Original Article

Comparative Political Studies
2023, Vol. 0(0) 1–36

DOI: 10.1177/00104140231152800
journals.sagepub.com/home/cps
SAGE

Low-Skill Products by High-Skill Workers: The Distributive Effects of Trade in Emerging and Developing Countries

Irene Menéndez González[1], Erica Owen[2], and Stefanie Walter[3]

Abstract

In developing countries, trade is increasingly associated with greater returns to high-skilled labor and rising inequality. These empirical patterns are at odds with canonical models of trade in the developing world. What does this mean for the political economy of trade in these countries? We argue that although developing countries have a comparative advantage in low-skill products, these are produced by workers that are relatively high-skilled compared to their peers. Trade and global production benefit relatively skilled workers, particularly those exposed to exports and inward foreign direct investment in manufacturing. Our argument offers insight into why relatively skilled workers are most supportive of free trade and why inequality is rising in developing countries. We examine micro- and macro-level implications of our argument using cross-national survey data on policy preferences and aggregate data on trade and inequality. The findings have important implications for the political economy of trade and global production in developing countries.

[1]IE University, Madrid, Spain
[2]University of Pittsburgh, Pittsburgh, PA, USA
[3]University of Zurich, Zurich, Switzerland

Corresponding Author:
Irene Menéndez González, IE University, School of Global and Public Affairs, Paseo de la Castellana 259, Madrid 28029, Spain.
Email: Irene.Menendez@ie.edu

Keywords
trade, inequality, preferences, political economy, distributive effects, developing countries

Developing countries specialize in "low-skill" products.[1] This should benefit low-skill workers relative to more skilled workers according to canonical models of trade prominent in political economy, namely, the factoral model. Instead, trade in these countries is associated with rising inequality, increasing skill premiums, and more support for free trade by high-skill workers than low-skill ones (for review, see Helpman, 2017; Pavcnik, 2017).[2] This raises important questions for political science research. If developing countries export low-skill-intensive products, why don't low-skilled workers seem to benefit from free trade as much as high-skilled workers? What is the impact of these distributive pressures on developing country politics?

The answers to these questions have important implications for our understanding of issues as diverse as the causes and consequences of democratization, the evolution of inequality, and the politics of international trade. Many theoretical arguments about the effects of trade (and globalization generally) on developing country politics take the finding that developing countries have a comparative advantage in low-skilled products to imply that the low-skilled disproportionally benefit from free trade, whereas high-skilled labor and capital will be harmed, as implied by the factoral model. Examples include the argument that democratization leads to trade liberalization in developing countries because it empowers labor, for whom liberalization is beneficial (Milner & Kubota, 2005), the argument that in labor-abundant developing countries, left governments will be more likely to liberalize trade because it benefits the majority of workers (Dutt & Mitra, 2005), or the argument that when labor-abundant economies open themselves up for trade, inequality decreases and democratization becomes more likely (Acemoglu & Robinson, 2006; Boix, 2003).

Given the centrality of the assumption that trade disproportionately benefits low-skill workers and reduces inequality in research on the political economy of the developing world, the scant empirical evidence for the central distributive implications of the factoral model is no trivial matter. This paper aims at resolving this tension and providing a framework that allows us to better understand the distributional effects of trade in developing countries.

We build a theory of the distributional effects of trade and global production in developing countries by building on new developments in international economic theory. First, we draw on the generation of trade models called "new new trade theory" or heterogeneous firms theory (e.g., Melitz, 2003), in which more productive firms are the ones that benefit from trade and

foreign direct investment (FDI) *and* they hire more skilled or "high-quality" workers (e.g., Bustos, 2011; Helpman et al., 2004, 2010). These models suggest that free trade and global production—especially exports and inward FDI—benefit these workers, at the expense of those workers who are not able to find jobs in productive, internationally competitive firms (e.g., Palmtag et al., 2020; Walter, 2017). Second, models of global production (Feenstra & Hanson, 1996, 1997) demonstrate that work that is moved offshore from the North is low-skilled by Northern standards but high-skilled by the standards of the host.

Both types of models imply that more skilled, well-educated workers *everywhere* benefit more from exports and inward FDI than less-skilled, less-educated workers. At the same time, what it means to be "high-skilled" will vary across countries. Thus, it is necessary to distinguish between the global (absolute) and the local (relative) skill distribution and to recognize that what is considered "low-skilled" globally may be relatively high-skilled in certain local contexts. Someone who has received more education than most other people in a developing country context can be considered relatively high-skilled in that country but may not necessarily be well-educated in a developed country context. For example, someone who can read and write fluently may be in the upper half of the education distribution in a less developed country, but the same skill level, absent additional qualifications, would put that person in the lower tail of the distribution of educational attainment in a developed country. We thus expect that exports and multinational activity benefit relatively high-skilled workers compared to relatively low-skilled workers.

We offer evidence for two empirical implications of our argument. First, we focus on the micro-level implications and examine individual trade attitudes. Many studies find that high-skilled individuals in many, if not most, developing countries view trade and investment more positively than low-skilled individuals (Ardanaz et al., 2013; Beaulieu et al., 2005; Jäkel & Smolka, 2013; Margalit, 2012; Mayda & Rodrik, 2005; Pandya, 2010; Rudra et al., 2021; Urbatsch, 2013), which contradicts the predictions of the factoral model. We contribute to this debate by using cross-national survey data from PEW (2002, 2007, 2014) to examine the effect of *relative* skill on income and preferences regarding globalization. We find that consistent with our argument, relatively skilled individuals earn higher incomes and are more supportive of trade and global production, and that these effects are increasing in exposure to manufacturing exports and greenfield FDI.[3]

Second, at the macro-level, we consider the implications of our theory for the relationship between trade and inequality. Our theory suggests that manufacturing exports will contribute to rising inequality. Using cross-national data for 70 countries from 1960 to 2016, we demonstrate that manufacturing exports contribute to greater inequality. The upward pressure on inequality from trade in developing countries thus appears to operate

largely through exposure to manufacturing exports, not manufacturing imports, or commodity exports. This evidence for the type of distributive pressures we theorize has important implications for a range of political economy literatures that focus on the trade-inequality relationship. Our paper concludes with a discussion of how our argument that individuals who are relatively more skilled in local terms benefit the most from free trade matters for several important debates in political economy on the role of trade for developing country politics, including debates on the relationship between trade, inequality, and democracy and interest representation more broadly.

Theoretical Argument

Our argument about the distributional impacts of trade and global production in developing and emerging markets proceeds in three steps. First, we argue that exports and multinational activity benefit skilled workers relative to less-skilled workers, and this is especially true in the manufacturing sector. Second, we argue that it is necessary to distinguish between the global (absolute) and the local (relative) skill distribution and to recognize that what is considered "low-skilled" globally may in fact be considered relatively high-skilled in certain local contexts. Finally, together these dynamics lead to the expectation that exports and inward FDI, especially in manufacturing, benefit relatively skilled workers in developing and emerging markets. We also briefly discuss how our theory relates to other models of the distributional effects of trade.

Demand for Skilled Labor

The heterogenous firms literature shows that the firms that select into exporting and FDI are the most productive firms, and that this holds everywhere, irrespective of countries' level of development (Helpman et al., 2004; Melitz, 2003). Through trade and MNC activity, these firms are able to expand while the least productive firms contract or exit. Crucially, more productive firms that export or engage in FDI differ from less productive, purely domestic, firms in several ways: skill intensity, technological innovation, matching (see Helpman, 2017 for a review). All of these channels, as we discuss below, can increase demand for skilled labor relative to unskilled labor. Because these more productive firms are more likely to employ more skilled workers (e.g., Bustos, 2011; Helpman et al., 2010), trade, on average, increases demand for high-skilled workers relative to low-skilled ones.

A large body of empirical research shows that more educated (and hence high-skilled) workers benefit more from trade. For example, more educated workers receive higher wages when they are employed in exporting firms and industries (Bernard & Jensen, 1995; Munch & Skaksen, 2008) and report

lower levels of job insecurity when they work in tradable industries or offshorable occupations (Walter, 2010, 2017). Although most of this research has focused on developed countries, studies on emerging markets and developing countries equally find that workers in exporting firms receive higher wages (e.g., Alvarez & Lopez, 2005; Helpman et al., 2017; Van Biesebroeck, 2005; Verhoogen, 2008).

Whereas Heckscher–Ohlin/Stolper–Samuelson effects on labor demand and wages are driven by the reallocation of labor due to exports and import competition, the heterogenous firms literature focuses on exports and imports separately, because different mechanisms drive demand for skilled labor (see Pavcnik, 2017). How does exporting increase the wages of workers? Several complementary mechanisms have been offered. One set of arguments drawing on heterogeneous firms theory emphasizes that differences in the composition of the workforce shape differences in wages across firms. According to Yeaple (2005) and Bustos (2011), exporting provides more productive firms with access to larger markets, which makes technological innovation more profitable because it becomes cheaper to import. Exporting to richer countries also induces firms to cater to sophisticated (quality-sensitive) consumers and upgrade the quality of their products (Verhoogen, 2008). Technological adoption and innovation, like the production of high-quality products, requires skilled workers.[4] Indeed, growth in high-skill-intensive manufacturing exports is associated with higher levels of educational attainment (Blanchard & Olney, 2017).

Others introduce labor market frictions and argue that workers with the same characteristics can be paid different wages by different firms. Helpman et al. (2010, 2017) argue that more productive firms are more willing and able to invest in a costly searching and hiring process and consequently employ, on average, workers with above-average ability and skill. Because such high-skilled workers are more difficult to replace, however, they have an advantage in the wage bargaining process, so that more productive firms must pay them higher wages.

We also expect FDI to create similar pressures on demand for skilled labor and skill premiums. Among heterogenous firms, multinationals are the subset of the most productive firms. Pandya (2010) argues, for example, that FDI increases wages for skilled labor, because multinational firms are typically more technologically advanced and require more skilled labor than equivalent local firms. Importantly, recent research suggests that trade and FDI are inextricably linked under the umbrella of global production (e.g., Pandya, 2016). For instance, fragmented production leads to increasing trade within and across the borders of firms. Trade is closely related to offshoring and FDI; when developed country firms shift an increasing portion of their production to their affiliates in developing

countries, relative demand and relative wages of skilled labor rise in both types of countries (Feenstra & Hanson, 1996, 1997). For these reasons, we expect inward FDI to lead to increased demand for skilled labor relative to unskilled labor.

