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Trade, poverty, and social protection in developing countries

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ABSTRACT

How do shifts in trade affect social protections for the poor? Although the fraction of the world's population considered the "extreme" poor has fallen by over one-half over the past quarter century, many of those lifted above the global poverty line remain vulnerable to shocks that could place them back into poverty. These are the groups that require social protection to stabilize their incomes. Among the shocks to which the absolute poor have been exposed are those created by trade liberalization, particularly of the agricultural sector. The resulting risks, uncertainties, and threats to social stability from this type of trade require that the poor be provided with some forms of adjustment assistance. We examine the effects of trade components on several dimensions of social protection in developing countries, including spending, coverage, and adequacy over the past two decades. We find that, contrary to previous studies, disaggregating trade may be a key to determining which international market variables drive expansion of social protection. Disaggregating trade balances in agricultural vs. manufactured goods reveals that net food and agricultural exporters provide better social protection than countries that report agricultural trade deficits. Meanwhile, countries with manufacturing trade surpluses tend to experience reduced social protection coverage. We reason that governments of net agricultural exporters face incentives to invest in social programs that extend eligibility to the rural poor. Manufacturing export-driven economies, on the other hand, are likely participants in global production chains that limit the capacity of the public sector to extend social protection.

1. Introduction

Between 1990 and 2010, the fraction of the world's population living on less than the extreme-poverty, dollar-per-day benchmark was cut in half.¹ According to recent estimates, however, those still living under incomes up to approximately twice the poverty line are between four and five times as likely to fall back into poverty as those whose incomes are higher (Lopez-Calva and Ortiz-Juarez, 2014). By this standard, one-third of the world's population lives above the extreme-poverty line, but faces a high degree of vulnerability. Although incomes for the poorest in the developing world have improved, their livelihoods continue to be affected by economic, political, and environmental risks. Without social protection, recent gains in reducing poverty are fragile (Desai, 2015).

During the same period, developing countries increased their share in manufacturing exports but saw little expansion in agricultural exports, barely maintaining their share of around one-third of global trade (after losing market shares during the 1980s). Such trends in globalization inevitably impact the poor in developing economies. The decades-old debate on the risks and insecurities of globalization

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E-mail address: raj.desai@georgetown.edu (R.M. Desai).¹ This global extreme-poverty line was adjusted by the World Bank from US\$1.25/day (2005 PPP) to US\$1.90/day (2011 PPP) in October 2015.<https://doi.org/10.1016/j.ejpoleco.2018.08.008>

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has yet to be influenced by greater awareness of the vulnerabilities faced by those at the bottom of the income scale. To what extent are governments in developing countries helping the most vulnerable cope with the challenges of international market integration? We have surprisingly little understanding of whether or how governments are reacting to the burdens that international market exposure places on this population. This group—more so than any other—is most dependent on government support to help them survive and prosper from globalization. The loss of income, jobs, and social stability that inevitably accompanies economic restructuring as well as the financial and economic turmoil that periodically disrupts the world economy increases the risks of income loss for those at or close to the poverty line. Although much of the dramatic progress against poverty was achieved by increases in wages, globalization and its accompanying shocks—in particular, in the larger, middle-income countries where large groups of the extreme poor live—have increased demands for expanded social protection.

Yet, the bulk of existing research has focused on how economic openness affects social welfare programs that benefit the better-off rather than the poor (see Rudra, 2008). This is for two reasons. First, many scholars rely on international economic theories which predict that the poor will win—not lose—from trade liberalization in the long run, and neglect consideration of what happens when they are hit periodically with negative shocks. Second, data on social protection for the absolute poor—including cash and in-kind transfers and subsidies as well as labor-based programs—have been sparse as these are difficult variables to measure. Existing studies have focused instead on social insurance benefits that have more readily available data. The problem is that, as these benefits are based on formal, contracted employment, the bulk of the labor force in developing countries is often excluded from consideration.

We investigate the dynamics of social policy, arguing that governments expand protection for the extreme poor in response to the potential social and political instability associated with certain types of trade expansion. Trade in food and agriculture is likely to be associated with the greatest risk for this group. The process of agricultural liberalization can displace large segments of the rural poor, such as smallholders, that struggle to compete with the rising productivity, technology, quality demands, and phytosanitary standards of food importers.

Governments of countries that are net exporters of agricultural products may also be more inclined to extend social protection to their workers. Indeed, several agricultural interventions have an explicit social protection function since they are aimed at reducing individual risks (e.g. crop insurance, input subsidies, and agricultural cash grants). At the same time, these interventions can improve household income, food security, agricultural productivity, and a range of other outcomes. Consequently, the poor in countries that rely on agriculture for export expansion and growth might be in a very different situation, despite having low levels of political influence. Developing countries that are successfully upgrading their national standards (such as for food safety) and health standards and, thereby, competitively repositioning themselves as agricultural exporters depend on the health and welfare of unskilled rural labor for those trade surpluses. Expanding the eligibility of these groups to benefit from social programs in these nations may well be a result of government interest in maintaining growth of this tradable sector and the broader political benefits that it brings. Agricultural liberalization, then, provides governments with incentives to increase social protection that compensate the poor for these new risks and help smooth consumption during negative shocks, maintaining social and political stability in the process.

By contrast, manufacturing export-driven economies face a different set of challenges. Merchandise exports are relatively less price volatile and less seasonal, reducing the consumption-smoothing imperative that primary-product exporters face. Much of the trade-led manufacturing-sector expansion in the developing world in the past two decades has generated employment in labor-intensive sectors, with many of those workers being excluded from public social protection programs. In some notable examples such as India, Vietnam, and Ghana, the bulk of employment generation from manufacturing growth has been in the informal tradable sector (Ghani et al., 2015; Eckardt et al., 2018; Aryeetey and Baah-Boateng, 2015). Unlike agricultural exports, demand for manufactured goods are far more price elastic. As a result, the need to attract external financing needed for industrialization, along with pressures to maintain lower taxes for export competitiveness, may restrict the capacity of governments to expand allocate fiscal resources towards social protection.

