Trade, inequality and pro-poor growth: Two perspectives, one message?

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ABSTRACT

This paper concentrates on results drawn from two strands in the literature. The first focuses on trade as a growth-enhancing policy and its impact on poverty and inequalities. The second strand focuses on the impact of initial inequality on growth (through different micro channels), and on the resulting effects on poverty and inequalities. These two strands are merged and examined from two different perspectives: that of enhancing economic growth and that of reducing poverty.

Analysis of the results shows that there is no *general* evidence in favour of the views that trade liberalisation "is good for growth" and that "growth is good for the poor". More precisely, the theoretical debate concerning the effects of trade on growth, and the endless discussions on its empirics, is further deepened if we consider that trade may worsen within-countries inequality, and that this may be harmful for future growth. Furthermore, the response of poverty to a given growth depends both on the structure of growth and on some specific conditions of each single country.

By combining the results from these two perspectives, we draw a number of conclusions. First, initial as well as trade-induced inequalities matter for the sustainability of growth processes. Second, specific conditions (sectoral composition, wealth and land distribution, distribution of schooling, convexity of earning profiles, specialisation of income sources, etc.) can explain why the same policies may have very different distributional effects at sectoral and individual levels. Thus, the problem of poverty reduction cannot be separated from the context in which e.g. trade is liberalised. Third, these specific country conditions play a crucial role in explaining why, at the macro level, similar growth rates may have such different impacts on poverty and why the same policies may have different effects on growth performance. Hence, the problem of poverty reduction cannot be separated from the way in which growth is achieved.

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1.   **Introduction.**

Between 1990 and 1998, the headcount index of poverty fell from 29.3% to 24.2%, but the decline in the actual number of people living below the 1$ poverty line was more modest, falling from 1.3 billion to 1.2 billion. Clearly, these figures are sensitive to the data used and to time periods chosen; however, it seems clear that, although the proportion of the world's population living in poverty is falling, the actual number of the poor displays more limited change (Besley and Burgess, 2003). Furthermore, the poverty trajectories of different regions between 1990 and 1998 greatly diverged. In that period, for example, the poverty rate in East Asia dropped from 27.5% to 15.3%, whereas in sub-Saharan Africa poverty rates remained stagnant at between 47.6% and 46.3%. Understanding the main reasons for these different poverty-reduction performances is therefore of crucial importance.

The traditional view on how to reduce poverty has focused closely on boosting economic growth, and therefore on the policy variables which have proved significant in explaining cross-country differences in growth rates: trade openness, monetary and fiscal policy, financial development, and the rule of law. The prescriptions for economic progress comprised in the "Washington consensus" that emerged in the late 1980s reflected this view, calling for sound fiscal and monetary policy, greater openness, security of property rights and privatisation (Williamson, 2000). The empirical fact supporting this view was that the income share of the bottom quintile appeared to be insensitive to growth and to known growth determinants, so that growth affected the income of the poor in the same proportion as that of other groups, whatever the nature of the policy variables behind it and its sectoral structure. Analytically, this view was very convenient because it severed the link between policies and poverty reduction in two steps:

- identify the main determinants (and therefore policies) which maximise the growth rate;
- obtain estimates of the poverty/growth elasticity showing the speed at which poverty would be reduced by any growth rate.

This procedure would be correct if growth was indeed a distribution neutral process, but this is not necessarily the case: growth changes the income distribution within countries and this in turn affects the proportion in which the poor benefit from growth. Therefore, this paper argues that, from a poverty reduction perspective, we cannot separate the problem of reducing poverty from the way in which growth is achieved.

The distributional consequences of a given growth-enhancing policy are crucial not only for poverty concerns, but also for the sustainability of growth in the long run. Indeed, over the last ten years a number of authors have shown that a high initial level of inequality may be harmful for growth. Furthermore, different policies may have very different growth and distributional effects according to the initial structure of poverty/inequality. For example, there is some

evidence that the effect of trade on growth changes with the initial level of inequality, or that the effect of growth on distribution depends on specific conditions in the economy analysed, such as the evolution of the supply of skilled labour, the distribution of schooling, etc. Therefore, from the perspective of enhancing economic growth, we cannot ignore the initial structure of income distribution and how it changes following specific policy interventions.

We derive our conclusions by examining the results obtained by two different currents of thought in the literature. The first focuses on trade as a growth-enhancing policy and its impact on poverty and inequalities. The second current focuses on the impact of initial inequality on growth (through different micro channels), and on the resulting effects on poverty and inequalities.

Analysis of the results obtained by these two strands of the literature converges on similar findings, and allows some common conclusions to be drawn:

1. Initial as well as trade-induced inequalities matter for the sustainability of the growth processes.
2. Specific conditions (sectoral composition, wealth and land distribution, distribution of schooling, convexity of earning profiles, specialisation of income sources, etc.), can explain why the same policies may have very different distributional effects at sectoral and individual levels. Thus, the problem of poverty reduction cannot be separated from the context in which e.g. trade is liberalised.
3. These specific country conditions play a crucial role in explaining why, at the macro level, similar growth rates may have such different impacts on poverty and why the same policies may have different effects on growth performance. Thus, the problem of poverty reduction cannot be separated from the way in which growth is achieved.

The structure of the paper is as follows. Section 2 focuses on the problem of enhancing economic growth and ensuring its sustainability in the long run. It examines the literature on the trade-growth relationship, on the impact of trade on within countries inequality, and on the effects of the latter on growth. Section 3 discusses the literature on trade as a poverty reduction strategy by examining its effects on poverty both via growth and via income. Section 4 draws some conclusions from these two different lines of analysis.

2. The perspective of enhancing economic growth

Trade liberalisation, openness, and international linkages have often been viewed as the key successful **growth strategies** for countries, gaining the status of a 'stylised fact' in the growth literature[1]. On the other hand, trade openness has played a role in the growth (income)-inequality literature as a direct or indirect determinant of **within-**country inequality, acting through changes in commodity prices and thus affecting factor income prices (which is directly in line with Stolper-Samuelson and the related factor income shares or indirectly related to the international reorganisation of production). The effects of trade on growth and the effects of trade on inequality cannot be simply considered as two distinct issues, answering to two distinct concerns: increasing a country's GDP and ensuring that the gains are equitably distributed. Indeed the distributional consequences of a given trade policy are a critical issue even for the first concern, i.e. for the prospects of economic growth in the long run. There is increasing evidence that inequality may be harmful for growth; therefore, if trade worsens within-country inequality, the process of growth that trade itself enhances will not be sustainable in the long run.

In this section we show that the effects of trade on both growth and inequality may be either positive or negative according to various factors such as the nature of trade and its channels, the theoretical framework, and the subset of countries considered. In order to pose the problem of

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[1] See stylized fact no. 6 "Growth on output and growth in the volume of international trade are closely related" in Jones (2002) p. 15

the sustainability of growth in the long run, we review both the theoretical and empirical literature on the effects of initial inequality on subsequent growth. We reach the conclusion that, when choosing a growth-enhancing policy, it is crucial to assess not only its growth-effects, but also its **distributional effects**, because they might become a **constraint on growth** in the long run.

2.1 The growth-impact of trade: the consensus estimate

The usual size of the welfare gains from trade liberalisation generates disappointing static estimates, seldom larger than 1% of GDP. Why is trade liberalisation often a priority policy for closing **the 1 % difference** in per capita incomes between developed and less developed economies? The **solution** is the often invoked dynamic relationships, with the widely accepted conclusion that international trade and economic growth are positively and significantly related. The large body of empirical literature on the subject has emphasised the statistical significance of the trade-growth relationship more than its economic significance. The trade-growth nexus is quantitatively important because the "consensus" estimate is approximately 1/5.

"[…]in summary the average coefficient of 0.22 that we find across the very large number of cross-section and time-series sources of growth regressions is not incompatible with the results of other popular regression models that tested the relationship between trade and growth" (Lewer and van der Berg , 2003, p. 387). For every percentage point increase in the growth of trade, the rate of economic growth defined as either an increase in real GDP or real per capita GDP rises by slightly more than one-fifth of a percentage point (East Asia during the 1980s). These results *suggest* that a country whose exports grow by 12 percent a year will grow by about 2.5 percentage points faster than a country whose trade grows by 2 percent a year (Sub-Saharan Africa during the 1980s).Many researchers have found evidence that this **coefficient** is different between groups of countries, suggesting that trade generates more growth in developed economies than in developing ones or identifying significantly different coefficients between high and low income countries.

Some problems and questions arise when conducting balanced evaluation of this empirical result.

First, opinions differ on the empirical evidence.

Because of trade indicators. The empirical literature is still affected by serious limitations, and it is unable to generate satisfactory indexes of trade policy orientation. Indicators of trade policy have been inappropriately used, and they have been selected in order to systematically bias the results so that they show a statistically and quantitatively significant link between trade liberalisation and growth (Rodriguez and Rodrik, 2000). The lack of good quality comparative data on total factor productivity has complicated matters further, imparing the analysis of the connection between openness and productivity growth. The complex nature of commercial policy suggests that attempts to construct a single indicator of trade orientation may be futile and will tend to generate disagreements and controversies. As a consequence, for the results to be persuasive in demonstrating the link between trade policy and growth, they must be robust to the way in which openness is measured.

Because of multicollinearity of trade and other policies and endogeneity of trade and growth. The difference between the growth-effects of trade and those associated with other policies is difficult to establish. At the same time, recent work shows that growth and trade have a common driver: institutions.[2] Researchers have sought good instruments (Frankel and Romer,

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[2] A growing body of evidence indicates that institutions, and especially their quality, are the driving force behind differential growth rates. The size and density of social networks and institutions also significantly affect the efficiency and sustainability of development initiatives (Temple, 1998). Along these lines, Dasgupta (1999) suggests that social capital directly enhances factor productivity; Hall and Jones(1999)

1999) for actual trade/GDP ratios as well as for institutional quality (Acemoglu, Johnson and Robinson, 2001). The simultaneous use of these instruments is intended to identify the respective contributions of institutions, geography and trade to cross-country income levels (Rodrik *et al*. 2002), focusing on discrimination among competing stories in explanation of striking variations in cross-national incomes around the world: the conclusion being that the institutional explanation outweighs the other stories.

Because there is a gap between the results at the firms level and at the macro level. The proponents of trade liberalisation have argued that at the firms level it will force firms to produce closer to the production possibility frontier, and that the frontier will move out more rapidly. Empirical results (Bernard and Jensen, 1999) provide little evidence that firms derive technological or other benefits from exporting *per se*; the more common pattern being that efficient producers tend to self-select in export markets. In other words, the **causality runs from productivity to exports**, not vice versa. Empirical results show that exporters in some developing countries are more productive, thereby replicating a similar finding for developed countries. This finding can be explained by a **self-selection** model (only the most productive firms engage in exporting) rather than by a **learning by exporting** model. Export market participation is explained as the outcome of a selection mechanism whereby exporters are more productive than non-exporters because they are simply more productive from the outset, not because they learn from exporting activity: there are no post-entry rewards for firms entering the international markets, and in some cases productivity is lower over the longer horizon.[3]

These results hold across countries at different levels of development[4] and indicate a potential gap between firms' absorption of exporting experience and country absorption of trade benefits: in other words, between the positive impact of trade at macro level (Harrison, 1996) and the debatable impact of learning by exporting at micro level[5] (Roberts and Tybout, 1996, 1997).

