

**WP/21/74**

# IMF Working Paper

---

## Trade and Inclusive Growth

by Marc Bacchetta, Valerie Cerra, Roberta Piermartini, and Maarten Smeets

***IMF Working Papers* describe research in progress by the author(s) and are published to elicit comments and to encourage debate.** The views expressed in this IMF Working Paper are those of the authors and do not necessarily represent the views of the IMF, the IMF Executive Board, the World Trade Organization and its Members, or their managements.

I N T E R N A T I O N A L M O N E T A R Y F U N D

## IMF Working Paper

Institute for Capacity Development

### Trade and Inclusive Growth

Prepared by Marc Bacchetta, Valerie Cerra, Roberta Piermartini,  
and Maarten Smeets<sup>1</sup>

March 2021

**IMF Working Papers describe research in progress by the author(s) and are published to elicit comments and to encourage debate.** The views expressed in this IMF Working Paper are those of the authors and do not necessarily represent the views of the IMF, the IMF Executive Board, the World Trade Organization and its Members, or their managements.

### Abstract

This paper surveys the literature on the relationship between international trade and inclusive growth. It examines claims that the rise in inequality in many countries can be attributed to the concurrent rise in trade competition, especially from EMEs like China, spurring trade tensions and protectionist measures. The paper investigates the conflicting literature showing the aggregate benefits of trade versus the adverse and persistent impact of trade, especially import competition, on specific industries and local communities. The paper then reviews the evidence for using trade policies and other complementary policies for adjustment and compensation to those groups adversely affected by trade.

JEL Classification Numbers: F10, F60, D63

Keywords: trade, inclusive growth, inequality, globalization, growth, poverty, gender, labor

Authors' E-Mail Addresses: [marc.bacchetta@wto.org](mailto:marc.bacchetta@wto.org); [vcerra@imf.org](mailto:vcerra@imf.org);  
[roberta.piermartini@wto.org](mailto:roberta.piermartini@wto.org); [maarten.smeets2@gmail.com](mailto:maarten.smeets2@gmail.com)

---

<sup>1</sup> We thank Jaime Sarmiento for research assistance. We also thank Barry Eichengreen, Robert Koopman, Sharmine Coorey, Andy Berg, Karim Barhoumi, Moya Chin, Maksym Ivanyna, Francesco Luna, Nikola Spatafora, as well as participants in the Inclusive Growth book seminar series organized by the IMF Institute for Capacity Development for their comments. This is a draft of a chapter that has been accepted for publication by Oxford University Press in the forthcoming book titled: "How to Achieve Inclusive Growth", edited by V. Cerra, B. Eichengreen, A. El-Ganainy, and M. Schindler, due for publication in 2021.

## Contents

Abstract.....	2
I. Introduction.....	4
A. Trade and inclusion concerns.....	4
B. International trade trends.....	6
II. Aggregate Impact of Trade on Growth and Inclusion.....	9
A. Standard theories.....	9
B. Evidence for aggregate net benefits of trade.....	10
III. Relative Impact and Adjustment.....	17
A. Impact and adjustment in advanced economies.....	17
B. Impact and adjustment in developing economies.....	20
IV. Policies to Share Trade Gains.....	24
A. Trade-related policies .....	25
B. Adjustment policies .....	29
C. Complementary policies.....	32
V. Conclusions.....	33
References .....	35

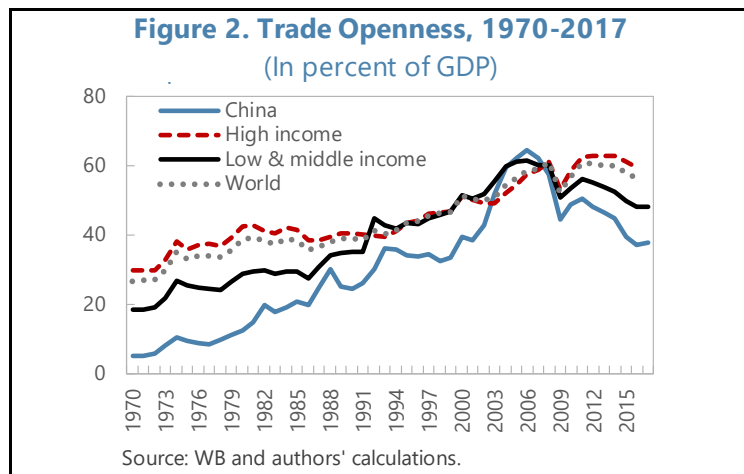
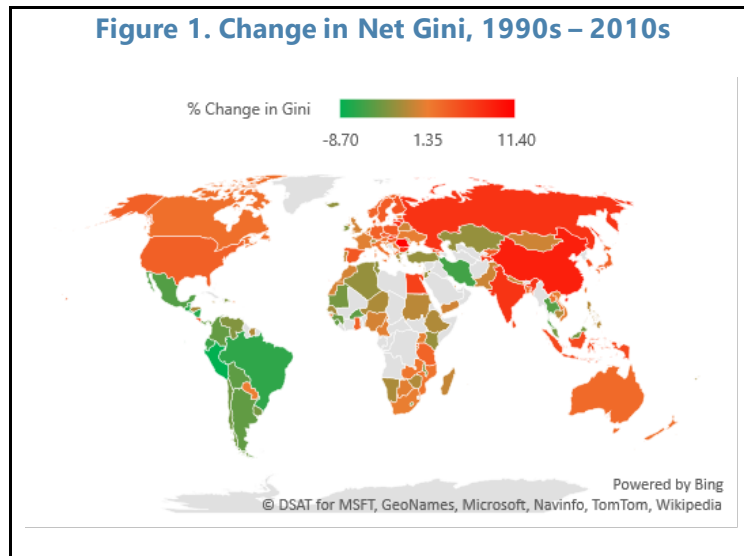
## Figures

1. Change in Net Gini.....	4
2. Trade Openness as a Share of GDP .....	4
3. Public Perceptions of Trade.....	5
4. Trade Integration and Trade Costs.....	6
5. Composition of Trade.....	7
6. Trade vs Income and Growth.....	12
7. Change in Openness and Income of the Poor.....	14
8. Gains from Trade for Bottom and Top Deciles.....	15
9. Change in Manufacturing Share of GDP.....	18
10. Tariff Faced by Income Decile in Agriculture and Averaged Across All Sectors .....	25
11. Trade Facilitation: Projected Exports 2015-2030.....	27

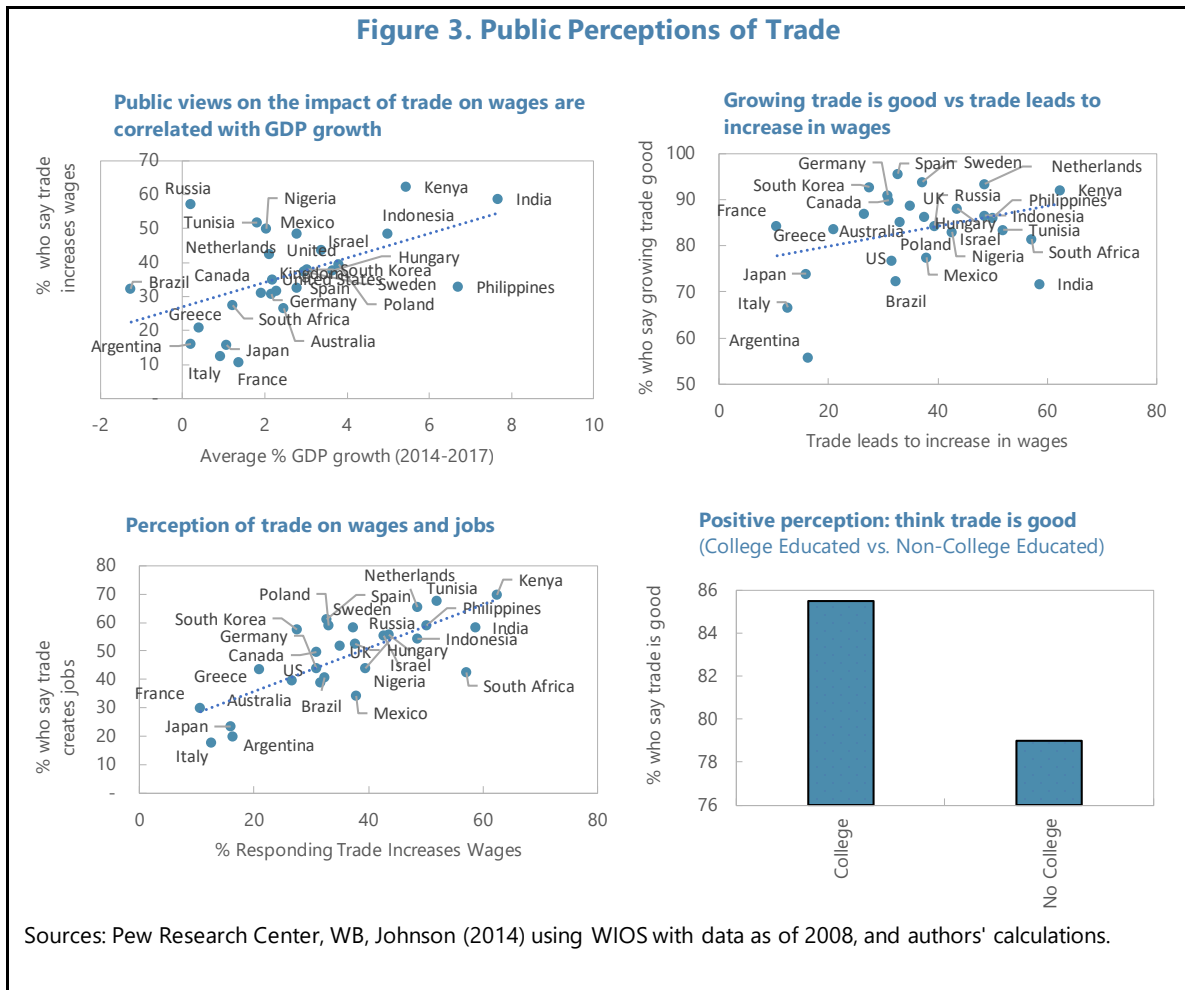
## I. INTRODUCTION

### A. Trade and inclusion concerns

**Inequality and trade have both increased in many developed and developing countries since 1990.** Over the past few decades, inequality has risen in most advanced countries but also in several developing and emerging economies, especially in Eastern Europe and Asia, (Figure 1). At the same time, trade openness has expanded until the Global Financial Crisis, in part due to trade liberalization and integration from emerging market countries such as China (Figure 2). These developments have raised questions of whether trade has been a culprit for the rising inequality. Concerns over globalization contributed to the passage of the U.K.'s Brexit, the trade tensions between the U.S. and China, the U.S. withdrawal from the Trans-Pacific Partnership, other increases in protectionism, and a rise in economic nationalism (Autor et. al, 2020; Colantone and Stanig, 2018a, 2018b; Ravallion, JEL 2018).



**In a number of mostly rich countries, trade and trade agreements have been blamed for causing manufacturing job losses and for harming the poor.** However, this sentiment may reflect the public’s search for an explanation of slower growth in advanced economies, particularly in the decade following the global financial crisis. In fact, there are many other forces, such as technological advances, that contributed to the increase in inequality, as discussed in Cerra et al. (2021). Nonetheless, weak economic conditions and job losses in manufacturing industries in advanced economies, in particular, have soured perceptions of trade for some politically sensitive groups, although the perceived impact of trade became more favorable in the second half of the 2010s (Antras, 2020). Indeed, according to Pew Research Center’s Spring 2018 Global Attitudes Survey, public views on trade depend on the economic performance in the respondent’s country, with a high correlation between the country’s GDP growth rate and the belief that trade will increase wages (Figure 3). More generally, most people consider trade to be good for their countries and to create employment opportunities, with somewhat more optimism in emerging countries. In most countries, individuals with higher education and above median incomes are more likely to think trade creates jobs.

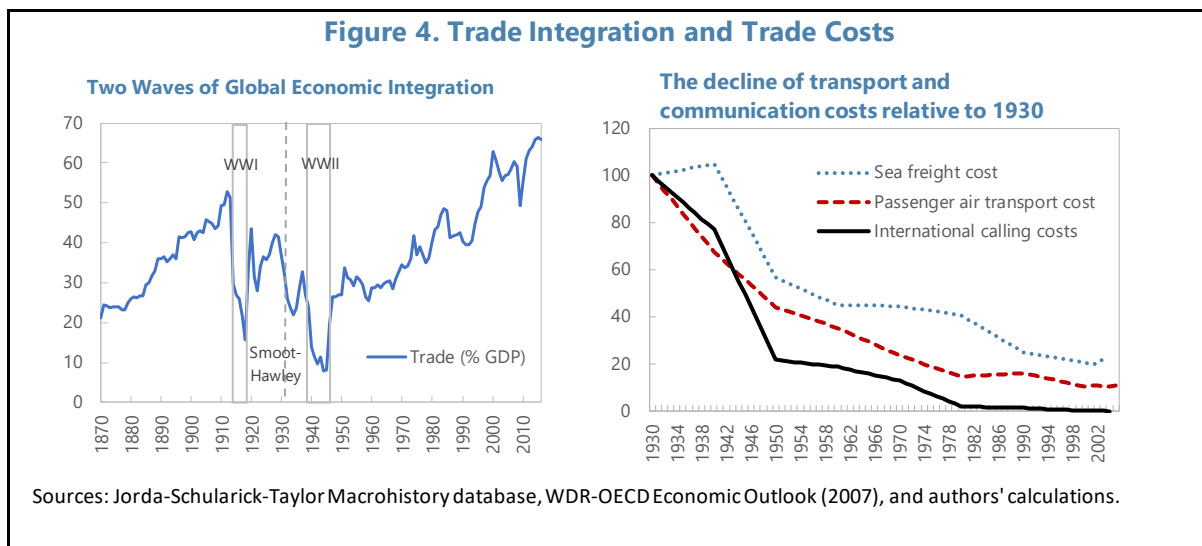


**This paper examines the relationship between international trade and inclusive growth.** To set the stage, we describe the underlying trends driving trade and its composition in the recent decades and as projected into the future. We then turn to trade's relationship with growth and inclusion, where inclusion is defined broadly to encompass outcomes across the socio-economic spectrum. We assess the theoretical and empirical literature on the impact of trade, both in terms of aggregate economic outcomes and the relative impact on different population segments in a country. Although many countries have already reduced tariffs to low levels in past liberalizations episodes, scope remains to reduce non-tariff barriers and other trade costs, as well as addressing inclusion and sustainability in trade agreements. We thus delve into the debate on policy design for reaping the advantages of integration while minimizing or compensating any adverse impacts on sub-groups.

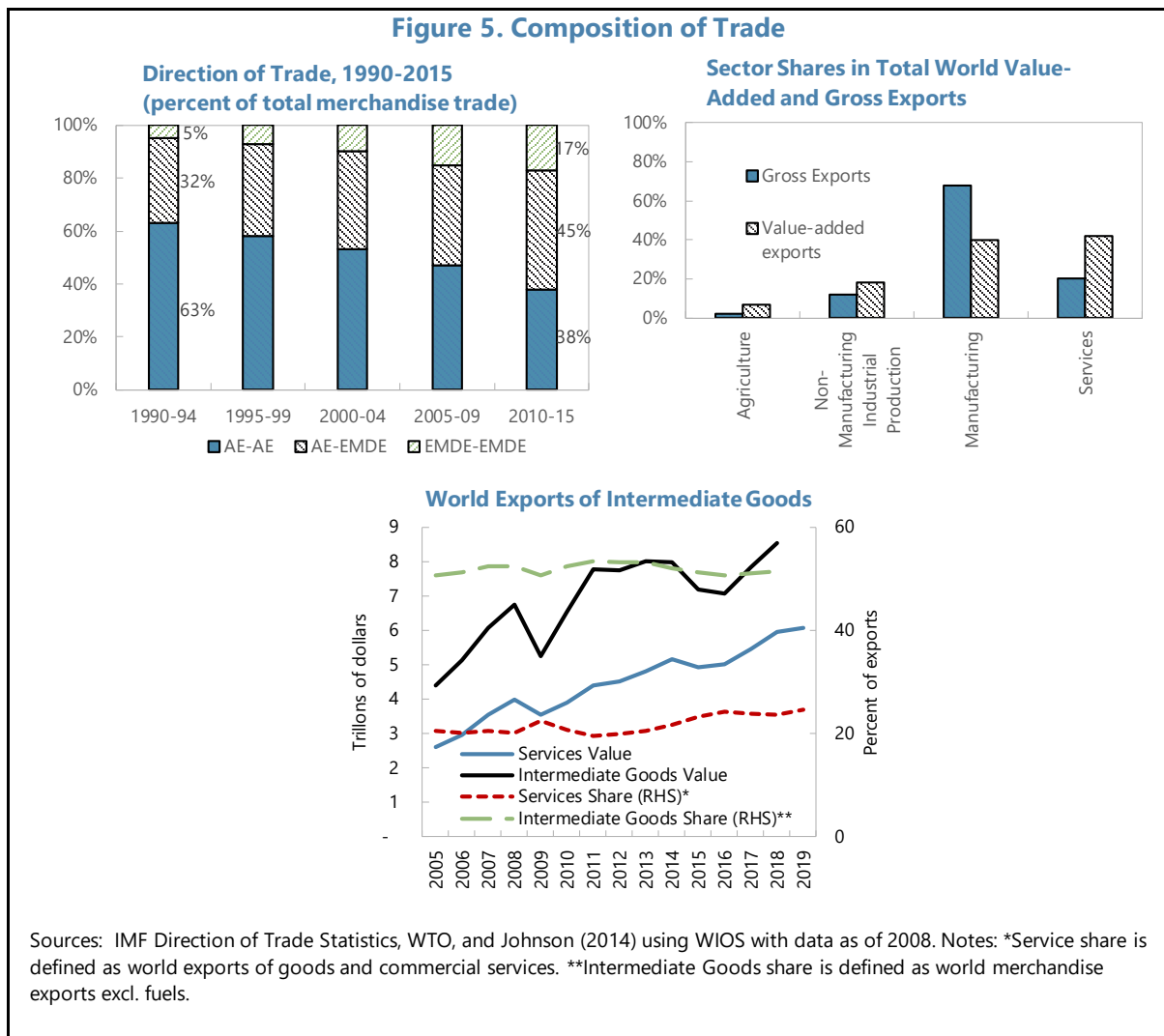
## B. International trade trends

**Global trade has responded to changes in technology, economic conditions, and policy.**

Trade grew by over 300 percent between 1870 and the start of WWI due to declining trade and communication costs prompted by technological innovations such as the steam ship and telegraph (Figure 4). Trade collapsed during the two world wars and the Great Depression, due to the disruptions of conflict, the weak economic conditions, and a rise in protectionism (e.g. Smoot Hawley Act). Trade volumes surged by 7 percent per annum from 1950 to a high of roughly 60 percent of GDP (summing exports and imports) by the 2008-09 Global Financial Crisis (GFC). In addition to technological change that significantly reduced transportation and communication costs (e.g., containerization), the post-war period also witnessed major changes in trade policy. High-income countries reduced tariffs to less than 5 percent by the 1980s in early GATT rounds, while developing countries undertook major unilateral liberalizations in the 1980s and 1990s (Pavcnik, 2017). Regional trading agreements and arrangements (e.g., the European Union, NAFTA, ASEAN) also proliferated over recent decades since the 1980s.



