Literature Review:
WTO Accession and Economic Growth

March 2018

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EXECUTIVE SUMMARY

This paper reviews the existing literature (2002-2017) on the relationship between WTO accession and economic growth. This paper augments the limited literature directly covering this general relationship with literature on the link between WTO accession and specific aspects of the economy, from trade to the business environment. This paper does not summarize the literature linking those components to overall economic growth. Overarching themes of the review include:

**WTO accession may boost growth in the years after accession if the country was subject to rigorous accession procedures, leaving a positive long-term impact on the size of the country’s economy.** Tang and Wei (2009) use an econometric model covering 135 countries to conclude that WTO accession increases a developing economy’s growth rate by about two percentage points for approximately five years if the country was subject to rigorous accession procedures. “While the pickup in growth rates is only temporary,” they note, “the economy is permanently larger (by 20%) as a result” (Tang & Wei, 2009, p. 26). A previous study had found that there was no impact on the growth rate for lower-income countries, but that study did not account for the depth of participation, a key component of more recent studies on WTO accession (including Tang and Wei (2009)).

**Growth in trade volumes as a result of WTO accession is influenced by the depth of the acceding country’s commitments.** A stream of studies beginning with Rose (2004) attempts to refine an empirical model to appropriately assess this relationship by accounting for, among other things, pre-existing preferential trade relationships, the length of the accession process, and the nature and depth of commitments made during accession. As with economic growth generally, the literature suggests that the impact of WTO accession on trade flows is partly contingent on the latter, with benefits likely to be higher the more a country commits to its own trade liberalization.

**The impacts of accession are not equally shared within a country.** Some studies, both forward- and backward-looking, assess the distributional impacts of WTO accession, finding that different sectors and factors of production are not affected equally. Few additional generalizations can be drawn from these studies for two main reasons. First, scholars often classify sectors, firms, or countries in different ways. Second, countries differ by resource allocation, comparative advantage, policies, and other socioeconomic considerations such that WTO accession impacts each country differently.

**WTO membership may improve the business environment and encourage inward FDI.** A final series of studies looks at the effect of commitments made during WTO accession on a country’s business environment and policymaking. There is evidence that, under certain circumstances, WTO membership can decrease trade volatility and encourage foreign direct investment. Estimated impacts on corruption and governance vary.
1. INTRODUCTION

Purpose
The purpose of this literature review is to provide an overview of the significant literature published on the relationship between WTO accession and economic growth. This information is intended to help USAID’s Office of Trade and Regulatory Reform (AID/E3/TRR) to understand patterns in the data that suggest if and how WTO accession influences economic growth.

Methodology
We began by identifying major papers on the economic impact of WTO accession through JSTOR, ScienceDirect, the USAID Library Catalogue, and Google Scholar. We also searched specifically for papers by the World Bank and WTO on this topic. In our searches, we excluded a large body of papers that focused exclusively on China or Russia to avoid distorting the conclusions based on the unique experiences of those countries. Because the WTO has only existed since 1995, the literature on WTO accession is all fairly recent, and our scope was naturally limited to the years 2002 to 2017. As we began to read and analyze these works, we identified references to specific articles or books that seemed relevant to our research topic and sought those works out as well. We focus on econometric models that draw conclusions based on historical data when possible. However, a number of the papers in this review include general equilibrium models, other forward-looking economic models, policy arguments, or theoretical analysis.

The rest of this document is organized as follows. We begin with an overview of the WTO accession procedure and the reasons that developing countries choose to join. Next, we address the theory and evidence regarding the possible direct impact of WTO accession on economic growth and poverty. Then, we delve into the conditions under which WTO accession can increase trade. Because WTO accession can affect different sectors of an economy in different ways, we then give an overview of the literature and evidence regarding WTO membership’s impact on different parts of the economy. Finally, we discuss the theory and evidence regarding the impact of WTO accession on the business environment and governance.

2. OVERVIEW OF WTO ACCESION

How do countries join the WTO?
Countries join the WTO through the accession process, through which existing members and the acceding country agree upon a series of reforms, from tariffs and other market access commitments to commitments on domestic rules and policy that the acceding country will make in order to align itself with WTO norms. In the “Marrakesh Agreement” establishing the WTO from the GATT framework, Article XII discusses new accessions to the multilateral body (World Trade Organization, 2017b). The Article itself is relatively brief and vague; a country (or separate customs territory) accedes to the WTO “on terms to be agreed between it and the WTO” (World Trade Organization, 2017b). In response to this ambiguity, the WTO Secretariat created additional guidelines and a consistent set of procedures, including (a) the establishment of a Working Party, (b) a memorandum from the applicant country detailing its Foreign Trade Regime, (c) negotiations, both bilateral and multilateral as necessary, on schedules of specific goods and services commitments, and (d) the Working Party’s Report on discussions, draft Decision, and Protocol of Accession to be approved by existing members (World
Trade Organization, 1995). While the guidelines call for a two-thirds majority of WTO members to approve of a new member, the unanimity rule that governs much of the WTO’s activities prevails in practice (Cattaneo and Primo Braga, 2009).

**Why would countries join the WTO?**

Bagwell and Staiger (2002) provide an economic argument for the existence of the GATT/WTO in general; they argue that aside from any political considerations, the GATT/WTO is built to solve a “terms-of-trade-driven Prisoners’ Dilemma” among large countries (p. 13). Under this prisoner’s dilemma, large countries can, through tariffs and non-tariff barriers (NTBs), affect world prices in their favor through the protections they choose to implement, potentially increasing their own welfare at the expense of others’ (Bagwell & Staiger, 2002). According to Bagwell and Staiger (2002), the GATT/WTO creates a system based on the guiding principles of reciprocity and enforcement (through permissible retaliation) under which large countries find it mutually beneficial to lower tariffs. These principles encourage trade, effectively locking in liberalization policies and low tariffs by removing a major incentive to game the system (Bagwell & Staiger, 2002).