How does this activity of heterogenous firms influence demand for skilled labor relative to unskilled labor more broadly in a country? Most of the existing economics literature focuses on firm-level outcomes. The model of Burstein and Vogel (2017) is an important exception. They develop a model of trade that integrates a Heckscher–Ohlin mechanism and a skill-biased productivity mechanism (based on heterogeneous firm theory) in a general equilibrium framework. Trade liberalization leads factors to reallocate toward a country's comparative advantage sectors via Heckscher–Ohlin pressures. If a country has a comparative advantage in low-skill-intensive products, labor reallocation between sectors will lower its skill premium. At the same time, trade liberalization leads factors to reallocate toward exporting firms and away from domestic firms within sectors, as in heterogeneous firm theory (Melitz, 2003). Because, on average, exporters are more productive than domestic producers, greater liberalization increases the skill premium by causing labor to reallocate from low-productivity and low-skill intensity firms to high-productivity and high-skill intensity firms within the same industry.[5] This occurs even as the Heckscher–Ohlin mechanism puts downward pressure on the skill premium in developing countries.

Importantly, this mechanism should be stronger in more skill-intensive industries (Burstein & Vogel, 2017, p. 1369). Intuitively, given that productivity is biased toward skilled labor, differences in productivity should be amplified in sectors with a greater share of skilled labor.[6] In developing countries, many manufacturing industries are more skill intensive than other goods-producing sectors (e.g., agriculture) based on UNCTAD classifications. Further, as noted by Rodrik (2014) and others, exports of commodities (i.e., natural resources and traditional agriculture) do not create the same opportunities for value-added and structural transformation as exports in the manufacturing sector. The skill-biased benefits of exports and FDI are thus less likely to extend to sectors that produce commodity exports, such as natural resources, or low-skill labor-intensive agriculture.

Following the heterogenous firms literature, we focus on how exports and inward FDI shape the distributional effects of trade. We do not theorize about the effect of imports because different possibly competing mechanisms link imports and import competition to labor demand (Pavcnik, 2017). For instance, imports can decrease the price of capital- and skill-intensive goods, which could reduce skill premiums in line with Heckscher–Ohlin/Stolper–Samuelson. But lower prices can also lead firms to upgrade, innovate and ultimately demand more skilled labor. Some firms

use imports in the production process and may benefit while others compete directly with imports and may shrink, affecting composition of labor demand. As a result, the *ex-ante* effect on overall labor demand is ambiguous. Therefore, we focus on exports and inward FDI.

In sum, we expect that exports and inward FDI are important drivers of increasing demand for skilled labor relative to less-skilled labor. While this mechanism should be observable in firms from all types of countries, it is stronger in more skill-intensive industries. This mechanism can offset the downward pressure on skill premium inequality predicted by the canonical models.

Rethinking Skill and the Distributive Effects of Trade and Global Production

The above literature defines skill in a similar way across countries. Yet as we know from the global production literature, production activity that is low-skilled from a developed country perspective may be comparatively skilled from the developing country perspective (Feenstra & Hanson, 1996, 1997). This suggests that we need to think more carefully about what it means to be low- or high-skilled in different contexts, even as we expect "skilled" workers to benefit from exports and FDI in all countries.

We thus distinguish between global (*absolute)* and local (*relative*) skill levels. *Absolute* skill level refers to how skilled a person is overall, irrespective of where he or she lives or how many other people have these skills. All university graduates are highly skilled in this definition, and everyone who has completed only primary school is low-skilled in absolute terms. Many of the analyses discussed above conceptualize skilled labor this way (e.g., Burstein & Vogel, 2017; Bustos, 2011). *Relative* skill, in contrast, defines individuals according to their position on their country's skill distribution, and thus takes the local context into account. It denotes a person's skill level relative to the skill level of the person's peers (e.g., everyone living in the same country). Whereas all university graduates are likely to be on the higher end of the skill distribution, they are particularly highly skilled in contexts where few people attend university and less high-skilled in relative terms in places where a high number of people have a PhD as well. Likewise, a person who has only completed primary school will be at the bottom of the national skill distribution in countries in which secondary school is mandatory, but will be higher up in the skill distribution in countries where few people complete primary school and a majority may not know how to read or write. In short, what it means to be skilled in relative terms depends on the local context.

Figure 1 demonstrates the difference between absolute and relative skills. It presents the distribution of countries' mean years of education based on the Barro and Lee (2013) dataset for 164 developing, emerging, and developed

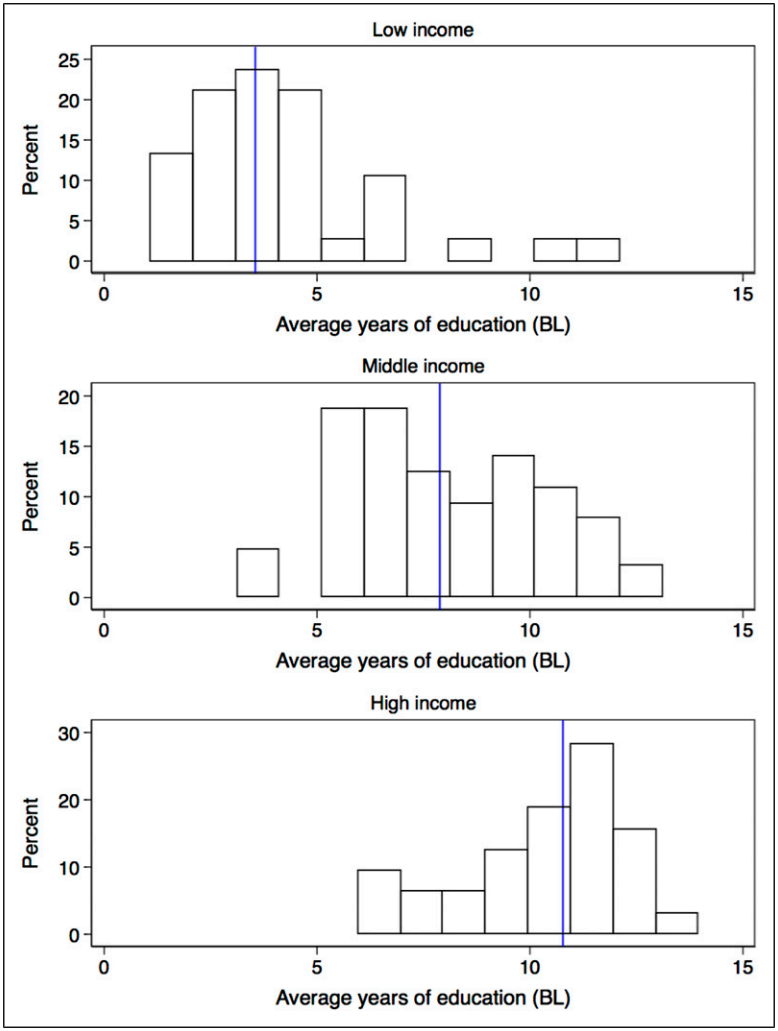

Figure 1. Distribution of average years of schooling in 2005 across different types of countries. *Note:* Mean years of schooling for 164 countries in 2005 (Barro & Lee, 2013). Vertical lines represent the median for the income-group.

countries with a population greater than 500,000 in the year 2005. It shows that in *absolute* terms, the average skill level in developing countries is significantly lower than that for emerging markets, and especially developed countries. The mean years of schooling in high, middle, and low-income countries varies dramatically between 10, 8, and 4 years, respectively (Barro & Lee, 2010). Yet Figure 1 also shows that absolute and relative skill levels

can differ significantly. For example, an individual with 12 years of schooling has a dramatically different relative (local) skill level depending on which country they are from. 12 years of schooling denotes an average relative skill level in a developed country but makes for a relatively highly skilled individual in a developing country.

What does this mean for the distributive effects of trade? We argue that absolute skills determine the kind of products that are being produced, whereas relative skills influence the distributional consequences of trade and global production. Countries' endowments of absolute skills determine their production patterns as predicted by the canonical factoral model of trade (Heckscher & Ohlin, 1991): Countries with an abundance of skilled labor will specialize in "high-skill products," whereas countries in which most workers have low absolute levels of skills will predominantly export "low-skill products." Absolute skill levels tell us less about who will benefit and who will be hurt by free trade, however. This is because, in comparative terms, the skill level of workers performing the same task or producing the same product differs across countries. For example, assembly-line production of a low-skill-intensive product in a developed country will likely be performed by workers who are relatively low-skilled compared with all workers in that country. However, assembly-line workers who perform the same task and produce the same low-skill-intensive product are likely to be *relatively more skilled* in the context of a developing country. Working in transnational factories often requires an ability to read and write, and possibly even to speak English, which is much rarer in a developing country such as Bangladesh or Nigeria than in a developed country such as Germany or the UK.

Implications for the Distributional Effects of Trade and Global Production

Overall, our argument suggests that reductions in barriers to exports and inward FDI, especially in manufacturing, will benefit relatively skilled workers in developing and emerging markets as the expansion of the most productive firms leads to increases in the demand for relatively skilled workers. Our argument is consistent with empirical evidence that shows that exporting firms and foreign-owned firms in developing countries tend to pay higher wages than domestic firms (Brown et al., 2004), and that this wage-premium is higher for better-educated workers (Feenstra & Hanson, 1997; Lipsey & Sjöholm, 2004). It is also consistent with the finding that after significant trade liberalization reforms in Brazil, employment shifted from skilled to unskilled intensive sectors (as predicted by Brazil's comparative advantage in low-skilled labor in absolute terms), but that each sector at the same time increased its relative share of skilled labor—relatively high-skilled workers who then produced low-skill products (Gonzaga et al., 2006).

This argument has several implications at both the micro- and the macro-level. At the micro-level, an individual's relative, local skill level can thus explain why some individuals support (oppose) trade when they would otherwise not be expected to. Relatively high-skilled individuals should earn higher incomes and view trade and FDI more positively. While this relationship has been documented many times for developed countries, our argument suggests that we should see the same pattern in developing countries and emerging markets as well. Likewise, and again just like in developed countries, this skill premium in developing countries should be concentrated among those workers that are exposed to exports and global production (especially in manufacturing) and the opportunities this offers to relatively high-skilled individuals. This is consistent with the (scant) existing work on these issues (Helpman et al., 2017; Palmtag, 2020; Rommel & Walter, 2018; Walter, 2017). At the micro-level, the influence of relative skill on incomes and support for free trade should be larger the more workers are exposed to exports and inward FDI.[7]

Our argument also has important implications at the macro-level, for example, for the relationship between trade, inequality, and democracy. In contrast to the expectations of the factoral model, our argument predicts that trade—specifically exports—will exacerbate income inequality (rather than reduce it), because the already privileged groups in less developed countries, who are also the better educated relative to the rest of the population, disproportionately benefit from exports. This should be particularly true of manufacturing exports because they are more skill intensive than other goods-producing industries. One takeaway from the heterogenous firms literature is that it is important to distinguish between imports and exports because the mechanisms driving demand for skilled relative to less-skilled labor are different.

