

Making Trade an Engine of Growth for All

The Case for Trade
and for Policies
to Facilitate Adjustment

P R E P A R E D B Y S T A F F O F



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Glossary

AE	Advanced economy
ALMP	Active labor market program
CEA	Council of Economic Advisers
EGAF	EU European Globalization Adjustment Fund
EMDE	Emerging market and developing economy
FTA	Free trade agreement
GATS	General Agreement on Trade in Services (WTO)
GFC	Global Financial Crisis
GPA	Government Procurement Agreement (WTO)
GVC	Global value chain
ICITE	International Collaborative Initiative on Trade and Employment
ILO	International Labor Organization
ITA	Information Technology Agreement (WTO)
JETRO	Japan External Trade Organization
MFN	Most favored nation
NTB	Non-tariff barrier
NTM	Non-tariff measure
OECD	Organization for Economic Cooperation and Development
PROCAMPO	Programa de Apoyos Directos al Campo (Mexico)
PTA	Preferential trade agreement
RTA	Regional trade agreement
SPS	Sanitary and phytosanitary standards
STRI	Services Trade Restrictiveness Index (OECD)
TAA	Trade Adjustment Assistance
TBT	Technical barriers to trade
TFA	Trade Facilitation Agreement (WTO)
TJTC	Targeted Jobs Tax Credit
UNCTAD	United Nations Conference on Trade and Development
WEO	World Economic Outlook (IMF)
WTO	World Trade Organization

EXECUTIVE SUMMARY

The role of trade in the global economy is at a critical juncture. Increased trade integration helped to drive economic growth in advanced and developing economies in the latter part of the 20th century. Since the early 2000's, however, a slowdown in the pace of trade reform, a post-crisis uptick in protectionism, and risk of further reversals have been a drag on trade, productivity, and income growth. At the same time, trade is leaving too many individuals and communities behind, notably also in advanced economies. To be sure, job losses in certain sectors or regions in advanced economies have resulted to a large extent from technological changes rather than from trade. But adjustment to trade can bring a human and economic downside that is frequently concentrated, sometimes harsh, and has too often become prolonged. It need not be that way. With the right policies, countries can benefit from the great opportunities that trade brings *and* lift up those who have been left behind. Those policies ease adjustment to trade, as well as strengthen overall economic flexibility and performance.

At their meeting at Hangzhou in September 2016, G20 leaders called for domestic policies to share the gains from trade more widely. They also called for action to better communicate the benefits of open trade to a public that may have become more skeptical, especially in advanced economies. This paper aims to guide the response to these calls. It starts by surveying related long-term economic trends, discussing the benefits from trade, and examining how trade can lead to difficult adjustments that pose hardships and draw away from public support for trade. This sets up the discussion in the latter parts of the paper on how domestic policies can help mitigate the adjustment process and the role trade policy can play going forward in supporting strong and inclusive global growth.

Trade openness, underpinned by the expansion of the multilateral trading system, has brought about higher productivity, greater competition, lower prices, and improved living standards. Trade-related shifts in the allocation of resources across sectors and firms and adoption of new technologies have generated productivity gains. On the consumption side, open trade has led to wider choices and lower prices of many goods and services, benefitting especially lower-income households who consume a disproportionately higher share of tradeable goods and services. Trade is estimated to have reduced by two-thirds (one quarter) the price of the household consumption basket of a typical advanced economy low-income (high income) household. Recent research suggests that trade has also helped to advance certain other social objectives.

Trade has, however, negatively impacted groups of workers and some communities. Recent evidence on the effect of import competition on manufacturing jobs in certain locations in Europe and the United States demonstrates how harsh such impacts can be in the absence of accompanying policies. Dislocations depend not just on the size or abruptness of the trade shock, but on broader circumstances, such as the health of the economy, labor market rigidities, and other impediments to resource reallocation, as well as the adequacy of social protection policies. Moreover, policies that help to sustain strong economic and job growth can ease the costs of adjustments to trade. Understanding the various factors driving dislocations is critical to designing appropriate domestic policies to address them.

Domestic policies to address trade-related adjustments are critical. Easing worker mobility across firms, industries, and regions minimizes adjustment costs and promotes employment. Active labor market policies play an important role in supporting these initiatives. If well-designed and tailored to country circumstances, they can facilitate reemployment and augment worker skills; such policies include job search assistance, training programs, and, in some situations, wage insurance. Important

social safety nets like unemployment insurance and other “passive” labor market policies can provide workers directly affected by import competition with an opportunity to retool on their own. While they have had a limited impact thus far, if well targeted and adequately financed trade adjustment assistance programs could take on a greater role.

Approaches beyond labor market policies are also needed. Education systems need to prepare workers for the changing demands of the modern labor market, and policies in areas such as housing, credit, and infrastructure need to facilitate mobility. Measures aimed at reviving hard-hit communities could also be considered. Dealing with dislocations early and comprehensively is critical since the impact may otherwise become entrenched in the community, leading to outcomes that are harsher and longer-lasting. Measures that support competitiveness and productivity growth can also help to ensure that displaced workers find new opportunities.

Further trade integration is important to reinvigorating global growth and advancing an inclusive trading environment. Traditional areas such as agriculture need further attention, while sectors such as services, as well as digital trade, represent areas where further trade reform can make a particularly strong contribution to growth. And while bilateral and regional agreements can play an important role in securing more open trade, the innovations from these agreements should eventually be brought to the global level. Going forward, mitigating trade adjustment costs needs to be a more integral part of trade reforms to avoid costly social and economic remediation and to ensure wide support for trade.

A strong global trading system centered on the WTO remains critical. Strong, well-enforced trade rules help to promote competition and to reassure citizens that international trade is evenhanded. The WTO dispute settlement function has proven to be a powerful tool for enforcing rules regarding tariffs and other conventional trade measures, but also those regarding subsidies and other “behind-the-border” measures that potentially distort trade. Sustaining the dispute settlement system, further recognizing the value of transparency and other key functions, as well as continuing to build on recent successes to revive the WTO's negotiating function—including through the use of more flexible approaches to attain multilateral outcomes or through plurilateral agreements, as appropriate—is more important than ever. Continued efforts in these areas would also discourage all types of protectionism, and further demonstrate that trade agreements provide a system of rules that is evenhanded to all.

I. INTRODUCTION

1. **Longstanding tension between the benefits of open commerce and public support for it has become particularly salient today.** “Free trade,” Thomas Macaulay observed in 1824, “one of the greatest blessings which a government can confer on a people, is in almost every country unpopular.” Policymakers face this conundrum regularly. At the Hangzhou Summit, G20 leaders pledged to work harder to build an open world economy and to promote greater inclusiveness. They called for action to communicate better the benefits of open markets to the wider public and for domestic policies to distribute those benefits more widely.¹

2. **G-20 leaders saw the issue not as a tradeoff between openness and inclusiveness, but as a challenge to achieve more of both.** To understand this framing it is useful to break down Macaulay’s observation.

- *Is open trade beneficial?* Section II examines major trends, with a focus on the role of trade, while Section III looks at conceptual arguments and real experience. The record of more open markets in delivering opportunity and higher living standards is a reminder that trade is a tool for increased prosperity, not simply a textbook ideal. Yet building awareness of the benefits has too often been left to economists alone, and the paper provides examples of government efforts to communicate better the benefits of trade to the public. Turning away from trade has in the past created economic malaise, dislocations, and global conflict. Trade itself is not the problem, but rather can—with the right supporting policies—be part of the solution.
- *Why is trade often “unpopular”?* Public opinion surveys show support for trade remains broader than is often recognized, despite sometimes taking the blame for unrelated ills. Yet, as Section IV explores, recent experience shows that too many individuals and communities, notably also in advanced economies (AEs), have been left behind by trade: there are legitimate reasons for discontent. At the same time, it can be difficult for individuals to separate the adjustment pressures related to trade from those that result from technological change and innovation.

3. **Improved domestic policies and further trade reform can stimulate growth that is more inclusive.** Addressing the source of discontent is important in its own right and also critical to shoring up support for trade.

- *Domestic policies are key.* Section V underscores that early action to improve labor mobility should take center stage, by reducing the impediments to workers moving across firms, industries, and locations. The trade-related dislocations tend to be long-lasting and costly, and when they do occur it is important to provide appropriate assistance promptly. While there is no one-size-fits-all strategy for mitigating the adjustment costs that can arise from trade, there is room for active labor market policies, social protection, and complementary policies in the areas of education, housing, and credit. Trade policy itself can also play a supporting role.

¹ The importance of coherence between domestic and international policies has been emphasized on many occasions; the discussion in this paper shows that it remains as relevant for developed as for developing economies.

- *Further trade reforms are needed to boost global growth and to strengthen rules that promote fair competition.* Tackling the high barriers to trade that remain in some key areas of the global economy stands to strengthen productivity growth and spread increased prosperity. Section VI examines what can be done, stressing also the WTO's key role in the global trading system, and the need to sustain its dispute settlement, transparency, and other functions.

4. **This paper draws on a wide range of recent policy analysis.** Existing studies from international organizations provide greater depth in a number of areas that goes beyond what is possible in the present paper (Box). Throughout the paper, references to key pieces of research and policy analysis from academics, think tanks, and international organizations help to document the statements made and provide options for readers who wish to delve into certain topics. Lessons are also drawn from country experience.

Box—Selected Recent International Reports on Trade and Employment

The ILO recently examined the role of labor provisions in international trade and investment agreements (ILO, 2016). It found that trade agreements with labor provisions increased labor force participation rates, particularly of females. Moreover, the inclusion of labor provisions did not impact the extent to which trade increased under a new agreement.

The OECD led a two-year International Collaborative Initiative on Trade and Employment (ICITE), with the ILO, UNCTAD, World Bank, WTO, and several regional development banks, culminating in a comprehensive report on *Policy Priorities for International Trade and Jobs* issued in 2012 (OECD and ICITE, 2012; OECD, 2012). It concludes that when supporting policies are in place, growth generated by trade is more inclusive.

The 2011 volume *Making Globalization Socially Sustainable*, published by the ILO and WTO, is a comprehensive review of the social aspects of globalization. Individual contributions from leading labor and trade economists clarify the state of knowledge on the employment and inequality aspects of trade.

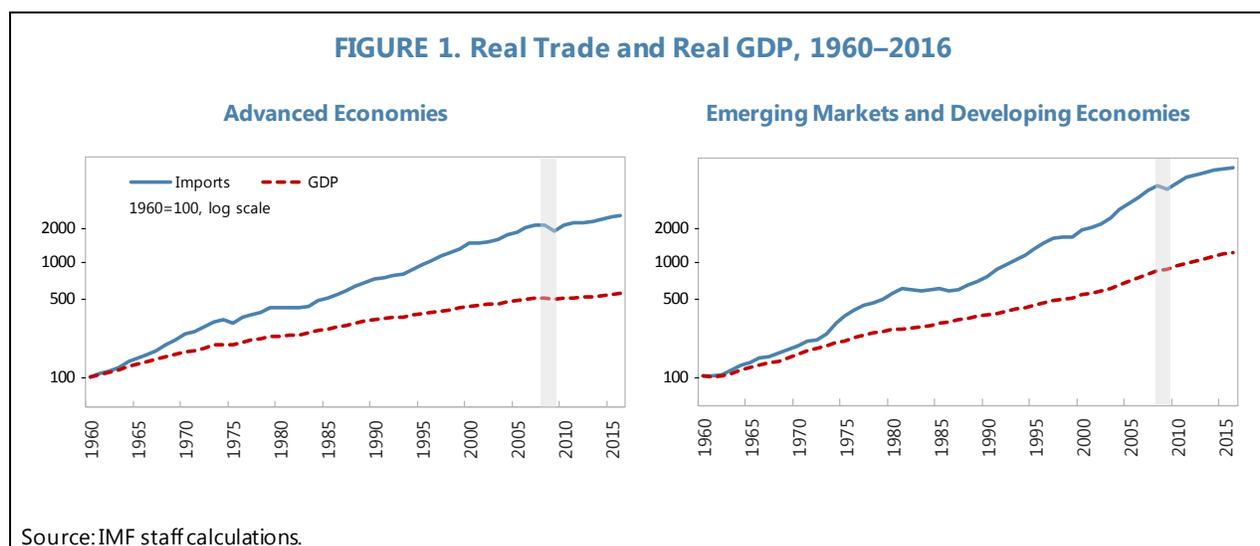
A joint report by the ILO, OECD, World Bank, and WTO for the November 2010 Seoul G-20 Summit examined links between trade and jobs. The key message of *Seizing the Benefits of Trade for Employment and Growth* is that trade openness has been shown in practice to bring greater economic growth and greater employment, so long as it is complemented by appropriate macroeconomic and supporting policies. Rapid increases in import competition have been associated with increased unemployment initially, but over the longer term trade openness is associated with more and better jobs. This followed a study of the experience of 16 countries with *Economic Reform in this Era of Globalization* (G-20, 2003).

The WTO's 2008 World Trade Report, *Trade in a Globalizing World*, explored the benefits and policy challenges associated with economic interdependence. It provides a comprehensive analysis of the relationship between trade and growth and surveys the available evidence on the social consequences of opening to trade. It also discusses policies to assist those negatively affected by trade, with a focus on specific trade adjustment programs for workers.

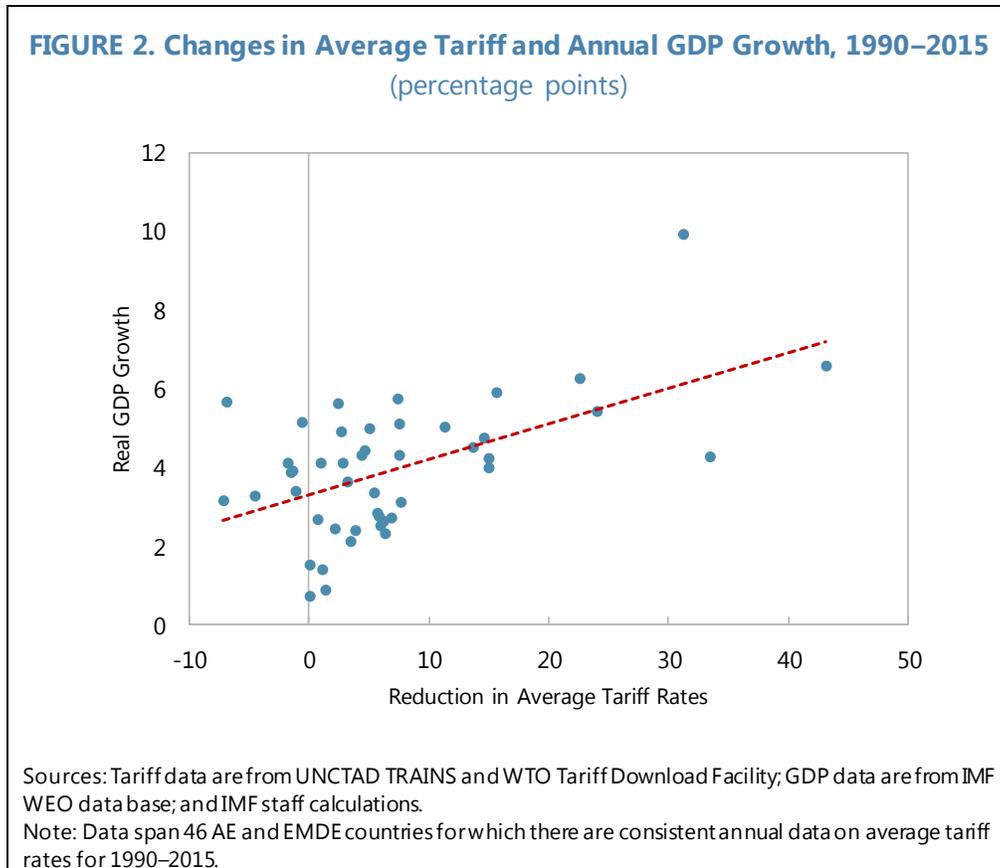
II. LONG-TERM TRENDS

Trade and Growth

5. **The volume of world trade expanded at an unprecedented historical pace in the latter twentieth century.** From 1960 to the eve of the global financial crisis (GFC) in 2007, global trade in goods and services grew at an average real rate of about 6 percent a year, which was about twice that of real GDP growth during the same period (Figure 1). This expansion was supported by important reductions in trade costs—through changes in policy (such as tariffs) and technology (transport and information). Reductions in trade costs have facilitated the expansion of global value chains (GVCs), which have become a strong driver of productivity and manufacturing exports since the early 1990s. In advanced economies (AEs) as well as emerging and developing economies (EMDEs), the rising living standards that came with greater trade openness lent widespread support to the view of trade as a key engine of economic growth.



6. **While trade integration has brought greater prosperity, the extent to which it has powered economic growth has depended on country characteristics and supporting policies.** Differences in the growth benefits of trade openness across countries reflect economic structures—notably the nature of export specialization and degree of production diversification (Henn and others, 2015)—and the quality of institutions (Rodrik and others, 2004). Cross-country evidence nonetheless links greater trade openness to higher per capita income (Frankel and Romer, 1999; Feyrer, 2009). It also links trade reform (proxied as reductions in tariffs) to higher rates of productivity and income growth (Figure 2), and declining poverty (*see Annex A on Trade and Poverty*)—suggesting that the causality may run mainly from trade reform and trade, to higher incomes (Section III).

