

TRADE RELATED INSTITUTIONS AND DEVELOPMENT*

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Abstract

The paper focuses on the role played by Trade Related Institutions (TRIs) in shaping trade flows and their development impact in low income countries and how these TRIs are shaped by international trade. Three types of TRIs are examined: i) trade agreements; ii) trade promotion organizations; and iii) private TRIs, i.e. fair trade labelling, trading platforms and reputation mechanisms. Recent research reviewed for each type of TRI is then followed by suggestions for further work.

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1 Introduction

It is only a slight exaggeration to say that until the publication of two papers in 1995, trade economists were comfortable in saying that international trade was largely governed by differences in endowments and productivity especially so since the ongoing worldwide reductions in barriers to trade were erasing borders. Trebler (1995) convincingly showed that accommodating home market bias in consumption and differences in technology trump factor endowment differences as determinants of trade patterns. McCallum (1995) showed that borders matter considerably more than predicted even for highly integrated countries like the US and Canada. Since then trade economists have turned their attention to the role of institutions in explaining the pattern of trade. Inspired by the work on institutions and development by North and colleagues (Milgrom et al 1990) and by the institutions-and-growth-literature (Acemoglu et al. (2005)), Nunn (2007), Levchenko (2007), Chor (2010) and others have argued and given evidence that current-day trade is largely co-determined by the quality of contracting institutions and the traditional technology and endowments environments. This literature is surveyed by Nunn and Trebler (2015), both historically and more narrowly focusing on the sources of manufacturing comparative advantage.

From a developing-country perspective, the takeaway is that domestic institutions are needed to solve contract problems to get the economy to diversify towards the production of more sophisticated productivity-raising goods but also that initial conditions, some deeply rooted in history, have been determinant in the pattern of trade and subsequent path of domestic institutions. While market failure due to the lack of contract enforcement is no doubt important for low-income countries, other obstacles are equally important. These include those associated with externalities, information asymmetries, and coordination failures and are the subject of this survey.

This survey focusses on trade-related institutions (TRI) as they affect trade (and are affected by trade) in developing countries. Since almost everything that touches on institutions can be viewed as trade-related, for example the literature on trade and political institutions, to try and limit institutions to those that are more directly targeted to traded activities we focus on 'new' market failures that may appear as firms and consumers reach international markets. Domestically these may be related to the changing nature of the relation of transactions (e.g. related to arm's length transactions like reputation, contractibility) or existing market failures that may be exacerbated by trade (e.g. regional public goods, property rights for common pool resources may be exacerbated by the opportunity to trade).

To set this focus in perspective, section 2 recalls very briefly the deep long-run factors that have been identified as having an influence on the contemporary trade-institutions relation as captured by macro performance indicators. The extensive cross-country literature on growth, trade and institutions has been unable to bring convincing evidence to confirm three often-cited anecdotal conjectures: that countries with better 'institutions' and countries that trade more grow faster; and that countries with better institutions tend to trade more.

The survey then concentrates on three categories of TRIs. Section 3 starts with trade agreements—regional and multilateral agreements-- that shape the developing countries' position in the World Trading System. Section 4 surveys what we know about Trade Promotion Organizations (TPOs) that have been set-up to help firms participate in international markets by confronting the widespread externalities they face (lack of information about foreign markets, discoveries by pioneer exporters, coordination failures or

the absence of private insurance schemes). Section 5 examines private TRIs: labelling, fair trade, consumer boycotts, and trading platforms as transmitters of reputation mechanisms. The issue here is the extent to which private sector interests can be aligned with broader development objectives since in the presence of not only market failures, but also government failures, private-sector institutions may provide an alternative to public institutions.

Each section is organized into two subsections. In a first subsection the focus is on what we have learned about each of these selected issues in the existing literature, focusing where possible on low-income countries. In a second subsection, we suggest areas and we then turn into what we would like to know about each of these issues and their impact on development in the literature ahead. Throughout, the focus is on lessons from empirical contributions. Section 6 concludes.

2 Trade, Growth, and Institutions: From deep to shallow determinants

A growing literature on the deep determinants of development has explored the role of biological and cultural factors in long term development outcomes. Long-term historical factors, as captured by relative genetic distance and cultural differences have been found to predict population levels around 1500, and more recently, income per capita. In Africa, Michalopoulos and Papaioannu (2013, 2014) show that national institutions have little effect on economic performance of homogenous ethnic groups separated by national borders and 'dual' economic-institutional infrastructures co-exist with customary rules being dominant in the countryside and colonial-national institutions becoming relevant for regions closer to the capitals. Long term differences in technology and productivity hold at the level of populations rather than locations. Spolaore and Wacziarg (2009) find that the persistence in comparative development outcomes across populations is strongly correlated with the relative genetic distance to the technological frontier so that populations that are historically farther from the innovators tend to face higher costs to imitate and adopt new technologies. The implication is that to understand differences in trade outcomes one must not only consider differences in geography, policies, and institutions (e.g. relation-based or rule-based institutions) but also the transmission of biological and cultural factors. The findings of this literature, summarized in Spolaore and Wacziarg (2014), are beyond the scope of this survey but should be kept in mind when studying the trade-institution nexus in low-income countries.¹

Initial conditions and comparative advantage have also been found to play an important role in the historical development literature on domestic institutions reviewed by Nunn and Trefler (2015). The rise of the three-corner Atlantic trade (exports of slaves from Africa, commodities from the Americas and manufactures from Europe) following the discovery of America supports the view that endowments and initial conditions determined comparative advantage. In turn, the resulting distribution of income subsequently shaped long-lasting institutions. To this day, less trust pervades societies involved in transatlantic slave trade that required insecurity of property rights and disrespect of human rights. Likewise, specialization in plantation in South America resulted in comparative advantage that generated a very unequal distribution of income that allowed the elites to establish growth-retarding institutions to protect their dominant position (Engerman and Solokoff, 1997 and 2000, and Dell, 2010).² In those environments, positive terms-of-trade shocks in coercive

¹ Genetic distance refers to differences across populations and genetic diversity to heterogeneity within populations. Genetic diversity (highest among African and lowest among Amerindian populations) should be productivity-enhancing and costly because it may reduce trust and coordination among individuals. Cultural diversity and patterns of cultural transmission are also important on long term development outcomes. Spolaore and Wacziarg (2014) summarize this large literature that points to the persistence culture traits through intergenerational transmission. Guiso et al. (2009) find that somatic distance between European populations is negatively correlated with bilateral trust and, in turn, with bilateral trade. Felbermayer and Toubal (2010) find that one third-of the trade-cost channel in bilateral European trade is attributable to cultural distance. Maystre et al. (2014) find that cultural values, as captured by the World Value Surveys exhibit high frequency variation in response to trade shocks.