**In recent decades, the country and industry composition of trade has shifted.** In the early 1990s, merchandise trade between advanced countries comprised about 2/3 of global trade, but this share has fallen to only about 1/3, as trade between emerging market and developing economies (EMDEs) and advanced economies (AEs) has increased sharply (Figure 5). China's accession to WTO led rising shares from Asian countries in the 2000s. China's share of world merchandise exports grew from 1.2 percent in 1983 to 13.1 percent in 2018, which also explains Asia's share in world merchandise exports that grew from 19.1 percent to 33.6 percent in the same period. During this period, EMDEs have expanded their share of world manufacturing exports. Global value chains (GVCs)—in which the production process is broken up and firms in different countries specialize in specific tasks rather than producing the entire good or service—rose from about 37 percent of total trade in 1970 to above 50 percent by the mid-2000s (WDR2020). Trade in services, despite relatively high policy barriers, has expanded faster than trade in goods between 2005 and 2017, at 5.4 percent per year on average, and now accounts for about one-quarter of total trade (IMF-WB-WTO, 2018).



**Recent global crises have slowed the rise in trade relative to GDP.** The growth of trade was disproportionately concentrated in the period 1986-2008, owing to the IT revolution and articulation of supply chains, the fall in trade costs, and political developments such as the fall of communism and emergence of China (Antras, 2020). However, trade growth decelerated dramatically following the Global Financial Crisis, due to diminished growth and investment, rising protectionism, and maturation of global value chains (WEO, October 2016, Chapter 2). Due to the COVID-19 pandemic, world merchandise trade is projected to fall by 9 percent in 2020 ([WTO Trade Forecast, October 2020](#)), and services trade to plummet due to transport and travel restrictions. Global foreign direct investment flows fell by 49 percent in the first half of 2020 (UNCTAD October 2020) and a further additional decline of 5-10 percent for 2021 (UNCTAD 2020) is likely to exacerbate the contraction in trade flows, given the close interlinkages between trade and investment. Developing countries will be the hardest hit given their strong reliance on GVCs intensive industries and extractive industries, which have been severely affected by Covid-19. A 2021 recovery in trade is expected, depending on the duration of the outbreak and the effectiveness of the policy responses. Trade will likely fall steeper in sectors with complex value chains, particularly electronics and automotive products, which may be intensified by calls for and policies stimulating re-shoring of production. On the positive side, new services are provided through on-line shopping, e-commerce transactions and digital trade.

**Looking ahead, underlying trends point to a continued increase in services trade, and growth areas such as e-commerce and digital trade, although this is difficult to document.** The value of e-commerce transactions is estimated at US\$27.7 trillion in 2016, up 44 percent from 2012 (USITC 2017; WTO, 2018). There is also evidence of growing international opportunities for leading digital economy firms.<sup>2</sup> Three main trends are likely to affect the growth of services trade: (i) generally lower trade costs due to digital technological innovation; (ii) a reduced need for face-to-face interaction; and (iii) a lowering of the policy barriers. Simulations using the WTO's Global Trade Model project that, as a result of these trends, the services sector share of global trade may grow by 50 percent by 2040 (World Trade Report 2019). The reduction of trade costs induced by digital technologies is likely to foster trade in time-sensitive goods, certification intensive goods and contract intensive goods. Trade in customizable goods is also likely to increase and the advent of 3D printing technology may well prolong the decreasing trend in the trade of certain digitizable goods. Finally, the "sharing economy" business model could affect trade in durable consumer goods. Digital technologies may affect the international fragmentation of production. However, the overall impact on GVC trade is difficult to predict. In combination with innovations in logistics, the reduction of transaction costs through the internet has led to an enormous expansion of GVCs. Yet new technologies can also bring a reversal of this process through reshoring and 3D printing (World Trade Report 2018), though production location decisions tend to be sticky due to large sunk costs. Moreover, while technological improvements and automation may lead some inputs to be produced in domestic economies, increased productivity may increase the firm's optimal scale, thereby increasing their demand for intermediate inputs from abroad (Antras, 2020).

---

<sup>2</sup> For example, international streaming revenue for Netflix grew from US\$ 4 million to US\$ 5 billion between 2010 and 2017 (WTO, 2018).



## II. AGGREGATE IMPACT OF TRADE ON GROWTH AND INCLUSION

### A. Standard theories

**Standard trade theories have mixed predictions for the impact of trade openness on inclusive growth.** Trade occurs due to differences in sectoral technology, factor endowments, economies of scale, and firm productivity differences. Theories focus on the welfare effects of trade, predicting that there will be gainers and losers from trade but that the gains will exceed the losses if adjustment costs are not too high. Because trade theories typically assume full employment and costless adjustment of labor from declining to growing industries and firms, they typically suggest that trade should not have a major effect on the aggregate level of employment. They tend to predict that trade has second order effects by shifting resources across firms and sectors, which can affect aggregate employment if labor-market frictions are sector or firm-specific (Helpman and Itskhoki, 2010; Davis and Harrigan, 2011; Carrère, et al., 2016).

**Technological differences between countries could confer mutual trading benefits.** Ricardo (1817) espoused the idea that countries would export goods in which they had a comparative advantage due to higher relative productivity (a lower opportunity cost of production). Each country could potentially consume more of everything due to the global gains from specialization, which makes production more efficient. Within each country, sectors of comparative disadvantage would contract, but Ricardian theory assumes costless reallocation of workers to the growing domestic sector, abstracting from transitional or structural unemployment. Trade allows higher aggregate productivity, generating higher real wages, consumption, and welfare for everyone.

**Trade based on differences in resource endowments is expected to benefit most the owners of the country's abundant factors.** Heckscher-Ohlin theory (Ohlin 1933; Samuelson 1939) attributes trade to differences in countries' endowments of land, high- and low-skill labor, capital and any other factors of production. Trade induces a country to export goods that are produced using its abundant factors intensively relative to the trading partner, since the factor input costs would be lower. Stolper-Samuelson (1941) showed that since trade opening raises the demand for the abundant factor as the sector that uses it intensively expands, the returns to that factor (e.g., wages, profits, or rents) would rise. This suggests that low-skilled workers would benefit most from trade liberalization in low-skilled labor-abundant developing countries, while capital and high-skilled labor would benefit most in advanced economies. Consequently, inequality would be expected to fall in developing economies and rise in advanced economies. Thus, while net gains would be positive, some people could be worse off from trade unless compensated through redistribution.

**Imperfect labor mobility could alter some of the predictions of these trade theories.** Sectors that contract as a result of trade—those with comparative disadvantage or those employing scarce factors—could experience short-term unemployment if wages are not fully flexible, job creation in the expanding sector is slow, or laid off workers are unable to find rapid job matches elsewhere. In the long-run, trade is expected to reduce unemployment if driven by Ricardian comparative advantage or if the country is labor abundant (Dutt, Mitra, and Ranjan, 2009).

**Trade based on economies of scale and product differentiation provide benefits of competition and product variety.** Until recent decades, global trade was dominated by trade between advanced countries in similar industries, rather than between advanced and developing countries based on comparative advantage or different factor endowments. Intra-industry trade accounted for about half of trade in advanced countries in the mid-1990s. Deemed “new” trade theory, Krugman (1981) showed that countries could take advantage of economies of scale in producing differentiated goods in the same industry. Access to new markets would permit an increase in production and decline in average costs. This form of trade provides welfare gains from greater variety of products without requiring any substantial contraction of industries or decline in returns to factors. The integrated market could spur competition, boosting innovation and growth. However, it could also force less competitive firms to go out of business.

**Productivity differences between firms in the same industry play an important role in trade and appear to induce within industry dispersion in wages and profits.** In the “new new” trade theory pioneered by Marc Melitz (2003), the most productive firms in an industry find it profitable to export. As trade expands, profits and wages in exporters rise while the less productive firms contract production or exit, leading to a rise in average industry productivity. Empirical evidence confirms that exporters are larger and more productive than non-exporters (Lileeva and Trefler, 2010). Evidence also suggests that inequality within an industry rises. Firm productivity differences also impact firms’ decisions to engage in FDI and to offshore stages of the production process (Antras and Helpman, 2004).

**Trade can also generate dynamic gains.** Beyond the static benefits of increasing production efficiency and product variety, theory provides several channels through which trade can encourage sustained growth and welfare improvements. Opening up to trade affects growth positively because trade improves resource allocation by allowing countries to exploit comparative advantages. In some industries, the rise in production associated with specialization could lead to learning by doing that raises productivity. Higher competition could generate incentives to innovate (Alvarez and others 2019; Wacziarg and Welch 2008) and prompt improvements in institutions and government policies to ensure competitiveness (Krueger, 1974; Tong and Wei, 2014; Amiti and Khandelwal, 2013). Trade and FDI may also lead to knowledge spillovers across countries (De Loecker, 2013; Coe and others, 1997). Trade allows firms that extend their market size beyond national borders to exploit economies of scale and become more productive and profitable, creating incentives to accumulate capital faster and to invest in R&D. Small open economies may also sustain rapid capital accumulation without a decline in the return to capital, which is determined in world financial markets. As a case in point, the East Asian tigers achieved fast export-led growth and rapid capital accumulation during the 1970s and 1980s, gradually shifting into more capital-intensive industries (Ventura, 1997).

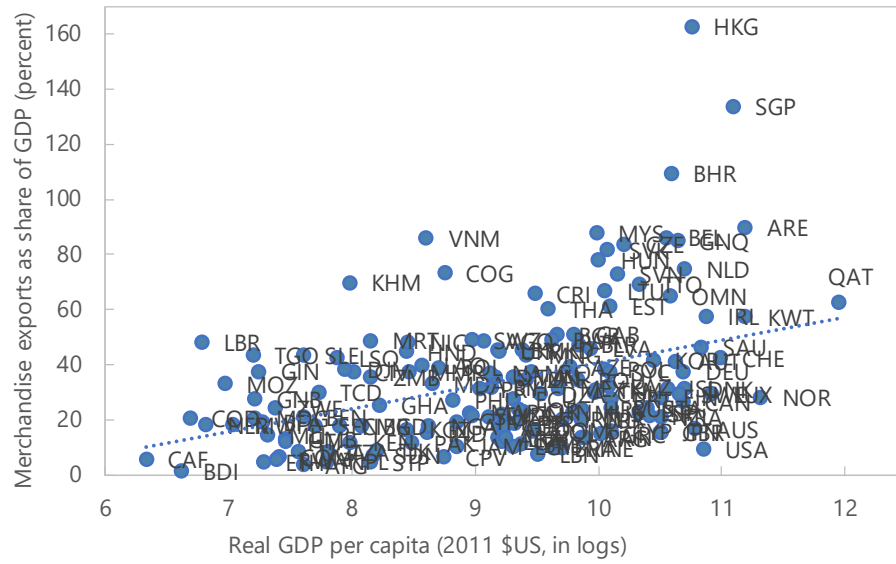
## **B. Evidence for aggregate net benefits of trade**

**Empirical evidence supports a number of net societal benefits of trade.** According to the theories described in Section II.A., trade generates net benefits for an economy by taking advantage of specialization and comparative advantage in technology, resources, factor abundance, and differentiation. Empirical evidence finds overall benefits of trade, including

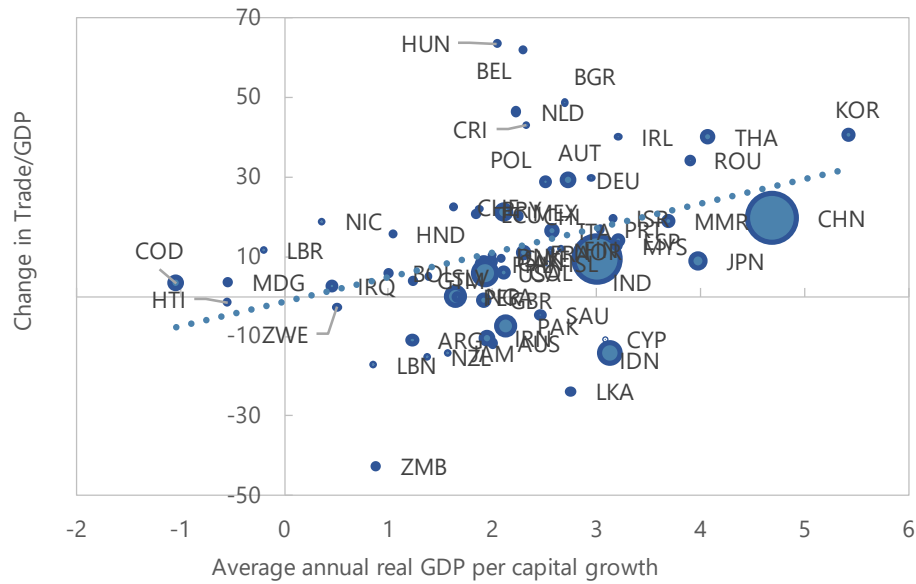
higher growth, productivity, innovation, and technological upgrading; learning by exporting; reduction of corruption and discrimination; lower prices, especially for the poor; increased variety; and reduced input costs. This section summarizes the evidence for these effects, mainly at the aggregate level.

**Trade openness is positively correlated with per capita income and economic growth (Figure 6).** Empirical studies confirm the positive relationship between trade and growth, controlling for other factors (Sachs and Warner, 1995; Busse and Koniger, 2012). However, some critics debate the direction of causation (see reviews by Hanson and Harrison, 1999, and Rodriguez and Rodrik, 2010). To address this concern, a few studies use the exogenous component of trade openness based on geography and find that more open countries tend to have higher average per capita incomes (Frankel and Romer 1999; Cerdeiro and Komaromi, 2020). An increase in trade openness of 1 percent of GDP is associated with 2-6 percentage points higher per capita GDP. Some research finds that countries that liberalized trade in the 1980s and 1990s achieved higher growth (1.5 percentage points) than countries that did not liberalize (Wacziarg and Welch, 2008; Estevadeordal and Taylor, 2013). The analysis may not be definitive given shortcomings associated with each research approach (e.g., geography may affect growth through other channels besides trade, and trade liberalization episodes coincided with other reforms), but a variety of research methods consistently find a positive impact of trade on growth. The success of several Asian countries in industrializing through export-led growth lent further evidence to development through openness rather than import substitution (World Bank World Development Report, 1987).

**Figure 6. Trade vs Income and Growth**  
**Merchandise Exports as a Share of GDP and GDP per capita, 2014**



**Change in Trade/GDP vs Growth (1950 - 2014)**  
 (percent)



Sources: WB, and authors' calculations.