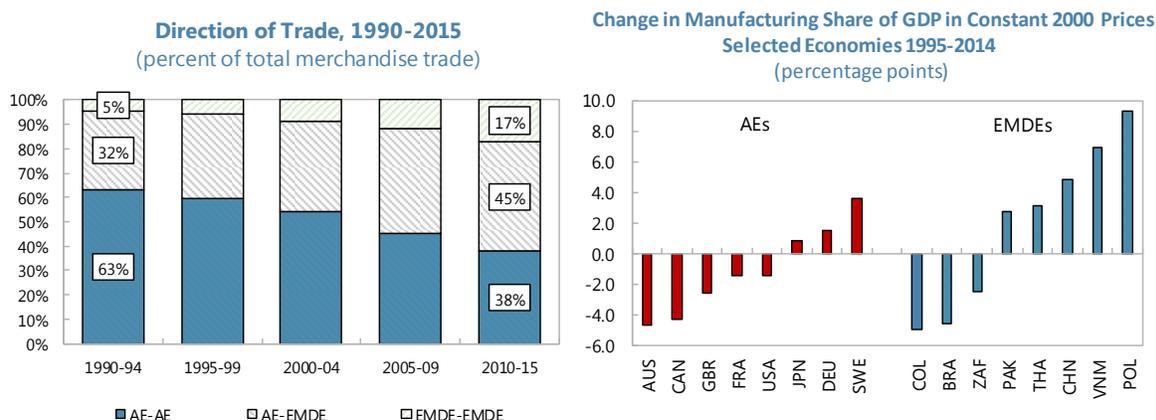


7. **The sharp slowdown in global trade in recent years is both a symptom of and a contributor to low growth.** After a sharp drop during the GFC and a brief rebound in its immediate aftermath, trade and output growth again slowed, with trade being unusually weak relative to past performance. Recent analyses attribute the trade slowdown, in varying degrees, to such factors as changes in the composition of economic activity away from import-intensive investment, a slowing pace of global value chain growth and trade liberalization, and an uptick in trade protectionism.² While rates of investment and of economic growth have weighed on trade, recent trade growth has been some 1 to 2 percentage points a year less than would have been expected based on the historical relationship between trade and these macroeconomic factors (IMF, 2016a).

8. **Trade integration since the early 1990s has also been associated with important changes in the country composition of global trade.** Merchandise trade among AEs, as a share of total world trade, fell from about 70 percent in the early 1980s to less than 40 percent by the early 2010s (Figure 3, left panel), as trade involving EMDEs grew rapidly. Rising commodity prices and other factors discussed below played a role in EMDEs' rising share of global trade.

² See Constantinescu and others (2016), ECB (2016), and IMF (2016a).

FIGURE 3. Direction of Trade and Change in Manufacturing Share of GDP



Sources: IMF Direction of Trade Statistics and staff calculations (period averages), national authorities (Haver Analytics), OECD, and World Bank.

9. **These changes have been accompanied by far-reaching shifts in manufacturing across countries.** Increased EMDE manufactures exports have been accompanied by relative declines in the share of manufacturing to output in many AEs, where service sectors have generally grown more rapidly (Figure 3, right panel). This development, however, has not been uniform, as manufacturing sector shares in some AEs have increased. The experience of EMDEs has also varied: manufacturing output has increased most rapidly in countries with greater involvement in value chains, such as China, and other Asian and Eastern European EMDEs.

10. **Expanding services trade has been supported by new business models in areas like financial services and information and communication technology.** The growth in services trade has occurred despite the fact that policy barriers to services trade remain substantial in many areas. Services comprise some two thirds of global GDP and employment, and a quarter of global trade³ (nearly half of global trade measured on a value-added basis). According to WTO figures, global commercial services imports grew at some 5 percent a year during 2010–15, compared to 1 percent growth for merchandise trade. Moreover, innovation in digital technology and other services has helped to reshape the trade landscape and spurred the development of GVCs.

Trade Policy Landscape

11. **The rapid pace of trade opening from the late 1980s to early 2000s has slowed sharply in recent years, even as trade restrictions in some areas remain high and the stock of new restrictions put in place since the global financial crisis continues to grow.** Tariffs have declined considerably, but with little recent progress they remain high for some products in some countries. Moreover, cuts in applied tariff rates have not been locked in by corresponding reductions in WTO

³ Services trade is commonly measured on the basis of BoP data. These data do not include all forms of supplying services, which are nonetheless covered by the measures of barriers to services trade discussed here.

tariff ceilings (“bindings”). Non-tariff measures also remain pervasive with respect to trade in goods. Services trade restrictions may be particularly damaging, given the sector’s size, its potential contribution to aggregate productivity growth, and innovations that make trade in many types of services more feasible. Regional trade agreements have brought down trade costs, increasing in number and depth and sometimes going beyond the realm of the WTO, but lack the institutional and legal strengths of the WTO-led system. The share of G20 imports affected by trade-restrictive measures put in place since the global financial crisis continues to rise gradually, reaching 6.5 percent as of November 2016.

Trade Costs

12. **As far as trade is concerned, the world is not “flat.”** The costs of trading goods are estimated to range from 50 to 400 percent on a bilateral basis.⁴ They reflect factors as diverse as distance, investment climates, language, logistics, and transport, as well as trade policies. Certain factors such as distance are beyond the reach of policy, but others such as air connectivity and shipping are not (Arvis and others, 2013). Trade policy, regional partnerships, regulatory policies, and the investment climate are mostly under the direct influence of policymakers. Overall the costs of trading goods tend to be higher for EMDEs (often double those of AEs) and for agricultural goods. Over the last twenty years, most countries showed a modest reduction in these costs, with more rapid reductions by certain fast-growing EMDEs. The WTO Trade Facilitation Agreement (TFA), which entered into effect in February 2017, is expected to contribute greatly to further reductions in some types of trade costs.

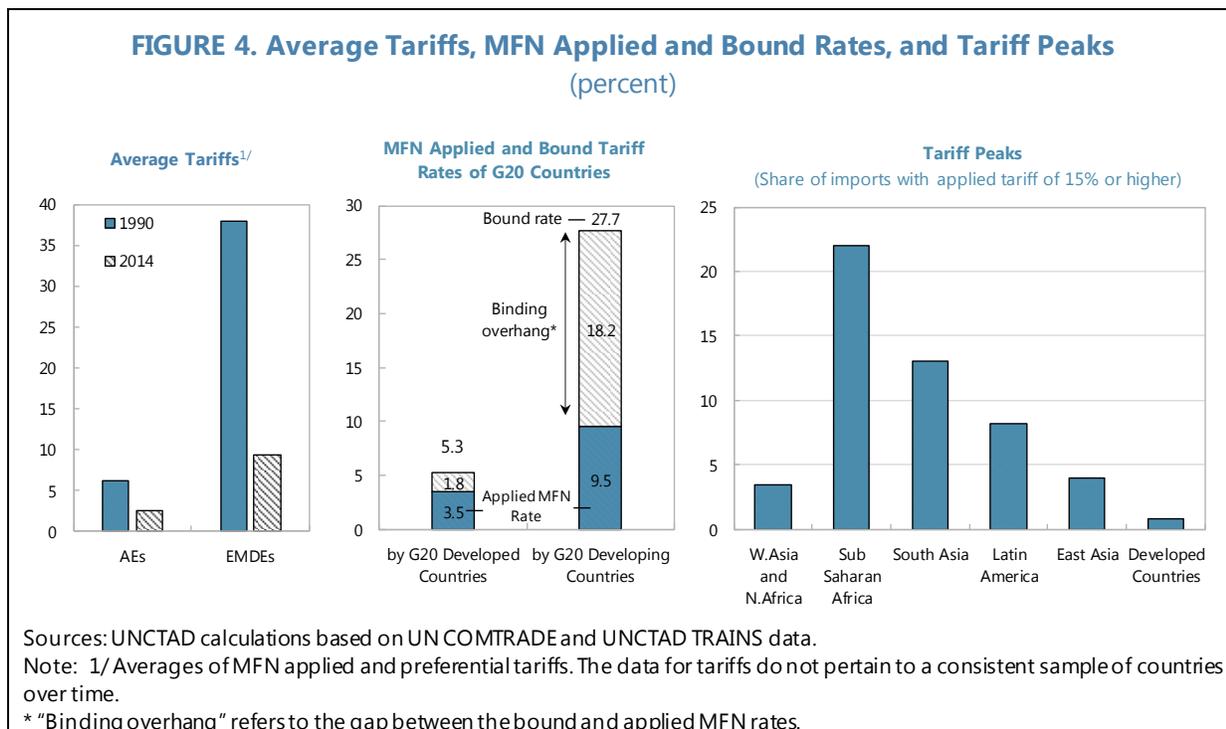
13. **As with trade in goods, the costs of trading services reflect both exogenous factors and policy.** Factors such as the extent of digitization of a service may be only partially influenced by policy, but policies that inhibit investment flows and the establishment of service suppliers, the cross-border delivery of services, or the free movement of professionals bear importantly on services trade costs. Services trade restrictions protect domestic services suppliers from competition, allowing incumbents to charge inflated prices that harm consumers and make it more difficult for downstream users (e.g., other service industries, farmers, and manufacturers) who need the services concerned to compete internationally.

Tariffs and Non-Tariff Measures

14. **Tariffs were steadily reduced from the 1980s to the early 2000s under multilateral, regional, and unilateral reforms.** EMDEs cut tariffs considerably to averages below 15 percent, while advanced economies cut average tariffs from around 6 percent to below 3 percent (Figure 4). However, a large gap remains between the ceiling rates bound in the WTO and applied tariff rates. G20 developing countries, for example, have nearly a 20 percentage point excess of bound over applied tariffs (Handley, 2014). The possibility that applied tariff rates could be substantially

⁴ The World Bank-UNESCAP database provides bilateral trade cost estimates since 1995. Data are available at: <http://databank.worldbank.org/data/reports.aspx?source=escap-world-bank:-international-trade-costs>

increased can inhibit investment and trade, particularly in the presence of broader economic uncertainty (Pierce and Schott, 2016a; and Constantinescu and others, 2017). “Peak” tariff rates (above 15 percent) remain on 31 percent (11 percent) of agricultural tariffs of G20 developing (G20 developed) countries. A pattern of tariff escalation, with higher rates on more processed agricultural products, protects higher value added activities from competition; advanced economies’ tariffs on finished agricultural goods average 9 percentage points above those on raw agricultural products (World Bank, 2015).

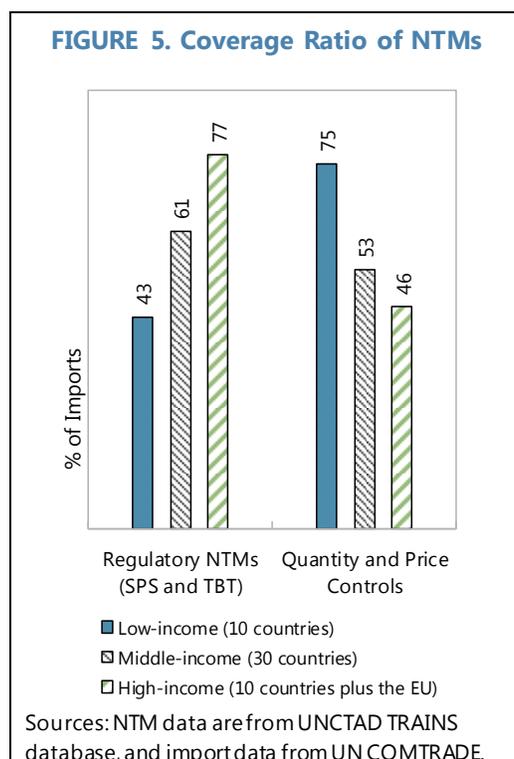


15. **Non-tariff measures (NTMs) are pervasive.** Some NTMs represent the manifestation of domestic regulations as applied to imported goods. While these may impact trade flows, their stated aim is to protect health, workplace safety, the environment, or consumers. And while NTMs do not typically discriminate between domestic and foreign producers, regulatory cooperation—where it has been pursued—has helped to reduce costs and facilitate trade. Other NTMs, such as quantity and price controls, act to interfere with the market pattern of trade more directly.

16. **The profile of NTMs differs across sectors and countries (Figure 5).**⁵ Official data from 50 countries show that the share of imports subject to regulatory NTMs—including sanitary and phytosanitary standards (SPS) and technical barriers to trade (TBT)—is higher for AEs than for EMDEs, reflecting AEs’ more elaborate regulatory systems. In contrast, quantity and price controls, which are more likely to distort trade directly, are more prevalent among low-income countries. Across all income groups, regulatory NTMs are more prevalent for agricultural trade than for non-

⁵ The chart is based on 2015 data for most countries.

agricultural trade; this is particularly true for low-income countries, where reported regulatory NTMs for non-agricultural trade are less common.



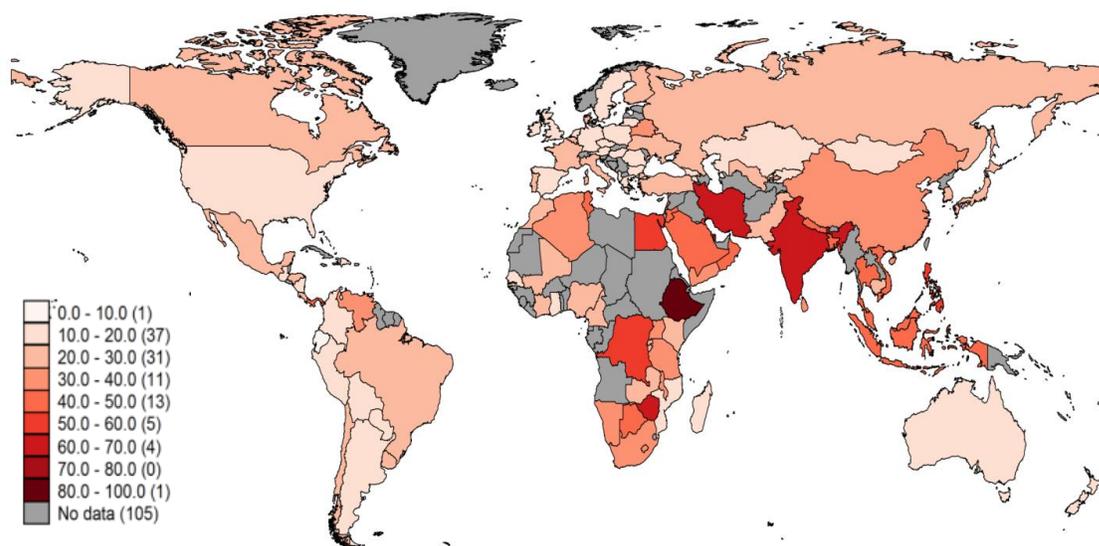
Services

17. **Despite the overall importance of services in the economy, services trade remains hampered by substantial policy barriers.** While measuring restrictiveness in services trade faces data and methodological challenges beyond those in goods trade, two mutually supportive international initiatives, one led by the OECD, the other by the World Bank and WTO—provide similar overall messages. The World Bank Services Trade Restrictions Database (and its accompanying STRI) reveals that restrictions on entry, ownership, and operations of foreign service providers remain common.⁶ Opaque and discretionary licensing can make market access unpredictable in many countries, even when there is no explicit discrimination (Figure 6).⁷

⁶ The database covers 103 countries and 5 major services sectors and the relevant modes of service delivery (Borchert and others, 2014). Most information pertains to 2008–2010, with further updates for some countries.

⁷ The index takes values from 0 (completely open) to 1 (completely closed).

FIGURE 6. Estimated Restrictiveness of Services Trade Policy



Source: Borchert and others, 2014.

Note: Rescaled STRI values range from 0 to 100, 100 being the most restrictive.

