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## **GLOBALIZATION AND INEQUALITY**

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# Globalization and Inequality

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\* Cornell University: T.H. Lee Professor of World Affairs, International Professor of Applied Economics and Management, and Professor of Economics. Draft of paper prepared for forthcoming Elsevier volume edited by A.B. Atkinson and Francois Bourguignon, *Handbook of Income Distribution, Volume 2A*.

## 1. Introduction

Globalization is the dominant economic phenomenon of the last thirty years. Openness in trade, investment and financial flows has grown dramatically. Inequalities within countries have also increased significantly during this period.<sup>1</sup> The natural question to ask is whether there is a connection between the two. To what extent can the increase in inequality be explained by globalization? And if there is a connection, what if anything can and should be done about it?

Any exploration of inequality must begin by specifying inequality of what and inequality between whom. The focus in this essay will be on income inequality, although quite often measurement will be confined to inequality of consumption expenditure. As for inequality between whom, this can be between all individuals in the world, between nations, between individuals within nations, or between broad groupings within the nation. The focus of this paper is inequality within developing nations. However, this is in no way to suggest that globalization is unimportant to inequality in developed countries. Evidence from developed countries will also be referred to as relevant throughout this paper. The inequality considered will be between individuals primarily, but inequality between broadly defined groups within the nation (spatial, and gender)—will also be discussed. The measure of inequality, which determines what aspect of the income distribution is being emphasized, is also a relevant consideration. For the most part this paper will consider general measures of inequality such as the Gini coefficient.

A simple framework for linking income distribution and globalization is to write income as derived from different assets and the return on those assets, plus net transfers. The transfers can be further disaggregated into private and public transfers. Assets can be disaggregated into the basic factors such as land, labor and capital, although further disaggregation, especially of labor between different skill levels, is also sometimes useful. The assets of an individual are therefore the capital and land she owns, plus the human capital embodied in her labor power. The evolution of income distribution can then be decomposed into the evolution of assets, the evolution of rates of return to these assets, and the evolution of public and private transfers.

As noted above, different economic dimensions of globalization can be measured by increases in trade, investment, financial flows and migration across national borders. These are of course outcome variables, determined by more fundamental causal variables such as natural endowment differences between nations and national and global policy. The literature often slips into the practice of labeling increase in trade for example as the causal factor whose consequences for inequality need to be investigated. This paper will not be immune from this tendency, but the caveat must always be borne in mind.

The focus of the large and still growing literature which looks to uncover the links between globalization and inequality is primarily through the effects of globalization on rates of return to assets, holding fixed the asset distributions. Even when assets are

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<sup>1</sup> Chapter 10 of this volume covers trends in income inequality in developing and emerging economies, while Chapter 9 is devoted to inequality trends in developed countries.

considered as mobile, the focus is on the impact of this mobility on returns to assets rather than on the distribution of assets. Within the analysis of returns, the literature is structured around gaps in returns to capital as a whole and labor as a whole, and around the gaps in returns to skilled and unskilled labor. The underlying assumption is that a widening in these gaps will increase interpersonal inequality as measured through standard indices such as the Gini coefficient. Since individuals who get their income primarily from capital generally have higher incomes than those who get their income primarily from labor, and since skilled individuals generally have higher incomes than unskilled individuals, this is not an unreasonable assumption to make. But it is nevertheless worth emphasizing that in much of the literature an analysis of inequality is replaced by an analysis of differentials in returns to capital and to labor at different skill levels.

Once the market distribution of income is determined, public and private transfers will contribute to the outcome of the final income distribution. These can be equally important as determinants of inequality, and globalization can affect them as well. First, international remittances, a natural consequence of international migration, can affect inequality in developing countries. Second, the greater ability of capital and high income labor to cross borders can also have an impact on the progressivity of public tax and transfer regimes, and thus on final inequality. This channel from globalization to Inequality also needs to be considered.

With this background, the structure and plan of this paper is as follows. Section 2 begins with the state of play in the three decades after the Second World War, from the 1950s through to the 1970s. The focus here will be on how the distributional predictions of the Hecksher-Ohlin model, particularly the Stolper-Samuelson theorem, meshed with the great policy debates of the time, especially around the significance of the East Asian experience. These economies delivered a “growth with equity” miracle in a regime of trade openness, at a time when other economies with import substitution regimes were either stagnating with low growth rates (like India) or were growing but with high and rising levels of inequality (like Brazil). This experience was consistent with the prediction that in economies which were abundant in unskilled labor, opening up would lead to a narrowing of the gap between unskilled labor on the one hand, and skilled labor and capital on the other. The East Asian experience was crucial in informing the debate, and in persuading the International Financial Institutions and in turn many developing country governments to open out their economies in the 1980s and 1990s.

Section 3 provides a thumb nail sketch of the evolution of within country inequality in the last three decades of the 1980s, 1990s and 2000s, with a particular focus on the impact of openness. The bottom line is that openness seems to have been associated with increases in pre-transfer inequality. Clearly, this pattern from the 1980s onwards questions the validity of the basic Hecksher-Ohlin framework in explaining the inequality consequences of trade, especially since inequality rose both in economies that were relatively labor abundant and in those that were relatively labor scarce. The section then turns to a range of new theories, particularly those emphasizing heterogeneity of workers and firms, and market based selection effects intensified by trade. Such a

perspective, it turns out, is more successful in explaining the stylized facts of openness and inequality in the last three decades.

Sections 2 and 3 focus on a particular notion of openness (greater levels of trade and cross-border investment), a particular entry point to income distribution (differential rates of return to broadly defined factors of production), and a particular notion of inequality (between persons within nations). These are of course major strands in the literature. However, the remaining sections of the paper take up a number of extensions, modifications and generalizations which have developed in the last few years from this base.

Section 4 focuses on an aspect of globalization that became prominent with the East Asian crisis in 1997, and occupied policy makers' thinking strongly in the 2008 global financial crisis. How do crises induced by globalization of financial flows affect inequality within countries? There is a significant literature that has developed on this topic, based on country studies and global analysis, for the crises of the 1990s and the 2000s. This section will review this literature and take stock.

Section 5 takes up a particular dimension of inequality—gender inequality. This is an important aspect of inequality in its own right, with a substantial and significant literature focusing specifically on globalization and gender inequality. For example, the Bangladesh garment sector or the Mexican maquiladoras employ women disproportionately, and there is heated debate about the conditions of work in these sectors and whether the women are better off here compared to the best alternative. The empirical literature matches the policy debate, supporting both sides of the argument, and will bear a systematic review to draw out the main analytical issues and “centre of gravity” of the conclusions.

Section 6 addresses a dimension of inequality that is prominent in the policy discourse—spatial inequality within a country. This can be seen merely as component or a contributor to interpersonal inequality, but doing so would miss important recent analytical and policy strands in the literature—for example, on how agglomeration economies interact with openness, or the political economy of uneven development within a country.

Section 7 begins the assessment of openness, transfers and inequality by looking at private transfers through remittances. But it also takes up the more general question of the impact of international migration on inequality in developing countries. Can migration and remittances exacerbate domestic inequality? There is some evidence that it can, and this may be a contributory factor in the association between global integration and within country inequality.

Section 8 then moves to public transfers and public policy in general, and asks how greater mobility of capital and skilled labor in particular may constrain governments from pursuing progressive tax and transfer policies, with consequences for inequality in the final distribution of income. This section also takes up the more general question of

international coordination of public policy to address the impact of openness on inequality.

Section 9 concludes the paper with suggestions for areas of further research. A final caveat is in order, however. This chapter is about globalization and inequality, and the focus is naturally on the links from globalization to inequality. As such it may sometimes give the impression that globalization is the main factor behind inequality increase. There are of course other forces affecting inequality, and trade and capital flows may not even be the most important factors, although they surely interact with and influence a range of structural and policy influences on inequality.

## **2. Immediate Post-war Theories, Predictions and Evidence**

Although economic historians have been interested in the links between globalization and inequality in the 19<sup>th</sup> and early 20<sup>th</sup> centuries<sup>2</sup>, we begin this essay by considering the first three decades after the Second World War. At the start of the period, much of the development literature was focused away from global opportunities. It was either concerned primarily with domestic processes to the neglect of the global context, or was suspicious of international trade, investment and capital flows.

An example of a theory of development which was isolated from global forces is the classic Lewis (1954) surplus labor perspective. In the first part of this paper a pure closed economy is analyzed and development is seen in terms of drawing labor away from the traditional surplus labor sector towards modern capitalist forms of production, a process which continues until labor becomes scarce and its wage starts rising.

What is interesting and not very well appreciated, however, is that the Lewis (1954) paper was in two parts. Part II of the paper deals with the open economy in the phase when surplus labor is exhausted:

“When capital accumulation catches up with the labour supply, wages begin to rise above the subsistence level, and the capitalist surplus is adversely affected. However, if there is still surplus labour in other countries, the capitalists can avoid this in one of two ways, by encouraging immigration or by exporting their capital to countries where there is still abundant labour at a subsistence wage.”