Second, the question is whether or not there is any positive and *economically* significant link between trade and growth. Or in other words, whether or not the many econometric improvements have substantially aided comprehension of **why** the statistically significant relationship is robust across many samples, data sets and regression models, corrected for omitted variables and simultaneity, etc.

The "missing discrimination" problem is still unresolved: Rodriguez and Rodrik's criticism that trade merely serves as a proxy for other important policy variables cannot be easily rejected.

The channels through which trade influences growth are still undervalued. For instance, the channel identified by Frankel and Romer (1999), but also the six channels identified by Wacziarg (2001) (with simultaneity of growth and trade), indicate that the most important channel through which trade influences growth is investment, which accounts for 63% of trade's total growth effect,[6] with technology (22.5%) and stabilising macroeconomic policy (18%) accounting for the remainder. Channels can be ranked and investment is a key link, with the consequence that poor investment policies may undermine trade benefits.

The methodological improvement and the empirical results that identify specific important channels are not very helpful in answering the question: "why?" Ultimately, is the openness-growth link only an empirical matter?

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focus on the role of "social infrastructure". On why and how inadequate institutions can act as a hidden tax on trade flows and underestimate home bias see Anderson and Marcouiller (1999) This inadequacy generates insecurity deriving from predation, or imperfect contract enforcement.

[3] See the case of Lower Saxony firms analyzed by Wagner (2003).

[4] In case of transition economies (Russia, Ukraine and Belarus) there is some evidence supporting partially the learning by exporting model, where the causality goes from exports to productivity. Results for su-Saharian countries are mixed.

[5] Tybout, 2003, finds an effect at the plant-level and Pavcnick (2002) a plant effect after trade opening in Chile,

[6] This obviously reinforces Levine and Renelt's (1992) findings that trade acts through investment

An answer requires **two** steps: the **first** looks at the nature of trade flows considered and its consequences because, accordingly, trade flows may have level effect on output and consumption or growth effect or both; the second looks at the theoretical framework utilised: since endogenous growth models are often thought to have provided the missing theoretical link between trade openness and long-run growth, it is useful to examine why such models may provide ambiguous answers.

The first but important aspect of trade policies is the **character assumed by trade openness**: whether it is an opening of trade in goods only, or whether it is trade in ideas and knowledge. In this case, trade is a conduit for technological progress, and international spillovers are made possible by openness to international trade: ideas flow rapidly and machines incorporating better technologies can be imported by LDC. The different character outlines the importance of evaluating trade effects via growth or via income level.

In a static model with no market imperfections or other pre-existing distortions, removing trade restrictions will clearly raise the value of output at world prices at each point in time if there is no change in the path of factor accumulation. This is the so-called level effect. Whether there will be a growth effect (i.e. whether there will be any change in the economy's steady-state growth rate), and if there is, whether it will be transitory or permanent depends both on the response of factor accumulation to the increase in income levels and on whether the marginal returns to factor accumulation eventually diminish to zero. At the same time, there are countless arguments and models which show that free trade will reduce current income and even growth[7] compared to autarky, if market failures are present.

Discrimination between whether opening trade in goods, or trade in both goods and ideas, may have level effects on output and consumption, or growth effects, or both is very important. This discrimination is helpful for analysis of how tariffs and quotas may affect total factor productivity and per capita income as well as their differences (Herrendorf and Teixeira, 2002). This discrimination is also helpful because even in the presence of complete technological spillovers and in the absence of any barriers to technology transfers, productivity differences between AC and LCD arise. Thus, even in the presence of a potential growth effect of trade spillovers, there may be problems of technological "appropriateness" (or technology-skill mismatch) related to the character of trade flows, that give rise to productivity differences and to large output gaps between AC and LDC (Acemoglu-Zilibotti, 2001)[8].

The remarks on technological appropriateness and the implied needs to develop technologies in line with applications in LDC prompt a final observation on the importance of evaluating trade effects on inequality via growth or via income level. Excessive focus on the long run effects may well distract[9] from the welfare effects of a given parameter change, giving too much emphasis to growth effect over level effect. If our prime concern is the level of welfare, then it is the sequence of level effects supporting growth processes that is more important to investigate than any long run growth.

The **second** crucial step deals with the theoretical framework utilised and the ambiguous answers that have been offered. In the endogenous framework, a subset of countries may indeed experience trade-diminished growth depending on their initial factor endowments and levels of technological development. The ambiguous explanations of the growth effects of trade vary

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[7] On the static losses in presence of market distorsions see Bhagwati (1971), on immiserising growth see Bhagwati (1958)

[8] Even when LDC have access to the same technologies, they must use unskilled workers in tasks performed by skilled workers in the North: technologies biased toward the needs of the rich economies. These difficulties in adapting advanced technologies to the needs of LDCs or the importance of the "appropriateness" of technology are well reflected in empirical analysis showing that the largest TFP gaps between AC and LDC are in the least skill intensive sectors rather than in the skill-intensive sectors.

[9] See the discussion in Temple (2003).

according to whether the forces of comparative advantage push the economy's resources in the direction of activities that generate long run growth (through externalities in R&D, expanding product variety, upgrading product quality and so on) or whether they divert them from such activities. Some examples of these diversions may be useful. Grossman and Helpman (1991), Matsuyama (1992, 1996) Young (1991) and others have provided examples where a country lagging behind in technological development may be induced by trade to specialise in traditional goods and thus experience a reduction in its long-run rate of growth. Such models/examples are formalisations of traditional arguments on infant industries and the need for temporary protection to enable 'catching-up' with more advanced countries. These issues have been clarified with the help of two-country models of trade and endogenous growth in the presence of "learning by doing", where the role of historical advantages is decisive.

These two steps are useful for the identification of when and why there are theoretical presumptions in favour of an unambiguous relationship between trade and growth rates in the types of cross-national data sets typically utilised. But they also show that it is relatively easy to construct a well specified model which generates the conclusions that many opponents of trade openness have expressed – namely that free trade may be detrimental to some countries' economic prospects when these countries are lagging behind in technological development and have an initial comparative advantage in "non dynamic" sectors. More broadly, they illustrate that there is no definite theoretical link between trade protection and growth once real world phenomena such as learning, technological change and market imperfections (captured by a learning by doing externality) have been taken into consideration.

For sure, the openness-growth link cannot be only an empirical matter. Researchers have not reached a consensus yet on the effects of trade on growth at a theoretical level, and there are endless discussions on the empirical side. This debate is reinforced if we consider the distributional effects of trade openness and their impact on future growth. Initial as well as trade-induced inequalities matter for the sustainability of the growth process.

We discuss these two issues in the following sections: first we look at the impact of trade on within countries inequality, and then we look at the impact of the latter on economic growth.

2.2 *The inequality - impact of trade*

The debate on the causes, magnitudes and weights of within country-inequalities is not over yet, but there is evidence that reading the empirical results through the 'lens' of trade liberalisation effects may be misleading. As regards the causes, an important role could have been played by internal[10] and area-specific rather than by external factors.[11] The same could be true for the magnitudes and the weights. From a methodological point of view[12], different concepts of inequality have been utilised together with a variety of methods and measurement techniques.

If we accept to read these phenomena through the specific lens of the factor income implications[13] of trade suggested by traditional or less traditional trade theories, we encounter two problems at the theoretical and empirical levels.

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[10] See Cornia (2003) for the role of internal and external liberalisation in explaining distributive impacts of trade reforms as well as for an overview of the between countries inequalities.

[11] A balanced evaluation of inequality comparisons among the main regions is left to the excellent surveys available.

[12] See Goldberg and Pavcnick (2004)

[13] The focus on wage inequality does not allow us here to consider the small employment responses to very large changes in either trade policies or trade flows in developing countries.

At the **theoretical** level, Heckscher-Ohlin's predictions may be in contrast with the wage inequality impact of international trade and especially with the widening skill gap in LDC[14]; explanations for this phenomenon are thus being sought.

At the **empirical** level, the analysis of income distributions derived from national accounts or survey data, obviously very much constrained by data availability, do not take account of the fact that sector specificity or factor specificity sources of income play a crucial role in curbing the inequality effects of trade liberalisation.

The effects of trade on inequality can be examined in terms of its **effects** on *wage* inequality[15] operating via the factor **income** share, or in terms of its effects on wage inequality operating via outsourcing (in both cases the effects concern the so-called skills-gap). Trade may be a source of **within**-country inequality **in one or all countries**.

2.2.1 Two cases of trade effects on inequality

The two following cases illustrate the results.

The **first case** is associated with standard theory and predicts that trade liberalisation will improve between-country inequality as within-country inequality increases in AC and decreases in LCD, thus implying an **improvement** in global inequality. In a two-country world, trade is a source of inequality **within one country** only. **Within-country** skills-gap increases (decreases) in AC (LDC), so that trade is a source of inequality (equality) in AC(LDC) because it widens (closes) the skills gap.

As is well known, candidate explanations for these predictions have been trade with LDC and skill biased technical change.[16] These two main explanations (trade with LDC and skill biased technical change) for the rising demand for skills (and thus inequality) in AC prove insufficient to explain rising wage inequality in LDCs. As predicted by Stolper-Samuelson, trade integration is expected to raise inequality within developed countries and to reduce it in developing countries. But this prediction is in contrast with the growing body of empirical evidence that within-wage inequality has also increased in some LDCs since the early 1980s as well as in transitional economies. Actually, trade liberalisation would have implied widening rather than narrowing gaps in LDC. If skill bias and skill premium matter for LDC, the mechanism must operate via trade or foreign direct investment. But in this case, **trade is not the main culprit** but simply **a conduit** for North-South skill-upgrading transfer, an important aspect of technological change. Trade could still have contributed to the rise in skill premium without being the main culprit, if technological change had itself been an endogenous response to "openness"(Acemoglu, 2002).

This role is emphasised by the **second case,** which envisages trade as a conduit for skill-upgrading between North and South and ending up with trade as a source of inequality **within both countries** and as a source of **deterioration** in global inequality: in short, wage inequalities deteriorate in both countries as inequality increases in AC and LDC, with a consequent deterioration in global inequality. *Trade is a source of inequality within both countries and thus a source of deterioration in global inequality*. This is suggested by the literature which integrates two strands: the sorting mechanism whereby outsourcing or organisational change[17]

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[14] Problems related to the skills- gap in advanced countries are left to the many excellent surveys available. For a detailed analysis of the stylised facts consistent or inconsistent with Stolper-Samuelson in the LDC case see Goldberg and Pavcnick (2004).