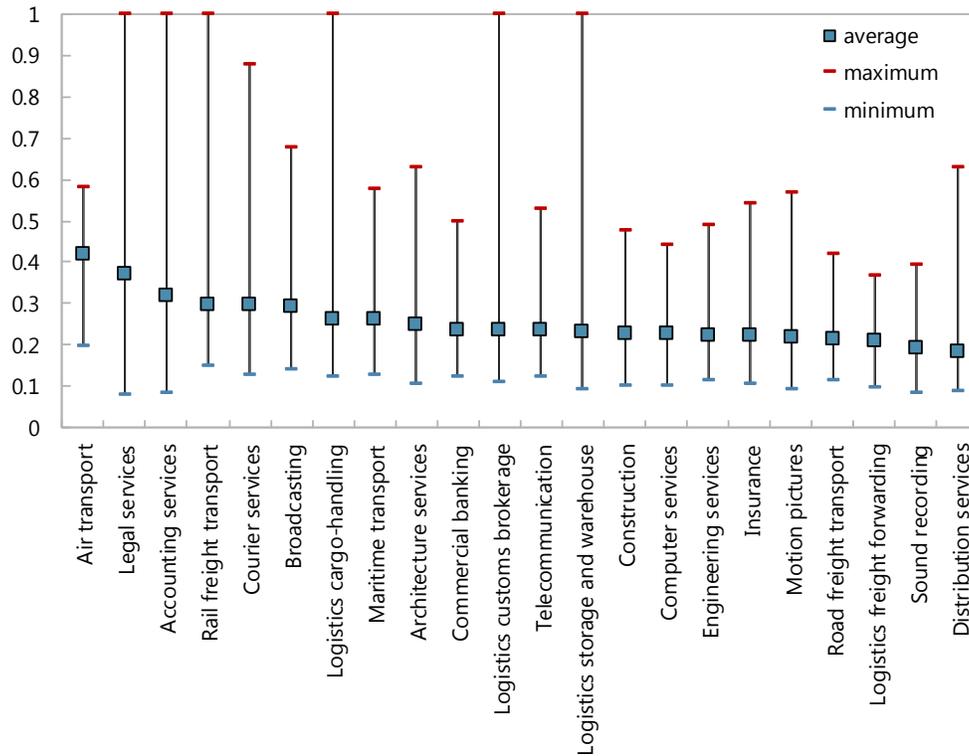
18. Services trade restrictiveness varies greatly across regions and sectors, and over time.

According to the OECD's Services Trade Restrictiveness Index (Figure 7), professional and transport services are among the most protected industries in advanced as well as developing countries.⁸ Since 2014, a number of reforms aimed at reducing service restrictions have been adopted by a few countries, including the lifting of foreign equity limits in one or more sectors (China, India, and Indonesia), the liberalization of the telecommunications sector (Mexico) and easing of requirements on establishing corporate residency (Japan). That said, countries have adopted tighter restrictions on the temporary movement of people to provide services through Mode 4,⁹ such as subjecting temporary services suppliers to tighter quotas and labor market tests, and shortened durations of stay. Some countries have imposed new restrictions on the cross-border transfer of personal data.

⁸ The OECD STRI, launched in 2014, covers 44 countries and 22 services sectors. See <http://oe.cd/stri>

⁹ The WTO General Agreement on Trade in Services (GATS) identifies four modes of services trade; Mode 4 refers to the temporary movement of natural persons to supply services in another country. Others are the cross-border supply of services (conceptually similar to trade in goods), consumption abroad (e.g., as a tourist), and the provision of services by establishing a commercial presence in the other country (a concept related to foreign direct investment).

FIGURE 7. OECD Services Trade Restrictiveness Index Scores by Sector, 2016



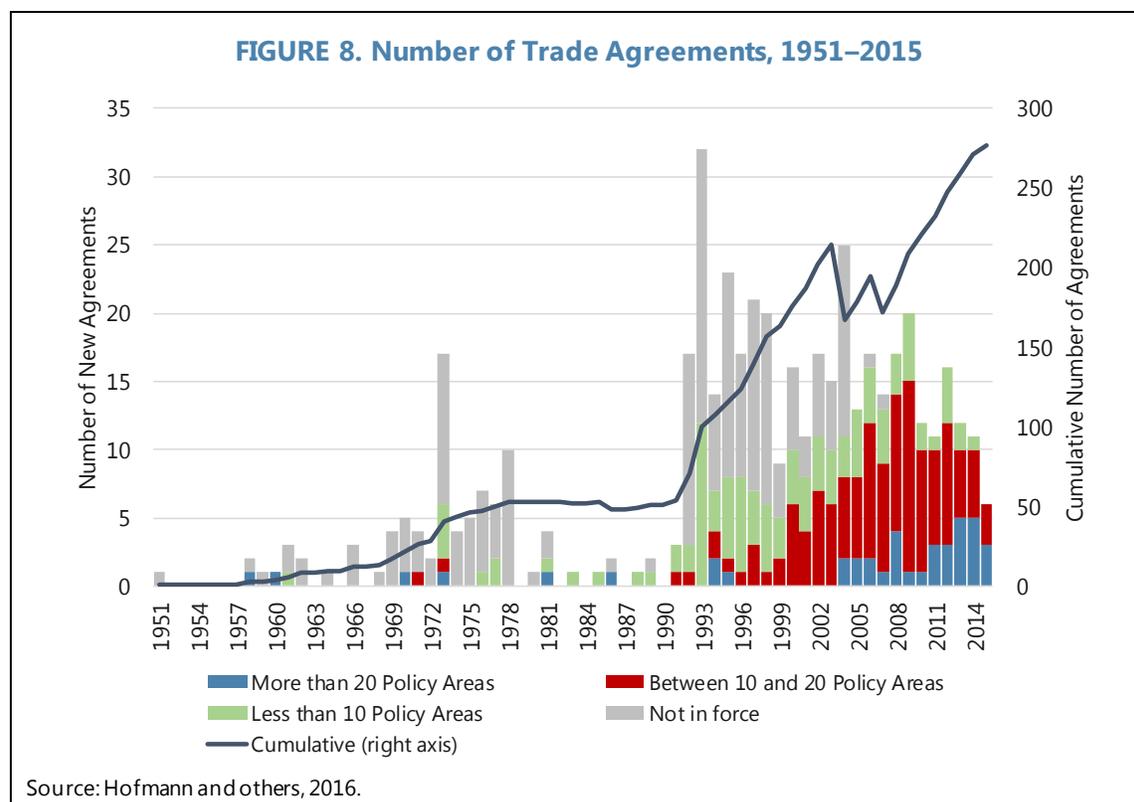
Source: OECD Services Trade Restrictiveness Index (STRI).

Note: The STRI indices take values between zero and one, one being the most restrictive. 44 countries are included in each sector—35 OECD countries and Brazil, the People’s Republic of China, Colombia, Costa Rica, India, Indonesia, Lithuania, the Russian Federation, and South Africa.

Trade Agreements

19. **Bilateral and regional trade agreements have expanded dramatically in scope and in number.** The number of agreements notified to the WTO has risen from about 50 in 1990 to around 280 in 2015, while their scope has also expanded (WTO, 2011). A new World Bank database documents the increasing “depth” of agreements, examining 52 policy areas and their legal enforceability (Figure 8).¹⁰ More recent preferential trade agreement (PTAs) cover substantially more policy areas than earlier PTAs, which focused primarily on tariff liberalization. Evidence points to a strong link between trade agreements and exports, particularly with respect to “deep” agreements that have broad policy coverage (Annex B).

¹⁰ The data can be accessed at: <http://data.worldbank.org/data-catalog/deep-trade-agreements>.



20. **More than half of the PTAs include “deep” provisions in policy areas both within and beyond the current mandate of WTO.** The “WTO+” provisions include areas such as customs regulations, export taxes, countervailing measures, and technical barriers to trade. Regarding areas outside the current WTO mandate, a core subset of such “WTO-X” provisions (competition policy, investment, movement of capital, and intellectual property rights protection) are included in one third of PTAs.

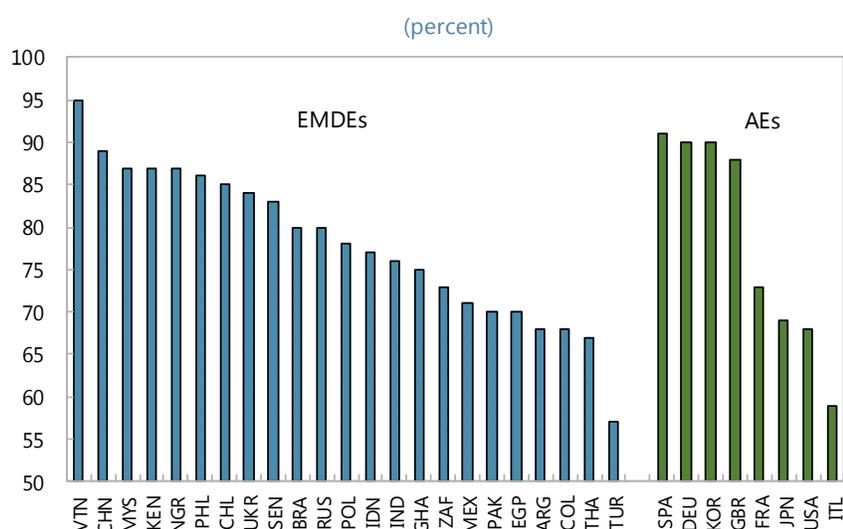
Attitudes Toward Trade

21. **Although public attitudes toward trade remain generally favorable, they are down slightly, especially in advanced economies.** In AEs overall, the trough coincided with the onset of the GFC; and while there has been some recovery since, attitudes in some countries remain less favorable toward trade than in the early 2000s. However, public opinion surveys can provide mixed messages about the level and direction of public support for trade, with attitudes at the “micro” level (i.e., regarding the effects on individuals and localities) being generally less favorable than at the macro level. For example, a recent Gallup Poll for the United States showed that 72 percent of respondents viewed foreign trade as an opportunity, rather than a threat, the highest favorable

ratings since the question was initiated in 1993.¹¹ On the other hand, Americans remain split on whether NAFTA is beneficial for the United States.¹²

22. **Within both AMs and EMDEs, public attitudes toward trade display considerable heterogeneity** (Figure 9). Attitudes tend to be more positive among emerging Asian economies with expanding manufacturing employment (Bangladesh, China, Malaysia, and Vietnam) and the more open advanced economies with trade surpluses (Germany, South Korea, and Spain). Earlier cross-country data indicate that perceptions toward trade are negatively influenced by increases in the unemployment rate, increases in the trade deficit, and contractions in the relative output of the tradeables sector (Hays, 2009).

FIGURE 9. Favorable Perception of Trade: Think Trade is Good, Selected Economies, 2014



Sources: PEW Foundation (GAS Spring) and staff calculations.

Note: Percentage responding "Very Good" or "Somewhat Good" to the question "What do you think about the growing trade and business ties with other countries - do you think it is a very good thing, somewhat good, somewhat bad or a very bad thing for our country."

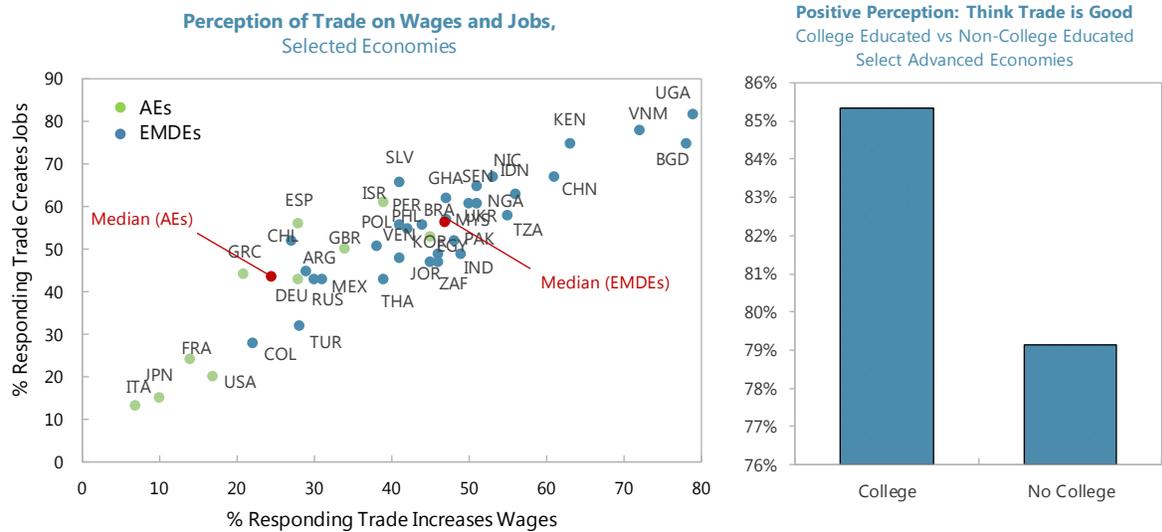
23. **People more vulnerable to possible employment and wage impacts have been more skeptical of trade.** Overall, the public in AEs seems generally more skeptical of claims that trade creates jobs and increases wages, especially in countries where manufacturing import penetration has been stronger (Figure 10). This is also consistent with survey data showing that the attitudes toward trade are less favorable among unskilled or less educated workers in those countries, possibly because they may bear a disproportionate share of the dislocation costs from import

¹¹ See "In US, Record High 72 Percent see Foreign Trade as Opportunity," accessed February 26, 2017 at <http://www.gallup.com>.

¹² See, "Americans Split on Whether NAFTA is Good or Bad for US", <http://www.gallup.com/poll/204269/americans-split-whether-nafta-good-bad.aspx>

penetration, but also because they have also been more adversely affected by technological change—their jobs being at much greater risk of being replaced by developments in automation and robotics.¹³ Meanwhile, data for EMDEs suggest little difference in attitudes across skill education levels, and a far more favorable view on its impact on jobs and wages, especially in countries where exports are labor intensive.

FIGURE 10. Perceived Impact of Trade on Wages and Jobs, 2014



Sources: PEW Foundation and staff calculations.

Note: Percentage of people choosing "trade increases wages" from four possible responses; the other choices were "trade decreases wages," "trade does not make a difference" and "I don't know." The same formulation applies to the jobs question.

¹³A 2014 Pew Research Center survey finds a ten percentage point difference in favorable trade attitudes between individuals with college and non-college education. Differences across education and skill levels are also found in cross-country econometric analyses using earlier data (Scheve and Slaughter, 2001; Mayda and Rodrik, 2005). An October 2016 Pew survey report suggests that differences also reflect the negative impact of technology and automation trends on the less skilled (<http://www.pewsocialtrends.org/2016/10/06/the-state-of-american-jobs>).

III. BENEFITS OF TRADE

24. **Trade integration is a powerful tool to raise growth and improve living standards.** (Annex C examines cross-country evidence on trade and growth.) Trade's beneficial impact operates through a number of channels, some of which are described in this section, but its role in promoting productivity growth is central. Within sectors, greater competition that results from trade promotes an expansion of the most productive firms and contraction or closure of the less efficient. And trade makes available a wider range of intermediate production inputs, lowering firms' costs. Beyond "production-side" benefits, trade also makes a wider variety of goods and services more accessible to consumers at lower prices—a channel that tends to benefit lower-income households in particular. This section will also touch on some of the wider "non-economic" benefits from trade.

Increasing Productivity

25. **Experience demonstrates that international trade increases aggregate productivity.** A 138-country study attributed large positive productivity effects to trade openness, finding that a 1 percentage point increase in openness raised productivity by 1.23 percent in the long run (Alcala and Ciccone, 2004).¹⁴ Within their sample of countries, this implies that an increase in openness from the twentieth percentile to the median value raises productivity by 160 percent. More recent evidence backs this up: for instance, Ahn and others (2016) estimate that a one percentage point reduction in tariffs on inputs used in a sector improves total factor productivity in that sector by 2 percent.

26. **Individual country studies also point to significant sector-level productivity gains due to trade for both advanced and emerging markets.** For example, the Canada-U.S. FTA increased Canadian labor productivity in the most impacted export-oriented industries by 14 percent, and that of the most impacted import-competing industries by 15 percent (Trefler, 2004). Other studies have documented how the same FTA also benefits the United States. Lower industry-level trade costs led to substantial productivity growth in U.S. manufacturing during the late 1980s and the 1990s (Bernard and others, 2006). Brazil's 1988-90 trade reforms brought large and widespread productivity improvements across industries (Ferreira and Rossi, 2003): total factor productivity growth increased by 6 percent, with a similar observed impact on labor productivity.

27. **Innovation and technology upgrading are key channels for increasing productivity.** Trade boosts productivity by promoting reallocation of resources, with production shifting toward sectors and firms with comparative advantage and higher efficiency (De Loecker and Goldberg, 2014). But other productivity channels are also important. The ability to sell to a bigger market can encourage firms to invest in innovation; for example, following the elimination of tariffs due to the U.S.-Canada FTA, increased innovation by Canadian plants caused a 14 percent productivity increase

¹⁴ The studies of trade and productivity address the reverse causality from productivity to trade by using instrumental variables, such as the geographic component of countries' overall trade (see Frankel and Romer, 1999, and Annex C).

(Lileeva and Trefler, 2010). Argentine firms increased technology spending by 20 to 30 percent in response to Brazil's reduced tariffs under Mercosur (Bustos, 2011). Import competition can also spur technology upgrading. For example, as much as 15 percent of Europe's technology upgrading over 2000–2007 has been linked to increased competition from China (Bloom and others, 2015).

28. **Knowledge spillovers contribute to productivity growth as well.** Firms also learn by exporting. In Slovenia, this effect has been found to raise firms' productivity level by 4.1 percent (De Loecker, 2013). Studying 77 developing countries, Coe and others (1997) show that total factor productivity is positively related to knowledge creation in trading partners. And an open trading system contributes to knowledge diffusion through trade-related spillovers: Lumenga-Neso and others (2005) demonstrate that the knowledge a country's trading partners have access to (through their trade relations with other countries) indirectly benefits that country as well.