Lewis carries out detailed analysis of a number of archetypical cases of trade and investment. Among his conclusions are the following:

“The export of capital reduces capital formation at home, and so keeps wages down. This is offset if the capital export cheapens the things which workers import, or raises wage costs in competing countries. But it is aggravated if the capital export raises the cost of imports or reduces costs in competing countries.....The importation of foreign capital does not raise real wages in countries which have surplus labour, unless

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<sup>2</sup> See for example Lindert and Williamson (2001)

the capital results in increased productivity in the commodities which they produce for their own consumption.... The Law of Comparative Costs is just as valid in countries with surplus labour as it is in others. But whereas in the latter it is a valid foundation of arguments for free trade, in the former it is an equally valid foundation of arguments for protection.”

This perspective on openness dovetailed with other perspectives such as export pessimism on the demand for products produced by developing countries. Many models of development at this time were built on this foundation. Overall, it would be fair to say that Lewis was indeed suspicious of openness in trade and investment raising wages relative to the return to capital in a country with surplus labor. In addition, in his other writings he was quite “Kuznetsian” in seeing the initial stages of development as leading to rising inequality because, as he said (Lewis, 1976),

“Development must be in egalitarian because it does not start in every part of the economy at the same time.... There may be one such enclave in an economy, or several; but at the start development enclaves include only a small minority of the population.” (p. 26).

Thus as opportunities opened up for trade they would be taken by some and not others and this would create inequality. At the same time, surplus labor would prevent the narrowing of the inequality on average between labor and capital. Overall, then, a pessimistic view on globalization and inequality.

Set counter to this perspective is a view of the world without surplus labor, with trade between economies with different degrees of labor scarcity. This neoclassical Heckscher-Ohlin model famously leads to the “Stolper-Samuelson” conclusion that opening up of trade will raise the relative return of the relatively abundant factor. Since in developing countries this factor is labor relative to capital, it must follow that opening up will narrow the differential in rates of return to labor and capital. Making the reasonable assumption that owners of capital are richer than those who earn their living through their labor power, it follows that globalization will reduce inequality in developing countries.

These theoretical perspectives corresponded of course to policy stances. Most developing countries in the immediate post-war period adopted import substitution strategies, convinced that opening up would be bad for growth and for inequality. Elaborate multisector planning models like those for the first Indian five year plans had these key elements of a focus on domestic markets and domestic industrialization. Latin American countries adopted import substitution strategies, as did the newly independent African countries in the 1960s and 1970s. However, a group of countries in East Asia went against this trend and, from the 1960s onwards, pursued policies of integration with the global economy. There is of course a huge debate on the details of these strategies. In particular, there is debate on the extent to which their policies can be classified as “free market” policies. But there is no question that for three decades after the war these economies, in contrast to other economies discussed above, did indeed integrate into the world economy in purposive manner.



The East Asia experience was crucial to the policy debates of the 1970s and 1980s, and to the turn in policies that one began to see in the rest of the developing world from the 1980s and 1990s onwards. The 1960s and 1970s saw what has been dubbed the “East Asia miracle” of growth with equity. Not only did this group of countries have historically high growth rates, and higher growth rates than their contemporaries, they managed to do this with falling levels of inequality. The combination of high growth and falling inequality meant a sterling record in poverty reduction as well.

The facts of the East Asia experience, growth with equity, are not in doubt. But their interpretation is a different story. I have already alluded to the use of the experience to support both the “free market” and the “judicial intervention” strands of the policy debate. The distributional outcomes have similarly been interpreted in different ways. One straightforward interpretation is in terms of support for the neo-classical Heckscher-Ohlin model with its prediction that opening up would narrow the returns to labor and capital, and with it bring about a reduction in inequality. Indeed, this was the interpretation that was most used by those urging other countries, like India, to adopt outward oriented policies. Thus the classic exposition by Bhagwati and Desai (1970) represents a turning away from the nostrums of the immediate post-war, post-Independence consensus in India that equitable development could only be achieved through import substitution and industrial planning. This strand of literature found its apogee in a series of studies in the World Bank in the 1980s, for example in Papagerogiou, Choksi and Michaely (1990), the capstone to publications entitled the “Liberalizing Foreign Trade Series.” The contrast of East Asia with stagnation in India and growth with inequality in Brazil was very much highlighted in this literature. At the same time, the integration of Europe through the European Union, and the success it delivered over a long period of high growth with moderate inequality, was also relevant in the policy discourse.

However, the East Asian experience has also been used to support the thesis that the equity dimensions of outcomes owe a significant amount to other structural and policy features. Among these are the land reforms instituted by the occupying American forces in South Korea in the 1940s and 1950s, which meant that they entered the next phase of development, in the 1960s and 1970s, with supportive initial conditions for equitable development. Further, in these countries and in other East Asian countries, proactive policy had ensured a very wide spread of basic education. Here is how Irma Adelman, the leading scholar of South Korean development strategy at that time, sets out these structural factors in the country from the end of the Second World War till the beginning of the 1960s:

“There were two waves of land reform, in 1947 and 1949. In 1947, the U.S. military government decreed that the land confiscated from Japanese farmers and Japanese corporations should be redistributed to tenants....The second wave of land reform redistributed the holdings of Korean landlords owning more than 3 chongbo (7.5 acres or about 3 hectares) to tenant farmers and landless farm laborers....The distribution of land holdings became very even.... The bulk of government investment during this

period was on social development...Over this period, the literacy rate increased from 30 to over 80 percent.”

These structural factors have to be seen in conjunction with the perspective of Lewis (1976) that initial differences in advantage can be magnified by the appearance of economic opportunity. Thus perhaps the best interpretation of the East Asia experience is as being supportive of both a structuralist view and a neo-classical perspective based on Hecksher-Ohlin model. The land reforms and the wide spread of education simultaneously reduced surplus labor while at the same time making the distribution of assets (land and human capital) much more equal. The stage was thus set for an opening up and integration into the global economy to deliver growth with equity. But the outcome was dependent on the initial conditions at the time of the opening up, conditions which need not necessarily hold in other countries, or at other time periods.

### **3. Experience and New Theory from the 1980s Onwards**

The policy debates of the three decades after the Second World War influenced and were influenced by the analytical frameworks developed to understand the impact of trade and investment openness on inequality. The experiences of this period, in particular the perceived “growth with equity miracle” of East Asian economies, contrasted with the stagnant or rising inequality in countries such as India (with relatively low growth) or Brazil (with relatively high growth) were particularly important in convincing policy makers to open up their economies from the 1980s onwards. However, the importance of structural features such as the low degree of asset inequality in East Asian economies when they launched their drive to openness seems not to have received as much attention. The past three decades have been periods of ever intensifying globalization as measured by trade integration and magnitude of capital flows. What has been the experience with inequality?

The experience of the United States (and other developed economies) is interesting because of the possible light it can shed on the predictions of the standard Hecksher-Ohlin model. The simple model has the powerful prediction that opening up will narrow the returns between labor and capital in countries with a relatively low capital to labor ratio, or between skilled and unskilled labor in countries with a relatively low skilled to unskilled labor ratio. The observance of these trends in East Asia was read as support for the model. The flip side of this same prediction is that the gap between these returns should widen in countries with relatively high ratios of capital to labor and of skilled labor to unskilled labor. This did not happen in the US in the 1960s and 1970s, but has been happening since the 1980s. Now, it can be argued that given the relative size of the US economy it was only in the 1980s and 1990s, with the opening up of China and India, that the trade effects could be felt strongly enough to have an effect on factor returns. So the inequality trends in the US could indeed be claimed as partial support for the Hecksher-Ohlin model.

There is, however, the issue of how much of the rising inequality in the US can be attributed to trade, and how much to other factors, specifically, to technology. A recent overview by Pavcnik (2011) captures the recent consensus:

“A large body of research on this topic finds little support that international trade in final goods driven by relative factor endowment differences can account for much of the observed increase in skill premiums in developed and developing countries.... First, the Stolper–Samuelson mechanism suggests that increased relative demand for skilled labour in countries abundant in skilled labour occurs as a result of shifts in the relative demand for skilled labour across industries.... However, the employment shifts across industries have not been sufficiently large to account for the large increase in wage inequality. Most of the observed increase in demand for educated labour in countries such as the United States is driven by increased relative demand for skilled labour within industries.” (p.242)

But there is significant debate on the relative role of trade. Thus although Krugman (2008) argues against his own earlier view that trade was a relatively small factor in explaining the rise of inequality compared to technology, there are also criticisms of the “small role of trade” view for example by Irwin (2008), Katz (2008), Autor (2010). It would be fair to say that skill-biased technical change is considered to be a major driving force, if not necessarily the dominant force, behind rising inequality. This empirical and policy debate has in turn fed into an emerging literature which goes beyond simple Hecksher-Ohlin/Stolper-Samuelson formulations to consider within industry wage differentials between heterogeneous firms and how these could be affected by trade.