Finally, we discuss how the expectation of our theory differs from that of the canonical models in the IPE literature. First, as discussed above, the factoral model predicts increasing returns to less-skilled labor and decreasing returns to high-skilled labor. In the Ricardo–Viner specific factors model, also referred to as a sectoral model, those same Heckscher–Ohlin/Stolper–Samuelson pressures are still at play—the only difference is with respect to mobility. If labor is immobile across industries, individuals' well-being is tied more to the industry and thus we would expect trade to impact workers of the same skill level across sectors differently. For developing countries, export-oriented industries expand, increasing demand for the abundant factor (low-skilled labor); import-competing industries shrink (reducing demand for the scarce factor—high-skilled labor). These pressures should reduce the skill premium in both types of industries, but wages for a given factor may not be equal across sectors (e.g., low-skilled workers in the import-competing industry may not be able to reallocate to the exporting industry).

Our approach is different in several ways. Drawing on theoretical models and empirical evidence from economics, we argue that there are producer-driven differences in demand for relatively skilled labor within industries. More generally, the distinction between relative and absolute skills and the importance of relative skills for the distributional consequences of trade and global production has implications for many arguments in political economy that rely on the prediction of the factoral model that (low-skilled) workers will benefit from free trade in developing countries. As such, our argument has implications for research ranging from the politics of trade liberalization in developing countries (Dutt & Mitra, 2005; Milner & Judkins, 2004; Milner & Kubota, 2005; Milner & Mukherjee, 2018), over trade and redistribution (Bardhan et al., 2006), to the relationship between globalization and regime type (Acemoglu & Robinson, 2006; Ahlquist & Wibbels, 2012; Boix, 2003; Kono, 2008; Mansfield et al., 2002; Rommel, 2018).

In the remainder of this paper, we provide evidence for some of these empirical implications, both at the micro- and the macro-level.

Micro-Level Evidence: Absolute and Relative Skills, Income, and Trade Policy Preferences

We start our empirical analysis at the individual level and first present descriptive evidence on the difference between absolute and relative skill. We then focus on the mechanism proposed by our argument and demonstrate that incomes are higher among individuals who are relatively skilled and that this effect is particularly pronounced among those who are more exposed to manufacturing exports and FDI. Finally, we look at the political implications of our argument and examine how relative skill level, conditional on manufacturing exports and FDI, is related to support for free trade and globalization.

Research Design

To examine the individual-level implications of our argument, we rely on the PEW Global Attitudes Project. We use the 2002, 2007, and 2014 waves for a total of 44 developing and emerging market countries, where developing and emerging market countries are those that are not classified by the IMF as an advanced economy in the respective survey year.[8] On average, our sample has a higher level of education than the population, based on a comparison of average years of schooling for each country-year to a similar measure from the World Development Indicators (WDI). Overall, this should make it more difficult to find support for our argument because there is less variation in our sample than in the general population. In all models, we limit our sample to

respondents in the labor force, because these individuals are exposed to the labor market consequences of trade and globalization.

Dependent Variables: Income and Policy Preferences. Our argument focuses on how individuals' relative skills shape the distributional effects of trade and global production, and how this in turn affects their policy preferences. We proxy the distributional effects by looking at relative individual income, which accounts for differences in income levels across countries.[9] We calculate the ratio of an individual's income to the median respondent in the same country-year. The mean for this variable is 1.61, and it ranges from 0 (no income) to 95.6 (meaning that the respondent earns 95 times as much as the median respondent).

Next, we turn to individual policy preferences. We measure support for trade and global production—that is, economic globalization—based on two questions: First, "what do you think about the growing trade and business ties between **[survey country]** and other countries – do you think it is a very good thing, somewhat good, somewhat bad or a very bad thing for our country?" Second, we examine attitudes toward greenfield FDI, measured using the question: "In your opinion, when foreign companies build new factories in **[survey country]**, does this have a very good, somewhat good, somewhat bad, or a very bad impact on our country?" The latter question is asked only in 2014. We recode answers into a binary variable coded one (favorable view of globalization and FDI) for those respondents who answered "very good" or "somewhat good." Those who said somewhat "bad" or "very bad" were coded as zero and "don't know" responses are treated as missing.

Independent Variables: Absolute and Relative Skills, and Exposure. In the regression analyses below, we measure *absolute skill* with a dummy variable that captures whether an individual has a bachelor's degree or higher. We include this variable because all skilled workers in absolute terms are expected to benefit from trade. In statistical terms, this means the coefficient on relative skill is the effect of relative skill net of any effect of absolute skill.

Relative skills, in contrast, are measured as the individual's years of education divided by the average years of education in the individual's country (data on country averages are taken from Barro and Lee (2010)). This measure of relative skill has a very intuitive meaning: individuals with a score above (below) 1 are more (less) skilled relative to the average individual in their country. In our sample, the mean level of relative skill is 2.21 with a standard deviation of 2.04, and the range is from 0 to 24.75.[10]

Our argument suggests that globalization has stronger effects on those individuals who are exposed to exports and inward FDI, particularly in manufacturing. Unfortunately, the PEW survey does not provide information on an individual's sector of employment, let alone firm-level

information. We therefore focus on country-level information about manufacturing exports and the activity of multinational firms in the form of greenfield FDI projects in the manufacturing sector as a proxy for individuals' exposure. Manufactured exports include products in the Standard International Trade Classification sections 5 (chemicals), 6 (basic manufactures), 7 (machinery and transport equipment), and 8 (miscellaneous manufactured goods), excluding division 68 (non-ferrous metals). As our primary measure, we use the log of real manufacturing exports to capture exposure calculated from the WDI. This is similar to Mayda and Rodrik (2005) who also use level measures to capture sectoral pressures.[11] In the supplementary materials, we explore alternative specifications, including those based on shares. We also consider the role of inward FDI, measured as the number of announced greenfield FDI projects in the last 5 years in the manufacturing sector. Data come from the FDI Markets and are available for the years 2007 and 2014. We focus on greenfield investment, that is, investments in new production facilities, offices and other facilities necessary for production and distribution, because these projects more clearly increase demand for labor by creating new jobs (and data on mergers and acquisitions is not available).

If our theory is correct, the effect of relative skill on economic outcomes and support for free trade should be larger among countries that export more manufactured goods and have more FDI. We therefore interact relative skill with the log of manufacturing exports and the number of greenfield FDI projects in the manufacturing sector in separate models. Finally, as discussed above, we do not expect less skill-intensive commodity exports (e.g., natural resources and low-skill labor-intensive agriculture) to produce these same dynamics. In the interest of space, we present results for other commodity exports in Tables A8 and A9 of the supplementary materials and note that findings are consistent with this expectation.

Model Specification. We estimate a multilevel model with country-level random effects to account for the fact that individuals are nested within countries, using either linear or logistic regressions as appropriate. This approach takes into consideration the fact that individuals in the same country share a common background and likely are not independent. We also include survey year dummy variables and use survey weights to account for sampling.

We include several control variables. First, we include dummy variables equal to one for those who are unemployed (*Unemployed)* and one for women *(Female)*, both of whom may have lower incomes and who are shown to be more protectionist across several different studies. We also control for age to account for different generational labor market pressures. Because our sample includes both emerging markets and developing economies, we include the

log of GDP per capita to control for countries' levels of development, as well as the log of the population to control for market size. We also include the log of natural resources to account for differences across different types of economies.[12] Finally, as we discuss further below, we include Margalit's (2012) measure of cultural threat as one measure of non-material factors in one specification.

Results

Absolute Versus Relative Skill. Key to our argument is the distinction between absolute and relative skills. To illustrate the relevance of this distinction, we begin with a descriptive exploration of this difference. Figure 2 shows individuals' absolute skill (proxied by years of schooling) compared to their relative skills for the 2014 wave of the PEW GAP. The horizontal dashed line at the relative skill score of 1 represents the individual skill level that corresponds to the country's average skill level. The vertical dashed line indicates the mean level of absolute skills (12 years of schooling). It shows that this absolute skill level corresponds to a huge range of relative skill levels across countries—in some countries, this level of schooling means that the individual has been in school three times as long as the average person in the country. In a few emerging markets, however, 12 years of schooling denotes a lower-than-average education level and thus a relatively low-skilled individual. Likewise, in some countries (such as Senegal), an individual with only 5 years of

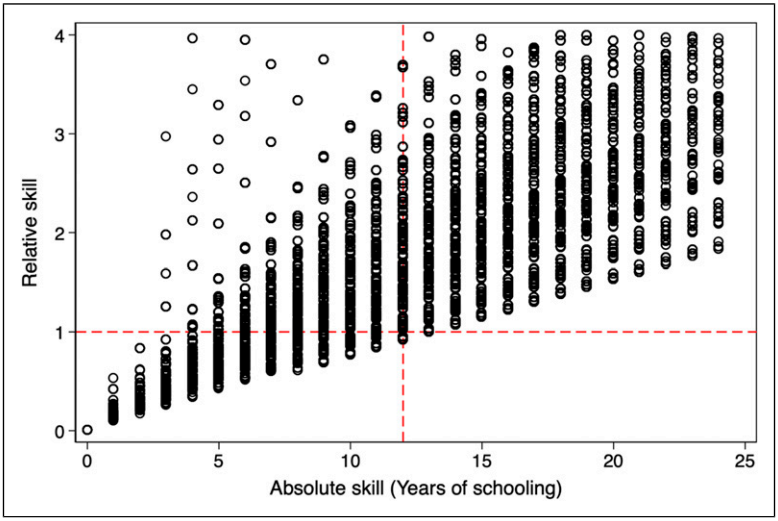

Figure 2. Absolute skill versus relative skill (2014 PEW).

schooling has above-average education. In other countries (such as Poland), however, individuals with twice as many years of schooling (10 years) exhibit a below-average education. Figure 2 thus underscores the importance of thinking of skill in relative terms.

Examining the Mechanism. We begin by examining the relationship between relative skill, manufacturing exports, and income. Table 1 shows a set of regression models estimating respondents' income relative to the median respondent in the same country-year. In Model 1, we include measures of absolute and relative skill. Both coefficients are positive and statistically different from zero. This suggests that those who have higher relative skill earn a higher income, even after controlling for absolute skill level. Our argument suggests that high relative skills are particularly beneficial when respondents are more exposed to the international economy. We therefore include an interaction between relative skill and manufacturing exports (model 2) and between relative skill and the log of the number of FDI projects in the manufacturing sector as an additional dimension of exposure to global production (model 3).[13] The positive and statistically significant coefficients on the interaction terms suggest that in line with our argument, the effect of relative skill on income is greater in countries with more manufacturing exports and with more greenfield FDI in manufacturing, even when controlling for absolute skill level.