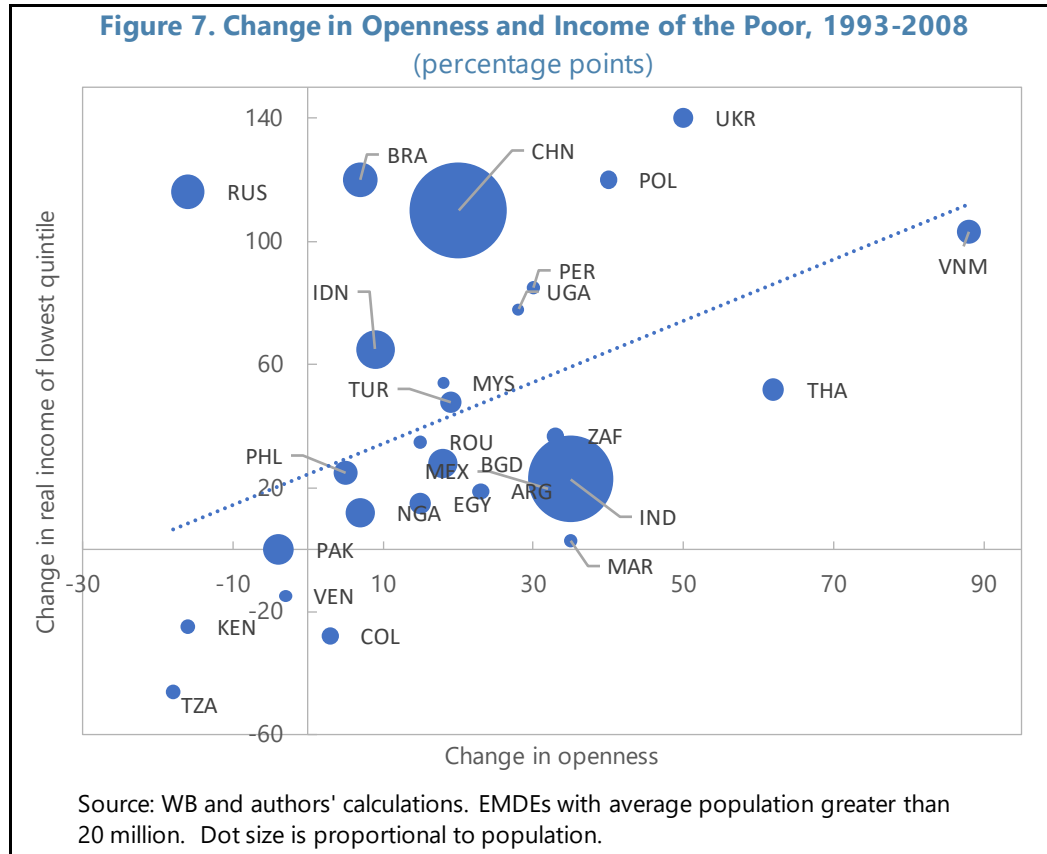
**Evidence shows that trade increases productivity and innovation, key channels for raising growth.** The literature provides robust evidence that trade liberalization increases industry productivity, both through reallocation to more productive firms and to improvements within firms (see surveys by Harrison and Rodriguez-Clare (2010), De Loecker and Goldberg (2014), and Melitz and Redding (2014)). Trade openness raises productivity across countries (Alcala and Ciccone, 2004), and particularly benefits sectors where lower tariffs reduce inputs costs (Ahn and others, 2016). For example, the Canada-US FTA raised productivity in Canadian export and import-competing sectors most impacted by the agreement (Trefler, 2004) and in US manufacturing industries (Bernard and others, 2006). Trade reforms in Brazil during 1988-90 improved productivity in industries (Ferreira and Rossi, 2003). Trade shifts production toward sectors that have the highest comparative advantage (Ricardo, 1817; De Loecker and Goldberg, 2014). It also increases competition and the size of the market, spurring firms to innovate and upgrade technology (Lileeva and Trefler, 2010; Bustos, 2011; Bloom and others, 2015). Trade and FDI facilitate diffusion of technology across trading partners (De Loecker, 2013; Coe and Helpman 1995; Coe, Helpman and Hoffmaister 2009; Lumenga-Neso and others, 2005).

**Trade openness appears to be correlated with slightly higher employment in the long run.** The initial impact of trade liberalizations depends on country specific factors and vary by episode and most economists attribute differences in long-run unemployment to labor market institutions and other structural factors (WTO-ILO, 2007; Blanchard, 2006). Cross-country studies find that trade liberalizations and openness reduce long-run unemployment (Dutt et al., 2009; Felbermayr et al., 2009). A review of recent country level studies also confirms that trade has a small but positive effect on aggregate labor market outcomes in advanced economies (Feenstra and Sasahara, 2017; Caliendo et al. 2018).

**Trade liberalization leads to lower prices and a greater variety of consumer goods, increasing the real income of households.** Lower goods prices arise directly through the lower price of imports and also indirectly through improvements in productivity (Costinot and Rodriguez-Clare, 2014). Some studies suggest that the poor spend a higher share of their income on tradeable goods, especially food and beverages (Cravino and Levchenko, 2017) and have higher welfare gains on average, estimated at 63 percent for the poorest 10th percentile of the income distribution (Fajjelbaum and Khandelwal, 2016). Lowering tradeable goods prices therefore also reduces poverty and inequality. Reducing trade barriers also exerts competitive pressure that lead to lower markups and lower prices and helps reduce rents earned by monopolies and cartels (Levinsohn, 1993; Harrison, 1994, Edmond, Midrigan, and Xu, 2015). For example, Argent and Begazo (2015) estimate that 40,000 families could be brought out of poverty by removing trade barriers that protect Kenya's concentrated sugar market and its high prices. Likewise, replacing Nigeria's import bans with an average level of tariffs could allow 3.3 million people to escape poverty (Cadot and others, 2018). Trade also had very large impact on the introduction of new varieties in the U.S. (Broda and Weinstein, 2006) and India (Topalova, 2010; De Loecker, Goldberg, Khandelwal, and Pavcnik, 2016), but less so in Costa Rica (Klenow and Rodriguez-Claire, 1997; Arkolakis, Demidova, Kalenow, and Rodriguez-Clare, 2008).

**Trade openness is associated with poverty reduction** (Figure 7), at least indirectly by raising growth and income, although the impact depends on institutions and complementary

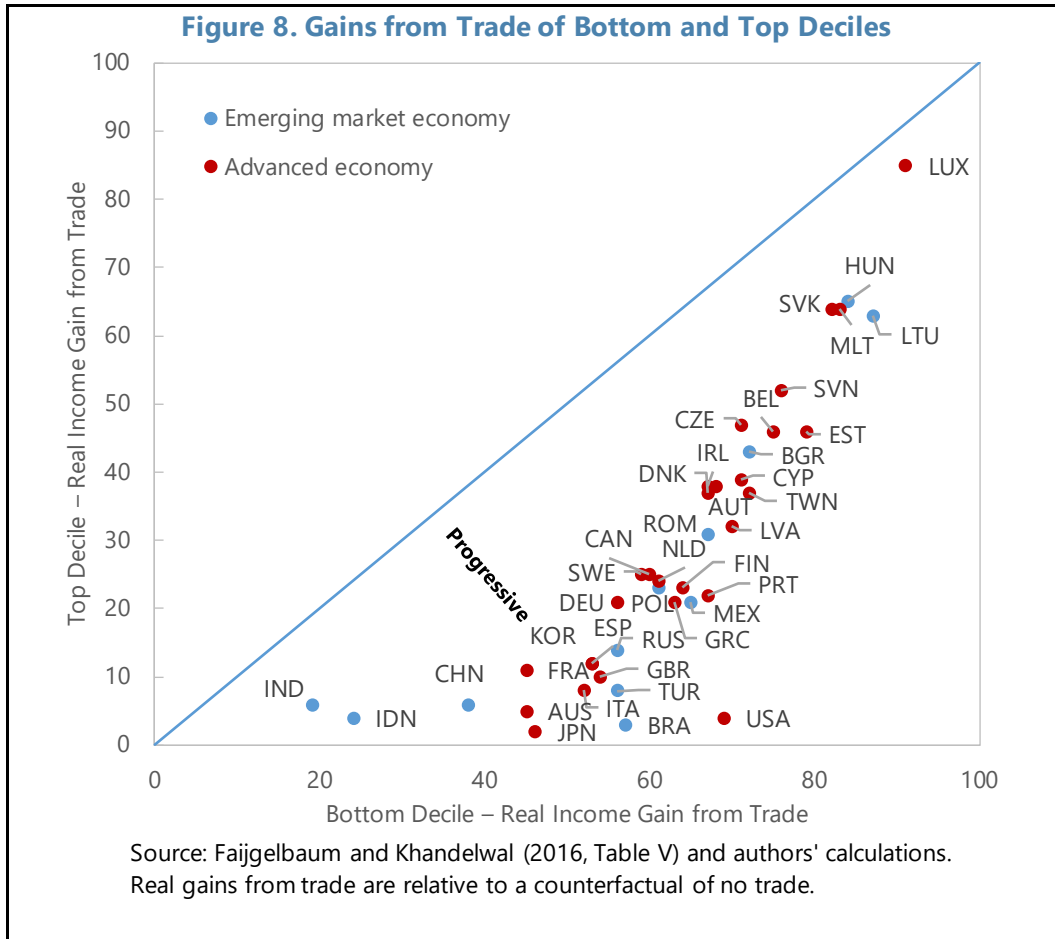
policies. Increases in real incomes of the poorest quintile of the population is strongly correlated with increases in trade openness (IMF-WB-WTO, 2017). Trade raises average real income, which in turn leads to an almost one-for-one rise in the real incomes of the poor (Dollar and Kraay, 2004; Dollar and others, 2016).



**At the aggregate level, trade improves the income distribution for EMDEs and has an insignificant impact in AEs (Figure 8).** Panel regressions on Gini coefficients show that trade openness reduces inequality in emerging and developing countries and has no significant impact in advanced economies, in contrast to financial integration which increases inequality (Beaton, Cebotari, and Komaromi (BCK), 2017; and Jaumotte, Lall, and Papageorgiou (JLP), 2013).<sup>3</sup> Event studies of liberalization episodes, mainly reflecting emerging market countries, corroborates the beneficial impact of trade. In addition to boosting growth, investment, and FDI, trade liberalization prevented the steep rise in inequality experienced by countries that remained relatively closed to international trade (Beaton, Cebotari, and Komaromi, 2017). Cerdeiro and Komaromi (2020) exploit countries' exogenous geographic characteristics to estimate the causal effect of trade on inequality; they

<sup>3</sup> The significance of the results depends on sample and controls. BCK (2017) find trade significantly reduces market inequality in EMDEs, but is not significant for net inequality. JLP (2013) appear to find a significant reduction in net inequality for a pooled sample of AEs and EMDEs. The lack of an increase in inequality in AEs suggests that trade occurs for reasons other than differences in factor endowments as in the H-O model.

find the positive impact of trade on income is highest for the poorest income deciles and a one-percentage point higher openness is associated with a 0.2-0.6 points lower net Gini coefficient.



**The impact of trade integration may depend on macroeconomic policies as well as cyclical conditions and structural trends.** Most trade theories are set in the context of balanced trade, but actual trade integration seldom occurs in isolation. For example, high government deficits contribute to current account deficits if not offset by greater private sector saving.<sup>4</sup> The associated low export growth may impede workers laid off in contracting import-competing industries from being hired into export-oriented industries. Evidence suggests that rising trade with China contributed to the decline in U.S. manufacturing jobs after 2000 (Pierce and Schott, 2016; Autor, Dorn, and Hanson, 2013). But the U.S. current account deficit rose sharply as a percent of GDP over 2000-2006. In contrast, while Germany also faced import competition from China and other emerging countries, its overall current

<sup>4</sup> Current account deficits are best viewed as equilibrium outcomes of other drivers of trends, including fiscal deficits. Nonetheless, they represent a deviation from assumptions of balanced trade used in many models.

account surplus seems to have protected manufacturing jobs (Dauth, Findeisen, and Suedekum, 2017).

**Trade substantially improves economic outcomes for women.** Trade driven by comparative advantage is probably the driving force of the increase in female participation in the labor force in developing countries, especially as some developing countries specialized in the textile industry. In the Republic of Korea, for example, the share of women employed in manufacturing grew from 6 percent in the 1970s to 30 percent in the 1990s (Berik, 2011). More broadly, economic theory suggests that trade reduces firms' incentive to discriminate through its competition effects. Evidence shows that trade is associated with more, better paid and better-quality jobs for women at the country, sector and firm level. Open economies have lower rates of informality and higher levels of gender equality, including from smaller gender wage gaps (Black and Brainerd, 2004; Klein and others, 2010). Firms that engage in international trade employ substantially more women than non-exporting firms (WB and WTO, 2020).

**Trade has increased female bargaining power,** allowing women to delay marriage and increase investments in education. Female employment empowers women in household, social, and political spheres, which has knock-on effects through decisions that support girls' nutrition, health, and education. In Bangladesh, for example, young women in villages that have been exposed to the export-intensive garment sector have delayed marriage and childbirth, and young girls have gained an additional 1.5 years of schooling.

**Global trade trends, such as growing trade in service, e-commerce and participation in GVCs offer new opportunities to access foreign markets** (World Bank and WTO, 2020). Small producers – many of which are women – can indirectly access the world market by producing a small component of a product or providing a service to a multinational. E-commerce facilitates access to international markets and finance and lowers costs of doing business, as well as reducing women's exposure to discrimination. For example, new technologies can allow digital payment, even without a bank account, thus reducing time and mobility constraints by generating a more transparent and faster shopping process especially for imports. Blockchain technology may boost participation in international trade (Bahri, 2020). Blockchain's anonymity and efficiency could particularly enable financial and business transactions by women, who otherwise would be constrained by law, custom, lack of identification documents, or high costs. It can be used to prove their ownership of assets without interventions from male family members. Blockchain can help micro-, small- and medium-sized enterprises (MSMEs), more than 30 percent of which are owned by women, to overcome costs associated with exporting and importing, and interact easily with consumers, other businesses engaged in the supply chain, customs officers and regulatory bodies. In fact, women-owned companies are more present online than offline (World Bank, 2020; AliResearch, 2017). Services -where most women work- are increasingly important in the global economy and are becoming increasingly tradable. Increasingly, education and health services are becoming tradable. This is likely to generate new job opportunities for women in sectors where they have a relative advantage.



### III. RELATIVE IMPACT AND ADJUSTMENT

**Despite the aggregate benefits of trade, the gains are distributed unevenly across sectors, industries, firms, regions, factors of production, and workers.** Trade may induce absolute losses for some groups, especially in the hard-hit manufacturing sector of AEs (Figure 9). Workers in contracting industries and occupations and less productive firms may experience job losses or declining wages. In theory, they could find employment in expanding industries and firms, but in practice there are many barriers to smooth adjustment. Industries are often concentrated regionally and there are high costs of moving to another region especially for those whose family network remains in the local region. Likewise, switching occupations or improving skills may require costly retraining. Information on job openings may also be limited. Thus, trade is similar to technological change, which also spurs aggregate growth but entails significant distributional changes and dislocations.

**Studies show that adjustment to trade and other macro shocks is often slow.** Geographic regions vary in their industry composition and exposure to trade integration, with the adverse impact typically concentrated in import-competing sectors. Labor mobility is limited across geographic regions in developed countries (Autor et al, 2013) and in developing countries (Topalova, 2007, 2010; McCaig, 2011; Kovak, 2013). The shock has persistent long-term effects, with regional wage gaps widening over time rather than declining (Dix-Carneiro and Kovak, 2015). Earnings and job losses can have negative long term effects on the economic, social, health, and psychological well-being of individuals and their children (Pierce and Schott, 2016; Davis and von Watcher, 2011; Oreopoulos et al., 2008; Giuliano and Spilimbergo, 2009; Altindag and Mocan, 2010). Trade may also increase the sensitivity of employment and wages to international business conditions and raise the elasticity of demand for labor, leading to more earnings instability and lower bargaining power of workers (OECD, 2017; Krebs et.al 2005). Sections III.A. and III.B. review the literature on the impacts of and adjustments to trade shocks in AEs and EMDEs, respectively.<sup>5</sup>

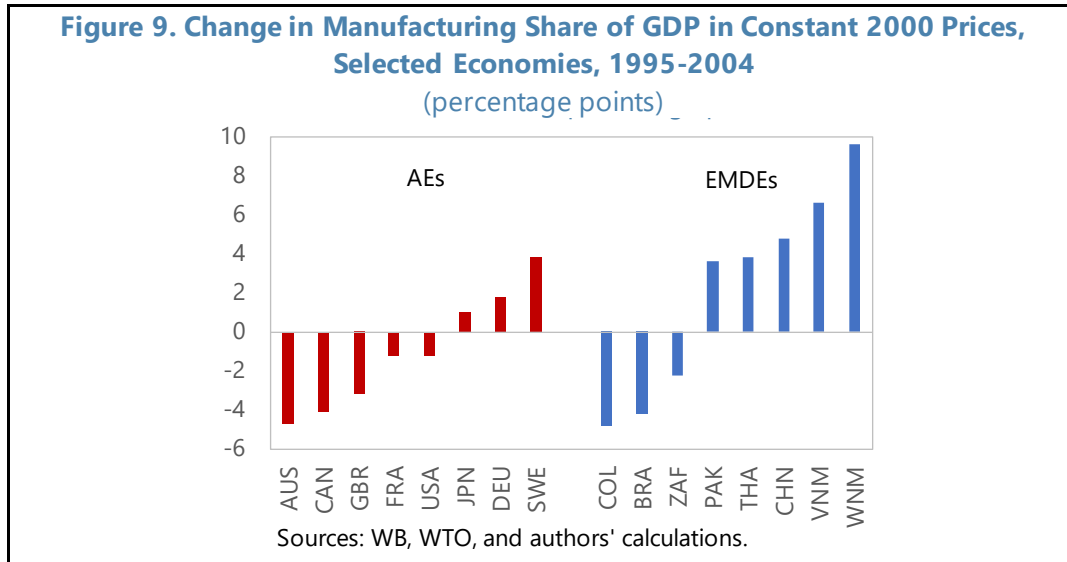
#### A. Impact and adjustment in advanced economies

**Trade integration had adverse effects on some industries and localities.** In an influential study, Autor et al (2013) showed that the rapid growth in Chinese manufacturing exports following its accession to the WTO in 2001 had a larger negative impact on those industries and communities in the US that were most exposed to this import competition shock. Their results were interpreted as suggesting that the “China shock” accounted for about one-quarter of U.S. manufacturing job losses. Likewise, across 18 OECD countries with diverse labor market institutions, employment fell in sectors that are more exposed to imports from China (Thewissen and van Vliet, 2019). Subsequent research, however, showed that once exports, input-output linkages and value-added trade statistics are accounted for, trade's contribution to the decline in manufacturing employment in advanced economies, if any, is very small (Magyari, 2017; Feenstra, Ma, and Xu, 2017; Feenstra and Sasahara, 2017). Similarly, with regard to localities, the picture got more nuanced once the effects of export expansion, cheaper inputs, and value chain linkages were taken into account. Available evidence

---

<sup>5</sup> Previous surveys include Wood (1999), Feenstra and Hanson (2003), Goldberg and Pavcnik (2007), Harrison, McLaren, and McMillan (2011), Pavcnik (2012), and Goldberg (2015).

suggests that the effect of trade can differ markedly by region. Areas that benefit from export expansion or cheaper inputs experience wage and employment growth while areas that compete with imports or have no access to foreign markets might fall behind. Moreover, employment declines more in less productive firms when facing import competition (Bernard, Jensen, and Schott, 2006; Trefler, 2004).