The Hecksher-Ohlin predictions on trade and inequality could be argued to have been confirmed by the experience of rising trade and falling inequality in East Asia in the 1960s and 1970s. They could equally well be argued to have been confirmed by the experience of the rising trade and rising inequality in the US from the 1990s onwards, although there is consensus that the forces of technology provide stronger explanation. However, the difficulty for the Hecksher-Ohlin model is that, contrary to its prediction, and contrary to the experience of East Asia in the 1960s and 1970s from the 1980s onwards, the experience of Asian economies and that of Latin America till the 2000s has been one of rising trade and rising inequality. As the comprehensive review by Goldberg and Pavcnik (2007) concludes:

“The survey of the evidence confirms Wood (1999), who noted that inequality increased in several middle-income Latin American countries that liberalized their trade regimes in the 1980s and 1990s. It further suggests that this positive relationship holds in the cases of India, China and Hong Kong. As noted previously by Wood (1999), the experience of developing countries that globalized during the 1980s and 1990s contrast with the experiences of several Southeast Asian countries (South Korea, Taiwan, Singapore) that underwent trade reforms in the 1960s and 1970s. The latter underwent a decline in inequality as they opened up their economies to foreign markets.”

A number of comments are in order before we proceed to discuss the implications of these facts for the Heckscher Ohlin model. First, although the economies of Latin America liberalized during the 1980s and 1990s, this was also a period of painful macroeconomic adjustments and slow downs, and this could confound attribution of the causes of inequality. Second, note that the simple Lewis-Kuznets model discussed in the last section could indeed still predict an increase in inequality with opening up. Finally, however, two major further stylized facts have been established since the Goldberg and Pavcnik (2007) survey. First, inequality has also increased in East Asia in the 1990s and the 2000s.<sup>3</sup> Second, inequality has declined in Latin America since the 2000s.<sup>4</sup> Both of these are after their major periods of trade liberalization and, particularly in Latin America, have been linked to redistributive policy—these policy issues will be taken up in a subsequent section.

The basic Heckscher-Ohlin/Stolper-Samuelson framework is foundational in the discourse on trade and inequality. But questions about its validity have been raised by the finding that inequality in many developing countries has increased since the 1980s despite increases in trade. This disconnect between prediction and outcome has led to a fruitful search for alternative explanations of why an increase in trade may increase inequality, and some of the theories advanced have also been helpful in understanding the impact of trade on inequality in developed countries as well. In this section we will examine a range of such theories as illustration of the direction the literature is taking in light of the experiences of the last three decades.

In the wake of the failure of the basic 2 goods, 2 factors HO model to predict co-movement of trade and inequality, a range of models were developed which vary the technology or number of factors and goods, in order to derive predictions more consistent with the data. Thus, for example, Wood (1994) moves from the two factor model with a skilled/unskilled labor division to consider a three factor model with workers classified as skilled (high education)/semi-skilled (basic education)/unskilled (no education). Further there are three types of production—skill-intensive manufacturing, semi-skilled intensive manufacturing, and agriculture. In this setting, for a country with comparative advantage in agriculture we get the standard prediction that opening up will reduce inequality. However, for countries with a relatively large number of semi-skilled workers opening up will increase their wage relative to the wages of both high skill and unskilled workers. The effect on inequality is thus ambiguous, and measured inequality could increase. While an interesting extension to the basic HO model, it is not clear how well this fits the data. After all, East Asia in the 1960s could be argued to be a region with predominance of basic education, and evidence from the 1980s onwards suggests that wages of highly skilled have risen disproportionately.

In the same spirit, Davis (1996) considers a two factor (he calls them capital and labor), three good HO model, with market imperfections that prevent factor price equalization and full diversification of production. The three goods differ in the capital intensity of production technology. With countries ranked by capital intensity of factor

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<sup>3</sup> Kanbur and Zhuang (2012)

<sup>4</sup> Lustig et. al. (2011)

endowment, the least developed countries will export the least capital intensive commodity and import the next most capital intensive. For these countries, the standard result will hold—opening up will narrow the gap in factor returns. But for countries with intermediate levels of capital intensity of factor endowment, which will export the commodity with intermediate capital intensity of production and import the commodity with highest capital intensity of production, opening up will have the opposite effect. Of course for the most developed countries we again have the standard Stolper-Samuelson result. At least for developing economies at intermediate levels of capital intensity, then, this type of theorizing might explain co-movement of trade and inequality. Such countries might, in principle, include East Asia from the 1980s onwards, and Latin America at the time of its opening up in the 1980s and 1990s.

The papers by Wood (1994) and Davis (1996) are examples of attempts to predict co-movements of trade and inequality within a recognizably HO framework but with more disaggregated specification of commodities or factors. This trend has continued in the literature, with added complications such as capital-skill complementarity in production—to the point that the discourse of today cannot really be labeled as a HO discourse. In what follows I will consider this literature which highlights heterogeneity of workers, firms, and production processes.

Helpman, Itskhoki and Redding (2010) brings together several strands of the modern trade literature with a focus on firm and worker heterogeneity, and derives predictions on trade and inequality which are consistent with many of the empirical findings of the last thirty years. Following Melitz (2003), the model supposes heterogeneous firms producing differentiated commodities. Firms can enter by paying a fixed cost, but discover their productivity only after paying the sunk cost. The productivities are drawn from a Pareto distribution, an assumption which helps in tractability of the model. After productivity is revealed, firms decide whether and how much to produce for export or the domestic market, or both, or exit altogether. Production involves a fixed cost, and output is a function of firm productivity, number of workers hired, and their average ability. A specific functional form is used for tractability, but the key aspect is that these three elements are complementary to each other.

Worker ability is also assumed to have a Pareto distribution, again for tractability. Search and matching frictions exist in the model, and firms can pay more to match with more workers. Further, among the workers the firm looks at, it can screen for higher abilities above a cutoff by paying a cost (with a higher cutoff costing more), but it cannot distinguish abilities beyond this cutoff. Thus all workers in a firm are paid the same wage. The wage is modeled as emerging from the outcome of a bargaining game between the firm and the average worker.

Fixed costs of production, and fixed costs of exporting, mean that firms with very low productivities do not produce at all, while firms with high productivities select into exporting. Given costs of search and screening, it can also be shown that firms with higher productivity and revenue search more and use a higher ability cutoff, so that they

have higher ability workers on average and thus higher wages. The key point is that exporting firms pay higher wages in equilibrium. Thus if we start from autarky, where fixed costs of exporting are so high that nobody exports, and reduce these fixed costs in comparative static manner so that some firms begin to export, wage inequality is introduced where none existed before. This applies to all countries; thus opening up can increase inequality all countries, developed and developing, because of the selection effects of exporting.

Verhoogen (2008) is another example of a similar model where selection effects can explain co-movement of trade and inequality. The idea here is that exporting requires the production of higher quality products and only the most productive will find it profitable to go into exporting. With a mechanism of higher wages in more productive firms, this in turn leads to greater inequality with more openness. It should be noted that the Helpman, Itskhoki and Redding (2011) model also has an intriguing result at the other end of the spectrum where exporting costs are so low that all firms export. Then, once again, wages are equal. Thus, their model, inequality first increase and then decreases as opening up intensifies—Kuznets type “inverted-U” relationship between inequality and openness. It is of course an empirical question as to whether the intensified globalization from the 1980s onwards has now taken some countries to the point where the model would predict falling inequality. If this was the case for some countries, then of course the model could not explain the co- movement of trade and inequality for those countries, and other explanations would have to be considered.

A selection mechanism of a different sort is present in studies of outsourcing as exemplified by Feenstra and Hanson (1996, 1997), which also relates to a broader literature in outsourcing and FDI in trade. They consider a set up where the final output is produced using intermediate inputs which are in turn produced using different intensities of skilled and unskilled labor. Consider now two economies with different endowments of skilled and unskilled labor. For any given pattern of trade costs, the skilled labor abundant (developed) economy will use the more skilled intensive production of intermediate inputs. When trade costs are lowered in a comparative statics exercise, some of this production is relocated from the developed economy to the developing economy. But the activity that is relocated is the least skilled intensive in the developed economy and the most skill intensive in the developing economy. This increases skill intensity of production in both the developing and the developed economy and hence widens the wage gap between skilled and unskilled labor in both economies. Feenstra and Hansen (1997) show empirical support for this as explaining rising wage inequality in Mexico.

Feenstra and Hanson (1997) highlight an aspect of globalization which has come to the fore in the last thirty years, namely, foreign direct investment (FDI). The issue of portfolio and financial flows will be taken up in a subsequent section, but longer term FDI has also been important in the recent growth surges in developing countries. What are the implications of FDI for inequality?

The theory of FDI in the simple Lewis model discussed in the previous section suggests that as wages rise in a formerly surplus labor economy, capitalists will look to investment opportunities abroad, presumably in economies where wages are lower still. If these economies are themselves in a state of surplus labor then further investment will raise the share of capital and worsen the distribution of income for that reason. However, if the “Lewis turning point” has already been reached in the economy receiving FDI, this investment will raise wages further in that economy and this could be a channel for reducing inequality.