[15] This exclusive focus may be misleading but in general the price (wage) response to trade liberalisation is more pronounced than the quantity response. For an analysis of the transmission channels see Winters in WTO(2000)

[16] Evidence in favour of technological change does not rule out trade policies effects on wage distribution, as technological change is often seen as an answer to intensified competition from abroad. See Wood (1995), Acemoglu (2002)

[17] Aghion, Caroli and Penalosa (1999).

during the 1990s generated wage inequality in LDC (Feenstra and Hanson, 1996a, 1996b; Harrison and Hanson, 1999a); and product innovation and technology transfer as emphasised in both endogenous growth theory (Grossman and Helpman, 1991) and empirical work on international technology spillovers (Coe, Helpman and Hoffmaister, 1997).

This second case is probably less-known. Trade can serve as a conduit for transferring skill upgrading from the North (or advanced countries AC) to the South (or less developed countries, LDC), a phenomenon that has probably affected middle-income countries rather than lower-income ones. This framework generates a widening skills-gap in *both AC and LDC* and significant common contributions to global inequality. The creation of new skill-intensive goods in AC with their expensive unskilled labour *endogenously* induces advanced countries to move less skill-intensive goods to LDC. This relocation, which is similar to a product-cycle driven technology transfer, reduces the demand for unskilled workers, thus increasing wage inequality and aggravating the wage gap in AC. At the same time, the relocated goods will be more skill intensive by LDC standards. There will thus be *higher* demand for skills and *rising* inequality in LDC. Product-cycle driven technology transfer from advanced to less advanced countries will be a source of skill upgrading and rising wage inequality in *both* regions, not in one region only as in the previous direct effect. Trade is here a source of **within** inequality in **both** regions, widening the skills gap in **both** countries and **causing** global inequality to deteriorate.

All the possible interpretations of trade-induced wage inequalities leave unresolved the questions as to which area and who, inside the area, is gaining from trade reforms, especially at the empirical level. On one side various examples of increasing wage inequalities in the presence of trade reforms can be shown to be consistent with previous cases. Widening gaps are to be found in many LDC. This is the case of East-Asian exporters, of six out of seven Latin American countries, of the Philippines, Eastern Europe and Central Asia. On the other side, standard theories with extensions to many factors or important weights attributed to specific sector-bias or factor-bias, patterns of protection before trade reforms, political economy models of protection, FDI, and outsourcing across national borders, all play a role in explaining wage distributional impacts[18].

Two examples may prove useful: the Mexican case, where wage inequality had been declining prior to the 1985 reform, and experienced overall increasing inequality after the reform; and the Colombian case, where the overall effects of trade reforms on the wage distribution were modest compared to Mexico. The difference between the two cases warrants exploration. In Mexico, the initial question is to what extent was a pattern of protection at odds with comparative advantage This was a pattern such that the most liberalised sectors (after trade reforms) were characterised by comparative advantage for unskilled-intensive goods.[19] Or, in other words, a pattern such that comparative advantage sectors were the most protected (before the trade reform).

Stolper-Samuelson effects may be important in the presence of pattern of protection at odds with comparative advantage. Mexico is a particular interesting case because wage inequality had been declining in the last decades **prior** to reform in 1985. **Following** the trade reform, the ratio of skilled to unskilled wages increased dramatically, with the costs of adjustment to the reforms falling disproportionately on unskilled workers. This is a rather puzzling result in a Hecksher-Ohlin context if Mexico had a comparative advantage in producing low skill intensive goods. In a standard general equilibrium framework, trade reform can be associated with increasing skills-gap if opening-up to trade increases the price of skill intensive goods. This

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[18] There is a lack of evidence that trade liberalisation had major effects on wage distribution and this is due to the high level of aggregation usually utilised in household surveys, too high to detect workers reallocations across firms within the same sector in response to trade reallocation.

[19] This is a well-known puzzle in LDC countries and for the three explanation available see Goldberg and Pavcnick (2004). See the case of Morocco explored in Currie and Harrison (1997).

would have implied one of two possible hypotheses in the Mexican context: 1. Mexico had a comparative advantage in producing skilled goods; 2. Mexico protected its labour intensive sectors prior to the trade reforms. Hanson and Harrison (1999) present evidence consistent with the second hypothesis, finding that Mexico closely protected its labour intensive sectors prior to trade reform (as shown by a significant and negative correlation between skill intensity in 1984 and tariff protection) and tariff reductions were greatest in sectors which made more intensive use of unskilled labour, or sectors with a Mexican comparative advantage.

Mexican increasing wage inequality is also consistent with an explanation based on a specific factor model where labour is the specific factor. If unskilled labour is specific to the importable sector and skilled labour is specific to the export sector, trade reform can be associated with wage inequality so that adjustment takes place through sector-specific wage decline rather than through employment reallocation.

Examination of the Mexican case shows that much of the adjustment occurred through falling wages in previously protected sectors, but explanations in line with Stolper-Samuelson applications to specific or mobile factors are not the only ones available. Further explanations for increasing wage inequality may include outsourcing, foreign direct investment, or skill-biased technological change. Empirical results (Harrison and Hanson, 1999) show that the skills gap is wider in plants which upgrade intensively through licensing arrangements, that foreign investment locates in sectors with more income inequality, that foreign firms pay higher premiums to skilled workers, and that the share of royalty payments is positively and significantly correlated with relative wages. All these results point to the importance of labour demand by incoming foreign firms skewed towards skilled workers (Feenstra and Hanson, 1997). Mexican trade liberalisation was indubitably disappointing for those who had hoped that globalisation would benefit the poor in the developing countries.

The other empirical investigation, on Colombia's gradual trade liberalisation beginning in 1985, focuses on the effects of drastic tariff reductions in the 1980s and the 1990s. The use of detailed micro data from the National Household Survey combined with data on trade policy changes enables full examination[20] to be made of how wage distribution was affected via different channels: through increasing returns to education (the skill premium), changes in industry wages and inter-sectoral reallocation of the labour force. Overall, although the effects of trade reforms on the wage distribution may have been small and while inequality gradually increased over the period, the increase was by no means as pronounced as it was in Mexico[21].

Increasing skill premiums were primarily driven by skilled-biased technological change, but sectors with the highest tariff reductions were those with the sharpest increases in their shares of skilled workers. Thus, exposure to foreign competition interacted with technological change. Industry wages decreased more in sectors with the largest tariff cuts[22].

The difference between Colombia and Mexico warrants further examination because it can show the conditions under which efficiency promoting policies like trade reforms may have a significant (or relatively) small impact on wage distribution. The role of FDI in the case of Mexico[23] and the active role of the Colombian government in improving social conditions may have magnified (or offset) the negative impact of trade reforms on the wage distribution.

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[20] Attanasio *et al*.(2002)

[21] Compare the results in Attanasio *et al*.(2002) with the results in Cragg and Epelbaum (1996),

[22] As trade liberalisation was concentrated in labour intensive sectors with high percentages of low skilled labour, these workers experienced not only decreasing average returns on their skills but also a declining sector specific return. While there is no evidence of labour reallocation across sectors, there is significant evidence that trade reforms contributed to the size of the informal sector, so that sectors with the largest tariff cuts and increasing imports experienced a rise in informal employment.

[23] Cragg and Epelbaum (1996), Feenstra and Hanson (1997).

The two examples suggest that the effects uncovered by empirical work can be very different, and that governments may play an important role in offsetting the negative impact of trade reforms on inequality. [24] This role may be very important for the sustainability of growth in the long run. As we already mentioned, understanding and balancing the distributional consequences of trade policies is crucial if we are interested in the sustainability of the growth process. Indeed, if trade worsens within-country inequality, the trade-enhanced growth will not be sustainable in the long run because high inequality may be harmful for growth. In order to clarify this point, in the next section we discuss the main theoretical and empirical findings about the effects of inequality on growth.

2.3 The growth impact of inequality

According to the traditional view, inequality was considered good for growth, and growth would either reduce inequality and poverty in the long run (Kuznets,1955) or it would at worst be distribution neutral, with the poor benefiting from growth like everyone else. Interest turned to the possibility that inequality has a negative effect on growth after Lucas (1993) raised the famous puzzle about the different growth performances achieved by South Korea and the Philippines between the early 60s and the late 80s.[25] In order to collect evidence on this relationship, a large number of **empirical studies** in the first half of the 1990s ran cross-country regressions of GDP growth on a vector of control variables and various measures of income and/or land inequality (as a proxy for wealth inequality). Results differed according to the data-set, the time interval and the inequality measure considered.

For studies predating the release of the Deininger and Squire (1996) dataset problems of data quality are more relevant (Persson and Tabellini, 1994, Alesina and Rodrick, 1994, Perotti, 1996). Some studies focused on a short-run relationship (5-year interval; Li and Zou, 1998, Forbes, 2000, Deininger and Olinto, 2000), while others used data over a longer time span (25 years). Some papers combined data on net income, gross income and expenditure, and also combined data based on households and individuals (Alesina and Rodrick, 1994, Rodrick, 1999, Easterly, 2000, Keefer and Knack, 2000, Sylwester, 2000), whereas others considered transformations of the data to make them more comparable (Perotti, 1996, Deininger and Squire, 1996, Li and Zou, 1998, Forbes, 2000, Barro 2000). Some authors argued that these transformations have little consequence for the estimated effects of inequality on growth and investment (Deininger and Squire, 1998, Barro, 2000); others stressed the importance of using inequality measures that are defined consistently (Atkinson and Brandolini, 2001, Knowles, 2001).

The empirical literature is therefore far from having reached a consensus around the sign of the relationship between inequality and growth. However, we can highlight the following points:
- studies that find a positive partial correlation between inequality and growth typically focus on the *short run* relationship;
- studies that use data over a longer time span tend to find a **negative** partial correlation between inequality and growth, with the exception of Barro (2000) who finds little overall relation between inequality and rates of growth, but he uses panel data for ten-year periods;

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[24] On the role of market rigidities in this perspective see Goldberg and Pavcnik(2004)

[25] In the early 1960s, South Korea and the Philippines were similar as regards all major economic aggregates (GDP per capita, population, urbanisation, primary and secondary school enrolment, proportions of primary commodities and manufactures in exports), but over the next quarter century Korea achieved growth rates averaging about 6% per annum, while the Philippines stagnated at about 2%. On examining this problem, researchers noticed that beyond first moments, initial conditions were quite different: in particular, "the distribution of income was considerably more unequal in the Philippines" (Benabou, 1996). This finding was in line with general agreement among development economists that the difference between the economic performances of the East-Asian "dragons" and the Latin American countries was due to the very equal distribution of income and land in the first group, as opposed to the high levels of wealth concentration in the latter.

- a recent study by Knowles (2001) shows that when using consistently measured data, there is no evidence of a significant correlation between *gross income* inequality and economic growth, whereas there is evidence of a significant negative correlation between **net income (or expenditure) inequality** and growth.

