International Trade and Inclusive Growth

A Primer for Busy Policy Analysts

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Abstract

This note provides two analytical frameworks for understanding the role of trade in promoting inclusive growth in developing economies. A working definition of inclusive growth focuses on long-term, sustained growth associated with productivity growth and employment opportunities for broad portions of households and firms within countries. International integration can promote inclusive growth when workers and firms are able to adjust to enter into growing economic activities and adopt technologies availed through international trade. The frameworks described in this note build on simple household and firm choice models, which

require only basic knowledge of development economics. The discussion highlights how these frameworks can help analysts focus on research and policy questions related to the impacts of international trade across the distribution of households and firms within countries. It also discusses publicly available data sets that can be used to explore some aspects of inclusive growth. In addition, the note highlights important caveats that need to be acknowledged by analysts and discusses avenues for future research, which needs to be part and parcel of the inclusive growth agenda.

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International Trade and Inclusive Growth: A Primer for Busy Policy Analysts

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I. Introduction

Given the well established literatures on growth, inequality and poverty, which cover the roles of international trade and integration, any note on the subject needs to begin by establishing the definition of inclusive growth. This one is not an exception.

Analysts have tried to define “inclusive growth” (IG) in terms of what it is not. This is, for example, the approach in Klasen (2010), commissioned by the Asian Development Bank, which argues that IG is not pro-poor growth or growth with equity. In contrast, Ianchovichina and Lundstrom (2009) argue that the concept of inclusive growth has a “distinct character focusing on both the pace and pattern of growth” (page 1). Perhaps more importantly, these authors clarify that IG focuses on “productive employment rather than income redistribution” and that “IG has not only the firm, but also the individual as the subject of analysis” (Box 1, page 4). In other words, the IG approach takes a long-term perspective on the how economic growth, through productivity growth and employment generation, affects individuals and firms within countries.

This said, the more traditional and academically accepted literature on the distributional effects of international trade on poverty and income inequality remains relevant for the IG approach, because it has in fact focused on long-term effects of trade reforms on employment and wages within and across industries. And it has not focused exclusively on income distribution due to market outcomes complemented with public transfers.

There are at least three rather comprehensive literature reviews on trade and inequality that appear relevant for the IG agenda: Winters et al. (2004), Goldberg and Pavcnik (2007), and Harrison et al. (2011). The first two suggest that the empirical evidence on trade or globalization on poverty and inequality is ambiguous, due to the relevance of initial conditions, such as the structure of tariffs that often protect capital-intensive sectors, and the variety of empirical methodologies found in the literature. Harrison et al. (2011) argue that the research agenda on trade and inequality remains open due to the failure of neo-classical theories, such as the Heckscher-Ohlin model of trade, to predict observed increases in income inequality in labor-abundant developing countries.² Furthermore, these authors argue that the advent of new trade theories that emphasize the role of within-industry adjustments driven by Schumpeterian firm dynamics caused by competition, whereby the most productive firms survive, has reopened the research agenda on trade and inequality. In turn, according to this literature, the best firms might hire more skilled and talented (an unobserved characteristic of) workers, thus raising wage inequality within industries, rather than focusing on the effects of trade due to inter-industry adjustments.

Nonetheless, it cannot be over emphasized that most of this trade literature could be re-casted as contributing to the IG and trade agenda, because it tends to focus on long-term wage and employment outcomes, rather than on non-employment sources of income. Some contributions to the new trade literature reviewed by Harrison et al. (2011) focuses on how individuals (or households) or firms adjust

² This critique of neo-classical models of trade ignores the fact that numerous developing countries are relatively abundant in natural resources.

their behaviors in light of trade shocks. Some contributions do so. For example, Artuc et al. (2010) presented a structural empirical model of labor mobility costs, which focuses on workers' choices of employment opportunities across industries and utilizes data from the United States to estimate those costs. A subsequent extension by Artuc and McClaren (2010) provided similar estimates for Turkey. With a different empirical modeling approach, Ebenstein et al. (2009) argue that labor mobility across industries but within occupations is significant in U.S. data, and ignoring such mobility can bias econometric estimates of the effect of trade reforms on wages within industries. Hence it seems that any modern framework to help understand how trade affects IG should at least consider worker mobility and employment choices.

Similarly, just like the literature on trade and employment is concerned about workers' mobility, the well established literature on rural household behavior has for a long time considered household consumption and income-source decisions as fundamental for understanding the effects of agricultural prices on household welfare (see, e.g., Barnum and Squire 1979; Deaton 1989; Ravallion 1990, among others). Consequently, this note proposes the household and firm choice models as the basic analytical frameworks to be applied for clarifying the links between trade and IG. This dual approach, with emphases on workers and firms is consistent with the IG definition proposed by Ianchovichina and Lundstrom (2009).

In a nutshell, international integration can promote IG when workers and firms are able to self-select into growing economic activities and when firms can adopt superior foreign technologies and knowhow. That is, international trade offers opportunities for workers and firms, but their existing capabilities and the policy environment help determine the extent and distribution of such benefits.

The rest of this note is organized as follows. Section II covers the analytical framework from the viewpoint of households and individual workers. It covers direct, first-order impacts of trade shocks on household welfare, second order or behavioral impacts, and finishes with a discussion of important policy issues, namely the role of adjustment costs, skills and gender. In the process it also discusses data that can be used to empirically implement the framework. Section III provides the analysis of firm behavior. It begins with a discussion of first order effects of trade-driven price changes on profits, and then discusses how different types of firms distinguished by the extent to which they are integrated into the global economy via trade in final and intermediate goods and foreign ownership would be affected through second-order, productivity and changes in output structure. Mimicking the sections on households and workers, the discussion of firm profits includes a cursory evaluation of relevant data that is readily available to busy public policy specialists. Section IV concludes.

II. Trade and Inclusive Growth: Households

Although the framework for tracing the effects of trade shocks on household welfare is credited to the literature on rural household behavior, it has broader applications that go beyond rural settings. In fact, the most basic setup was also used by Winters et al. (2004) in their review of the literature on trade and poverty. The starting point is a household with a given consumption basket and various sources of income. The so-called first order effects of a trade shock can be seen as a price change that affect some

goods included in the consumption basket, as well as the sources of income. In the notation of Winters et al. (2004), the first order approximation of the welfare effect of a price change caused by a trade shock is written as:

$$(1) \quad \Delta W = \sum_j (q_j - c_j) \Delta p_j$$

W represents household welfare, subscript “ j ” identifies a good, q stands for the household’s income generated by the sale of good j , and c is the household’s consumption of the good. The price change of good j is denoted by Δp_j . The summation tells us that we are summing the effects from price changes of all goods affected by the trade shock and that are consumed or sold by the household. Regardless of notation, the intuition is obvious: an increase in the price of good that is sold by the household but not consumed would result in an increase in welfare, whereas an increase in the price of a good that is not sold but is consumed would have the opposite effect.