² In Europe, the growth of long-distance medieval trade triggered a shift from relation-based to rule-based trade with higher fixed costs but lower marginal costs. The long history of Venice's Republic saw the rise of a merchant class that pushed for modern innovations in contracting institutions (i.e. the commenda) while shifting power in their favour that they then used to set up a coercive apparatus to suppress opposition. (Puga and Trefler (2012)). In their review of the historical literature, Nunn and Trefler (2015 section 5) report more evidence that historically trade and comparative advantage have been key in the development of domestic institutions.

societies led to increased coercion rather to wage increases. Contemporary evidence on oil discoveries suggests they causally move regimes away from democracy (Tsui, 2011). Nunn and Trefler (2015) conclude "...conjecturing that the impact of international trade on domestic institutions is the simple most important source of the long-run gains from trade."

Moving to the contemporary trade-growth-institution link, for a long time, trade economists have been confounded by the trade-income link: is trade an engine of growth or a handmaiden of growth? In an early influential contribution, that addressed the two-way causality between export growth and GDP, Feder (1982) set up a model in which the marginal productivity of capital could be higher in export sectors. He found support for this conjecture in a sample of semi-industrialized countries over the period 1974-73. But the subsequent extensive cross-country literature on growth, trade and institutions has been unable to bring convincing evidence to confirm three often-cited anecdotal conjectures: that countries with better 'institutions' and countries that trade more grow faster; and that countries with better institutions also tend to trade more.³

Two studies leading to contrasted conclusions illustrate the difficulties confronting cross-country macro-level studies. Using an event-analysis in which they identified significant breaks in the trade regime by inspection of trade policy reports, Wacziarg and Welch (2008) found that countries liberalizing trade for at least eight years experienced an increase in investment rates and growth accelerations following the trade liberalization. These results are subject to confounding influences, as trade liberalization was usually part of broader reform packages and were subject to reverse causality. Using tariff data for a cross-section of 63 countries over the 1972-2000 period, Nunn and Trefler (2010) uncover a strong correlation between aggregate growth and a country's tariff structure that protects disproportionately skill-intensive sectors (a proxy for R&D spending) where sectors where a cut-off was used to separate high and low-skill intensive sectors. To get at causality, they add an industry dimension (18 sectors) and find that a skill-biased tariff distribution causes a differential expansion of skill-intensive industries which is beneficial for growth. But this mechanism only explains 25 percent of the correlation between growth and the skill bias of tariffs. They then add six standard indicators of governance from the World Bank to control for the omission of the institution channel on the grounds that it is countries with better institutions that protect skill-intensive sectors. Adding these variables nibbles another 35-40% of the correlation still leaving 40 percent of the correlation to be explained. Remarking that these governance indicators supposedly focus only on corruption and illegal rent-seeking, on the basis of correlations of the skill-bias of tariffs with new measures of political connections and diplomatic tickets, Nunn and Trefler stretch their argument to say that the remaining correlation can be explained by purely legal and socially acceptable rent-seeking activities (see their figure 3) that enter prominently in the political economy models of trade policy to conclude that the skill-bias of protection might be an improved measure of rent-seeking activity.

Much work has also been carried out on trade costs for macro studies. Exploiting the closing of the Suez Canal for 8 years--a truly exogenous shock--Feyrer (2009) estimates an elasticity of trade to distance about half the typical value of cross-section estimates suggesting that the

³ Dollar and Kraay (2003) is an example of that literature. See Pritchett's (2003) comments on how the authors are unsuccessful in their "torture test" causality. François and Manchin (2013) also deal with 5-year panel data in a gravity model. They try to disentangle the effects of differences in the quality of infrastructure and institutions on bilateral trade using a structural gravity model. Their two-stage estimations take zero trade flows into account but their attempt to account for the endogeneity of infrastructure and institutional quality had to resort to lagged principal components of various measures of infrastructure and institutional quality.

typical cross-country estimates are capturing the effects of omitted variables. He then uses the predicted trade volumes to identify the effect of trade on income, obtaining plausible estimates of the effects of trade in goods on income that are not subject to the omitted variable bias of the Frankel and Romer (1999). Also, in spite of progress, this literature still has to solve the “distance puzzle” for low-income countries first uncovered by Leamer and Levinsohn (1995).⁴ Bergstrand et al. (2015) do find evidence of decreasing international trade costs relative to internal trade costs for 40 (mostly developed) countries and 8 manufacturing sectors. Persisting high internal trade costs in low-income countries are likely to hamper their participation in international trade in spite of falling international trade costs. As an example, based on micro consumer price data, Atkin and Donaldson (2015) estimate that the log of distance on internal trade costs is about four times higher in Ethiopia and Nigeria than in the US and that all the benefits from a reduction in price goes to intermediaries rather than to the final consumers. For low-income countries, more reliable estimates of trade costs may be obtained by disaggregated estimates at the sectoral level as in Bergstrand et al. (2015) but further insights on trade costs from gravity-based estimates of trade, will have to await until we have better estimates of internal vs. external trade costs.

In sum, usually lacking a convincing counterfactual, macro evaluations of trade costs, most of them based on the gravity model, cannot escape the problem of attribution as they generally lack a convincing counterfactual macro evaluations of trade costs have had difficulty establishing their different components (hard or soft infrastructure, at or behind-the-border policies) and the links with the institutional environment. Reviewing the evidence, Goldberg and Pavcnik (forthcoming) conclude that the growing perception that trade policy is no longer relevant is largely due to our inability to measure the various forms of non-tariff barriers that have replaced tariffs as the primary tools of policy including in many developing countries.

Finally, more directly linked to our preoccupations, a large literature establishes that domestic contracting institutions have a strong impact on the current pattern of comparative advantage across manufacturing sectors. As an indication of the overall importance of contracting institutions on the pattern of comparative advantage, Nunn and Trefler report results on the correlates of bilateral trade in manufactures at the 2-digit ISIC level for a group of 83 countries that include the traditional Heckscher-Ohlin determinants of bilateral trade along with indicators of the contract-intensity (product-market, labor market, and financial markets) of sectoral production. These indicators of contract-intensity across markets, when entered interactively with indicators of governance as captured by the rule of law of Kaufmann et al. (2003), all enter significantly with several as important quantitatively as the traditional indicators of comparative advantage (see their table 4).⁵ One would also expect

⁴ Leamer and Levinsohn noted that contrary to expectations from a ‘death of distance’ (in which international trade costs fall more rapidly than internal trade costs), in repeated estimates of the gravity equation, the distance coefficient usually failed (and sometimes) increased in value. Many explanations have been put forward, none fully, satisfactory since the puzzle seems to persist for low-income countries (see Carrère et al. (2013)). Calibrations of the gravity equation à la Novy (2012) by Arvis et al. (2013) also find that the gap in trade costs between low-income countries and other country groupings have not fallen over the 1995-2012.