Membership in the WTO is, as the organization itself puts it, “a balance of rights and obligations” (World Trade Organization, 2017e). The WTO now claims more than 160 members, and each may have a different rationale for its membership. In their overview of WTO accession, Cattaneo and Primo Braga (2009) lay out some of the main rights that members attain, including improved market access in the form of most-favored-nation (MFN) status, protection against ad hoc protectionist measures from other members, a seat at the table of international trade rulemaking, and access to the WTO’s dispute settlement mechanism. These rights are often sufficient to attract membership.

Counterintuitively, the ‘obligations’ of WTO members may also be reasons to join; Cattaneo and Primo Braga (2009) note that countries may use WTO commitments to enact more efficient trade policies, lock in business environment reforms, signal a commitment to reform to other nations, demonstrate a desire for global cooperation. Evenett and Primo Braga (2005) refer to this signal as a “seal of approval” that can help attract foreign investors (p. 1).

Existing members also have incentives for non-member countries to join the WTO, including export opportunities and market access, protection for their investors abroad, and reduced exposure to protectionist pressures abroad (Cattaneo and Primo Braga, 2009).

**What challenges do developing countries face in joining the WTO?**

The length of time that the accession process takes can vary greatly from country to country. The Kyrgyz Republic became a WTO member less than 3 years after submitting its initial application, while the accession process for Seychelles took nearly 20 years (World Trade Organization, 2017a; World Trade Organization, 2017c). Chemutai and Escalit (2017) find that WTO accessions for least developed countries (LDCs) have taken 12.75 years on average, against 9.5 years for other countries.

Cattaneo and Primo Braga (2009) address some of the challenges that new entrants, which tend to be developing countries, face during the accession process. As the scope of the WTO grows, so does the list of topics addressed during accession. As existing members continue to cut tariffs and chip away at barriers to sensitive sectors like agriculture, their demands on new members may be higher. Evenett and Primo Braga (2005) find evidence that the “price” of accession, in terms of market access commitments
for goods and services, is getting heavier, while the rules that countries agree to adopt upon entry into the WTO seem to be very country-specific, with no overarching trend. Increasingly, new entrants also make ‘WTO-plus’ and ‘WTO-minus’ commitments, through which they agree to increase obligations or forfeit rights, respectively, in order to signal a commitment to reform. Cattaneo and Primo Braga (2009) warn that these additional commitments, often encouraged by incumbent members during negotiations, may effectively be creating a “second class” of WTO members (p. 3).

In addition to evolving expectations in the areas of market access and rules commitments, the accession process itself can be challenging for new entrants, especially developing countries. Cattaneo and Primo Braga (2009) observe that the accession process strains acceding countries’ resources, both in budgetary and human staffing terms. The long, arduous process may span several governments, with different goals and familiarity with WTO procedures and commitments (Cattaneo and Primo Braga, 2009). Engagement with civil society and the private sector may be lacking, especially in countries with more opaque governments (Cattaneo and Primo Braga, 2009). Evenett and Primo Braga (2005) offer some guidance to developing countries that may help to “push the ratio of costs to benefits in a pro-development direction,” suggesting that acceding developing countries develop inclusive priorities around key sectors needing reform, plan for a lengthy process, get the support of the private sector, quickly identify areas where technical assistance from developed countries will be required, and engage in “South-South” learning with countries that have gone through the process already (p. 6).

### 3. Does WTO Accession Impact Economic Growth or Poverty?

While most scholarly work on WTO accession is focused on the impacts on trade (see Section 4), some scholars theorize about and test the direct relationships between WTO membership and economic growth (and, to a lesser extent, poverty). This paper focuses specifically on the impact of the WTO; there is a larger volume of scholarly work that explores other aspects of the relationship between trade liberalization (of which the WTO is one component) and economic growth that is not reviewed in this paper. Indeed, in many papers covered in this review, the authors attempt to explain the impact of the WTO net of any other forms of trade liberalization.

**Theory**

WTO accession can increase economic growth in a variety of ways. According to a joint report by the World Bank and WTO (2015), trade openness achieved through the WTO can spur economic growth in developing countries by helping them to improve the efficiency of resource allocation, exploit comparative advantages, and foster growth among the most globally competitive sectors and domestic firms. Trade openness also allows for greater economies of scale, affects the return on investment (closed economies can face falling rates of return on investment), generates new sources of demand for other developing countries, and gives firms access to inputs which are unavailable domestically to help boost productivity (World Bank & World Trade Organization, 2015, pp. 19-23). According to Winters (2002), accession can include trade reform that induces efficiency in the use and allocation of resources and fosters long-run growth. Accession can also be part of a series of policies that create more efficient and competitive markets and more transparent and predictable policy making (Winters, 2002).

Numerous other scholars explore the impact of WTO accession on economic growth but focus on the intervening variables of trade, exports, total factor productivity, or foreign investment, believing that the
WTO’s impact should be seen there most directly and strongly (Chemutai & Escaith, 2017). Tang and Wei (2009) argue that, in addition to the direct effects of trade liberalization on trade volumes, an external commitment to the WTO has a stronger effect on economic growth than unilateral domestic reforms because it has a much higher cost of reversal than domestic policies. At the same time, the benefits of WTO membership, such as access to foreign markets or lower priced imports, can be used to “buy” political support from those who were originally against these market-oriented reforms. Because WTO accession puts strong political will behind trade liberalization reforms, it has a stronger impact on economic growth than the reforms alone (Tang & Wei, 2009).