29. **Trade enhances productivity indirectly by encouraging institutional reform, improving governance, and contributing to financial deepening.** Trade openness can weaken the political power of existing business groups that might otherwise block institutional reforms. Promoting a competitive environment and increasing growth opportunities may raise the needs of entrenched firms for external capital and increase support for reforms that promote a deeper financial system; greater trade openness is associated with a deeper financial sector (Rajan and Zingales, 2004; WTO, 2013). At the country level, a body of research links greater trade to less corruption, particularly as trade opening reduces rent-seeking behavior (Krueger, 1974; Gatti, 2004). The ease of doing business is strongly correlated with a country's level of trade integration. At the firm level, trade integration promotes better corporate governance and transparency (Tong and Wei, 2014), management practices (Bloom and Van Reenen, 2010), and product quality (Amiti and Khandelwal, 2013).

Benefits for Consumers

30. **By lowering prices and providing access to a wider variety of goods and services, trade and trade reform have major benefits for consumers through higher real incomes and greater choices.** Trade integration reduces consumer prices—directly, through lower tariffs on imported final consumption goods (and related pro-competition effects), and indirectly through the associated productivity gains of domestic and foreign firms. India's trade liberalization, for example, is estimated to have caused prices to fall by 18 percent,¹⁵ with the largest reductions coming from goods in industries with greater liberalization (Goldberg and others, 2010). Liberalization can also lead to very large increases in the variety of goods available, and it is well known that the introduction of new goods can have major effects on the cost of living (Hausman, 2003). In the

¹⁵ De Loecker and others (2016). Marginal costs fell more than prices, implying additional short-run profits that firms may have used to spur innovation. Indeed, Goldberg and others (2010b) attribute 31 percent of the new products introduced by domestic firms to the impact of lower tariffs on inputs.

United States, for example, the value to U.S. consumers of the increase in import varieties between the 1970s and the 2000s has been estimated at 2.6 percent of GDP (Broda and Weinstein, 2006).¹⁶

31. **Just as lower tariffs can benefit vast segments of a country’s population, the imposition of tariffs can be costly and have third-order effects on downstream industries.** This was evident in the case of the U.S. imposition of additional tariffs on Chinese tires imports in 2009, which cost at least \$900,000 for each job saved on an estimated annual basis—about 22 times the average wage of those workers—and was associated with three times as many job losses in other sectors (Hufbauer and Lowry, 2012).

Box—Communicating the Benefits of Trade: Examples from National Governments

As more governments focus on better communicating the benefits of trade to the public, the increased public engagement may also bring about a more inclusive trade policy and ultimately be reflected in better public support for trade. This box summarizes select recent efforts in several countries.

Chile’s Ministry of Foreign Affairs organizes outreach activities to communicate the opportunities provided by the Pacific Alliance with Colombia, Mexico and Peru. The seminar [Pacific Alliance, a sea of business opportunities](#) was held in March 2016. Regional summits with entrepreneurs and civil society are being organized in various provinces across the country.

The **European Commission’s** series on [Exporters’ Stories](#) examines how individual EU companies, their workers and suppliers are benefitting from trade agreements. For example, a posting in February 2017 looked at sales of a Spanish guitar producer to Korea following the EU-Korea FTA. With its [Trade for All](#) initiative the Commission has emphasized the openness of the EU economy as a source of investment, innovation, and productivity, as well as consumer benefits.

[The stories to the global challenge](#), published by **Japan’s** External Trade Organization (JETRO), introduces success stories of small and medium-sized companies’ overseas investment and exports. JETRO is a government-related organization that works to promote trade and investment between Japan and the rest of the world.

[FTA Hub](#), a website of **Korea’s** Ministry of Trade, Industry and Energy, publishes monthly reports to promote trade and communicate the benefits of trade agreements to a wider audience. The reports cover topics ranging from success stories of domestic companies, evolving economic trends, and consumer benefits resulting from FTAs.

Sweden’s *Kommerskollegium* 2015 report [Trade is Essential for Jobs](#) presents clear policy messages of trade’s role in Swedish employment. While 30 percent of Swedish jobs are linked to exports, nearly two-thirds of export-dependent jobs are in the service sector, mainly in services used in producing manufactures and other goods for export.

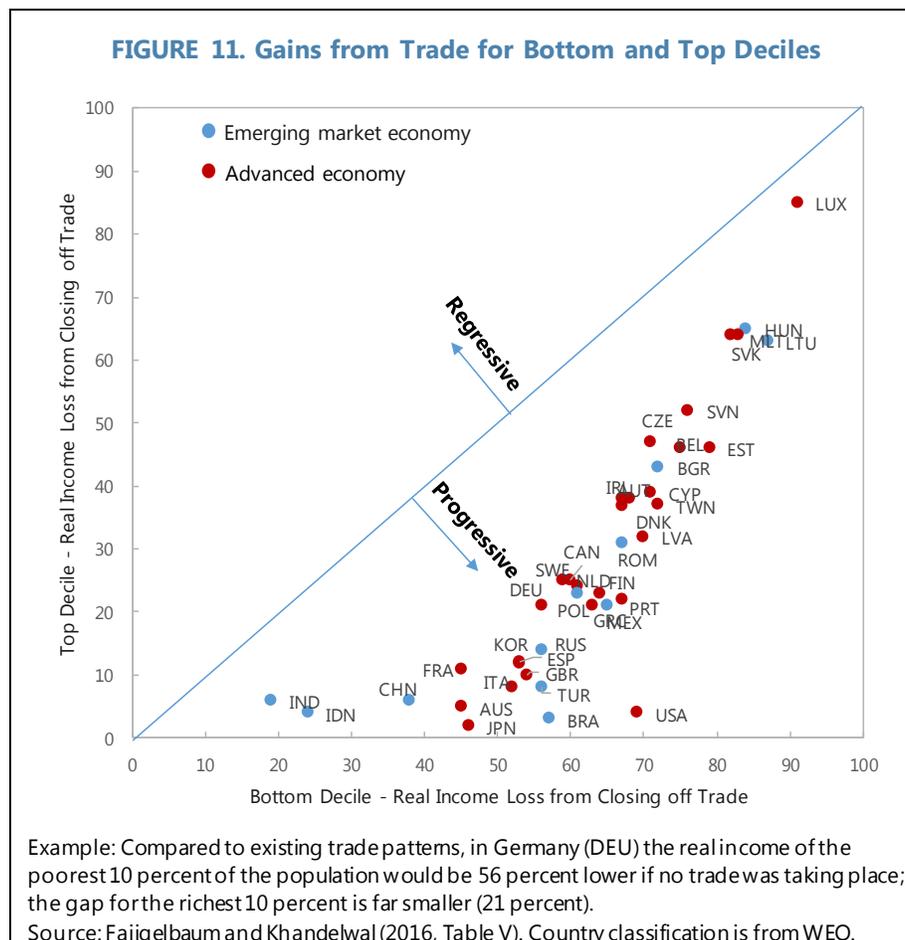
The U.S. *Council of Economic Advisors* presents a practical and compelling case for trade in [The Economic Benefits of U.S. Trade](#). Its “Ten Facts about U.S. Trade” section shows clearly how, for example, middle-class Americans gain over a quarter of their purchasing power from trade, and how a typical U.S. worker gets about \$1300 in annual earnings as a result of U.S. export growth over the past 20 years.

32. **There is a strong “pro-poor” bias in the benefits of lower prices and consumer choice that comes with trade.** Fajigelbaum and Khandelwal (2016) estimate the effect of trade-induced price changes on the real incomes of low-income and high-income households in forty different countries. Relative to a hypothetical situation where countries close off trade altogether, the effect of current levels of trade on prices has a pro-poor bias in *all* forty countries in their sample

¹⁶ Completely eliminating trade has been estimated to reduce real income across a broad set of countries by an average of 4 to 40 percent, depending on model specifications, largely due to the related reduction in consumption and production varieties available to the country in autarky (Costinot and Rodriguez-Clare, 2014, Table 1).

(Figure 11). The pro-poor bias arises because poor consumers spend relatively more on sectors that are more traded (e.g., food and beverages) and thus experience larger price drops upon opening to trade. Higher-income households spend relatively more on less-traded sectors (e.g., some services).

33. **These important consumption-side effects of trade extend to certain other groups.** For example, single-parent households—which also typically spend more on tradable goods than households at the top of the income distribution—tend to benefit disproportionately. The pro-poor bias is stronger in advanced economies like Japan and the United States—opening up to trade reduces the relative prices of the products on which a country is *not* specialized, and in advanced economies those products happen to be the ones mostly consumed by the poor. Moreover, higher trade openness reduces the incentives to pursue inflationary policies, which are themselves particularly harmful to lower-income households (Romer, 1993).



Other Benefits of Trade

34. **Trade can also contribute to greater social inclusion.** Some of these additional benefits are believed also to work indirectly to strengthen aggregate economic performance. Intensified competition as a result of more open trade reduces the ability of firms to practice within-sector wage discrimination against disadvantaged groups (Becker, 1957).¹⁷ In U.S. manufacturing from 1976 to 1993, Black and Brainerd (2004) find that the gender wage gap narrowed rapidly in initially more concentrated industries that experienced larger increases in competition with trade reform. CEA (2015) shows that U.S. industries with larger tariff declines experienced larger relative income gains for female employees during 1989–2009. Trade also has been associated with reduced racial wage discrimination: Essaji and others (2010) find that trade reduced the U.S. race-related wage gap by 1.4 percentage points during 1983–93. Klein and others (2010) confirm this pattern for German manufacturing sectors from 1993 to 2007, demonstrating that increasing exports diminished the gender wage gap as well as the pay gap between immigrants and non-immigrants. Research by the ILO points to trade agreements that contain labor provisions promoting labor force participation, particularly for females, such as by strengthening the social dialogue on labor conditions (ILO, 2016).

¹⁷ The reasoning is that trade openness intensifies the competition and transparency to which domestic firms are exposed; to survive, a firm needs to reduce inefficiency factors such as gender discrimination.

IV. TRADE AND ADJUSTMENT

35. **The reallocation of resources necessary to reap the substantial benefits that trade has to offer can also have adverse consequences.** To be sure, trade is not a main factor behind increased inequality overall, as technology has played a key role (Helpman, 2016).¹⁸ However, recent findings highlight that when reallocation is costly, adverse effects on certain individuals and communities can be large and long-lasting if not addressed properly and promptly; these costs are lower when growth is strong and labor markets are functioning smoothly. Understanding trade-related adjustments costs is vital to formulate effective policies to mitigate them (Section V). This section examines these trade-related costs and their sources.

36. **Trade triggers a reallocation of resources that changes the demand for labor and skills and can affect wages, even in the absence of adjustment costs.** When sectors differ in the amounts of capital and labor they use, the relative expansion of the capital (labor) intensive sector—whether because of trade or other reasons—tends to increase the relative return to capital (workers). Furthermore, when workers differ in their skills and abilities, the impact of trade liberalization on individual wages depends on the skill intensities of the exporting and import-competing sectors. Within sectors, trade allows the more productive firms to expand and gives them incentives to invest, including through technology upgrading. This tends to increase demand for skilled workers in particular, and to put upward pressure on the skill premium even in low-skill intensive economies (Goldberg and Pavcnik, 2007).

37. **These adjustments are essential to realizing the gains from trade, but may not be smooth or immediate.** The costs involved in resource reallocation can be large and long lasting when adjustment is impeded, such as by mobility frictions and skill mismatches in the labor market, leaving behind certain workers and communities. A growing literature aims to measure and understand such trade-related adjustment costs, and views them as analogous to adjustment costs arising from technological change or other forces.

38. **Studies of the reallocation process show that labor mobility frictions make adjustment more costly and prolonged.** These impediments include the costs of switching occupations, industries, or regions, as well as labor market frictions such as those related to job security legislation and imperfect credit markets.¹⁹ They can also lead to region- or industry-specific wage differences (McLaren, 2017). Factor mobility frictions tend to be higher in developing economies (Artuç and others, 2015). Higher frictions for female, older, and less skilled workers can exacerbate the impact of trade adjustment on these workers (Artuç and McLaren, 2015).

¹⁸ The review by Helpman (2016) concludes that “the prevalent view that globalization is primarily responsible for the large increase in inequality of labor compensation has no basis in evidence,” with factors such as technological change the main determinants.

¹⁹ Labor mobility costs may pertain to housing, retraining, and earnings forgone due to transitional unemployment. Capital mobility frictions may also slow labor-market reallocation, and these include fixed costs or irreversibility of capital investment. Domestic constraints such as poor institutions or underdeveloped infrastructure and capital markets that inhibit export expansion can also affect wages (Hallaert and others, 2011).

39. **Several studies attribute negative findings on trade and employment to such mobility and labor market frictions** (Menezes-Filho and Muendler, 2011; Kambourov, 2009). Evidence suggests that Indian workers accept lower wages in a declining industry rather than move to cities with expanding export industries, creating large wage differentials—in particular when declining industries are located in poorer rural areas (Topalova, 2010). According to simulation exercises, adjustment frictions in AEs can lead to transition periods of up to 10 years and reduce the gains from trade by up to 30 percent (Artuç and others, 2013, Dix-Carneiro, 2014). (See also Annex D.)

40. **An unusual period of sharply increased import competition that began around 2000, along with other factors, appears to have negatively impacted regional labor markets in some AEs.** Evidence on most episodes of trade increases suggests that the impact on aggregate labor market outcomes has been mild.²⁰ When EMDEs began to play a greater role in global manufacturing trade, in part reflecting the impact of pro-market reforms in China, a series of studies examined the impact on local labor markets during that period (Autor and others, 2016; Pierce and Schott, 2016a). These studies show that areas more exposed to competition from Chinese manufactures due to their industrial structure saw significant and persistent losses in jobs and earnings, falling most heavily on low-skilled workers.

41. **These effects also impacted local services industries.** Worker-level evidence suggests that the decline in earnings of low-skilled workers is driven mostly by those who leave the manufacturing sector and switch occupations. Taking into account cross-industry supply linkages and aggregate demand effects, one study attributes to Chinese import competition some 17 percent (about 1 million) of total job losses in U.S. manufacturing during the period 1999–2011, as well as 1.4 million non-manufacturing jobs (Acemoglu and others, 2016). This effect seems to have been strongest during the period 2000–07 (Autor and others, 2013). Estimates for France and Spain indicate smaller impacts in those countries (Donoso and others, 2015; Malgouyres, 2016).

42. **These studies highlight the need for appropriate adjustment policies, rather than for closing markets.** Specific bilateral trade relationships tell a partial story; the negative labor market outcomes that are the focus of these studies may be offset by positive outcomes from trade with other countries (Ebenstein and others, 2015). For example, a study for Germany that looked at both exports and imports finds that trade with China and Central Eastern Europe has led to net job creation (Dauth and others, 2014). Also, the experience with intensified import competition from China should not be overgeneralized: (i) Chinese output in the late 1990s and early 2000s grew considerably faster than demand—a trend that is already reversing as China's GDP composition changes; (ii) in the United States, labor market disruptions associated with the dot-com bubble burst in the early 2000s may have exacerbated the negative impacts of import competition (Davis and Wachter, 2011).

²⁰ On NAFTA, for example, see O'Leary and others, 2012. On the other hand, Trefler (2004) found that the 1989 Canada-United States FTA, while raising Canada's manufacturing labor productivity by 6 percent on a sustained basis, raised for about three years the level of unemployment in Canada.

43. **Overall, trade openness is associated with somewhat higher levels of employment.**

Many labor market frictions are sector-specific, and unemployment spells tend to be longer in sectors that face higher frictions. Evidence suggests, however, that the impact of trade on unemployment through this channel is minor (Carrere and others, 2016). This finding is in line with cross-country studies relating trade openness to long-run unemployment rates, which tend to show that openness has small but positive effects on employment (Dutt and others, 2009). In explaining long-run unemployment rates, economists point instead to the more relevant role of labor-market institutions and technical change in driving employment (Berger and Frey 2016; Blanchard 2006).

V. DOMESTIC POLICIES TO MITIGATE TRADE ADJUSTMENT COSTS

44. **Policies to facilitate adjustment can go far in addressing the potential downsides of trade.** Inattention to the adjustment pressures resulting from intensified import competition allows the problems to become entrenched, which may also undermine public support for trade.²¹ This risk is present with other types of shocks or policy changes, although several considerations favor policy action to mitigate the adjustment costs resulting from trade policy changes in particular (Trebilcock, 2014). Different from other shocks, “trade shocks” in the form of intensified import competition often arise from deliberate policy decisions to reduce protection.²² Mitigating adjustment costs can help to alleviate resulting negative attitudes toward trade (Section II) and make trade openness more socially sustainable.