The appeal of this simple framework for rural settings is obvious, because such households are often both producers and consumers of the same agricultural commodities. Indeed, this simple framework has been applied in World Bank studies of the effects of agricultural commodity price increases on poverty.

Two excellent examples of operational research that followed this framework are Wodon et al. (2008), which analyzed the agricultural commodity price boom of 2006-07 with African household data, and Ferreira et al. (2011), which focused on Brazil out of concern over the agricultural price boom of 2010. What makes these two examples notable is the acknowledgement of necessary caveats related to limitations of this approach. More specifically, both studies state that they are focusing only on the first order effects of the price changes and ignoring long-term considerations related to household decisions to change their consumption and income patterns. Wodon et al. (2008) in fact ignore even short run changes in income, whereas Ferreira et al. (2011) allow incomes of agricultural workers to rise proportionately with the increase in the price of agricultural commodities. That is, one study assumed that q in equation (1) would remain fixed, and the other allowed it to vary with the price changes. Neither considered changes in the structure of consumption, which might be a reasonable assumption when studying temporary price hikes.

If this were the end of the story it is very likely that most trade reforms would be pro-poor because they reduce the domestic price of imported goods. We know from household surveys that poor families tend to spend a large share of their total household expenditures on tradable goods. This is shown in Figure 1 for the case of Brazil, utilizing three different definitions of tradable goods, based on work by Lederman, Lichand and Fajnzylber (2011). The higher shares of tradables in poor households’ consumption baskets might imply that the first order impacts of most import liberalization would tend to be pro-poor, even if not necessarily supportive of inclusive growth (IG), due to the high dependence on consumption of tradable goods.

Indeed, a striking characteristic of the trade literature is the scarcity of studies that focus purely on the first-order effects of trade liberalization, which are very likely to benefit most poor consumers in developing countries. There are studies of price-policy changes, but fewer on trade policy per se. An interesting example of such a study is Duran, Finot and Lafleur (2011) of the United Nations’ Economic

Commission for Latin America and the Caribbean (UNECLAC) on the case of Chile's trade reforms during 1999-2006. As expected, the authors found that tariff cuts had modest but positive first-order effects, especially among poor households. Another exception is controversial work by Broda and Romalis (2009), who argued that once diverging price trends of consumption baskets across the distribution of income in the United States were taken into account, about half of the deterioration in distribution of income of this country during 1994-2005 was due to the assumption that the price index of poor households is similar to those of rich households. The discrepancy in trends of price indexes of consumption baskets would be due to poor households' consumption of "lower quality goods" than richer households, and the rise of imports from developing countries such as China has tended to suppress price inflation of low quality goods. Again, while trade might have improved the relative purchasing power of poor households relative to rich households, we still need to focus on the second order effects of trade to assess trade's role in ensuring long-run IG.

This framework can be easily applied to urban households; it only requires that we think about income sources tied to the price of each good. For example, to estimate first-order effects of changes in food prices on household welfare, Ferreira et al. (2011) introduce an additional term that links changes in wages of salaried farm workers to the price changes.³ However, the framework can also be easily extended to consider second order effects of prices changes on household incomes and consumption patterns. The important point is that this approach immediately leads us to the extension of the framework beyond the first order effects of a trade-driven price change to focus on the employment opportunities available to household members given the change in prices due to trade. That is, a permanent change in prices due to trade-policy changes or permanent changes in the global economic conditions (e.g., the growth of China in global markets or changes in foreign trade policies) surely could not be considered to be transitory. This would imply that households would also observe persistent changes in prices and thus they are unlikely not to respond to these price signals. Of course, if the households are not participating in market transactions due to various forms of economic isolation, then none of this discussion would be relevant for those households.⁴

A. Second Order Effects

This discussion brings us to the so-called second-order effects. A bit of formalization can help clarify the relevant issues. The extension (or the total derivative of the underlying welfare function) of equation (1) that includes the second-order effects concerning changes in the structure of consumption and income is the following:

$$(2) \quad \Delta W = \sum_j [(q_j - c_j)\Delta p_j + p_j\Delta q_j - p_j\Delta c_j].$$

³ In Ferreira et al. (2011) the analysis of the wage response with respect to changes in food prices is ad hoc in the sense that the authors use a range of "pass through" parameters to show that the extent to which price changes result in wage changes of workers employed in the food producing industries affects the magnitude and the distribution of the estimated welfare losses or gains.

⁴ The discussion would turn to issues of access to markets, before we could even decipher how trade shocks would affect such isolated households.

The last two terms in equation (2) represent the second-order behavioral responses of the household. They include the effect of the price change on the quantities produced, Δq , and the quantities consumed, Δc , of each good j . Note that when prices fall due to trade liberalization the quantity produced could decline, thus reducing welfare for a given price, unless the household's income shifts to other activities that can compensate the decline in income due to the fall of the price of good j . Similarly, consumption could increase as prices fall. Here, it is important not to get confused: if we only do the exercise with one single good j , we would erroneously conclude that welfare would fall as a consequence of the rise of consumption of the cheaper (liberalized) good. The key is to remember the summation sign: consumption of other goods would fall as the liberalized good would have become relatively cheaper. This clarification, however, brings us to the empirical estimations of the framework.

An important feature of this approach, which is consistent with the definition of IG, is that it emphasizes households' abilities to change income sources and consumption patterns in response to changes in relative prices. With ideal data on household consumption and income patterns over time, combined with data on goods' prices, it is possible to estimate the behavioral functions. Most countries, however, do not have the ideal panel data set. Instead, it is more common to have cross sections of households in living standards surveys. Table 1 lists 119 countries with surveys since 2000 with this type of data that are available from the World Bank's Development Data Platform (DDP).⁵

B. Estimation Challenges

Several estimation challenges emerge when attempting to estimate income-source and consumption responses to trade-driven price changes. One concerns price data. In practice, the relevant surveys ask households to report total expenditures by type of good or service, and they are also asked to report the number of units purchased. Analysts can then use these variables to compute unit values, the ratio of expenditures over the number of units. But unit values are not equal to prices for two main reasons. First, unless households maintain detailed records, self-reported expenditures and quantities are likely to suffer from measurement errors. Second, each category of goods or services probably contains many varieties, which might differ in terms of quality. Hence unit values, even if they were perfectly reported by the households, might reflect quality differences that vary systematically across types of households, and it is common to find positive partial correlations between expenditures and unit values in cross sectional estimations (see Deaton 1997; Lederman, Lichand and Fajnzylber 2011).