In theory, WTO membership could also help developing countries to reduce poverty. The WTO (2017f) suggests that many of its treaties and agreements tie directly into the UN’s Sustainable Development Goals (SDGs). For example, SDG 17 on strengthening the global partnership for sustainable development contains a separate section on trade, including a commitment to promoting a “universal, rules-based, open, non-discriminatory and equitable multilateral trading system” under the WTO (World Trade Organization, 2017f). Specifically, under SDG 17, the UN hopes to increase the exports of developing countries, in particular with a view to doubling the LDC share of global exports by 2020, to realize timely implementation of duty-free and quota-free market access on a lasting basis for all LDCs, and to contribute to facilitating market access, all of which is most easily accomplished through the WTO. Indirectly, the WTO’s institutions contribute to free trade in green goods and services (SDG 7 on affordable, reliable, sustainable and modern energy), attempts to end trade restrictions and distortions in world agricultural markets (SDG 2 on hunger, food security, nutrition and sustainable agriculture), and intellectual property rights for essential medicines and vaccines under the TRIPS agreement (SDG 3 on healthy lives and wellbeing). The WTO (2017f) also argues that its treaties and agreements contribute to the accomplishment of SDG 8 on economic growth, employment, and work, SDG 10 on inequalities within and among countries, SDG 12 on sustainable consumption and production patterns, and SDG 14 on oceans, seas, and marine resources. WTO accessions are negotiated individually, which allows developing countries to tailor their commitments to their own policy priorities, including poverty reduction. The WTO also includes institutions devoted to developing countries and poverty reduction, such as the Committee on Trade and Development, Aid for Trade, and the Trade Facilitation Agreement Facility (World Bank & World Trade Organization, 2015).

Winters (2002) argues that WTO accession has the ability to alleviate poverty through long-run economic growth, but he stresses the importance of timing, the need for market infrastructure, and the protection of goods that can be clearly identified with the poor, such as foodstuffs on the consumption side or agricultural goods on the production side. In general, he argues that poverty alleviation programs should not be trade-specific, but poor-specific, so as not to distort the market or create dependencies.

Each country faces tradeoffs when considering accession to the WTO. In a research paper focused on South Sudan’s tradeoffs in pursuing WTO accession, the International Growth Centre (Alemi et al., 2016) finds numerous long term benefits in comparison to mostly short term costs. The paper argues that South Sudan could increase its economic growth with trade facilitation, the development of pro-growth policies such as SPS measures that are key for South Sudanese products’ access to other markets, and access to the WTO’s Dispute Settlement Mechanism. In contrast, the disadvantages of joining are largely short-term, such as the time and resource investment, the cost of implementing the WTO’s Customs Valuation System, political opposition to accession, and the limited participation of the
WTO on the world stage due to the stalled nature of the Doha Round (Alemi et al., 2016). In a forward-looking cost-benefit analysis of Afghanistan’s WTO accession, Mobariz (2016) finds that consumer welfare would increase from WTO membership due to lower prices while government revenue would decrease due to lost tariff revenue. Mobariz’ model does not assess the production sector, but his qualitative analysis of Afghan industry’s efficiency and competence suggests it would lose in increased competition without tariff protections. The paper says that special considerations should be made for the most important productive sectors of the economy, including agriculture, textile, cement and services.\(^1\) Balistreri et al. (2017) build a country-specific model and find that Belarus could expect welfare gains equal to 2.4% of its GDP, but that domestic privatization reforms would have a much larger impact of 17.4% of GDP. Jensen and Tarr (2008) similarly model only Kazakhstan’s WTO accession, focusing on the potential removal of local content restrictions and increased foreign direct investment. They find that the country could expect welfare gains equal to 3.7% of its GDP in the medium term.

Looking forward at potential results of the ongoing Doha Round, Francois et al. (2005) also find that developing nations would gain only modestly from a successful Doha Round if they fail to liberalize their own barriers, but that trade facilitation and services trade aspects would yield significant benefits. The removal of developed countries’ agriculture subsidies through a resolution of the Doha Round would benefit developing countries that are net food exporters with higher world prices, but would negatively impact those developing countries that are net food importers (Francois et al., 2005).

Most scholars build models that consider the economy-wide impact of WTO accession, but a few addressed the impact on poverty. Hertel et al. (2003) perform a forward looking modeling exercise of Chile, Malawi, and Vietnam where the same Doha Round trade reforms have different poverty impacts on all three countries in the long run. Specifically, their models show all three countries would experience short run reductions in poverty. In the long run, the benefits of higher agricultural prices in Chile and Malawi become concentrated among landowners and the poverty impacts would decrease over time (Hertel et al., 2003). In Vietnam, the long-run model shows an expansion in unskilled labor-intensive and light manufactures due to trade reforms, leading to a 12% reduction in poverty (Hertel et al., 2003).

**Evidence**

Tang and Wei (2009) find that accession to the WTO tends to raise a developing country’s income and increase its growth rate by about two percentage points for approximately five years if the country was subject to rigorous accession procedures.\(^2\) Although the increase in growth rate fades after about five years, the developing economy is permanently about 20% larger as a result of WTO accession (Tang &

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\(^1\) Mobariz used the World Bank’s World Integrated Trade Solution Single Market Partial Equilibrium Simulation Tool (WITS/SMART) to perform his analysis.

\(^2\) Separating countries by the rigorosity of their accession process is a common practice in WTO accession literature because many developing countries acceded automatically and without extensive reforms due to their status as former colonies (GATT Article XXVI 5(c)). The automatic accession process retired with the GATT in 1995. Since the WTO no longer allows for automatic accession based on colonial status, only rigorous accession processes have been possible from 1995 onward. Therefore, rigorous acceders are the correct comparison group for today’s developing countries considering WTO accession. (See, for example, Allee and Scalera (2012) )
They find a smaller and temporary increase in growth after application for WTO membership, and a separate larger increase after accession. Even when controlling for the impact of WTO accession on trade as a percentage of GDP, they still find a separate statistically significant effect of WTO accession on growth. They also find that the policy commitments through WTO accession are more beneficial in countries with weak governance. This suggests that the external policy commitments may serve as a (partial) substitute for governance in promoting economic development (Tang & Wei, 2009). The authors recognized that their results may simply reflect a one-off increase in the income level spread over several years, rather than a permanent increase in a country’s rate of economic growth, but their data does not have a long enough timeline to discern how long the effect lasts (Tang & Wei, 2009). Their econometric model included 135 developing countries between 1981 and 2003, excluding OPEC members and industrialized countries (Tang & Wei, 2009).