We can therefore agree with Ravallion (2001), who notes that "the existing evidence using cross-country growth regressions appears to offer more support for the view that inequality is harmful to growth than the opposite view", but some **qualifications** are necessary. First, this relationship seems to emerge over long time periods and it seems to involve net rather than gross income. Second, at the empirical level it is not clear whether this relationship is different for countries at different stages of development. Barro (2000) finds evidence of a negative relationship for poor countries, but a positive relationship for rich countries. In contrast, Perotti (1996) finds that the negative relationship between inequality and growth becomes much stronger if the poorest countries in the sample are dropped.[26] In any case, results appear highly sensitive to the sample of countries included; in some studies, inequality becomes statistically insignificant when continental dummies are included or country fixed effects are allowed for (Ravallion 2001). Third, it is not clear how inequality is related to other known growth determinants. In some cases, the coefficient on inequality is reduced (but remains significant) after the inclusion of variables that are typically negatively correlated with inequality, such as enrolment in and stocks of secondary education or regional dummies (Benabou, 1996); in other cases controlling for inequality reduces the coefficient associated with other factors, such as trade openness (Mbabazi, Morrissey and Milner, 2001).

None of these points can be ignored if we want to understand the **economic meaning** of the relationship between inequality and growth, and to find appropriate policies with which to enhance growth in different situations. For example, policies aimed at reducing inequality may have different impacts on growth according to the level of education or trade openness; and vice-versa, policies that affect the latter may have very different impacts on growth according to the initial level of inequality. Solving this problem empirically may prove difficult, especially by means of cross-country studies, because specifications allowing for the proper interactions may be difficult to implement. One should therefore turn to theoretical analyses for insights. It is interesting to note that the arguments suggesting that inequality is harmful for growth are more likely to apply in the long run, and that the majority of these arguments refer to the distribution of income after redistribution has taken place.

Theoretical work on the relationship between inequality and growth has identified various channels through which high initial inequality may lead to lower growth. These channels mainly work by relating inequality in various ways to a lower accumulation of physical or human capital, which in turn leads to lower growth. This clearly implies that the negative effects of inequality on growth are likely to emerge only after sufficiently long time periods, especially if the main role is played by human capital rather than physical capital accumulation.

For example, a class of models that has received much attention is based on **imperfections in asset markets**. The idea is that credit constraints prevent the poor from undertaking the efficient

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[26] This may be due to the fact that, although the data have improved, international comparisons of distributional statistics are still plagued by both conceptual and practical problems. For example, some analyses rely on synthetic inequality indexes (Gini or Theil coefficients or the quintiles shares) which are not based on nationally representative household surveys but are derived from other sources (Fields, 1994). These measures are then matched with specific assumptions in order to estimate the shape of a country's income distribution (usually log normal). This approach cannot yield a good approximation of the real distribution of household incomes. For example, Gini coefficients do not take account of differences in household composition. Even when the shape of income distribution is derived from nationally representative survey data, problems arise because of differences in the measure of living standards used or in the ways in which income from or consumption of non-market goods is evaluated. (Chen *et al.* 1994, Ravallion *et al.* 1991, Ravallion and Chen, 1997, Milanovic, 2002).

amount of investment; this in turn has an impact on the aggregate level of output and, in an endogenous growth model, also on its rate of growth. Since, with *decreasing returns*, the marginal product of the poor is higher, redistribution may increase total output or growth. A similar result is derived when investment involves a *minimum project size*, thus generating a threshold level of wealth below which agents do not invest, or do not leave enough to their offspring for them to invest. This process clearly works for both physical and human capital investment. Despite the large number of studies that mention imperfections in asset markets to explain a lower growth in countries with high initial inequality, the empirical evidence on this issue is rather limited.[27]

At a theoretical level, credit constraints may play a more significant role when they are included in models that link inequality to growth via **fertility.** Galor and Zang (1997) show that, for a given distribution of income, a higher (exogenously given) fertility rate means that fewer resources are available within each family to finance the education of each child; with fixed costs of education and borrowing constraints, fewer children will be able to attend school. Similarly, given the fertility rate, a more skewed distribution of income is associated with lower enrolment ratios because of the inability to borrow against future income. In a more recent paper, De La Croix and Doepke (2003) highlight the role of the fertility *differential* between the rich and the poor in explaining why the income distribution of a country affects its rate of economic growth. On their argument, the fertility differential matters because it affects the accumulation of human capital: since poor parents tend to have numerous children and provide little education, future average education will be low; if the differential increases with inequality, countries with greater inequality will accumulate less human capital, and therefore grow more slowly. At the empirical level, Perotti (1996) finds that an increase in the share of the middle class is associated with a fall in fertility and with an increase in the female secondary school enrolment ratio. In turn, both fertility and the female secondary school enrolment ratio have highly significant coefficients in the growth regression: negative for the former and positive for the latter. By means of calibration, De La Croix and Doepke (2003) show that the effect of the fertility differentials is quantitatively important and accounts for most of the empirical relationship between inequality and growth.

Physical and human capital accumulation seem to play an important role also for models that postulate a link between inequality and growth via **macroeconomic fluctuations** (Aghion, Banerjee and Piketty, 1997, Aghion *et al*. 1999), or sociopolitical instability (among others, Alesina and Perotti, 1996, Benhabib and Rustichini, 1996, Gupta, 1990). The idea behind the former class of models is that when inequality takes the form of unequal access to investment opportunities across individuals, a high degree of capital market imperfections may generate persistent credit cycles.[28] Empirical studies find that income inequality is positively correlated with volatility measured by the standard deviation of the annual rate of growth of GDP (Haussmann and Gavin, 1996, Breen and Garcia-Penalosa, 1999). Cross-country regressions also find that greater volatility of the growth rate consistently reduces the average rate of growth during that period. This is partly due to its deterring effect on physical and human capital investment (Ramey and Ramey, 1995, IDB, 1995).

According to the **sociopolitical instability** approach, a highly unequal, polarised distribution of resources creates strong incentives for organised individuals to pursue their interests outside normal market activities or the usual channels of political representation, engaging in rent-

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[27] We know from Perotti (1992) that greater credit availability measured by the loan-to-value ratio for domestic mortgages has a positive and significant effect on the growth rate, and that this effect increases as the income share of the lowest two quintiles decreases. Perotti's (1996) finding that the relationship between inequality and growth becomes much stronger if the poorest countries in the sample are dropped, appears more difficult to rationalise in the context of the borrowing constraint approach. However, we can think of other explanations as well.

[28] Aghion *et al.* (1999) suppose that only a fraction of the active population has access to high yield investment opportunities and that investors can borrow only a limited amount of funds.

seeking behaviour or other manifestations of sociopolitical instability, such as violent protests, assassinations and coups. In turn, sociopolitical instability discourages investment by creating uncertainty over the political and legal environment, and by disrupting market activities and labour relations. While there are a number of studies that show the negative effect of sociopolitical instability on growth, to our knowledge Perotti (1996) is the only paper that tests the link between the former and inequality. His findings show that a larger share of the middle class is indeed associated with lower sociopolitical instability, and that this in turn is associated with higher growth. However, it should be stressed that the estimated relationship is much stronger in rich countries.

A final class of models developed at the beginning of the 1990s encompassed models of **political economy** (or endogenous fiscal policy models) where distributional effects arose through the balance of power in the political system. Empirical tests of this theory, however, have found that the relationship between inequality and transfers is rarely significant (Perotti, 1996).

The theoretical explanations put forward to date in the literature tend to ignore the **interaction** between inequality and growth determinants other than physical and human capital accumulation. In particular, it is not clear whether the inequality effect that these models identify is simply an additive one which works independently on the level of other variables (e.g. the distribution of schooling or the degree of trade openness), or whether there are links between initial inequality and these other variables that may give rise to an overall effect that differs from the simple sum of the effects associated with each factor. As a consequence, it is rather difficult to determine whether policies aimed at reducing inequality have impacts on growth which differ according to the level of other factors, such as education or trade openness.[29] Secondly, it is even more difficult to gain an idea of the overall result of policies that affect different growth determinants simultaneously.

Moreover, the models linking inequality with growth generally examine the effect of an unequal distribution of wealth or resources, without considering either the exact form of this distribution or its composition in terms of **wealth sources** of the different percentiles. These factors are likely to affect the structure of growth, i.e. its sectoral and geographical composition, and this may be important for determining both the growth rate and its distributional effects. Indeed, if one ignores the structure of inequality, the exact form of redistribution which would be best able to enhance growth is not clear. For example, particular forms of redistribution like land reforms have had different results in terms of subsequent economic performances. Aghion *et al*. (1999) stress that "redistribution in the form of land or education reform has played an important role in fostering economic growth", whereas De Janvry, Sadoulet and Wolford (2001) find that access to land is not a sufficient condition to secure higher household incomes.

Summarising, at a theoretical level the link between inequality and growth emerges along two directions: on the one hand inequality may affect the process of physical and human capital accumulation when it is combined with imperfections in asset markets, and when the educational choices are modelled jointly with fertility. However, in this case what seems to matter is more the proportion of people below a certain threshold level of wealth than inequality per sé. On the other hand, inequality may have important consequences for sociopolitical instability, and through this affect economic activities at all levels and time horizons. Taking into account the different situations and time horizons over which these two different effects are likely to emerge should help in distinguishing different results in empirical work. What is important from the point of view of our analysis is that all these empirical and theoretical studies suggest that ignoring the distributional consequences of a given growth pattern may generate problems for the process of growth in the future. In other words, when choosing a

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[29] For example, it would be interesting to know whether the effect of a given income redistribution on fertility differs among countries with different distributions of schooling.

growth-enhancing policy, it is crucial to assess not only its growth-effects, but also its **distributional effects**, because these may become a **constraint on growth** in the long run. Furthermore, in assessing these effects, one should keep in mind that they can be different according to the **initial structure of inequality**.

We now turn to the poverty reduction perspective, by examining first the direct impact of trade on poverty, i.e. a short run effect; and then discussing the link between trade and poverty via growth. We will present evidence of the wide range of poverty responses to growth and of the way in which the initial level of inequality may influence the poverty/growth elasticity. Even if the section is mainly motivated by poverty concerns, it is worth noting that, since many of the theoretical channels through which inequality may affect growth appear more related to the proportion of people below a certain threshold level of wealth than to inequality per sé, the effects of trade on poverty may become again a crucial issue in defining whether the process of economic growth that trade enhances will be sustainable in the long run.

3. The perspective of reducing poverty.

The literature regarding the trade impact on poverty do not show settled results. The proliferation of low-wage jobs and higher food prices are among the factors cited in support of the view that trade increases poverty. At the same time, advocates of trade liberalisation argue that the ensuing rise in world prices for agriculture products – as industrialised countries eliminate protection for farming in OECD countries - will boost rural incomes, thereby reducing poverty in the poorest countries, where the bulk of the poor reside.

Trade liberalisation programmes[30] have brought important economic and social changes in countries where they have been implemented. As such, they are likely to affect the absolute level of poverty within and between households, the chances of a household falling into and/or escaping poverty, as well as the amount of time each household spends in poverty.

Not surprisingly, a variety of methodologies have been proposed to analyse the trade/poverty issue, with a range of findings which is nearly as diverse. The most obvious distinction is between researchers who have come to the issue from the tradition of measuring poverty by means of detailed household expenditure data, and those from a trade background more accustomed to dealing with economy-wide data. The former emphasise the heterogeneity of individuals and households, while the latter concentrate on the representative agent. Furthermore, most studies focus on a single country, which makes it difficult to disentangle findings driven by methodological assumptions from characteristics of the country in question.