We examine this effect by plotting the marginal effect of relative skill on income, conditional on manufacturing exports (Figure 3a) and FDI projects (Figure 3b). The figures show that respondents with high relative skill levels earn more income, and this effect is stronger the more exposed the country is to the global economy in terms of manufacturing exports and manufacturing FDI. Substantively, a one standard deviation increase in relative skill increases relative income by 0.20 [−0.03, 0.44] in countries with few exports, but by 1.07 [0.67, 1.47] in countries with high export levels[14] and .29 [0.17, 0.41] at low levels of FDI and by 1.30 [1.05, 1.54] at high levels of FDI. This may seem modest compared to variation in the outcome variable, but it is substantially significant when compared to the effect of obtaining a bachelor's degree, which increases relative income by 0.78 [0.53, 1.02].

In sum, we find that individuals who have received more education than their country peers have higher incomes, especially when they benefit from the opportunities generated by trade and global production. These findings not only are in line with our argument, but they are also consistent with research that shows that in African countries (Palmtag, 2020) and Russia (Palmtag et al., 2020), high-skilled people report much higher levels of life satisfaction and well-being when they live in areas with high levels of foreign trade or FDI.

Table 1. Determinants of Relative Income, 44 Developing Countries (2002, 2007, 2014).

	1	2	3
Absolute skill (BA or higher)	1.090*** (0.153)	0.958*** (0.142)	0.777*** (0.126)
Relative skill	0.176** (0.070)	−0.785** (0.337)	−0.024 (0.038)
Mfg. exports (log)	−0.014 (0.066)	−0.108** (0.054)	
Relative skill X Mfg. exports		0.047*** (0.015)	
Mfg. FDI projects (log)			−0.157 (0.116)
Relative skill X Mfg. FDI projects			0.080*** (0.009)
Female	−0.028 (0.030)	−0.021 (0.033)	−0.029 (0.038)
Age	0.001 (0.002)	0.003* (0.001)	0.003* (0.001)
Unemployed	−0.432*** (0.085)	−0.430*** (0.084)	−0.436*** (0.098)
Log GDP per capita	0.005 (0.116)	0.040 (0.097)	−0.011 (0.099)
Log natural resources	−0.070 (0.087)	−0.061 (0.089)	0.008 (0.042)
Log population	0.171* (0.094)	0.137* (0.080)	0.067 (0.117)
Constant	−1.489 (1.395)	0.720 (1.202)	0.254 (2.180)
Observations	47,727	47,727	30,607
# Countries	44	44	39
Year FE	Yes	Yes	No
Log likelihood	-1.04×10^5	-1.04×10^5	−68,986.68
BIC	207,918.80	207,738.74	138,117.96

Notes: Multilevel regression model with random effects. Cluster robust standard errors in parentheses. *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Model 3 is 2014 only.

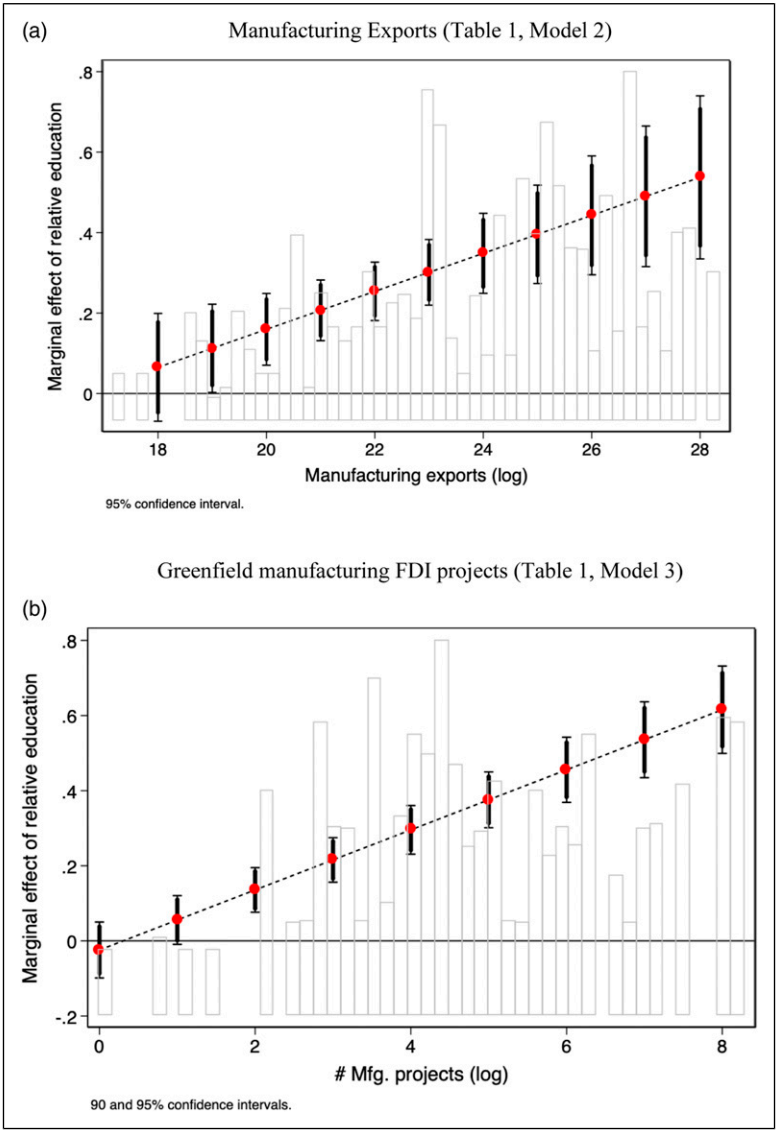

Figure 3. Marginal effect of relative education on income (a) Manufacturing exports (Table 1, Model 2). (b) Greenfield manufacturing foreign direct investment projects (Table 1, Model 3).

Table 2. Analysis of Preferences in Developing countries.

	Globalization is good			Greenfield FDI is good	
	1	2	3	4	5
Absolute skill (BA or higher)	0.203** (0.088)	0.158* (0.088)	0.148 (0.195)	0.025 (0.071)	0.005 (0.071)
Relative skill	0.034 (0.029)	−0.352* (0.199)	−0.537* (0.301)	0.033 (0.047)	−0.141 (0.089)
Mfg. exports (log)	0.068 (0.080)	0.034 (0.083)	0.022 (0.083)		
Relative skill*Mfg. exports		0.019* (0.010)	0.027* (0.016)		
Mfg. FDI projects (log)				−0.085 (0.156)	−0.149 (0.158)
Relative skill*Mfg. FDI projects					0.037** (0.017)
Cultural threat			−1.423*** (0.103)		
Female	−0.091** (0.041)	−0.090** (0.041)	0.136* (0.071)	−0.137*** (0.051)	−0.136*** (0.051)
Age	−0.004*** (0.001)	−0.003** (0.001)	0.004 (0.003)	−0.001 (0.002)	−0.000 (0.002)
Unemployed	−0.193*** (0.055)	−0.192*** (0.054)	−0.155 (0.144)	−0.054 (0.046)	−0.053 (0.047)
Log GDP per capita (constant)	−0.252 (0.198)	−0.249 (0.197)	−0.708*** (0.183)	−0.180 (0.165)	−0.178 (0.162)
Log natural resources	0.135** (0.055)	0.138** (0.054)	0.155* (0.082)	0.061 (0.063)	0.063 (0.063)
Log population	−0.143 (0.137)	−0.159 (0.136)	−0.125 (0.147)	−0.106 (0.153)	−0.104 (0.151)
Constant	5.214** (2.524)	6.144** (2.490)	12.470*** (2.315)	5.190 (3.180)	5.443* (3.160)
Constant	0.440*** (0.098)	0.436*** (0.097)	0.529*** (0.191)	0.208*** (0.051)	0.210*** (0.051)
N	54,543	54,543	11,261	21,389	21,389
# Countries	44	44	31	33	33
Year FE	Yes	Yes	No	No	No
Log likelihood	−18,559.31	−18,552.71	−3238.38	−10,485.53	−10,482.03
BIC	37,260.40	37,258.12	6598.04	21,080.74	21,083.72

Notes: Mixed effects logit models. Model 3 based on 2002, Models 4 and 5 based on 2014. Cluster robust Standard errors in parentheses. *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

Examining the Political Implications. To examine the political implications of our finding that relatively more skilled individuals in less developed countries benefit from exposure to the global economy in terms of higher incomes, we focus on individual policy preferences. To the extent that individuals care about the material effects of a policy on themselves personally, we expect that relatively high-skilled individuals in less developed countries should also be more supportive of trade and FDI than less-skilled citizens, especially among workers that are more exposed to the global economy.

Our analysis in Table 2 shows that this is indeed the case. In Models 1 and 3, the dependent variable is support for globalization and in Models 4 and 5, the dependent variable is positive attitudes toward greenfield FDI. After controlling for absolute skill, the coefficient on relative skill is not statistically significant in the unconditional models (models 1 and 4). However, consistent with our expectations, we find that the coefficient on the interaction term between relative skill and exposure is positive and statistically different from zero, suggesting that relative skill significantly increases support for increasing globalization and greenfield FDI in countries with high levels of manufacturing exports and greenfield FDI projects (models 2 and 5, our preferred specifications).

Figure 4a and b plot the marginal effects of relative skill, conditional on manufacturing exports and the amount of greenfield FDI in manufacturing. We also compute substantive effects. At low levels of exposure, an increase in relative skill from the 5^{th} to 95^{th} percentile does not have a statistically significant effect on support for globalization and FDI. However, in countries with high levels of manufacturing exports or greenfield FDI, the same increase in relative skill leads to a statistically significant increase in the probability of supporting globalization by 0.045 [0.006, 0.084] and of supporting FDI by 0.102 [0.035, 0.169]. Although this increase is substantively rather small, it is larger than the effect of absolute skill, which leads to an increase in the probability of supporting globalization by 0.017 [−0.0004, 0.033] and of supporting FDI by 0.0008 [−0.021, 0.023].

Furthermore, because absolute skills capture individual characteristics beyond material self-interest such as cosmopolitan values and awareness of trade theories (Hainmueller & Hiscox, 2006), this finding strengthens the argument that respondents who are more highly skilled than their peers materially benefit from globalization and that this translates into support for globalization.