Modern theories of the impact of FDI build on the Hecksher-Ohlin framework and then bring in firm and worker heterogeneity, as in the analysis of Feenstra and Hanson (1997). Overall, it would be fair to say that the theoretical conclusions are ambiguous, with some suggestion of FDI contributing to an increase in inequality in developing countries at the start of the process, with a possible turnaround in the later stages. For example, Aghion and Howitt (1998) discuss the transition as domestic firms absorb the new technology of the FDI. Inequalities may be created in the early stages, but is mitigated in later stages as the transition proceeds—a Kuznets type inverted-U relationship which has framed much of the empirical work in this area. The large and growing empirical literature also gives mixed results, with perhaps a greater weight to the conclusion that FDI is associated with rising inequality in earlier stages<sup>5</sup>, but that there may be a turn around, and that the impact is muted or even negative at higher levels of income per capita.<sup>6</sup>

Selection effects as the result of global integration are now central to the trade and FDI literature, and thus to the attempts to explain co-movement of trade and inequality. They do appear to provide a coherent explanation of increases in inequality in both developed and developing countries, and for this reason merit close theoretical and empirical attention in the years to come.<sup>7</sup>

#### **4. Economic Crisis and Income Distribution**

It is often said that globalization brings risks as well as opportunities at the macroeconomic level. Greater integration with the global economy can lead to the

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<sup>5</sup> Feenstra and Hanson (1997) for Mexico, Figini and Gorg (1999) for Ireland, Taylor and Driffield (2005) for the United Kingdom, Tsai (1995) for a cross section of 33 countries and Basu and Guarglia (2007) for 80 countries, find the increasing relationship.

<sup>6</sup> Figini and Gorg (2011) find, for a cross section of 100 developing and developed countries, that: “Results for developing countries are robust and suggest the presence of a nonlinear effect: wage inequality increases with FDI inward stock, but this effect diminishes with further increases in FDI. For developed countries, wage inequality decreases with FDI inward stock, and there is no robust evidence to show that this effect is nonlinear.”

<sup>7</sup> The literature on heterogeneous workers, heterogeneous firms and trade is exploding, and it would be impossible to do it justice in the space available. The recent survey by Grossman (2013) is useful, as is Costinot (2009). The paper by Costinot essentially generalizes HO to trade models with heterogeneous workers and firms.

economy being buffeted by global fluctuations in trade and capital flows. What has been the contribution of openness to macroeconomic volatility? The current consensus and weight of research seems to suggest that openness is associated with greater volatility (Rodrik, 1998; Easterly, Islam and Stiglitz, 2001; Kose, Prasad and Terrones, 2006; Bekaert, Harvey and Lundblad, 2006). The paper by di Giovanni and Levchenko (2008) conducts a careful analysis of the channels through which trade openness increases volatility. They test for three channels: (i) increased volatility of individual sectors, (ii) increased co-movement of sectors, and (iii) a more specialized production pattern. They find support for the first and third but find that more openness in a sector reduces the co-movement of its growth with overall growth in the economy, which tends to reduce aggregate volatility. However, the overall effect of openness on volatility is clear: “...moving from the 25th to the 75th percentile in trade openness is associated with an increase in aggregate volatility of about 17.3% of the average aggregate variance observed in the data. The impact of openness on volatility varies a great deal depending on country characteristics, however. For instance, we estimate that an identical change in trade openness is accompanied by an increase in aggregate volatility that is five times higher in the average developing country compared to the average developed country. Lastly, we estimate how the impact of trade changes across decades. It turns out that all three channels, as well as the overall effect, increase in importance over time: the impact of the same trade opening on aggregate volatility in the 1990s is double what it was in the 1970s.” (p. 5)

However, a major focus of the last two decades has been volatility and crises induced by financial flows. Financial crises appear to be the new normal in the global economy. Fully fledged global crises, like the one which started in 2008-9, or the East Asian financial crisis of 1997 which also had global repercussions, are recognized to have been at least aided by the far greater ease of movement of portfolio capital around the world, in the wake of capital account liberalizations from the 1990s onwards. These global crises also have implications for national level macroeconomic volatility, which has also been affected by trade openness. Indeed, Hnatovska and Loayza (2013) argue that the increased can be attributed more to crises (“large recessions”) than to the normal economic cycle.

There is now a consensus that volatility is associated with lower growth—Hntavoska and Loayza (2013) is only the most recent assessment in this vein. However, this section will review the recent discourse on the consequences of economic crisis for the distribution of income—for poverty and for inequality<sup>8</sup>. The literature has set out a range of channels through which a global collapse of the type seen in 2008-9, or the more limited contagion effects of the crisis in 1997 feed through into income distribution. Atkinson and Morelli (2011) and Baldachi, de Mello and Inchauste (2002) between them highlight the following channels:

1. Economic slowdown. As a “balance sheet adjustment” recession takes hold in originating countries, they are transmitted through trade to other countries.

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<sup>8</sup> There is a growing literature on whether inequality in turn breeds crises—a good example of this line of argument is in Rajan (2011). We will not discuss this strand of the literature here.



Thus each country faces an economic slowdown. There is unemployment in the formal sector and consequent downward pressure on earnings in the informal sector. We would expect the impact of economic slowdown to be rising poverty and also rising inequality.

2. Relative prices and sectoral effects. For a particular country, the decline in international demand may be concentrated in specific sectors, with quantity and price effects. Thus unemployment and wage contraction will have sectoral patterns which differ from country to country. Here the impact on wage inequality will depend on whether the sectors that are negatively impacted were the ones that were paying higher wages to begin with. If so, then crisis could actually reduce inequality through this channel (although poverty would rise).
3. Asset effects. Changes in interest rates, and revaluation of assets, can affect incomes and wealth at the top of the income distribution. If there are major downward valuations and reductions in income from capital, then crises could reduce wealth and income inequality through this channel.
4. Policy responses. This includes the consequences of fiscal retrenchment, which will have impacts at the lower tail of the income distribution, or bank bail outs, which will affect the top end of the distribution. In general, fiscal retrenchment through reducing public employment, or support for public works schemes and other forms of unemployment support, would increase poverty and inequality in the social sectors. Bank bailouts would support asset values and incomes at the top end of the income distribution, and so increase inequality. Finally, an important channel linking crises and distribution is the drastic devaluation most often undertaken as a response to a balance of payment crisis. This is equivalent to a drop in real wages and an increase in profits.

Each of these channels can have multiple types of impact on poverty and inequality, so the overall effect is an empirical question. Ravallion and Chen (2009) focus on the 2008 global financial crisis and provide projections of the likely impact on poverty. They estimate that “the crisis will add 64 million people to the population living under a dollar a day.” The methodology for doing this, however, assumes no distributional change within a country, based on the observed regularity that “relative inequality falls about as often as it rises during aggregate economic contractions, with zero change on average.” Thus Chen and Ravallion (2009) simply apply projected contraction in total consumption and assume this contraction to be distributionally neutral. They do recognize, however, that “While distribution neutrality is plausible on average, there will be some countries where the poverty impact of the crisis is greater than these calculations suggest, and some where it will be smaller. Country-specific analysis would be needed to determine which countries might have above-average impacts.”

An attempt at identifying poverty and inequality impacts through cross country regression techniques is presented by Baldachi, de Mello and Inchauste (2002). They define crisis episodes, identify appropriate controls of country-time spells, and estimate

the impact of crisis on different dimensions of income distribution. Not surprisingly, they find that crises are associated with rising poverty. However, in terms of income distribution they find that “The main losers in terms changes in income shares are not the poorest (lowest income quintile) but those in the second (lowest) income quintile, The income share of the highest quintile also falls in crisis years relative to pre-crisis years.” Thus, treating this regression finding as being a representation of the average outcome, the results are consistent with the assumption of Chen and Ravallion that crises are on average distribution neutral.

The post 1997 crisis experience highlights the country specific differences that can arise. Hagen (2007) argues that income inequality rose significantly in Korea after the crisis. Similarly, inequality rose in Singapore and Malaysia, but it fell in Indonesia and in Mauritius (Atkinson and Morelli, 2011). Atkinson and Morelli (2011) assess the association between crises and inequality for a large number of crises over a long period. They distinguish between banking crises and crises of collapse in consumption. They look at the time path of inequality on either side of the identified crisis. For the former they conclude that “The empirical evidence suggests that cases in which inequality tend to increase following the crisis are in majority, although we should caution that the sample size is too limited to draw firm conclusions.” For the latter, “empirical evidence concerning “change in direction” suggests that consumption crises are more associated with reduction in inequality. No particular pattern stands out from the analysis of GDP crises.”

It would seem, therefore, that no easy generalizations are available for the impact of crises on inequality, as might be expected from the multiple channels through which they can work, and how initial conditions in a country can affect the impact. What this means is that we need country specific modeling to analyze, and to predict the impact of crisis on inequality. On such approach is that of a micro simulation model, as in the work of Habib, Narayan, Oliveri and Sanchez-Paramo (2010). The approach combines macroeconomic projections with transmission mechanisms to the income distribution:

“The model focuses on labor markets and migration as transmission mechanisms and allows for two types of shocks: shocks to labor income, modeled as employment shocks, earnings shocks or a combination of both; and shocks to non-labor income, modeled as a shock to remittances. Shocks can be positive or negative depending on the trends outlined by the macroeconomic projections. In most cases labor income and remittances account for at least 75-80% of household income.”