In an earlier study of 112 economies from 1960 to 1998, Li and Wu (2004) find that WTO accession increases the GDP growth rate by 1.6 percentage points in high income countries. Their regression model finds no impact of WTO accession on low income countries’ growth rates. Their definitions of “high income” and “low income” are based on whether a country had a per capita income over $3,000 in 1987, the median year of their sample. Li and Wu also test whether domestic institutions impact the gains from WTO accession, and they find that countries of common-law origin benefit much more than those of continental-law origin, while former socialist economies have little gain associated with the accession. Importantly, their model does not take into account whether developing countries acceded automatically as former colonies or underwent rigorous accession procedures, as is now common in WTO literature.³ Their model also uses older data and fewer countries than Tang and Wei’s 2009 model.

While the literature on the specific relationship between WTO accession and economic growth is somewhat limited, the literature is much richer in studies that examine the relationship between WTO accession and particular factors or components within an economy (e.g. trade, governance). The following sections examine these studies, which can help elucidate the effect of the WTO on economic growth, insofar as those factors are linked to overall growth.

4. DOES THE WTO INCREASE TRADE FLOWS?

This section provides an overview of the literature describing the general relationship between WTO membership and bilateral trade flows. Given that the WTO’s stated goal is “to ensure that trade flows as smoothly, predictably and freely as possible,” the literature on this general relationship focuses mostly on assessing the success (or lack thereof) of the WTO in encouraging global trade (World Trade Organization, 2017d). As such, most of the studies described in this section are backward-looking empirical models. The subsequent section discusses the literature surrounding the distributional effects of WTO accession within countries.

³ Li and Wu’s model includes a “selection effect” control variable to force the accession coefficient to capture only the effect of accession, not simply the effects of a country being ready for accession. Their selection effect variable is measured through two different methods without impacting the final results. It is only significant for low income countries.
The majority of the literature in this area centers on the issue of model and variable specification, as scholars have explored various methods to disentangle the effect of the WTO from the effects of other trade liberalization efforts, including free trade agreements and preference programs. The results are varied; many authors find evidence of a positive effect of the WTO on trade under certain conditions (such as the actual level of liberalization undertaken by acceding countries), while others fail to find statistically significant results.

Rose (2004) claims to provide the “first comprehensive econometric study of the effect of the postwar multilateral agreements on trade.” He uses a traditional gravity model of trade, a well-regarded econometric model built on the basis that the trade volume between two countries is positively related to the size of the two countries, inversely related to the distance between them, and also affected by cultural similarities, geographic concerns, and historical relationships between them. Rose covers 175 countries from 1948-1999, and he includes in the gravity model two dummy variables, one taking a value of 1 when both countries in the pair are GATT/WTO members, and the other taking a value of 1 when only one of the two countries is a GATT/WTO member. Using OLS estimation techniques, Rose finds no significant effect of WTO membership on trade flows, although he did find a positive and significant effect of a Generalized System of Preferences (GSP) relationship between two countries on the trade volume between them.

Rose (2004) encourages further research and refinement of the model. Tomz, Goldstein and Rivers (2007) modify Rose’s model to reflect countries’ de facto GATT/WTO status rather than their official status. When appropriately accounting for non-members that act like members, including colonies receiving GATT benefits, newly independent states operating as de facto GATT members, and provisional GATT members, the authors employ models employing year, country, and/or country-pair fixed effects (FE) estimation and effectively reverse Rose’s results. Rose (2007) responds to Tomz, Goldstein, and Rivers (2007), maintaining some concerns that the latter’s results do not match up with conventional thought on the impacts of the GATT. For example, Rose notes that their analysis suggests that appropriately assessing the de facto participation of non-member developing countries helps show a positive relationship between WTO membership and trade flows (Rose, 2007). Rose has difficulty reconciling this distinction with the fact that most economists regard such de facto members as essentially free-riding on the system, not actively engaging in trade liberalization.

Also in response to Rose (2004), Subramanian and Wei (2007) adjust the model and find that the “GATT/WTO has served to increase world imports substantially, possibly by about 120% of world trade.” They employ fixed effects techniques similar to Tomz, Goldstein, and Rivers (2007), and they increase the precision of the model using a single flow (i.e. imports) as the dependent variable, rather than Rose’s technique of using the total trade volume. They also more explicitly categorize country-pairs into mutually exclusive groups based on the depth of their trade relationship. For example, their gravity model isolates the effect of WTO membership on countries’ trade by excluding the effect of WTO members that have a deeper agreement in place, either a free trade agreement (FTA) or a GSP relationship. They find the following under this framework, covering the period 1950-2000, imports are significantly higher if the importer is an industrial country WTO member, while the effect if the importer is a developing country WTO member is not statistically different from zero. Similarly, holding all other gravity model terms constant, industrial WTO members are more likely to trade with other industrial WTO members than developing WTO members, and more likely to trade with developing
WTO members than non-members (Subramanian & Wei, 2007). The authors link these results to the level of liberalization that countries undertook; industrial countries were more likely to have taken part in significant liberalization negotiations, while developing countries tended to rely on special and differential (S&D) treatment rather than committing to liberalizing their own markets.

