seasonal labour, but this is not possible without credit. Similarly, establishing informal businesses in activities such as trading may require more capital than the poor can raise. These cases in which poverty constrains the responses to incentives replicate the results of Lopez, Nash and Stanton (1995) in their panel study of Mexican agriculture. I have nothing to add by way of solutions, but note the issue as one of considerable importance.

Establishing business

If trade liberalization opens up business opportunities in new areas, new businesses are likely to be required. If the regulations for establishing these are restrictive, and their ability to get inputs (especially utilities) weak, these opportunities will go begging. Similarly regulations on expansion and on labour recruitment and separation could curtail the willingness of existing firms to expand. The reservation of particular sectors for small firms in India

Box 5: Competition through entry: Hammer-Mills

Domestic trade deregulation has created many new opportunities for small-scale agro-processing, particularly within the maize sub-sector. For example, in Zimbabwe 3,500 new hammer mills have opened up since liberalization, mainly in the rural areas, and the share of hammer millers in total maize milling has increased to almost 80%. (The USAID-funded 1995-96 Zimbabwe National Hammer Miller Status Study). These mills are mechanically simple and robust (being based on swinging or rotating hammers in a grinding chamber), and can be used by unskilled labour. They provide quality maize meal products to nearby customers in the poor communities in areas such as Mashonaland Central, Manicaland, Masvingo, and Matebeleland North and South, saving them significant transport costs.

The hammer mills have provided a new source of livelihood in both Zambia and Zimbabwe. In Zimbabwe hammer mills were estimated to employ 7,512 permanent workers; including casual workers, the sector employs a total of 10,000 workers; and if hammer mills in commercial farming areas are included, this takes the total to 12-13,000 workers. About 18% of employees in urban hammer mills are female and 8% in rural areas (ibid.).

Indeed, large-scale millers in Zimbabwe are now believed to have a combined market share of only 20-25% of maize meal trade. According to The Herald newspaper (6/6/97), one large-scale commercial miller is reported to have closed six of its nine milling plants around the country, in response to the intensified competition provided by the new small-scale millers. Whilst poor producers have benefited from this opportunity, so too have poor consumers.

Source: Oxfam—IDS (1999)

may be having this effect. There is clearly a trade-off between labour protection and the number of jobs, but we suspect that for the purposes of poverty alleviation it will call for weaker rather than stronger protection. A success story of business de-regulation is the growth of maize hammer milling in Zambia and Zimbabwe—Box 5.

Pre-requisites or concomitants?

Whether these complementary policies should be pre-requisites for or concomitants of trade liberalization remains a contentious issue. While there is a literature on sequencing reform within the trade sector and between trade and capital accounts, there are no convincing empirical generalization about sequencing in the sense discussed here. There may be a case for delaying liberalization by a few months while some of the legislation on business and labour is put in place and plans for protecting market institutions laid. My own view, however, is that any further delay will be interpreted as a reluctance to liberalize trade and will send completely the wrong signal.[18] A credible plan for liberalizing the borders—albeit one with significant transition periods—will be an important stimulus to reforming these other areas in ways that will typically have other benefits as well.

Key questions for policy makers

The link between trade policy and poverty is evidently a very complex topic for which few generalizations are possible. The analysis above, however, does suggest some important questions that should be posed about any prospective trade reform. I conclude, therefore, with a check-list for policy makers.

Will the effects of changed border prices be passed through to the rest of the economy?

Trade policy and shocks operate primarily via prices. If price changes are not transmitted, e.g. because governments continue to fix the internal prices of goods which they have ostensibly liberalized internationally, the most direct effects on poverty (positive or negative) will be nullified.

Is reform likely to destroy effective markets or create them; will it allow poor consumers to obtain new goods?

Perhaps the most direct effect of trade reform on poverty is via the prices of goods/services in which poor households have large net positions. The largest price shocks occur when either the initial or final price is finite and the other infinite (i.e. when there is no market). A shock that completely undermines an important market—e.g. for a cash crop or a form of labour—is likely to have major poverty implications. Similarly, bringing new opportunities, goods or services to the poor can greatly enhance welfare.

Is reform likely to affect different household members differently?

Within a household, claims on particular goods and endowments of particular assets (labour) are typically unevenly distributed. It is possible that poverty impacts will be concentrated on particular members—usually females and children, who may lose personally even when the household in gains in aggregate.

Will spillovers be concentrated on areas/activities of relevance to the poor?

