Never has the link between international trade and poverty been more important. International trade and poverty are critical policy areas right now for several reasons. Number one is that the link between poverty and trade in developing countries has never been more firmly established in the academic literature. And, number two, policy makers and the general population in developed countries are increasingly wary of, if not hostile to, international trade.

Going back to Frankel and Romer's critical paper Does trade cause growth? We know that there is a very powerful link between trade and economic growth because countries that are closer to each other tend to trade more and have higher GDP per capita. Subsequent papers have supported the causal relationship between more trade and higher GDP per capita. Furthermore, if you look at the opposite, countries that are isolated from trade due to policy or geography tend to have much lower GDP per capita. And that is not an accident. The evidence that trading and growth are strongly related to each other is overwhelming.

But that does not mean that just because you enter into a trade agreement, you are necessarily going to get better labor market outcomes for everyone in the country. Although trade is very effective at increasing economic growth, as we have seen in Japan, South Korea, Hong Kong, China, Singapore, and other countries in Asia, we have learned in the last several years that the transmission of trade into labor market outcomes is not quite as clear. Therefore, we need to do more to understand the link between trade policies and efforts to help the poorest people within a country. Specifically, we need to understand how trade policies affect trade and how trade affects labor market outcomes.

Understanding the link between trade policy and trade outcomes (increasing trade) and its connection with the labor market has motivated many empirical studies. The findings that come out of the academic literature strongly suggest that the relationship is very strong. In most cases trade agreements increase trade and, in general, lowering trade costs by reducing trade barriers and tariffs and quotas and non-tariff barriers tend to increase trade to differing degrees.

Trade is found to promote economic growth through different channels. As trade barriers are lifted, trade agreements among countries signed, new opportunities for companies in tradable sectors expand. At the firm level, there is clear evidence that expanding export markets can increase labor demand, which in turn, increases employment and/or wages in the country. For example, in the last three decades East Asia and Pacific (EAP) experienced an impressive economic growth with rising income and increasing share of manufactures exports. Structural reforms contributed to openness to trade, which created millions of new jobs. Over the same time, poverty fell dramatically. China’s export-orientation in the last 30 years created job opportunities in manufacturing and services, rising households’ incomes though higher wages and increased remittances from migrant workers.[[1]](#footnote-1) While it is hard to quantify what proportion of the dramatic poverty reduction in China can be directly attributed to trade, there is no doubt that it played a fundamental role. China is far from the only example. Cambodia’s strong commitment to economic openness since the 1990s contributed to sustained economic growth averaging 7 percent per annum in the first decade of the 2000s. In 2015, Cambodia achieved lower-middle income status, coinciding with an impressive reduction of the proportion of people living in poverty from ≈40 percent to 17.8 percent between 1990-2020. Vietnam is another excellent example of rising trade and its positive effects on poverty reduction. Export-led growth has been critical to Vietnam's transition from one of the poorest countries in the world to a lower-middle income country.

We know, however, that there are also concerns.

Trade involves imports and exports. On the import side, for example, there are cases in which trade agreements allow for imports to expand, which can have adverse effects on import competing industries and reduce labor demand. Indeed, there is solid evidence that these import competition effects tend to be very regionally concentrated within the country. This is because, typically, there are industrial clusters of the competing sectors, and therefore labor displacement tends to be very localized. Most of the empirical evidence is in developed countries and slowly this is being applied to developing countries. In our World Bank Global Report on the “Distributional Impacts of Trade”, we present empirical evidence for countries such as Mexico, Brazil, Bangladesh, South Africa, Sri Lanka that undertook trade liberalization. For example, in the cases of Brazil and South Africa trade liberalization led to diversification of exports and an increase in income but also greater income disparity. Restrictions to mobility either geographically or deterrence to booming industries widen wage gaps. On the other hand, in Bangladesh, relatively low migration barriers meant that workers move to sectors with booming economic opportunities.

What is key, therefore, is that by anticipating these effects at the earliest stage of a trade agreement, it is possible to design labor market policies and social protection policies to better prepare for the adjustment. These types of policies are discussed in our publication “Distributional Impacts of Trade.” [Distributional](http://hdl.handle.net/10986/35552), We explain that policies should have three main goals: reduce distortions, reduce trade costs, and speed up labor market adjustment. Active labor market policies, such as training and providing information about opportunities, make it easier for workers to move between industries and take advantage of those expanding sectors. In addition, a robust unemployment insurance and a system that ensures the continuity of healthcare for affected workers and their families will help the transition. Because the impacts are expected to be localized, it is also important to target policies for the community while lowering barriers to mobility so that people can take advantage of economic opportunities that are open by trade.