We examine the depth and coverage of social protection using cross-national, time series data covering 150 developing countries between 2000 and 2010. We find support for our argument that agriculture trade surpluses results in increased social protection coverage—including social protection for the extreme poor—and that manufacturing trade surpluses do the opposite. Coverage expansion for the extreme poor occurs only if agricultural exports outpace imports, suggesting that exporter status affects government incentives to invest in such programs. A caveat emerges, however: the adequacy of these benefits is not (yet) being followed in kind. The total transferred amount to the poor as a fraction of their income is not increasing with agricultural trade liberalization, despite expanding coverage. It is possible a lag between implementation of social programs and greater financial investment may explain this pattern. In contrast, developing countries experiencing increased trade in manufacturing experience reductions in social protection coverage, for the general population as well as the poor.

These findings have broad implications for scholars and policymakers seeking to understand the political-economic conditions most favorable to expanding the scope and coverage of social protections. Our analysis suggests that, although agricultural liberalization in lower- and middle-income countries exposes the poorest to higher risk and uncertainties, governments of agriculture-exporting countries may be increasing social protections for these groups for fear of harming trade and growth in these sectors. Meanwhile, given that economies that are manufacturing-export driven appear to face obstacles in expanding pro-poor social protections, the need for resources to finance safety nets in these countries is even greater.

2. International market exposure and social protection

For over three decades, scholars in international political economy have been analyzing how international market exposure impacts the level of spending on social protections (e.g., Cameron, 1978; Ruggie, 1982; Rodrik, 1998; Garrett, 2001; Kaufman and Segura-Ubierno, 2001; Mosley, 2003; Wibbels and Arce, 2003; Scheve and Slaughter, 2004; Hays et al., 2005; Wibbels, 2006; Nooruddin

and Simmons, 2009). Their focus has been on how international market expansion creates “losers” and increases their sense of risk and economic insecurity.² The “compensation hypothesis” postulates that the globalization of national economies increases domestic demands for expanded safety nets to protect against uncertainty. One might expect governments to respond with greater welfare expenditures in order to maintain social stability and political support and prevent a backlash against globalization. However, government spending may also decrease in response to the higher mobility of production factors, since internationally mobile capital avoids locations where public welfare spending results in higher taxes and private costs of production.³

To elaborate, since the 1990s, most low- and middle-income countries have opened their borders to international flows of goods and capital, but in the process, they have also increased their exposure to international shocks. As protectionist barriers were lowered or removed, local and foreign firms began lobbying for lower overall tax burdens and, particularly, their contributions to social security schemes (Desbordes and Vauday, 2007; Huber et al., 2008). On the basis of these types of pressures from globalization, scholars argue that openness encourages business groups and investors—newly exposed to international competition—to push governments to lower taxes and expenditures and limits the bargaining ability of workers to resist these pressures (Kaufman and Segura-Ubiergo, 2001; Garrett, 2001; Mosley, 2003; Rudra, 2002, 2008; Nooruddin and Simmons, 2009).

In contrast, a smaller group of scholars finds that developing countries exposed to economic and social dislocations from trade or financial liberalization are more likely to provide transfers to key interest groups to ensure stability and prevent backlash against globalization (e.g., Rodrik, 1997, 1999; Avelino et al., 2005; Nooruddin and Rudra, 2014). This hypothesis seems to fit the history of Latin America particularly well, where a series of transfer-based programs were initiated at the dawn of liberalization consisting of subsidies, cash transfers to the poor, and the spread of public employment programs (Fiszbein et al., 2009).

However, little research to date provides any theoretical or empirical insights into the conditions under which developing countries might systematically expand their welfare protections for underprivileged groups concomitant with global market expansion. This is for two reasons. First, this research agenda has continued the tradition of focusing on large and well-developed social insurance programs that are assumed to cover the large majority of the working population, but is true only in industrialized countries (and select Latin American countries). In most developing countries, these programs exclude the majority working in the informal sector.⁴ Second, the assumed drivers of social protection in low- and middle-income countries are the influential groups typically associated with the manufacturing sector—organized employer and/or business groups demanding lower labor costs, not the working poor (for examples, see Kaufman and Segura-Ubiergo, 2001; Rudra, 2002; Wibbels, 2006; Nooruddin and Simmons, 2009).

Yet, a common feature of these studies is the focus on *total* trade as a percentage of gross domestic product (GDP) as a key measure of openness, and its impact on social protection. This is problematic because different types of trade specialization are likely to impact citizens of developing countries differently, creating different groups of losers, who may or may not benefit from pro-poor social protections. In manufacturing, for example, we would expect import competition to displace less-productive and once-protected firms and their employees. The losers are not the extreme poor who were never employed by these firms, and thus pro-poor social assistance may be less critical. Alternatively, manufacturing trade may help marginalized groups as the rate of job expansion increases in that sector (see Lavopa and Szirmai, 2012). Employment growth occurs in the formal and informal sectors, which hosts the urban poor and rural workers that have migrated to urban centers. The United Nations (2013) estimates that nearly half of recent employment growth in manufacturing in developing countries was informal; that is, small- and medium-sized enterprises, self-employed, and workers not covered by labor laws.

Globalization-redistribution research also overlooks the consideration that many developing countries have also been prioritizing agricultural trade liberalization in recent decades, and its effects on the poor. Commodity-dependent trade faces far more price volatility than manufacturing trade (Cashin et al., 2002; Koren and Teneyro, 2007; Elhiraika, 2008). Rural and poor residents whose earnings depend on food prices are more likely to face greater risks associated with increasing agricultural trade. In consequence, the citizens in agricultural-export economies are likely to be losers in the presence of high trade volatility and in most need of social protections.

To summarize, some evidence suggests that developing countries have retrenched their welfare expenditures in an effort to cope with the demands of market expansion (low taxes, export competitiveness), but other evidence shows expansions of social protections. Little research to date provides any insights into the conditions under which developing countries might systematically expand their welfare protections for underprivileged groups concomitant with (different types of) trade liberalization.

2.1. Agriculture vs. manufacturing trade expansion in developing countries

Until the late 1970s and early 1980s, agricultural exports exceeded imports for most developing countries. Starting in the early 1980s, a series economic shocks prompted advances toward agricultural trade liberalization and initiated a reversal of the urban bias. The 1990s Uruguay Round resulted in the first major lowering of tariffs in agriculture, as average agricultural tariffs declined from 30 percent to 18 percent. Developing nations began adopting several liberalizing measures aimed at eliminating import restrictions,

² This logic is rooted in embedded liberalism, which predicts that expanding markets increase public social spending because perceptions of increased economic instability and insecurity prompt demands for redistribution (Polanyi, 1944; Ruggie, 1982).