Fortunately, the literature has developed econometric estimations methods to deal with the measurement errors and the quality-valuation challenges discussed above. A full discussion of these approaches goes well beyond the scope of this short note. However, a bit of intuition might help busy operational staff and policymakers to think about the economics underlying the estimation challenges. An approach developed by Deaton (see Deaton 1988 and references in Deaton 1997) is to estimate a system of three equations: one for the determinants of unit values without location fixed effects, one for expenditures and one for income, both with location fixed effects (added by Porto 2005). The errors from those estimations can be used to correct for measurement errors and quality valuation, because

⁵ World Bank staff has online access to these surveys via DDP.

the errors from the unit value equation will contain information on quality valuation across locations. The intuition is that consumers in a given location, such as an urban center, will shop in stores with similar quality gradients for product varieties, and thus the quality valuation can be estimated across localities, but not within localities. In any case, public policy analysts at this point would probably benefit from hiring knowledgeable consultants to perform the necessary estimations.

What is clear is that any analyses that end with the computations of the first-order effects needs to be accompanied by several caveats. One is to clearly tell readers that the first-order approximations are insufficient to derive policy conclusions about whether a trade reform (or trade-driven price shocks broadly defined) is likely to lead to IG, precisely because these computations are silent about behavioral changes dependent on employment and consumption choices. Again, readers of this note can read Wodon et al. (2008) and Ferreira et al. (2011) as examples of carefully written assessments of first-order effects.

C. Relevant Policy Issues: Adjustment Costs and Skills

So, what are some of the policy issues that could be discussed even if the more technically complicated estimations of the second order effects are not performed? From the viewpoint of IG, clearly the changes in income sources that would be embedded in the second order effects are crucial. Indeed, the agricultural households literature has found that household wealth, among other factors, determines the capacity to change income sources towards activities benefitting from relative price increases – see Ravallion (1990), Lopez et al. (1995).

The trade literature focuses on labor adjustment costs or mobility costs and related policies, such as trade-adjustment assistance programs designed to help workers hurt by trade shocks find alternative employment opportunities. The volume edited by Porto and Hoekman (2010) is a good place to start, as it includes accessible contributions by some of the leading academics in the field. The important thing to note is that workers and households might face certain costs that hamper their ability to change jobs across industries, across jurisdictions (regions), and even across firms. These costs might be associated with costs of moving across territories and costs associated with learning new skills required to perform jobs in another industry or firm. The existing academic literature has struggled with empirical estimations of these types of costs, but recent contributions by Artuc et al. (2010) and Dix-Carneiro (2011) have developed structural models to derive estimation methods that can identify the magnitude of worker mobility costs across industries (within countries). While the World Bank's International Trade Department (PRMTR) and the Research Group (DECTI) are working on developing more evidence on the magnitude of labor adjustment costs and tools for estimating such costs across countries, policy analysts can continue to focus on the policy issues related to IG, such as best practices in the design of adjustment assistance programs, which go beyond the provision of social safety nets and public transfers.

Another important policy issue is related to skills. A substantial portion of the trade literature has focused on the skill premium as the main parameter that has determined whether trade and trade liberalization have been inclusive over the long run. Blaming skill-biased technical change, which raises

the returns to schooling, for increases in wage inequality is cliché. In fact, in many countries, such as Chile and Mexico, the market-determined income inequality (that is, without transfers) has improved, as the trends in skill premiums turned downwards. The graphs in Figure 2, taken from Aedo and Walker (2011, p. 46), show the evolution of education wage premiums for several LCR economies since the early 1990s. The era of rising premiums for finishing secondary school seems to have ended at the beginning of the 21st Century, although in Chile tertiary education premiums might have risen a bit since.

Nonetheless, these trends do not say much about the role of trade in determining relative wages of skilled workers. First, as highlighted by Broda and Romalis (2009), trends in relative incomes and wages would need to be adjusted by household-specific price indexes, with trade playing a potentially important role in determining consumption prices across households. As mentioned, most studies ignore this first-order price effect, probably because it is difficult to get detailed price data at the household or locality level, but it is not impossible as evidenced by the paper on Chile by Duran et al. (2010). In addition, unit values computed from household survey data could be used as an imperfect proxy.

Second, even if trade raises skill premiums, other factors, such as increases in the supply of high school graduates, the quality of educational services, and numerous other economic fluctuations unrelated to trade could be affecting trends in skill premiums. Furthermore, skills might affect not only the earning potential of workers, but also their capacity to change jobs when hit by a negative shock.

Finally, it is worth noting that recent literature has emphasized that the act of exporting per se and of exporting to high-income destinations in particular might require skilled workers, although the types of skills (e.g., knowledge of foreign languages) demanded by successful exporting firms remain murky (see Veerhogen 2008, Matsuyama 2007, Brambilla et al. 2010, Brambilla et al. 2011). All these considerations point to a role of skills as a potentially important intermediating factor shaping trade's influence on IG.

III. Trade and Inclusive Growth: Firms

To recap, a distinguishing feature of the IG approach is its focus on long term growth and on how individuals and firms are incorporated into the growth process. The previous section focused on individuals, through the prism of household incomes and consumption. This section turns our attention to the firm.