Such country specific analysis can then be used both to identify early warning indicators, and to design possible policy responses. For example, the authors apply the model to Bangladesh and recommend monitoring of remittances and wages by sector as indicators of the need for action.<sup>9</sup> A range of these models and methods is surveyed in Bourguignon and Bussolo (2012), and in Bourguignon, Silva and Bussolo (2008). However, an important question arises on whether we use anonymous distributions

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<sup>9</sup> For an example of a microsimulation model to the impact of crisis on inequality for a developed country, see O’Donoghue, Loughrey and Morrissey (2013).

before and after crises or whether we use panel data which follow individuals from before the crisis to after. Then anonymous distributions can show no change even when there is considerable “churning” as a result of the crisis, as pointed out by Robilliard, Burguignon and Robinson (2008).

## **5. Globalization and Gender Inequality**

Up to now we have analyzed the relationship between globalization and interpersonal inequality without regard to the gender of the persons. Indeed, gender was not present at all in the classical developments in attempts to link trade theory to theory of income distribution. However, in the past quarter century this issue has come to the fore strongly in the policy and the analytical literature. The analytical reasons for this development are related to greater evidence on gender dimensions of inequality, and the development of non-unitary models of the household which allow for the prospect of unequal outcomes within the household. The policy reasons are related to strong debates on whether global integration of the past quarter century has hurt or helped women.

It is now well established that there is a strong gender dimension to interpersonal inequality.<sup>10</sup> This is most easily demonstrated empirically for variables which can be quantified at the individual level. Patterns are country specific, of course, but in many developing countries educational attainments are lower for women than for men, and especially so at lower incomes. Sex ratios at birth in some countries reveal discrimination against women in sex selection, and maternal mortality rates in many developing countries are at the levels that Sweden attained in 1900. Women earn less than men for similar work, but also work in sectors and occupations that are low paying.<sup>11</sup>

It is not easy to measure the magnitude of gender inequality along the standard dimension of consumption, since consumption data are usually collected at the household level in surveys. The first cut of measuring gender inequality by inequality between female headed households and male headed households is unsatisfactory for obvious reasons. But the standard assumption in translating household level information into individual level wellbeing is to simply divide by household size and to allocate per capita consumption of the household to each individual in the household. Of course, this suppresses all intra-household inequality including gender inequality. Thus our standard measures of inequality are underestimates of true inequality since they set gender inequality in consumption within the household to zero. On rare occasions when individual level consumption data is available (for example on food consumption), it has been shown that the standard procedure understates inequality (and poverty) by as high as 25% (Haddad and Kanbur, 1990). Thus gender inequality, as reflected in intra household inequality, matters.

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<sup>10</sup> Chapter 13 of this volume is devoted to the topic of Gender Inequality.

<sup>11</sup> World Bank (2011), pp. 74, 78 and 79.

While it is accepted that gender structures inequality in an economy, there is less consensus on how exactly globalization interacts with this structure. How is the standard analysis of openness and inequality, for example, affected by structuring the economy along gender lines? And, overall, does globalization reduce gender inequality, or increase it?

Before looking at some evidence, let us consider how standard theoretical arguments on globalization and inequality could be modified by taking into account the gender dimension of production and income distribution. A standard piece of analysis in open economy macroeconomics is the effect of devaluation on the balance of payments. As is well known, the transmission mechanism is through “expenditure switching” brought about by raising the price of tradables relative to the price of non-tradables. The distributional consequences of this have been analyzed in the usual way through the Stolper-Samuelson theorem. If tradables are relatively more intensive in their use of labor then the relative return to labor will rise. Indeed, this was the argument made by many for the pro-poor and progressive aspects of devaluation.

But suppose now that tradables are actually more intensive in their use of male labor. Then it is seen that male earnings will be favored. This should not matter much if there was perfect income sharing within the household—the representative household would gain overall if the policy of devaluation was efficient for the economy as a whole. But if the household is not described by a unitary model, if for example there is bargaining between the man and the woman and their outside options matter for the outcome of bargaining, then the macro policy of devaluation will have the micro consequence of strengthening the bargaining power of males and will have a type of impact on inequality not at contemplated in the classical analysis.<sup>12</sup> Of course, the outcome is context specific—it depends on which sector is male or female labor intensive. The main theoretical point, however, is that gender matters (Haddad and Kanbur, 1994).

The above is in terms of the pure demand for labor. However, there is also evidence that women are paid less for the same job. The impact of globalization on such wage differentials is uncertain. On the one hand, there is the standard argument that greater global competition will reduce the scope for discriminatory wage practices and this should narrow wage differentials. However, to the extent that mobility of capital reduces bargaining power of workers, and to the extent that women are concentrated in industries where capital is more mobile, greater openness will lead to lower female wages (Seguino, 2007). The effects of this competition in footloose industries might be seen not just in standard wages but in labor standards as well (Chau and Kanbur, 2003, 2006). Again, to the extent that women are disproportionately employed in such industries, the impact of globalization will impact upon them disproportionately.

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<sup>12</sup> Again, there is considerable evidence that household decision making is not best described by the unitary model. For an early survey of the literature see Alderman et. al. (1995). An up to date review is provided in Chapter 17 of this Volume.

There are two main empirical strands of the gender and globalization literature. The first is focused on the effects of openness on demand for female labor and on female wages. The second is related to the previous section—how crises affect women relative to men. We take up these strands one at a time.

The effects of opening up on the demand for female labor are nuanced and context specific. On the one hand the demand for female labor rises through expansion of light manufactures. As the World Bank’s World Development Report on Gender notes:

“In the Republic of Korea, the share of women employed in manufacturing grew from 6 percent in 1970 to around 30 percent in the 1980s and early 1990s.....Similarly, in Mexico female employment in manufacturing grew from 12 percent in 1960 to 17 percent in 2008, with 10 times more women in 2008 than in 1960.” (World Bank, 2011, p. 256).

However, this phase contrasts with the next phase as there is a move to the production of more capital intensive goods (Seguino, 2012; van Staveren et. al. 2007; Tejani and Milberg, 2010). What about female-wage differentials? Here again the evidence reflects the conflicting forces, which are resolved differently in different countries. As Seguino (2012) notes in her overview:

“Evidence of the impact of trade and investment liberalization for gender wage equality is also mixed. Some studies show that gender wage differentials have declined, in large part due to narrowing educational gaps. But in several developing countries, including China and Vietnam, however, the discriminatory portion of gender wage gaps has increased.”

A final, newly emergent strand of the literature provides a gender perspective on the selection and heterogeneity models discussed in Section 3. The argument put forward by Juhn, Ujhelyi and Villegas-Sanchez (2013) builds on the idea that more productive firms enter into export and modernize technologies. If new technologies require less physical strength (the “brains” versus “brawn” issue, as it is characterized in some circles), we would expect that demand for female labor would rise in blue-collar occupations and not in white collar occupations. This is because new technology can change the “brain/brawn” mix in blue collar occupations, but white collar jobs will be unaffected on this score. The authors find that for Mexico, post NAFTA tariff reductions are associated with rising female employment and wage shares in blue-collar jobs but not in white-collar jobs.<sup>13</sup>

The various contradictory forces are also highlighted in Bussolo and de Hoyos (2009), on the basis of their studies of Africa and Latin America, and they conclude, essentially, that with forces pulling in opposite directions, the net effect of trade openness on gender inequality may well turn out to be fairly weak:

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<sup>13</sup> The brain-brawn issue is also discussed in World Bank (2012), p.259.

“Overall, the messages of this volume are very clear: trade expansion exacerbates gender disparities in agricultural-based, African economies and reduces it in manufacturing-based economies like Honduras....Admittedly, the magnitude of the links between trade shocks, producer prices, male versus female bargaining power, consumption decisions, future growth and poverty reduction does not seem too large.....To conclude, trade liberalization brings important gender effects, but the evidence collected here shows that these effects tend to be of a small and sometimes uncertain magnitude.”

While the literature on the trade effects of globalization on gender inequality thus renders a relatively neutral verdict, the same is not true of the literature on the impact of economic crises on women. The effects of economic downturns generally, and economic collapses in particular, are argued to be felt most sharply by women, since they tend to be displaced first. In turn, they crowd into the informal sector, pushing down earnings further in that sector, which is in any case disproportionately female in employment (Braunstein and Heintz, 2008; Takhtamanova and Sierminska, 2009). It is further argued that the fiscal retrenchment which accompanies economic crises affects women disproportionately both directly and indirectly, through reducing public services which support women’s work, like health and child care (Seguino, 2012).

There is, finally, an intriguing and important, but unresolved issue of the effects of globalization on societal norms which determine the structure of gender inequality. Based on the work of Kabeer (1997, 2000) and Hossain (2011), World Bank (2011) argues as follows:

“In Bangladesh, the employment of hundreds of thousands of women in the ready-made garment industry feminized the urban public space, creating more gender-equitable norms for women’s public mobility and access to public institutions. In the process, Bangladeshi women had to redefine and negotiate the terms of *purdah*, typically reinterpreting it as a state of mind in contrast to its customary expression as physical absence from the public space, modest clothing, and quiet demeanor.”