³ In contrast to the compensation hypothesis, the “efficiency hypothesis” predicts that international capital mobility constrains governments to provide social insurance against economic insecurity (see, e.g., Garrett and Mitchell, 2001).

⁴ In developing countries, modern welfare protections such as social security schemes and labor market were first established in the early 20th century, for privileged groups (military, police, judiciary, civil servants) and later extended to crucial white collar (teachers, bank employees) and blue collar (miners, railroad workers, port workers) categories (Huber et al., 2008). In most developing countries, these programs cover a smaller percentage of the working population.

devalued exchange rates, multiple exchange rate systems that penalized agriculture, and almost all export taxes (World Bank, 2008).

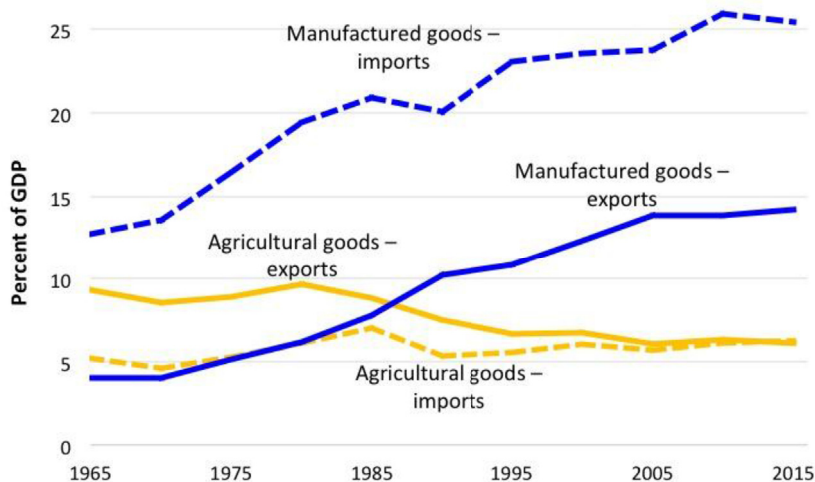
As a consequence, developing countries have substantially reduced distortions to agricultural incentives over the past three decades, particularly relative to richer economies (Anderson, 2009). On average between 1980–84 and 2000–04, agriculture-based countries further lowered protection of agricultural imports, from a 14 percent tariff equivalent to 10 percent, alongside a significant reduction in taxation of exports from 46 percent to 19 percent (World Bank, 2008).

After liberalization, food and agricultural exports from developing countries fell in the early 1990s (see Fig. 1). This is not surprising given factors ranging from rising global food safety and agricultural health standards for trade to stagnant agricultural productivity. Many poor countries are unable to meet the rising cost of compliance with these standards or because the competitiveness of the agricultural sector has suffered. Often, the anticipated benefits from trade liberalization did not materialize because of the implementation of limited or partial reforms, the absence of incentives for exporters, high transaction costs to trade (including transport and logistics costs), farming practices that constrained productivity gains, limited access to inputs, credit and new technologies, and poor infrastructure). Additionally, deteriorating terms of trade relative to imported manufactured goods contributed to this trend.

Nevertheless, the liberalization of agricultural trade exposed consumers and producers in commodity-dependent countries to greater price volatility. Richer economies have contributed to commodity price volatility by reacting to developing-country agricultural liberalization with increased protectionism and producer subsidies (World Bank, 2005). Consequent overproduction requires greater domestic adjustments, whereas the loss of export markets penalizes agricultural product exporters. The increasing flow of speculative capital from financial investors to agricultural commodity markets has also contributed to instability (Robles et al., 2009). Net importers are particularly disadvantaged by higher food prices as biofuel cultivations—fueled by greater agricultural foreign investments—are increasingly displacing crops. It is thus not surprising that there have been large increases in long-run food price volatility over time, reaching its highest level in almost 30 years in 2009 (Roache, 2010).

Liberalization in global trade in manufactured goods, similarly, has reshaped the economies in middle- and low-income countries. During the last three decades, developing countries have opened up protected domestic markets to international trade and foreign investment while instituting a range of policies to encourage exports, attract foreign direct investment (FDI), promote innovation, and favor some industries over others. Successful developing countries have often pursued export-led economic growth policies, diversifying from primary commodities to manufactured goods. Thus while agriculture declined, manufacturing trade has expanded and today's developing countries have vastly increased their role in manufactured goods trade. Since 1990, developing countries' share in merchandise exports has increased from 20 percent in 1990 to more than 40 percent in 2012 (UNCTAD, 2013).

Global investment and trade have become increasingly integrated into international production networks. The majority of developing countries, moreover, are participating in these global value chains. At the same time, the transformation of global production has increasingly challenged the ability of states to regulate the practices of multinational employers. More recently, much has been made of “premature deindustrialization” in developing countries, whereby developing nations are becoming service economies without having fully industrialized (e.g., Rodrik, 2016). Countries that have managed to avoid deindustrialization—mainly in Asia—have principally done so by relying on favorable, low-tax, low-cost environments for external finance responsible for manufacturing growth.



Notes: Manufactured goods comprise commodities in Standard International Trade Classification (SITC, revision 3) sections 5 (chemicals), 6 (basic manufactures), 7 (machinery and transport equipment), and 8 (miscellaneous manufactured goods), excluding division 68 (non-ferrous metals). Agricultural goods refer to commodities in sections 0 (food and live animals), 1 (beverages and tobacco), 4 (animal and vegetable oils and fats), and division 22 (oil seeds, oil nuts, and oil kernels). Data are 5-year averages for 1960–2015.

Fig. 1. Trade in the developing world.

Source: Authors' illustrations based on COMTRADE data.

2.2. Trade profiles and social protection

What are the effects of these changes in agricultural and manufacturing trade on social protection? Three-quarters of the world's poor live in rural areas, and the vast majority of the rural poor are agricultural cultivators and casual laborers (Cheong et al., 2013). Most rural households in poor countries are dependent on agricultural activities, often subsistence farming. Wages are typically the second-largest income source, with some of the wage income originating in agriculture. Agricultural trade is therefore likely to have a significant impact on the poor.