It is useful to begin from first principles by focusing on firm profits. Allowing for multi-product firms, a simple profit function can be written in the following form, which mimics the household welfare function introduced earlier:

$$(3) \quad \pi = \sum_j (p_j - a * r) q_j.$$

In this setup, total profits of a firm are given by the sum of the difference between the prices of goods denoted by j minus the unit costs of production. These costs are determined by a productivity parameter, α , which is the unit factor input requirements that is standard in the trade literature. This parameter tells us how many units of a factor of production are needed to produce a unit of

product j . When this unit factor requirement parameter is multiplied times the unit cost of the factors of production, denoted by r in equation (3), the product is equal to the unit costs of production.⁶ Profits derived from the production of good j are then equal to the product of the difference between prices and unit costs times the quantities produced, q . And total firm profits are the sum of all product-specific profits. When there is a trade-driven price change of the firm's final goods, the first-order effect (analogous to equation 1 above) is thus:

$$(4) \quad \Delta\pi = \sum_j \Delta p_j q_j.$$

From (3) we can also derive the second-order effects, which would operate via changes in the scale of production (changes in q), changes in productivity, and changes in factor costs induced by the price change:

$$(5) \quad \Delta\pi = \sum_j \Delta p_j * q_j + \Delta q_j * p_j - \Delta r * a * q_j - \Delta a * r * q_j$$

In words, the change in profitability of the firm is equal to the direct, first order effect (equal to the corresponding price change times the quantity produced) plus the change in scale of production, minus the change in factor costs (weighted by the firms productivity and scale), minus the change in factor requirements (or plus the change in productivity, which would be a reduction in a). The following sub-sections discuss each term separately with special emphasis on how globalized and non-globalized firms would respond to a trade shock.

A. Second Order Effects: Scale and Composition Effects and the Role of Innovation

A trade shock can either reduce or raise the price of a good j . In the context of trade liberalization, the price of a protected good will fall and the relative price of non-protected goods (i.e., exports) will rise. To the extent that firms can raise the scale (quantity) of production in response to a positive price shock, firm profits can rise. However, if the price of a good falls, some retrenchment might be required, and bankruptcy and firm exit are plausible outcomes.

On the other hand, the composition of the bundle of production can also change. This is not obvious in equation (5), but it would entail a firm changing q from zero to some positive number. That is, a firm can begin producing a new good j , probably a good that benefitted from a rise of its relative price. More generally, firms can innovate to face the competition of cheaper imports of good j . But some firms might simply go out of business. The literature on firm innovation, for example, has examined the effects of increased competition on firm innovation. The seminal paper by Aghion et al. (2005) argued that firms with different capabilities tend to respond differently to increased competition. Firms closest to the technological frontier tend to respond by increasing investments in innovation, which would tend to result in the introduction of new product varieties. In contrast, less capable firms farther away from the technological frontier tend to reduce investments in innovation, and thus retrenchment is more likely among those types of firms. Hence, similar to the previous argument that households' ability to adjust is

⁶ For the sake of simplicity, in this setup, there is only one factor of production with unit cost r . However, it can also be interpreted as a composite factor of production when the underlying production function has constant factor shares.

conditioned by their wealth, firms technological capabilities condition their ability to respond to trade shocks.

While this reasoning is appealing, we should also note that some creative destruction is desirable to spark long-term growth, because the survival of the fittest most productive firms results in aggregate productivity growth. This is the main gist of the argument in the seminal paper by Melitz (2003). In this context, the productivity gains from trade could come less from inter-industry adjustments and more from within-industry Schumpeterian creative destruction. Still, from the viewpoint of IG, it is worth taking into account firm capabilities for product innovation. There is some evidence that product innovation is lower when firms operate in environments with high levels of trade protection, but it is enhanced when there is a lot of aggregate innovation proxied by patenting activity (see Lederman 2010). This consideration might have important policy implications related to the role of the public sector in supporting private-sector investments in innovation in the context of liberalized economies.

B. Second (or First) Order Effects: Changes in Factor Prices

When the prices of goods change, factor prices also (probably) change, unless factor-market distortions do not allow them to change. From the viewpoint of a single firm, this change in factor prices is exogenous. Most of the neo-classical trade literature has focused on the direction and magnitude of these factor-price changes.

In the Heckscher-Ohlin model, the Stolper-Samuelson theorem dictates that the abundant factor will experience a more than proportional increase in its price, whereas the scarce factor will experience the opposite. Of course, this is the case only if the structure of protection being liberalized is such that it does not protect the abundant factor to begin with. In specific factors models, that is when factors of production are tied to each industry and are somehow not mobile across industries, the factors employed in the liberalized industries will experience declines in their prices. These two models are often seen as long-run and short-run models, as factor specificity is usually treated as short run phenomenon due to adjustment costs (see previous discussion in Section II).

However, it is now well understood that factors of production, including labor, might be permanently tied to specific industries (Krueger and Summers 1988). But this discussion is a side show, what matters is that we consider that firms in different industries might face different changes in factor prices, thus adding yet more complexity (heterogeneity) to the role of trade in IG. Furthermore, from the viewpoint of firms, changes in factor prices can either enhance profits when factor prices decline or they can worsen profits when they rise. Thus the interests of firms and employed workers might diverge, depending on the specific conditions of the country and sector of economic activity.

Of relevance for policy, factor prices can change as a direct, first-order consequence of the trade liberalization or other trade shocks. For instance, import tariffs on capital goods or inputs can be lowered. If so, firm profits would rise accordingly. The role of tradable intermediates brings us to the issue of changes in productivity

C. Second Order Effects: Changes in Productivity

Enhancing firm productivity seems crucial for IG, given its emphasis on long term productivity growth. Related to the previous discussion on imported capital goods, recent literature suggests that this channel is perhaps the only channel through which trade affects productivity (e.g. Amiti and Konings 2007). An older literature had already highlighted the role of trade as a conduit for the diffusion of technology across borders (see the review by Keller 2004). Thus taking into account productivity changes seems to be both important for the IG agenda and reasonable from the viewpoint of the analytical literature. For completeness, we should mention that there is a parallel literature on the benefits of foreign investment, but these appear to work through backward linkages rather than direct effects on domestic firms operating in the same industry (Javorcik 2004, Rodríguez-Clare 1996). However, foreign ownership itself tends to be correlated with firms' level of international integration through exports and imported capital goods.

This said, what data would be available for busy policy analysts to use to study how different types of firms might respond to trade shocks? The obvious candidate is the World Bank's global data set from the Enterprise Surveys, and the most recent rounds of the survey included information about firms' level of integration in terms of foreign ownership (share of capital owned by foreigners), foreign input use (share of foreign inputs in total inputs), and export intensity (share of sales sold abroad). Table 2 provides a list of over 100 countries with this type of information, as well as summary statistics for these three variables. The table also reports the fraction of each country's sample of firms which answered the relevant questions.