**Employment losses have led to some prolonged economic and social consequences.** Due to limited mobility to other geographic regions and industries, workers who lost their jobs due to import competition from China suffered significant and prolonged unemployment. Displaced workers tended to be older, with lower skills, and less education, making it harder to find reemployment, especially if facing an “identity mismatch” that deters them from seeking jobs in alternative industries (OECD, 2005; OECD, 2012; Kletzer, 2001; Autor et al, 2014; Notowidigdo 2013). Long term unemployment had knock-on effects, such as poorer health outcomes, higher mortality, and lower educational achievements by their children (Pierce and Schott, 2016; Autor and others, 2015; Davis and von Watcher, 2011).

**Trade integration seems to have had only a modest contribution to rising skill premium and wage dispersion.** According to literature surveys by Cline (1997) and Bivens (2008), studies found that trade contributed between 10 to 40 percent of the rise in U.S. wage inequality during the 1980s and 1990s, with most findings at the low end of the range. However, a large share of trade in this earlier period was between AEs. Bivens (2013) finds that growing trade with EMDEs reduced wages of non-college educated U.S. workers by 5.5 percent in 2011. Research on the effect of the China shock on wages found either no impact or a small impact (Autor, 2013; Feenstra, Ma, and Xu, 2017; Rothwell, 2017). Ebenstein et al. (2015) found occupational wages rather than industry wages declined slightly due to import competition.

**Trade may increase the skill bias indirectly by incentivizing technological innovation.** Most studies attribute rising skill premia and wage inequality to technological change rather than to trade (Machin and van Reenen 1998; Berman and others 1997; Baldwin and Cain

2000). However, technology and trade are intertwined since trade induces an increase in market share that can motivate firms to innovate or adopt technology, which is typically a complement to skilled labor (Thoenig and Verdier 2003). Trade can also boost the earnings of superstar firms, especially in high-tech industries that benefit from network externalities (Haskel and others, 2012).

**Trade has increasingly been associated with offshoring of some activities and jobs as production becomes fragmented into global value chains (GVCs).** Offshoring can increase production efficiency, but it is another channel that impacts the skill premium. Matched employer-employee data from Denmark show offshoring increased (decreased) wages of skilled (unskilled) workers, with routine task workers suffering the largest wage losses (Hummels et al, 2014). Firm and worker-level evidence shows that offshoring and import competition have a small positive impact on the demand for non-routine occupations and thus on job polarization in advanced economies (Becker et al., 2013; Keller and Utar, 2016). Confirming findings from the 1990s, however, a number of studies find that technology is significantly more important in driving polarization than import competition or offshoring in value chains (Autor et al., 2015; Zhu, 2017). Outsourcing accounted for 15 percent of the rise in relative wages of skilled workers in the U.S., while computer use contributed about 35 percent (Feenstra and Hanson, 1999). Goos et al (2014) differentiate technology (using the routine task index of Autor and Dorn, 2013) from offshorability (using the index from coder assessments in Blinder and Krueger, 2009) and find that technology had a substantially more important impact than offshoring.

**But the studies of local and industry impacts of trade tell only a partial story.** The China Shock led exposed firms to cut back on employment in localities and industries for which China had a competitive advantage. But the lower production costs allowed the same firms to expand in other localities and industries. On balance, exposed firms expanded employment by 2 percent more per year, creating more manufacturing and non-manufacturing jobs than non-exposed firms (Magyari, 2017).

**Expansion of trade also leads to export growth and job creation in export industries and supply chains.** General equilibrium effects can provide offsetting benefits. Indeed, job losses from the China Shock were roughly offset by job gains due to merchandise export growth in the US during 1991-2011 (Feenstra, Ma, and Xu, 2017). In addition, U.S. service sector exports generated a few million jobs, leading to net job gains from trade (Feenstra and Sasahara, 2017). In Germany, rising trade exposure from China and Eastern Europe during 1990-2010 led to net earnings gains in manufacturing, although there was relatively little reallocation of workers from declining import-competing industries to the expanding export-oriented ones (Dauth, Findeisen, and Suedekum, 2014). The composition of local labor markets and the skill set of workers also matter. Local labor markets in Germany with a high share of industries requiring skills similar to those of the contracting industries were able to reallocate the workers more quickly and with less earnings loss (Yi, Muller, and Stegmaier, 2017). Adverse employment effects of the China Shock may also be offset by trade with other countries, as in the case of German trade with China and Central Eastern Europe that led to net job creation (Dauth and others, 2014).

**The impact of trade liberalization also depends on concurrent macroeconomic developments.** Crinò and Epifani (2017) attribute the rise in skill premium and wage inequality in AEs to global trade imbalances, particularly the U.S. trade deficit. Likewise, Borjas et. al (1991) attributes one-quarter of the rise in the college premium between 1980 and 1985 to the U.S. trade deficit. Layoffs associated with the 2001 dot-com recession may also have exacerbated the negative employment impacts of import competition (Davis and von Wachter, 2011).

**Uncertainty of trade policy can have strong economic impacts.** Firms' investment and exporting decisions depend on their expectations of trade policy. China's entry in the WTO reduced uncertainty since it no longer needed annual renewal of MFN status. U.S. import-competing industries that experienced the largest fall in uncertainty also had the largest employment changes (Handley and Limao, 2017). Likewise, the reduction in uncertainty of bound tariffs in Australia led to a rise in imports from new import destinations (Handley, 2014) and the reduction in trade policy uncertainty from Portugal's entry into the EU increased export participation of Portuguese firms (Handley and Limao, 2015). In fact, the uncertainty of trade policies triggered much of countries' interest in joining the WTO and making binding commitments. Separately, the uncertainties that resulted from trade tensions between major trading nations, including US, China, EU, Russian Federation, have undermined the trust in trade and led to significant policy efforts to restoring the trust in support of inclusive growth (Smeets and Mashayekhi, 2019).

**Gains and losses from trade shape political pressure on trade policies.** Consistent with the Heckscher-Ohlin and Stolper-Samuelson theorems, research finds that pro-labor governments adopt more protectionist policies in capital-rich countries and more pro-trade policies in labor-rich countries (Dutt and Mitra, 2006). Well-organized lobbies for trade protection also featured in earlier episodes of the passage of the Smoot-Hawley Act (Eichengreen, 1986) and 19<sup>th</sup> century 'iron and rye' tariffs in Germany (Gerschenkron, 1943). Regions more exposed to import competition from low-wage countries became more polarized in the U.S. (Autor et al., 2016) and in Germany and France (Malgouyres, 2014; Dippel and others., 2015). Anti-globalization and nativist pressures intensify following weak economic conditions (Mian et al., 2014; Funke et al., 2016).

## **B. Impact and adjustment in developing economies**

**The impact of trade is geographically concentrated.** In EMDEs, as with AEs, the adverse impacts of trade on economic and social outcomes depend on the region's exposure to import competition. Topalova (2010) finds that rural districts in India with a higher concentration of import-competing industries had worse outcomes on poverty than other districts following tariff reductions. Likewise, Baldarrago and Salinas (2017) find that districts in Peru competing with liberalized imports experienced significantly lower growth in per capita consumption in response to increased import competition. Literature surveys by Goldberg (2015) and Goldberg and Pavcnik (2007, 2016) highlight similar findings in other studies. Other social indicators in exposed local communities also deteriorated, with crime increasing, and output and tax revenue falling (Dix-Carneiro, Soares, and Ulysea, 2018). The impact is transmitted to the next generation through lower school attendance relative to other regions (Edmonds, Pavcnik, and Topalova, 2010).

**Inter-regional worker mobility is very low and the impact of the shock is highly persistent.** Studies document low labor mobility across regions and industries in EMDEs, such as India, Brazil, and Mexico (see Goldberg and Pavcnik, 2007, and Pavcnik 2017 for a review). For example, less than 1 percent of rural Indians and 5 percent of urban Indians moved across districts for jobs in the 1980s and 1990s (Topalova, 2010). Low inter-regional labor mobility is due to costs of moving, housing costs, imperfect capital markets for borrowing, imperfect insurance markets, low levels of public safety nets and retraining, informal familial and community-based social systems, skill mismatches, and sometimes government restrictions. The effects of the shock magnify over time, due to slow adjustment of capital away from the region and a decline in firm entry, perhaps due to agglomeration economies at a regional level. Some laid off workers are absorbed by the informal sector, while others leave the labor force (Dix-Carneiro and Kovak, 2017). Labor mobility is lower and adjustment costs are higher in EMDEs with lower per capita GDP and educational attainment (Artuc, Lederman, and Porto, 2015).

**In contrast, regions with a high concentration of export-oriented industries benefit significantly from trade.** Vietnam's bilateral trade agreement with the US led to very large reductions in regional poverty from exporting. Provinces experiencing the largest tariff reductions for export to the US experienced fast wage growth for low-education workers, and a reduction in child labor (McCaig, 2011). In India, IT call centers led to higher schooling in associated regions because the jobs required more education (Oster and Steinberg, 2013). Other studies corroborate the positive relative impact for export-exposed regions. Brazilian locations benefiting from rising Chinese commodity demand observed faster wage growth than other locations (Costa, Garred, and Pessoa, 2016), as did Mexican regions exposed to NAFTA (Chiquiar, 2008) and Chinese regions most exposed to export opportunities following China's WTO accession (Erten and Leight, 2017). In addition, while tariff reductions on final goods have adverse effects on import-competing firms, tariff cuts on intermediate goods lead to substantial increases in wages for workers in importing firms (Amiti and Davis, 2012).

**The losses associated with import competition were *second order effects*.** As in AEs, the studies of the impact of tariff reduction on final goods in import-competing regions, industries, and firms demonstrated that the losses are offset by gains in other sectors and regions. Aggregate outcomes were favorable. For example, poverty was declining in India, Peru, and other country cases, so the import competition merely attenuated the decline in exposed regions. In addition, many of the studies of liberalization episodes were associated with unilateral tariff reductions given that AEs had already reduced tariffs on final goods to low levels prior to the 1980s. More generally, the impact of trade reform would depend on the pattern of reform to both import and export sectors.

**The impact of trade on labor markets and on the poor in developing countries needs to account for informality.** Informal workers (those insufficiently covered by formal arrangements (ILO, 2015<sup>6</sup>)) typically account for a large share of the workforce in developing countries (La Porta and Schleifer, 2014; Schneider et al., 2010). Empirical studies find mixed effects of trade opening on informality (Becker, 2018). Some studies find that

---

<sup>6</sup> ILO (2015) Transition from the informal to the formal economy recommendation no 204.

trade opening reduces informal employment. Large reductions in US tariffs on Vietnamese exports led to a contraction of informal employment as workers transitioned to the formal sector (McCaig and Pavcnik, 2018). In Brazil, the informal share of employment decreased as a result of the combined effect of improved access to export markets and domestic tariff cuts on imports (Paz, 2014). Also, NAFTA was shown to have reduced informal employment, by pushing informal firms to exit the market (Aleman-Castilla, 2006). Other studies find that trade opening has either no effect or increases informal employment (Goldberg and Pavcnik, 2003). In Brazil, for example, after long periods of non-employment, trade-displaced formal sector workers eventually fall back into informal employment (Dix-Carneiro and Kovak, 2019). In South Africa, Erten et al. (2019) find evidence that workers in districts facing larger tariff reductions experience a relatively more significant decline in both formal and informal employment, than workers in districts less exposed to these reductions (Erten et al., 2019). Along the same line, McCaig and McMillan (2020) find that in Botswana, trade liberalization increased the prevalence of working in an informal firm or of being self-employed.

**Wage inequality increased after some liberalization episodes.** In Colombia's unilateral trade liberalization of the 1990s, wages fell in industries with larger tariff reductions, which were also the industries with the lowest initial wages such as textiles, apparel, footwear. This contributed to a rise in wage inequality, albeit only a marginal component (Attanasio, Goldberg, Pavcnik, 2004; Goldberg and Pavcnik, 2005).

**Wage inequality was associated with a rise in the skill premium in many EMDEs.** Empirical evidence showed that trade led to an increase in earnings of better educated workers relative to less educated ones in developing countries, contrary to the predictions of the Stolper-Samuelson theory. Several factors were at play. Technological adoption increased skill premia globally, not just in AEs. But trade has also contributed to skill-biased technical change (Porto, 2006; Costinot and Vogel, 2010; Pavcnik 2017). Trade has also been correlated with capital inflows, which tend to be complementary to skilled labor (Goldberg and Pavcnik, 2007). Evidence suggests that the rise in skill premium may be more pertinent to emerging market economies which are relatively skill-abundant compared to LICs (Goldberg and Pavcnik, 2007; Meschi and Vivarelli, 2008)

**The rise in skill premia may also be associated with offshoring and global value chains.** With the fragmentation of the production process along global supply chains, workers in developing countries move into earlier stages of production. For example, AEs outsource activities that are unskilled relative to their average skill level, but represent higher than average skill levels for the destination EMDE. Outsourcing of this type can simultaneously raise the average skill content in both sets of countries. Relatedly, globalization facilitates cross-border teams. Low-skill workers do routine tasks, while high-skill workers do knowledge-intensive tasks. The result is a non-monotonic effect on wage inequality (Antràs, Garicano, and Rossi-Hansberg, 2006; Costinot, Vogel, and Wang, 2012).

**EMDEs' exports to AEs induce quality upgrading.** Export destination influences the skill premium and wage inequality. High-income countries demand higher quality products, which requires EMDEs to upgrade the skills of their labor force. The rise in demand for skills raises the skill premium leading to higher wage inequality. For example, the 1994 Mexican

devaluation increased exports to US and led to quality and skill upgrading (Verhoogen, 2008). Export to high-income countries also entails other services that are skill intensive. For example, Argentine firms exporting to high-income countries hired more skilled workers than other exporters or domestic firms (Brambilla, Lederman, and Porto, 2012).

**Much of wage inequality occurs between firms.** According to the “new new” trade theory, firms that are larger and more productive pay higher wages and are more likely to export. Exporting raises wages, increasing the wage gap with non-exporters and within firms between more and less educated workers (Helpman, Itskhoki, and Redding, 2010). Empirical evidence corroborates the theory as around two-thirds of wage dispersion in Brazil during 1986-1995 occurred between firms within the same sector and among workers with the same occupation (Helpman, Itskhoki, Muendler, and Redding, 2017).

**Trade has brought many people out of poverty in EMDEs, though the impact depends on the sectoral pattern of liberalization.** Aside from the decline in poverty associated with higher growth, the aggregate impact on poverty will also depend on whether the sectors that expand have a higher concentration of poor compared with the sectors that contract. There is evidence that the US-Vietnam FTA has reduced poverty in Vietnam. Poverty decreased the most for families living in provinces that benefited from the largest cuts in the cost of exporting to the US (McCaig and Pavnick, 2014). Following trade liberalization, poverty declined in India, but less so for regions affected more by tariff reductions, which contained some of the poorest households. Still, evidence demonstrates that trade reduces poverty on average, especially in the long run (Winters, et. al. 2004). Outward-oriented countries, especially those in Asia, achieved remarkable success in bringing hundreds of millions of people out of severe poverty over the span of a few decades.

**Trade liberalization does not affect all poor equally.** At the individual level, the effects on trade will depend on where the poor live (rural versus urban areas), their individual characteristics (skill, gender), the type of trade policy change (increased import competition or export opportunities) and where they work (type of industry, size firm, formal/informal sector). In her study of the effects of India's liberalization in 1991, Topalova (2010) finds evidence of slower decline in poverty in rural districts, among the least geographically mobile at the bottom of the income distribution, and in Indian states where inflexible labor laws impeded factor reallocation across sectors. In general, the literature finds that not only sectoral patterns of liberalization, but also worker mobility costs - costs to move across sectors, regions or tasks play a key role in the effect of trade on poverty (World Bank and WTO, 2015 and 2018).

**The direct participation of SMEs in international trade in developing countries is not in line with their importance at the domestic level.** Evidence suggests that direct exports represent just 7.6 percent of total sales of SMEs in the manufacturing sector, compared to 14.1 percent for large manufacturing enterprises. Among developing regions, Africa has the lowest export share at 3 percent, compared to 8.7 percent for developing Asia. Indirect exports of manufacturing SMEs (i.e. the supply of goods to domestic firms that export) account for another 2.4 percent of total sales, compared to 12.6 percent for large manufacturing enterprises. Even in developing Asia, the region with the highest forward and backward participation of SMEs in GVCs (considering only developing countries), most

manufacturing SMEs have both low forward and backward GVC participation rates compared to those of large enterprises (WTO, World Trade Report 2016). A lower participation of SMEs on trade compared to large firms is to be expected, as firms are small because they are less productive. However, the better performance of SME in online international markets suggests there are also trade costs that impede SMEs adequate participation to trade. For example, data from eBay covering 22 countries show that the vast majority of eBay-enabled small firms export – 97 percent (eBay, 2012; 2014; 2016). There is therefore a potential for more inclusive participation of SMEs in trade.

**Trade contributes to structural transformation and development for EMDEs.** As with other types of structural transformation, some industries and jobs are lost while others are gained. But people gradually move to industries and regions with better opportunities. Export-led growth contributed to China’s structural transformation. People migrated from rural to urban areas and from agriculture to manufacturing. The impact on inclusive growth was mixed. Incomes of manufacturing workers rose, while masses were left behind in agriculture, thus driving up inequality (as in theories of Lewis, 1955, and Kuznets, 1955). But exporting increases wages of workers, encourages innovation, technology adoption, and product quality upgrading. So, it contributed to China’s extraordinary growth and poverty reduction. Over time, China and other export-oriented countries have been able to move up the value chain in production and export. However, this process has been uneven, with the rising manufacturing competitiveness of the Asian exporters coming largely at the expense of developing countries in other regions, especially Latin America and Africa, and with possible trends toward “premature deindustrialization” (Rodrik, 2015). Even so, the tradability of services has been increasing over time, leading to new export opportunities (Antras, 2020).