⁵ The quality-of-institutions indicators are: product-markets (relationship-specificity of inputs, Herfindhal index of concentration of inputs, job complexity all multiplied by an indicator or rule of law); labor-market (sales volatilityX labor-market flexibility); and financial market (external finance dependenceX financial dependence). Industry measures are taken from the US Regressions include country and industry fixed effects. See table 5.4, p.287. Nunn and Trefler discuss reverse causality, omitted variable bias and benchmarking bias from using US data for all countries. All said and done, the robust conclusion is that contracting institutions matter for comparative advantage.

that the quality of contracting institutions to matter for the observed concentration of exports in low-income countries and probably matter for the short life of their exports.⁶

⁶ Hausman, Hwang and Rodrik (2007) develop an indicator of the income level of a country's exports that could be correlated with the indices of the contract intensity of production. In a sample covering 1985-2005 that includes 22 low-income countries, Brenton et al. (2010) find a lot of heterogeneity in survival rates at the HS-4 level and that regional and product-specific experience count most for export survival for low-income countries.

3 Trade Agreements

Trade agreements are the most common TRI. When the General Agreement on Trade and Tariffs (GATT) started multilaterally regulating international trade relations in 1947, it only had 23 members. A large majority were high income countries with a few middle income countries and no low income country. Today GATT's successor, the World Trade Organization (WTO), has 162 members with another 16 countries currently negotiating accession. This leaves only 17 countries outside the WTO system, of which the largest are Eritrea, North Korea, Somalia, and Turkmenistan. Figure 1(a) shows that trade openness has grown equally among members and non-members and figure 1(b) shows a growth in membership following the creation of the WTO.

Figure 1: Openness (1a) and Membership Growth (1b) in the GATT/WTO

Preferential Trade Agreements (PTAs) have also proliferated since the early 1990s.⁷ Table 1 shows the current landscape of PTAs. One sees a very large number of PTAs among developing countries (henceforth South-South) in both goods and services. Interestingly, membership has expanded beyond regional or 'natural' partners.⁸ Since the signing of NAFTA in 1994, PTAs between developed and developing countries (henceforth North-South) have also become more common as can be seen in Table 1.

Table 1 Active PTAs in Goods and Goods & Services by country group and type of region

The rapid increase in WTO membership by developing countries and their rapidly growing participation in South-South and North-South PTAs are likely to have affected their development prospects through the insertion of their economies in global markets. Development prospects must have probably evolved also through the change in domestic institutions imposed by trade agreements, in particular after the creation of the WTO at the end of the Uruguay Round and the rapid growth in North-South trade agreements.

Indeed, until the completion of the Uruguay Round in 1994, international trade relations were largely governed by the GATT in a 'live and let live' environment where disputes were resolved through diplomacy rather than rules-based dispute settlements. Low-income members in particular did not participate in the negotiations and could opt out of agreements.⁹ Then, the primary function of the GATT was a forum to bring members to negotiate reciprocal tariff reductions (i.e. 'shallow' integration) among members.

⁷ This surge in PTAs largely coincided with the launch of a continental FTA across the Americas in 1991 as the US was turning away from multilateralism under the fear that the Uruguay Round negotiations would not conclude. For the EC, the spread was ongoing anyway. In his review of the political economy of EC regionalism, Sapir (1998) notes that regionalism, especially trade preferences, have always been the principal instrument of foreign policy of the EC. The proliferation might have also been reinforced by the fact that the portfolio for foreign relations was divided among four EC commissioners. He also notes that the US opposed the EC having reciprocal FTAs with ACP countries until it also moved away from championing multilateralism.

⁸ A literature has developed that because proximity supposedly results in lower transport costs, regional PTAs are more likely to be welfare increasing. The debate is unsettled, though for the US over the period 1965-95, Krishna (2003) finds no evidence to support the thesis that the welfare effects of preferential trade with geographically close partners is welfare increasing.

⁹ Historically, until they gained in importance in world trade and their import-substitution-led development strategies were shown to be dominated by the export-led strategies of some Asian countries, developing countries, especially low-income countries were either outside the GATT or they were by-standers throughout the GATT rounds. Developing countries were peripheral to the WTS, relying on non-reciprocal preferences from

The advent of the WTO brought the single undertaking (i.e. all members including those wishing membership had to sign all disciplines) and with it the obligation to grant not only trade concessions in goods (GATT), but also services (GATS), trade related investment measures (TRIMS), intellectual property (TRIPS), customs procedures, sanitary and phito-sanitary measures (SPS), and a dispute settlement understanding (DSU). The objective was to bring greater transparency in measures affecting trade and to house a forum to help resolve trade disputes among members. This new environment implies a much deeper integration among WTO members which impose a new set of rules and institutions, particularly among developing countries. The fact that the number of developing country members kept growing is an indication of the applicants' perceived gains of membership in this new environment, and this in spite of the more stringent accession requirements.¹⁰

Similarly, in their review of regionalism at the time, Melo and Panagariya (1992) conjectured that, as opposed to the first wave of North-North and South-South RTAs (where most South-South RTAs were not implemented) during the 60s and 70s, the new wave of RTAs, many of the North-South type were likely to be welfare improving. Drawing on the stylized outcomes of multilateralism under the GATT, Ethier (1998), sketches a theory confirming this conjecture. According to Ethier (1998) the second wave of North-South RTAs has allowed the reform-minded developing countries to buy deep links with large countries and has been complementary to multilateralism. On the other hand several authors have raised concerns about the possibility that the institutional and regulations changes imposed by the North on their Southern partners may not be adequate to their level of development (Disdier et al. , 2015, or Wade, 2003).

In the next sub-section we would look at what we know about the impact that both the WTO and RTAs have had on the development prospects of low income countries. Both directly on their trade flows with other countries, but also indirectly through changes in rules, institutions and rent-seeking in low income countries. We will then turn to what is it that we would like to know about the impact of the WTO and RTAs on the development prospect of these countries.