A significant debate in IPE focuses on material versus non-material determinants of policy preferences. Scholars disagree about whether it makes sense to include both types of variables in the same model or not. To speak to both sides of the debate, in Model 3, we present a specification that includes a measure of cultural threat from Margalit (2012). The coefficient on cultural threat is negative and statistically different from zero, suggesting that those who

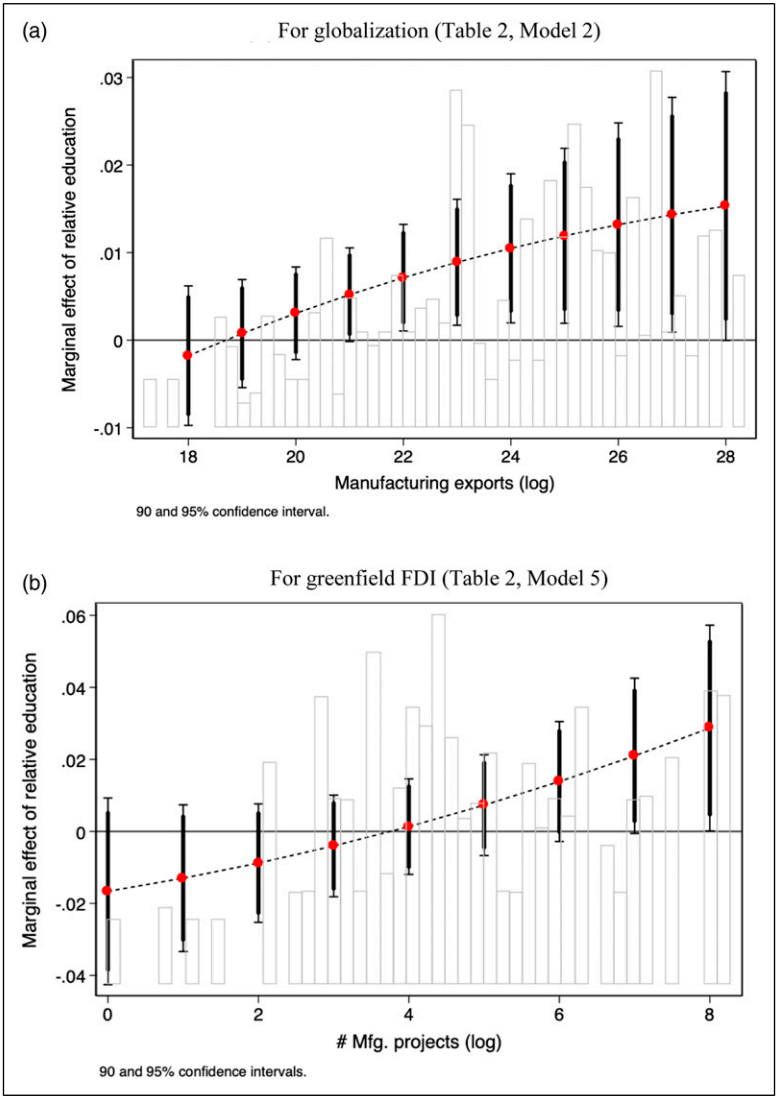

Figure 4. Marginal effect of relative skill on support. (a) For globalization (Table 2, Model 2). (b) For greenfield foreign direct investment (Table 2, Model 5).

are more threatened are less likely to support globalization. Our findings regarding the effect of relative skill conditional on manufacturing exports remain robust. Due to data availability, this analysis is only available for the year 2002 and thus we are unable to provide a corresponding analysis for greenfield FDI.

To further probe the robustness of this result to alternative explanations that focus on non-material factors, such as nationalism (e.g., Jäkel & Smolka, 2013), sociotropic concerns (Mansfield & Mutz, 2009) or exposure to international news (e.g., Jäkel & Smolka, 2013), we include each of these variables in additional models (see Table A3 in supplementary materials). These analyses show that our findings are robust when controlling for these non-material factors.[15]

In the supplemental appendix, we additionally show that our results are generally robust when we use alternative measures of relative skill (Table A8) and exposure to manufacturing trade (Table A8), and when we drop China from the analysis (Table A9), though there are a small number of specifications in which the interaction term is not statistically significant from zero. We also consider additional implications of our argument. First, to provide evidence that individuals perceive the overall impact of trade on the economy in a way that is consistent with our argument, we also show that relative skill, conditional on exposure to manufactured exports, affects beliefs about the impact of trade on jobs and wages, but not prices, which reflects consumer rather than labor market concerns (Table A10). We find similar results when we pool developed and developing countries (Table A11). Finally, we also look at results by sector (Tables A5 and A6). As expected, the conditional effect of relative skill on support for globalization is positive and significant, but only for manufacturing exports.

Overall, the findings suggest support for our argument. However, we must note a few caveats. First, we are unable to measure exposure to exports in a more nuanced way such as by industry or occupation, making this an admittedly crude test. Second, the substantive size of the effect of our key variables is modest. In the case of support for globalization, one reason for this may be that variation on the dependent variable is small, with 87.3% of respondents agreeing that globalization is good (and 78.1% agreeing greenfield FDI is good). Yet these findings suggest the need for further research and the importance of taking relative skills to account in addition to absolute skills.

Macro-Level Evidence: The Relationship Between Trade and Inequality

Our theory also has implications for the relationship between trade and inequality in emerging markets and developing countries. Although developing countries have a comparative advantage in "low-skill products" in terms of absolute skills, our argument suggests that these low-skill exports are being produced by workers who are high-skilled relative to their country peers. Because large domestic exporting firms and MNC

affiliates—who also export back to parent firms—increase demand for higher-skilled workers, exports thus disproportionally benefit already privileged groups, especially in manufacturing where production activity is characterized by heterogeneous firms (Helpman et al., 2017). This implies that at the macro-level, exports in manufacturing should be positively associated with levels of income inequality in developing countries.

Research Design

To illustrate that increasing manufacturing exports lead to higher inequality, we examine how changes in manufacturing trade are related to changes in inequality in a sample of up to 73 emerging markets and developing countries from 1960 to 2016.[16] The analysis thus spans a period during which many emerging markets and developing countries underwent significant trade liberalization that increased their exposure to global markets (Goldberg & Pavcnik, 2007).

We use two measures for our dependent variable: market income inequality and disposable income inequality. We rely on the Standardized World Income Inequality Database (SWIID), which provides estimates of comparable Gini indices of inequality for a large sample of countries (Solt, 2009).[17] For the measure of market income inequality, we use the SWIID Gini index of pre-tax and transfer inequality that covers 15 emerging markets and developing countries from 1960 to 2016. We compute the mean of the market inequality estimates for each country and year. Because the country coverage of market income inequality is very low and differences across countries and years in the progressivity of the tax code and patterns of compliance may undermine comparability when using a measure of gross market income (Förster et al., 2014), we additionally use a measure of disposable income inequality that covers 73 emerging markets and developing countries over the period from 1960 to 2016.[18] Overall, our sample covers countries from most regions and levels of development.

Our main independent variable is manufacturing exports, measured as the share of manufactured exports as a percent of all merchandise exports as reported in the WDI. Because inequality is a macro-level variable, it is important to account for the relative importance of these more skill-intensive activities (as a share of all goods exports) for the economy as a whole. To account for the influence of manufacturing imports, we include the corresponding variable for manufacturing imports.

We also include a measure of trade volume (imports and exports as a percent of GDP) in some specifications to account for the overall importance of trade for the economy. Finally, in some specifications we additionally control for commodity exports and imports to demonstrate that the main effect

is driven by manufacturing exports. For each country and year, we sum agricultural, food and mineral fuel exports (imports) as a percentage of merchandise exports (imports) based on calculations using WDI data.

We include several controls that the literature has identified as important correlates of income inequality. These include a binary indicator for whether a country is democratic (above a Polity value of 6) and the log of GDP per capita to control for differences in levels of development.[19] We also control for short-term economic growth, measured by annual % GDP, because growth may reduce income inequality, and population growth. Population growth increases the share of younger (relatively unskilled) workers, which creates a surplus of unskilled labor and widens the wage gap between skilled and unskilled workers (Ha, 2012; Lee et al., 2007). For the disposable income inequality analysis, we also include additional political variables to account for the effect of political institutions on redistribution, including whether the government is left-leaning (Huber & Stephens, 2012; Levitsky & Roberts, 2011) and whether representatives are elected according to proportional representation or plurality, with countries with very low levels of competitiveness as base category (Iversen & Soskice, 2006). All economic indicators are available from the WDI and the political variables come from the Database of Political Institutions.

We estimate a linear time-series cross-sectional model that captures how within-country changes in trade exposure in past decades affect changes in income inequality. Our baseline specification includes country fixed effects and a set of time-varying control variables. We lag all independent variables by 1 year to account for the wage stickiness and other labor market frictions that characterize wage negotiations.

The observational nature of the data creates several challenges, including possible unobserved confounders and endogeneity. We address these challenges in several ways. To control for two key sources of potential bias, we include country fixed effects, which captures that countries more open to trade may be different from those less open to trade based on many persistent characteristics that we do not necessarily observe and may also affect inequality. For instance, formal and informal colonial institutions, historical junctures more broadly, or geography may shape both trade openness and inequality. Given the propensity for cycles and macroeconomic volatility in the developing world, we also include period fixed effects in some specifications to control for common shocks across countries. This approach thus rules out alternative explanations based on time-invariant country characteristics and common time shocks, as well as important time-varying factors identified in the literature.[20] In Tables A18 and 19, we report findings from sensitivity tests that suggest that our findings are robust to unobserved confounding, as well as additional model specifications. We also discuss why system GMM is not appropriate for our data. Overall, given the limitations of

the data, we should emphasize that the purpose of our analysis is not to establish a causal effect, but to provide a plausibility probe of our argument based on a plausible empirical specification.

Results

How does trade affect inequality? Our argument about the importance of relative skills suggests that the beneficial effect of trade for those that are high-skilled relative to their peers should predominantly operate in the manufacturing sector, where more export-oriented employers hire more high-skilled workers. If our theory is correct, we should expect the effect of trade to work primarily through exports in manufactures, rather than commodities.

Our analyses of market inequality (Table 3) and disposable income inequality (Table 4) show that inequality is indeed higher in emerging markets and developing countries that export more manufactured goods.[21] The coefficient for *manufactured exports* is positive and statistically significant across all specifications, irrespective of whether we control for the overall trade volume (models 3–6), commodity exports and imports (models 5 and 6), and period effects (model 4 and 6). In contrast, manufacturing imports are unrelated to inequality. Similarly, the coefficient on overall trade is negative but not statistically significant in most models. The sum of commodity exports is positively related to inequality, but its effect is smaller in magnitude compared to manufactured exports. Indeed, controlling for levels of commodity exports strengthens the findings for manufacturing exports across both measures of income inequality.[22]

The substantive effect of increasing manufactured exports is considerable. Based on results from Table 3, Model 4, a one standard deviation increase in manufactured exports increases market inequality by about two Gini points. This effect is equivalent to about 25% of one standard deviation of market income inequality and amounts to about the same increase in market income inequality in India between 1980 and 1990. It also results in an increase of about one Gini point or over 12% of one standard deviation of disposable income inequality. To illustrate these findings, Figure 5 plots changes in inequality in response to manufactured exports across our sample of developing countries and emerging markets, based on residualized regressions (from Model 3 in Tables 3 and 4) that partial out the effect of within-country observables, such as political or economic institutions. Consistent with expectations, Figure 5 shows that the relationship between manufactured exports and inequality is positive across both measures.