**Trade reforms are entangled with the political process.** The distributional impact of trade integration depends on the pre- and post-reform pattern of protection across sectors. Porto (2006) finds that the regional trade agreement Mercosur provided benefits across the income distribution in Argentina, but especially for the poor. Prior to Mercosur, tariffs were higher on relatively skill-intensive goods, which tended to protect the rich more than the poor. The tariff removals therefore had a pro-poor bias.

#### IV. POLICIES TO SHARE TRADE GAINS

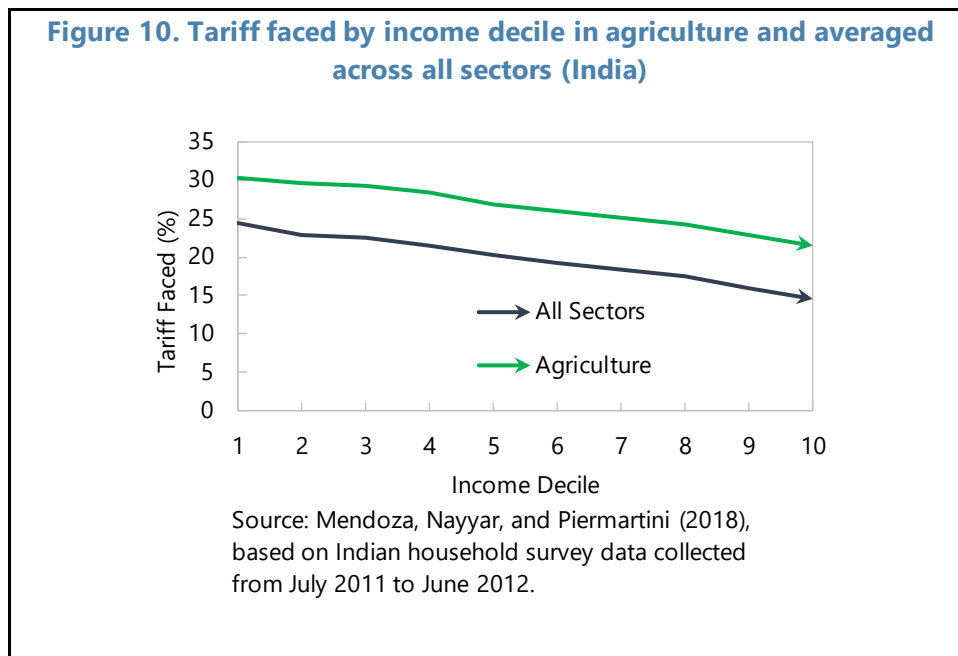
**Policy intervention is required to mitigate adverse trade impacts, especially on disadvantaged groups.** While theory and evidence point to many gains from trade at the aggregate level and a limited or benign impact on the overall income distribution, there is also ample evidence for significant and sometimes long-lasting losses for some groups in both advanced and developing countries. Whether the relative or absolute losses most impact the well-off or poor in a country depends on the pattern of trade liberalization and initial conditions. Trade policies need to be designed to minimize adverse distributional effects; using the increase in resources (such as higher government revenue associated with higher growth) to provide social safety nets and invest in public services to facilitate adjustment; and employing other government policies to smooth the impact of the trade shock and ease adaptation to it.



### A. Trade-related policies

**Lowering tariffs and non-tariff barriers between countries is an essential element for inclusive growth.** High trade costs undermine firms' participation into global value chains—a powerful channel for flows of knowledge and know-how between the foreign and the domestic firm. This is particularly harmful for low-income countries, where trade opens up opportunities for new and better jobs for the poor, that are often women, low-skilled workers and workers in the informal sectors. The specific impact of trade on economic and social outcomes of the poor will inevitably depend on its impact on the industries and firms in which the poor employment is concentrated. But, lowering trade costs is essential for countries that seek to take advantage of global value chains to integrate into global markets.

**There is evidence that tariff barriers are inversely related to income and are higher for women and people living in rural areas and in the informal sector** (Mendoza, Nayyar and Piermartini, 2018). This underlines the need to do more on this front. People with lower levels of income tend to be employed in sectors that face higher barriers to export than people who earn more (Figure 10). Women face higher barriers "at the border" – such as higher tariffs in goods that women produce and consume, such as in agriculture and textiles. For India, a pink tariff (the gap between what women pay and what men pay) exists of 6-percentage points (Mendoza, Nayyar and Piermartini, 2018). Although the gap is lower in developed countries, there is also a pink tariff for the US and Germany (WB-WTO, 2020).



**Trade and regulatory barriers in countries with a large poor and rural population represent a big obstacle to increasing farmers' productivity.** The agricultural sector is critical to inclusive development, since it employs most of the poor. Tariffs and subsidies create large distortions in the sector. In addition, lack of competition in some segments of the supply chains can make it hard for the poor to capture the benefits of trading. Poor farmers

also lack the capacity to comply with standards. Sanitary and phytosanitary standards, even when well-designed to pursue legitimate objectives, increase production costs and can impede access to international markets. Agricultural development will depend on reducing barriers to the imports of seeds and fertilizers, which significantly limit farmers' productivity, and also increasingly to access to a variety of services that are key inputs in production chains (WTO, 2019).

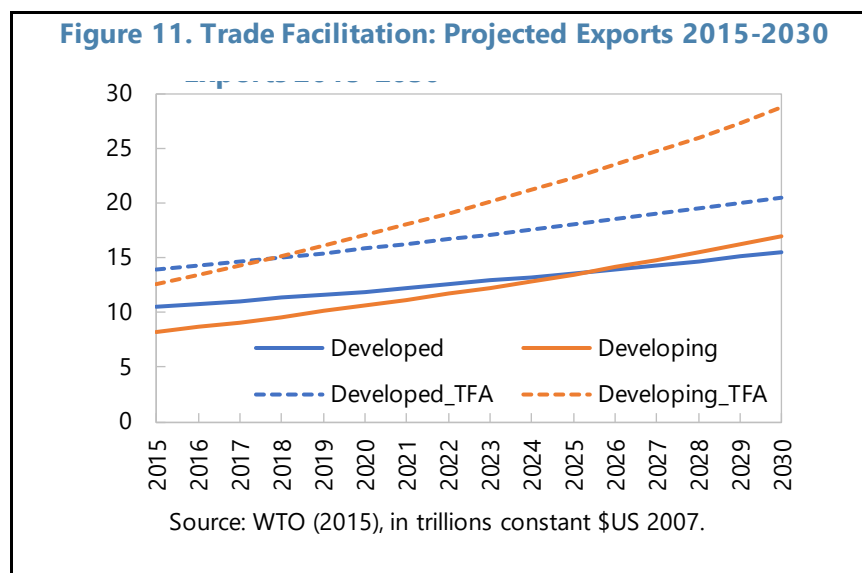
**Facilitating procedures to cross the border can be particularly beneficial for the poor, especially for women.** Long waiting time at the border are particularly disadvantageous for women who are more likely to being discriminated against and that are more time-constrained due to the higher burden of work at home (WB-WTO, 2018 and 2020). In addition, trade facilitation is also more generally important for trade of perishable goods, that are often the products that the poor produce.

**Fixed trade costs adversely affect the ability of SMEs to participate in trade, to a greater extent than large enterprises.** Evidence suggests that a lack of information about foreign distribution networks, border regulations and standards represent the main obstacles to trade for SMEs (WTO, 2016; Fontagné, Orefice and Piermartini, 2020). Large firms can more easily adapt to new costly requirements, but small firms are driven out of business if a new restrictive standard is introduced into a market (Fontagné, Orefice, Piermartini and Rocha, 2015). There is also evidence that SMEs perceive high tariffs as a more significant obstacle to trade than large firms (WTO, 2016). This may be because SMEs' trade flows are more sensitive (elastic) to tariff changes (Spearot, 2013) and/or because SMEs appear to be relatively more concentrated in sectors facing higher tariff barriers than large firms (WTO, 2016).

**Trade facilitation plays a key role in reducing transaction costs and facilitating inclusive growth.** High trade costs isolate poor economies from international markets and stand in their way of benefiting from greater specialization, accessing new technologies, and generating economies of scale. Several studies estimate that the full implementation of the Trade Facilitation Agreement (TFA)<sup>7</sup> could reduce global trade costs by an average of 14 percent (WTO, 2015) and up to 23 percent (Moise and Sorescu, 2013). Low and lower-middle income countries are likely to see the biggest reduction in trade costs (Teh, Smeets, Sadni Jallab, and Chaudri, 2016). Developing countries implementing the TFA have a significantly higher forecast of exports growth between 2015-2030 (Figure 11).

---

<sup>7</sup> The Trade Facilitation Agreement (TFA) was negotiated and adopted during the Ninth WTO Ministerial Conference (MC-IX) in December 2013 and entered into force in February 2017. It aims at expediting the movement, release and clearance of goods, improving cooperation between customs and other authorities and enhancing technical assistance and building capacity for its implementation.



**How a country implements its own trade policies can play a role in easing adjustment and spreading the gains from trade.** For example, advanced announcement and gradual phasing of trade liberalization can help to avoid labor market bottlenecks and congestion, and can buy time to put in place domestic cost mitigating policies (Bacchetta and Jansen, 2003). This is especially true when a rapid increase in import competition is concentrated in a sector or region. At the same time, these policy decisions are not one-size-fits-all, and potential advantages should be weighed against the costs of delaying the benefits (Trebilcock, 2014). Multilateral trade liberalization is by its very nature a gradual process and in this respect leaves room for adjustment processes to take place smoothly. Many WTO agreements contain more or less explicit provisions that aim to facilitate their adoption. In particular, they often specify phased in implementation periods, with developing and least-developed countries usually being granted longer implementation periods than industrialized countries. Temporary import safeguards are another policy measure that may be appropriate in exceptional circumstances, and when consistent with a country's WTO obligations. However, any consideration of invoking safeguards should take into account their adverse effects on domestic workers in downstream industries, the additional costs to consumers, and the impact on policy uncertainty. Also, enhanced communication by governments on the benefits of trade may broaden engagement, strengthen public support for trade and make trade more inclusive (IMF, WB and WTO, 2018).<sup>8</sup>

**Specific provisions addressing various dimensions of inclusiveness are included in an increasing number of regional trade agreements.** A growing number of RTAs include provisions that explicitly relate to some of the dimensions of inclusiveness, including human rights, sustainable development, gender equality and SMEs participation. Provisions in RTAs are known to be heterogenous and inclusiveness-related provisions are no exception. While many provisions on inclusiveness promote cooperation activities, some other provisions

<sup>8</sup> IMF, WB and WTO (2017) Making trade an engine of growth for all, Paper for discussion at the meeting of G20 sherpas, March 23-24, 2017, Frankfurt, Germany.

establish specific level playing field disciplines or exemptions. Relatively common provisions related to the social dimension of sustainable development require the parties to effectively enforce, and in some cases, adopt and improve labor standards (Raess and Sari, 2018). Often, a related provision further requires the parties not to relax their labor standards in order to attract investment and promote exports. Some gender-related provisions refer to specific international conventions and call for or require the adoption and effective implementation of gender-related policies (Monteiro, 2018). Some inclusiveness-related provisions target firms, by promoting voluntary best practices of corporate social responsibility (Monteiro, forthcoming). Several provisions found in recent RTAs aim at improving SMEs access to trade-related information, including through the creation of a publicly accessible website (Monteiro, 2016a), exempting SMEs and/or programs supporting SMEs from specific trade obligations set out in the RTA.

**But little is known about the actual effectiveness of these provisions on inclusiveness.**

Although some RTAs have established institutional arrangements to monitor the progress of implementation of some of these inclusiveness-related provisions, most of the available evidence on the effectiveness of inclusiveness-related provisions remains anecdotal and limited. This is in large part due to the lack of disaggregated data (for instance by gender and firm size), which hinders the ability of researchers to identify the differential effect of these inclusiveness-related provisions.

**Some trade agreements contain chapters to deal with environmental issues or climate change, though there is scope for more ambitious action.** A few RTAs make binding environmental commitments. Trade policy can facilitate environmental goals in a number of ways (WEF, 2020).<sup>9</sup> Tariffs can be reduced on environmentally friendly goods and services and agreements reached on regulatory standards that affect them. Governments could commit to phase out inefficient environmentally unfriendly fossil-fuel subsidies that mostly benefit high income consumers. Climate policies, such as carbon pricing regimes and border carbon adjustments, can be aligned with trade rules. Governments can pivot towards green procurement practices, including by signing on to the WTO Government Procurement Agreement.

**Technological innovation is expected to boost trade growth, as a result of both falling trade costs and the more intensive use of ICT-services.** Technological innovation, including robotization, artificial intelligence, servicification of the production process, and the rise of online markets and platforms, is projected to increase global trade growth by an average of 2 percentage points per year between now and 2030, with higher growth for developing countries and services exports (Bekkers et al, 2021).

**Digital trade can play a significant role in supporting inclusive economic growth and enhancing the development perspectives of developing countries** (Smeets, 2021). Of critical importance is the need to put the right infrastructure in place and to facilitate IT and reduce transaction costs, thus allowing a better connection to markets. The further adoption

---

<sup>9</sup> The U.S.-Mexico-Canada Agreement and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership include mechanisms for dispute resolution (WEF, 2020).

of digital technologies is expected to increase developing countries' trade, in part by facilitating connections to GVCs. This requires adequate domestic regulatory systems as well as harmonization and coordination of such policies at the international level (Smeets, 2021). Based on a review of the literature and experience from Africa, Parry et al. (2021) find that digital advances (the quickening pace of the Fourth Industrial Revolution (4IR)) can serve to accelerate inclusive growth. However, international trade is increasingly determined by the competitive and enabling environment created by countries at the national (i.e., domestic) level, including well-informed policies, regulations and institutions to drive the necessary changes. Developing countries that lack the tools to compete in the new digital environment are in danger of being left even further behind. The areas requiring special attention by policymakers include: the problem of data inadequacy; uneven and costly digital connectivity; and education systems that are not preparing entrepreneurs for in-demand jobs or for the workplace of the future. Two of the prerequisites for leveraging digital technologies in order to drive more inclusive growth are an effective legal and regulatory framework and a commercial environment that is both trade- and investment-friendly.

**Domestic reforms help countries to benefit from trade liberalization.**<sup>10</sup> For example, WTO accession requires countries “to put in place a set of norms and institutions, which support the liberalization of markets and increase transparency and promote the rule of law, contract enforcement and the evolution of an independent judicial system. In principle, nothing would prevent government from putting in place these norms and regulations on a unilateral basis. The role of the WTO in this process is to facilitate the introduction of effective reforms not only by reinforcing the credibility of the government’s trade policies but also help introduce the policies that are based on best-practices and that must be harmonized ” (Bacchetta, Drabek, 2002). This hypothesis of the importance of domestic reforms has been analyzed and validated in the case of Georgia (Arveladze and Smeets, 2017) and in the case of the Kyrgyz Republic (Smeets and Djumaliev, 2019).

**Multilateral cooperation through accession to the WTO has significantly lowered overall levels of protection and expanded trade opportunities over the past 20 years** (WTO, 2015).<sup>11</sup> Acceding members have made binding commitments on virtually all their tariffs, thus significantly improving the certainty and predictability of their trade regimes and creating a more competitive environment. As a result of their domestic reforms and more liberal commitments, trade of acceding countries has grown almost double that of original members (12½ percent versus 7½ percent), including after the global financial crisis of 2008. Multilateral cooperation also provides a forum for continued dialogue on inclusion and sustainability issues.

## B. Adjustment policies

**Adjustment policies are justified on three grounds: economic efficiency, fairness and/or political support.** Though not specific to trade, government interventions aimed at reducing

---

<sup>10</sup> WTO accessions Annual report by the Director General December 2016.

<sup>11</sup> WTO at Twenty, challenges and achievements, 2015, chapter 5. Accession refers to Article XII members and has been especially beneficial for large economies like China.

adjustment costs speed up the transition towards an efficient allocation of resources and improve economic efficiency. Adjustment policies can also be justified on the basis of fairness as many gain from trade, while adjustment costs are borne by a small number of workers and firms. Finally, the political argument in favor of adjustment policies, particularly trade-specific adjustment programs, is that they may increase support for further trade opening (Trebilcock, 2014).

**Policies that governments can implement to lower the cost of adjustment typically involve some combination of active and passive labor market policies.** Countries have a variety of tools at their disposal to facilitate adjustment. While passive and active labor market policies are the instruments of choice, countries can also facilitate adjustment with other complementary policies that have more of an indirect effect on the labor market. Passive labor market policies usually refer to unemployment benefit systems and social insurance programs which help workers with temporary income support, while active labor market policies cover a wide range of policies aimed at helping workers find a job as quickly as possible (Cerra et al., 2021, Chapter 3). From a theoretical perspective, wage subsidies seem to be the best way to compensate workers who switch sectors (Davidson and Matusz, 2000, 2006; Kletzer and Litan, 2001; Kletzer, 2016). Available evidence on the effectiveness of adjustment policies suggests that there is no one-size-fits-all recipe to reduce trade-related adjustment costs (WTO, 2017).