45. **Challenges arising from trade liberalization resemble those due to technological improvement.** Both bring net benefits, but at the same time generate similar worker adjustment costs that may be long-lasting if not properly addressed. Given the similarities of their impacts, and difficulties in disentangling the effects of these shocks, policies aimed at mitigating trade-related losses also help to mitigate shocks originating from technology and similar forces.²³

46. **Special features of trade policy shocks are relevant in the design of mitigating policies.** Trade policy changes are typically permanent and their impact asymmetric across sectors, regions, and worker types. The impact is positive for some sectors (e.g., exporters) and negative for others. The losses are often concentrated in import-competing sectors, leading to long-lasting displacements as well as large earnings losses (OECD, 2005; Kletzer, 2001).²⁴ Moreover, workers displaced from manufacturing tend to be older, less educated, and longer-tenured in the lost job than workers displaced from other sectors, and in turn tend to take longer to return to work, which

²¹ The need to complement trade liberalization with domestic policies was also a key message coming from the case studies presented in G20 (2003). Observing a positive cross-country correlation between trade openness and government spending, Rodrik (1996) points out that governments seek to mitigate the heightened external risks emanating from openness by providing stronger social safety nets.

²² Intensified import competition can also occur for other reasons, including market-opening reforms by the exporting country, or subsidies by the exporting country.

²³ However, trade targeted programs can be cheaper than those that cover all shocks. See OECD (2005) and Kletzer (2001) for a discussion of pros and cons of general versus targeted policies.

²⁴ The estimates of long-term average earnings losses from displacements range from 7–16 percent, depending on the dataset and methodology employed (Couch and Placzek, 2010). Losses due to time spent out of work seem to account for more of the total losses than lower wages after reemployment (OECD, 2012). Consistently, Fallick and others (2012) argue that the earnings outcomes after a separation depend less on whether the worker was displaced than on whether the worker experienced a jobless spell.

exacerbates the associated losses (OECD, 2005; OECD, 2012; Kletzer, 2001).²⁵ Such long spells of unemployment also lead to worse health outcomes, higher mortality, lower achievements by children of affected workers, and other adverse consequences (Pierce and Schott, 2016b; Autor and others, 2015; Davis and von Wachter, 2011).

47. **Early and comprehensive action to improve labor mobility is a priority.** Immobility across sectors, regions, and skills is an increasingly important impediment to adjustment, and policies to improve labor mobility should take center stage. Recent work analyzing the case of the United States suggests declining interstate labor mobility (Dao and others, 2014), substantial non-participation in the labor force after mass layoffs (Foote and others, 2015), and limited worker migration from regions exposed to import penetration from China, resulting in increased unemployment, decreased labor-force participation, and lower wages (Autor and others, 2013).²⁶ Domestic migration in response to local employment shocks is even more limited in Europe (and to some extent in Canada) than in the United States (Obstfeld and Peri, 1998). Understanding impediments to geographic mobility is critical in the design of the policy response—although often related to costly sectoral mobility (Hollweg and others, 2014; Artuc and others, 2010; Dix-Carneiro, 2014), in some cases they can be related to distortive housing-market policies.

48. **Labor-market policies need to be complemented by a host of other policies to support adjustment.** Macroeconomic stabilization policies should complement active labor-market policies since displacement costs are known to be higher during downturns (Davis and von Wachter, 2011). Measures that support competitiveness and productivity growth can ensure that displaced workers find opportunities in the sectors and firms that can benefit from trade reform. Additional policies may be needed to tackle rigidities in other markets. For example, credit policies can help fund self-employment or human capital investment of displaced workers and physical capital of firms (Bacchetta and Jansen, 2003). Housing market policies, including those that ensure well-functioning mortgage markets, can improve geographical mobility, and regional policies can re-orient the economies of the harder hit regions. Fiscal transfers from more to less fortunate regions can substitute for outward migration and cushion the short-term costs, although they could end up delaying the necessary adjustment to permanent shocks (Obstfeld and Peri, 1998).

49. **There is no one-size-fits-all strategy for mitigating the adjustment costs arising from trade.** Initial country conditions and structural characteristics, including the degree of factor market flexibility; level of and access to education; depth of and access to financial, credit and insurance markets; coverage and depth of social safety nets, and other considerations such as degree of informality – relevant for EMDEs – should be taken into account in policy design and sequencing.

²⁵ *Within* manufacturing, however, the difference between displacements due to high foreign competition jobs and due to other factors was much less significant. More recent studies (without conditioning on job separation) suggest that adjustment costs due to trade shocks are larger for workers with low initial wages, low initial tenure, and low attachment to the labor force (Autor and others, 2014).

²⁶ This is in contrast to earlier evidence (Blanchard and Katz, 1992), which highlights migration as the predominant regional adjustment mechanism across U.S. states, with wages playing a small role.

Countries as diverse as Denmark and the United States have similar post-displacement rates of re-employment, despite very different labor-market policies and structural characteristics (Kenworthy, 2010; OECD, 2016b; Annex E). More research is generally needed, including through experiments, to evaluate the effectiveness of the various alternative programs. The ongoing basic income experiment in Finland serves as a good example.

50. **The remainder of this section discusses the different policy alternatives, drawing on the literature and country experiences.** It develops a typology of policy alternatives and lays out their pros and cons in light of country experiences and established best practices. (See diagram at the end of this section.) The focus is on the policies to address the short-term adjustment costs as opposed to any long-term distributional implications.

Labor-Market Policies

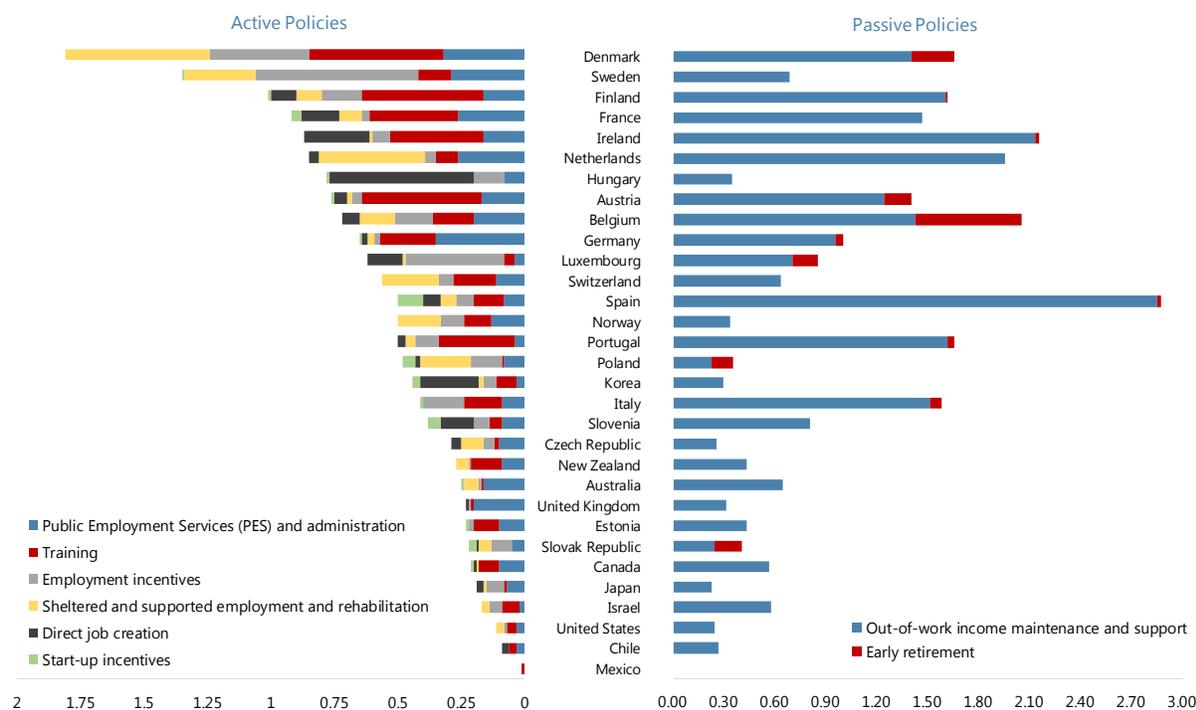
51. **Labor-market programs can play a key role in the adjustment process.** When well-designed and tailored to country circumstances, both active labor-market policies (such as job search assistance and training) and passive policies (including income support and social insurance programs) have been effective. The size and composition of these programs vary substantially across countries (Figure 12).²⁷ Nordic countries have the most expansive coverage, with relatively generous unemployment insurance and training programs. Japan and the United States are at the opposite end of the spectrum, spending less than 1 percent of GDP on both active and passive programs. For given levels of spending, countries also differ in the speed and extent of engagement with displaced workers.

52. **There are tradeoffs between active and passive labor market programs, although they can also complement one another.** Active programs alleviate the well-known moral hazard problem arising from unemployment insurance. For example, placement in work or training programs may provide an alternative to eligibility for unemployment benefits, since some of those who are not genuinely interested in work or training will prefer to lose registration rather than participate in a program. However, active programs can also hamper workers' job search intensity as workers get locked into training and job search programs. The balance between the use of active and passive labor market programs will ultimately depend on a country's labor market institutions and rigidities.

²⁷ The data may also reflect the differential cyclical positions of the various countries in 2013.

FIGURE 12. Public Expenditure on Labor Programs, OECD Countries, 2013

(as percent of GDP)



Source: OECD Labour Market Programmes Database.

Note: United Kingdom figures are for the year 2011.

Active Labor Market Programs (ALMPs)

53. **Well-designed ALMPs can facilitate reemployment and mitigate adjustment costs.** We outline below several key components of these programs, noting that experiences vary:²⁸

- **Early and frequent engagement with displaced workers (or “activation strategies”) can improve outcomes.** These strategies provide incentives for workers to increase job search intensity through benefit sanctions or mandatory participation in training or subsidized employment (Boeri and van Ours, 2008; OECD, 2015a). Generally, displaced workers are required to participate in interviews with employment counselors, apply for identified job vacancies, formulate individual action plans, accept offers of suitable work, and attend training programs if deemed necessary. A recent OECD study found that these activation strategies helped increase re-employment rates, especially in the case of those that are hard-to-place and the long-term unemployed, as may be the case with trade-displaced workers (OECD, 2015a). Early, frequent

²⁸ Design of such programs needs to take into account current demographic trends and skills needed.

and personalized or targeted counseling seems to have been an integral part of the success. Moreover, benefit sanctions can speed up reemployment (van der Klaauw and van Ours, 2013).

- **Training programs can help address the skills gap, although their impact varies substantially.**²⁹ Programs are more effective the nearer they are to regular jobs and when targeting disadvantaged outsiders (Brown and Koettl, 2015). Consistently, evidence from Canada (Riddell, 1995) and Sweden (Forslund and Krueger, 2010; Carling and Richardson, 2004) suggests that on-the-job training is more effective than classroom training in raising the probability of employment. This is in line with the general finding that workers acquire far more skill-enhancing knowledge on the job than in the classroom (Jacobson, 1998). One way to alleviate the potential problem of workers training for jobs that do not exist is to establish strong ties between programs and the private sector. Consideration could also be given to establishing independent training authorities to organize and manage oversight of training provision. Singapore's Institute for Technical Education, which provides career and technical education and develops national occupational skills certification and standards, is often referred to as a successful example of such a training authority (Almeida and others, 2012). At the regional level, a formal collaborative committee in Quebec with a central role in training-related decisions monitored local labor market developments at the onset of the global financial crisis (OECD, 2015b), leading to a specific training program to fill the skills gaps anticipated during the economic downturn.
- **Job search assistance can facilitate the matching process.** Such assistance may be particularly helpful for older workers with long tenures in lost jobs who may lack the ability to identify good matches that are geographically and/or sectorally distant. Its main attraction relative to training programs is its low cost, but two caveats apply. First, with structural unemployment, as in the case of trade shocks, job search assistance *alone* is not enough since it does not address the need to change the skill structure of the workforce.³⁰ Second, recent research finds that those who receive job search assistance find jobs at the expense of other unemployed workers, imposing severe negative externalities on those who do not receive assistance, especially during economic downturns (Crepon and others, 2013).
- **Wage subsidies, supplements, or insurance could be considered, but will need to be carefully designed.** Such programs create incentives for workers to accept new employment faster by partially compensating them for the potential wage loss incurred in the new job.³¹ As workers displaced due to trade incur long-term income losses and may need to build experience

²⁹ Such programs take forms such as subsidies to private firms for hiring workers in particular groups (the U.S. TJTC or Work Opportunity Tax Credit); temporary work experience aimed at easing transition to work, typically in the public sector; and on-the-job training to induce employers to provide job-relevant skills, including firm-specific skills.

³⁰ Job search could help in the event that it allows for better matches within the existing skill set (Kletzer, 2001).

³¹ Under the U.S. Trade Adjustment Assistance program, the ATAA and RTAA are wage subsidies provided to certified workers above the age of 50 (see Annex E). The idea of a wage insurance scheme to cover all dislocated U.S. workers appears to date from Lawrence, Krause, Meyer, and Cohen in 1984; it has been the subject of subsequent proposals.

in a different sector, such compensation can help alleviate the initial income loss until the worker moves up the ladder in the new job. However, these wage insurance schemes can lead to moral hazard, which may arise on the side of the employers who may offer lower wages knowing that the workers will be compensated for their losses through the insurance mechanism. In fact, the evidence from wage subsidy programs is mixed. In their survey of 17 evaluation studies on advanced economies, Betcherman and others (2004) find that only six of the programs reported a positive impact on employment and only five on earnings. Similarly, a randomized experiment in Canada in 1995–96 which tested wage supplements to dislocated workers resulted in inconclusive results (Bloom and others, 1999). The findings of a structural estimation exercise by Cosar (2013) using Brazilian data suggest that wage insurance in the spirit of U.S. ATAA/RTAA, but *conditional on the new job being in the comparative advantage industry*, would perform better than unemployment insurance both in terms of output dynamics and in compensating those that lose.

- **Reemployment bonuses may help under certain circumstances.** Evidence based on experiments conducted in various U.S. states suggests that re-employment bonuses can improve job-finding rates, bonuses to workers are more effective than those to the employers (Woodbury and Spiegelman, 1987),³² and that bonuses targeted to the potential long-term unemployed can be cost effective (O’Leary and others, 2005). However, van der Klaauw and van Ours (2013) found that in the Netherlands, while penalties in the form of benefit sanctions were effective in speeding up exit from unemployment, incentives in the form of re-employment bonuses were not.

54. **The track record of ALMPs has been mixed, which may in part be due to the challenges involved in assessing their impact.** In an influential survey paper based on the evidence from European and North American studies, Heckman and others (1999) concluded that public employment and training programs had at best a modest positive impact on adult earnings and that when earning gains occur, they are a result of increased employment probability as opposed to higher wages.³³ More recently, Card and others (2010) found substantial variation (in the sign and significance) of the impact of programs across studies in their sample. Another survey focusing on studies based on randomized controlled trials concludes that ALMPs have not been particularly effective (Crepon and van der Berg, 2016). This mixed track record may be due to numerous challenges in evaluation, measurement of indirect costs and benefits; and heterogeneity across studies in the measurement of success and the time horizon captured (Brown and Koettl, 2015). For example, since there can be a trade-off between shortening unemployment spells and attaining high earnings after re-employment, as demonstrated by Engbom and others (2015) in an evaluation of

³² Payments to workers seem to be more effective than those paid to employers also in the case of wage subsidies (Dickert-Conlin and Holtz-Eakin, 2000).

³³ This study attributes the modest success of these programs to the level of per-capita expenditures on participants (which have usually been small, relative to the adjustment costs being addressed), and the programs being targeted toward relatively unskilled and less able individuals.

Germany's Hartz reforms in the early 2000s. Measuring success by the re-employment probability or unemployment insurance take-up could paint a different picture than post unemployment earnings.

Passive Labor Market and Social Protection Policies

55. **Unemployment benefits can complement ALMPs.** Providing income support during unemployment helps smooth consumption and can make it feasible for workers to engage in training and job search, often outweighing well-known drawbacks. Such policies are already in place in the developed world and some emerging markets covering all eligible unemployed, with the U.S. TAA providing an extension of their duration for trade displaced workers (Annex E). Since some activation policies are typically tied to unemployment benefits, consideration could be given to strengthening these strategies and tailoring them to trade-displaced workers.

56. **Other aspects of labor-market policies, like employment protection and minimum wage legislation, could be revisited.** While employment protection legislation can reduce displacements, it can also impede the needed reallocation. There is broad consensus that employment protection should be limited, and that low hiring/firing costs coupled with protection through unemployment benefits is preferable, as in the case of Nordic countries (Annex E on Denmark). Similarly, minimum wage policies can protect low-skilled workers from exploitation and ensure that they earn a basic level of income (Blanchard and others, 2013).³⁴ However, the policies will need to be designed carefully to avoid potentially negative employment and efficiency effects. An overly high minimum wage, coupled with high payroll taxes, can hinder employment prospects of vulnerable groups (OECD, 2006).

57. **Other social insurance and income support programs may be necessary to support the longer-term dislocated workers and their families, but are costly.** Some type of income transfer, such as means-tested support or early retirement for older workers, is often provided to displaced workers who no longer qualify for unemployment insurance. In countries where disability insurance screening is not particularly stringent (U.S. and Northern Europe), these transfers can de-facto become an important form of long-term income support (Bratsberg and others, 2010; Autor and Duggan, 2003). Meanwhile, health insurance can also be part of the policy design, especially in countries where access to affordable health services is more limited.³⁵ More generally, reliance on these other social insurance and income support programs is often costly and efforts should be made to minimize incidences of dislocated workers dropping out of the labor force.