3.1 Trade Agreements (TA): what do we know?

Interdependence in the trading system implies that a government's actions affects outcomes abroad and each government would like others to take its concerns into account when setting policy. Such an outcome can only occur if there is all-around willingness to cooperate. The dominant literature about TAs, especially when it comes to empirical support, is that they are about correcting the damage (externalities) that countries' inflict on their partners; call it terms-of-trade manipulation or denial of market access.¹¹ Developed by Bagwell and Staiger

industrial countries (the Generalized System of Preferences--GSP) and on a first wave of South-South reciprocal Regional Trade Agreements (RTAs). First in 1971, then in 1979, the LDC category (set up in 1971) established the 'enabling clause' providing the legal basis for Special and Differential Treatment (SDT) and the very lenient treatment until the establishment of the WTO (see Ornelas (forthcoming)).

¹⁰ Under the GATT, article 33 on accession required a 2/3 majority to accept the applicant and was usually left to a working party with few votes taking place in practice. However, article XXVI granted membership automatically on the basis of sponsorship that was usually obtained by the former colonial power. Under the WTO, the accession process (now article 12 of the WTO Agreement) is formally the same, though all applicants have to go the process that includes a longer list of required agreements to negotiate (GATS, TRIMS, TRIPS...) as well as the prevalence of WTO+ requirements that go beyond the obligations of established WTO members that do not have to change their commitments.

¹¹ Other reasons for a TA beyond those examined below include profit-shifting via firm-delocation which could be another beggar-thy-neighbour motive for trade policy that could be internalized by a TA. Ossa (2011) develops a monopolistic competition where protection attracts foreign firms to the home country resulting in a welfare loss

(1999, 2002, 2010), it delivers two important results. First it shows that absent cooperation, countries will be caught in a prisoner's dilemma as they will seek to maximize their terms-of-trade. Second, reciprocity and MFN, the two pillars of the GATT/WTO are sufficient to remove this externality, even if countries have other motives than maximizing welfare as would be the case if the government's objective includes a certain distribution of income. In that case, by removing the terms-of-trade externality, reciprocity and MFN will deliver the politically optimum trade policy for each country.¹²

The TOT rationale for trade agreements has been confronted to the data and has found empirical support. Broda, Limão and Weinstein (2008) find that over the period 1993-2000, non-GATT members impose higher tariffs where they have market power confirming the first result above. Simulations by Ossa (2014) also suggest that the observed tariff reductions under GATT/WTO are compatible with the TOT rationale for trade agreements. Indeed, Ossa (2014) calculates that the median Nash equilibrium in a multisector 7-region model would be as high as 58 percent, which corresponds to the magnitudes observed during the tariff wars of the 1930s when there was clearly no cooperation in tariff setting. Bagwell and Staiger (2011) provide evidence that the use of market power is neutralized upon WTO accession, which provides support for the second result above.

One could conclude from this literature that the WTO has been successful at internalizing TOT externalities. Two recent papers, however, suggest that TOT may not yet be fully internalized in the WTO leaving room for further cooperation. Using a model with many exporters to a given market, Ludema and Mayda (2013) show that WTO importers may still be able to use their market power when setting tariffs. Free-riding by some exporters in tariff negotiations will result in MFN tariffs not being fully internalized. They empirically show that WTO members MFN tariffs exhibit their market power, particularly when they are facing exporters which are not heavily concentrated. Nicita, Olarreaga and Silva (2015) use the fact that WTO members negotiate maximum tariffs (called tariff bindings) above which they cannot set their applied tariffs to show that whenever there is a difference between the tariff binding and the applied tariff (labelled tariff water), WTO members set their tariffs non-cooperatively. Given that tariff water exists in more than three quarters of WTO members tariff lines, this suggests that tariffs are rarely set cooperatively in the WTO. Bown (2015) further shows that future WTO accessions also lead to a reduction in applied tariffs for acceding and WTO members. These three papers tend to suggest that there is significant room for further internalizing TOT among WTO members. This is the view adopted by Bagwell, Bown and Staiger (2015) in their survey of the TA literature.

The potential for low income countries to further internalize their TOT is particularly large since the extent of tariff water in their WTO schedule is much larger. As Table 2 illustrates, the amount of tariff water in low income countries is on average 5 times larger than in high

(gain) for the (foreign) home country. A TA would then internalize this externality. In a model with fragmentation of production and offshoring with trade in intermediate inputs where prices are determined by bilateral bargaining between buyers and sellers, Antràs and Staiger (2012) show that a hold-up problem occurs when relationship-specific investments are required when contracts between buyers and sellers are incomplete. Then a TA will help raise an inefficiently low level of investment under free trade. Using the value-added content of exports for 14 major economies over 1995-20009, Bown et al. (2016) find that final goods tariffs are decreasing in the foreign content of domestically-produced final goods and also when domestic content of foreign goods is high. Grossman (2016) reviews these theoretical contributions on the rationale for trade agreements as well as international agreements to protect intellectual property.

¹² The third result is the "subsidy puzzle", i.e. that the GATT should encourage countries to use subsidies to reduce the externality they inflict on partners. Since subsidies are prohibited by the GATT, this result sits poorly in the dominant theory. Maggi (2014) and Grossman (2016) discuss the subsidy puzzle and conditions needed to solve it.

income countries. For manufacturing goods it is 7 times larger and tariff water is 72 percent for agricultural goods in low income countries. So, in principle, there is still significant scope for bringing low income countries closer to a more cooperative behavior within the rules set by the WTO.

Table 2 Tariff Water in the WTO

The problem with this view is that it implicitly assumes that low income countries have market power. The empirical literature reviewed earlier tends to show that when low income countries have market power they will use it to set tariffs non-cooperatively if they are outside the WTO or if there is water in their tariff schedules. But using the estimates of export supply elasticity of the rest-of-the-world, Nicita, Olarreaga and Silva (2015), estimate that for the twelve low income countries in their sample, the average optimal non-cooperative tariff is 0.9 percent—much smaller than the 53 percent estimated for major trading partners by Ossa (2014).¹³ The internalization of the externalities caused by the use of such small market power is unlikely to provide a rationale for low income countries to participate in trade agreements. So to a large extent the mainstream theoretical and empirical literature for the existence of TA seems orthogonal to the rationale for low income countries to participate in TA. Indeed, much of the growing evidence in testing the TOT reviewed by Bown (2015) relates to developed countries.

Among the other rationales for a TA, the commitment theory appears most applicable to developing countries. Initiated by Staiger and Tabellini (1987), the main contribution is by Maggi and Rodríguez-Clare (1998) who view TAs as a commitment device for governments' vis-à-vis domestic lobbies. In a model where governments cannot credibly commit to the socially optimal policy, overinvestment by producers in import-competing sector will lead in equilibrium to overprotection of import-competing sectors. A TA then provides a credible commitment device through which governments tie their hands when facing import-competing lobbies.