Sectors of an economy are interlinked and, if substitutability is high, a shock will be readily transmitted from one to another. Frequently the diffusion will be so broad that it has little effect on any particular locality or sector, but sometimes—e.g. where services are traded only very locally—the transmission is narrow but deep. Then it is necessary to ask whether the second round effects have serious poverty implications. Agricultural stimuli can confer strong pro-poor benefits on local economies via benign spillovers.

18 In particular, in the absence of a clear and monitorable plan for specific pieces of infrastructure, a general wish to wait until the roads or ports are 'ready' is just a recipe for indefinite postponement.

What factors are used intensively in the most affected sectors? What is their elasticity of supply, and why?

Changes in the prices of goods affect wages according to factor intensities. Predicting either the price effects or the factor intensities of affected sectors can be complex, as was seen with the Latin American reforms of the 1980s and 90s. In addition, if factor supplies show some elasticity, part of a trade shock will show up as changes in employment rather than in factor prices. In the limit, a perfectly elastically supplied factor will experience only employment effects. This is most pertinent for labour markets. If the prevailing wage is determined by subsistence levels, switching people from one activity to another has no perceptible effect on poverty. If, on the other hand, the trade-affected sector pays higher wages (because, say, it has an institutionally enforced minimum wage), increases in activity will tend to reduce poverty and declines increase it. The formal/informal divide is important in this respect.

In all this, it is important to remember the difference between the functional and the personal distribution of income. Falling unskilled wages generate poverty only to the extent that the poor depend disproportionately on such wages.

Will the reform actually affect government revenue strongly?

One's immediate reaction is that cutting tariffs will reduce government revenue. While in the limit this clearly true—zero tariffs entail zero revenue—many trade reforms actually have small or even positive revenue effects, especially if they convert NTBs into tariffs, remove exemptions and get tariff rates down to levels that significantly reduce smuggling. Even where revenue falls, it is not inevitable that expenditure on the poor will decline. That, ultimately, is a policy decision.

Will reform lead to discontinuous switches in activities? If so, will the new activities be riskier than the old ones?

If a trade liberalization allows people to combine 'national' and 'international' activities, it is most likely to reduce risk: foreign markets are likely to be less variable than domestic ones and even if they are not, risk spreading is likely to reduce overall risk. If, however, trade reform leads to more or less complete changes in activities, there is a possibility that risk increases as the new activity is riskier than the old one.

Does the reform depend upon or affect the ability of poor people to take risks?

The very poor can not bear risk easily. Because the consequences of even small negative shocks are so serious for the poor, they may be unwilling to take opportunities that increase their average income if they also increase the chance of losses. This might leave them with only the negative elements of a reform package. Similarly, if a reform makes it more difficult for the poor to continue their traditional risk-coping strategies, it may increase their vulnerability to poverty even if it increases mean incomes.

If the reform is broad and systemic, will any growth it stimulates be particularly unequalizing?

Economic growth is the key to sustained poverty reduction. Only if it is very unequalizing, will it increase absolute poverty.

Will the reform imply major shocks for particular localities?

Large shocks can create qualitatively different responses from smaller ones—for example, markets can seize up or disappear altogether. Thus if a reform implies very large shocks for particular localities mitigation in terms of phasing or, better, compensatory-complementary policy, could be called for. There is a trade-off, however, for typically larger shocks will reflect bigger shortfalls between current and potential performance and hence larger long-run gains from reform.

Will transitional unemployment be concentrated on the poor?

The non-poor will typically have assets that carry them through periods of adjustment. This might be unfortunate for them, but it is not poverty strictly defined. The poor, on the other hand, have few assets, so even relatively short periods of transition could induce descent deep into poverty. If the transition impinges on the poor there is a strong case for using some of the long-run benefits of a reform to ease their adjustment strains.

References

Baldwin, R. E. and Baldwin, R. E. (1997) 'Alternate Approaches to the Political Economy of Endogenous Trade Liberalization'. *European Economic Review*, vol. 40, pp. 775-82.

Baulch, R. (1996) 'Neglected trade-offs in poverty measurement', IDS Bulletin, vol. 27,

Baulch, R. and McCulloch, N. (1998) 'Being poor and becoming poor: poverty status and poverty transitions in rural Pakistan', *Working Paper*, 79, IDS.

Bigsten A et al (1998) 'Exports and firm-level efficiency in African manufacturing', mimeo, Centre for Study of African Economies, Oxford University.

Binswanger, H. and Quizon, J. (1986), 'Modeling the Impact of Agricultural Growth and Government Policy on Income Distribution in India', *The World Bank Economic Review*, Vol. 1, pp.103-148.