It is noteworthy that not all firms answered the relevant questions, and thus analysts need to worry about selectivity bias when using these data. From an IG perspective, it might be useful to assess the potential magnitude of this selectivity bias by exploring the link between firm size and the probability of providing information about firm integration. Table 3 reports Probit estimates of the probability of a firm providing data for the three variables. Only the key variable on foreign input use appears to be systematically correlated with the size of firms, proxied by the (log of) the number of employees. Thus when using these data to do either descriptive or econometric analyses, analysts do need to worry about selectivity bias, because the probability of observing foreign input use is positively correlated with size. Hence we might spuriously conclude that size is an important determinant of integration, when in reality the problem for small firms might really be about reporting but this might not necessarily be an economic issue.

Figure 3 further explores the role of size. It plots the predicted values of foreign input use, export intensity and foreign ownership, from Fractional Logit estimation with the global dataset.⁷ Size does appear to be systematically correlated with firm integration, but only the relationship with foreign input use appears to be linear; the other two appear closer to an exponential function. In any case, these results would imply that larger (and potentially more capable and productive firms) have either benefitted more from integration or would benefit more if future trade shocks reduce the costs of imported inputs or raise the relative price of exports. However, a quick inspection of results by industry

⁷ It is prudent to estimate this relationship with a Fractional Logit estimator, because the dependent variables are truncated and the relationship is not necessarily linear.

and regions of developing countries suggested that there is significant heterogeneity across regions and industries in terms of the magnitude of the positive correlation between firm size and degree of global integration. Overall, however, it seems that we do have reasonable data that can be used to analyze how different types of global shocks might affect firms of different sizes.

To the extent that IG is concerned about enhancing productivity growth across the size distribution of firms, the descriptive analysis presented above suggests, roughly, two ways of looking at policy challenges. One is to focus purely on first-order and second order effects that exclude the possibility of smaller firms being able to adopt foreign technologies through the purchase of foreign inputs. This would entail assuming that there would not be compositional effects through the input costs channel. The other approach would be less restrictive and would at least explore the reasons why small firms might not be able to use imported inputs.

This brings us back to our previous point about firm capabilities, but the role of public policy might be less focused on incentives for private sector firms to adopt foreign technologies and more on relevant informational or credit constraints. The reason why we would advocate subsidies for private-sector innovation and on non-subsidy policies for technology adoption is that the market failures might be different. In the former, the evidence suggests that aggregate innovation enhances an individual firm's ability to introduce new products, thus suggesting the presence of some sort of positive externality from others innovation. In contrast, the informational or credit constraints that limit small firms' access to foreign inputs and technology can be fully internalized by individual firms without producing any aggregate spillovers. However, I remain a bit agnostic about either approach and would wait for rigorous impact evaluations of different policies before taking a very strong stance on either policy type.

IV. Concluding Remarks

This note began by placing the trade literature in the context of a useful definition of the IG agenda. It then proposed two similar analytical frameworks, one focused on individual workers in the context of their households and the other focused on firm productivity. This dual approach seems consistent with the IG agenda, especially due to its emphasis on individuals and firms. Furthermore, the discussion highlighted the role of second-order effects in the IG agenda, because the first order effects are unrelated to IG's emphasis on long-term growth and productivity.

Before summarizing the main messages, it is worth noting one commonality that has remained untouched: the extent for pass through of changes in global or border prices onto the domestic economy. Under both frameworks, we implicitly assumed that a change in import or export policies would change the prices faced by consumers, workers or firms. Other trade shocks that change global prices of goods were also implicitly assumed to be passed through to domestic markets. However, due to domestic transport and distribution costs, the pass through might not be perfect. This issue is carefully explored by Porto et al. (2011) for the case of various export agricultural commodities in Africa, and the paper by Duran et al. (2011) on the Chilean experience presents econometric evidence of imperfect pass through. Hence it appears that policy analysts should at least explicitly note their assumptions of the extent of pass through when no auxiliary estimations are conducted.

If there is a common theme across the two frameworks it would be “capabilities.” In the context of households and workers, their skills, location, and industries of employment might all affect their capacity to adjust to trade shocks to maximize the potential benefits of international integration. For firms, their technological capabilities might determine their ability to innovate in the face of enhanced international competition, and their current (initial) degree of global integration might determine the sign and magnitudes of the effects of trade shocks on their profitability.

For both units of analysis, this note provided some very quick and dirty policy discussions. For workers and households, the main policy challenges might be related to worker mobility costs and skills, the two being inter-related. For firms, we highlighted the potential role of the public sector in terms of providing an innovation environment from which all firms can learn so as to help them introduce new products when relative prices signal potential benefits. In addition, informational programs about available foreign technologies, low import taxes on capital goods, and perhaps interventions in credit markets might help small and medium enterprises enhance their chances of being able to enjoy the benefits of globalization.

Perhaps more importantly, I hope that the simple frameworks can help busy policy analysts think through economic and policy issues related to the inclusion of workers, families and firms in a process of trade driven inclusive growth. The frameworks do not have a necessary econometric counterpart; they can help organize qualitative analyses as well.

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Table 1. Inventory of Expenditure and Income Surveys since 2000

Country	Survey(s)	Year(s)
Afghanistan	National Risk & Vulnerability Survey	2005
Albania	Household Budget Survey	2000, 07
	Living Standard Measurement Survey	2002-05
Angola	Inquérito aos Agregados Familiares	2000
Argentina	Encuesta de Hogares	2000-06
	Encuesta de Gastos de Hogares	2004
Armenia	Food Security and Poverty	2006
	Living Conditions Survey	2001-05, 07
Azerbaijan	Household Budget Survey	2001-05
Bahamas	Survey of Living Conditions	2001
Bangladesh	Income and Expenditure Survey	2005
Belarus	Income and Expenditure Survey	2001-07
Belize	Living Standard Measurement Survey	2002
Bhutan	Living Standard Survey	2003, 07
	Income and Expenditure Survey	2000
Bolivia	Encuesta de Hogares	2003, 05
	Encuesta de Condiciones de Vida	2000-02
Bosnia & Herzegovina	Household Budget Survey	2004, 07
	Living Standard Survey	2001, 04
	Living Standard Measurement Survey	2002-03
Botswana	Income and Expenditure Survey	2002
Brazil	Pesquisa de Orçamentos Familiares	2002
Bulgaria	Household Budget Survey	2000, 03-07
Burkina Faso	Enquête sur le conditions de vie	2003
Cameroon	Enquête auprès des ménages	2000, 07
Cape Verde	Enquête Budget-Consommation	2001
Chile	Encuesta Calidad de Vida	2001, 06
	Caracterizacion Socioeconomica Nacional	2000, 03
Colombia	Encuesta Calidad de Vida	2003, 07
	Encuesta de Hogares	2000-04
Comoros	Enquête auprès des ménages	2004
Congo	Enquête auprès des ménages	2005
Costa Rica	Encuesta de Gastos de Hogares	2000-07
Côte d'Ivoire	Enquête de vie des ménages	2002, 08
Croatia	Household Budget Survey	2001-06
Cyprus	Household Budget Survey	2003
Czech Republic	Household Budget Survey	2006
Djibouti	Enquête auprès des ménages	2002
Dominican Republic	Encuesta de Hogares	2005-06