The empirical identification of the relationship between trade liberalisation and poverty poses a significant challenge. The most important channel through which poverty is likely to be affected is growth, but the relationship between trade and growth has itself been elusive (see sect. 2.1) leaving little hope to establish a further link to poverty. What seems promising to start with is the focus on factor markets.

Factor markets have emerged as the most important linkage between trade and poverty[31]. This recognition has arisen from the Conference on Poverty held in Stockholm in October 2000, which brought together economists working with household surveys and researchers taking a

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[30] One recent IMF review of seven Poverty Reduction and Growth Facility programs found that each loan came with seven trade policy conditions attached.

[31] The role of trade and effects of trade reforms can be analyzed in a wider context (WTO, 2000) via the various transmitting channels, of which product and labour markets are only two among many others. The product channel may be critical especially for highly commodities dependent countries (the protracted crisis in commodity markets do not even register on the global agenda) but the attention is paid here to the factor channel. For comprehensive papers on the many linkages see Cirera *et al.* (2001) the contributions by Winters in WTO(2000), Bannister and Thugge (2001), Winters *at al*. (various years), McKay *et al.* (2000).

more macroeconomic approach as well as researchers using computable general equilibrium models with a poverty focus (Gurgel, Harrison, Rutherdorf and Tarr, 2003; Harrison, Rutherdorf and Tarr, 2003). However, there is still much disagreement on the right approach with which to analyse the problem. In the meantime, survey data on the income sources of developing country households have become increasingly available. But despite strong interest at the political level, and despite the great deal of attention paid to the matter in recent years, research into the impact of trade policy on low-income households has been relatively scant. Although factor markets are critical for the trade-poverty linkage, they have been relatively neglected by much of the poverty research conducted to date.[32] For these reasons, the section devoted to these aspects (sect. 3.1 and 3.1.1) will focus only on short-run labour market and consumption effects that may fall disproportionately on the poor, and report the results on poverty in developing countries generated by a simulation of trade liberalisation policies (Hertel *et al.* 2003b). They show the crucial role of the structure of poverty in each country in order to frame the differential impact (not always positive) of identical trade liberalisation policies on poverty. With this result in mind, sect. 3.2 will turn to the poverty-growth problem by showing different empirical reactions of poverty to growth, across countries and over time horizons. Again, even in the long-run perspective, specific conditions of the country at hand (the structure of poverty and other initial conditions) affect the poverty reaction to growth.

3.1 The poverty impact of trade.

In spite of methodological diversities and very mixed results[33], there appears to be increasing recognition that factor market effects constitute the crucial linkage among trade, trade policy and poverty, for at least three reasons:
- the "magnification effect" (changes in commodity prices due to trade liberalisation "magnify" the resulting changes in factor prices: see Jones, 1965);
- households appear to be more specialised in factor earnings than they are with respect to consumption;[34]
- the combination of complete reliance on one income source together with the magnified change in returns may easily dominate the impact of food prices on the farm household.

This is reinforced by four empirical results:
1. the patterns of the structure of poverty (Hertel *et al.*, 2003a) with systematic clear disadvantages of specialised income earners[35] in 14 developing countries, showing that:
   - there is a strong negative correlation between per capita GDP and the share of the population specialised in agriculture and a positive correlation between the non agriculture stratum's concentration (wage and salary specialisation) and per capita GDP;
   - the poor are more specialised than the population at large;
   - the poverty rate tends to decrease with increasing income, but considering the intensity of poverty across the earning strata, specialised strata are poorer than average while diversified strata are less poor than average.
2. Income effects accounted for more than two-thirds of poverty alleviation in the Philippines when there was a rise in agricultural productivity (Coxhead and Warr, 1995)

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[32] A point emphasised in the path-breaking work by Adelman and Robinson (1978) as well as in the more recent work by Bourguignon, Robilliard and Robinson (2003).

[33] Papers are categorised by Reimer(2002)

[34] This implies that households tend to be more specialised with respect to income than with respect to consumption. Historically most poverty research has focused on consumption side of the question, since it is easier to measure, more reliable and less volatile than income (Lipton and Ravaillon, 1995). Mitra-Trindade (2003) show that consumption rather that income specialisation plays a crucial role in developed countries, and they explain trade as driven by consumption specialisation.

[35] As will be clear in the empirical example, "specialisation" refers to households that earn 95% or more of their incomes from, for instance, agricultural profits.

3. The welfare and distributional effects of the proposed rice export tax in Thailand show that the negative income effects (on unskilled labour in the Thai rice industry) outweigh the consumption benefits, so that both the rural and urban poor are harmed by the export tax (Warr, 2001).
4. The adverse impact of trade liberalisation relative to the average household in Turkey has been driven by the source of income rather than the pattern of expenditure (Harrison *et al.,* 2003).

3.1.1 *An example of assessing the impact of trade liberalisation: by country, by strata, within the strata*

This example, taken from from Hertel *et al.*(2003a), shows the results of an exercise linking income and expenditure profiles based upon household surveys with prescriptions of country specific or multilateral trade policies. The keys are:
1. detailed earnings data from household surveys
2. an econometrically estimated demand system reflecting the change in consumption patterns across the income spectrum and providing a natural vehicle for analysis of household welfare and poverty.
3. a globally consistent framework for projecting the price impacts of trade liberalisation. The method used tracks commodity price shocks resulting from trade policy through factor prices to poor households, embedding the household disaggregation within a computable general equilibrium (CGE) model. With CGE it is possible to link household types (specialised by factor incomes) with prescriptions of country-specific or multilateral trade policies.[36] The global trade model[37] can be used to generate the price change to be fed into the microsimulation analysis. Utilisation of CGE is almost the only tool with which to predict the effects of future trade policy changes, but care must be taken with the parameters and functions assumed:[38] they identify predictions and are complementary rather than substitutes for genuine empirical work on ex-post data.

Given the systematic pattern of earning specialisation identified in the empirical result no. 1 of the previous sub-section, the national household surveys from 14 developing countries (Malawi, Zambia, Uganda, Bangladesh, Vietnam, Indonesia, Philippines, Peru, Venezuela, Colombia, Thailand, Brazil, Mexico and Chile) are stratified in five types of specialised (at least 95% of their income) households according to the primary source of income from:
- agriculture (specialised households where the poor are over represented)
- non-agricultural business (households specialised as self-employed in non agricultural sectors)
- labour (specialised households specialised in wages and salaries)
- transfer payment - specialised households
- diversified income, the fifth complementary type.
On average, they account for 56% of the poor in the 14 countries, who have specialised income patterns (the same is not true for the non poor) and are more vulnerable to price shocks because of their earnings and because of their expenditure patterns. They are therefore likely to be disproportionally affected by trade liberalisation, especially in the short run.

A previous examination (Hertel *et al.* 2000) of how global trade liberalisation affects poverty in each of seven different developing countries showed that multilateral trade liberalisation **reduces** overall poverty in Indonesia, Philippines, Uganda and Zambia but **increases** overall poverty in Brazil, Chile and Thailand. Within regions, the results vary considerably by

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[36] Details of the micro simulation model behind this exercise cannot be given here. See Hertel *et al.* (2003b) for the analytical work behind the exercise on Indonesia.
[37] In this case the GTAP model and data base are utilised and are interesting especially because of the regional disaggregation (78 regions in version 6).
[38] For a survey see Reimer (2002).

household group. The largest poverty reduction occurs among agriculture-specialised households in Brazil, while the largest increase occurs among non agricultural, self-employed and wage labour households in Brazil, Chile and Thailand.

The simulation experiment, recently applied to 14 developing countries (Hertel *et al.* 2003a), assumes the elimination of all import barriers; this assumption, together with the information on the structure of protection in the developing countries was expected to have a significant impact, especially on the apparel trade and agricultural products (both highly protected and relatively unskilled labour intensive).

The results emphasise the differential short-run[39] impacts of multilateral trade liberalisation on poverty across countries, across and within strata, thereby highlighting the links between the structure of poverty and the national impacts of trade liberalisation. The results can be summarised as follows:

i). Results across countries. These capture per capita real income effects due to change in per capita earnings and the price change that consumers must pay for good and services. Most of the 14 countries examined displayed a modest positive (less than 1%) per capita gain from trade liberalisation. This finding is quite consistent with the per capita results of most studies on multilateral trade liberalisation, which typically show that most, but often not all, developing countries gain from trade liberalisation, and that these gains are rather small.[40] The implications of these results as regards poverty[41] show that it is reduced in all countries when per capita welfare rises. But earning and spending effects differ: when account is taken of differential spending patterns across households, poverty rates may rise or fall in a number of countries. The fact that the poor are more exposed to food price increases works to their disadvantage in the context of global trade liberalisation.

ii). Results across strata. When cross-stratum differences are introduced, poverty rates do not fall (increase) uniformly within each country. Poverty reduction amongst agriculture-specialised households in some countries where agricultural profits rise strongly (the case of Brazil, Chile and Thailand) are associated with a deteriorating position of the non-agriculture specialised stratum and especially the labour-specialised stratum. For example, in Chile, Indonesia and Thailand, this group experiences the largest increased poverty because households are hit by the combination of declining income and higher food prices. Poverty rates rise in ten out of the fourteen countries.

iii). Results within the strata. Decomposition of the determinants of stratum-specific poverty changes requires the introduction of within-stratum variation in income sources. For example, within the wage-labour specialised stratum, low income households rely on unskilled as opposed to skilled wages. With unskilled wages rising relative to skilled wages in twelve out of fourteen countries, the poorest experience a somewhat larger gain which results in a larger reduction in poverty rates for this stratum. These intra-stratum earnings effects are strong in some countries and are able to turn a poverty increase into a reduction or viceversa.

iv). Results on national poverty (see table 1). No longer poverty rates fall uniformly within each country. Weighting the poverty changes with stratum shares of total poverty gives us the national change in poverty. According to table 1 poverty falls in 11 out of 14 countries. Poverty rises in non-agriculture-specialised strata in both Brazil and Indonesia, but it falls in both cases because the effects on these strata (accounting respectively for 45% and 14% of the poor) are

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[39] Long-run results may be different: see the analysis of the Indonesian case in Hertel *et al.*(2003b)
[40] Martin and Winters (1996)
[41] The poverty level of utility (the utility of the household at the poverty line) in each country (before and) after liberalisation is calculated by recomputing income as well as consumption and utility level for each percentile in each stratum with post lib. prices.

more than compensated by the much larger poverty reduction of agriculture-specialised households in Brazil and by the small incidence of the poorer population in Indonesia. This stands in contrast to Venezuela, where the percentage reduction in agricultural poverty is quite large, but this stratum accounts for only 2.5% of the poor. Not surprisingly, poverty increases in Venezuela. But a different weighting system yields different results. When the interaction between the structure of the poverty and trade liberalisation is weighted by applying the average weights instead of the true population weights to the stratum-specific poverty changes (as if the share of poverty amongst the stratum was as large as the sample average), it may happen that overall poverty falls rather than increases (the case of Venezuela).