To our knowledge, there is little empirical evidence supporting these predictions a reflection that the predictions have not been confronted to the data so far.¹⁴ There is however indirect evidence suggesting that the commitment theory may be the driving force. From an examination of data for all developing countries between 1980 and 2001, Tang and Wei (2009) find that GATT/WTO accession tends to raise income temporarily (growth and investment accelerate for 5 years leading to an economy permanently larger by 20%), but only for those countries with poor governance, results supportive of the commitment explanation of TAs.

Extending the results of Tang and Wei (2009), Allee and Scalera (2012) examine the effects of different types of GATT/WO accession negotiations on trade flows after classifying

¹³ The optimal non-cooperative tariff is simply given by the inverse of the export supply elasticity faced by each importer. The larger is the elasticity (i.e., the more elastic is the supply of the rest-of-the-world) the smaller is the optimal tariff. The twelve countries are Benin, Burkina Faso, Central African Republic, Madagascar, Malawi, Mali, Niger, Rwanda, Uganda and Togo. See Table 1 in Nicita et al. (2015).

¹⁴ Maggi (2014) reviews the evidence of the commitment theory: Staiger and Tabellini (1987) for the US, and Liu and Ornelas (2014) that a TA serves as a commitment device for fragile democracies. An exception is Arcand, Olarreaga and Zoratto (2015) who show that trade agreements are more likely to be signed by governments which do not give either too much or too little weight to social welfare in their objective function which is one of the predictions in Maggi and Rodríguez-Clare (1998). The reason for this is that governments that give a lot of weight to social welfare will not be sensitive to lobbying by import-competing producers, and those that give too little weight to social welfare and put all their weight on the lobbying rents will have no incentive to pre-commit to free trade through a TA.

countries into three groups: early accession (33 members), automatic accession under the GATT for former colonies (65 members) and rigorous accessions (50 members) over the period 1950-2006.¹⁵ In a panel in which exports are correlated with per capita GDP and other controls, they find robustly that countries that engaged in the greatest amount of accession-driven trade liberalization experience the greatest amount of trade increases after joining while those that made little commitment to liberalization experience no trade increase. In all cases, trade gains decline over time. While the identification strategy deserves further scrutiny (endogeneity of GDP, omitted variable bias), their robustness to the measures of stringency of accession suggest that the modalities of GATT/WTO membership may be evidence of the importance of institutions on trade outcomes.

There is a conceptual problem with the theory that sees TA exclusively as a commitment device. It is not clear what would be the incentives for the trading partner to enforce the agreement. This is partly solved in Maggi and Rodríguez-Clare (2007) that put together the two rationales for TA: the TOT and the commitment device. There remains however a puzzle: what about low income countries with very little market power? The credibility problem clearly gives this type of country incentives to sign TA with countries with partners that have large market power and that would sanction them if they were to deviate from their commitments. But it is difficult to see the incentives for the large trading partner to enforce these agreements if the low income country has no market power. And without credible enforcement by the large trading partner, there is no credibility gain for the low income country from the TA.¹⁶

Note that this puzzle is stronger for multilateral TAs than for PTAs which can explain why the WTO's Doha Round has made little progress with developing countries often blocking progress or the negotiation of new agreements. In the case of PTAs, countries that have little market power in global markets may have stronger market power in regional markets. Broda, Limão and Weinstein (2008) provide indirect evidence for this showing that market power increases with the remoteness of the importer. More remote countries may trade in more segmented regional markets which may give them some regional market power even though at the global level they do not enjoy much market power. The proliferation of South-South and North-South PTAs could then be explained by the combination of credibility and TOT arguments as in Maggi and Rodríguez-Clare (2007).

Other factors have been important in the proliferation of South-South PTAs. In the first wave of PTAs in the 1960s and 1970s the rationale for exploiting economies of scale through an exchange of market access to overcome the very small domestic market was important.

¹⁷These early attempts at exchanges of market access through PTAs failed to fulfill expectations because of the lack of complementarities across partners and the lack of compensation funds at the regional level for adjustment among partners with very different

¹⁵ Indicators of rigor of accession include the number of working party members, the number of years, the number of rounds of questions, the change in applied tariff from the year of application to the year of accession.

¹⁶ Schiff and Winters (2003, chapter 4) expressed reservations along these lines, pointing out that in North-South agreements, the Northern partner often lacks the incentive to enforce. More recently, this can be seen in the Economic Partnership Agreements (EPAs) signed by the EU with ACP countries which have not lived up to the initial intention of the agreements at their launch (see Melo and Regolo (2014)).

¹⁷ Melo, Rodrik and Panagariya (1992) review the theory at the time emphasizing that economies of scale could be a reason for integrating but that this gain would also be available on a multilateral basis. From a cross-section of 101 countries with 78 developing countries, by two sub-periods (1960-72 and 1973-85), Melo, Montenegro and Panagariya (1992) failed to find any effect for dummy variables capturing North-North and South-south PTAs.

levels of development (Foroutan, 1992).¹⁸ And for Sub-Saharan Africa, newly acquired political independence and the quest for consolidating national sovereignty were also strong.¹⁹

Table 3 describes the main RTAs currently active in Africa along with the membership and objectives stated in the treaties. As pointed by skeptics of the main theories of TAs discussed above, none of the economic rationales discussed above (terms-of-trade or market access, enhanced credibility) are mentioned. Rather, political motives and 'deep integration' appear among the most cited motives.²⁰ The membership shows a sharp heterogeneity in geographical characteristics (resource-rich and resource-poor, landlocked and coastal, large and small).

Table 3 Regional Trade Agreements in Africa

In principle these sharp geographical disparities signal a potential for large benefits from economic integration. At the same time, with a very heterogeneous membership, there is a trade-off between the benefits of common policies which depend on the extent of cross-border policy spillovers and their costs, which depends on the extent of policy preference differences across member countries. Common decision making internalizes the spillovers but it moves the common policy away from its preferred national policy (i.e. a loss of national sovereignty). In Africa, spillovers are important as transport and communications infrastructure are under-provided, but the ethno-linguistic diversity across 'artificial' borders suggests strong differences in policy preferences hindering the supply of public goods through the adoption of common regional policies.

The new South-South and North-South PTAs launched since the Uruguay Round have gone deeper and tried to address the lack of complementarities and compensation funds of the early South-South PTAs of the 70s and 80s. They also seem to have been more successful at promoting intra-regional trade than the early PTAs.