³⁴ The "basic income" or negative income tax have the same objective of providing a minimum standard of living (Tyson, 2014). Such proposals are typically intended to deal with the consequences of automation and, unlike the minimum wage, do not require the recipients to be employed.

³⁵ Kletzer and Litan (2001) favor including health insurance as a second component after wage insurance in their proposal to relieve worker anxiety.

Complementary Policies

58. **A broader approach, beyond labor-market policies, will be necessary to ease adjustment.** Labor market policies should be complemented by macroeconomic stabilization policies, as displacement costs during downturns are higher, and by measures that support the economy's competitiveness, as workers that are displaced for any reason are more likely to find new opportunities in a growing economy. Moreover, efforts to address rigidities in other sectors may also be necessary.

- **Housing policies** may be necessary to facilitate geographical mobility. Home ownership is often associated with longer housing tenure, given the search and transaction costs associated with buying and selling homes. While recent work suggests that the impact of homeownership on mobility is ambiguous (Coulson and Fisher, 2009), mobility from regions negatively affected by trade may be constrained by differences in housing price dynamics across regions. Supporting mobility from depressed communities may hence require that consideration be given to relocation allowances.
- **Credit policies** can facilitate the overall adjustment process. For workers, a well-functioning mortgage market and easy access to credit to help finance education, self-employment, or start-ups could ease adjustment. Credit to firms facing greater foreign competition could also help those firms reorient their business models and invest in new or different technology. Credit to potential exporter firms can facilitate entry and help harness the benefits from trade (Manova, 2013).
- **“Place-based” policies** can help revive economic activity in harder-hit regions. Despite the presence of agglomeration and human capital spillovers, a prominent view has been that place-based policies could create important distortions, and the case for using limited public funds to encourage less advantaged people to stay in economically weak regions was unconvincing (Glaeser and Gottlieb, 2008; Moretti, 2011). In their review of the empirical literature, Neumark and Simpson (2014) conclude that enterprise zone programs did not necessarily improve employment outcomes. However, there are noteworthy exceptions. Recent evidence from the U.S. Empowerment Zone program, comprising employment tax credits for firms and block grants for infrastructure investment, business assistance, training, etc., suggests substantial increases in employment and wages for local workers (Busso and others, 2013). Similarly, the evidence from the French *Zones program (Franches Urbaines)* points to higher business creation and employment, yet with offsetting declines in surrounding areas (Givord and others, 2013). Discretionary grant schemes employed in a number of European countries offer subsidies to private firms to promote inward investment and they appear to have a better track record (compared to enterprise zone programs), perhaps reflecting the closer monitoring of grant recipients (Neumark and Simpson, 2014).
- **Education policies** are necessary to arm individuals with the proper skills. Studies suggest that labor market outcomes depend not only on technical skills, but also on a wide range of

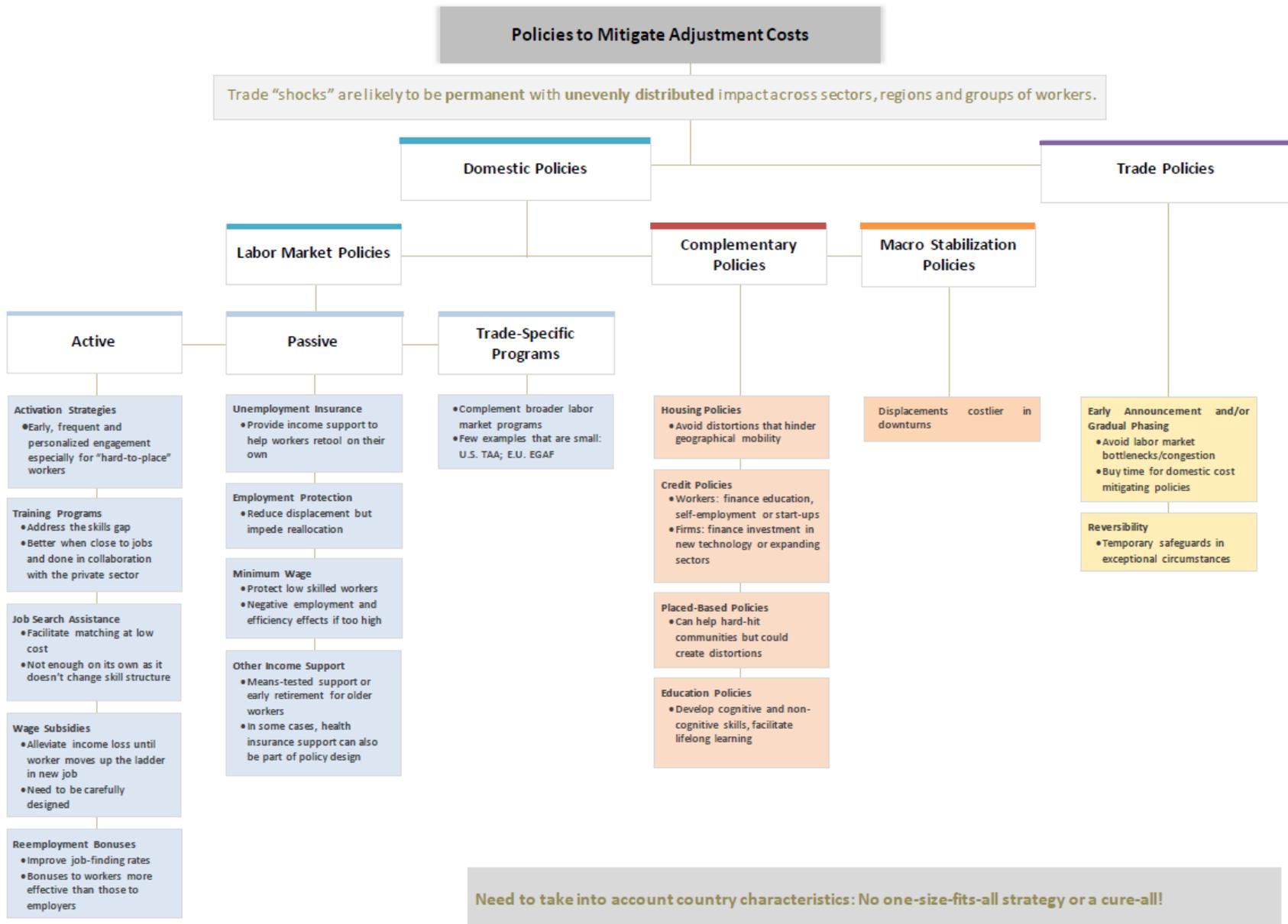
cognitive and non-cognitive skills (Heckman and others, 2006). These findings highlight the importance of strengthening early childhood, primary and secondary schooling (Almeida and others, 2012) with a view to ensure that future workers adapt well to a rapidly changing economic and technological environment.

Trade-Specific Programs

59. **Well-designed and targeted trade-specific support programs can complement existing labor-market programs.** As previously discussed, workers displaced by trade or technological change are more likely to require retraining than those who lose their jobs due to cyclical or firm-specific reasons, since trade and technology shocks are associated with long-lasting structural transformations. In addition, targeted programs may be more effective in reducing opposition to trade openness. The most prominent examples of such programs are the U.S. TAA and the EU European Globalization Adjustment Fund (EGAF). A number of reforms and programs in Latin America, such as Mexico's PROCAMPO (1993–94), were aimed at dealing with the consequences of trade liberalization.

60. **The effectiveness of these trade-specific programs has been mixed, however, and their coverage and size tends to be very small.** A comprehensive evaluation of the U.S. TAA found that training obtained did not improve earning and employment outcomes (D'Amico and others, 2007), although others found support for the training component (Park, 2012).³⁶ That said, TAA and EGAF had budgets of 800 million USD (2015) and 115 million EUR (2014), respectively, tiny fractions of these countries' GDPs. Moreover, these programs suffer from the lack of workers' awareness of their existence (Cernat and Mustilli, 2016; European Commission, 2011). For example, the take-up rate of the TAA was about 40 percent of eligible workers (Rosen, 2008) and even smaller for ATAA/RTAA (the wage insurance module of the TAA). The low take-up rates for wage insurance were linked partially to lack of knowledge about the program (D'Amico and others, 2007). The evidence from EMDEs is scant, as their programs have typically not been part of a comprehensive strategy to deal with displacements. Instead, they have been implemented on an ad hoc basis (e.g., to protect farmers in Mexico) and later integrated into the broader social safety net programs (Hollweg and others, 2014).

³⁶ According to Schochet and others (2012), TAA participants used reemployment and training services more frequently and were more likely to switch industries and occupations than a comparison group of non-participants. However, in the final year of the follow-up period, TAA participants had lower earnings, especially in the case of older workers.



VI. BUILDING STRONGER RULES-BASED TRADE

61. **The current rules-based global trading system grew out of the calamities of the Great Depression and Second World War.** Coming on top of monetary and financial factors, the spread of trade restrictions severely aggravated the Great Depression of the 1930s, as one country after another increased barriers to trade in the hope of protecting itself from the growing crisis. The resulting breakdown in the trade system that had underpinned the global economy prior to the First World War was swift and lasting. Piecemeal efforts such as at the 1933 World Economic Conference did little to avert the widespread protectionism that obstructed recovery, and as countries embarked on a second world war in the late 1930s, global trade remained below its level of 1929 (Irwin and others, 2009; Gregory and others, 2010).

62. **The rules-based trading system remains a pillar and a key strength of the global economy.** A return to pre-Depression levels of trade openness followed only after decades of tariff reductions under the GATT system, which was established in 1948, complementing the International Monetary Fund and World Bank. That system has been highly effective in reducing trade barriers, bringing more countries under common trade rules, expanding those rules to cover more of global trade, and securing the transparency of trade policy and the enforcement of trade rules. In particular, the enforcement of trade rules was strengthened significantly with the establishment in 1995 of the WTO and its more powerful dispute settlement mechanism.

63. **Policy transparency and strong, well-enforced rules can promote competition and reassure the public that international trade is evenhanded.** This pertains to conventional trade measures, as well as other ‘behind-the-border’ measures affecting trade. The multilateral trading system has been instrumental in integrating the global economy and has underpinned the stability of world trade by helping to prevent new waves of protectionism – even 1930s-style trade wars – in the wake of various economic and geopolitical shocks, including the GFC. By bringing the rule of law to international trade, GATT/WTO dispute settlement has helped protect countries against actions such as the misuse of technical barriers to trade, injurious dumping, and various types of subsidies and state support. The use of the system is growing rapidly among EMDEs – a sign of their growing role in global trade, the importance they attach to the rules-based multilateral trading system, and how they see the role of trade in economic growth and development (WTO, 2015; WTO, 2007).

64. **At the present juncture, stronger rules-based trade integration is critical to share trade benefits more widely, in terms of more and better jobs, and to drive broad-based global growth.** With respect to trade policies, this begins by avoiding increases in trade restrictions, subsidies, and other trade distortions, and rolling back those introduced since the global financial crisis, as documented in the periodic WTO monitoring reports.³⁷ Further opening to trade, in particular through negotiations at the global level, would enhance productivity and raise incomes. Progress in traditional areas like agriculture is important, and opening areas like services and digital

³⁷ For reports on G-20 trade measures, see https://www.wto.org/english/tratop_e/tpr_e/trade_monitoring_e.htm.

trade can make particularly large contributions to global economic growth, given their size, close links to other sectors, and current high trade barriers. Greater use of recent innovations to re-energize trade integration may be needed.

Role of Trade-Related Policies to Help Share Gains Widely

65. **Open markets and reduced trade distortions abroad complement and facilitate adjustment at home.** The importance of open global markets extends beyond the impact on overall incomes: they also help in the domestic adjustment process. When dealing with greater import competition in making widgets, for instance, a country must be able to expand output in areas of its export interest—whether in agriculture, services, or manufactures—in order to adjust smoothly. Trade barriers abroad that frustrate export expansion will prolong the domestic adjustment process. Domestic policies that encourage worker mobility and training will still help, but their effectiveness will be magnified by open, secure access to export markets. This underscores the importance of reducing overall levels of trade distortions, including conventional trade measures, subsidies, and other forms of state support, and drawing particular attention to areas where distortions remain high.

66. **A country's own trade policies can also play a role in easing adjustment.** 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). Temporary import safeguards are another policy measure that may be appropriate in exceptional circumstances, and when consistent with a country's WTO obligations. Knowing that recourse to safeguards is possible can give a country greater confidence in pursuing reforms; however, any consideration of invoking safeguards should take into account their adverse effects of additional import restrictions on domestic workers in downstream industries, the additional costs to consumers, and the impact on policy uncertainty.

67. **The complexity of the trade policy landscape has raised important challenges, but various avenues of international cooperation can help to make trade stronger and more sustainable.** Binding and enforceable provisions, and "soft law" provisions, in trade agreements are often preferable, but other approaches to trade-related issues are sometimes more effective, or more feasible initially. These include other types of international agreements, international norms, international policy cooperation and the provision of policy advice from international institutions. For instance:

- Noting that excess capacity in some industries had negatively impacted trade and workers, in 2016 G-20 leaders created the *Global Forum on Steel Excess Capacity*, supported by the OECD, to enhance cooperation regarding industrial overcapacity and to encourage adjustment.
- Abidance by and enforcement of core ILO labor standards can be an important tool for development and can reassure domestic workers that international competition is evenhanded.

Labor provisions have been included in certain RTAs, and for a developing country entering a trade agreement with a more advanced economy the combination of increased export demand and these labor provisions—which may also involve related technical and financial assistance—can provide a positive environment for enhanced labor protection. Whether done through a trade agreement or other means, international cooperation on labor standards can take appropriate account of local conditions, without necessarily requiring that standards be identical across countries in different circumstances.

- Similarly, a shared commitment to environmental standards can, in addition to environmental benefits themselves, help to reassure domestic firms and workers that they are not disadvantaged by strong environmental standards at home. Coherence between trade and environmental agreements can help to attain policy objectives in both areas. As with labor issues, cooperation on environmental standards can take place in a variety of fora, with appropriate account being taken of local conditions that would not necessarily require standards in different countries to be the same.
- Dialogue and cooperation on macroeconomic policy issues through the G-20, IMF, OECD, and other fora can minimize disruptions to the global economy and promote an environment more conducive to trade. For example, for countries transitioning toward a market economy, the IMF has provided policy advice in support of the authorities' reform objectives with respect to state-owned enterprises and industrial overcapacity, as part of a broader push to rebalance an economy toward consumption.

Role of Re-Energizing Global Trade Reform

68. **The slower pace of reform since the early 2000s and post-crisis uptick in new trade distortions leaves a large agenda for trade reform.** Despite important recent steps, such as the entry-into-force of the WTO Trade Facilitation Agreement (TFA) in February 2017, measures such as tariffs, subsidies, and restrictions on services trade continue to weigh on trade. Further trade reform can go far in promoting stronger global economic growth (IMF, 2016b).

69. **Addressing tariffs and other traditional trade barriers is a key agenda item.** Significant tariffs remain, especially in agriculture and in key manufacturing sectors (Section II). Further cuts to MFN bound and applied rates would promote policy certainty and further open trade, helping also to resolve today's patchwork of tariff preferences and rules of origin. Further disciplining NTMs, including subsidies in agriculture and other areas, would help to level and strengthen the global trading environment.

70. **Reforms in services and other 'frontier' areas have great potential to promote growth.** Services account for two-thirds of global GDP and employment; as technological and structural change brings new opportunities, further opening international services flows will expand global trade and promote key enablers of economic growth such as transport, communications, finance, and data processing. The growing digitization of economic activity—and the globalization of the internet—is giving rise to new tradable products, new ways of trading, and new strategies for organizing global production. While existing multilateral and regional trade rules already cover

many aspects of digital trade, there may be a need to update countries' specific commitments and to clarify and enhance rules in certain areas.

71. **Cooperation on a variety of trade-relevant policies is increasingly important.** Integrated global production structures, involving the exchange of components, services, investment, and technology among interlinked global production networks, requires reforms across several policy areas. This is particularly evident regarding trade and investment, which are increasingly interlinked facets of regional and global value chains, and for which reforms to one policy area work best when the other is reformed as well. Frontier issues such as services and investment require cooperation among diverse regulatory systems, often led by different agencies, underscoring the need for coherent policy approaches.

New WTO Approaches in a More Complex Trade Policy Landscape

72. **An open, stable global trading system rests on a strong WTO at its center.** Regional and bilateral trade agreements can bring important benefits, including by leading the way on certain 'frontier' issues and by expanding, for example, on WTO obligations and commitments on services or intellectual property. They also can establish useful rule-making precedents for action at the global level, and reinforce countries' willingness and resolve to advance WTO reforms in areas of common interest.³⁸ Nonetheless, there is great benefit in a shared institutional underpinning at the global level—above all a core set of rules, a strong enforcement mechanism, and a common forum for cooperating on policy and sharing information, which would help to reduce overall levels of trade distortions, including conventional trade measures, subsidies, and other forms of state support. In this respect, the WTO's institutional and legal framework, near universal membership, and its ability to apply positive steps in RTAs at the global level are unique advantages that cannot be replicated in RTAs. Moreover, many issues—from farm subsidies to digital trade—are inherently global and best solved through global cooperation and rule-making.