Subramanian and Wei (2007) also find evidence that developing WTO members that entered under the WTO framework rather than being grandfathered in from the GATT were more likely to have higher trade resulting from WTO membership, although signs of trade growth may come over time as their commitments are phased in. They argue that industrial countries benefited more from their membership in the past because industrial countries liberalized their trade barriers more fully, the WTO was focused on liberalizing trade in manufacturing, and countries were often granted special exemptions for trade in clothing, footwear, and food. These special protections offered for trade in clothing, footwear, and food prevented full liberalization of many developing countries’ key export goods (Subramanian & Wei, 2007). They note that the Uruguay Round of negotiations, which culminated in the creation of the WTO, was a “watershed” in the treatment of developing countries, as the body resolved to encourage new developing country members to engage in significant liberalization upon entry and reduce the use of S&D treatment for developing members (p. 169).

These results echo the forward-looking conclusions of Francois et al. (2005), who use a computable general equilibrium framework to model the potential results of the Doha Round negotiations (if concluded) on developing countries. Francois et al. find that developing countries are only likely to experience modest gains from the Doha Round unless they liberalize their own economies, especially as MFN tariff reduction by industrial countries erodes preference programs benefitting developing countries.

Similarly, Allee and Scalera (2012) examine the impact of WTO accession on trade using a series of non-gravity model regressions to predict national trade volumes (rather than bilateral trade flows) over the period 1950-2006. They divide acceders into three groups: early (1947-1953) acceders, automatic acceders (which joined after becoming independent from a GATT member), and rigorous acceders (which joined following a more arduous process similar to today’s acceders). They find that the rigorous acceders are associated with large, positive, and statistically significant trade gains, while automatic acceders do not show statistically significant results. Additionally, the authors find that the more rigorous the process (in terms of time, Working Party members, rounds of questioning, etc.), the greater the trade gains. They suggest that, although the current process can be lengthy and difficult, there is evidence that WTO accession as it currently exists is indeed worth it, as a rigorous process that includes significant liberalization by acceders has more value than the automatic accessions under the GATT.

Mansfield and Reinhardt (2008) use a series of econometric regression models with bilateral trade data to suggest that “a critical function of preferential and multilateral trade agreements is to make trade policy and trade flows more predictable.” They also find that countries with more volatile exports are more likely to enter into a trade agreement, presumably for the stabilizing effect.

While many of the papers mentioned above suggest that the WTO has a positive effect on trade, at least under certain circumstances, their results are tempered by Roy (2011), who suggests that previous
studies fail to address three common issues plaguing trade analyses: the inclusion of zero trade values, controls for multilateral resistance, and a proper definition of WTO membership. Using data from 1960-2000, Roy argues that when accounting for these concerns, there is no evidence of WTO membership increasing trade.

Eicher and Henn (2011) similarly push back, finding that accounting for unobserved heterogeneity and varying trade effects caused by preferential trade agreements (PTAs) removes many of the positive results obtained by Subramanian and Wei (2007). Instead, they only find a positive effect of WTO membership prior to PTA formation, between nearby developing countries (at the expense of more distant trade), and for larger countries with “substantial incentives to negotiate tariff reductions” (i.e. those in the 85th percentile or above with regard to total import volumes).

Chang and Lee (2011), however, use a non-parametric model to address potential hidden biases that may have been present in the parametric models of Rose (2004), Tomz et al. (2007), and Subramanian and Wei (2007) and to allow for heterogeneous effects of WTO accession. Chang and Lee reverse the results of Rose (2004) and find stronger positive results than those found in Tomz et al. (2007) and Subramanian and Wei (2007). They also explore difference-in-difference modeling, comparing differences over time between the trade of a member dyad against the trade of a non-member dyad. Their results with this model support the results of Subramanian and Wei by suggesting that WTO membership effects may be negligible in the first few years of a trade relationship, but become significant after five or six years. Additionally, they also find evidence that gains are higher for high- and middle-income economies, perhaps because the lower-income economies do not liberalize as much.

Chemutai and Escaith (2017) develop an “accession commitment index” to gauge the level of commitments undertaken by an acceding economy. They include this index in a difference-in-difference model, which they use to compare developing countries under the GATT (which often did not engage in much liberalization) against countries acceding under the more rigorous WTO process. The model allows the effects of global control variables (such as GDP growth and the availability of investment finance) to interact with each country differently. They find that the impact of WTO membership on the trade/GDP ratio is positive for developing countries, and that greater openness doesn’t necessarily negatively affect a country’s trade balance, as other studies have shown. Chemutai and Escaith do note that they essentially chose simplicity over rigor in certain portions of their model, such that their results should be viewed as general relationships.

Additional studies examine WTO accession at the country-level. Lissovolik and Lissovlik (2007) suggest that Russia (which eventually acceded to the WTO in 2012) exported relatively more to non-WTO members than to WTO members, all else equal. Ni (2016) uses difference-in-difference methods and finds that trade between Vietnam and its non-FTA partners increased following its WTO accession. The

While most of the other empirical studies in this literature review use parametric methods, Chang and Lee (2011) use non-parametric methods, through which the parameters of the model are not fixed. Instead of defining the model used to examine a relationship, non-parametric tools allow the data to determine the most appropriate model. Chang and Lee (2011) employ non-parametric models to add flexibility and address misspecification and hidden selection biases that may have been present in previous studies.
following section includes additional country-level studies that explore the diverse effects of WTO accession within a country.

5. WHAT ARE THE SECTORAL EFFECTS OF WTO ACCESSION?

There is little agreement among scholars regarding which sectors of an economy will gain the most from WTO accession. One major area of focus is the impact of WTO accession on the manufacturing sector and which product types or firm types can benefit or lose from trade liberalization. Other scholars focus on the agriculture sector. Some scholars divide countries or firms by their export intensity and import intensity, and then analyze the effects. All present evidence to support their conclusions, but there is little consensus. Difficulty arises due to scholars classifying sectors, firms, and countries under separate definitions and at different levels of analysis, and therefore arriving at contradictory results. Additionally, countries have different comparative advantages and therefore may specialize in different products following their WTO accessions.