Within the food and agricultural tradable sector, then, there are compelling reasons why both net importers and net exporters of agricultural products might seek to expand social protection. On the one hand, net importers may expand social protection if governments are principally concerned about vulnerabilities to food price shocks and about protecting consumers. Empirical analyses confirm that higher food prices and volatility incite social unrest (Berazneva and Lee, 2013; Bellemare, 2015). Even when agricultural exporters restrict exports following a spike in food prices in an effort to safeguard supplies for domestic market and keep prices down, transmission of world food prices to domestic food prices is still likely to occur (Mueller and Mueller, 2014). Only a select few large economies such as India and China have been able to shield their domestic economy from high world food prices (see Baltzer, 2014). Otherwise, even net food exporters such as Brazil and South Africa experienced an increase in food prices that disproportionately impacted the poor (Mueller and Mueller, 2014). The problem may be that governments of net agricultural importers have limited incentives and resources to provide pro-poor policies that help mitigate the impacts of food price shocks and maintain domestic political stability in the process. The extreme poor are difficult to mobilize; they are geographically dispersed, lack political connections and financial clout to influence political leaders to implement policies in their favor.

On the other hand, where agriculture constitutes a principal source of export earnings, governments have incentives to assist in integrating small producers and rural workers into global agricultural markets (e.g., sustaining a healthy, productive agricultural workforce). Social protection programs help the poor sustain their livelihoods—particularly in times of economic shocks—and thereby, serve as a stable workforce. Simply put, while higher risks and uncertainties for the poor accompanies increases in food exports and imports alike, governments of agriculture-dependent countries may have select incentive to invest in social programs that uphold the labor force so critical to their export success. In fact, several agricultural exporters have attempted to use safety nets to generate agricultural growth, by using public works programs to subsidize agricultural activities and, at the same time, to create infrastructure that can be beneficial to farmers (Devereux and Guenthe, 2009).

By contrast, manufacturing-export driven, developing economies are unlikely to produce the same incentives for the expansion of social protection. In many cases these governments have lured FDI by offering tax and regulatory concessions. The need for FDI may constrain government spending if increased public expenditures result in rising private costs of production (Ashraf et al., 2016). Indeed, it has become commonplace for policymakers to publicly underscore the importance of maintaining competitiveness, and that labor reforms and welfare retrenchment are increasingly unavoidable means to that end. Singapore's Deputy Prime Minister Trade Minister Lee Hsien Loong's comments reflect this general sentiment:

We must enhance the competitiveness of our economy... We undertook a fundamental review of the Central Provident Fund (CPF) Scheme, which is our social security and pension fund scheme... We are reducing the coverage for high-income Singaporeans, who should be able to plan and provide for their own retirement... These measures will make our labor market more flexible, and contribute to our economy's overall resilience and competitiveness. (The Business Times, 2002: 8)

Arguments and evidence regarding constraints on “decent work,” in particular, have shown that the insertion of export-oriented manufacturing into global production systems weakens the ability of developing country governments to provide social protection (Barrientos, 2007). Labor in developing-country manufacturing sectors linked to global production systems tend to be in jobs with relatively higher wages, albeit with limited access to social protection depending where workers lie on the formal-informal continuum (Lund and Nicholson, 2003). In Mexico, for example, formal sector workers receive social protection paid by payroll taxes (and a smaller portion by government subsidies), while those in the informal sector workers can choose from a menu of social assistance programs financed out of general government revenues. As a result, employment in the formal sector is taxed, while employment in the informal sector is subsidized creating strong incentives for firms to hire informal labor (Levy, 2008).

Simultaneously trade-induced skill-biased technological change has historically created higher premiums for skilled labor in developing economies (Tybout, 2000). Governments may thus be incentivized to prioritize welfare policies that focus on protecting (a small group of) skilled employees. Taken together, the growth of export-oriented manufacturing may come at the expense of social protection for the larger workforce, and especially for the working poor.

3. Data, methods, and results

Our chief aim is to examine how trade balances affect the breadth and depth of social protection. We use the World Bank's *Atlas of Social Protection—Indicators of Resilience and Equity* (ASPIRE) database for our indicators of social protection, covering a sporadic number of years between 2004 and 2011. We rely on a simple measure of total expenditure on all forms of social protection, as well as measures of “coverage” and “adequacy” of various components of social protection. Coverage is simply the percentage of population participating in social protection and labor programs (including direct and indirect beneficiaries) by program type. Adequacy of benefits is the total transfer amount received by all beneficiaries as a share of the total income or consumption of those beneficiaries.

Programs are divided into social assistance, social insurance, and labor market programs. Social assistance are programs targeted toward the poor, such as all cash transfers, in-kind provisions, subsidies, fee waivers, (non-contributory) pensions, as well as public

works and workfare. In contrast, social insurance refers to contributory pensions such as old age, survivors', and disability pensions, along with employment-related benefits such as paid leaves for sickness, maternity/paternity, as well as health and injuries benefits. Finally, labor market programs cover both active and passive labor-market policy measures focused on unemployment benefits (whether contributory or non-contributory), but also entrepreneurship support, training, employment, and self-employment incentives. The latter two categories are more likely to cover formal sector labor.

3.1. Estimation

Our benchmark specifications take a simple linear-log form with finite distributed lags:

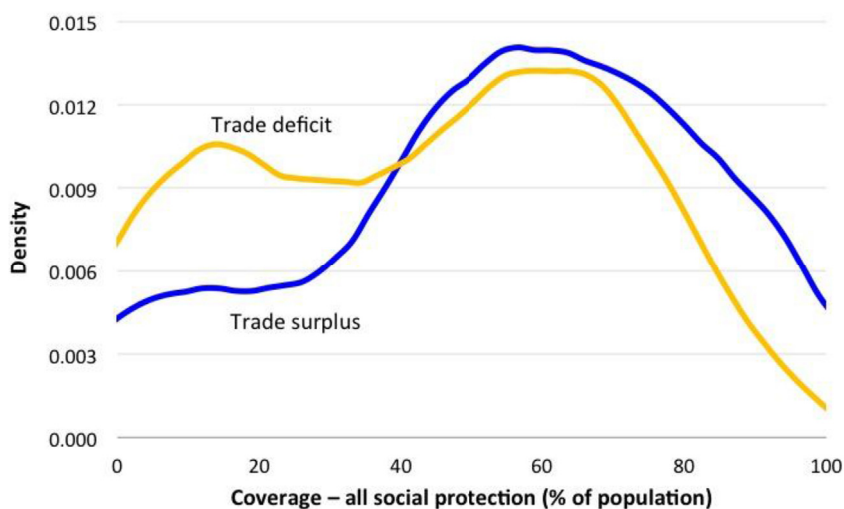
$$S_{i,t} = \beta_0 + \beta_1 \text{Ln}(X)_{i,t-1} + \beta_2 \text{Ln}(M)_{i,t-1} + \beta_3 \text{Ln}(Y)_{i,t} + \beta_4 \text{Ln}(Y)_{i,t-1} + \beta_5 \text{Ln}(P)_{i,t} + \beta_6 \text{Ln}(P)_{i,t-1} + \beta_7 \mathbf{R}_{i,t-1} + \mu_t + \varepsilon_{i,t}$$