The critical point is that trade does contribute to growth and poverty reduction, but it is not necessarily automatic and there are some costs. Fortunately, we have learned so much and have developed sufficient technology to be able maximize the gains and minimize the costs. We know how to design policies to mitigate the adverse effects of trade and therefore fully realize the full potential of exports and growth and poverty reduction. What is too often missing, however, is the political will to adopt and sufficiently implement these policies.

Over the past years, our team at the World Bank has produced several reports on the Distributional Impacts of Trade (slide 3). [<http://hdl.handle.net/10986/31274>](http://hdl.handle.net/10986/31274); [<https://openknowledge.worldbank.org/handle/10986/39850>](https://openknowledge.worldbank.org/handle/10986/39850).These reports provide empirical evidence on the distribution of the gains from trade across geographic areas and population groups, they also show the length of adjustment and the channels through which trade affects the labor market and poverty.

Our approach builds upon several recent empirical papers. Pioneering research by Topalova (2010) studies the effects of tariff changes on poverty rates across India’s districts. The author measured the effective changes in tariff rates for districts (zila) by weighting industry-level changes with the number of workers in each district. One of Topalova’s (2010) key contributions was to implement an approach proposed by Bartik (1991). This approach takes advantage of a concentration of production and local labor markets to identify the relationship between globalization and local labor market outcomes. More specifically, Topalova calculates the effective change in import protection for Indian districts after the 1991 trade reform. The variation in the author’s sample comes from differences among districts in their industry and import compositions. The districts with a larger share of import-competing sectors and sectors with larger tariff reductions are exposed more severely to the trade liberalization shocks. Topalova assumes that tariff reductions are exogenous to the districts, since they were planned by the central government through international agreements.

Several studies have used variations of this approach but have reached different conclusions. Topalova (2010) shows that poverty rates increased (or decreased more slowly) in districts that were more exposed to the trade shocks. One concern about the Topolova (2010) study, however, is that the study assumes zero tariffs for nontraded sectors such as services, and includes those sectors in the analysis. In reality, however, nontraded sectors face trade costs that are prohibitive, which is more consistent conceptually with infinite tariffs than with zero tariffs. Hasa, Mitra, and Ural (2007) argue that changing the zero tariffs to prohibitive levels generates results that suggest that trade shocks potentially reduced poverty in India. Although their results contrast with Topalova (2010), they use a similar Bartik (1991)-based instrument in their research.

Other studies have also found that local labor markets play an important role in understanding the effects of globalization on labor market outcomes. Using an empirical approach suggested by Hasan, Mitra, and Ramasmawy (2007), Krishna, Mitra, and Sundaram (2010) show that the positive impact of trade liberalization on poverty reduction is less significant in lagging regions in India, Sri Lanka, Bangladesh, Pakistan, and Nepal. In a related study, Hasan et al. (2012) show that trade protection is negatively correlated with state-level unemployment; this correlation is especially strong for states that have high employment in exporting industries.

The Bartik (1991) approach has been used in other developing countries as well, and the results show that local labor markets matter. Kovak (2013) uses an instrument based on tariff changes, similar to Topalova (2010), to analyze the impact of trade liberalization on Brazil’s labor markets. Unlike the previous research, the study uses a semi-structural approach based on a general theoretical model. Kovak shows the exact specification for the instrument that is consistent with the economic theory. The author argues that the effects of trade shocks on local labor markets are larger when localities are more exposed to trade through higher producer prices, larger employment shares in import-competing sectors, and higher elasticities of labor demand.

The Bartik (1991) approach used in these studies has also been applied to developed countries. Hakobyan and McLaren (2016) applied the Topalova (2010) instrument to local labor markets in the United States, using the change in tariffs due to the North American Free Trade Agreement (NAFTA). They find that the impact of NAFTA shocks to the industry-level labor market were as important as the agreement’s impact on the local-level labor market. Unlike previous research, they based the analysis on worker data directly via Mincer (1958)-like wage regressions with instruments. This modification allowed them to specify very sophisticated and detailed regression equations. A follow-up paper by Hakobyan and McLaren (2017) uses a similar empirical methodology (and additional theoretical analysis) to study the differential impact of NAFTA on male and female wages and employment. They find that this gender differential is extremely difficult to explain with standard economic theory or as labor market discrimination.

A methodology similar to Topalova (2010) and Bartik (1991) was later adopted by Autor, Dorn, and Hanson (2013) (henceforth ADH) to study the impact of China’s rapid growth on local labor markets in the United States that were defined as commuting zones. ADH contributed to the research on trade and local labor markets in two important aspects. First, it is virtually impossible to argue against the exogeneity of their instrument. This is because ADH use growth of China (measured by the change in exports of China to countries other than the United States) as the main instrument, rather than a potentially endogenous policy variable such as tariffs. Second, ADH identified one of the largest negative exogenous shocks to labor demand in recent history, that is, China’s rapid growth. This discovery attracted a great deal of attention.