Country	Survey(s)	Year(s)
Ecuador	Encuesta de Condiciones de Vida	2006
Egypt	Household Budget Survey	2005
El Salvador	Encuesta de Hogares	2000-07
Estonia	Household Budget Survey	2000-04
Ethiopia	Income and Expenditure Survey	2000, 04
Fiji	Income and Expenditure Survey	2002
Gambia	Integrated Household Survey	2003
Georgia	Household Budget Survey	2004-07
	Survey of Georgian Households	2000, 03-04
Ghana	Living Standard Survey	2005
Guatemala	Encuesta de Condiciones de Vida	2000, 06
Guinea	Enquête sur le budget et l'évaluation de la pauvreté	2002
Guinea Bissau	Inquérito para Avaliação de Pobreza	2002
Guyana	Household Budget Survey	2007
Haiti	Enquête sur le conditions de vie	2001
Honduras	Encuesta de Hogares	2001-06
Hungary	Household Budget Survey	2000-04
Indonesia	Socioeconomic Survey	2000-08
Iran	Income and Expenditure Survey	2006
Iraq	Socioeconomic Survey	2006
Jamaica	Living Conditions Survey	2000-07
Jordan	Income and Expenditure Survey	2002, 06
Kazakhstan	Household Budget Survey	2001-06
Kenya	Household Budget Survey	2004
Kiribati	Income and Expenditure Survey	2006
Kyrgyz Republic	Household Budget Survey	2000-07
Lao	Expenditure and Consumption Survey	2002, 07
Latvia	Household Budget Survey	2000, 02-04
Lesotho	Household Budget Survey	2002
Lithuania	Household Budget Survey	2000-06
	Living Conditions Survey	2007
Macedonia	Household Budget Survey	2000, 04, 06
	Income and Expenditure Survey	2003
Madagascar	Enquête auprès des ménages	2001
Malawi	Integrated Household Survey	2004
Maldives	Income and Expenditure Survey	2002
Mali	Enquête auprès des ménages	2003, 06
Marshall Islands	Income and Expenditure Survey	2002
Mauritania	Enquête sur le conditions de vie	2000, 04
Mauritius	Household Budget Survey	2001, 06

Country	Survey(s)	Year(s)
	Integrated Household Survey	2000-06
Mexico	Encuesta de Gastos de Hogares	2000, 02, 04-06
Micronesia	Income and Expenditure Survey	2005
Moldova	Household Budget Survey	2001-08
Mongolia	Income and Expenditure Survey	2005
	Living Standard Survey	2000, 05
Montenegro	Integrated Household Survey	2001-03
Morocco	Enquête de vie des ménages	2006
Mozambique	Inquérito aos Agregados Familiares	2002
Myanmar	Income and Expenditure Survey	2002, 06
Namibia	Income and Expenditure Survey	2003
Nepal	Living Standard Survey	2003
Nicaragua	Encuesta de Hogares	2001, 05
Niger	Enquête Budget-Consommation	2007
	Enquête sur le conditions de vie	2005
Nigeria	Living Standard Survey	2003
Pakistan	Integrated Household Survey	2001
Panama	Living Standard Measurement Survey	2003
	Encuesta de Hogares	2000-06
Papua New Guinea	Income and Expenditure Survey	2005
Paraguay	Encuesta de Hogares	2000-07
Peru	Encuesta de Hogares	2000-07
Philippines	Family Income and Expenditure Survey	2000, 03, 06
Poland	Household Budget Survey	2000-02, 04-06
Romania	Household Budget Survey	2003, 06-07
	Family Budget Survey	2001-03
Russia	Household Budget Survey	2000-04, 06-07
Samoa	Income and Expenditure Survey	2002
São Tomé and Príncipe	Enquête sur le conditions de vie	2000
Senegal	Enquête auprès des ménages	2001
Serbia	Household Budget Survey	2003-04, 06-08
	Living Standard Survey	2003
Seychelles	Household Budget Survey	2006
Sierra Leone	Integrated Household Survey	2003
Slovenia	Household Budget Survey	2000, 04-05
Solomon Islands	Income and Expenditure Survey	2005

Country	Survey(s)	Year(s)
South Africa	Income and Expenditure Survey	2000, 05
	Living Conditions Survey	2008
Sri Lanka	Income and Expenditure Survey	2002, 06
St. Lucia	Household Budget Survey	2005
Suriname	Income and Expenditure Survey	2001
Swaziland	Income and Expenditure Survey	2000
Tajikistan	Household Budget Survey	2003, 05-06
	Living Standard Measurement Survey	2003, 07
Tanzania	Household Budget Survey	2000
Thailand	Socioeconomic Survey	2002, 06
Timor-Leste	Living Standard Survey	2001, 06
Tonga	Income and Expenditure Survey	2000
Tunisia	Living Standard Survey	2000
	Enquête Budget-Consommation	2000
Turkey	Household Budget Survey	2003-06
	Income and Expenditure Survey	2002
Uganda	Integrated Household Survey	2002, 05
Ukraine	Household Budget Survey	2000-01
	Living Conditions Survey	2003
Uruguay	Encuesta de Hogares	2000-06
Uzbekistan	Household Budget Survey	2000, 03
Vanuatu	Income and Expenditure Survey	2006
Venezuela	Encuesta de Hogares	2000-06
Vietnam	Living Standard Survey	2002, 04, 06
Westbank & Gaza	Income and Expenditure Survey	2004-07
Yemen	Household Budget Survey	2005
Zambia	Living Conditions Survey	2002, 04