where S is any given social protection outcome, X and M are total exports and imports with the rest of the world, respectively, in constant dollars, Y is total GDP in constant dollars, and P is total population. In subsequent estimations, we separate out exports and imports of agricultural and manufactured goods. Vector \mathbf{R} contains as controls: household consumption in constant dollars and a measure of change in the current account, $\Delta C = C_{i,t} - C_{i,t-1}$, where C is an indicator coded 1 if the current account is "open" and 0 otherwise. We rely on the measure of openness of the current account from Quinn et al. (2011). Their measure is an aggregate of *de jure* and *de facto* indices of the current account. Additionally, μ is a country-invariant time-fixed effect, and ε is a random, i.i.d. disturbance. All variables are indexed by country i and time period t ; we use 5-year averages, thus each period represents a 5-year timespan. Note that we take the natural logs of X , M , Y , P , and household consumption, rather than relying on percentages of GDP or per-capita terms. This permits us to examine, simultaneously, several weighted combinations of GDP and population, and their changes, without creating unnecessary problems of collinearity between regressors.

In our specification, then, $(\beta_3 - \beta_5)$ can be interpreted as the effect of GDP per capita, whereas $(\beta_3 - \beta_4)$ and $(\beta_5 - \beta_6)$, respectively, are effects of changes in GDP and population growth, and $(\beta_3 - \beta_4) - (\beta_5 - \beta_6)$ is the effect of the change in per-capita income. Where possible, we also use log-transform S (when estimating total spending on social protection in constant dollars, or total coverage under social protection programs in number of people), thus allowing the estimated parameters to be interpretable as elasticities in a log-log model. Our sample has 116 country-year observations covering low- and middle-income countries. Because of the scarcity of the social protection time series, most social protection indicators encompass, at maximum, two 5-year periods.

3.2. Descriptive analysis

Fig. 2 shows the smoothed distributions for total coverage of all categories of social protection for countries with surpluses or deficits in their trade accounts. The mean level of coverage for all country periods where the trade account was in surplus is the same as for those in which a deficit is posted. Approximately 60 percent of the population of the countries examined here have been covered by some social protection program in developing countries, regardless of whether these are in surplus or deficit; there is little difference between



Notes: Distributions are estimated using density functions—the probability of coverage falling within a particular range of values—with Epanechnikov kernels and Silverman bandwidths. Observations are country-period, where periods are five-year means for 2000–14.

Fig. 2. Distribution of social protection coverage in overall trade surplus/deficit countries.

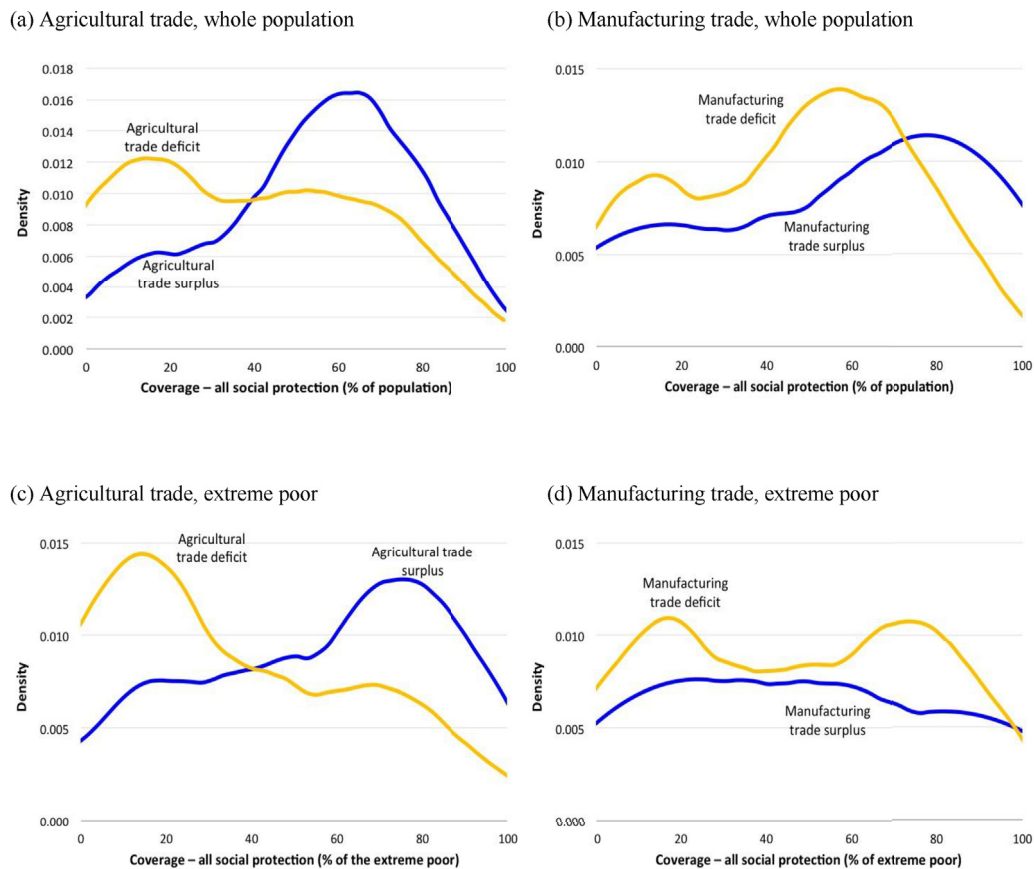
Source: Authors' illustrations based on data sources cited in the text.

net importers and net exporters overall.

We are principally interested in the special effects of agricultural versus non-agricultural sector trade on social protection and, in particular, whether a food-driven trade surplus raises or lowers the level of social protection. If net importers and/or net exporters of agriculture protect their citizens more, we would expect that the main objectives of social protection would be to lessen food price shocks and help small producers and unskilled agricultural workers adjust to the global economy. If, on the other hand, we see non-agricultural exporters protecting their citizens more, we would conclude that the fact that citizens obtain a larger portion of their income from manufacturing or service activities might be driving social protection.