Table 4 classifies South-South PTAs along two dimensions: depth breadth along the lines in Horn et al. (2010b) who distinguish between provisions covered by the WTO (called WTO+) and undertakings that extend beyond WTO provisions (called WTO-X). For both, they distinguish if the coverage is likely to be legally enforceable or not, which they call 'legal inflation'. Whereas their classification cover EU and US PTAs and lead them to conjecture that these PTAs are a way to impose their regulatory standards on Southern partners (see below), table 4 only reports measures for PTAs involving a small sample of 5 South-South PTAs.

Table 4 : Depth and Breadth of Measures in a Selection of Developing country PTAs

The table shows that, on paper at least, objectives extend beyond the 'shallow' integration objectives of removing tariffs with half including market access in Services markets as well.

¹⁸ Moncarz, Olarreaga and Vaillant (2016) provide evidence that tariff preference within Mercosur and its common external tariff were used by its larger member (Brazil) to move its production bundle towards more sophisticated products.

¹⁹ Fernandez and Portes (1998) and Schiff and Winters (2003) review the 'non-traditional' motives for RTAs among developing countries. By 'non-traditional' is meant effects other than exchange of market access and concerns about the trade diversion and trade creation effects discussed by Viner.

²⁰ Regan (2015) and Ethier (2013) argue that the TOT theory of PTAs does not correspond to what politicians have in mind when they negotiate TAs and argue that trade prospects could trigger participation of export interests- Grossman (2016) reviews their critiques concluding that research is needed to see if PTAs might bring dormant export interests into the political process.

²¹ An interesting issue is whether this taxonomy can inform on how breadth and depth interact and if those interactions are different across different types (North-North, North-South and South-South) PTAs. Is the depth of policy cooperation deeper when the agreement is broader? The sample is too small to answer such a question, but there is a need for a better understanding of the interaction between depth and breadth in the design of South-South and North-South TA as well as their development impact.

The rapid increase in PTAs since the 1990s has led to an extensive literature on the impact that their growth has on the GATT and WTO. At a time when the Uruguay Round negotiations were stalled and the US had just started entering the fray of Regional Trade Agreements (RTAs), Bhagwati (1992) launched a ‘stumbling block vs building block’ literature. For developing countries that are the main beneficiaries of an open trading system, so far at least, if the proliferation of (successful?) RTAs may have slowed down (halted?) multilateral negotiations, they have not led to an increase in protection against non-members (Freund and Ornelas (2010) and Baldwin (2013)). Most studies have concluded that RTAs have not been a stumbling block.²²

The issue however is what role is left for multilateralism and the WTO in this new environment. Baldwin (2014) suggests that there is a need for new rules for cooperation in the WTS that will lead to deeper constraints on national policies (and hence on national sovereignty) than those under the WTO. PTAs or issue-oriented plurilaterals would then be the best avenue for carrying out this task as agreement on these deeper constraints is more likely to be reached among a smaller number of negotiating members.²³ The risk with the development of PTAs and issue-oriented plurilaterals to tackle deeper issues such as investment, labor, social and environmental clauses outside the WTO system is that they may leave low income countries on the sidelines, which may hurt their development prospects or lead them to upgrade their regulatory standards to the Northern’s partners at the expense of trade with non-bloc southern partners (see below).

The development impact of TAs

With the Single Undertaking, the creation of the WTO signaled a clear break from the “live and let live” days of the GATT, a kind of natural experiment on institutional development for developing countries as they acquired rights and had to take on obligations although they usually did not have to reduce tariffs substantially upon joining the WTO. A large literature has tried to detect a GATT/WTO effect in gravity models, and of participation in PTAs mostly using a dummy for participation in the TA (GATT/WTO or PTA), often yielding mixed results. We review the main findings below referring to Limão (2016) for more detailed discussion.²⁴

²¹ The linear integration model (goods markets followed by factor markets) has often been criticized as failing to exploit the high integration benefits from integration in services markets (see Melo and Tsikata for further discussion).

²² Freund and Ornelas (2010) review the literature. Krishna (2013) and Limão (2006) and Karacaovali and Limaão (2008) find evidence that PTAs may still be a stumbling bloc for the EU and the US.

²³ Victor (2015) suggests six tasks that climate clubs could perform better than the multilateral system in coordinating measures to deal with climate change. See also Nordhaus (2015) and Mavroidis and Melo (2015).

²⁴ Limão (2016) reviews the shortcomings of what Head and Mayer (2014) refer to as the ‘naïve’ gravity model estimates that fail to take into account multilateral resistance terms. Theory-consistent gravity models still face three problems: small sample size in a cross-section, choice of controls (multiple atheoretical controls) and omitted variable bias as countries could be simultaneously pursuing unilateral trade liberalization. Up until the 90s no data is available on bilateral tariffs, so the models capture the WTO/PTA effect by a dummy variable so these models have the properties of an average treatment effect in which the control group shares all the same characteristics for all covariates except membership. Among others this implies that members and non-members share the same trade cost elasticity, ε , usually estimated in the range in the range $3 < \varepsilon < 7$. Using Limão’s notation,

Using a panel gravity specification with multilateral resistance terms, Subramanian and Wei (2007) looked for breaks in the data upon membership to the WTO. They found that the WTO resulted in a large, but uneven impact on world trade with the developed countries that participated more actively in reciprocal negotiations than developing countries gaining the most. Not surprisingly manufacturing exporters were also found to benefit more than agricultural exporters as import barriers in agriculture were subject to "dirty" tariffication resulting in very little actual liberalization for agricultural goods during the Uruguay Round.²⁵ Eicher and Henn (2011) reclassified the dummy variables to distinguish WTO membership from PTAs, both among WTO members and among non-members. They also found heterogeneity in the WTO effects with modest effects of WTO accession for countries that had higher imports and thus higher potential market power and initial tariffs. Limão extends the data to 2010 also separating WTO and PTA membership. In all estimates reported in his table 2, the WTO effect remains positive, though it is reduced when controlling for bilateral PTAs. He also obtains that the estimated effects of all PTAs and WTO membership are significantly larger after 10 years (about twice as large). So the latest theory-consistent gravity model estimates deliver an estimate that belonging to GATT/WTO reduces trade costs.