How widespread these effects are, and how much they can be attributed to globalization, is still under debate. But what is clear is that any discussion of globalization and inequality must go beyond the classical analysis and develop theory and empirical investigation on the globalization and the gender dimension of inequality.

## **6. Openness and Spatial Inequality**

The spatial dimension of inequality is a key concern in the policy discourse, because it intersects with and interacts with disparities between sub-national entities and jurisdictions. These entities sometimes have defined ethnic or linguistic characteristics, and in Federal structures have constitutional identities which naturally lead to a sub-national perspective on national inequality. This section considers the impact of globalization, in particular greater openness in trade, on spatial inequality.

What exactly is spatial inequality? One way of linking standard interpersonal measurement of inequality to regional inequality is to decompose national inequality into a between-region and a within-region component. The share of national inequality accounted for by the between-region component—which would be zero were it not for the fact that average incomes differ across regions—is then a measure of regional inequality. An alternative, however, is to consider the disparities in regional mean incomes directly, not weighted by their population. Equal weights correspond to some dimensions of many constitutions, where key elements of political power are divided equally between constituent provinces or states (Kanbur and Venables, 2005). In the case of just two entities, then, this could be simply the ratio of the two means, for example. For more than two entities, other standard measures of dispersion can be used. Yet other measures are sometimes used in the literature, attempting to capture regional “polarization.” But as Zhang and Kanbur (2001) argue, such measures may not make that much of difference in assessing trends.

However spatial inequality is measured, there are major differences in the literature on how much it should matter in policy design. One strand of the policy discourse can be characterized by the “balanced development” perspective, which holds that too much concentration of economic activity is inimical to equity and to efficiency. However, there is a contrary strand which is best expressed in the World Bank’s World Development Report on Economic Geography (World Bank, 2008, p. 73):

“For decades, “spatially balanced growth” has been a mantra of policy makers in many developing countries. It was an obsession of planners in the former Soviet Union.... And it has been the objective of governments of various political hues in the Arab Republic of Egypt, Brazil, India, Indonesia, Mexico, Nigeria, the Russian Federation, South Africa, and other great developing nations. There has even been a strong commitment to spatially balanced development in the economic history of many developed countries.”

This strong perspective against “balanced growth” in the conventional sense is important in light of the Report’s own assessment of evolving economic forces, in particular global integration in the era of globalization:

“Although the basic forces shaping the internal economic geography of developing countries are the same as those that earlier shaped the economic landscapes of today’s developed countries, the magnitudes have changed. Larger international markets, better transportation, and improved communication technologies mean that leading areas in open developing countries have greater market potential than industrial countries did in their early development. So the forces for spatial divergence between leading and lagging areas are now stronger.” (World Bank, 2008, p. 74).

The above perspective on openness and economic spatial disparity owes much to the burgeoning “new economic geography” literature which brings increasing returns to scale and agglomeration economies center stage in characterizing the development of an

economy. In the context of a closed economy with two sectors, one of which (“agriculture”) has conventional diminishing returns while the other (“manufacturing”) displays firm level costs that fall as the sector as a whole grows, equilibrium can have spatial concentration of economic activity even when there is no “natural” geographic differentiation between the regions.<sup>14</sup> There is thus a distinction between spatial divergence caused by “first nature geography”, natural variations in environmental endowment, and “second nature geography” which arises out of the self-enforcing feedback loops of agglomeration economies.<sup>15</sup>

What precisely is the impact of greater openness on spatial disparity when played through the forces of agglomeration economies? The World Bank (2008) quote above seems to suggest that spatial disparities will increase. However, the specific theory does not produce quite such a clear cut answer. Different specifications, modeling different contexts, produce different answers.<sup>16</sup> For example, it matters whether different regions have equal access to the international market or not. It also matters whether the opening up is only for trade or also for capital mobility. The theoretical ambiguity is emphasized in recent papers by Rodriguez-Pose (2010) and Ottaviano (2009). Ottaviano (2009) summarizes the theoretical conclusions in a series of propositions as follows:

“when regions have the same access to foreign markets, international trade liberalization fosters regional disparities and this effect is stronger the more important the foreign market and the more integrated the national market.” (p. 7)  
“if the smaller region is a gate or a hub, international trade liberalization may reduce regional disparities.” (p. 8)  
“International capital mobility amplifies the positive effect of trade liberalization on regional disparities in the smaller country as well as in the larger one.” (p. 8).

Given these theoretical ambiguities, then, what is the evidence on openness and spatial inequality? Kanbur and Venables (2007) summarize the results of a major project collating country case studies on the evolution of spatial inequality in the last quarter century. For 26 developing and transition countries spatial inequality measures are available for at two or more points in time, so that we can get a sense of the time trends. The first and major empirical finding is that spatial inequalities have been rising in the last two to three decades.<sup>17</sup>

The last three decades have also been the period of globalization. Is there then a link between openness on rising spatial inequality? The case studies reported in Kanbur and Venables (2007) seem to support the hypothesis that openness and is associated with greater spatial inequality. Thus Kanbur and Zhang (2005) establish dramatic increases in spatial inequality in China since the start of the reforms in 1978. Their econometric

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<sup>14</sup> There is of course by now a huge literature on this. Standard references include Krugman (1991), Fujita, Krugman and Venables (2001), Ottaviano and Thisse (2004).

<sup>15</sup> Kanbur and Venables (2007).

<sup>16</sup> Compare, for example, Krugman and Livas-Elizondo, 1996, and Paluzie, 2001.

<sup>17</sup> Examples include Sahn and Stifle (2003) for a range of African countries, Garcia-Verdu (2005) for Mexico, Forster, Jesuit and Smeeding (2005) for Eastern Europe, Friedman (2005) for Indonesia and Kanbur and Zhang (2005) for China.



analysis attributes at least part of this increase to the measure of openness (the other factors that are statistically significant include the degree of decentralization). Rodriguez-Pose and Sanchez-Reaza (2005) find greater regional polarization in Mexico comparing the periods before and after the North American Free Trade Agreement. Friedman (2005) identifies an indirect channel for Indonesia, in that openness leads to growth but more remote areas benefit less from growth in terms of poverty reduction impact. Outside of the country studies reviewed in Kanbur and Venables (2007), Daumal (2008) finds that while for India openness contributes to greater inequality between Indian states, for Brazil the opposite is true. Thus country context matters.

A number of cross-country regression studies have also focused on the issue of the link between openness and spatial inequality. Barrios and Strobl (2009) regress within country regional inequality against trade openness, with other controls, for 15 European Union countries. They find a positive association between regional inequality and the trade to GDP ratio for a country. Milanovic (2005) considers the evolution of regional inequality over time in China, India, US, Indonesia and Brazil over 1980-2000. He finds a significant causal relationship between measures of openness and measures of regional inequality. Rodriguez-Pose and Gill (2006) analyze regional inequality similarly across country panels for the period 1970-2000. They find that it is the particular interaction of openness with the composition of trade which translates into regional inequality impacts.

Perhaps the most comprehensive recent cross-country study of regional inequality and openness is by Rodriguez-Pose (2010). It uses unbalanced panel data for 28 countries over 1975-2005. Half of these countries are developed countries and the other half are developing or transition economies. The measure of regional inequality used is the Gini coefficient of regional GDP per capita. There is no simple association between openness and regional inequality in these data. However, this is before various controls are introduced, and the panel structure of the data is exploited with appropriate techniques. On the conditioning variables, use is made of the theory referred to earlier, so that “greater trade openness will have a more polarizing effect in countries characterized by a) higher differences in foreign market accessibility among its regions and b) where there is also a high degree of coincidence between the regional income distribution and accessibility to foreign markets.” (Rodriguez-Pose, 2010, p. 13). Further, like Kanbur and Zhang’s (2005) work on China, it is hypothesized that the degree of decentralization will also matter for regional inequality. A number of other controls are also used, including institutional quality variables.

The overall conclusion, of Rodriguez-Pose’s (2010) comprehensive and rigorous analysis, is striking:

“By and large, countries in the developing world are characterized by a series of features that are likely to potentiate the spatially polarizing effects of greater openness to trade. Their higher existing levels of regional inequality, their greater degree of sector polarization, the fact that their wealthier regions often coincide with the key entry points

to trade, and their weaker state all contribute to exacerbate regional disparities as trade with the external world increases.” (Rodriguez-Pose, 2010, p. 26).

Thus structural differences in the country at the time of opening up tend to interact with the forces of openness, and in the recent experience at least, this has led to openness contributing to greater regional inequality. Of course this leaves open the issue of whether this is not just the first round effects of trade opening, and whether it could be weakened or offset by further geographical adjustments, e.g. domestic migration of workers or capital, at a later stage. However, the inequality consequences in the short run will need to be addressed, and the policy implications of these findings will be taken up in a subsequent section.