These relationships are depicted in Fig. 3, which separates distributions of social protection coverage based on agricultural and manufacturing trade balances using a kernel estimation of the various probability density functions. Here, we separate social coverage for the whole population (Fig. 3a and b) and social coverage for the extreme poor (i.e., those earning less than US\$1.25/day in 2005 PPP-adjusted dollars in Fig. 3c and d). In the case of agriculture, mean levels of social protection for everyone and for the poorest shifts rightward—dramatically, in the case of the poorest—for net exporting nations are compared with net importers. A slight shift is noticeable in terms of coverage for the whole population, but there is no difference in mean coverage for the poorest between net importers and exporters of manufactured goods.

Together, Fig. 3a–d shows three stylized facts. First, agricultural trade surpluses are associated with a rightward shift in the mean coverage ratio by, on average, between 10 and 15 percentage points. Second, the non-agricultural sector, in contrast, is associated with far less of a change in mean coverage, although the distribution of coverage ratios is more single-peaked for surplus countries. Third, these changes are constant in terms of the population as a whole and for the poorest quintile, suggesting that the effects of agricultural surpluses on the expansion of social protection are not restricted to the non-poor themselves.



Notes: Distributions are estimated using density functions—the probability of coverage falling within a particular range of values—with Epanechnikov kernels and Silverman smoothing half-widths as bandwidths. Observations are country-period, where periods are five-year means for 2000–14. “Extreme poor” are those earning less than US\$1.25/day (2005 PPP). Agriculture and manufacturing trade are defined according to SITC classifications used in Figure 1.

Fig. 3. Distribution of social protection in agriculture and manufacturing trade surplus/deficit countries. Source: Authors’ illustrations based on data sources cited in the text.

3.3. Regression results

Benchmark results for our basic specification are presented in Table 1. Given our specification, one must examine coefficients β_1 and β_2 in order to identify the effects of trade balances on social protection. In column (1) we estimate the effect of trade on final government expenditure.

Interestingly, *total* exports serve to reduce spending on the poor whereas imports increase them. This same effect is found when we examine only social spending in column (2), despite the reduction in the number of observations. Although the effect on government expenditure of an extra dollar of imports is actually smaller than that of an extra dollar of exports in column (1), the effect of imports on social spending is larger than the effect of exports, suggesting that countries running trade deficits tend to have more social protection than those with surpluses. These same effects are present, though weaker, with social coverage. Moreover, the “importer effect” on social coverage is consistent whether the outcome is social protection for the whole population, for the bottom quintile, or for the extreme poor. This finding is consistent with globalization skeptics who argue that net exporters reduce taxes and spending in order to attract capital and promote exports. This may be political strategy directed toward appeasing politically organized exporting industries. At the same time, governments appear to compensate losers of import-competing industries in net importing countries. Yet, while these trade deficit-running countries may show more breadth of social coverage, they do not exhibit any greater depth in social protection. Columns (6)–(8) examine the adequacy of social protection, or the total transfer amount received by all beneficiaries (across the population, in the bottom quintile, or among the extreme poor) as a share of the total welfare of beneficiaries in that cohort.

The results in Table 1 suggest that trade deficits may spur governments to enhance their social protection across groups, including vulnerable segments of the population. Estimating the effects of *total* trade, however, obscures how liberalization of different sectors can generate different demands for social protection and whether trade effects in one sector may be driving results. Disaggregating trade by sector allows us to get a more precise assessment of how globalization variables impact social protection and, more specifically, whether agriculture or manufacturing trade, or both, are influencing the patterns uncovered in Table 1. Turning to agricultural versus non-agricultural trade, we replace the overall export and import terms in our basic specification with agriculture and manufacturing sector-specific trade terms. These results—given in Table 2—show that agricultural trade is characterized by strong countervailing effects to the overall trade account when it comes to social protection.

Column (1) in Table 2 shows, for example, that an extra dollar in food or agricultural exports increases government spending. In contrast, an extra dollar worth of manufactured goods imports has a negative effect on total government spending. Although we do not see effects on social spending, the same pattern prevails when examining beneficiary coverage of social protection. For the whole population, the bottom quintile, and the extreme poor, agricultural exporters have greater coverage and manufactured goods exporters have lower coverage. Again, these results suggest that any effect on social coverage is “shallow,” as the adequacy of those benefits does not seem to be increased. Meanwhile, it appears that manufacturing exports have the opposite effect on social protection (for coverage, not adequacy).

Finally, we turn to an investigation of the effect of country trade profiles on disaggregated social protection measures in developing countries. From the World Bank's *Atlas of Social Protection*, we can estimate the effects of exports and imports on social protection by

Table 1
Trade and social protection—regression results.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Government expenditure	Social spending	Coverage	Coverage (bottom quintile)	Coverage (poorest)	Adequacy	Adequacy (bottom quintile)	Adequacy (poorest)
$\ln(X)_{t-1}$	−0.335*** (0.000)	−0.974*** (0.000)	−0.255 (0.321)	−0.527* (0.057)	−0.716** (0.020)	0.197 (0.235)	0.614 (0.139)	0.335 (0.143)
$\ln(M)_{t-1}$	0.326*** (0.000)	1.139*** (0.001)	0.628* (0.051)	0.927** (0.019)	1.048** (0.019)	0.00388 (0.985)	−0.444 (0.304)	−0.192 (0.584)
$\ln(Y)_t$	1.059*** (0.000)	2.694** (0.012)	0.731 (0.436)	0.954 (0.305)	1.251 (0.255)	−0.931 (0.219)	−1.718 (0.393)	0.315 (0.775)
$\ln(Y)_{t-1}$	0.348** (0.010)	−1.595 (0.121)	−0.552 (0.544)	−0.552 (0.579)	−0.321 (0.774)	0.698 (0.359)	1.569 (0.356)	0.197 (0.871)
$\ln(P)_t$	−1.552*** (0.000)	−6.869* (0.051)	−5.201** (0.016)	−9.336*** (0.001)	−13.77*** (0.001)	−6.819*** (0.008)	−4.312 (0.372)	−8.493** (0.040)
$\ln(P)_{t-1}$	1.131*** (0.000)	6.627** (0.047)	4.845** (0.018)	8.745*** (0.001)	12.74*** (0.001)	6.915*** (0.005)	4.329 (0.334)	7.951** (0.049)
$\ln(\text{Consumption})_t$	−0.362*** (0.000)	−0.0197 (0.969)	−0.229 (0.671)	−0.558 (0.407)	−0.989 (0.227)	0.0150 (0.974)	0.0969 (0.912)	−0.386 (0.508)
ΔC	0.0167 (0.627)	−0.0901 (0.735)	0.745*** (0.001)	0.728*** (0.001)	0.969*** (0.002)	−0.154 (0.445)	0.0945 (0.805)	0.228 (0.484)
R^2	0.975	0.875	0.499	0.498	0.460	0.370	0.249	0.483
N	899	91	119	123	93	108	111	83