**Theoretical impacts for the manufacturing sector**
Francois et al.’s (2005) model projected the impact of the Doha Development Agenda on developing countries. They find that because industrialized countries have liberalized manufacturing trade in the past, while protecting agriculture and processed food, they have seen larger gains from WTO membership than developing countries who have protected all goods including manufactures and agriculture. They wrote, “the basic pattern is that the industrial countries protect agriculture and processed food, while protection in developing countries is more balanced (though also higher overall) in its focus on food and non-food manufactured goods” (p.360). Their model finds that developing nations will gain only modestly from the Doha Round if they fail to liberalize their own barriers, including those to manufactures, but that the trade facilitation and services trade aspects of the Doha Round would yield significant benefits for developing countries.

In contrast, Hertel et al. (2003) create separate models for the economies of Chile, Malawi, and Vietnam and find that the Doha Round will have different impacts on the manufacturing sector in each country. Under the expected liberalization of trade in agricultural goods, manufactures, and services, Vietnam’s manufacturing sector benefits the most as light manufactures (such as apparel and textiles) expand in response to changes in employment and lowered tariffs from its trading partners (Hertel et al., 2003). Because the gains from trade will be concentrated in unskilled labor-intensive manufactures, the Vietnam model shows the largest reduction in long run poverty at 12% (Hertel et al., 2003).

**Theoretical impacts for the agricultural sector**
The theoretical impacts of the Doha Round on developing countries differ based on the relative size of their agricultural sectors, the structure of their agricultural sectors, and their status as net food exporters or importers. In the models of Hertel et al. (2003), the trade impacts on Chile and Malawi are felt mainly in the agriculture sector as prices rose. In Chile and Malawi, the authors show that benefits of higher agricultural prices would mainly go to landowners, dampening their long run poverty reduction impacts (Hertel et al., 2003). Francois et al.’s (2005) model shows that if developed nations end their agricultural subsidies, the world price of food will rise. The impact on developing countries is positive for net food exporters, those that specialize in agriculture, but negative for net food importers (Francois et al., 2005).
Evidence for the manufacturing sector

O’Neil (2016) finds that exporters of secondary goods (manufactures and other processed products⁵) and importers of primary goods (non-fuel commodities⁶) see the largest increases in trading partners and trade from WTO accession. She uses a probit model based on bilateral trade data from 1964 to 2014 to understand the changes in the number of trading partners and a gravity model of the same data to understand the quantity of exports or imports. O’Neil concludes that:

“WTO membership is more beneficial for countries exporting or preparing to export in secondary sectors than in primary sectors. For importers, it is less clear who benefits most. While it may be beneficial for consumers to purchase cheaper primary sector goods from abroad, if a country has not sufficiently established more advanced domestic industries, such competition could hurt the domestic economy, particularly if the foreign goods are subsidized” (p.11).

Similarly, Subramanian and Wei (2007) find that WTO membership promoted trade most strongly in manufacturing and had no impact on trade in clothing, footwear, and food. The authors argue that these uneven gains from trade liberalization have several potential causes. Developed countries liberalized more under the GATT, and they did so mostly in sectors important to their exporters (manufacturing), while not liberalizing in sectors important to developing countries (agriculture, footwear, clothing) (Subramanian & Wei, 2007). In addition, many of the developing countries that joined GATT between 1948 and 1994 acceded automatically without making the same reductions in their trade barriers as developed countries, and therefore receive a smaller share of the gains from trade liberalization (Subramanian & Wei, 2007).

Evidence for exporting and importing sectors

Buono and Lalanne (2012) look only at manufacturing firms and find that the Uruguay Round of trade liberalization benefited French firms that already exported manufactures, but did not induce new firms to begin exporting, even if they were in the same industry. The analysis focuses only on France because the researchers had access to a detailed customs database with data on exports by firm for 57 sectors and 147 countries from 1993 to 2002. The researchers conclude that even if there are more exporters where tariffs are lower, the decrease in tariffs does not push firms into exporting. The number of firms exporting and the variety of goods exported is unaffected by WTO membership, but incumbent exporters did increase their shipments (Buono & Lalanne, 2012). The paper calls into question results from other scholars that focus on sector-level impacts across countries, if the impacts on individual firms in the same country and same industry diverge so clearly.

In the almost exact opposite of Buono and Lalanne’s results which suggested WTO accession only benefits current exporters with more exports, Dutt et al. (2013) find that WTO membership increased

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⁵ The secondary sector includes goods such as chemicals and related products (ex. medicinal and pharmaceutical products, fertilizers, and plastics), manufactured goods classified chiefly by material (ex. leather manufactures, tires, paper, and nails), machinery and transport equipment (ex. boilers, engines, office machines, and motor vehicles), and miscellaneous manufactured articles (ex. plumbing and heating fixtures, furniture, and apparel).

⁶ The primary sector includes goods such as food, and live animals, beverages and tobacco, and crude materials, inedible, except fuels (ex. cork wood, crude rubber, and pulp and waste paper).
growth in newly traded goods but decreased trade of already traded goods. Dutt et al. find that countries traded in 25% more types of goods, meaning that they increased the variety of their exports. At the same time, the average number of exports per product fell. The authors conclude that WTO membership can increase the variety of goods traded, leading to productivity growth and welfare gains for new members. The authors also conclude that WTO membership decreases the fixed costs of trade, lowering firms’ barriers to entry in new export industries. Similarly, Handley and Limao (2016) find that WTO membership decreases trade policy uncertainty, which has the strongest benefits for exporters in high sunk cost industries.