## **7. International Migration, Remittances and Inequality**

Globalization in its most general terms is the greater integration of global economic activity. This is manifested in larger trade and in freer movement of factors of production. The vastly increased mobility of capital is often commented upon in the discourse. However, larger cross-border movement of population, from low income to high income countries, is also the subject of commentary in the popular discourse. An analytical literature has also developed to assess this phenomenon and to explore its causes and consequences. This section will provide an overview of this literature, focusing in particular on migration from developing to developed countries, and on the impact of this migration on inequality in developing countries.

In 2010 the total number of international migrants in the world (developed and developing countries) was 214 million people, up from 191 million in 2005.<sup>18</sup> This compares to an estimated number of 749 million for internal migrants. International migration is a significant and growing phenomenon. This is especially true of migration from developing to developed countries. The stock of immigrants in high income countries increased at about 3% per year from 1980 to 2000. As a share of high income country population, migrants increased from around 4% to above 8% over this twenty year period.<sup>19</sup>

How might the much higher rate of international migration affect the distribution of income in developing countries in theory? The answer depends of course on who migrates and what they do with their income after they migrate in terms of remittances to their family. If migration and remittance was representative of the domestic income distribution, then the distribution would not be affected, except for a translation to the right as remittances flowed back. Thus poverty would decline as a result of international migration.

But what if migration was not representative but was selective on individual characteristics? Would the poverty results still hold? The impact effect of migration out

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<sup>18</sup> International Organization for Migration (2011), p.49.

<sup>19</sup> World Bank (2006), p. 27.

as the result of better income earning opportunities must surely be to reduce poverty at the origin. However, in the next round there is the possibility of externalities kicking in if the migrants are the most highly skilled, with knock on effects on the rest of the economy. This is the famous “brain drain” hypothesis which was popular in the 1970s and 1980s.<sup>20</sup> However, in recent years this has been countered by the “brain gain” hypothesis. This is the simple idea that the probability of having access to international migration depends on the education level of the prospective migrant. In order to improve this probability prospective migrants invest in education. Only some of these will be selected for migration, but those left behind will serve to increase the stock of human capital compared to what it would have been without the prospect of migration.<sup>21</sup>

There is some empirical support for the brain gain hypothesis; although others argue that its magnitude is greatly exaggerated.<sup>22</sup> But, furthermore, there is considerable evidence for the proposition that international migration reduces poverty in the origin country. In perhaps the most comprehensive such exercise, Adams and Page (2005) asked the question on the impact of international migration on poverty using data from 71 developing countries:

“The results show that both international migration and remittances significantly reduce the level, depth, and severity of poverty in the developing world. After instrumenting for the possible endogeneity of international migration, and controlling for various factors, results suggest that, on average, a 10% increase in the share of international migrants in a country’s population will lead to a 2.1% decline in the share of people living on less than \$1.00 per person per day. After instrumenting for the possible endogeneity of international remittances, a similar 10% increase in per capita official international remittances will lead to a 3.5% decline in the share of people living in poverty.” (Adams and Page, 2005, p. 1645).<sup>23</sup>

These results are confirmed by a range of country specific studies on international migration, remittances and poverty—examples include Acosta, Fajnzylber, Lopez (2006) for Latin America, Lokshin, Bontch-Osmolovski, and Glinskaya (2007) for Nepal and Adams (2006) for Ghana.

So much for poverty, where theory and evidence is relatively clear cut. But what about inequality? It should be clear that selectivity of migration and remittances makes this an intricate question theoretically and empirically. And the question of identifying

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<sup>20</sup> See for example Bhagwati and Hamada (1974).

<sup>21</sup> Mountford (1997), Stark, Helmenstein and Prskawetz (1997)

<sup>22</sup> See Beine, Docquier and Rapoport (2008) for support; however, see Schiff for a skeptical perspective.

<sup>23</sup> It should be noted that there is an issue in interpreting these results which is similar to the problem of the counterfactual when micro-simulating the effects of remittances. In the regression: Poverty = f(GDP per capita, remittances per capita) the net effect of the latter variable should be the estimated coefficient minus the (negative) change in mean income or GDP per capita due to migration times the coefficient of the mean income variable. But for this, we need an estimate of the impact of migration on the home country mean income. If it is assumed to be zero then it is in effect assumed that migrants' labor supply is fully compensated by people remaining behind them.

such selectivity is an important one in the international migration literature. In particular, there is some debate about whether migrants are selected according to education level. Using data from Doquier and Marfouk (2006), Hanson (2010) compares the share of emigrants with tertiary education to the share of total population with tertiary education. He finds that in the vast majority of the countries, the former exceeds the latter, indicating positive selection into migration by higher levels of education. Mexico and Puerto Rico appear to be exceptions to this almost universal phenomenon, but research on migration from those origins to the United States seems to have had a big weight in the discourse. Hanson (2010) argues that a larger literature now seems to support selection on education.

What about migration selection based on unobserved variables? McKenzie, Gibson and Stillman (2006) conduct an ingenious exercise using the results of a lottery for emigration from Tonga to New Zealand. McKenzie et. al. (2006) compares losers in the lottery with non-applicants, both groups of course still being in Tonga. They find that the applicants have higher earnings after controlling for observables, and conclude therefore that those desiring to migrate are selected in terms of higher income earning potential.

If international migrants are selected from households who already have high earning potential, and their migration in turn raises income earning and through remittances adds to the income of the household in the origin area, it should be clear that such migration would tend to increase inequality in the sending country. However, to the extent that the selection goes the other way, inequality in the sending country will be mitigated by international migration. There is now a considerable literature on assessing directly the impact of international migration on inequality, and we now turn to an overview of those studies.

The empirical results on international migration and inequality are inconclusive as a whole. Barham and Boucher (1998) compare the actual distribution post migration including remittances for Nicaragua, with a counterfactual of what the distribution would have been had the migrants not left and earned their original income. They found that the Gini coefficient is higher by 12%. Adams (2006) finds a much smaller increase in the Gini for Ghana, of 3%. The difference made by the counterfactual approach is illustrated by comparing the findings of De and Ratha (2005) and Karunaratne (2008) for Sri Lanka. Using the 2003/4 Socioeconomic Survey for Sri Lanka, Karunaratne (2008) shows that “income receivers belonging to lowest 10 percent receives 1.3 percent of their income as remittances while 10 percent of the income receivers getting 4.6 percent of their income from remittances.” He uses this to argue that remittances increase inequality. However, De and Ratha (2005) conduct counterfactual analysis and show that remittance income exceeds the counterfactual loss in income from migrating in the bottom two deciles, while the opposite is true for the top two deciles. Thus, they argue, remittances are equalizing.

A major issue in the empirical literature is the difference between short term and long term effects of international migration on inequality. An early study by Stark,

Taylor and Ytzhaki (1986) found a positive relationship between remittances and inequality in the short term, but the opposite result in the long run for Mexico.

<sup>24</sup>McKenzie and Rapoport (2007) argue that while in the short term migration selectivity favors better off because of the costs of migration, in the longer term these costs fall as migration networks form in the destination country. Using again the case of migration from Mexico to the United States, they argue that migration reduces inequality in communities which have experienced high levels of migration in the past. There may thus be an inverse-U relationship between international migration and inequality—first increasing and then decreasing.

Overall, then, the final effect of globalization on inequality in developing countries through the channel of international migration is ambiguous in theory, and this is reflected in the conflicting empirical findings. These results pick up on a theme of this paper as a whole, namely that the consequences for distribution depend on the context, and in particular on preexisting structural inequalities. When these inequalities are high and interact with the opportunities presented by globalization in such a way as to advantage those already well off, inequality will increase. The next section turns to the policy implications of these findings.<sup>25</sup>

## **8. National and Global Policy Responses**

Globalization brings enormous benefits, but in its wake it also brings significant risks. The risk of rising inequality has been ever present in the recent globalization discourse, where the concern has been that far from delivering “growth with equity” as it seems to have done for East Asia in the 1970s and 1980s, the more recent push to global integration has been accompanied by rising inequality. Indeed, those parts of the world which have avoided rising inequality like Latin America seem to have done so through purposive policy intervention. What, then, are the policy implications of the association between globalization and rising inequality?

It helps to begin by accepting that inequality is indeed a legitimate concern for policy makers. Although not universal, there appears to be a broad consensus that rising inequality lowers social welfare directly because societies are inequality averse, and indirectly because higher inequality can impede investment and growth through a number of channels.<sup>26</sup> This is true of standard interpersonal inequality, as well as inequality between broadly defined groups such as gender, regions or ethnicities. Policy makers

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<sup>24</sup> The analysis is based on simulating the effects of increased remittances on inequality for two villages, one of which has longstanding migration patterns to the US and the other of which does not.

<sup>25</sup> There is a large literature on the impact of immigration on inequalities in the host developed countries, but that is not covered in this paper. For example, Borjas (2003) is the leading analyst arguing that immigration worsens inequality by lowering the relative wages of domestic low skilled workers in the US, while Card (2009) has argued that the impact of immigration on relative wages is small and that it accounts for as small as 5% of the increase in US age inequality between 1980 and 2000.