Booth, D., Lugngira, F., Masanja, P., Mvungi, A., Mwaipopo, R., Mwami, J., and Redmayne, A. (1993), *Social, Economic and Cultural Change in Contemporary Tanzania*:- A People-Oriented Focus, Stockholm: Swedish International Development Authority

Bowen, H. P., Hollander, A., and Vianne, J. M. (1998) *Applied International Trade Analysis*, Michigan University Press, Ann Arbor.

Bowles, S. (1999) 'Globalization and Poverty', Paper to the World Bank Summer Workshop on Poverty, July.

Bruno, M., Ravallion, M., and Squire, L. (1996) 'Equity and growth in developing countries : old and new perspectives on the policy issues' Policy Research Working Paper, No. 1563. The World Bank.

CUTS (1999) *Conditions Necessary for the Liberalization of Trade and Investment to Reduce Poverty*, Final report to DfID, August.

Davis, D. (1996) 'Trade liberalsiation and income distribution', Working Paper No. 5693, National Bureau of Economic Research.

Deardorff, A. V. and Stern R M. (1994) *The Stolper-Samuelson Theorem: A Golden Jubilee*, Ann Arbor: University of Michigan Press, 1994.

Deaton, A. (1997) *The Analysis of Household Surveys* : a Microeconometric Approach to Development Policy, Baltimore, MD: Published for the World Bank by Johns Hopkins University Press.

Decker, P.T. and Corson, W. (1995) "International Trade and Worker Displacement: Evaluation of the Trade Adjustment Assistance Program", I*ndustrial and Labor Relations Review*v.48 n.4, pp. 758-74.

Delgado, C., Hopkins, J., Kelly, V. (1998) 'Agricultural Growth Linkages in Sub-Saharan Africa', Research Report No. 107, International Food Policy Research Institute, Washington, D.C.

Demery, L. and Squire, L. (1996) 'Macroeconomic Adjustment and Poverty in Africa: An Emerging Picture', *World Bank Research Observer*, vol. 11, pp.39-59.

Dollar, D. (1992) 'Outward-Oriented Developing Economies Really Do Grow More Rapidly: Evidence from 95 LDCs, 1976-1985' Economic Development and Cultural Change; vol.40, pp.523-44.

Dollar D. and Kraay A. (2000) 'Growth *IS* good for the poor', mimeo, Development Research Department, The World Bank, Washington, DC.

Easterly, W. and Kraay, A. (1999) 'Small states, small problems', mimeo, Development Research Group, The World Bank.

Edwards, S.(1998) 'Openness, Productivity and Growth: What Do We Really Know?' *Economic Journal*; vol. 108, pp.383-98.

Elson, D. (1991) *Male bias in the development process*, Manchester: Manchester University Press.

Esfahani, H.S. (1991) 'Exports, Imports, and Economic Growth in Semi-industrialized Countries' *Journal of Development Economics*; vol.35, pp. 93-116.

Falvey, R. (1999) 'Factor price convergence', *Journal of International Economics*, vol. 49, pp.195-210.

Feenstra, R. and Hanson, G. (1995) 'Foreign Investment Outsourcing and Relative Wages', in R. Feenstra, G. Grossman and D. Irwin (eds), *Economy of Trade Policy: Essays in Honour of Jagdish Bhagwati*, MIT Press, Cambridge.

Feenstra, R.C. (1994) 'New Product Varieties and the Measurement of International Prices', *American Economic Review*, vol. 84, pp.157-77.

Feenstra, R.C., Madani, D., Tzu-Han, Y. and Chi-Yuan, L. (1997) 'Testing Endogenous Growth in South Korea and Taiwan', NBER Working Paper No. 6028.

Ferriera F. H. G. and Litchfield J.A. (1999) 'Calm after the storm: income distribution in Chile, 1987-94', *World Bank Economic Review*, vol. 13, pp.509-38.

Finger, J. M. and Winters, L. A. (1998) 'What can WTO do for developing countries', Chapter 14 in A. O. Krueger (ed.) *The WTO as an International Organization*, Chicago University Press, pp. 365-392.

Frankel J. A. and Romer D. (1999) 'Does trade cause growth?', *American Economic Review*, vol. 89, pp. 379-99.

Gisselquist, D. and Harun-ar-Rashid (1998) *Agricultural Inputs Trade in Bangladesh: Regulations, Reforms and Impacts*, mimeo, The World Bank.

Glewwe, P. and Tray, D. (1989), 'The Poor in Latin America During Adjustment: A Case Study of Peru', Living Standards Measurement Study, Working Paper No. 56. The World Bank, Washington.