Deb and Biswas (2017) perform a sectoral analysis of India and find that import-intensive industries, such as machinery and electronics, had the highest welfare gains from WTO accession in 1995. They also find that the rubber and metal sectors enjoyed sizable gains from trade. In contrast, the Indian chemical and wood industries had the smallest gains from trade post-WTO accession. Their model demonstrates that it can be difficult to classify gains and losses from trade into broader sectors such as commodities and manufacturing, or primary and secondary sectors.

**Evidence for the agricultural sector**
Generally speaking, the literature shows that trade in agricultural goods is currently less likely to increase after WTO accession than manufacturing goods. Agricultural goods are a type of primary good in O’Neil’s (2016) model. She finds that while countries that exported primary goods and imported secondary goods did benefit from WTO membership, they do not receive as strong of benefits as industrialized countries exporting secondary goods. Subramanian and Wei’s (2007) model also finds no benefits to trade in food from WTO membership.

### 6. CAN WTO ACCESSION HAVE POSITIVE EFFECTS ON THE BUSINESS ENVIRONMENT, GOVERNANCE, INVESTMENT POLICY, AND REVENUE STRUCTURES?

**Theory**
WTO accession may impact the business environment, governance, and revenue structure of acceding member countries. Mansfield and Reinhardt (2008) argue that WTO membership can indirectly benefit the business environment and governance through decreased trade volatility by enforcing market-access commitments, deterring new protectionist barriers, fostering transparency and policy convergence among member states, and maintaining price stability to encourage cross border trade. Handley and Limao (2016) theorize that China’s 2001 WTO accession reduced the threat of a global trade war for the benefit of China, the US, and the WTO’s smaller member states. Shah (2017) argues that WTO accession can reduce or eliminate market distortions such as local content requirements or high tariffs, which increases a developing country’s desirability as a destination for foreign direct investment.

Another area of literature on WTO accession considers the redesign of policies required by WTO accession. Sauvé (2016) explores the industrial policy options that countries could choose when they phase out their local content requirements, as they are obligated to do after acceding to the WTO. He

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7 Their model included 150 countries over the period 1962–1999.
suggests that new members could pursue policies that require foreign business investors to participate in technology transfers, meet research and development expenditure requirements, participate in joint ventures, train and build capacity for their local partners, or pursue corporate social responsibility programs. In this way, the new member country still receives the technological transfers and other indirect gains from trade that local content requirements are intended to provide, but without sacrificing any potential gains from WTO membership (Sauvé, 2016). Jensen and Tarr (2008) model how Kazakhstan’s WTO accession would eliminate local content requirements and other restrictions on FDI. They find that after accession, the country could expect welfare gains equal to 3.7% of its GDP in the medium term. In their model, the liberalization of FDI in services sectors creates 70% of the benefits from Kazakhstan’s WTO accession.

Similarly, Erbrill et al. (2002) theorize that trade liberalization could be structured so that it does not necessarily lead to losses in government revenue despite lowering tariffs. In their study of different types of trade liberalization, they argued that replacing nontariff barriers with tariffs, eliminating tariff exemptions, and removing trade-related subsidies all increased government revenue. In addition, reducing tariff dispersion, eliminating state trading monopolies, reducing high average tariffs, and lowering maximum tariffs all were policies that had ambiguous revenue impacts (Erbrill et al., 2002). Only reducing moderate or low tariffs was certain to reduce government revenue (Erbrill et al., 2002). They recommended that a country pursuing trade liberalization should begin by first pursuing the measures that have a positive impact on government revenue.

Some scholars consider the impact of WTO accession alongside other domestic reforms. In a study that focuses specifically on Belarus, Balistreri et al. (2017) find that privatization reform has a much stronger potential impact than WTO accession. Their study finds that Belarus can expect welfare gains equal to 2.4% of its GDP from WTO accession, but that domestic privatization reforms would have a much larger impact of 17.4% of GDP. In this case, domestic reforms on their own have a stronger positive impact than WTO accession on the economy (Balistreri et al., 2017).

Evidence
Scholars have found evidence that, with appropriate caveats, WTO membership decreases trade volatility, contributes to economic growth in countries with weak governance, encourages foreign direct investment, and may have an impact on corruption and governance. Evidence suggests WTO membership makes international trade policies and transactions more predictable, attracting greater trade and foreign direct investment. Tang and Wei (2009) find that WTO membership contributed more strongly to economic growth in developing countries with weak governance. Mansfield and Reinhardt (2008) model trade volatility in five different ways, and in all their models WTO membership decreases trade volatility while increasing exports. They consider the decrease in volatility to be a sign of the indirect effects of trade, and consider it to be a positive impact of WTO accession as predictability and stability are often preferred by governments and firms.

Using an adapted gravity model covering bilateral trade flows from 1984-1999 for 190 countries, Flach and Cao (2015) find that GATT/WTO membership reduces price volatility for both importers and exporters. Their results also suggest that the effect is stronger for countries (both importers and exporters) that increase their number of trade partners over time and for countries that adopted more
rigorous accession commitments. While they do not specifically test for the mechanisms through which the reduction in price volatility occurs, they hypothesize that increased transparency and convergence in trade policy instruments help guard against the transference of domestic price shocks to global markets through a so-called “price multiplier” effect (Flach & Cao, 2015).

Additionally, Handley and Limao (2016) model the reduction in trade policy uncertainty for small exporting countries caused by China’s accession to the WTO. They find that China’s accession reduced trade policy uncertainty, leading to lower prices for exports, especially in industries that have high sunk costs of exporting. In the model, China’s accession decreases U.S. domestic manufacturing sales and employment by more than one percent, but also lowered the price index and thus improved consumer welfare by the equivalent of a permanent tariff decrease of 13 percentage points on Chinese goods (Handley & Limao, 2016).