In the supplementary materials, we discuss a number of robustness checks, including disaggregating exports by commodity type (Table A13), excluding China (Table A15), including country-specific time-trends (Table A16) and replicating findings in a dynamic panel setting that only measures Gini every

Table 3. Market Income Inequality in Emerging Markets and Developing Countries, 1960–2016.

	(1)	(2)	(3)	(4)	(5)	(6)
L. Manufactured exports	0.0645** (0.0256)		0.0683** (0.0240)	0.0629*** (0.0164)	0.1554** (0.0719)	0.1376*** (0.0360)
L. Manufactured imports	−0.0333 (0.0379)		−0.0308 (0.0382)	−0.0410 (0.0374)	−0.0734 (0.0775)	−0.0669* (0.0379)
L. Trade volume		−0.0017 (0.0214)	−0.0218 (0.0241)	−0.0318 (0.0181)	−0.0252 (0.0233)	−0.0340* (0.0179)
L. Democracy	−0.0088 (0.0099)	−0.0117 (0.0115)	−0.0076 (0.0104)	−0.0022 (0.0070)	−0.0059 (0.0093)	−0.0021 (0.0064)
L. Log GDP capita	0.0480** (0.0195)	0.0478* (0.0231)	0.0516** (0.0189)	0.0740*** (0.0149)	0.0569*** (0.0164)	0.0761*** (0.0128)
L. GDP growth	0.0003 (0.0006)	0.0006 (0.0005)	0.0004 (0.0006)	−0.0000 (0.0005)	0.0004 (0.0005)	−0.0000 (0.0004)
L. Population	0.0209** (0.0094)	0.0028 (0.0124)	0.0216** (0.0090)	0.0162* (0.0088)	0.0244** (0.0082)	0.0216** (0.0075)
L. Commodity exports					0.1074 (0.0718)	0.0940** (0.0424)
L. Commodity imports					−0.0563 (0.0798)	−0.0332 (0.0462)
Constant	0.0890 (0.1721)	0.1238 (0.1962)	0.0655 (0.1671)	−0.0354 (0.1262)	−0.0248 (0.1623)	−0.1150 (0.1040)
Observations	489	534	488	488	487	487
R-squared	0.3214	0.2841	0.3329	0.5075	0.3675	0.5326
# Countries	15	15	15	15	15	15
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Period FE				Yes		Yes

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. TSCS model with fixed effects; clustered standard errors in parentheses.

Table 4. Disposable Income Inequality in Emerging Markets and Developing Countries, 1960–2016.

	(1)	(2)	(3)	(4)	(5)	(6)
L. Manufactured exports	0.0380** (0.0169)		0.0418** (0.0171)	0.0329** (0.0158)	0.0594** (0.0262)	0.0436* (0.0221)
L. Manufactured imports	0.0131 (0.0222)		0.0103 (0.0223)	−0.0101 (0.0203)	−0.0171 (0.0278)	−0.0185 (0.0272)
L. Trade volume		−0.0058 (0.0091)	−0.0222 (0.0153)	−0.0228* (0.0133)	−0.0231 (0.0152)	−0.0232* (0.0135)
L. Democracy	−0.0079 (0.0059)	−0.0088 (0.0062)	−0.0075 (0.0055)	−0.0038 (0.0040)	−0.0077 (0.0055)	−0.0044 (0.0040)
L. PR: not competitive	0.0144** (0.0062)	0.0113 (0.0104)	0.0078 (0.0073)	0.0086 (0.0091)	0.0079 (0.0073)	0.0082 (0.0090)
L. PR: prop. representation	−0.0144 (0.0092)	−0.0091 (0.0106)	−0.0173* (0.0097)	−0.0098 (0.0103)	−0.0176* (0.0095)	−0.0103 (0.0103)
L. Ideology	−0.0104* (0.0061)	−0.0111* (0.0060)	−0.0104* (0.0057)	−0.0064 (0.0043)	−0.0106* (0.0057)	−0.0066 (0.0043)
L. Log GDP capita	0.0303 (0.0193)	0.0415** (0.0198)	0.0349* (0.0203)	0.0630*** (0.0192)	0.0364* (0.0203)	0.0635*** (0.0190)
L. GDP growth	−0.0001 (0.0002)	0.0001 (0.0002)	0.0000 (0.0002)	−0.0002 (0.0002)	0.0000 (0.0002)	−0.0003 (0.0002)
L. Population growth	−0.0022 (0.0035)	−0.0038 (0.0035)	−0.0023 (0.0034)	−0.0035 (0.0031)	−0.0020 (0.0036)	−0.0031 (0.0032)
L. Commodity exports					0.0210 (0.0181)	0.0139 (0.0158)
L. Commodity imports					−0.0364 (0.0291)	−0.0084 (0.0270)
Constant	0.2051 (0.1444)	0.1484 (0.1516)	0.1861 (0.1489)	−0.0093 (0.1383)	0.1864 (0.1581)	−0.0174 (0.1434)
Observations	1054	1244	1040	1040	1020	1020
R-squared	0.2132	0.2109	0.2233	0.3660	0.2344	0.3708
# Countries	73	78	73	73	73	73
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Period FE				Yes		Yes

Notes: *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. TSCS model with fixed effects; clustered standard errors in parentheses.

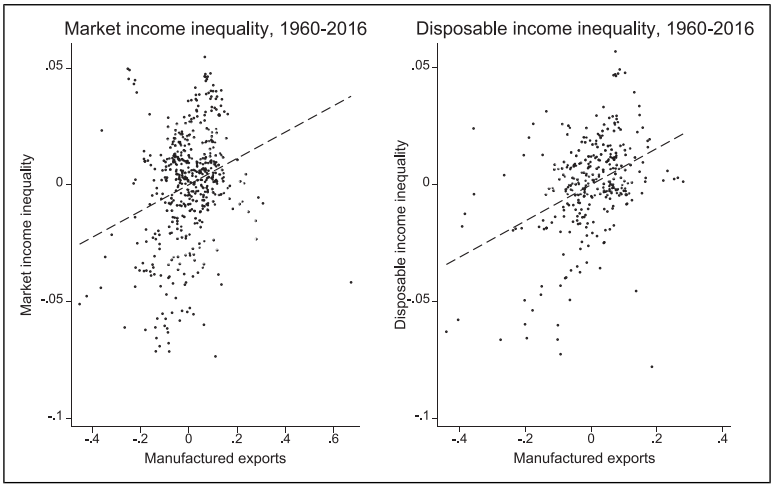

Figure 5. Relationship between manufactured exports and (a) market (b) disposable income inequality in emerging and developing economies, 1960–2016. *Notes*: Figure 5 plots changes in inequality in response to manufactured exports across our sample of developing and emerging economies, based on residualized regressions based on Model 3 in Tables 3 and 4. Dashed line represents fitted values.

5 years (Table A17). They all show that manufacturing exports have a positive effect on inequality. Tables A18 and A19 report results from sensitivity analyses which suggest that, even in a worst-case scenario where the unobserved confounder explains all the residual variation of the outcome, a hypothetical confounder would have to be more than twice as strongly associated with the treatment as GDP growth to explain fully the observed effect of *Manufacturing exports* on both our measures of inequality. In sum, we believe that although our analyses cannot establish a causal effect, they provide illustrative evidence that the empirical implications of our argument can be observed not just at the micro- but also at the macro-level: trade—in the form of manufactured exports—and inequality move together within our sample of developing and emerging economies over time.

Conclusion

This paper has argued that to understand the political economy of trade in developing countries and emerging markets, we must reconsider the role of skill in different contexts. Drawing on insights from heterogeneous firms and global production literatures, we have argued that relatively skilled workers in emerging and developing countries benefit from free trade because they produce products that are considered "low-skill" in absolute terms on world

markets. This means that free trade, specifically manufacturing exports and inward FDI, benefits the better-off in a country more than the poor. Our theory helps explain two key puzzles that contradict factor-based models about the distributive consequences of free trade. Namely, that (1) more skilled workers in developing countries are more likely to support free trade and (2) trade has often led to rising inequality in developing countries.

To illustrate the merits of the argument, we have provided evidence for key empirical implications of our argument. At the micro-level, we have shown that even after controlling for absolute skills, *relatively* skilled workers have higher incomes and are more likely to support globalization and that this effect is larger in countries that export more or receive more FDI. At the macro-level, our analyses have found that manufacturing exports (rather than imports or overall levels of trade) are a specific channel through which trade leads to higher inequality in developing countries and emerging markets.

These findings have important implications for scholarly debates about who benefits and is hurt by trade in emerging and developing countries, and what this means politically. They help us understand why more high-skilled individuals in these countries support trade, even though standard trade models expect them to oppose it. They also help us better understand the domestic politics of trade in less developed countries and point to the emergence of new coalitions in support of or opposition to free trade. The positive effect of trade, through exports, on income inequality in less developed countries has implications for arguments that focus on a range of questions, including why democracies open to trade (e.g., Milner & Kubota, 2005), which types of political parties are likely to favor trade liberalization (e.g., Dutt & Mitra, 2005), or how trade liberalization is related to redistribution and the welfare state in developing countries and emerging markets (Rudra, 2008). Our findings also speak to the fundamental question of whether opening up to trade and global production facilitates or impedes democratization and consolidation. Some prominent accounts in political economy link the effect of trade on democratic transition and/or consolidation to an inequality-reducing effect of trade (Acemoglu & Robinson, 2006; Ahlquist & Wibbels, 2012; Boix, 2003). Our finding that trade and global production increase income inequality suggests, however, that trade might increase political conflict between those that gain and that lose from trade, and thus works against the consolidation (and creation) of democracy. Other accounts of democratization emphasize the role of rising economic groups in demanding credible commitments against expropriation of their income by incumbent elites (Ansell & Samuels, 2010). This perspective suggests that income inequality will foster democratization: as new economic groups take up a larger share of national income, they are more capable of successfully challenging incumbent elites to prevent expropriation. To the extent that our argument predicts rising inequality in favor of more high-skilled individuals, this account suggests that trade liberalization should bolster

democratization, as it increases the risks of expropriation for these groups under autocracy, especially when the country specializes in manufacturing "low-skill products" for export.