In conclusion, although trade reform is not directly a poverty-reduction strategy, it may have a significant impact on poverty which is either positive or negative crucially dependent upon the structure of poverty in each country. The impact of trade liberalisation on different households groups is quite varied and not always positive. In other words, the reasons of the mentioned results are the following:

> The channels of the factor income impacts is crucial for households highly specialised in their earning patterns.

> As the poor tend to be more specialised in the earning sources than the non-poor, they are more vulnerable to trade policy changes which tend to favour one sector at the expense of another. Sectoral composition of the overall poverty picture as well as well as the weighting system for each stratum(average weights or true population weights) are crucial for isolating role of the inter-stratum poverty composition in determining the overall poverty changes.

  This result is even more important if one considers that a lack of major labour reallocation across sectors following large tariff reductions in the '80s and in the '90s has been consistently documented by empirical work (see Goldberg and and Pavcnik, 2004).

> The short run effects can be significantly different from the long run effects especially because of the limited factor mobility across sectors.

Trade liberalisation does not always benefit developing countries as a whole when earnings data from household surveys are utilised. This can be very important in the short run but short run impacts are of paramount importance for households living with less than one dollar a day. Trade policies inevitably involves redistribution, so that there is a crucial need for safety nets and for protecting government expenditure, which is particularly important for the poor.

In this section we focussed on the short- and medium-run effects of trade liberalisation, showing that trade reform may have potentially significant effects on poverty through changes in relative prices (which affect both earnings and consumption). In turn, these effects crucially depend on the initial poverty structure, i.e. the initial pattern of households' earnings specialisation, and their sectoral and occupational mobility. These conditions, and particularly the latter, may play an important role also for the dynamic link between trade and poverty which operates via growth: trade could indirectly reduce poverty in the medium- and long-run if it lead to faster growth and this, in turn, increased the income of the poor. In section 2 we showed that the sign of the effect of trade on growth is not univocally positive, neither at the theoretical nor at the empirical level. In the next section we document that, although growth generally reduces poverty, the magnitude of this effect may differ substantially across countries and over different time periods. In particular, a certain policy choice that pushes the structure of growth in a given direction may have different consequences on poverty according to some specific conditions of the country at hand, such as the underlying evolution of the supply of skilled labour, the distribution of schooling, the level of inequality etc. Therefore, there appears to be no general

presumption in favour of the view that growth "is good for the poor", but the specific conditions of each single country need to be taken into account.

3.2 The poverty-growth elasticity

In the trade-growth tradition, there is substantial consensus among researchers that "on average" the incidence of absolute poverty in developing countries tends to fall with growth. The link between trade liberalisation and economic performance within developing countries has been often summarised as "Globalisation is good for the Poor", with evidence from individual cases and cross-country analysis supporting the view that open trade regimes lead to faster growth and poverty reduction in poor countries (Dollar and Kray, 2001a, 2001b). The core argument is that openness, in that it is associated with higher growth, is not on average associated with a systematic tendency for inequality to increase. The acceleration in growth rates that accompanies expanded trade usually translates into proportionate increases in the incomes of the poor. Thus, absolute poverty in the globalising less developed economies has fallen sharply in the past twenty years, and first-rate globalisers have high rates of poverty reduction.

Two points about this "double" relationship are worth noting. First, as we discussed in section 2, there is no theoretical and empirical consensus on the view that open trade regimes lead to faster growth[42]. Second, while it seems quite well established that on average the incidence of absolute poverty in developing countries tends to fall with growth (fig. 1.1), various authors stress that looking behind averages, the experience is diverse (Ravallion, 2001, Lustig et al., 2002, Bourguignon, 2002).

With respect to the **average** relationship between poverty and growth, Ravallion (2001) reports estimates of the poverty-growth elasticity that vary from –2.5 to -1.96 according to whether survey data or national account data are used in the estimation. Moreover, the elasticity of the average income of the lowest quintile of the population is not significantly different from -1 (fig. 1.2; Dollar and Kray, 2001a). Regressing the (log) income share of the bottom quintile on GDP per capita, and several other variables, such as trade openness, monetary and fiscal policy, financial development, and the rule of law, Bourguignon (2002) finds that none of these variables is significant. This result would imply that the income share of the bottom 20 per cent is insensitive to growth and known growth determinants, i.e. growth would affect the income of the poor in the same proportion as that of other groups, whatever the nature of the policy variables behind it and its sectoral structure.

However, as already mentioned, there is a significant **dispersion** around the average relationship; that is, in some countries and over some periods, there is a significant decrease in poverty as the economy grows; in others the response is much less appreciable. The 95% confidence interval of Ravallion's estimate implies that a 1% rate of growth in average household income or consumption will give rise to anything from a modest drop in the poverty rate of 0.6% to a more dramatic 3.5% annual decline. Moreover, within the lowest quintile, growth has the **least effect on** the income of **the poorest**. Using changes in the "generalized mean" as dependent variable, Foster and Székely (2001) find that in Latin American and Caribbean countries, as more weight is given to the income of the poorest, the elasticity falls to zero; i.e. those living in extreme poverty benefit very little from growth. This finding is

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[42] Countries like China, Thailand and Vietnam have strong records of economic growth (and poverty reduction), but they have liberalised imports very slowly and still have relatively restrictive trade barriers. Conversely, countries like Brazil, Haiti, Mexico, Peru and Zambia have been world-beaters when it comes to import liberalisation, but they have weak records on growth (and poverty reduction). In short, many first-rate globalisers have fifth-rate records on poverty reduction (Winters, 2001, Winters *et al.*, 2002).

confirmed by Karshenas (2001), who shows that the poverty/growth elasticity in absolute value is an increasing non linear function of average private consumption per capita (fig. 1.3): for the $1 poverty line, the growth elasticities of poverty may range from -0.5 to about -3.0; and countries with average consumption per capita of less than 300$ (1985 PPP) have an elasticity lower than 1 in absolute value. Furthermore, Bourguignon (2002) provides four country stories that directly contradict the general conclusion of distribution-neutral growth. In the case of Mexico, Taiwan, Indonesia and Brazil, he found that growth was responsible for significant changes in the distribution of income, but with very different overall effects: slow growth was potentially unequalizing in Brazil, whereas fast growth was also unequalizing in Taiwan, and neutral in Indonesia.

Which factors are able to **explain** this variation have not yet been clearly identified. *At a theoretical level*, Kakwani, Khandker, and Son (2003) show that the total poverty elasticity, which determines the extent of country's poverty reduction, depends on three factors: the growth elasticity of poverty, the inequality elasticity of poverty, and the inequality elasticity of growth. Kakwani and Son (2002) have shown that the former two elasticities depend on the country's initial level of economic development and inequality. In particular they demonstrate analytically that the growth elasticity of poverty is a decreasing function of the initial level of mean income and an increasing function of the initial level of inequality; and that the inequality elasticity of poverty is an increasing function of the initial level of mean income and a decreasing function of the initial level of inequality. However, it is not possible to say a priori what the sign and the magnitude of the inequality elasticity of growth will be.

At the empirical level, **initial inequality** has been found to play an important role in reducing the poverty/growth elasticity. Ravallion (2001) shows that the elasticity of poverty to growth declines appreciably as the extent of initial inequality rises. By considering the *distribution-corrected rate of growth* in average income (given by a measure of initial equality times the rate of growth), he finds that a country with a Gini index around 0.6 can expect to see a rate of poverty reduction of 2.4% per year; by contrast, a relatively low-inequality country, with a Gini of 0.3 can expect a rate of poverty reduction of 4.2% per year.[43] Furthermore, country studies have shown that the response of poverty to growth depends on some **specific conditions** in the economy under analysis. For example, by comparing rates of poverty reduction across states of India, Ravallion and Datt (2002) showed that the response of poverty to nonfarm output growth varied significantly among states and that this difference reflected *systematic differences in initial conditions*: low farm productivity, low rural living standards relative to urban areas and poor basic education all inhibited the chances of the poor participating in growth of the non-farm sector.

Bourguignon (2002) draws a similar but more general conclusion from the four country stories described in his paper. First, a crucial role is played by the underlying evolution of the *supply of skilled labour*: if the latter lags behind growth, then the rate of return to skill is bound to increase, resulting in more inequality (as was the case in Taiwan; the opposite being true in Brazil). In addition, the demand for skilled labour is affected not only by the rate of growth of the whole economy, but also by its *structure*, which may itself result from *policy choices*[44]. Two

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[43] In the same paper Ravallion also examines whether rising inequality impedes poverty reduction, i.e. whether or not in countries in which inequality is increasing with growth, poverty is increasing as well. He reports evidence that even in countries in which inequality is rising with growth, poverty is falling on average, but it typically falls at a much slower rate than in countries experiencing more equitable growth: "the median rate of decline in the proportion of the population living below $1/day among countries with both rising average income and rising inequality was 1.3% per year; by contrast, the median rate of poverty reduction was seven times higher, at about 10% per year, among the countries that combined growth in average living standards and falling inequality".

[44] For instance, "the reason why demand for skilled labor grew so much in Taiwan may have to do with the openness of the economy and the strong changes it caused in the structure of production toward sectors more intensive in both physical and human capital" (Bourguignon, 2002).

other variables that appear particularly important in explaining different growth-inequality relationships are the *distribution* of schooling within the population of working age (different from mean schooling, which may by assumed to influence distribution only indirectly through its aggregate effect on the rate of return to schooling) and the *convexity of the earning profiles* with respect to education. Schooling increased in all the four countries, but it had very different effects on the distribution of income: e.g. schooling expansion increased inequality in Mexico and in Indonesia but reduced it in Taiwan and Brazil. "The reason for this difference is mostly that earning profiles with respect to education are less convex in Taiwan and Brazil than in Mexico and the expansion of education in the former countries may have been stronger, in absolute value, at the bottom than at the top of the schooling range".

Following these studies, Kakwani, Khandker, and Son (2003) have proposed that, in order to achieve a rapid reduction in poverty, a **poverty equivalent growth rate** should be maximised rather than the growth rate itself. The former is basically an index of pro-poor growth, which takes account of both the magnitude of growth and the benefits of growth that the poor receive. This index will be equal to the growth rate itself when growth is distribution neutral, i.e. when everyone in the society receives the same proportional benefits of growth.

Clearly, in order to maximise such an index, it is necessary to understand both the **distributional effects** of growth and the way in which these depend on the initial distribution of income and wealth, or on other initial conditions[45]. Indeed, the result that high initial inequality reduces both the growth rate and the benefits that the poor can obtain from this growth, suggests that the initial distribution may affect the sectoral/geographical composition of growth, and therefore its effects on relative factor prices. Alternatively, it may be a proxy for other factors that affect the way in which a given growth structure or a given policy changes the underlying income distribution: for example, the distribution of schooling or the convexity of the education-earning profiles.