73. **Greater complexity in the trade policy landscape has raised challenges in negotiations.** The Uruguay Round, concluded in 1994, required that all issues be considered part of a "single undertaking" to which all Members had to agree. Not only did the agenda become increasingly complex—as the number of subjects, countries, and trade-offs expanded—but linkages meant that the most difficult issues often slowed or blocked progress on the easier and doable ones.

74. **Recent advances show the value of global approaches and the adaptability of the WTO negotiating system to new challenges, such as through continuous and more narrowly focused negotiations.** The WTO was created in part to facilitate the flow of agreements of all kinds. Indeed, recent advances at the WTO Ministerial Conferences in Bali (2013) and Nairobi (2015) involved smaller "packages" of issues—where the range of subjects covered was narrower, a

³⁸ Much of our understanding of the economics of preferential tariff reductions comes from Viner (1950) and the idea of "trade diversion." Recent RTAs still present this issue, but also often involve features such as regulatory cooperation that may be implemented on a non-discriminatory basis and do not raise the issue of trade diversion.

convergence of interests was possible, and members had a shared stake in reaching agreement. Achievements like the Trade Facilitation Agreement, the Expanded Information Technology Agreement (ITA), and the Decision on Eliminating Agricultural Export Subsidies offer important lessons for negotiations in other areas.

75. **Advances have also taken place through engagement with a more limited membership, or "plurilateral" negotiations, as well as universal ones.** Multilateral trade rules have always recognized that not all Members can—or should—be expected to accept the same rules or commitments—and this is increasingly true in a diverse WTO of 164 Members.³⁹ Rules in areas such as domestic regulation often are inherently non-discriminatory and not easily tailored to specific trade partners; this suggests that calculations of reciprocity may be less relevant to multilateral negotiations in such areas, with more scope for "critical mass" undertakings. Even non-MFN plurilateral agreements reached inside the WTO (such as the GPA), in which benefits are not automatically extended to non-participating WTO members, have a key advantage over preferential RTAs reached outside the WTO because they are more transparent, have legal and institutional links to the WTO, and provide a clear path for expanded membership and possibly to a full multilateral agreement.

76. **Advances have also continued using universal agreements, with individualized commitments explicitly linked to resource capacity.** The TFA breaks new ground as the first WTO agreement in which Members determine their own individual implementation schedules and in which their implementation progress is explicitly linked to technical and financial support. It sets out a framework for technical assistance and capacity building to help countries adapt and modernize customs systems, in line with TFA provisions; the WTO's TFA Facility complements existing efforts from bilateral donors and development agencies.

77. **Continued efforts for cooperative solutions to shared challenges remain of essence.** The trade facilitation negotiations were driven more by the search for cooperative solutions to shared challenges—such as standardizing customs procedures and harmonizing documentation—than by a drive for market access. This experience has enhanced recognition that countries stand to benefit most by reforming their trade procedures collectively, not just individually. Looking ahead, an emphasis on expanding cross-border cooperation is also relevant to cross-border regulatory issues, where the objective is not to "de-regulate" but to minimize regulatory frictions by exploring ways to advance shared policy objectives in a least trade restrictive way.

³⁹ The ITA expansion was negotiated among a "critical mass" of WTO members, but its benefits are extended to other WTO members on an MFN basis. In contrast, under the WTO Government Procurement Agreement (GPA) the obligations—but also the rights and benefits—are limited to signatories (that is, "non-MFN"). The GPA is open to accession by other WTO members.

VII. FINAL REMARKS

78. **The opening of trade over the past several decades has helped to drive global economic growth, lifting incomes across advanced, emerging, and developing countries.**

However, a prolonged period of disappointing economic growth and inadequate attention to those left behind by forces such as trade, globalization, and technology has spurred increased skepticism over open trade in some quarters. Countering this by better communicating the benefits of trade, and better sharing these benefits with those affected by trade-related dislocations, are critical to restoring strong, inclusive global growth. These efforts should be complemented with well-crafted further trade reforms and continued enforcement of global trade rules.

79. **This paper has stressed the role of supporting domestic policies and prompt attention to those individuals and communities at risk of being left behind.** Key policy initiatives such as training, temporary income support, job search assistance, and targeted trade adjustment assistance are important. Approaches beyond labor market policies—such as education, housing, and regional policy—are also needed. These approaches need to be tailored to a country's circumstances and specific policy objectives, but international agencies can help to share valuable cross country experiences.

80. **Together with domestic policies, further trade integration and strengthening of the rules-based trading system will contribute to inclusive global growth.** This endeavor begins with resisting further trade restrictions and domestic policy interventions, like subsidies, that distort trade, and by removing existing ones. Traditional areas, such as agriculture, need further attention, while sectors such as services as well as digital trade represent areas where further trade reform can make particularly large contributions to global growth. While RTAs can bring substantial benefits and help to expand the trade policy frontier, they are not enough on their own; with its unique institutional and legal foundation, as well as broad membership, agreements through the WTO—on a multilateral basis, where possible—represent the best way to secure stronger rules-based global trade.

81. **Trade and trade-related policies have a role to play not just in promoting growth and prosperity, but helping to share that prosperity more widely.** Importantly, further opening global markets will help to promote smooth and less costly domestic adjustment, whether to trade, technology, or other types of developments. Strong, well-enforced trade rules help to promote competition and to reassure citizens that international competition is evenhanded. Dialogue and cooperation on macroeconomic and other policy issues, through the G-20 and other fora, can help to promote an environment more conducive to economic stability and growth—which, support and, in turn, are supported by, an open, rules-based global trading system.

Annex A. Trade, Growth, and Poverty in Developing Countries

82. **The impact of trade on poverty is central to the development debate.** The joint 2015 publication of the World Bank and WTO, *The Role of Trade in Ending Poverty*, supports this through a review of the evidence and main policy issues.⁴⁰ It emphasizes the importance of trade openness to poverty reduction and growth in developing countries and stresses the vital role of a stable macroeconomic environment and complementary domestic policies. In such an environment, the channels through which trade will promote economic growth and rising incomes resemble those in richer countries, with particular emphasis on trade's role in driving innovation and promoting competition.

83. **As discussed in this report, trade can stimulate growth in a number of ways.** These include making affordable capital goods and intermediate inputs more available, enhancing competition, improving institutions, facilitating exploitation of scale economies, and catalyzing technological progress. Yet—even more than in the advanced economies—none of these benefits are either automatic or immediate; the greatest gains from trade will be realized only with appropriate macroeconomic policies, strong institutions, access to finance, well-functioning labor markets, and other features. Moreover, households will be impacted differently depending on physical and human capital endowments, their consumption patterns, and their income-generating activities. If globalization results in lower (or higher) food prices, for instance, that could hurt or help the poor depending on whether they are net consumers or net producers of food.

84. **While the impact of trade on poverty depends on country-specific circumstances, the overall empirical evidence is strong.** Cross country data show that openness is associated with accelerated growth in average incomes, and that growth is associated with poverty reduction. For example, the income growth of the bottom 20 percent increases almost 1 for 1 with average income growth.⁴¹ Although causality is hard to establish, this fact pattern suggest that *openness promotes poverty reduction by accelerating growth*. Figure A.1 offers prima facie evidence of the impact that trade had on poverty reduction in developing countries in the period 1993–2008. The figure shows that the change in real income of the lowest quintile of the population in developing countries is strongly correlated with the change in openness over the same period.

85. **These stylized facts are consistent with a range of microeconomic studies that have documented that trade liberalizations often have pro-poor impacts, either by reducing the costs of consumption or by increasing (real) incomes.** The 2001 US-Vietnam Bilateral Trade Agreement, for instance, led to poverty reduction in Vietnam by increasing wage premia in export-oriented sectors, catalyzing job reallocation from agriculture, forestry and fishing into

⁴⁰ Direct empirical evidence on the question of trade and poverty reduction is limited by data availability and the difficulty of distinguishing the distributional impact of globalization from that of other factors, such as technological progress and institutions, that may modulate how trade impacts the welfare of different households.

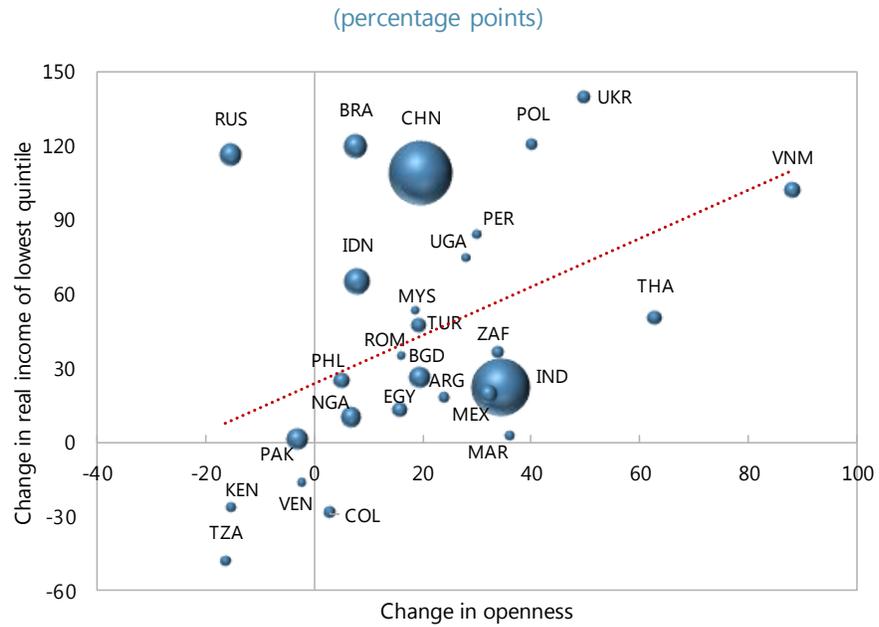
⁴¹ See Dollar and Kraay (2004), and Dollar and others (2016).

manufacturing, and by stimulating enterprise job growth (McCaig, 2011). Similarly, MERCOSUR benefited poor and middle class Argentine households relatively more than rich households (Port, 2006). Yet, increased trade does not always reduce poverty, as trade may also reduce the (relative) wages of the poor. Some evidence suggests this is what happened in India in the 1990s, where poverty decreased less in rural districts more exposed to trade liberalization.⁴² Initial market conditions and specific patterns of liberalization may partially explain these different trends. Even when trade on average benefits the poor, however, there are typically some households that stand to lose.

86. **The extent to which trade has the potential to reduce poverty is fundamentally dependent on the institutional environment** (World Bank and WTO, 2015). Enabling the poor to reap the full benefits of trade demands policies that enable them to accumulate the human and physical capital required to seize the opportunities that globalization offers (Porto and Brambilla, 2011). It also requires minimizing intra-national frictions such as those associated with market imperfections (such as oligopolistic retailers) and transport costs. These types of frictions often have a disproportionate impact on the poor who tend to be concentrated in relatively remote areas. Finally, it requires minimizing adjustment costs, and insuring the poor against the potential risks that globalization entails. These are all areas in which strong institutions can help to achieve a broader sharing of the benefits of trade.

⁴² These and other micro-level studies are presented in Harrison (2007).

FIGURE A.1. Change in Openness and Income of the Poor, 1993-2008



Source: Authors' calculations based on Lakner-Milanovic (2013) World Panel Income Distribution dataset, and World Development Indicators.

Note: EMDEs with average population greater than 20 million. Dot size is proportional to population.

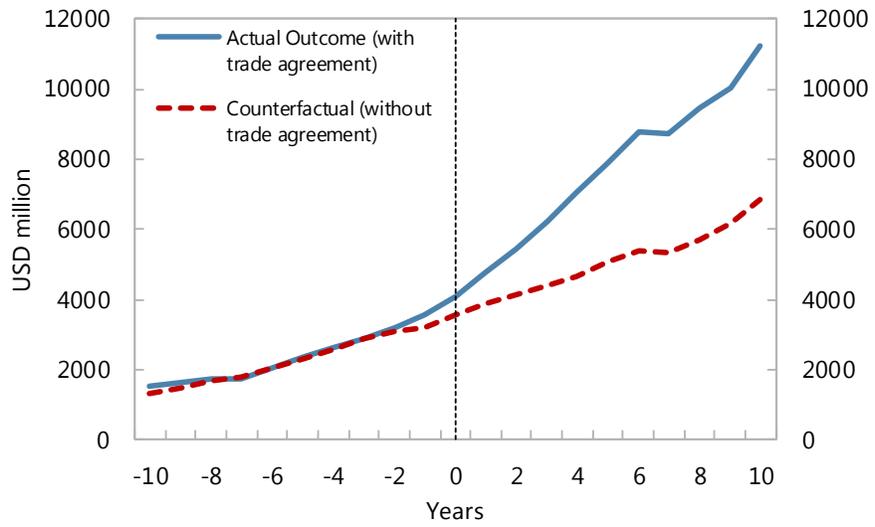
Annex B. Impact of Trade Agreements on Exports

87. **Evidence points to a strong link between trade agreements and increased exports.** An analysis of all papers estimating gravity equations published in leading economic journals in the 2006-2012 period finds that free trade agreements increase bilateral trade by around 40 percent (Head and Mayer, 2014). Baier and Bergstrand (2007, 2009) find trade agreements increase trade by around 100 percent in the long run, using instrumental variables and nonparametric (matching) econometric techniques. “Deep” trade agreements that cover issues such as investment and competition policy appear to have even stronger effects (Mattoo and others, 2017). These results are also supported by the use of alternative empirical approaches, such as synthetic control methods. Synthetic control methods help to identify whether the changes in the actual levels of trade in the period following the introduction of a new trade agreement are due to the agreement or to other influences (Hannan, 2016).

88. **Synthetic controls are an econometric tool for comparative studies where the control unit is determined by a systematic, data-driven procedure.** A synthetic (artificial) control unit is a weighted average or linear combination of the untreated units. The weights are chosen such that both the outcome variable and its observable covariates/determinants are matched with the treated unit *before treatment*. The evolution of the actual outcome of the treated unit *post-treatment* is then compared against the outcome of the synthetic unit, and the difference is interpreted as the treatment effect. Intuitively, synthetic controls use a weighted average of the outcome of the control units to estimate the counterfactual outcome of the treated unit.

89. **When this method was used to examine the experience of 104 pairs of countries that entered a trade agreement between 1983 and 1995, the results suggest that the agreements markedly increased exports for most countries.** The average gross exports of countries with trade agreements is 80 percentage points higher over the next ten years using this methodology; this translates into a boost in the annual rate of export growth of 3.8 percentage points. The export gains are particularly high for small countries, and for emerging markets when they have trade agreements with advanced markets. Advanced economies exporting to emerging markets had smaller export gains. There were 24 country pairs (approximately a quarter of the cases) for which the analysis suggests possible declines in exports owing to trade agreements.

FIGURE B.1. Estimated Impact of Trade Agreements on Exports



Source: Hannan, 2016.

Note: Average of 104 country pairs. The y-axis refers to ten years before and after trade agreement.

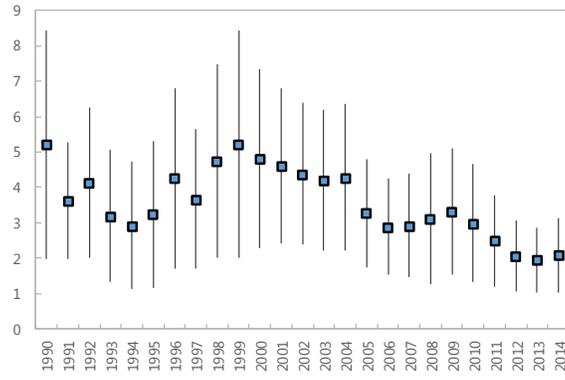
Annex C. The Effect of Trade on Real Incomes: Cross-country Evidence

90. **Estimating the causal effect of trade on income is complicated by the fact that some variables that affect income directly (that is, not just through trade) also affect trade itself.** This is the case, for example, of regulatory behind-the-border barriers, which may affect income through channels other than international trade. Thus, estimates based on simply regressing income on some measure of trade will generally be inconsistent. A well-known paper by Frankel and Romer (1999) sought to address this issue by isolating the component of trade that is driven by pre-determined exogenous characteristics of each country. In particular, they instrument trade openness through a gravity equation that only includes geographical characteristics, such as a country's proximity to other countries or whether it is landlocked.⁴³
91. **Cross-country evidence suggests that the effect of trade on income has remained consistently positive over time, although it has somewhat diminished since the global financial crisis.** Using 1985 data, Frankel and Romer (1999) find that a one percentage point increase in openness (exports plus imports as a share of GDP) causes real income to be 2 to 3 percent higher. To understand whether these estimates have remained stable, Figure C.1 reproduces the exercise of Frankel and Romer using yearly samples from 1990 through 2014 (see Cerdeiro and Komaromi, forthcoming). A one-percentage-point increase in trade openness raises real per capita income by 2 to 6 percent. These estimates of the long-run income effect of trade have not remained constant; after hovering around 4 to 5 percent since the early 1990s, the estimate fell to nearly 2 percent after the global financial crisis. While the reasons for this decline are hard to pin down, the results are indicative of the pressing need for complementary structural reforms that can lift growth.⁴⁴
92. **Policies need to address short and medium term adjustments.** Given that the results are based on cross-country data, they should be interpreted as the long-run estimated effect of trade on growth. Thus, the estimates do not shed light on possible temporary adjustment costs from greater integration. Moreover, it is worth noting that although the estimates indicate that over time there are substantial benefits from trade, they are silent about the channels through which this effect operates. Consequently, the micro-level evidence of the main text of this paper is a necessary complement to design optimal policies that tap trade integration to spur growth.