Table 2. Availability of Firm Global Integration Data by Country and Year

Country Code	Year	No. Obs.	Frac. FDI Obs.	Avg. FDI (%)	Frac. For. Input Use. Obs.	Avg. For. Input (%)	Frac. Exp. Int. Obs.	Avg. Exp. Int. (%)
AFG	2008	535	0.99	2.23	0.22	62.10	0.99	4.30
AGO	2006	425	1.00	10.84	0.50	40.25	1.00	0.64
AGO	2010	360	0.97	15.40	0.39	28.01	0.97	1.73
ALB	2007	304	1.00	13.19	0.35	72.10	1.00	13.93
ARG	2006	1063	1.00	11.57	0.61	26.26	1.00	11.51
ARG	2010	1054	1.00	11.68	0.74	28.21	1.00	11.25
ARM	2009	374	0.99	5.99	0.30	55.88	1.00	7.73
AZE	2009	380	1.00	7.96	0.32	21.25	1.00	2.98
BDI	2006	270	1.00	16.84	0.38	42.72	1.00	0.87
BEN	2009	150	0.99	13.02	0.48	48.14	0.99	7.53
BFA	2006	139	1.00	7.55	0.37	28.04	1.00	5.27
BFA	2009	394	0.99	10.24	0.23	50.43	0.99	4.62
BGD	2007	1504	1.00	1.70	0.77	34.97	1.00	29.08
BGR	2007	1015	1.00	10.19	0.53	45.28	1.00	21.34
BGR	2009	288	1.00	10.07	0.33	39.61	1.00	12.30
BIH	2009	361	1.00	6.08	0.32	49.31	1.00	14.61
BLR	2008	273	0.93	7.27	0.27	36.58	1.00	8.77
BOL	2006	613	1.00	10.56	0.59	52.13	1.00	8.85
BOL	2010	362	0.99	9.36	0.32	46.05	1.00	8.60
BRA	2009	1802	0.67	4.72	0.73	13.02	1.00	3.86
BTN	2009	250	1.00	5.68	0.00		1.00	13.07
BWA	2006	342	1.00	38.58	0.33	56.46	1.00	4.18
BWA	2010	268	0.99	41.51	0.32	61.49	1.00	3.75
CHL	2006	1017	1.00	5.72	0.62	39.31	1.00	7.47

Country Code	Year	No. Obs.	Frac. FDI Obs.	Avg. FDI (%)	Frac. For. Input Use. Obs.	Avg. For. Input (%)	Frac. Exp. Int. Obs.	Avg. Exp. Int. (%)
CHL	2010	1033	1.00	10.61	0.75	41.27	1.00	8.57
CIV	2009	526	1.00	15.54	0.31	21.90	1.00	3.45
CMR	2006	172	0.99	18.67	0.69	34.61	0.98	11.14
CMR	2009	363	1.00	12.44	0.32	36.70	1.00	5.64
COG	2009	151	0.95	19.83	0.81	46.11	0.97	4.04
COL	2006	1000	1.00	2.02	0.63	23.48	1.00	7.15
COL	2010	942	1.00	6.96	0.75	33.28	1.00	8.89
CPV	2006	98	1.00	7.53	0.48	35.31	1.00	1.10
CPV	2009	156	0.99	12.05	0.47	49.88	1.00	4.13
CRI	2010	538	1.00	14.65	0.60	47.02	0.99	13.28
CZE	2009	250	0.96	14.05	0.32	31.56	0.99	19.70
ECU	2006	658	1.00	12.50	0.54	45.25	1.00	6.43
ECU	2010	366	1.00	14.21	0.33	44.11	1.00	4.89
ERI	2009	179	0.98	2.58	0.50	22.88	1.00	2.97
EST	2009	273	1.00	15.56	0.32	60.40	0.99	18.50
FJI	2009	164	0.96	11.66	0.34	50.05	0.95	12.19
FSM	2009	68	1.00	18.76	0.12	60.63	0.29	28.70
GAB	2009	179	1.00	54.16	0.94	64.19	0.96	5.80
GEO	2008	373	0.99	5.17	0.31	36.06	1.00	6.47
GHA	2007	494	1.00	3.85	0.59	22.18	1.00	4.18
GIN	2006	159	1.00	7.80	0.31	45.88	1.00	2.77
GMB	2006	174	1.00	24.52	0.19	53.27	1.00	1.58
GNB	2006	223	1.00	9.15	0.61	43.50	1.00	3.65
GTM	2006	522	1.00	9.47	0.60	40.52	1.00	12.84
GTM	2010	590	1.00	10.68	0.60	39.57	1.00	13.97

Country Code	Year	No. Obs.	Frac. FDI Obs.	Avg. FDI (%)	Frac. For. Input Use. Obs.	Avg. For. Input (%)	Frac. Exp. Int. Obs.	Avg. Exp. Int. (%)
HND	2006	436	1.00	11.51	0.59	36.73	1.00	10.12
HND	2010	360	0.99	8.38	0.40	42.40	0.99	9.35
HRV	2007	633	1.00	7.82	0.52	45.10	1.00	19.60
HUN	2009	291	1.00	16.68	0.35	24.20	1.00	13.21
IDN	2009	1444	1.00	5.77	0.81	9.44	1.00	8.65
KAZ	2009	544	1.00	4.18	0.32	25.17	1.00	1.85
KEN	2007	657	1.00	10.04	0.60	31.91	1.00	8.73
KGZ	2009	235	1.00	9.76	0.37	34.95	1.00	7.95
KSV	2009	270	1.00	0.00	0.32	47.50	1.00	4.69
LAO	2009	360	1.00	15.23	0.40	46.33	1.00	20.25
LBR	2009	150	1.00	11.41	0.89	29.52	1.00	0.40
LSO	2009	151	1.00	27.36	0.83	47.35	0.97	18.90
LTU	2009	276	1.00	7.98	0.33	50.77	1.00	19.11
LVA	2009	271	1.00	16.93	0.31	50.08	1.00	15.41
MDA	2009	363	1.00	7.96	0.30	47.21	1.00	10.95
MDG	2009	445	1.00	37.18	0.45	44.88	1.00	15.89
MEX	2006	1480	1.00	5.60	0.76	11.61	1.00	5.42
MKD	2009	366	1.00	10.01	0.31	59.42	1.00	22.55
MLI	2007	490	1.00	4.44	0.61	25.39	1.00	3.78
MLI	2010	360	0.96	6.06	0.22	29.83	0.95	5.40
MNE	2009	116	1.00	4.32	0.29	53.94	1.00	4.99
MNG	2009	362	1.00	5.40	0.36	39.57	1.00	5.85
MOZ	2007	479	1.00	17.13	0.71	18.95	1.00	2.40
MRT	2006	237	1.00	7.87	0.34	53.71	1.00	4.25
MUS	2009	398	0.97	9.20	0.36	45.95	0.99	13.44