More work is needed to identify the effects of different growth patterns and policies on distribution ("something that is crucially missing for the moment", Bourguignon, 2002), and which initial conditions play a crucial role for this. The initial distribution of income and wealth seems an important candidate. Our guess is that its influence may differ according to the income sources of the various percentiles and possibly according to their geographical location. First, this may affect the sectoral/geographical composition of growth and therefore its effects on relative factor and goods prices. Second, these latter effects may have different impacts on real incomes in different parts of the distribution. Methodologically, analysis of this kind requires emphasis to be placed more on the micro analysis of distributional changes than on cross-country studies.

In the analysis of poverty/growth elasticity we showed that, while on average the incidence of absolute poverty in developing countries tends to fall with growth, the absolute value of the poverty-growth elasticity can differ substantially across countries and over different time periods. However, which factors are able to explain this variation have not yet been clearly identified. There are few country-level studies which show that the response of poverty to a given growth depends both on the structure of growth and on some initial conditions. In particular, a certain policy choice that affects the structure of growth in a given direction may have different consequences on poverty according to some specific conditions of the country at hand, such as the underlying evolution of the supply of skilled labour, the distribution of schooling, the level of inequality etc. Therefore, there appears to be no general presumption in favour of the view that "growth is good for the poor", unless specific conditions of each single country are considered.

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[45] Lustig *et al.* 2002 note that "a sole focus on maximizing per capita income growth may be less than successful in reducing poverty if the growth bypasses geographic areas or sectors in which the poor are concentrated, or fails to make intensive use of the most abundant factor of production available to the poor; namely unskilled labor".

The empirical identification of the relationship between trade liberalisation and poverty poses a significant challenge. The most important channel through which poverty is likely to be affected by trade openness is growth, but both the relationships between trade and growth, and between growth and poverty are elusive. In particular, the latter seems to depend on the structure of growth and on some specific conditions of the country at hand, such as the distribution of schooling and its evolution over time. This suggests that the focus on factor markets could be a promising way forward. Factor markets have emerged as the most important linkage between trade and poverty also in the short-run: labour market and consumption effects may fall disproportionately on the poor according to the structure of poverty in each country.

4. Conclusions

Establishing a clear link between trade liberalisation and poverty is a significant challenge:

- ➢ because of the interplay between static and dynamic links over different time horizons.

- ➢ because of many measurement and identification difficulties at the empirical level

- ➢ because it is difficult to identify common patterns across countries in presence of trade lib episodes

- ➢ because of conflicting empirical evidence on some important issues

Despite the difficulties and unsettled results, this paper has started from the separated prescriptions for growth-enhancement and poverty-reduction strategies and analysed their linkages rather than their separation from two different perspectives. These linkages have been supported by theoretical and empirical analyses.

From the perspective of enhancing economic growth, the results can be summarized as follows:
1. The effect of trade on growth is not univocally positive, at neither the theoretical nor the empirical level There is no *general* evidence in favour of the view that trade liberalisation "is good for growth".
2. Trade may worsen within country inequalities and trade-liberalisation may contribute to the rise in the skill premium
3. High initial inequality may be harmful for growth. The initial structure of income distribution as well as its changes following specific policy interventions matter for future growth

The theoretical debate on the effects of trade on growth (1) and the endless discussions on its empirics are deepened if we consider the distributional effects of trade openness (2) because of their effects on future growth (3). Initial as well as trade-induced inequalities matter for the sustainability of the growth process. These conclusions show that it is necessary to focus on the conditions under which trade may generate more growth and less inequality, and more generally on the distributional effects of different trade-driven growth paths

From the perspective of poverty reduction, the results can be summarized as follows:
1. the direct impact of trade on poverty, i.e. a short run effect, may be potentially significant by operating through changes in relative prices (which affect both earnings and consumption) and not necessarily positive.

2. the indirect link between trade and poverty via growth, i.e. a long run effect; shows that trade may reduce poverty if it generates more rapid growth and this, in turn, increases the income of the poor. In this case, although the sign of the link between growth and poverty is generally negative, the absolute value of the poverty-growth elasticity may differ substantially across countries and over different time periods. However, which factors explain this variation have not yet been clearly identified. The few country-

level studies conducted show that the response of poverty to a given growth depends both on the structure of growth and on some specific conditions, such as the underlying evolution of the supply of skilled labour, the distribution of schooling, the level of inequality etc.. There appears to be no *general* evidence in favour of the view that "growth is good for the poor"; instead, the specific conditions of each single country must be taken into account*.*

In the absence of any *general* evidence in favour of the views that trade liberalisation "is good for growth" and that "growth is good for the poor" we are left with some important common findings:

4. Initial as well as trade-induced inequalities matter for the sustainability of growth processes.
5. Specific conditions (sectoral composition, wealth and land distribution, distribution of schooling, convexity of earning profiles, specialisation of income sources, etc.), can explain why the same policies may have very different distributional effects at sectoral and individual levels. Thus, the problem of poverty reduction cannot be separated from the context in which e.g. trade is liberalized.
6. These specific country conditions play a crucial role in explaining why, at the macro level, similar growth rates may have such different impacts on poverty and why the same policies may have different effects on growth performance. Thus, the problem of poverty reduction cannot be separated from the way in which e.g. growth is achieved.

Another common finding arises from the methodological point of view and calls for disaggregate analysis of trade and poverty impacts, echoing Kanbur (2000). It is necessary to move away from per-capita analysis to micro analysis of distributional changes, possibly distinguishing among the distributions of different types of income. This micro analysis could isolate the channels of the factor income short-run impacts: which may be very important, especially if households are highly specialised in their earning patterns and characterized by low mobility (because of sector/factor specificity), as is the case of agriculture in less developed countries.

Assessing the social, political and economic interdependencies among growth, inequality and policy instruments in the context of globalisation, and measuring poverty reduction, is one avenue to pursue in defining and evaluating the quality of growth. It is also a means to gain understanding of why globalisation has produced winners and losers, and marginalised those unable to gain access to it.

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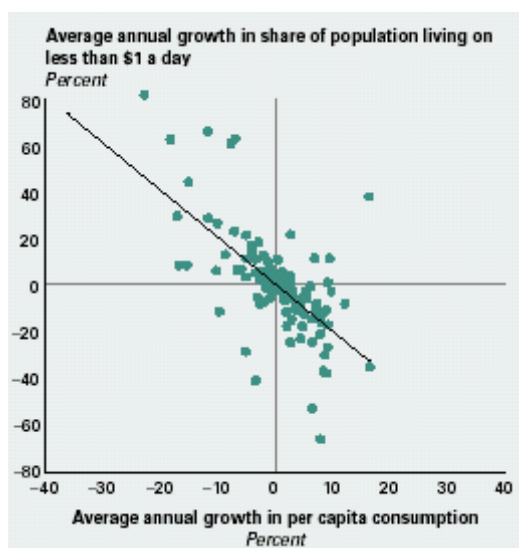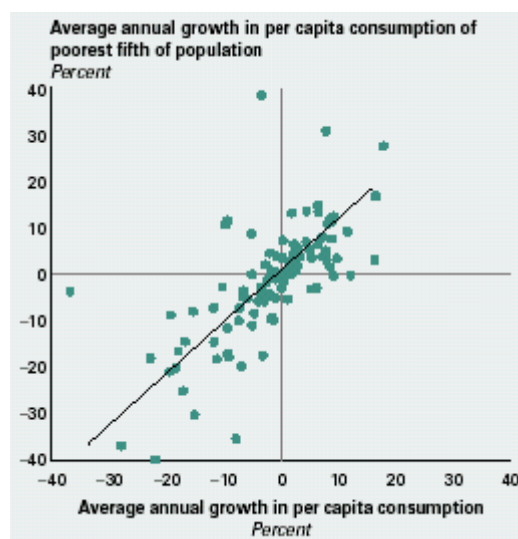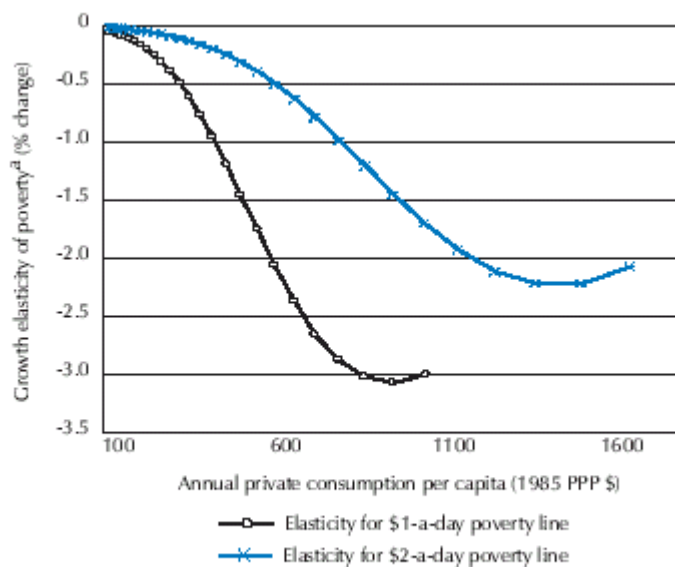
Figure 1.1

Average annual growth in share of population living on less than $1 a day
Percent

Average annual growth in per capita consumption
Percent

Figure 1.2

Average annual growth in per capita consumption of poorest fifth of population
Percent

Average annual growth in per capita consumption
Percent

Source: World Development Report 2000/2001: Attacking Poverty. World Bank, Washington, D.C.
Note: The data, drawn from Chen and Ravallion (2000), span 65 developing countries in the 1980s and 1990s.

Figure 1.3

Growth elasticity of poverty[a] (% change)

Annual private consumption per capita (1985 PPP $)

—□— Elasticity for $1-a-day poverty line
—✕— Elasticity for $2-a-day poverty line

a   The growth elasticity of poverty is the percentage change in the proportion of the population living below the poverty line following a 1 per cent increase in average annual per capita private consumption.