**In addition to social protection programs, place-based policies may be needed to increase geographic mobility and support the economies of hard-hit regions.** Cerra et al. (2021, Chapter 17) elaborates on the policy options. When ‘spatially-blind’ policies such as universal social safety nets and adjustment policies operating at the national level are insufficient, ‘spatially-connective’ policies to integrate lagging regions or ‘spatially-targeted’ policies aimed at regional interventions may be warranted. Public investment in infrastructure, information, and communication networks can reduce transportation and communications costs to connect peripheral regions to markets and jobs in leading regions. Spatially targeted interventions—such as regionally focused public-investment projects, the relocation of government agencies and research institutions, and location-specific tax incentives and regulatory relief—could support local demand and business conditions in peripheral regions. The appropriate policy mix will be country- and context-specific. It will depend on the characteristics of a country’s leading and lagging regions, and the key drivers of regional disparities. Ultimately, policy makers must strike the right balance between fostering rapid but regionally uneven growth on the one hand and promoting more inclusive regional development outcomes on the other. There is a similarity between intranational and international trade in the way they affect the geography of economic activity within and across borders. On one hand, this means that it is difficult to identify the specific cause of a certain inclusiveness issue. On the other hand, this also means some of the policy recommendations may hold whether geographical inequalities occur because of domestic market integration or international trade.

**Only a small number of countries provide special assistance to workers who lose their jobs due to increased imports or international shifts in production.** The United States’ Trade Adjustment Assistance (TAA) was introduced in 1962 to compensate workers negatively affected by tariff cuts negotiated as part of the GATT’s Kennedy Round and help

address domestic resistance to trade liberalization. Its scope has since been broadened and its efficiency improved through successive revisions (Rosen, 2008; Guth and Lee, 2017). The TAA includes both active and passive assistance components (Collins, 2018). Overall, empirical evidence about the effectiveness of TAA is mixed. A recent review of evaluations of the TAA by Guth and Lee (2018) concludes that targeting of the program has improved over time, that TAA has had neutral to slightly positive effects on employment and mixed effects on wages (depending upon which assumptions and methodologies were employed and which version of the program was evaluated) and that TAA training has generally been beneficial for workers. A recent study finds that the TAA works as a short-term cushion for workers by providing them with the skills they need to find jobs quicker, but that these skills become obsolete or are less in demand 10 years later (Hyman, 2018).

**Multiple features of the TAA program explaining its limited efficiency have been identified and addressed over the years.** Among the reasons behind the mixed success of successive versions of the TAA program are restrictive eligibility criteria, long deadlines for eligibility, limited awareness of the existence of the programs, technical problems relating to access to the benefits or waiting periods, the bureaucratic petition process or the artificial strictures it places on workers' re-employment options (Rosen, 2008; Autor, 2018). According to Rosen (2008), despite a significant increase in import penetration in the US economy over the years, efforts to assist workers adversely affected by increases in imports and shifts in production have remained modest at best and implementation of useful reforms has been uneven. In Rosen's view, expanding labor-market adjustment programs remains a low priority in the United States, but this should change. Along the same line, Autor argues that making assistance more accessible, flexible, and supportive rather than constraining of labor market re-entry would be a first constructive step towards mitigating adjustment costs and sharing the gains from trade integration more broadly (Autor, 2018).

**So far, the European Globalization Adjustment Fund (EGF) launched in 2007 by the European Union (EU) to help support workers made redundant by international trade, has also had a limited impact.** The Fund provides member States with additional funding to carry out active labor market policies in situations where major structural changes in world trade patterns lead to a serious economic disruption. The current annual budget of the Fund is €150 million, which is much less than the €12 billion allocated to the European Social Fund (ESF), which deals with long-term labor adjustment. As the EGF is a new program, it is not currently possible to determine whether those who benefited from EGF financing did better than those who did not. Claeys and Sapir (2018) estimate that the EGF helped only about 4 percent of workers adversely affected by globalization between 2007 and 2016. This could be due to the Fund's relatively high eligibility threshold of 500 workers, to the fact that intra-EU competition or offshoring is not an eligibility criterion, to the relatively slow administrative process which can take up to 12 months between application and approval of funds, and/or to the co-financing rate of 60 percent which may be too low for some countries (Puccio, 2017).

**Most countries implement general adjustment policies which aim at addressing adjustment problems independently of their cause.** For one, special or targeted programs are often difficult to access for workers for reasons discussed previously. General adjustment policies appear to be more effective than specific trade adjustment policies for facilitating workers' adjustment to trade, particularly in the presence of global value chains. As a result

of increasing input-output linkages, trade shocks spread more widely in an economy indirectly affecting workers up and down the value chains, making it more difficult for them to claim trade adjustment assistance. Non-specific adjustment programs also support workers adversely affected by technological and other shocks which generate effects that are difficult to disentangle from and similar to those induced by trade (Bacchetta and Stolzenburg, 2019). Finally, providing specific support to workers made redundant by globalization can be seen as an unfair practice (Baicker and Rehavi, 2004). General adjustment policies typically involve passive and active labor market policies and adequate social protection systems (Cerra et al., 2021, Chapter 13).

**While policy knowledge is lamentably incomplete, training assistance and education programs have an increasingly important role to play in facilitating adjustment to trade in the presence of global value chains.** Autor (2018) emphasizes the importance of wage insurance and wage subsidies as well as of explicitly engineering adjustment policies to be rigorously evaluated as they go into effect as policy levers that appear promising for mitigating adjustment costs such as those associated with the China shock. With the rise of global value chains, comparative advantage has shifted towards the level of production stages and specific tasks within value chains. As their old task might disappear altogether as a result of a trade shock, workers need to upgrade their skill set to perform a different task or to transition without training into low wage jobs (Keller and Utar, 2016). Effective training assistance and education policies (Cerra et al., 2021, Chapter 14) promote skills that are relevant for multiple industries, increasing workers' flexibility and resilience in an unpredictable job market (Humlum and Munch, 2019; Baldwin, 2016). Recruitment campaigns that provide information about job opportunities have proven effective for increasing labor force participation and mobility in rural India (Jensen, 2012).

### C. Complementary policies

**The poor, women and SMEs also face high "behind the border" constraints like limited access to finance, education and technology.** For example, women's access to the internet remains significantly lower than men's (in developing countries the internet access gap is 7.6 percent on average) and tech-related jobs remain male-dominated. A challenge in GVCs is to ensure that women have better access to high-skill tasks and occupations. This would require more inclusive management organizations. For women to capture full potential benefit from trade, the barriers that hold women back need to be lifted and appropriate policies to deal with adjustment costs are to be put in place (World Bank and WTO, 2020).

**Lack of competition in the distribution sector, high domestic transport costs can significantly limit the extent to which the benefits from trade reach the poor.** Trade openness and trade growth alone may not suffice to end extreme poverty. Often the poor live in rural areas, far from ports. If inland transport costs are high, say, only a part of the beneficial price changes that trade bring will pass on to the poorest in a country. Trade reduces poverty also because it reduces the price of the goods they consume, including for example fertilizers used in agricultural production. The extent to which households benefit from trade liberalization on the consumption side depends on a range of factors that influence the pass-through of price changes from the border to consumers. Transport costs matters. For example, a study finds that tariff pass-through was significantly higher in the Mexican states



closest to the United States border, and thus, households living in these states benefited relatively more from the reductions in tariffs (Nicita, 2004). Another important factor shaping the extent to which the poor benefit from trade is market frictions. If domestic industries are imperfectly competitive, changes in tariffs may be absorbed by profit margins or mark-ups (Campa and Goldberg, 2002). There is evidence the market power of intermediaries in domestic industries affects the mark-ups and results in different rates of tariff pass-through within sub-Saharan Africa (Atkin and Donaldson, 2015).

**Macroeconomic stabilization policies are also a critical part of the toolkit for reducing adjustment costs and sharing the benefits of trade.** Recessions impede opportunities for re-employment following job displacement due to trade or other structural reasons, triggering large, persistent earnings losses for affected workers (Davis and von Wachter, 2011). In addition to preventing or ameliorating crises and downturns, stable sustainable macroeconomic policies can create fiscal space for financing social insurance, education and retraining, and labor market programs. Strong public finances—especially low fiscal deficits—can also improve the country’s savings-investment position, thus avoiding current account deficits that accelerate deindustrialization in AEs and invite destabilizing capital inflows in EMDEs. Strong macroeconomic management can also avoid overvalued real exchange rates that weaken trade competitiveness, reduce economic growth (Rodrik, 2008; Berg and Miao, 2010), and contribute to balance of payments crises (Kaminsky, Lizondo, and Reinhart, 1998), all of which undermine inclusive growth.

## V. CONCLUSIONS

**International trade is strongly associated with improvements in inclusive growth.** While each research approach has its merits and shortcomings, studies using a variety of methodologies find that trade integration increases growth and, in EMDEs, lowers inequality at the aggregate level. Trade improves productivity, contributes to knowledge diffusion and innovation, incentivizes skill accumulation, and increases product variety while reducing prices. A predictable and transparent environment is essential to support business and sustainable development. At this regard, the World Trade Organization plays a critical role in underpinning an open and inclusive global trading system.

**More can be done to foster more inclusive trade.** At the multilateral level, for instance, addressing distortions in agriculture to improve market access and reduce food price volatility can benefit both poor farmers and poor consumers. An agreement to limit fisheries subsidies will be crucial for the livelihoods of coastal communities and the preservation of fish stocks (IMF, WB and WTO, 2017; 2018). Finally, addressing barriers to trade in services and e-commerce can also open up new opportunities for inclusive growth by benefiting for example MSMEs and women (WB and WTO, 2020).

**Actions at the multilateral level need to be complemented by more targeted action to remove the constraints that the MSMEs, women and the poor face in benefiting from trade.** Farmers and firms in rural areas face particularly high transport costs and delays when shipping to international – and national – markets. Workers in informal firms, women and small business typically have limited access to finance, including trade finance, that limit their ability to access international markets trade.

**Trade, like other structural change—notably change triggered by technological progress—has heterogeneous effects on regions, industries, firms, and workers, depending on their orientation toward import competing versus export markets.** In both AEs and EMDEs, those regions, industries, and firms most vulnerable and exposed to import competition suffer relative declines in labor market conditions and other socio-economic outcomes. But these are only relative and partial effects. Trade induces job growth in other areas. Moreover, those regions, industries, and firms most oriented and exposed to export opportunities experience relative improvements in labor market and socio-economic outcomes. And studies find the latter beneficial effects outweigh the losses of import competition, consistent with the aggregate benefits.

**Policies are nonetheless needed to ensure the net benefits of trade are shared with those left behind by the structural changes.** Policy actions to improve labor mobility—across sectors, regions, and skills—are particularly important. These include labor market policies aimed at retraining workers and helping them to transition into new job opportunities. Wide-range education policies that support the development of the right skills in a rapidly changing economic and technological environment, credit policies to help fund self-employment or human capital investment, housing market policies to improve geographical mobility, or regional policies that help re-orient the economies of the harder-hit regions are all needed to support adjustment. And, for those who suffer long term losses from economic change redistributive policies may be necessary.

## REFERENCES

- Ahn, J., Dabla-Norris, E., Duval, R., Hu, B. & Njie, L. 2016. "Reassessing the Productivity Gains from Trade Liberalization," International Monetary Fund Working Paper No. 16/77.
- Alcalá, F. & Ciccone, A. 2004. "Trade and Productivity," *The Quarterly Journal of Economics*, 119.
- Aleman-Castilla, B. 2006. The effect of trade liberalization on informality and wages: evidence from Mexico. Centre for Economic Performance (CEP), Discussion Paper 763, London: London School of Economics.
- AliResearch. 2017. "Inclusive Growth and E-Commerce: China's Experience." Prepared for a meeting on Inclusive Development and E-Commerce: The Case of China, UNCTAD, April 2017.
- Altindag, D.T. & Mocan, N.H. 2010. Joblessness and Perceptions about the Effectiveness of Democracy. NBER Working Paper No. 15994.
- Álvarez, R., Benavente, J. M. & Crespi, G. 2019. "Foreign Competition and Innovation in Latin America," IDB Discussion Paper IDB-DP-00728.
- Amiti, M. & Davis, D. 2012. "Trade, Firms, and Wages: Theory and Evidence." *Review of Economic Studies*, 79(1), 1-36.
- Amiti, M. & Khandelwal, A. 2013. "Import Competition and Quality Upgrading," *Review of Economics and Statistics*, 95.
- Antràs, P. 2020. "De-Globalisation? Global Value Chains in the Post-COVID-19 Age," NBER Working Paper No. 28115.
- Antràs, P., Garicano, L. & Rossi-Hansberg, E. 2006. "Offshoring in a Knowledge Economy," *The Quarterly Journal of Economics*, Oxford University Press, vol. 121(1), pp 31-77.
- Antras, P. & Helpman, E. 2004. "Global Sourcing," *Journal of Political Economy*, 112(3), pp 552-580.
- Argent, J. & Begazo, T. 2015. "Competition in Kenyan Markets and its Impact on Income and Poverty: A Case Study on Sugar and Maize." World Bank Policy Research Working Paper, 7179.
- Artuç, E., Lederman, D. & Porto, G. 2015. "A Mapping of Labor Mobility Costs in the Developing World," *Journal of International Economics*, 95.
- Arveladze, G. & Smeets, M. 2017. Georgia's Post-Accession Structural Reform Challenges', *WTO Working Paper Series*, (WTO), ERSD-2017-10.
- Atkin, D. & Donaldson, D. 2015. "Who's Getting Globalized? The Size and Implications of Intra-national Trade Costs," CEPR Discussion Papers 10759.
- Attanasio, O., Goldberg, P. & Pavcnik, N. 2004. "Trade reforms and wage inequality in Colombia," *Journal of Development Economics*, 74(4), 331-366.
- Autor, D. 2018. Trade and labor markets: Lessons from China's rise. *IZA World of Labor*, 2018: 431.

- Autor, D. & Dorn, D. 2013. "The Growth of Low-Skill Service Jobs and the Polarization of the US Labor Market," *American Economic Review*, 103(5), pp. 1553-97.
- Autor, D. H., Dorn, D. & Hanson, G.H. 2013. "The China Syndrome: Local Labor Market Effects of Import Competition in the United States," *American Economic Review*, Vol. 103(6), pp. 2121–68.
- Autor, David, David Dorn, and Gordon Hanson, 2015, "Untangling Trade and Technology: Evidence from Local Labour Markets," *The Economic Journal*, 125 (May), pp 621-646.
- Autor, D. H., Dorn, D. & and Hanson, G.H. 2016. "The China Shock: Learning from Labor-Market Adjustment to Large Changes in Trade," *Annual Review of Economics*, 8, 205–240.
- Autor, D., Dorn, D., Hanson, G. & Majlesi, K. 2020. "Importing Political Polarization? The Electoral Consequences of Rising Trade Exposure." *American Economic Review*, 110 (10): 3139-83.
- Autor, D., Dorn, D., Hanson, G. H. & Song, J. 2014. "Trade Adjustment: Worker Level Evidence," *Quarterly Journal of Economics*, 129.
- Bacchetta, M. & Drabek, Z. 2002. Effects of WTO Accession on Policy-Making in sovereign states: Preliminary lessons from the recent experience of transition economies, *WTO Working Paper Series*, (WTO), 2 April 2002.
- Bacchetta, M. & Jansen, M. 2003. Adjusting to trade liberalization, the role of policy, institutions and WTO disciplines. World Trade Organization, Special Studies no 7, Geneva: World Trade Organization.
- Bacchetta, M. & Stolzenburg, V. 2019. Trade, value chains and labor markets in advanced economies. In: *Global Value Chain Development Report 2019 – Technological innovation, supply chain trade, and workers in a globalized world*. Geneva: World Trade Organization, pp. 45-62.
- Baicker, K. & Rehavi, M. 2004. Policy watch: Trade Adjustment Assistance. *Journal of Economic Perspectives*, 18(2): pp. 239–255.
- Baldarrago, E. & Salinas, G. 2017. "Trade Liberalization in Peru: Adjustment Costs Amidst High Labor Mobility," *IMF Working Paper No. 17/47* (Washington: International Monetary Fund).
- Baldwin, R. 2016. *The Great Convergence: Information technology and the New Globalization*, Cambridge (MA): Belknap Press.
- Baldwin, R. & Cain, G. 2000. "Shifts in Relative U.S. Wages: The Role of Trade, Technology, and Factor Endowments," *Review of Economics and Statistics*, 82(4), 580-595.
- Beaton, K., Cebotari, A. & Komaromi, A. 2017. "Revisiting the Link between Trade, Growth and Inequality: Lessons for Latin America and the Caribbean," *IMF Working Paper No. 17/46* (Washington: International Monetary Fund).
- Becker, D. 2018. Heterogeneous firms and informality: the effects of trade liberalization on labour markets. *Oxford Economic Papers*, 70(1), pp. 47–72.

- Becker, S., Ekholm, K. & Muendler, M.A. 2013. "Offshoring and the Onshore Composition of Tasks and Skills" *Journal of International Economics* 90(1): 91–106.
- Bekkers, E., Koopman, R., Sabbadini, G. & Teh, R. 2021. 'The Impact of Digital Technologies on Developing Countries' Trade' in Smeets (Ed.), pp 36-53.
- Berg, A. & Miao, Y. 2010. "The Real Exchange Rate and Growth Revisited: The Washington Consensus Strikes Back?" IMF Working Paper No. 10/58.
- Berik, G. 2011. "Gender Aspects of Trade", in Jansen, M. ed (2011) *Trade and Employment: from Myths to Facts*, ILO: Geneva.
- Berman, E., Bound, J. & Machin, S. 1997. "Implications of Skill-Biased Technological Change: International Evidence." NBER Working Papers, no. 6166.
- Bernard, A., Jensen B. & Schott, P.K. 2006. "Survival of the Best Fit: Exposure to Low-Wage Countries and the (Uneven) Growth of US Manufacturing Plants." *Journal of International Economics* 68:219-237.
- Blinder, A.S. & Krueger, A.B. 2009. "Alternative Measures of Offshorability: A Survey Approach," NBER Working Paper 15287, August.
- Bivens, J. 2008. *Everybody wins, except for most of us: What economics teaches about globalization*, Washington, D.C.: Economic Policy Institute.
- Bivens, J. 2013. "Using standard models to benchmark the costs of globalization for American workers without a college degree," Washington, D.C.: Economic Policy Institute Briefing Paper No. 354.
- Black, S. E. & Brainerd, E. 2004. "Importing Equality? The Impact of Globalization on Gender Discrimination," *Industrial and Labor Review*, 57.
- Blanchard, O. 2006. "European unemployment: the evolution of facts and ideas," *Economic Policy*, CEPR, CES, MSH, vol. 21(45), pages 5-59.
- Bloom, N., Draca, M. & Van Reenen, J. 2015. "Trade Induced Technical Change: The Impact of Chinese Imports on Innovation, Diffusion, and Productivity," *Review of Economic Studies*, 83.
- Borjas, G., Freeman, R. & Katz, L. 1991. "On the Labor Market Effects of Immigration and Trade," NBER Working Papers 3761, National Bureau of Economic Research, Inc.
- Brambilla, I., Lederman, D. & Porto, G. 2012. "Exports, Export Destinations, and Skills," *American Economic Review*, Vol. 102, No. 7, pp. 3406–3438.
- Broda, C. & Weinstein, D. 2006. "Globalization and the Gains from Variety." *Quarterly Journal of Economics*, 121(2), 541–85.
- Busse and Koniger. 2012. "Trade and economic growth: A re-examination of the empirical evidence, HWWI Research Paper, No. 123, Hamburgisches WeltWirtschaftsinstitut (HWWI), Hamburg.
- Bustos, P. 2011. "Trade Liberalization, Exports, and Technology Upgrading: Evidence on the Impact of MERCOSUR on Argentinian Firms," *American Economic Review*, 101.
- Cadot, O., Ferrantino M., Gourdon, J. & Reyes, D. 2018. "Reforming Non-Tariff Measures: From Evidence to Policy Advice." World Bank.