Gokarn, S. (1999) 'Employment and Poverty—A Macro-Study', Chapter 3 of *Trade, Technology and Poverty: the Indian Field Study*, mimeo, CUTS, Jaipur.

Greenaway, D., Morgan,W., and Wright, P. (1998), 'Trade Reform, Adjustment and Growth: What Does the Evidence Tell Us', *Economic Journal*, vol. 108, pp.1547-61.

Haddad, L., Hodinott, J., and Alderman, H. (1994) *Intrahousehold Resource Allocation* : an Overview, Policy research working paper, No. 1255, The World Bank, Washington, D.C.

Haddad, M. and Harrison, A. (1993) 'Are There Positive Spillovers from Direct Foreign Investment? Evidence from Panel Data for Morocco', *Journal of Development Economics*; vol.42, pp.51-74.

Harris J and Todaro M (1970) 'Migration, unemployment and development: a two sector analysis', *American Economic Review*, vol. 60, pp.126-42.

Harrison, A. (1996), 'Openness and Growth: A Time-series Cross Country Analysis for Developing Countries', *Journal of Development Economics*, vol.48, pp.419-447.

Harrison, A. and Hanson, G. H. (1999) 'Trade liberalization and wage inequality in Mexico' Industrial and Labor Relations Review, vol.52. pp.271-288.

Harrison, A. and Revenga, A. (1998) 'Labor markets, foreign investment, and trade policy reform', J. Nash, and W. Takacs, (eds.) *Trade policy reform: Lessons and implications*, The World Bank, Washington, D.C. pp.247-276.

Hood, R. (1998) 'Fiscal implications of trade reform' in J. Nash, and W. Takacs, (eds.) *Trade policy reform: Lessons and implications*, The World Bank, Washington, D.C., pp.147-188.

Jacobsen, L.S. (1978) 'Earning losses of workers from manufacturing industries' in W. Wald et al. (eds) *The impact of international trade on investment and employment*, U.S. Government Printing Office, Washington, D.C.

Jacobson, L., Lalonde, R.J., and Sullivan, D.G. (1993a) 'Earning losses of displaced workers' *American Economic Review*, vol. 83, pp. 685-709.

Jacobson, L., Lalonde, R.J., and Sullivan, D.G. (1993b) 'Long-term earning losses of high-seniority displaced workers' *Economic Perspectives*, vol. 17, pp.2-20.

Kanbur, R. and Haddad, L. (1994) 'Are better off households more unequal or less unequal?' Oxford Economic Papers, vol. 46 , pp.445-458.

Killick, T. (1998) 'Adjustment, income distribution and poverty in Africa: a research guide', Paper comissioned by the African Economic Research Consortium. ODI, London.

Kraay, A. (1997) 'Exports and economic performance: evidence from a panel of Chinese enterprises' Mimeo, Development Research Group, The World bank.

Krueger, A. O.(1990a) 'Asymmetries in policy between exportables and importables competing goods' in R. W. Jones and A. O. Krueger (eds.) *The political economy of international trade: Essays in honor of Robert E. Baldwin*, Oxford and Cambridge, Mass.: Blackwell, pp. 161-178.

Krueger A O (1990b) 'Asian trade and growth lessons', *American Economic Review: Papers and Proceedings*, vol 80, pp. 108-112.

Lee, J.W. (1996) `Government Interventions and Productivity Growth in Korean Manufacturing Industries' *Journal of Economic Growth*, vol. , pp391-414.

Lewis, W.A. (1954) 'Economic development with unlimited supplies of labour' Manchester School; reprinted in A. Agarwala, and S. Singh (eds.), The economics of underdevelopment, Oxford University Press, Delhi, 1975.

Lopez, R., J. Nash and J. Stanton (1995), `Adjustment and Poverty in Mexican Agriculture: How Farmers" Wealth Affects Supply Response', Policy Research Working Paper n. 1494, The World Bank, Washington D.C

Lutz, M. and Singer, H. W. (1994) 'The Link between Increased Trade Openness and the Terms of Trade: An Empirical Investigation', *World Development*, vol. 22, pp. 1697-1709.

Matusz, S.J. and Tarr, D. (1998) `Adjusting to Trade Policy Reform', Policy Research Working Paper No. 2142, The World Bank, Washington.

McKay, A., Milner, C., Kedir, A., and Franco, S. (1999) "Trade, Technology and Poverty: the Linkages—A Review of the Literature". A Report to the International Economic Policy Department of DFID, CREDIT, University of Nottingham

Mellor, J.W. and Gavian, S. (1999) 'The Determinants of Employment Growth In Egypt—The Dominant Role of Agriculture And the Rural Small Scale Sector', mimeo, Abt Associates Inc.