Turning to PTA membership, Maggi (2016 table 2) reports high average trade cost reduction estimates of 15% given that WTO (2011) estimates average preferential margins at 2.1%. Taking into account the AVE of NTBs, he shows that the estimates are still on the high side and sees a trade elasticity puzzle. He then convincingly argues and gives evidence that this puzzle can be partially accounted for once we take into account the uncertainty that PTAs (or WTO's tariff bindings) solve. Handley and Limão (2015) provide evidence of the quantitatively large impact associated with the reduction of the uncertainty brought by PTAs and tariff bindings in the case of Portugal's and Spain's accession to the EC. Interestingly, when they distinguish between reciprocal and non-reciprocal PTAs like the GSP, they find no effect for the non-reciprocal PTAs that are typically shrouded by uncertainty.²⁶ So the conclusion of these gravity results is that the estimated increases in trade reflect other PTA-related effects like a reduction in trade policy uncertainty that go beyond reduction in tariffs and NTBs.

As discussed above the creation of the WTO and the new South-South and North-South PTAs since the mid-1990s have also gone much deeper in terms of commitments which imply not only changes in trade policies (e.g. removal of NTBs like voluntary export restraints), but also a costly-to-implement change in domestic institutions for low-income countries since the agreements under the Single Undertaking of the WTO were largely at the insistence of developed countries (see estimates in Finger (1999) and Finger and Shuler

this implies that the average estimated ad valorem trade cost reduction from the PTA/WTO membership is given by $PTA^{ave} \equiv \phi/\varepsilon$ where ϕ is the fixed effect coefficient estimate. In this regard, reviewing carefully the evidence on North-South and South-South reciprocal PTAs up until the middle 90s, Foroutan (1998) documents that during the 80s and 90s much reduction in protection in developing countries took place among countries that were not members of a PTA and that in Latin America, trade liberalization was taking place simultaneously with PTA membership so the gravity estimates suffer from a time-varying omitted variable bias in addition to selection bias in addition to time-invariant unobserved variables that can be handled by FE (See Baier and Bergstrand (2007)). Limão (2016 table 2) reports estimates covering the period 1960-2010 that show that the PTA coefficient estimates, ϕ are reduced by half when controlling for all FE.

²⁵ Dirty tariffication was defined as the transformation of non-tariff barriers into tariff barriers as decided during the Uruguay Round, but at levels of protection much higher than those imposed by the non-tariff barriers.

²⁶ Qualification for US AGOA preferences is contingent on governance indicators and so is qualification for GSP+ preferences of the EU. GSP preferences can be terminated at the discretion of the grantor. Unilateral trade preferences may also be counterproductive for exporters who will not wish to incur lobbying costs to get access to foreign markets as argued by Ozden and Reinhardt (2005) and Conconi and Perroni (2012,2015). See the discussion in Ornelas (2016).

(2000)). Deep PTAs also imply institutional changes. We review both, starting first with the WTO agreements.

The multilateral Customs Valuation Agreement (CVA) is an institutional development that aims at curbing tax evasion and corruption at customs. The links between trade policy and customs corruption have been studied extensively though no general conclusion emerges from the studies reviewed here. Gatti (1999) and Fisman and Wei (2004) show how tariff dispersion helps corruption. Using answers on bribes from a random sample of shipments to ports in South Africa (Durban) and Mozambique (Maputo) Sequeira and Djankov (2014) show that the probability (and amount) of bribes is higher in Maputo where there is interaction clearing agents and customs officials than in Durban where there isn't any. They distinguish between cost-reducing 'collusive' bribes that reduce uncertainty and cost-raising 'coercive' bribes resulting from having to pay for access to a port service. In a follow-up study drawing on Mozambique's tariff reform, Sequeira (forthcoming) shows that the reform reduced the probability of collusive bribes relative to coercive bribes that were still possible because of the monopsonistic position of clearing agents. Jongs and Bongman (2011) show that general corruption reduces trade, but that corruption at customs helps trade (greasing wheel effect). Dutt and Traça (2009) show that corruption helps trade when tariffs are high. Anson, Cadot and Olarreaga (2006) show that pre-shipment inspections may increase corruption as it provides information to corrupt customs officials (also see Yang, 2004). Javorcik and Narciso (2013) show how the CVA led to a shift in tax evasion and corruption from under-invoicing to a reclassification of goods. Thus, the general conclusion from the literature suggests that, while the CVA has addressed some of the problems associated with customs corruption, it may have created others.

Other WTO agreements, such as the Trade-Related Investment Measures (TRIMS) or Trade-Related Intellectual Property (TRIPS) have put constraints in terms of the type of industrial and policies and protection of intellectual properties countries can use. In the case of TRIMS local content requirements are banned where some may argue that in some industries (renewable energies) some degree of local content can help with technology transfers. The TRIPS agreement has also aimed at enforcing more stringent intellectual property laws in developing countries and an important literature has explored the impact of TRIPS signing and how these new WTO agreements have shrunk the "development space" of developing countries (Wade, 2003, and Fink and Maskus, 2005, Finger and Shuler, 2004).

Another important development of the WTO is the creation of a strong dispute-settlement mechanism that could, in principle, be favorable to developing countries as the trading system is moving away from a power-based resolution of conflicts towards a rule-based regime. Bown (2009) reviews bilateral trade disputes over the period 1995-2011. Compliance with rulings has been very high. The WTO has thus "...established itself as one of the most, if not the most, successful international organization in terms of enforcement and dispute settlement" (Maggi, 2014). This is important because if credibility is the motive for low income countries to join the WTO a strong enforcement mechanism is necessary. At the same time, it is noteworthy that in their review of the trade dispute settlements over 1995-2009, Bown and Reynolds (2015) find that they concur with the TOT theory for high-income countries leading them to ponder "...what specific purposes developing countries have in mind when they sign onto Trade Agreements like the WTO."

Labor, social and environmental clauses in TA can also have consequences on the development prospects of low income countries. Developing countries have historically been hostile to the introduction of labor and environmental standards in the WTO because of the

induced reduction in competitiveness for their exports, and the risk of labor, social or environmental clauses being used as a protectionist instrument by more advanced members. This line of reasoning is based on a static view of comparative advantage and institutions that ignores the two-way causality between comparative advantage and institutions. More stringent labor, social and environmental regulation in low income countries "imposed" by TA can help shift their comparative advantage toward sectors with higher growth potential.