- Campa, J. M. & Goldberg, L. 2002. "Exchange rate pass-through into import prices: a macro or micro phenomenon?" Staff Reports 149, Federal Reserve Bank of New York.
- Carrère, C., Fugazza, M., Olarreaga, M. & Robert-Nicoud, F. 2016. "On the Heterogeneous Effect of Trade on Unemployment," CEPR Discussion Paper No. DP11540.
- Cerdeiro, D. A. & Komaromi, A. 2020. "Trade and income in the long run: Are there really gains, and are they widely shared?" *Review of International Economics*.  
<https://doi.org/10.1111/roie.12494>
- Cerra, V., Eichengreen, B., El-Ganainy, A. & Schindler, M. (Eds.) forthcoming 2021. *How to Achieve Inclusive Growth*, Oxford University Press and IMF.
- Chiquiar, D. 2008. "Globalization, regional wage differentials and the Stolper-Samuelson theorem: Evidence from Mexico." *Journal of International Economics*, 74(1), 70-93.
- Claeys, G. & Sapir, A. 2018. *The European Globalisation Adjustment Fund: Easing the pain from trade?* Breugel Policy Contribution No. 5, Brussels: Breugel.
- Cline, W. 1997. "Trade and Income Distribution," Peterson Institute Press: All Books, Peterson Institute for International Economics, number 58, October.
- Coe, D. & Helpman, E. 1995, "International R&D Spillovers," *European Economic Review*, 39(5) pp. 859-887.
- Coe, D., Helpman, E. & Hoffmaister, A.W. 1997. "North-South R&D spillovers," *The Economic Journal*, 107.
- Coe, D., Helpman, E. & Hoffmaister, A. 2009. "International R&D Spillovers and Institutions," *European Economic Review*, 53(7) pp. 723-741.
- Colantone, I. & Stanig, P. 2018a. "The Trade Origins of Economic Nationalism: Import Competition and Voting Behavior in Western Europe," *American Journal of Political Science* 62, no. 4: 936-953.
- Colantone, I. & Stanig, P. 2018b. "Global Competition and Brexit," *American Political Science Review*, 2018 - 112 (2): 201-218.
- Collins, B. 2018. *Trade Adjustment Assistance for Workers and the TAA Reauthorization Act of 2015*, Congressional Research Service, 7-5700.
- Costa, F., Garred, J. & Pessoa, J. P. 2016. "Winners and Losers from a Commodities-for-Manufactures Trade Boom," *Journal of International Economics*, 102, 50-69.
- Costinot, A. & Rodríguez-Clare, A. 2014. "Trade Theory with Numbers: Quantifying the Consequences of Globalization." In Gopinath, G., Helpman, E. and Rogoff, K. (Ed.), *Handbook of International Economics* (Vol. 4). Amsterdam: Elsevier.
- Costinot, A. & Vogel, J. 2010. "Matching and Inequality in the World Economy," *Journal of Political Economy*, 2010, 118(4) pp. 747-786.
- Costinot, A., Vogel, J. & Wang, S. 2012. "Global Supply Chains and Wage Inequality." *American Economic Review*, 102 (3): 396-401.
- Cravino, J. & Levchenko, A. 2017. "The Distributional Consequences of Large Devaluations." *American Economic Review*.

- Crinò, R. & Epifani, P. 2017. "The Skill Bias of the US Trade Deficit," in Lionel Fontagné and Ann Harrison (ed.), *The Factory-Free Economy: Outsourcing, Servitization, and the Future of Industry*, Oxford University Press.
- D'Amico, R. & Schochet, P. Z. 2012. *The Evaluation of the Trade Adjustment Assistance Program: A Synthesis of Major Findings: Final Report Prepared as Part of the Evaluation of the Trade Adjustment Assistance Program*, Oakland (CA): Social Policy Research Associates, Mathematica Policy Research.
- Dauth, W., Findeisen, S. & Suedekum, J. 2014. "The Rise of the East and the Far East: German Labor Markets and Trade Integration," *Journal of the European Economic Association*, 12.
- Dauth, W., Findeisen, S. & Suedekum, J. 2017. "Trade and Manufacturing Jobs in Germany." *American Economic Review*, 107 (5): 337-42.
- Davidson, C. & Matusz, S. J. 2000. Globalization and labour-market adjustment: How fast and at what cost? *Oxford Review of Economic Policy*, 16(3), pp. 42–56.
- Davidson, C. & Matusz, S. J. 2006. Trade liberalization and compensation, *International Economic Review*, 47(3), pp. 723–747.
- Davis, D. & Harrigan, J. 2011. "Good Jobs, Bad Jobs, and Trade Liberalization." *Journal of International Economics* 84: 26-36.
- Davis, S. & von Wachter, T. 2011. "Recessions and the Costs of Job Loss," NBER Working Paper no. 17638.
- De Loecker, J. 2013. "Detecting Learning by Exporting," *American Economic Journal: Microeconomics*, 5.
- De Loecker, J. & Goldberg, P., 2014, "Firm Performance in a Global Market." *Annual Review of Economics*, 6, 201-227.
- De Loecker, J., Goldberg, P.K., Khandelwal, A. & Pavcnik, N. 2016. "Prices, Markups and Trade Reform," *Econometrica*, 84.
- Dippel, C., Gold, R. & Heblich, S. 2015. "Globalization and its (dis-)content: Trade shocks and voting behaviour", NBER, Working Paper 21812.
- Dix-Carneiro, R. & Kovak, B. 2015a. "'Trade Liberalization and the Skill Premium: A Local Labor Markets Approach," *American Economic Review*, 105(5), 551-57.
- Dix-Carneiro, R. & Kovak, B. 2015b. "Trade Reform and Regional Dynamics: Evidence from 25 Years of Brazilian Matched Employer--Employee Data." Working Paper.
- Dix-Carneiro, R. & Kovak, B.K. 2017. "Trade Liberalization and Regional Dynamics." *American Economic Review*, 107 (10): 2908-46.
- Dix-Carneiro, R. & Kovak, B.K. 2019. Margins of labor market adjustment to trade. *Journal of International Economics*, 117, pp.125-142.
- Dix-Carneiro, R., Soares, R.R. & Ulyssea, G. 2018. "Economic Shocks and Crime: Evidence from the Brazilian Trade Liberalization." *American Economic Journal: Applied Economics*, 10 (4): 158-95.

- Dollar, D. & Kraay, A. 2003. "Institutions, Trade and Growth," *Journal of Monetary Economics*, 50.
- Dollar, D. & A. Kraay, 2004, "Trade, Growth, and Poverty," *The Economic Journal*, Vol. 114, pp. F22–F49.
- Dollar, D., Kleineberg, T. & Kraay, A. 2016. "Growth Still Is Good for the Poor," *European Economic Review*, 81.
- Dutt, P., Mitra, D. & Ranjan, P. 2009. "International Trade and Unemployment: Theory and Cross-National Evidence," *Journal of International Economics*, 78.
- Dutt, P. & Mitra, D. 2006. "Labor Versus Capital Trade-Policy: The Role of Ideology And Inequality," *Journal of International Economics*, 69(2), 310-320.
- eBay, 2012, *Small Online Business Growth Report 2012*, San Jose CA: eBay Inc.
- eBay, 2014, *Small Online Business Growth Report 2014*, San Jose CA: eBay Inc.
- eBay, 2016, *Small Online Business Growth Report 2016*, San Jose CA: eBay Inc.
- Ebenstein, A., Harrison, A., & McMillan, M. 2015. "Why Are American Workers Getting Poorer? China, Trade and Offshoring," NBER Working Paper No. 21027.
- Edmond, C., Midrigan, V. & Xu, D. 2015. "Competition, Markups, and the Gains from International Trade." *American Economic Review*, 105(10), 3183-3221.
- Edmonds, E., Pavcnik, N. & Topalova, P. 2010. "Trade Adjustment and Human Capital Investment: Evidence from Indian Tariff Reforms." *American Economic Journal: Applied Economics*, 2(4), 42–75.
- Eichengreen, B. 1986. "The Political Economy of the Smoot-Hawley Tariff," NBER Working Paper No. 2001.
- Erten, B. & Leight, J. 2017. "Exporting out of Agriculture: The Impact of WTO Accession on Structural Transformation in China," mimeo.
- Erten, B. Leight, J. & Tregenna, F. 2019. Trade liberalization and local labor market adjustment in South Africa. *Journal of International Economics*, 118, pp. 448-467.
- Estevadeordal, A. & Taylor, A. 2013. "Is the Washington Consensus Dead? Growth, Openness, and the Great Liberalization, 1970s–2000s," *Review of Economics and Statistics*, 95: 1669– 690.
- Faijgelbaum, P. & Khandelwal, A. 2016. "Measuring the Unequal Gains from Trade," *The Quarterly Journal of Economics*, 131.
- Feenstra, R. C. & Hanson, G. H. 2003. "Global Production Sharing and Rising Inequality: A Survey of Trade and Wages," in Choi, E. K. and Harrigan, J. (eds) *Handbook of International Trade* (London: Basil Blackwell), 146–185.
- Feenstra, R. C. & Hanson, G.H. 1999. "The Impact of Outsourcing and High-Technology Capital on Wages: Estimates for the United States, 1979–1990," *Quarterly Journal of Economics*, 114(3): 907–40.
- Feenstra, R., Ma, H. & Xu, Y. 2017. "US Exports and Employment," NBER WP 24056.
- Feenstra, R. & Sasahara, A. 2017. "The 'China Shock', Exports, and US Employment: A Global Input-Output Analysis", NBER WP 24022.



- Felbermayr, G., Prat, J. & Schmerer, H.J. 2009. –Trade and Unemployment: What Do the Data Say? IZA Discussion Papers 4184. Institute for the Study of Labour.
- Ferreira, P. & Rossi, J. 2003. “New Evidence from Brazil on Trade Liberalization and Productivity Growth,” *International Economic Review*, 44.
- Fontagné, L., Orefice, G. & Piermartini, R. 2020. "Making (small) Firms Happy. The Heterogeneous Effect of Trade Facilitation Measures." *Review of International Economics* doi.org/10.1111/roie.12463"
- Fontagné, L, Orefice, G., Piermartini, R. & Rocha, N. 2015. "Product Standards and Margins of Trade: Firm-level evidence" *Journal of International Economics* 97(1):29-44.
- Frankel, J.A. & Romer, D. 1999. “Does trade cause growth?” *American Economic Review*, Vol. 89(3). pp. 379-399.
- Funke, M., Schularick, M. & Trebesch, C. 2016. “Going to extremes: Politics after financial crises, 1870–2014,” *European Economic Review*, 88(C) pp. 227-260.
- Gerschenkron, A. 1943. *Bread and Democracy in Germany*, Berkeley and Los Angeles: University of California Press.
- Giuliano, P. & Spilimbergo, A. 2009. *Growing up in a Recession: Beliefs and the Macroeconomy*. NBER Working Paper No. 15321. Cambridge, Massachusetts: National Bureau of Economic Research.
- Goldberg, P. 2015. “Review Article: Trade and Inequality,” In: *Elgar Research Reviews in Economics* (Cheltenham, UK: Edward Elgar Publishing Limited).
- Goldberg, P. & Pavcnik, N. 2007. “Distributional effects of globalization in developing countries,” *Journal of Economic Literature*, Vol. XLV (1), pp. 39-82.
- Goldberg, P. & Pavcnik, N. 2003. The response of the informal sector to trade liberalization. *Journal of Development Economics*, 72(2), pp. 463–496.
- Goldberg, P. K. & Pavcnik, N. 2005. “Trade, Wages, and the Political Economy of Trade Protection: Evidence from the Colombian Trade Reforms.” *Journal of International Economics*, 66(1): 75–105.
- Goldberg, P. & Pavcnik, N. 2016. “The Effects of Trade Policy,” NBER Working Paper No. 21957 (Cambridge, MA).
- Goos, M., Manning, A. & Salomons, A. 2014. ‘Explaining Job Polarization: Routine-Biased Technological Change and Offshoring’, *American Economic Review*, August, 2509–26.
- Guth, J. & Lee, J. 2017. *Evaluations of the Trade Adjustment Assistance Program for Workers: A Literature Review*. USITC Executive Briefings on Trade, Washington, D.C.: United States International Trade Commission (USITC).
- Guth, J. & Lee, J. 2018. *A brief history of the U.S. Trade Adjustment Assistance Program for workers*. USITC Executive Briefings on Trade, Washington, D.C.: United States International Trade Commission (USITC).
- Gygli, S., Haelg, F., Potrafke, N. & Sturm, J.E. 2019. The KOF Globalisation Index – Revisited, *Review of International Organizations*, 14(3), 543-574.

- Handley, K. 2014. Exporting Under Trade Policy Uncertainty: Theory and Evidence. *Journal of International Economics*, 94(1), 50-66.
- Handley, K. & Limão, N. 2014. "Policy Uncertainty, Trade and Welfare: Theory and Evidence for China and the U.S." NBER Working Papers No. 19376.
- Handley, K. & Limão, N. 2015. "Trade and Investment under Policy Uncertainty: Theory and Firm Evidence." *American Economic Journal: Economic Policy*, 7 (4): 189-222.
- Handley, K. & Limão, N. 2017. "Policy Uncertainty, Trade, and Welfare: Theory and Evidence for China and the United States." *American Economic Review*, 107 (9): 2731-83.
- Hanson, G. 2019. Economic and Political Consequences of Trade-Induced Manufacturing Decline. In: L. Catão, and M. Obstfeld, ed., *Meeting Globalization's Challenges: Policies to Make Trade Work for All*. Princeton University Press.
- Hanson, G. & Harrison, A. 1999. "Who gains from trade reform? Some remaining puzzles." *Journal of Development Economics* 59(1), 125-154.
- Harrison, A. E. 1994. "Productivity, imperfect competition and trade reform: Theory and evidence." *Journal of International Economics*, 36(1), 53-73.
- Harrison, A., McLaren J. & McMillan, M. 2011. "Recent perspectives on trade and inequality." *Annual Review of Economics*, 3, 261-289.
- Harrison, A. & Rodríguez-Clare, A. 2010. "Trade, foreign investment, and industrial policy for developing countries." In Rodrik, D. and Rosenzweig, M. R. (Eds.), *Handbook of Development Economics* (Vol. 5, pp. 4039-4214). Amsterdam, Netherlands: Elsevier.
- Haskel, J., Lawrence, R.Z., Leamer, E.E. & Slaughter, M.J. 2012. "Globalization and U.S. Wages: Modifying Classic Theory to Explain Recent Facts." *Journal of Economic Perspectives*, 26 (2): 119-40.
- Helpman, E. & Itskhoki, O. 2010. "Labour Market Rigidities, Trade and Unemployment," *The Review of Economic Studies*, 77.
- Helpman, E., Itskhoki, O. & Redding, S. 2010. "Inequality and Unemployment in a Global Economy," *Econometrica*, 78 (4), pp. 1239–1283.
- Helpman, E., Itskhoki, O., Muendler, M.A. & Redding, S. 2017. "Trade and Inequality: From Theory to Estimation," *The Review of Economic Studies*, Volume 84, Issue 1, January 2017, pp. 357–405.
- Humlum, A. & Munch, J.R. 2019. Globalization, Flexicurity and adult vocational training in Denmark. In: M. Bacchetta, Milet, E. & Monteiro, J.-A., eds., *Making Globalization More Inclusive – Lessons from experience with adjustment policies*, Geneva: World Trade Organization.
- Hummels, D., Jørgensen, R., Munch, J. & Xiang, C. 2014. "The Wage Effects of Offshoring: Evidence from Danish Matched Worker-Firm Data." *American Economic Review*, 104 (6): 1597-1629.
- Hyman, B. 2018. Can displaced labour be retrained? Evidence from quasi-random assignment to trade adjustment assistance. Philadelphia: The Wharton School, University of Pennsylvania.