Source: Karshenas (2001)

Figure 1. Correlation Between Per Capita GDP and the Share of agr Specialized Households in the Total
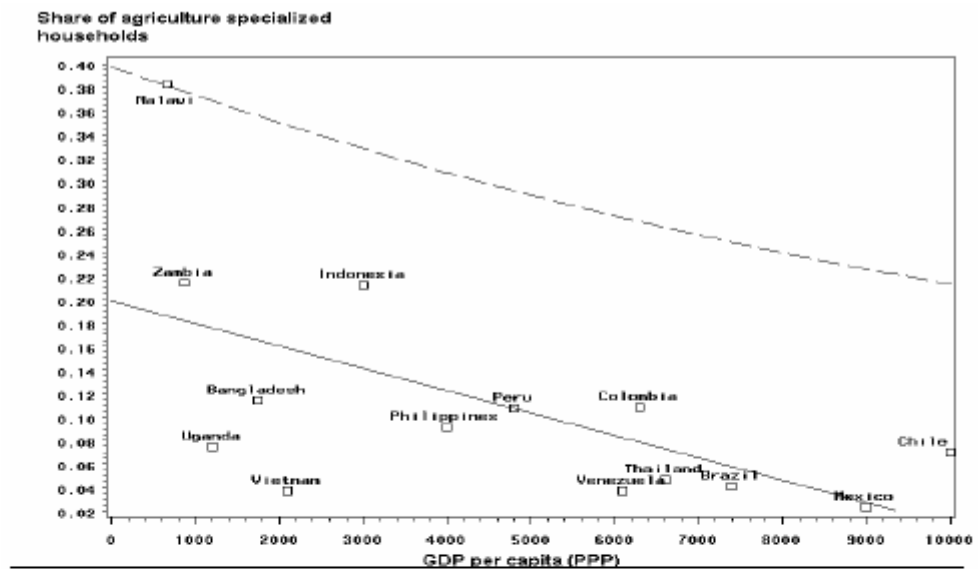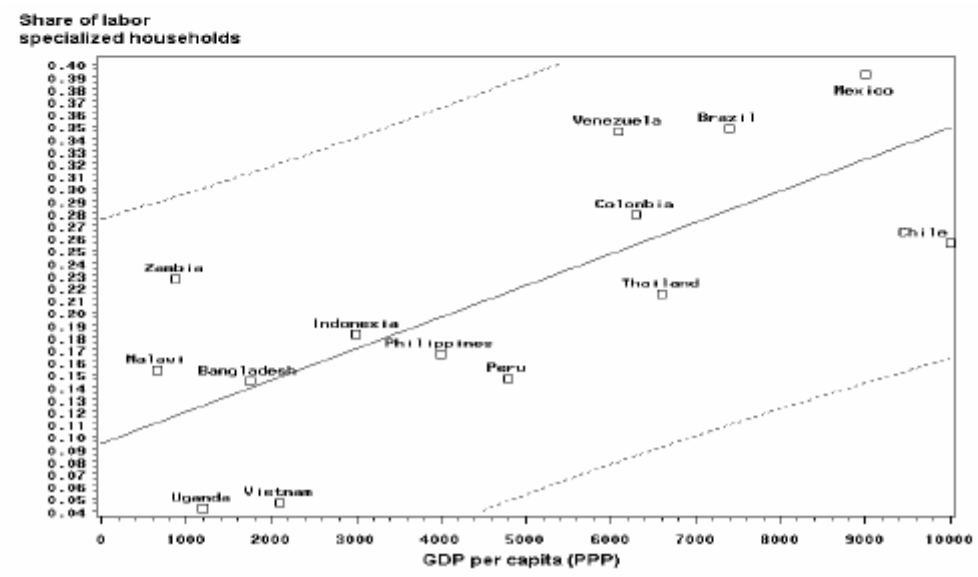

Figure 2. Correlation Between Per Capita GDP and the Share of Labor Specialized hhlds

Source: Hertel *et al*. (2003a)

Figure 3. Correlation Between the Share of agr Specialized Households in the Population and Their Share in the Poor
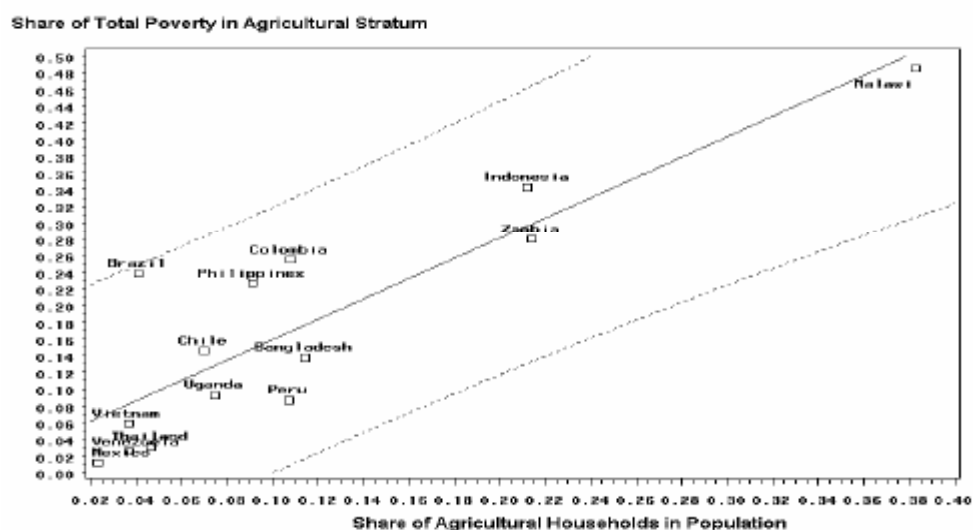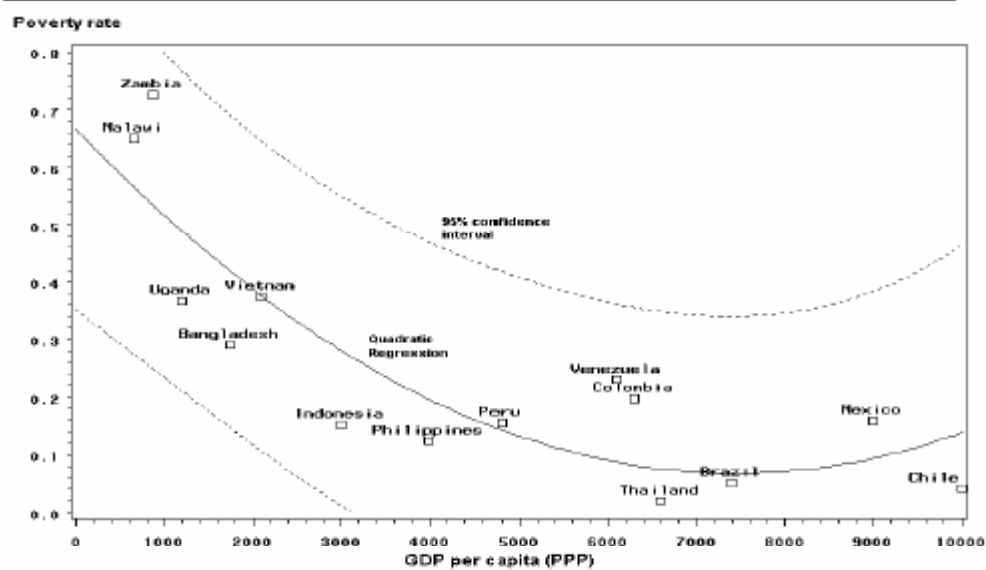

Figure 4. Correlation Between the Overall Poverty Rate and GDP/Capita

Source: Hertel *et al*. (2003a)

Figure 5. Total poverty rate vs. poverty rate among transfer specialized households (line denotes locus of points with equal poverty rates)
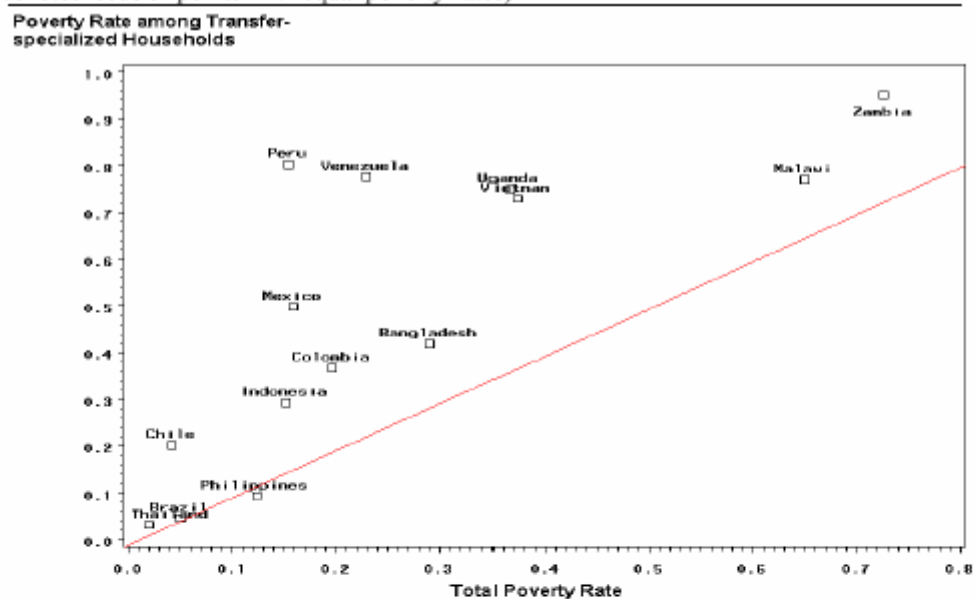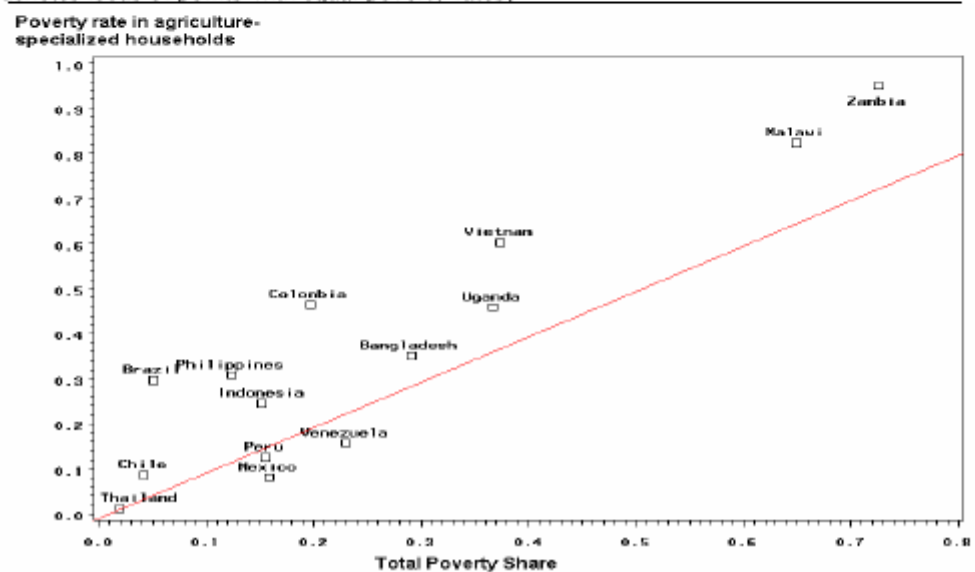

Figure 6. Total poverty rate vs. poverty rate among agr specialized households (line denotes locus of points with equal poverty rates)

Source: Hertel *et al*. (2003a)

Table 1. Approximating National Poverty Changes using True vs. Sample Average
Population Weights for Each Stratum

Country	True weights	Average weights	True/Average
Bangladesh	-0.10	-0.13	1.25
Brazil	-2.39	-2.41	1.01
Chile	-3.87	-4.54	1.17
Colombia	-2.23	-2.27	1.02
Indonesia	-1.47	-1.11	0.76
Malawi	-2.03	-1.61	0.79
Mexico	-0.21	0.27	-1.27
Peru	1.43	2.00	1.39
Philippines	-3.14	-2.23	0.71
Thailand	5.68	5.93	1.04
Uganda	-0.49	-0.50	1.02
Venezuela	0.34	-1.16	-3.38
Vietnam	-5.60	-4.92	0.88
Zambia	-0.01	-0.03	4.20

Source: Hertel *et al*. (2003b)

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