Beyond implications for research on the political economy of trade and globalization, our analysis also has important policy implications. In simply assuming that low-skilled labor will benefit from trade openness, but not accounting for the relative skill level of workers, the poorest and least skilled in developing countries are being left behind—resulting in greater inequality and policy recommendations that risk exacerbating rather than alleviating their situation. This is likely to be particularly so in truncated or regressive (contributions-based) welfare states of many less developed countries, where poor, low-skilled groups are typically excluded from social protection. Apart from the normative implications of this insight, this also matters politically, as increasing inequality generated by trade may spark a backlash against globalization in less developed countries, such as what we are beginning to see across Eastern Europe and Latin America (Rodrik, 2018). It may also create conditions where the poor in Latin America become more responsive to political appeals that emphasize the dismantling of checks and balances (Acemoglu et al., 2013). To create policies that alleviate these pressures, governments must start with an accurate understanding of the distributive effects of trade and the corresponding economic interests of their citizens. The insight that trade tends to benefit the better-off in a society irrespective of a country's comparative advantage is an important step in this direction.

Acknowledgments

We thank seminar participants at EPSA, APSA, IPES and at workshops at the University of Pittsburgh (Global Politics Seminar and GSPIA), Indiana, MIT, Leiden and IE University for helpful feedback. We also thank the editors and reviewers at CPS, as well as Sarah Bauerle Danzman, Jeff Frieden, Judy Goldstein, Raymond Hicks, Dennis Quinn, and Rena Sung for their comments.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

ORCID iDs

Irene Menéndez González https://orcid.org/0000-0003-3308-109X
Stefanie Walter https://orcid.org/0000-0002-0804-5647

Supplemental Material

Supplemental material for this article is available online.

Notes

1. In developing countries, low-skilled labor tends to be the abundant factor, thus these countries should specialize in "low-skill" products according to the factoral model. Empirical evidence supports this: developed countries export more capital- and skill-intensive goods and import more low-skill products, while developing countries specialize in products that are low-skill-intensive, such as textiles, low-technology manufacturing, or unrefined agricultural products (Balassa, 1979; Krugman, 2008; Schott, 2003).
2. Trade in developing countries is associated with rising inequality (Goldberg & Pavcnik, 2007; Ha, 2012; Harrison & Hanson, 1999; Helpman et al., 2017; Pavcnik, 2017) and skill premiums (Acemoglu, 2003; Bustos, 2011; Feenstra & Hanson, 1997; Robbins & Gindling, 1999).
3. Replication materials and code can be found at Menéndez (2022).
4. To the extent that globalization increases the risks of technological imitation, it also creates incentives for "defensive skill-biased innovation" (Thoenig & Verdier, 2003; Wood, 1995), which leads to skill upgrading in production and exports in both developed and emerging economies. The adoption of skill-intensive technologies increases the relative demand for skilled labor and the skill premium.
5. Two parameters shape the strength of the skill-biased productivity mechanism: (i) the dispersion of firm-specific productivities, where greater relative differences in skill intensities between exporting and domestic firms generate larger increases in the skill premium, and (ii) the elasticity of firm skill intensity to firm productivity, where skill intensity of productive firm increases relative to low-productivity firm, driving the skill premium (Burstein & Vogel, 2017, p. 1368).
6. The mechanism here is that elasticity of unit cost of production to firm productivity varies with sector skill intensity: in skill-intensive sector, skilled-labor accounts for a larger share of value-added and total cost (Burstein & Vogel, 2017, p. 1369).
7. The nature of this exposure to globalization varies, and could occur at the firm level, but also across occupations, industries, or regions depending on the level of factor mobility (e.g., Owen & Johnston, 2017; Pavcnik, 2017).
8. For list, see page 2 in the supplemental.
9. PEW measures income using bins in current local currency. For all bins except the top, we assign income at the middle value of the range listed. For the top, we assign income at the maximum value listed (e.g., $100,000 or greater is set to $100,000). In Table A5, we also use the log of monthly income in U.S. dollars and find largely similar results.
10. The 95th percentile on relative skill is 4.92.
11. Note that Mayda and Rodrik (2005) test the specific factors model by computing net adjusted imports; they also disaggregate goods-producing industries in a way that we are unable to do with our data.

12. In Table A9, we show that our findings are robust when we do not include population size or GDP per capita.
13. Because data availability is more limited for the FDI measure, we present separate models for trade and FDI.
14. Marginal effects are computed at the 5th and 95th percentile of log manufacturing exports, which corresponds to Mali and China, respectively.
15. Table A4 replicates and extends Margalit (2012). The results lend further credence to our micro-level argument.
16. The sample includes countries classified as low-income, low-middle, and upper-middle-income countries by the World Bank. See supplemental appendix for included countries and summary statistics.
17. The SWIID data provide better coverage and more comparable data than most other datasets by combining information from several sources and via multiple imputation.
18. We do not use a lagged dependent variable because the Ginis from SWIID are highly correlated. The multiple estimation procedure uses information from up to 2 years before and after a given year. This means that serial correlation is inflated artificially and a LDV would soak up too much of the variation (and lead to bias). Table A17 replicates results using a panel that only measures Gini every 5 years (and a lagged DV).
19. Inequality is expected to increase when development is in an early stage (when GDP per capita is low), but decrease when the economy is fully developed (Kuznets, 1955). We control for log GDP per capita squared in the supplemental (Table A14).
20. In principle, it is also possible to instrument with a variable that is correlated with exports but is not correlated with the processes that lead to greater inequality. Yet in practice, the task is difficult, because many features of trade are likely to be correlated with features that drive inequality.
21. The control variables behave largely as expected. Logged GDP is positively related to market income inequality, while GDP growth and population growth are both positively related. Democracy is negatively associated with market income inequality, though not statistically significant. In line with existing arguments about the political mechanisms driving redistribution, we find that both Left-leaning governments and proportional representation (relative to plurality, the reference category) are associated with decreasing levels of disposable income inequality.
22. To explore this finding further, Table A13 in the supplemental probes the effect of manufacturing exports relative to more disaggregated commodities, such as food, agricultural, and fuel exports. The results generally suggest that it is mainly manufactured exports that lead to higher inequality. Food exports also increase market and disposable income inequality, but agricultural exports (and imports) decrease inequality. One possibility is that food exports, which are typically processed, may involve more higher-skilled labor than agricultural exports, making it more similar to manufacturing.

References

Acemoglu, D. (2003). Patterns of skill premia. *The Review of Economic Studies*, *70*(2), 199–230. https://doi.org/10.1111/1467-937x.00242

Acemoglu, D., & Robinson, J. (2006). *The economic origins of democracy and dictatorships*. Cambridge University Press.

Acemoglu, D., Robinson, J., & Torvik, R. (2013). Why do Voters dismantle checks and balances? *Review of Economic Studies*, *80*(3), 845–875. https://doi.org/10.1093/restud/rdt007

Ahlquist, J. S., & Wibbels, E. (2012). Riding the wave: World trade and factor-based models of democratization. *American Journal of Political Science*, *56*(2), 447–464. https://doi.org/10.1111/j.1540-5907.2011.00572.x

Alvarez, R., & Lopez, R. A. (2005). Exporting and performance: Evidence from Chilean plants. *Canadian Journal of Economics/Revue Canadienne D'économie*, *38*(4), 1384–1400. https://doi.org/10.1111/j.0008-4085.2005.00329.x

Ansell, B., & Samuels, D. (2010). Inequality and Democratization: A Contractarian Approach. *Comparative Political Studies*, *43*(12), 1543–1574. https://doi.org/10.1177/0010414010376915

Ardanaz, M., Murillo, M. V., & Pinto, P. M. (2013). Sensitivity to issue framing on trade policy preferences: Evidence from a survey experiment. *International Organization*, *67*(2), 411–437. https://doi.org/10.1017/s0020818313000076

Balassa, B. (1979). The changing pattern of comparative advantage in manufactured goods. *The Review of Economics and Statistics*, *61*(2), 259–266. https://doi.org/10.2307/1924594

Bardhan, P. K., Bowles, S., & Wallerstein, M. (2006). *Globalization and egalitarian redistribution*. Princeton University Press.

Barro, R. J., & Lee, J.-W. (2010). *A new data set of educational attainment in the world, 1950-2010 (NBER working paper 15902)*. National Bureau of Economic Research.

Barro, R. J., & Lee, J. W. (2013). A new data set of educational attainment in the world, 1950–2010. *Journal of Development Economics*, *104*, 184–198. https://doi.org/10.1016/j.jdeveco.2012.10.001

Beaulieu, E., Yatawara, R., & Wang, W. G. (2005). Who supports free trade in Latin America. *The World Economy*, *28*(7), 941–958. https://doi.org/10.1111/j.1467-9701.2005.00715.x

Bernard, A., & Jensen, B. (1995). Exporters, jobs, and wages in U.S. Manufacturing: 1976-1987. *Brookings Papers on Economic Activity*, *1995*, 67–112.

Blanchard, E. J., & Olney, W. (2017). Globalization and human capital investment: Export composition drives educational attainment. *Journal of International Economics*, *106*(C), 165–183. https://doi.org/10.1016/j.jinteco.2017.03.004

Boix, C. (2003). *Democracy and redistribution*. Cambridge University Press.

Brown, D. K., Deardorff, A., & Stern, R. (2004). The effects of multinational production on wages and working conditions in developing countries. In *Challenges to globalization: Analyzing the economics*. University of Chicago Press.

Burnstein, A., & Vogel, J. (2017). International trade, technology and the skill premium. *Journal of Political Economy*, *125*(5), 1356–1412. https://doi.org/10.1086/693373

Bustos, P. (2011). Trade liberalization, exports and technology upgrading: Evidence on the impact of MERCOSUR on argentinean firms. *American Economic Review*, *101*(1), 304–340. https://doi.org/10.1257/aer.101.1.304

Dutt, P., & Mitra, D. (2005). Political ideology and endogenous trade policy: An empirical investigation. *Review of Economics and Statistics*, *87*(1), 59–72. https://doi.org/10.1162/0034653053327621

Feenstra, R. C., & Hanson, G. H. (1996). *Globalization, outsourcing, and wage inequality (NBER Working Paper 5424)*. National Bureau of Economic Research.

Feenstra, R. C., & Hanson, G. H. (1997). Foreign direct investment and relative wages: Evidence from Mexico's maquiladoras. *Journal of International Economics*, *42*(3–4), 371–393. https://doi.org/10.1016/s0022-1996(96)01475-4

Förster, M., Llena-Nozal, A., & Nafilyan, V. (2014). *Trends in top incomes and their taxation in OECD countries. (OECD social, employment and migration working papers, No. 159)*. OECD Publishing.