Notes: OLS results with robust standard errors in parentheses. Expenditure, spending, and adequacy are in constant dollar (natural logs). Coverage is in total persons covered (natural logs). X (total exports), M (total imports), Y (income) and Consumption (household consumption) are in constant dollars (natural logs), and P (total population) is in natural logs. Coverage and adequacy for the poorest is calculated from sub-population of those earning less than \$1.25/day based on 2005 PPP exchange rates. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Source: Authors' compilation based on data sources cited in the text.

Table 2
Agricultural and manufacturing trade and social protection—regression results.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Government expenditure	Social spending	Coverage	Coverage (bottom quintile)	Coverage (poorest)	Adequacy	Adequacy (bottom quintile)	Adequacy (poorest)
$\ln(\text{Food/Agro } X)_t$	0.047*** (0.008)	-0.146 (0.276)	0.247** (0.050)	0.281* (0.099)	0.339* (0.065)	0.145 (0.101)	0.142 (0.316)	0.056 (0.708)
$\ln(\text{Food/Agro } M)_t$	0.008 (0.790)	-0.334 (0.346)	0.142 (0.467)	0.001 (0.995)	-0.039 (0.907)	0.001 (0.996)	-0.238 (0.412)	-0.476 (0.162)
$\ln(\text{Manufactures } X)_{t-1}$	-0.008 (0.704)	0.0389 (0.733)	-0.166** (0.023)	-0.112* (0.070)	-0.197** (0.018)	-0.067 (0.276)	-0.0232 (0.840)	-0.116 (0.195)
$\ln(\text{Manufactures } M)_{t-1}$	-0.100* (0.055)	0.0951 (0.827)	0.242 (0.359)	0.160 (0.673)	0.312 (0.490)	-0.251 (0.241)	-0.0672 (0.838)	0.314 (0.419)
$\ln(Y)_t$	0.966*** (0.000)	0.911 (0.385)	0.701 (0.455)	0.651 (0.471)	1.086 (0.300)	-0.157 (0.810)	0.188 (0.854)	1.052 (0.305)
$\ln(Y)_{t-1}$	0.168 (0.189)	-0.342 (0.764)	-0.459 (0.587)	-0.261 (0.751)	-0.170 (0.863)	0.413 (0.515)	-0.352 (0.735)	-0.491 (0.655)
$\ln(P)_t$	-1.233*** (0.000)	-4.516 (0.168)	-6.632** (0.015)	-10.170*** (0.001)	-18.480*** (0.000)	-5.896** (0.033)	-5.714 (0.134)	-8.452* (0.096)
$\ln(P)_{t-1}$	1.096*** (0.000)	5.096 (0.116)	6.129** (0.021)	9.580*** (0.002)	17.35*** (0.000)	5.846** (0.031)	6.033* (0.095)	8.114* (0.092)
$\ln(\text{Consumption})_t$	-0.074 (0.258)	0.669* (0.094)	-0.325 (0.594)	-0.528 (0.429)	-1.268 (0.114)	0.115 (0.778)	0.565 (0.390)	0.096 (0.901)
ΔC	0.0135 (0.703)	-0.008 (0.976)	0.677*** (0.009)	0.704*** (0.008)	0.945*** (0.005)	-0.142 (0.508)	0.251 (0.442)	0.304 (0.386)
R^2	0.977	0.865	0.511	0.460	0.476	0.396	0.316	0.491
N	805	88	118	119	91	107	109	82

Notes: OLS results with robust standard errors in parentheses. Expenditure, spending, and adequacy are in constant dollar (natural logs). Coverage is in total persons covered (natural logs). X (agro/manufacturing exports), M (agro/manufacturing imports), Y (income) and $Consumption$ (household consumption) are in constant dollars (natural logs), and P (total population) is in natural logs. Coverage and adequacy for the poorest is calculated from sub-population of those earning less than \$1.25/day based on 2005 PPP exchange rates. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Source: Authors' compilation based on data sources cited in the text.

program type. Table 3 shows effects on the coverage and adequacy of two types of social programs, social assistance, or non-contributory transfers in cash or in-kind that are usually targeted at the poor and vulnerable, and social insurance, covering programs that minimize the negative impact of economic shocks.

Agricultural and food exports are associated with greater social assistance coverage. But agricultural exports are also correlated with greater coverage of social insurance programs, though not for the extreme poor. Additionally, agricultural exports also improve the adequacy (the value of benefits received) for social insurance programs, including for the poor.

Agricultural exporting is associated with an expansion in coverage, though not adequacy, of social assistance. Social assistance programs tend to be schemes financed from general revenues, hence they stand to benefit from trade surpluses. We find, however, that the adequacy of those benefits is unaffected, most likely given the small dollar value of benefits relative to, for example, wage income or private transfers. Meanwhile, as with our previous findings on overall social protection, the elasticity of coverage is positively affected by agricultural exports, suggesting that the effect of agricultural trade on social assistance in terms of breadth rather than depth.

In contrast to social assistance, social insurance includes contributory pensions and health insurance, and other social programs from

Table 3
Agricultural and manufacturing trade and social protection by program type—regression results.