Büthe and Milner (2014) use econometric regressions to show that while GATT membership did not have an effect on foreign direct investment (FDI) inflows, WTO membership “sometimes leads to significant inward FDI flows.” They suggest that this relationship, likely due to the WTO’s deeper commitments and dispute settlement mechanism, may be a reason why developing countries choose to join the WTO (Büthe and Milner, 2014). Shah (2017) finds that WTO membership significantly increased the amount of FDI into East Asian and Pacific developing countries between 1988 and 2015. His model controls for the impact of trade liberalization and other domestic factors such as market size and inflation. His results suggest that WTO membership has an indirect positive impact on the desirability of a country for FDI, outside the intended direct effects of trade liberalization.

The evidence surrounding the WTO’s effect on governance and corruption is mixed. Aaronson and Abouharb (2014) examine the effect of WTO membership on governance for countries that appropriately “anchor” policies upon accession. They achieve “strong qualitative and mixed quantitative results.” When perusing WTO documents, they find clear evidence that governance issues come up during both the accession negotiations and subsequent Trade Policy Reviews. Their quantitative analysis suggests that countries that made significant reforms upon accession showed better results on “access to information” and “evenhandedness,” but were actually weaker in the area of due process (Aaronson & Abouharb, 2014).

In contrast with the sentiment from Aaronson and Abouharb (2014), Choudhury and Millimet (2016) use a nonparametric approach with firm-level data on bribe payments to show that WTO membership may actually exacerbate corruption. This result is driven by evidence from countries high market entry regulations, low net outflows of FDI, and significant representation of government-owned firms (Choudhury & Millimet, 2016). They acknowledge that this result assumes that there is no misclassification in the sample (i.e. where countries act as members without formal membership), but even if misclassification exists, the authors note that there would still likely be evidence of increased corruption in certain sub-samples of countries.

Javorcik and Narciso (2017) look at the impact of the WTO’s Customs Valuation Agreement (CVA) on tariff evasion. Because the CVA requires an importing country’s customs officials to accept the invoice prices issued by the exporter, it removes an opportunity for customs officials to solicit bribes at the border. While Javorcik and Narciso (2017) find a decrease in the gap between values reported by
exporters and importers, indicating a clear decrease in tariff evasion, they acknowledge that removing this one opportunity for corruption does not prevent other types of corruption, such as underreporting of quantities and product misclassification. Overall, they find that the level of tariff evasion remains unchanged.

7. CONCLUSIONS AND FURTHER RESEARCH

In conclusion, the literature supports a link between WTO accession and economic growth under certain circumstances, the most common of which is that the evidence shows that positive outcomes often depend on the depth of a country’s own commitments. WTO accession is shown to increase a developing economy’s growth rate for approximately 5 years if the country was subject to rigorous accession procedures, leaving a long term positive effect on the size of the country’s economy. The more a country commits to its own trade liberalization, the higher trade growth is likely to be following WTO accession. The impacts of WTO accession are likely not equally shared within a country, and effects differ between countries with different resource endowments and comparative advantages. WTO membership also may positively impact the business environment and help attract foreign direct investment through greater predictability and improved governance.

The literature is limited in the sense that there are very few scholars who addressed a direct link between WTO accession and economic growth, with only two cross-country econometric studies. It is notoriously difficult to draw solid conclusions from cross-country economic growth studies, and it would be risky to read too much into just two studies (Durlauf et al., 2005). In addition, we only sample the literature regarding WTO accession’s effects on the business environment, governance, and corruption in this review. A wider body of scholarly works, such as those in the fields of international law and international finance, also touch on these issues. Finally, while this literature review includes a number of country-specific studies, it represents only a sample of existing country-specific studies and focuses on those with more globally applicable conclusions.

EADS has identified several avenues for further research that could augment the utility of this literature review for USAID/E3/TRR:

1. **Construct a Tableau dashboard with data and visualizations relevant to the literature.** EADS would construct a Tableau dashboard that would allow users to explore the relationships identified in this literature review at a country level or at other levels of aggregation. For example, the dashboard would allow users to correlate the level of rigor associated with a country’s WTO accession with common trade indicators (exports, imports, “Trading across Borders” indicators from the World Bank’s Doing Business index, increases in the number of trading partners, logistics performance indicators, etc.) or growth, governance, or business environment indicators. EADS would model indicators of the rigors of WTO accession on those used in the literature, including measures of the time between application and accession, the number of questions asked during accession negotiations, the number of rounds of questions, the working party member count, or the number and/or type of concessions made. EADS would also create options to control for region, GDP, or other factors that are known to impact trade volumes.
2. **Analyze WTO accession as a “structural break” in country-level data.** EADS would create time series models and data visualizations to empirically show structural breaks (changes in the trends) of exports and imports of selected countries over time. We could mark these structural breaks with the countries’ WTO accession dates along with other significant country-specific events to further explore the impacts of WTO accession at the country level.

3. **Perform additional country-level research and analysis.** Specific countries’ reforms for WTO accession focus on different aspects of their economies, which could lead to divergent economic impacts and make it difficult to generalize results across all developing countries. In general, country-specific studies might yield more reliable results and predictions, as suggested by the numerous cross-country studies on sectoral effects which provide different conclusions based on the nature of each country’s economy. EADS would work with TRR to identify a specific country or countries of interest and design further research with this in mind.

4. **Re-run the Tang and Wei (2009) analysis.** EADS would explore methods to rerun the Tang and Wei (2009) regression, which used data from 1981 to 2003, and see if their results hold when more recent data is incorporated.

5. **Expand this literature review.** EADS would broaden the literature review to include the wider literature on trade liberalization (other than WTO accession) and its relationship with economic growth, include additional country-level studies, and/or further explore specific issues, such as WTO accession’s impacts on corruption or FDI.


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