Goldberg, P. K., & Pavcnik, N. (2007). Distributional effects of globalization in developing countries. *Journal of Economic Literature*, *45*(1), 39–82. https://doi.org/10.1257/jel.45.1.39

Gonzaga, G., Menezes Filho, N., & Terra, C. (2006). Trade liberalization and the evolution of skill earnings differentials in Brazil. *Journal of International Economics*, *68*(2), 345–367. https://doi.org/10.1016/j.jinteco.2005.07.008

Ha, E. (2012). Globalization, government ideology, and income inequality in developing countries. *The Journal of Politics*, *74*(2), 541–557. https://doi.org/10.1017/s0022381611001757

Hainmueller, J., & Hiscox, M. (2006). Learning to Love Globalization: Education and Individual Attitudes Toward International Trade. *International Organization*, *60*(2), 469–498

Harrison, A., & Hanson, G. (1999). Who gains from trade reform? Some remaining puzzles. *Journal of Development Economics*, *59*(1), 125–154. https://doi.org/10.1016/s0304-3878(99)00008-5

Heckscher, E. F., & Ohlin, B. G. (1991). *Heckscher-Ohlin trade theory*. The MIT Press.

Helpman, E. (2017). Globalization and wage inequality. *Journal of the British Academy*, *5*, 125–162. https://doi.org/10.5871/jba/005.125

Helpman, E., Itskhoki, O., Muendler, M.-A., & Redding, S. J. (2017). Trade and inequality: From theory to estimation. *The Review of Economic Studies*, *84*(1), 357–405. https://doi.org/10.1093/restud/rdw025

Helpman, E., Itskhoki, O., & Redding, S. (2010). Inequality and unemployment in a global economy. *Econometrica*, *78*(4), 1239–1283.

Helpman, E., Melitz, M., & Yeaple, S. (2004). Export versus FDI with heterogenous firms. *The American Economic Review*, *94*(1), 300–316. https://doi.org/10.1257/000282804322970814

Huber, E., & Stephens, J. D. (2012). *Democracy and the left: Social policy and inequality in Latin America*. University of Chicago Press.

Iversen, T., & Soskice, D. (2006). Electoral institutions and the politics of coalitions: Why some democracies redistribute more than others. *American Political Science Review*, *100*(2), 165–181. https://doi.org/10.1017/s0003055406062083

Jäkel, I. C., & Smolka, M. (2013). Individual attitudes towards trade: Stolper-Samuelson revisited. *Open Economies Review*, *24*(4), 731–761. https://doi.org/10.1007/s11079-012-9263-3

Kono, D. Y. (2008). Democracy and trade discrimination. *The Journal of Politics*, *70*(4), 942–955. https://doi.org/10.1017/s0022381608080985

Krugman, P. R. (2008). Trade and wages, reconsidered. *Brookings Papers on Economic Activity*, *39*(1), 103–154. https://doi.org/10.1353/eca.0.0006

Kuznets, S. (1955). Economic growth and income inequality. *The American Economic Review*, *45*(1), 1–28.

Lee, C.-S., Nielsen, F., & Alderson, A. S. (2007). Income inequality, global economy and the state. *Social Forces*, *86*(1), 77–111. https://doi.org/10.1353/sof.2007.0102

Levitsky, S., & Roberts, K. M. (2011). *The resurgence of the Latin American left*. Johns Hopkins University Press.

Lipsey, R. E., & Sjöholm, F. (2004). Foreign direct investment, education and wages in Indonesian manufacturing. *Journal of Development Economics*, *73*(1), 415–422. https://doi.org/10.1016/j.jdeveco.2002.12.004

Mansfield, E. D., Milner, H. V, & Rosendorff, B. P. (2002). Why democracies cooperate more: Electoral control and international trade agreements. *International Organization*, *56*(3), 477–513. https://doi.org/10.1162/002081802760199863

Mansfield, E. D., & Mutz, D. (2009). Support for free trade: Self-interest, sociotropic politics, and out-group anxiety. *International Organization*, *63*(2), 425–457. https://doi.org/10.1017/s0020818309090158

Margalit, Y. (2012). Lost in globalization: International economic integration and the sources of popular discontent. *International Studies Quarterly*, *56*(3), 484–500. https://doi.org/10.1111/j.1468-2478.2012.00747.x

Mayda, A. M., & Rodrik, D. (2005). Why are some people (and countries) more protectionist than others? *European Economic Review*, *49*(6), 1393–1430. https://doi.org/10.1016/j.euroecorev.2004.01.002

Melitz, M. (2003). The impact of trade on intra-industry reallocations and aggregate industry productivity. *Econometrica*, *71*(6), 1695–1725. https://doi.org/10.1111/1468-0262.00467

Menéndez, I. (2022). *Replication data for low skill products by high skill workers. The distributive effects of trade in emerging and developing countries*. https://doi.org/10.7910/DVN/KSAXQZ

Milner, H., & Kubota, K. (2005). Why the move to free trade? Democracy and trade policy in developing countries. *International Organization*, *59*(4), 107–144.

Milner, H. V., & Judkins, B. (2004). Partisanship, trade policy, and globalization: Is there a left–right divide on trade policy? *International Studies Quarterly*, *48*(1), 95–120. https://doi.org/10.1111/j.0020-8833.2004.00293.x

Milner, H. V., & Mukherjee, B. (2018). Democracy, globalization and the skill-bias in trade policy in developing countries. Manuscript.

Munch, J. R., & Skaksen, J. R. (2008). Human capital and wages in exporting firms. *Journal of International Economics*, *75*(2), 363–372. https://doi.org/10.1016/j.jinteco.2008.02.006

Owen, E., & Johnston, N. P. (2017). Occupation and the political economy of trade: Job routineness, offshorability, and protectionist sentiment. *International Organization*, *71*(4), 665–699. https://doi.org/10.1017/s0020818317000339

Palmtag, T. (2020). In D. Thesis (Ed.), *The political economy of protest. How the uneven distribution of development and globalization gains affects welfare and protest*. University of Zurich.

Palmtag, T., Rommel, T., & Walter, S. (2020). International trade and public protest: Evidence from Russian regions. *International Studies Quarterly*, *64*(4), 939–955. https://doi.org/10.1093/isq/sqaa073

Pandya, S. S. (2010). Labor markets and the demand for foreign direct investment. *International Organization*, *64*(3), 389–409. https://doi.org/10.1017/s0020818310000160

Pandya, S. S. (2016). Political economy of foreign direct investment: Globalized production in the twenty-first century. *Annual Review of Political Science*, *19*(1), 455–475. https://doi.org/10.1146/annurev-polisci-051214-101237

Pavcnik, N. (2017). *The impact of trade on inequality in developing countries (NBER working paper 23878)*. National Bureau of Economic Research.

Robbins, D., & Gindling, T. H. (1999). Trade liberalization and the relative wages for more-skilled workers in Costa Rica. *Review of Development Economics*, *3*(2), 140–154. https://doi.org/10.1111/1467-9361.00057

Rodrik, D. (2014). The past, present, and future of economic growth. *Challenge*, *57*(3), 5–39. https://doi.org/10.2753/0577-5132570301

Rodrik, D. (2018). Populism and the economics of globalization. *Journal of International Business Policy*, *1*(1), 12–33. https://doi.org/10.1057/s42214-018-0001-4

Rommel, T. (2018). In D. Thesis (Ed.), *Foreign direct investment and the politics of autocratic survival*. University of Zurich.

Rommel, T., & Walter, S. (2018). The electoral consequences of offshoring: How the globalization of production shapes party preferences. *Comparative Political Studies*, *51*(5), 621–658. https://doi.org/10.1177/0010414017710264

Rudra, N. (2008). *Who really gets hurt? Globalization and the race to the bottom in developing countries*. Cambridge University Press.

Rudra, N., Nooruddin, I., & Bonifai, N. W. (2021). Globalization backlash in developing countries: Broadening the research agenda. *Comparative Political Studies*, *54*(13), 2416–2441. https://doi.org/10.1177/00104140211037575

Schott, P. (2003). One size fits all? Heckscher-Ohlin specialization in global production. *American Economic Review*, *93*(3), 686–708. https://doi.org/10.1257/000282803322157043

Solt, F. (2009). Standardizing the world income inequality database. *Social Science Quarterly*, *90*(2), 231–242. https://doi.org/10.1111/j.1540-6237.2009.00614.x

Thoenig, M., & Verdier, T. (2003). A theory of defensive skill-biased innovation and globalization. *American Economic Review*, *93*(3), 709–728. https://doi.org/10.1257/000282803322157052

Urbatsch, R. (2013). A referendum on trade theory: Voting on free trade in Costa Rica. *International Organization*, *67*(1), 197–214. https://doi.org/10.1017/s0020818312000355

Van Biesebroeck, J. (2005). Exporting raises productivity in sub-Saharan African manufacturing firms. *Journal of International Economics*, *67*(2), 373–391. https://doi.org/10.1016/j.jinteco.2004.12.002

Verhoogen, E. (2008). Trade, quality upgrading, and wage inequality in the Mexican manufacturing sector. *Quarterly Journal of Economics*, *123*(2), 489–530. https://doi.org/10.1162/qjec.2008.123.2.489

Walter, S. (2010). Globalization and the welfare state: Testing the microfoundations of the compensation hypothesis. *International Studies Quarterly*, *54*(2), 403–426. https://doi.org/10.1111/j.1468-2478.2010.00593.x

Walter, S. (2017). Globalization and the demand-side of politics. How globalization shapes labor market risk perceptions and policy preferences. *Political Science Research and Methods*, *5*(1), 55–80. https://doi.org/10.1017/psrm.2015.64

Wood, A. (1995). How trade hurt unskilled workers. *Journal of Economic Perspectives*, *9*(3), 57–80. https://doi.org/10.1257/jep.9.3.57

Yeaple, S. (2005). A simple model of firm heterogeneity, international trade, and wages. *Journal of International Economics*, *65*(1), 1–20. https://doi.org/10.1016/j.jinteco.2004.01.001

Author Biographies

Irene Menéndez González is Assistant Professor of International Political Economy at IE University in Madrid. Her research focuses on the political economy of trade, welfare states and labour markets, as well as the effects of political institutions on interest representation.

Erica Owenis Associate Professor in the Graduate School of Public and International Affairs at the University of Pittsburgh. Her research focuses on the political economy of trade, global production, and automation, with an emphasis on the economic welfare and political influence of workers and firms.

Stefanie Walter is Full Professor for International Relations and Political Economy at the Department of Political Science at the University of Zurich. Her research focuses on distributional conflicts, the political economy of financial crises, the backlash against globalization, and challenges to international cooperation.