- International Labor Organization. 2015. Transition from the informal to the formal economy recommendation no 204.
- International Labor Organization and World Bank. 2007. Trade and Employment: Challenges for Policy Research.
- International Labor Organization and World Bank. 2009. Globalization and Informal Jobs in Developing Countries.
- International Labor Organization and World Bank. 2011. Making Globalization Socially Sustainable.
- International Monetary Fund. 2016. "Global Trade: What's Behind the Slowdown," World Economic Outlook (October), Chapter 2.
- International Monetary Fund, World Bank, World Trade Organization. 2017. "Making Trade an Engine of Growth for All: The Case for Trade and for Policies to Facilitate Adjustment," Prepared for the meeting of the G20 Sherpas, March 23-24, Frankfurt, Germany.
- International Monetary Fund, World Bank, World Trade Organization. 2018. "Reinvigorating Trade and Inclusive Growth."
- Janssen, M., Sadni Jallab, M. & Smeets, M. (eds.) 2014. Connecting to Global Markets, Challenges and Opportunities: Case Studies Presented by WTO Chair-holders (WTO).
- Jaumotte, F., Lall, S. & Papageorgiou, C. 2013. "Rising Income Inequality: Technology, or Trade and Financial Globalization?" IMF Economic Review, Vol, 61 (2), pp. 271–309.
- Jensen, R. 2012. "Do Labor Market Opportunities Affect Young Women's Work and Family Decisions? Experimental Evidence from India," The Quarterly Journal of Economics, 127(2), pp. 753–792.
- Johnson, R. 2014. "Five Facts about Value-Added Exports and Implications for Macroeconomics and Trade Research." Journal of Economic Perspectives.
- Jordà, Ò., Schularick, M. & Taylor, A.M. 2017. "Macrofinancial History and the New Business Cycle Facts." in NBER Macroeconomics Annual 2016, volume 31, edited by Martin Eichenbaum and Jonathan A. Parker. Chicago: University of Chicago Press.
- Kaminsky, G., Lizondo, S. & Reinhart, C. 1998. "Leading Indicators of Currency Crises," IMF Staff Papers, 45(1), pp 1-48.
- Keller, W. & Utar, H. 2016. International trade and job polarization: evidence at the worker level, CESIFO Working Paper No. 5978.
- Klein, M.W., Moser, C. & Urban, Dieter M. 2010. "The Contribution of Trade to Wage Inequality: The Role of Skill, Gender, and Nationality," NBER Working Papers 15985, National Bureau of Economic Research, Inc.
- Kletzer, L. G. 2001. "Job Loss from Imports: Measuring the Costs," Institute for International Economics.

- Kletzer, L. 2016. Why the U.S. Needs Wage Insurance. *Harvard Business Review*, <https://hbr.org/2016/01/why-the-u-s-needs-wage-insurance>.
- Kletzer, L. G. & Litan, R. E. 2001. "A Prescription to Relieve Worker Anxiety", Policy Brief No. 73, Washington, D.C.: Brookings Institute.
- Kovak, B. 2013. "Regional Effects of Trade Reform: What Is the Correct Measure of Liberalization?" *American Economic Review*, 103(5), 1960–76.
- Krebs, T., Krishna, P. & Maloney, W. 2005. Trade policy, income risk, and welfare, Policy Research Working Paper Series 3622, the World Bank, Washington, D.C.
- Krueger, A. 1974. "The Political Economy of the Rent-Seeking Society," *American Economic Review*, 64.
- Krugman, P. 1981. "Intraindustry Specialization and the Gains from Trade," *Journal of Political Economy* 89(5): 959-973.
- Kuznets, S. 1955. "Economic Growth and Income Inequality," *The American Economic Review*, vol. 45, no. 1, 1955, pp. 1–28.
- La Porta, R. & Schleifer, A. 2014. Informality and development. *Journal of economic perspectives*, 28(3), pp. 109-26.
- Levinsohn, J. 1993. "Testing the Imports-as- Market-Discipline Hypothesis." *Journal of International Economics*, 35(1–2): 1–22.
- Lewis, W.A. 1955. *Theory of Economic Growth*. Allen and Unwin Ltd., London.
- Lileeva, A. & Trefler, D. 2010. "Improved Access to Foreign Markets Raises Plant-level Productivity...For Some Plants," *The Quarterly Journal of Economics*, 125.
- Lumenga-Neso, O., Olarreaga, M., & Schiff, M. 2005. "On 'Indirect' Trade-Related R&D Spillovers," *European Economic Review*, 49.
- Machin, S. & Van Reenen, J. 1998. "Technology and changes in skill structure: Evidence from seven OECD countries." *Quarterly Journal of Economics*, 113(4) 1215-1244.
- Magyari, I. 2017. Firm Reorganization, Chinese Imports, and US Manufacturing Employment. US Census Bureau, Center for Economic Studies.
- Malgouyres, C. 2016. "The Impact of Chinese Import Competition on the Local Structure of Employment and Wages: Evidence from France," *Journal of Regional Science*.
- McCaig, B. 2011. "Exporting out of poverty: Provincial poverty in Vietnam and U.S. market access." *Journal of International Economics*, 85(1), pp. 102–113.
- McCaig, B. & McMillan, M. 2019. Trade liberalisation and labour market adjustment in Botswana. *Journal of African Economies*, 29(3), pp. 236–270.
- McCaig, B. & Pavcnik, N. 2014. "Export Markets and Labor Reallocation in a Low-Income Country." NBER Working Paper No. 20455.
- McCaig, B. & Pavcnik, N. 2018. Export markets and labor allocation in a low-income country. *American Economic Review* 108 (7), pp. 1899-1941.
- Melitz, M. 2003. "The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity." *Econometrica* 71(6): 1695-1725.

- Melitz, M.J. & Redding, S.J. 2014. "Heterogeneous Firms and Trade." In Gopinath, G., Helpman, E. and Rogoff, K. (Ed.), *Handbook of International Economics* (Vol. 4: 1--54). Amsterdam: Elsevier.
- Mendoza, A., Nayyar, G. & Piermartini, R. 2018. "Are the "Poor" Getting Globalised?" Forthcoming in *World Bank/WTO Trade and Poverty Reduction: New Evidence of Impacts in Developing Countries*.
- Meschi, E. & Vivarelli, M. 2009. "Trade and Income Inequality in Developing Countries," *World Development*, 37(2), pages 287-302.
- Mian, A., Sufi, A. & Trebbi, F. 2014. "Resolving Debt Overhang: Political Constraints in the Aftermath of Financial Crises." *American Economic Journal: Macroeconomics*, 6 (2): 1-28.
- Moise, E. & Sorescu, S. 2013. 'Trade Facilitation Indicators: The Potential Impact of Trade Facilitation on Developing Countries,' *OECD Trade Policy Papers* (No. 144).
- Monteiro, J.-A. 2016a. "Provisions on Small and Medium-sized Enterprises in Regional Trade Agreements," *WTO Staff Working Paper*, No. ERSD-2016-12.
- Monteiro, J.-A. 2016b. "Typology of Environment-related Provisions in Regional Trade Agreements," *WTO Staff Working Paper*, No. ERSD-2016-13.
- Monteiro, J.-A. 2018. "Gender-related Provisions in Regional Trade Agreements," *WTO Staff Working Paper* No. ERSD-2018-15.
- Monteiro, J.-A. forthcoming. "Provisions on Corporate Social Responsibility in Regional Trade Agreements".
- Monteiro, J.-A. & Trachtman, J. P. 2020. "Environmental Laws", in Mattoo, A., Rocha, N. and Ruta, M. (eds), *Handbook of Deep Trade Agreements*, Washington D.C.: World Bank.
- Nicita, A. 2004. "Who Benefited from Trade Liberalization in Mexico? Measuring the Effects on Household Welfare." *World Bank Policy Research Working Paper Series*, no. 3265.
- Notowidigdo, M. J. 2013. "The Incidence of Local Labor Demand Shocks," mimeo and NBER Working Paper 17167.
- OECD. 2005. "Trade-adjustment Costs in OECD Labour Markets: A Mountain or a Molehill?" *OECD Employment Outlook*, Paris: Organization for Economic Cooperation and Development.
- OECD. 2007. *Economic Outlook*, "Making the Most out of Globalization," Chapter 3, (June), pp. 185-208.
- OECD. 2012. "Trade, Growth and Jobs," *Summary of the OECD / ICITE report on Policy Priorities for International Trade and Jobs*, Paris: Organization for Economic Cooperation and Development.
- OECD. 2017. "Enhancing the Contributions of SMEs in a Global and Digitalized Economy." Meeting of the OECD Council of Ministers, June 2017.
- Ohlin, B. 1933. *Interregional and international trade*, Cambridge: Harvard University Press.

- Oreopoulos, P., Page, M. & Stevens, A.H. 2008. "The Intergenerational Effects of Worker Displacement." *Journal of Labour Economics*, 26(3), pp. 455-483.
- Oster, E. & Steinberg, B. 2013. "Do IT service centers promote school enrollment? Evidence from India," *Journal of Development Economics* 104, p. 123-135.
- Parry, A., Van Rensburg, A.J. & Viviers, W. 2021. "Are digital advances and inclusive growth compatible goals? Implications for trade policy in developing countries" in Smeets, M. (Ed.), *Adapting to the digital trade era, challenges and opportunities* (WTO), pp. 280-295.
- Pavcnik, N. 2012. "Globalization and Within-Country Inequality." In Bacchetta, M. and Jansen, M. (Eds.), *Making Globalization Socially Sustainable* (pp. 233-259). Geneva, Switzerland: WTO/ILO.
- Pavcnik, N. 2017. "The Impact of Trade on Inequality in Developing Countries," NBER Working Paper No. w23878.
- Paz, L.S. 2014. The impacts of trade liberalization on informal labor markets: a theoretical and empirical evaluation of the Brazilian case, *Journal of International Economics*, 92, 330–48.
- Pew Research Center. Spring 2018 Global Attitudes Survey.
- Pierce, J. R. & Schott, P. K. 2016b. "Trade Liberalization and Mortality: Evidence from U.S. Counties," NBER Working Paper No. 22849.
- Pierce, J.R. & Schott, P.K. 2016. "The Surprisingly Swift Decline of US Manufacturing Employment," *American Economic Review*, 106(7), 1632–62.
- Puccio, L. 2017. "Policy Measures to Respond to Trade Adjustment Costs", Briefing, Brussels: European Parliamentary Research Service, European Union.
- Raess, D. & Sari, D. 2018. "Labor Provisions in Trade Agreements (LABPTA): Introducing a New Dataset," *Global Policy*, 9(4), pp. 451-466.
- Raess, D. & Sari, D. 2020. "Labor Market Regulations", in Mattoo, A., Rocha, N. and Ruta, M. (eds), *Handbook of Deep Trade Agreements*, Washington D.C.: World Bank.
- Ravallion, M. 2018. "Inequality and Globalization: A Review Essay," *Journal of Economic Literature*, 56(2), 620-642.
- Ricardo, D. 1817. *On the Principles of Political Economy and Taxation*. (1 ed.), London.
- Rodríguez, F. & Rodrik, D. 2001. "Trade Policy and Economic Growth: A Skeptic's Guide to the Cross-National Evidence," *NBER Macroeconomics Annual 2000*, Volume 15, pp. 261-338
- Rodrik, D. 2008. "The Real Exchange Rate and Economic Growth," *Brookings Papers on Economic Activity*, 2, pp. 365–412.
- Rodrik, D. 2015. "Premature Deindustrialization," NBER Working Paper No. 20935.
- Rosen, H. F. 2008. "Strengthening Trade Adjustment Assistance", Policy Brief PB08-2, Washington, D.C.: Peterson Institute for International Economics.

- Rothwell, J. 2017. Cutting the Losses: Reassessing the Costs of Import Competition to Workers and Communities, manuscript, Available at SSRN: <https://ssrn.com/abstract=2920188>
- Sachs, J. & Warner, A. 1995. "Natural Resource Abundance and Economic Growth," NBER Working Paper No. w5398.
- Samuelson, P. 1939. "The Gains from International Trade," *Canadian Journal of Economics and Political Science*, Vol. 5, pp. 195-205.
- Schneider, F. Buehn, A. & Montenegro, C.E. 2010. New estimates for the shadow economies all over the world, *International Economic Journal*, 24, pp. 443–61.
- Smeets, M. (Ed.) 2021. Adapting to the digital trade era, challenges and opportunities (WTO).
- Smeets, M. & Djumaliev, M. 2019. Kyrgyz Republic and Structural Reforms: Twenty Years of WTO Membership, *St Petersburg University Journal of Economic Studies*, 2019, vol. 35, issue 4, pp. 513–542.
- Smeets, M., & Mashayekhi M. 2019. Trade policies in support of inclusive growth to the benefit of all in "Restoring Trust in Trade", *Liber Amicorum in honour of Peter van den Bossche*; D, Prevost, I. Alexovicova, J. Hillebrand Pohl (ed.). Hart Publishing, pp. 5–50.
- Spearot, A. 2013. "Market Access, Investment, And Heterogeneous Firms," *International Economic Review*, 54(2), pp. 601-627.
- Stolper, W. F. & Samuelson, P.A. 1941. "Protection and real wages". *The Review of Economic Studies*. 9 (1): 58–73.
- Teh, R., Smeets, M., Sadni Jallab, M. & Chauhdri, F. (eds). 2016. Trade Costs and Inclusive Growth, Case Studies Presented by WTO chair-holders (WTO).
- Thewissen, S. & van Vliet, O. 2019. "Competing with the Dragon: Employment Effects of Chinese Trade Competition in 17 Sectors Across 18 OECD Countries," *Political Science Research and Methods*, 7(2), April 2019, pp. 215 – 232.
- Thoenig, M. & Verdier, T. 2003. "A Theory of Defensive Skill-Biased Innovation and Globalization." *American Economic Review*, 93(3): 709–28.
- Tong, H. & Wei, S. J. 2014. "Does Trade Globalization Induce or Inhibit Corporate Transparency? Unbundling the Growth Potential and Product Market Competition Channels," *Journal of International Economics*, 94.
- Topalova, P. 2005. "Trade Liberalization, Poverty, and Inequality: Evidence from Indian Districts," NBER Working Paper No. 11614, September.
- Topalova, P. 2007. "Trade Liberalization, Poverty and Inequality: Evidence from Indian Districts," in Harrison, A. (ed). *Globalization and Poverty*, University of Chicago Press.
- Topalova, P. 2010. "Factor Immobility and Regional Impacts of Trade Liberalization: Evidence on Poverty from India," *American Economic Journal: Applied Economics*. Vol. 2, No. 4, pp. 1–41.

- Trebilcock, M. J. 2014. *Dealing with Losers: The Political Economy of Policy Transition*, Oxford: Oxford University Press.
- Trefler, D. 2004. "The Long and Short of the Canada-U. S. Free Trade Agreement," *American Economic Review*, 94.
- U.S. International Trade Commission. 2017. "Global Digital Trade 1: Market Opportunities and Key Foreign Trade Restrictions."
- UNCTAD. 2020. *Global Trade Update* (October).
- UNCTAD. 2020. *World Investment Report 2020*, UN Geneva.
- Ventura, J. 1997. "Growth and interdependence" *The Quarterly Journal of Economics* 112(1), 57-84.
- Wacziarg, R. & Welch, K.H. 2008. *Trade Liberalization and Growth: New Evidence*, *World Bank Economic Review*, 22(2), pp. 187-231.
- WEF. 2020. *The U.S.-Mexico-Canada Agreement and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership include mechanisms for dispute resolution*
- Winters, A., McCulloch, N. & McKay, A. 2004. "Trade Liberalisation and Poverty: The Evidence so Far," *Journal of Economic Literature*, 42(1), pp. 72-115.
- Wood, A. 1995. "How Trade Hurt Unskilled Workers," *Journal of Economic Perspectives*, Vol. 9 (3), pp. 57–8
- Wood, Adrian. 1999. "Openness and Wage Inequality in Developing Countries: The Latin American Challenge to East Asian Conventional Wisdom." In *Market Integration, Regionalism and the Global Economy*, ed. R. Baldwin et al. Cambridge; New York and Melbourne: Cambridge University Press, 153–81.
- World Bank, *World Development Report*. 1987.
- World Bank, *World Development Report*. 2020. *Trading for Development in the Age of Global Value Chains*.
- World Bank and World Trade Organization. 2015. "The Role of Trade in Ending Poverty," Geneva: World Trade Organization.
- World Bank Group and World Trade Organization. 2018. *Trade and Poverty Reduction: New Evidence of Impacts in Developing Countries*. World Trade Organization: Geneva.
- World Bank and World Trade Organization. 2020. *Women and Trade: The Role of Trade in Promoting Gender Equality*. Washington, DC: World Bank.
- World Trade Organization. 2008. *World Trade Report: Trade in a Globalizing World*, Geneva: World Trade Organization.
- World Trade Organization. 2015. *The WTO at Twenty: Challenges and Achievements*, Geneva: World Trade Organization.
- World Trade Organization. 2015. *World Trade Report. Speeding up trade: benefits and challenges of implementing the WTO Trade Facilitation Agreement*.
- World Trade Organization. 2016. *Accessions Annual Report by the Director General*.



- World Trade Organization. 2016. World Trade Report: Levelling the Trading Field for SMEs.
- World Trade Organization. 2016. “Advancing the Multilateral Trading System: Issues for Further Consideration.” Discussion Paper for the G-20.
- World Trade Organization. 2017. World Trade Report: Trade, Technology and Jobs.
- World Trade Organization. 2017. “20 Years of the Information Technology Agreement. Boosting Trade, Innovation and Digital Connectivity.”
- World Trade Organization. 2018. World Trade Report: The Future of World Trade: How Digital Technologies are Transforming Global Commerce.
- World Trade Organization. 2019. World Trade Report: The Future of Services Trade.
- World Trade Organization. 2020. Press release 8 April: 'Trade set to plunge as Covid-19 pandemic upends global economy'.
- Yi, M., Mueller, S. & Stegmaier, J. 2017. “Transferability of Skills across Sectors and Heterogeneous Displacement Costs,” *American Economic Review* 107(5) pp. 332-336.
- Zhu, W. 2017. “Heterogeneous Technological Changes and Their Impacts on Income Inequality and Productivity Growth. Queen’s University, Kingston, Ontario.