Milner, C.R. and Wright, P.W. (1998), 'Modelling Labour Market Adjustment to Trade Liberalization in an Industrialising Economy', *Economic Journal*, vol. 108, pp.509-28.

Morduch, J. (1994) 'Poverty and Vulnerability', *American Economic Review*, vol.84, pp.221-225.

Moseley, P. (1999) *A painful ascent: obstacles to the green revolution in Africa*, draft typescript, London, Routledge (forthcoming 2000).

Operations Evaluation Department (1992) *Trade Policy Reforms under Adjustment Programs*, World Bank, Washington, D.C.

Oxfam-IDS (1999) *Liberalization and Poverty*, Final Report to DfID, August.

Pritchett, L. and Sethi, G. (1994) 'Tariff Rates, Tariff Revenue, and Tariff Reform: Some New Facts', *World Bank Economic Review*, vol. 8, pp. 1-16.

Rama, M. and MacIsaac, D. (1999) 'Earnings and welfare after downsizing: central bank employees in Ecuador' *World Bank Economic Review*, vol. 13, pp. 89-116.

Ravallion, M. (1999) `Protecting the Poor in Crisis' PREM Note No.12. The World Bank, Washington D.C.

Ravallion, M. and Chen, S. (1996) 'What can new survey data tell us about recent changes in distribution and poverty?, Policy research Working Paper No.1694, The World Bank, Washington, D.C.

Ravallion, M. and Datt, G. (1996) 'How Important To India's Is The Sectoral Composition of Economic Growth?', World Bank Economic Review, vol.10, pp.1-25.

Rodriguez, F. and Rodrik, D. (1999) 'Trade policy and economic growth: a skeptic's guide to the cross-national evidence', CEPR Discussion Papers Series, No. 2413.

Rodrik, D. (1997) *Has Globalization Gone Too Far?*, Institute for International Economics, Washington, D.C.

Rodrik, D. (1998) 'Why Do More Open Economies Have Bigger Governments?' *Journal of Political Economy,* vol. 106, pp. 997-1032.

Roemer, M. and Gugerty, M.K. (1997) 'Does economic growth reduce poverty? Technical paper', CAER Discussion Paper No.5. Harvard Institute for International Development. Cambridge, Mass.

Sachs, J. and Warner, A. (1995) 'Economic Reform and the Process of Global Integration', *Brookings Papers on Economic Activity*, No.1, pp.1-95.

Singh, I., L. Squire and J. Strauss (1986) 'A Survey of Agricultural Household Models:- Recent Findings and Policy Implications', *The World Bank Economic Review*, vol. 1, pp.149-79.

Timmer, P. (1997) 'How Well Do The Poor Connect To The Growth Process?', CAER Discussion Paper 17, Harvard Institute of International Development, Cambridge, Mass.

Tybout, J.R. and Westbrook, M.D. (1995) 'Trade Liberalization and the Dimensions of Efficiency Change in Mexican Manufacturing Industries', *Journal of International Economics*, vol. 39, pp.53-78.

Wang, Z. and Winters, L. A. (1997) 'Africa's Role in Multilateral Trade Negotiations: Past and Future', *Journal of African Economies*, vol. 7, Supplement 1, June 1998, pp. 1-33.

Winters, L.A. (2000a) 'Trade Liberalization and Poverty', Discussion Paper No. 7, Poverty Research Unit, Sussex, University of Sussex, UK.

Winters, L.A. (2000b) 'Trade, Trade Policy and Poverty: What are the Links?', Discussion Paper No. 2382, Centre for Economic Policy Research, London.

Winters, L.A. (2000c) 'Trade Policy as Development Policy: Building on Fifty Years', Proceedings of the High-Level Round Table, Tenth United Nations Conference on Trade and Development, Bangkok, February, 2000.

Winters, L.A. and Wang, Z. (1994) *Eastern Europe's International Trade*, Manchester University Press, Manchester.

Wood, A. (1997), 'Openness and Wage Inequality in Developing Countries: The Latin American Challenge to East Asian Conventional Wisdom', *The World Bank Economic Review*, vol. 11, pp.33-57.

World Bank (1992) *Trade policy reforms under adjustment programs* Operations Evaluation Department, The World Bank, Washington, D.C.

World Bank (1997) 'Chile: Poverty and income distribution in a high-growth economy 1987-1995', Country Management Unit Argentina, Chile and Uruguay, Latin America and the Caribbean Region,Vol. I and II. The World Bank, Washington D.C.