⁴³ Rodriguez and Rodrik (2000) argue that geography can also affect income through its effect on institutions (see also Rodrik and others, 2004). Dollar and Kraay (2003) point out that, due to the very high correlation between trade and measures of institutional quality, regressions including both variables tend to be uninformative. Feyrer (2009) circumvents the problem of physical distance possibly having an effect on income through other channels (e.g. institutions) by exploiting the "shortening" of some bilateral distances due to improvements in air transportation technology; the paper also finds a positive effect of trade on income. Similar qualitative results are also found in Feyrer (2009b), who uses the 1967–1975 closing off of the Suez Canal as a natural experiment to investigate the trade-income causal relationship.

⁴⁴ Freund and Bolaky (2008) present evidence on the complementarity between trade reforms and other structural reforms.

FIGURE C.1. Long-Term Effect of Openness on Real Income per capita
 Estimated income gain from 1 p.p. higher trade openness
 (percent)



Source: Cerdeiro and Komaromi (forthcoming).

Annex D. Identifying and Quantifying Adjustment Frictions

93. **Understanding adjustment frictions, whether in the context of adjusting to technology, the normal churn of the labor market, or trade, can help to better tailor policies to address them.** Many things impede workers from switching firms, sectors, or regions. These frictions can be broadly grouped into skill mismatches, geographic frictions, policy distortions, and capital mobility. The following paragraphs summarize the empirical evidence on the size and importance of the different types of frictions. Section V discusses adequate policy responses.

- **Skill mismatches:** Industry- or firm-specific job skills may not easily be transferred across firms or industries. This makes it costly to change jobs, slowing adjustment in the face of intensified import competition or other developments (Lamo and others, 2011). For workers these costs include the need for retraining, longer unemployment spells, or lower starting wages in a new job requiring different skills. When switching industries within manufacturing, workers in developed countries have been estimated to forego in terms of lifetime income the equivalent of 2.76 times their annual wage (Artuç and others, 2015). Switching occupations may have similar costs, although these costs vary substantially across occupations and skill levels, with college-educated workers experiencing on average lower costs (Artuç and McLaren, 2015).
- **Geographic frictions:** Workers and families can face a range of obstacles when relocating to expanding regions, such as job search and travel costs. Other factors include social networks, family and friends, housing policy, migration restrictions, and cultural barriers. An example of a migration restriction is the household registration system Hukou in China, which gives special rights to workers native to a region. Zi (2016) estimates that this has reduced China's gains from trade markedly.
- **Policy distortions:** Job protection regulations and certain other policies may impede both the contraction and expansion of firms following trade or other reforms. The benefits of trade are reduced when policy thwarts labor market flexibility (Bolaky and Freund, 2004). For example, Kambourov (2009) finds that inflexibility in Mexico's labor market slowed the reallocation of labor in response to trade reform, so that the benefits of the reform were as much as 30 percent less than would have been achieved under a more flexible labor market.
- **Capital mobility:** Scaling up production often requires new capital in addition to new workers. Therefore, high capital adjustment costs significantly impede labor adjustment as well. Examples include high upfront fixed costs or investment irreversibility in the case of physical capital. Dix-Carneiro (2014) finds that the reallocation in the labor market following trade liberalization in Brazil would accelerate from 14 years to 4 years if capital was completely mobile.

94. **The frictions discussed here may affect workers with different characteristics differently** (Dix-Carneiro, 2014). Often the costs for female, older, or less educated workers are particularly high.

Annex E. Adjustment Policies: Country Experience

Country experience with adjustment policies varies. This annex reviews some of the policies taken and challenges facing EMDEs, Denmark, and the United States.

A. Challenges to Mitigating Trade-Related Dislocations in EMDEs

Compared to advanced economies, many EMDEs are characterized by larger informal sectors, weaker institutions, and lower education levels. These features potentially aggravate costs arising from adjustment to trade shocks and complicate design of mitigating policies.

95. Evidence points to limited sectoral labor reallocation in the face of trade shocks in EMDEs.

In an influential survey paper, Goldberg and Pavcnik (2007) find that trade liberalization episodes in EMDEs are generally followed by limited sectoral reallocation and more pronounced wage than employment response to the shock. Consistently, Artuc, Lederman, and Porto (2015) estimate large labor mobility costs in EMDEs and establish that these costs are negatively correlated with various development measures, including GDP per capita and educational attainment. Adjustment is longer and costlier when labor mobility costs are higher. Strong employment protection policies in the formal sector, coupled with public work programs, both of which are associated with high firing costs, may be among the culprits for the low degree of mobility in EMDEs (Mitra and Ranjan, 2011).

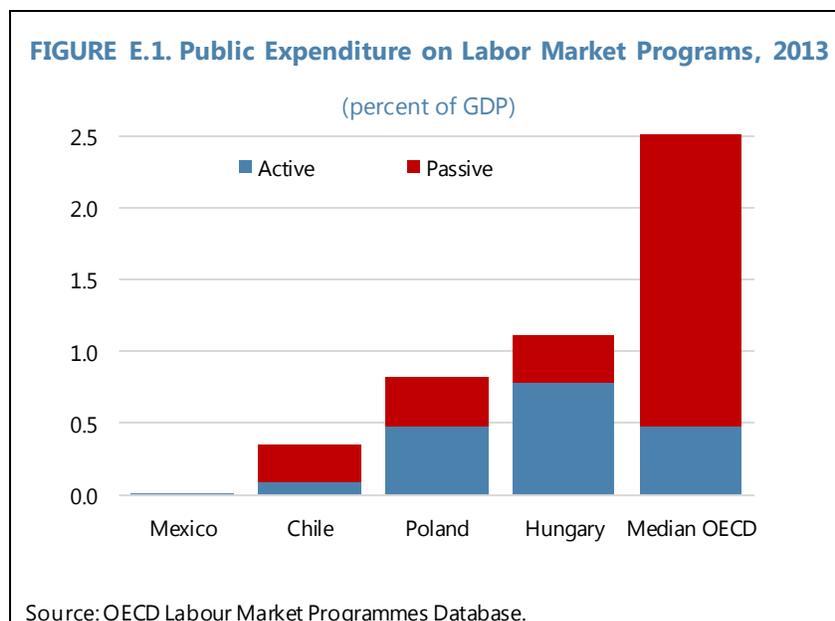
96. While improving labor mobility is crucial, several factors complicate the design of mitigating policies.

- **Lower education:** In 2010, average formal schooling of adults in EMDEs (7 years) remained well below that of advanced economies (11.3 years) (Barro-Lee Educational Attainment Dataset). Low education levels, coupled with generally weak education quality, can reduce the effectiveness of vocational training given the lack of more basic skills (Bassi and others, 2012; Silva, et al. 2015).
- **Higher informality**⁴⁵: In addition to lowering the tax base and limiting available public funds for programs, a large informal sector brings challenges, as informal workers tend not to participate in mandatory contributory programs and workers may declare themselves to be actively searching for a job while working in the informal sector. To overcome this challenge, Vodopivec (2006) advocates relying on other income protection mechanisms, including self-insurance, rather than on unemployment insurance, in countries with large informal sectors and weak institutions. Acevedo, Eskenazi and Pages (2006) recommend the Chilean income support program, which combines social and self-insurance elements, and argue more generally that EMDEs should tailor different elements of social protection (severance pay, unemployment insurance savings accounts, public work programs, and social insurance) to their own characteristics.

⁴⁵ Goldberg and Pavcnik (2003) find that the trade liberalizations in Brazil and Colombia led to limited, if any, expansion of the informal sector. The argument made here is not that trade leads to more informality, but that the size of the informal sector constitutes challenges.

- **Weaker capacity:** Weaker institutions and administrative capacity complicate the ability to ascertain benefit eligibility, and therefore control fraud and moral hazard.

97. **Active Labor Market Policies in EMDEs have a poor track record and their funding remains low.**⁴⁶ In a survey of randomized experiments to assess ALMPs in developing countries, McKenzie (2017) finds that programs on vocational training, wage subsidies, and matching assistance do not work well and calls for better targeted programs. In addition, spending on labor market programs in developing countries is low. Four EMDEs included in OECD’s Labor Market Programmes Database spend significantly less than the median OECD country. Covering nine Latin American and Caribbean countries, Cerutti and others, (2014) report generally increasing but low levels of spending on labor market programs as a share of GDP. While Brazil ranks highest among these nine countries, its spending on labor market programs (0.8 percent of GDP, one quarter of which was allocated to active programs) was well below the OECD average (Silva and others, 2015).



B. Experience in Denmark

Denmark does not have in place policies targeted to workers displaced due to trade or otherwise. However, its “flexicurity” system serves all unemployed workers relatively well through generous unemployment benefits coupled with strong activation policies.

98. **The Danish flexicurity labor market system is based on three pillars:** (i) a flexible labor market allowing employers to hire and fire relatively easily; (ii) a generous unemployment benefit

⁴⁶ A few labor market programs in EMDEs were targeted to trade related displacements but these were typically sector specific and temporary (Hollweg and others, 2014).

system; and (iii) strong activation policies incentivizing job search and enhancing workers' employability.

99. **These three pillars are interconnected. The flexibility of the labor market implies a high job turnover, making it important to have in place a strong unemployment insurance scheme.** In turn, the generosity of the unemployment insurance necessitates strong activation policies, including strict job-search requirements and monitoring. To put this in perspective, Denmark spends more on ALMPs than any other OECD country as a share of its GDP (Figure 12; OECD, 2016b).

100. **Long advance notice periods create space for action even before actual dismissal occurs.** While employers are granted significant flexibility in hiring and firing decisions, they are required to comply with long advance notice periods to the regional labor market council, which are defined by legislation and/or collective agreements and increase with job tenure. This is key to creating the necessary space for early action by the social partners and public authorities.

101. **The Danish system does not differentiate between displaced workers and workers unemployed for other reasons.** The first line of protection for displaced workers is unemployment insurance if they are members of the unemployment insurance fund and qualify for benefits. Otherwise, they may be entitled to family-based, means-tested basic social assistance subject to income levels and value of assets, as all other unemployed workers. As for ALMPs, the Danish profiling tool does not specifically target or identify displaced workers nor include involuntary job loss as one of the criteria for program assignments. As such, there seems to be room for improving the matching of workers to groups and services by introducing a scientific profiling tool (OECD, 2016b). Moreover, despite having several programs in place to augment worker skills (work-sharing, job rotation, adult apprenticeship, practical work training and subsidized employment), it can be challenging to ensure high take-up rates in small and medium-sized enterprises. This is particularly true among workers who tend to need training more but are less likely to take it, especially older and less-skilled workers. Accordingly, the OECD report's recommendations include promoting the take-up rate of publicly-subsidized, employer-provided training among workers who need it the most.

102. **As trade policy is conducted at the E.U. level, trade specific programs are limited to those funded by the *European Globalisation Adjustment Fund*.** Between 2009-14, the European Globalization Adjustment Fund provided funding to seven selected Danish firms. These funds totaled approximately 21 million euros (OECD, 2016b).

103. **Assessments of the flexicurity model are overall favorable.** Using a randomized experiment to evaluate ALMPs in Denmark, Vikström, Rosholm and Svarer (2011) find that ALMPs reduce the unemployment spell significantly. While increased job search assistance, monitoring and a threat effect all contribute to this result, frequent meetings with case workers were found to be the most cost-effective. Consistently, Andersen and Svarer (2007) argue that the activation policies that lead to a more intense job search, including through sanctions, made the system more effective. However, several features of the system can impair the adjustment of displaced workers. For

example, OECD (2016b) identifies that early intervention concentrates on large dismissals from large firms, early notification periods are shorter for blue-collar than for white-collar workers, and a substantial share of low-wage and low-skilled workers is not covered by unemployment insurance.

C. United States—Policies to Mitigate Trade-Related Dislocations

Policies to mitigate trade-related adjustment costs in the United States include the targeted “Trade Adjustment Assistance” program, and are complemented by broader social insurance and ALMPs.

104. **Import competition in manufacturing has had geographically concentrated effects.**

These have been associated with substantial declines in overall employment and non-manufacturing wages in certain communities and regions (Autor and others, 2013). Less-educated and older workers, being less mobile, experienced larger income losses and were more likely to withdraw from the labor force.

105. **The Trade Adjustment Assistance (TAA) program** was introduced in 1962 to support and compensate workers suffering trade-related job losses. Reforms in 2002 and 2009 have expanded eligibility (e.g. to include the service sector and job losses from outsourcing), increased funding for training (with the cap raised from \$220 to \$450 million), and added benefits. Currently, the program has certified as eligible about 120,000 displaced workers, at a nominal annual cost of about \$800 million. It has a number of key features.

- **Extended unemployment compensation** provides workers up to 24 additional months of benefits, often conditional on using TAA-approved training and reemployment services. Roughly half of participants enroll in training services provided through local One-Stop Career Centers.⁴⁷
- **Job search/relocation assistance** covers 90 percent of the associated costs up to \$1250.
- **Wage insurance** provides reemployed workers, 50 years or older and earning under \$50,000 a year, a wage supplement equivalent to half the difference between their previous and new wage, up to \$10,000 a year, for up to two years. Some 5 percent of eligible participants have enrolled.
- **Health insurance tax credit** covers up to 72.5 percent of healthcare premiums.

106. **Unemployment insurance** is the largest social insurance program, absorbing over three-fourths of the budget for displaced workers (OECD, 2016a). It provides full-time, involuntarily displaced workers who are actively seeking a job up to 26 weeks of benefits averaging half of past earnings. Benefit duration has been extended during recessions; as it is also financed through state payroll taxes, states have latitude in the design of the program. Historically, only 40–50 percent of displaced workers receive these benefits, and about 30 percent of beneficiaries exhaust them.

⁴⁷ According to Berk and others (2012), TAA participants were more likely to use reemployment and education/training services and as a result switch industries and occupations. However, their wages remained lower up to four years following a job loss, especially for older workers.

107. **Other social insurance, namely retirement and disability insurance, are increasingly being provided to trade-displaced workers that are eligible for retirement or disability.**

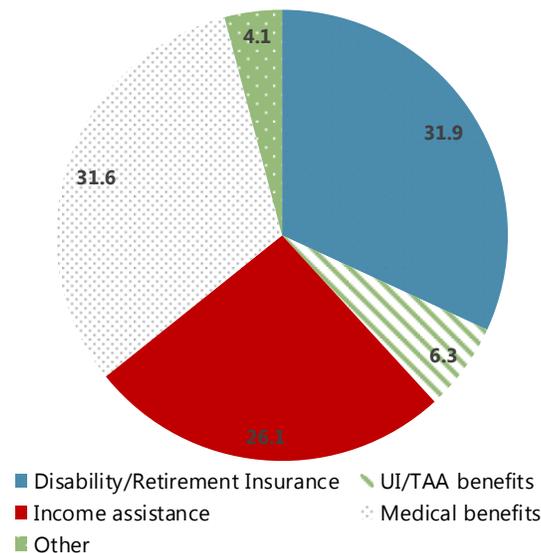
Disability benefits, which vary according to past earnings, likely reflect anxiety-related illnesses affecting displaced workers. Autor and others (2013) estimates that these social insurance transfers comprised some 30 percent of total transfers to workers displaced by China’s import penetration (Figure). The figure would be larger if disability-related health benefits to workers are included.

108. **Means-tested income support programs also provide assistance to displaced workers.**

These include income support programs for workers and their families (e.g. Temporary Assistance to Needy Families, Supplemental Nutrition Assistance, Medicaid, Supplemental Security Income); overall transfers are generally small and do not raise income above the poverty threshold.

109. **Other policies have limited coverage and funding** (OECD 2016). Work-sharing schemes in about half of the states provide income support to workers who experience reduced hours worked or are temporarily laid off. Recent federal guidelines under the 2012 Layoff Prevention Act may encourage participation and pertain to some 1–2 percent of unemployment claims. Employment protection legislation and early warning mechanisms tend to be fairly lenient and limited in scope (e.g. advanced warning applies to firms with over 100 workers, where at least 50 workers are affected). Federally-mandated programs to support employment of dislocated workers (e.g. Rapid Response Service) do not currently provide the needed tailored assistance to dislocated workers.

FIGURE E.2. United States’ Composition of Income Transfers Associated with Intensified Chinese Import Competition, 1990-2007



Source: Autor and others (2013).

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