Following the success of these papers, the Bartik (1991) methodology, as revised by ADH, became the gold standard in empirical trade literature for analyzing labor market effects of trade shocks. (See Autor, Dorn, and Hanson (2016) for a detailed literature review of the China shock.)

Many prominent papers followed some variations of the ADH methodology. Acemoglu and Restrepo (2017) analyzed the impact of automation on local labor markets. Feler and Senses (2017) showed the impact of China shock on provision of local public goods. Dix-Carneiro and Kovak (2017) showed that the negative impact of trade shocks can have persistent effects that are larger in the long run compared to short and medium runs. Pierce and Schott (2016) showed the impact of trade shocks on manufacturing employment, and Utar (2015) looked at the wage impacts.

In Brazil, individual worker trajectories in the labor market after trade liberalization in the 1990s showed significant worker displacement resulting in very slow transition not only to services but also to unemployment as well as out of the labor force (Menezes-Filho and Muendler, 2011). Labor market responses to trade liberalization in Morocco, however, are exceptional in that a significant fraction of manufacturing firms did not adjust either wages or employment in response to trade reform. A labor demand model that allows for imperfect competition and endogenous technological change shows that firms responded to trade reforms by cutting profit margins and raising productivity. This represents a less painful mode of adjustment where firms with excess profits could absorb trade shocks leaving the labor force unaffected.

A parallel line of research in the international trade literature focused on trade liberalization shocks using matched employer-employee data rather than geography-based data. Autor et al. (2014) show the effect of the China shock using both micro-level worker data and firm-level data. A similar methodology was implemented previously by Menezes-Filho and Muendler (2011) to show the impact of trade liberalization in Brazil on employment. Another example is Hummels et al. (2014) that showed the impact of offshoring on Danish workers with matched employer-employee data.

The fundamental implicit assumption behind these studies is that workers are essentially entangled by labor market frictions and mobility costs. Other papers, however, focus on these costs explicitly. One of the first papers about labor market frictions in the trade literature is Artuc, Chaudhuri, and McLaren (2010). They show that workers incur very large costs when they try to change industries after trade shocks. Follow-up work by Artuc and McLaren (2015) shows large frictions for occupational mobility as well. Caliendo, Dvorkin, and Parro (2015) combine the Artuc, Chaudhuri, and McLaren (2010) framework with Caliendo and Parro’s (2015) input-output linkage analysis and show that a model with labor mobility frictions can explain the ADH model findings on local labor markets. This paper is critical for understanding the mechanism behind the ADH approach.

If workers were not entangled, the labor markets in all districts would be fully integrated into the national labor market. In other words, if workers were not entangled, a trade shock would impact all workers similarly independent of their location or region. As we have demonstrated in Chapter 4, there is clear evidence that workers are, indeed, entangled. As a result, we focus on how a change in exports may impact workers in a given region. The effect of a change in exports would be (mostly) contained within the region since the factors cannot move freely from import-competing, industry-intensive regions to export industry-intensive regions.

These papers usually exploit the variation in the trade exposure of districts based on employment shares. For example, regions with high shares of import-competing industry employment are exposed to more intensive trade shocks than districts with high shares of nontraded or export industry employment. This research calculates the impact of tariffs changes or export shocks weighted by the employment shares for each district. The employment share of industries in each district is taken from a time prior to the shock to ensure the exogeneity of the shares. Then the papers look at the impact of trade shocks on employment and wage outcomes for districts, with an instrumental difference-in-difference approach.

Our empirical approach is similar to these previous studies because we also employ the Bartik (1991) approach. Our approach is different from previous studies because we focus on exports, while most previous research on trade and local labor markets focuses on negative shocks, such as increasing competition due to growth of China, automation, exchange rates, or tariff reduction. One significant exception to the negative focus of the literature is Hasan et al. (2012). Although they use a measure based on protection (rather than exogenous export shocks), they also discuss the role of export-sector employment shares on trade shocks, with a partial focus on export shocks. From this perspective, this chapter is closely related to Hasan et al. (2012) and provides evidence consistent with their findings, despite the use of a different methodology and the focus on different economic outcomes.

We employ a geography-based Bartik (1991)-type instrument of trade exposure in …..regions similar to most of the papers just discussed. However, unlike the previous literature, we focus on positive exogenous demand shocks calculated by import demand from XXXX for Brazilean exports. We describe the approach in detail in the next section.

1. Chen and Ravallion (2004); Hertel, Zhai, and Wang (2004); and Sicular and Zhao (2004) [↑](#footnote-ref-1)