<sup>26</sup> This paper is not the place for a review of this vast literature. A recent representative contribution is by Berg and Ostry (2011). Evidence for the detrimental effect of gender inequality and growth is presented in World Bank (2012). The effects of inequality and growth are covered in Chapter 15 of this volume.

appear to be well aware of and concerned about inequality. For example, in a survey of more than 500 Asian policy makers 44% rated concern in their country about inequality as being “high” or “very high”, while 36% rated the concern as being “medium.” In answer to the question, is higher income inequality acceptable so long as poverty is declining, 52% disagreed or strongly disagreed. Finally, in answer to the question how important is it to have policies in place to prevent rises in inequality in order to maintain stability and sustain growth, 95% said it was “important” or “very important.”<sup>27</sup>

The next step in the argument is to understand that the inequality of market outcomes depends on structural inequality and on how these inequalities interact with market processes to exacerbate or mitigate these inequalities. Thus policy can affect the inequality of final outcomes in three ways—addressing structural inequality pre market, addressing the operation of market processes, and redistributing of income generated by structure and market. Viewed in this way, the component parts of globalization—opening up of trade, capital and labor flows—can be seen as dimensions of market processes. Reversing these processes in order to manage inequality is neither desirable, since it also blocks off a major route to economic growth and efficiency, nor might it be feasible given the instruments that policy makers actually have. Of course, to the extent that the market processes are themselves distorted, for example, preferential access to foreign markets for monopolies or for politically favored groups, then addressing these can improve efficiency and equity. But policy could fruitfully focus on addressing structural inequalities and redistributing of market income more equitably. Sometimes these can be combined, and redistribution of market income can be done in such a way as to mitigate structural inequalities as well.

A good entry point into policy is provided by the contrasting experiences of Asia and Latin America in the last twenty years, when both regions have faced the same global economy and increases in global integration. During the 1990s and 2000s, Asia saw sharp increases in inequality. During this period 83% of developing Asia’s population lived in countries with rising inequality, and if the high growth that occurred had taken place without rising inequality, on one estimate around a quarter of a billion more people would have been lifted out of poverty.<sup>28</sup> On the other hand, Latin America which has long been a byword for high inequality, managed to have a remarkable period of declining inequality from the late 1990s onwards. This is true of all the major Latin American economies. In Brazil, for example, for Brazil between 1998 and 2009, without the fall in inequality the same level of poverty reduction would have require a growth rate of 4 percentage points higher.<sup>29</sup> Of course, the levels of inequality in Latin America were and still are much higher than those in Asia. But the difference in trends is remarkable—“growth with equity” now seems to be found in Latin America, not Asia.

Sections 3 and 4 discussed the skill bias that characterizes technical progress today. Demand for skilled labor is rising globally, and openness in trade and investment is transmitting this global demand to the country level. In the absence of policy

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<sup>27</sup> Kanbur and Zhuang (2012), p 44.

<sup>28</sup> Kanbur and Zhuang (2012), p. 41.

<sup>29</sup> Lustig, Ortiz-Juarez and Lopez-Calva (2011).

intervention, these market processes will lead to rising inequality within countries. As discussed earlier, closing off economies in order to block this channel of inequality increase is neither feasible nor desirable. However, Asian economies have tended not to counteract these pressures, either through addressing structural inequalities in skill levels, or through redistributing market income sufficiently to mitigate inequality. But Latin American economies have purposively redistributed income through cash transfers and done it in such a way to help the buildup of human capital through conditioning these transfers on keeping children in school. This is not the place for a full blown assessment of conditional cash transfers (CCTS), but it does seem as though Latin American countries have found an appropriate intervention to address rising inequality in general but also for the current conjuncture of globalization led pressures in rising inequality through a rising demand for skilled labor.<sup>30</sup>

The additional expenditure on conditional cash transfers requires revenues, and the progressivity of the tax system is another major determinant of how globalization related increases in inequality can be mitigated. But progressivity is also important in addressing the rise in very high incomes the world over, especially in Asia. Asian tax systems do not generally score highly on progressivity. In fact, it is argued that raising progressivity of taxation would have a bigger impact on inequality than elsewhere in the world.<sup>31</sup>

The policy discussion above is pertinent to rises in inequality associated with globalization, but it is of course also valid for increases in inequality from any source. What globalization brings, however is the easier movement of capital and labor across borders, and this may well constrain government's abilities to raise revenues to address structural inequalities and to redistribute market incomes. There is now a large literature on tax competition and the globalization's role in intensifying the "race to the bottom." Kanbur and Keen (1993) show that tax rates are (i) sub-optimal with lack of tax coordination when tax base is mobile across borders and (ii) the sub-optimality increases with the ease of movement of tax base. With such revenue effects, questions are naturally raised about the sustainability of redistributive expenditure like CCTS in a globalized world. As the title of a recent paper asks, "will social welfare expenditures survive tax competition?" (Hines, 2006)<sup>32</sup>.

The basic intuitions of the analysis can be applied to progressive income taxation as well in the context of international migration. The discussion in Section 7 showed that international migration was unequivocally good for poverty reduction in developing countries, and while there were possible short run effects raising inequality, these were turned around in the medium term. This would argue for greater freedom of international migration of labor to match the greater ease of movement of goods and capital. However, there is a catch. The possibility of international migration, especially of skilled

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<sup>30</sup> For an overview see Fiszbein and Schady (2009). It is of course clear that CCTs by themselves and alone are not responsible for the trend of inequality in Latin America.

<sup>31</sup> Asian Development Bank (2012), p. 76.

<sup>32</sup> See also Hines and Summers (2009).

high income labor, could constrain the government's abilities to redistribute within the country through progressive taxation.

The early work of Mirrlees (1982) concluded that "it may well be desirable to institute substantial income taxes on foreign earnings."<sup>33</sup> While this was the solution for a single country's tax design problem when faced with cross-border migration, it also contains within the seeds of a solution to the coordination problem, whereby countries follow each other down the path of reduced progressivity, exacerbating the inequality impact of greater openness. A similar logic applies to a race to the bottom on labor standards, where countries either lower standards or enforcement in order to gain competitive advantage (Chau and Kanbur, 2003, 2006). The issue has already been alluded to in the context of gender inequality, in the context of footloose industries which employ mainly women. Coordination on labor standards is typically conducted through the International Labor Organization and this mechanism can be strengthened further to address the inequality increasing forces that globalization can bring (Chau and Kanbur, 2001).

Indeed, Basu (2006) goes so far as to propose an international agency to address this issue:

"That there may be coordination problems in trade is well recognized and we have the WTO to help mitigate such problems. That labor market policies need coordination is known and we have the ILO to address this. For environmental problems we have the UNEP or the GEF. But there is nothing comparable to these for anti-poverty and anti-inequality policies. Yet...this is an area where the coordination problem may be no less acute. Hence, there is clearly a perceived need for a coordinating agency."

Leaving to one side the political feasibility or operational practicality of such an agency, the fact it is even being contemplated highlights like nothing else the challenges that globalization poses to policy makers concerned with its effects on inequality.

## **9. Conclusion**

The effects of globalization and inequality have animated much theoretical, empirical and policy literature since the Second World War, but particularly so in the last thirty years when, contrary to some received wisdom, greater global integration was associated with increasing inequality in developed and especially in developing countries. In the wake of the new facts, theory has responded, particularly with a class of models which emphasize selection mechanisms into production and trade, thereby allowing inequality to increase everywhere with openness. These new models will need to be developed and fleshed out, and applied in different contexts of trade, investment and outsourcing. Empirical work will depend on the availability of high quality firm level

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<sup>33</sup> There is now a huge literature on migration and optimal income taxation. A recent example which illustrates many of the intricacies is Hamilton and Pestieau (2005).



data, and there will need to be considerable investment in the generation of such data, particularly for low income countries.

Inequality is not just interpersonal inequality but inequality across broadly defined groups—gender, and regional being prime examples, but ethno-linguistic groupings (not covered in this survey) are another dimension along which inequality is a key policy concern. Further empirical work will need to document the impact of different aspects of globalization on these dimensions of inequality, and theorizing will need to extend and modify the standard Hecksher-Ohlin model, or indeed the more recent selection based models, to incorporate structural divides along salient socio-economic groupings.

At the level of national policy the addressing of the inequality consequences of globalization is in principle no different to the addressing the inequality consequences of other forces such as technical progress (although global integration tightens the transmission mechanism from technical change in one part of the world to another). However, greater mobility of goods, capital and labor constrains the freedom of governments to mitigate inequality through redistributive instruments. More research is needed in order to delineate, in theoretical and empirical terms, the nature of these constraints and the gains of global coordination on tax and expenditure policy and on labor and capital regulation. In the realm of practical policy there is also a fairly full agenda, ranging from the implementation of redistributive schemes like Conditional Cash Transfers at the national level, and the use of existing global institutions like the ILO and the WTO to put a floor on a race to the bottom in taxation and redistribution at the international level.

Having animated the economic analysis and policy discourse for the past half century, globalization-inequality nexus seems set to continue doing so in the coming five decades.

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