Country Code	Year	No. Obs.	Frac. FDI Obs.	Avg. FDI (%)	Frac. For. Input Use. Obs.	Avg. For. Input (%)	Frac. Exp. Int. Obs.	Avg. Exp. Int. (%)
MWI	2009	150	1.00	27.94	0.50	39.72	0.99	5.78
NAM	2006	329	1.00	21.20	0.32	59.61	1.00	6.10
NER	2005	125	1.00	15.09	1.00	64.33	1.00	10.75
NER	2009	150	1.00	16.83	0.33	92.04	0.99	5.94
NGA	2007	1891	1.00	0.66	0.50	9.99	1.00	0.56
NIC	2006	478	1.00	7.97	0.73	41.86	1.00	6.59
NIC	2010	336	0.99	9.71	0.37	35.81	1.00	6.44
NPL	2009	368	1.00	2.53	0.37	45.85	1.00	4.73
PAN	2006	604	1.00	10.40	0.39	52.21	1.00	10.90
PAN	2010	365	0.99	10.63	0.32	13.65	0.99	4.26
PER	2006	632	1.00	9.37	0.57	36.65	1.00	14.70
PER	2010	1000	1.00	9.26	0.76	37.45	1.00	14.91
PHL	2009	1326	1.00	19.23	0.98	27.39	1.00	19.69
POL	2009	455	0.95	7.29	0.31	20.76	1.00	9.69
PRY	2006	613	1.00	9.07	0.62	52.76	1.00	9.22
PRY	2010	361	1.00	9.15	0.33	45.43	1.00	7.08
ROM	2009	541	0.95	10.37	0.31	30.21	0.97	9.69
RUS	2009	1004	0.99	3.88	0.58	26.27	1.00	4.52
RWA	2006	212	1.00	14.29	0.28	58.61	1.00	3.19
SEN	2007	506	1.00	4.14	0.51	26.64	1.00	3.97
SER	2009	388	1.00	9.95	0.34	32.65	1.00	10.22
SLE	2009	150	1.00	8.65	0.01	50.00	1.00	1.83
SLV	2006	693	1.00	10.85	0.63	43.41	1.00	14.84
SLV	2010	360	0.99	15.09	0.35	42.63	1.00	12.63
SVK	2009	275	0.99	10.15	0.29	30.97	0.99	15.10

Country Code	Year	No. Obs.	Frac. FDI Obs.	Avg. FDI (%)	Frac. For. Input Use. Obs.	Avg. For. Input (%)	Frac. Exp. Int. Obs.	Avg. Exp. Int. (%)
SVN	2009	276	1.00	10.49	0.35	44.84	1.00	23.92
SWZ	2006	307	1.00	34.15	0.23	45.06	1.00	7.94
TCD	2009	150	1.00	22.01	0.39	52.25	1.00	6.19
TGO	2009	155	1.00	27.05	0.28	54.84	1.00	24.56
TJK	2008	360	0.99	4.85	0.30	35.16	1.00	4.17
TLS	2009	150	1.00	16.33	0.43	24.28	0.98	0.78
TON	2009	150	1.00	6.07	0.51	38.55	1.00	4.56
TUR	2008	1152	0.99	2.09	0.71	23.85	0.99	24.11
TZA	2006	419	1.00	9.54	0.65	24.93	1.00	2.85
UGA	2006	563	1.00	14.88	0.55	21.50	1.00	4.26
UKR	2008	851	0.98	5.02	0.55	22.43	0.99	9.66
URY	2006	621	1.00	10.32	0.56	53.64	0.99	13.63
URY	2010	607	0.99	8.89	0.57	51.08	1.00	14.59
UZB	2008	366	1.00	8.10	0.33	14.60	1.00	3.93
VEN	2006	500	0.00		0.00		1.00	2.02
VEN	2010	320	0.99	11.53145	0.27	35.13	1.00	0.99
VNM	2009	1053	1.00	11.33429	0.74	35.35	1.00	23.25
VUT	2009	128	1.00	30.32031	0.17	62.95	0.11	23.29
WSM	2009	109	0.96	12.90476	0.24	65.04	0.99	8.60
YEM	2010	477	0.99	1.716102	0.50	42.51	1.00	3.35
ZAF	2007	937	1.00	10.25053	0.73	16.04	1.00	5.23
ZAR	2006	340	1.00	15.87059	0.44	29.73	1.00	1.62
ZAR	2010	359	1.00	11.47207	0.33	26.89	1.00	2.99
ZMB	2007	484	1.00	20.77355	1.00	34.81	1.00	2.94

Source: Author's calculations based on data from the World Bank's Enterprise Surveys. See text for details.

Table 3. Probability of Reporting Trade Integration Data and Firm Size

	(1)	(2)	(3)
	FDI Reported	For. Input Reported	Export. Int. Reported
log emp.	0.0207 (0.0429)	0.143*** (0.0187)	0.0234 (0.0380)
Constant	1.929*** (0.318)	-0.379*** (0.0855)	2.485*** (0.261)
Observations	56,911	56,911	56,911

Clustered standard errors by country in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Figure 1. Tradable Consumption Shares across Income Deciles in Brazil, 2003

Source: Lederman, Lichand and Fajnzylber (2011), based on data from the Brazilian POF survey of 2003.

Figure 2. Evolution of Education Premiums for Completed Primary, Secondary and University Education in Latin America (Source: Aedo and Walker 2011)

Basic OLS estimates of Mincer-style regressions

Figure 2 Notes: The education earnings premium for primary is the difference in the logarithm of monthly earnings between complete primary and incomplete primary education, the education earnings premium for secondary is the difference in the logarithm of monthly earnings between complete secondary academic and complete primary education, and the education earnings premium for university is the difference in the logarithm of monthly earnings between complete university and

complete secondary academic education. Regressions control for potential experience, gender and region. **Source:** Aedo and Walker (2011, Figure 20, page 46).

Figure 3. Global Integration and Firm Size

Source: Author's estimations based on data from the World Bank's Enterprise Surveys.