Dependent variables		$\ln(\text{Food/Agro } X)_{t-1}$	$\ln(\text{Food/Agro } M)_{t-1}$	$\ln(\text{Manufactures } X)_{t-1}$	$\ln(\text{Manufactures } M)_{t-1}$
(1)	Coverage Social assistance	0.368** (0.048)	0.307 (0.309)	-0.135* (0.066)	0.164 (0.662)
(2)	Social assistance (bottom quintile)	0.392* (0.064)	0.163 (0.621)	-0.094 (0.212)	0.255 (0.552)
(3)	Social assistance (poorest)	0.487* (0.066)	0.410 (0.331)	-0.160* (0.052)	0.032 (0.953)
(4)	Social insurance	0.243** (0.023)	0.096 (0.709)	-0.074 (0.582)	-0.183 (0.531)
(5)	Social insurance (bottom quintile)	0.403** (0.038)	-0.018 (0.958)	-0.262*** (0.003)	-0.456 (0.240)
(6)	Social insurance (poorest)	0.260 (0.240)	-0.099 (0.848)	-0.123 (0.482)	0.227 (0.654)
(7)	Adequacy Social assistance	-0.061 (0.643)	-0.069 (0.775)	-0.050 (0.597)	-0.059 (0.846)
(8)	Social assistance (bottom quintile)	0.134 (0.507)	0.247 (0.484)	-0.043 (0.739)	-0.282 (0.543)
(9)	Social assistance (poorest)	0.048 (0.824)	-0.175 (0.651)	-0.159 (0.193)	0.101 (0.854)
(10)	Social insurance	0.179** (0.027)	0.008 (0.963)	-0.073** (0.028)	-0.037 (0.812)
(11)	Social insurance (bottom quintile)	0.315*** (0.009)	-0.200 (0.394)	-0.122*** (0.006)	0.204 (0.373)
(12)	Social insurance (poorest)	0.312** (0.038)	-0.209 (0.541)	-0.099 (0.133)	0.215 (0.525)

Notes: OLS results with robust standard errors in parentheses, based on regressions in Table 2. Social protection adequacy is in constant dollar (natural logs); coverage is in total persons covered (natural logs). X (agro/manufacturing exports) and M (agro/manufacturing imports) are in constant dollars (natural logs). Coverage and adequacy for the poorest is calculated from sub-population of those earning less than \$1.25/day based on 2005 PPP exchange rates. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Source: Authors' compilation based on data sources cited in the text.

which the informal labor force tends to be excluded. Agricultural exports are associated with expansion in both coverage and adequacy of social insurance programs, including for the poor. This relationship indicates that growth in export-oriented agriculture potentially has two effect on social insurance. First, export-oriented agriculture could expand the eligibility of the poor and the extreme poor to participate in employment-based, contributory programs. Although social insurance tied to employment generally leads to low coverage and adequacy, the presence of export-driven, agriculture may prompt agricultural firms to extend benefits to low-paid workers who would normally be excluded from pensions and similar programs. Second, it appears that export-driven agriculture leads to an overall shift in the character of social insurance programs from those that are mainly employment-based to ones that are more universal.

Examples where national social insurance systems have been extended or reformed to reach rural, agricultural workers can be found in Brazil, China, Ghana, Rwanda, South Africa and Viet Nam. Governments may be responding to demands from agriculture-exporting firms to help them maintain a productive agricultural workforce by subsidizing insurance premiums or contributions for rural workers, something recently done in Ghana and Rwanda, where the poorest are exempted from paying into national insurance schemes (Brugiavini and Pace, 2016; Saksena et al., 2011). In South Africa and Vietnam, similarly, interest groups have successfully lobbied for increased coverage of agricultural workers as insurance providers recognize that a significant proportion of rural economy workers are willing to contribute (Van Ginneken, 2010).

Manufacturing surpluses, on the other hand, are associated with contractions in both the coverage and adequacy of social insurance. This is the most direct evidence we have that social protection for workers has been undermined by the growth of manufacturing trade in developing countries. This comports with recent evidence from, for example, Vietnam, where the growth in manufacturing has led to a simultaneous expansion in demand for skilled labor as well as non-contracted, casual labor considered ineligible for social insurance (Lim, 2014; Duong et al., 2011).

4. Conclusion

Although much has been written regarding the implications of globalization and the adjustment process stemming from economic integration for welfare systems in developing countries, there is much less analysis of the ways in which trade balances affect social protection. Liberalization and openness have increased the access of developing countries to traded goods. However, openness has been associated with economic shocks and uncertainties, which can place vulnerable groups in great jeopardy.

We have argued that there are compelling reasons why net exporters of agricultural products would seek to expand social protection. For net exporters, the presence of a relatively large agriculture-producing sector (and the share of unskilled labor tied to this sector) raises the imperative for larger-scale antipoverty efforts to maintain the livelihood of their key workforce: the rural poor. These groups need not be organized to lobby the government for such benefits. Rather, the pressure to protect these workers is generated by an interest in maintaining a steady supply of labor for a key exporting industry, and by fears that, in the absence of pro-poor social protections coupled with extremely low wages, growth and investment in the export-oriented sector may be harmed.

The same cohorts of poorer, informal-sector workers has, by many accounts, expanded in countries that have emerged as manufacturing goods exporters as well, raising the question of why they have not benefited from the same expansions in social protection coverage or adequacy. Our results suggest, in fact, that merchandise-goods surpluses are associated with a contraction in some forms of social protection. Since much of the manufacturing expansion increases premiums for skilled labor and is financed by FDI, pressures to limit taxes on capital and protect more skilled labor may lead to lower social protection for the extreme poor. Manufacturing workers also earn relatively higher wages than rural labor, perhaps mitigating the urgency of social protections for this group.

Our aim was to provide a preliminary empirical test of these countervailing possibilities. We examined social spending and social protection for developing countries after 2000, that is, after the era of trade reforms. In this liberalized period, we found that when it comes to the agricultural and food sector, net agricultural exporters exhibit greater social protection than net importers. Social policy in developing nations, all else being equal, seems to be partially shaped by the presence of successful agricultural exporters.

There are several implications for this, all of which deserve further research. We raise two here, however conjectural. First, it is plausible that the vulnerabilities of the poor working in agriculture cannot be easily mitigated by traditional forms of social protection. It is only relatively recently that formal social insurance systems, for example, have been extended or reformed to reach rural, informal, self-employed, and migrant workers. The question remains whether these programs will in fact be successful in sustaining a productive, agricultural workforce.

Second, most developing countries are in the midst of a transition away from traditional agriculture. Consequently, as agricultural-commodity exporters move up the value-added chain toward processed agriculture, and as multinational firms with global production and distribution systems play a greater role in developing country agricultural exports, the vulnerability of those rural populations excluded from higher value-added agriculture may be increasing.

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