If developing countries have been reluctant to embrace labor, social and environmental regulations at the multilateral level, they have been introduced into North-South PTAs. Since NAFTA, many PTAs involving the QUAD have included labor, social and environmental clauses as well as investment and sometimes competition agreements.²⁷ As documented by Horn, Mavroidis and Sapir (2010), the depth of integration in the EU and US PTAs have extended well beyond negotiations at the WTO often on North-South basis. South-South PTAs have also grown rapidly, but the delegation of authority necessary to support 'deep' integration that would contribute to institution building has not occurred.²⁸

Beyond the potentially positive impact that these clauses may have on the shift of comparative advantage of low income countries, they can also help unblock the political equilibria imposed by a strong political minority. Polaski (2004) provides an interesting example of how the labor clause in the US-Cambodia Trade and Investment Framework Agreement was used by the government of Cambodia to introduce more labor friendly legislation in terms of working conditions and minimum wages against lobbying by owners of large Cambodian firms in the apparel sector. Interestingly the US-Cambodia agreement offered stronger tariff preferences into the US market for Cambodian firms that satisfy social and labor regulations. Thus, instead of sanctioning Cambodian apparel exporters for not complying with the social and labor clauses it provided more generous preferences to those who complied. Whether to rely on carrots or sticks to enforce institutional decisions is something that deserves further attention. The issue of whether sectoral or economy-wide regulations should be imposed should also be further investigated. It is unclear which is preferable. In the presence of sectoral social and labor clauses there is a risk of worsening labor conditions in other sectors. In the presence of economy-wide labor and social clauses there is the risk of sanctioning firms and sectors with adequate work conditions for the exploitation of workers in other firms or sectors.

In the last 50 years environmental issues have emerged globally to the point that the original Bretton Woods architecture (GATT/IMF/World Bank) and environmental issues are now inextricably linked. In a linked climate-trade-finance global policy coordination structure, climate and more generally the sustainability of the environment (e.g. biodiversity, deforestation) now need to be added to the global policy bargaining set. A shift at the WTO from a negative contract to a positive contract offers the prospect of potentially stronger trade disciplines (for instance through the setting up of plurilateral trade agreements).²⁹ These institutional challenges are beyond the scope of this survey but deserve attention.

²⁷ GSP programs also now provide additional preferential access to developed country markets conditional on labor and environmental standards.

²⁸ In their review the challenges facing regional trade agreements in Africa, Melo and Tsikata (2015) note that the great disparities across partners (resource-rich and resource-poor, coastal and land-locked, large and small) combined with the lack of compensation hamper progress. On delegation of authority versus representation of national interests in regional institutions see Melo, Panagariya and Rodrik (1992) and Spolaore (2012).

²⁹ Victor (2015) calls these 'climate clubs' noting six tasks they could perform from designing smart border measures to deal with carbon leakage to crafting conditional commitments. Using a calibrated world trade model with CO2 emissions Nordhaus (Nordhaus (2015) shows that across-the-board tariffs in a 5%-20% range to non-

Differences in property rights regimes are an externality that can be a source of comparative advantage. The opportunity to trade can also influence the quality of institutions and, as in all cases of second-best, the opportunity to trade can be welfare-reducing. In the vein of Chichilnisky (1994), in a model where property rights are endogenously determined and depend on enforcement policies, Copeland and Taylor (2009) show that the opportunity to trade can alleviate or worsen the tragedy of the commons. They show that in general an opening to trade will lead to an enforcement of property rights as the opportunity cost of labor engaged in the extraction of natural resources goes up. Depending on the pattern of technological progress in resources extraction and in the technology for monitoring illegal harvesters, resource depletion may increase or fall. They give several examples of both instances.³⁰

Environmental degradation and conflict are clearly linked to trade in weak institutional environments and with the opportunity to trade, a topic that will presumably be covered in other contributions to this project. (See Collier (2010) and Berman et al. (2014)). Collier and Venables (2010) and Ruta and Venables (2013) review the institutional reforms at the multilateral level that would improve the protection of natural resource assets in weak institutional environments.

Finally there is growing literature on the impact of TAs on conflict and war. It is well-known that the original motives behind the creation of the European Community after WWII were to diffuse the threat of future military conflicts. Low-income countries, many abundant in natural resources, are prone to conflicts and political cooperation has also been high among the objectives of these regional trade blocs (see table 3).³¹ The experience of RTAs around the world supports the view that economics and politics are complements (rather than substitutes as argued by the defenders of multilateralism). RTAs reduce the probability of war through two channels. First, trade-creating exchange takes place, increasing the opportunity of war. Second, as political scientists have argued, sufficiently 'deep' RTAs reduce information asymmetries as partners know each better. Then incentives for countries not to report their true options in an attempt to extract concessions are reduced. Discussions among members spill over to political issues diffusing political disputes that could escalate into political conflicts. These two channels reduce the probability of costly conflicts. By the same token, globalization which involves a shift of trade towards distant partners reduces this opportunity cost increasing the likelihood of conflicts.

Martin et al. (2008) build these insights in a bargaining model where rational states will enter into an RTA if the expected economic gains from trade creation and the security gains resulting from the decrease in the probability of disputes degenerating into war exceed the political costs of entering the RTA. Using data covering the 1950-2000 period, they find support for the hypothesis that increased bilateral trade deters bilateral war because it increases the opportunity cost of war while multilateral openness has the opposite effect. In subsequent work based on the same data, Martin et al. (2012) find support for their theory of

participants in a carbon club) is incentive compatible and could avoid free-riding. Required changes in the GATT rules to deal with the climate change problem are discussed in Melo and Mavroidis (2015).

³⁰ As evidence of the interaction of trade and property regimes, Xu (2015) studies trade in virtual water via its embodiment in agricultural products. She finds support for the hypothesis that countries with weak property rights regimes have greater volumes of embodied water in their exports. Evidence on the importance of environmental policies on comparative advantage is also strong for trade in virtual carbon (the pollution-haven hypotheses) and for trade in products that degrade the environment from countries with lax environmental policies towards countries with more stringent standards. Fischer (2010) surveys the literature.

³¹ Melo and Tsikata (2015, table 1 lists the objectives of RTAs in Africa. Cooperation and security matters are almost always cited among the main objectives).

PTA formation: country-pairs with large economic gains from RTAs and high probability of conflict are more likely to sign an RTA.

3.2 Trade Agreements and Development: what we would like to know?

The survey of the literature on TA and development in the previous section suggests at least five avenues for future research. First, with border protection levels having fallen worldwide, regional integration is no longer about an exchange of market access (at the expense of outsiders) but about 'deep' behind-the-border reforms leading to increased integration. Labor, social and environmental standards, competition and investment policies and institutions are increasingly what are at stake in particular when looking at North-South trade agreements where the potential for external enforcement is probably larger. A better understanding and assessment of the trade and development implications of these deeper agreements is needed. Are labor, social and environmental clauses "imposed" for protectionist reasons in North-South agreements? How do they impact domestic institutions in low income countries? And do they help the development prospects of low income countries by shifting their comparative advantage towards sectors with higher growth potential?

Second, with a stalled Doha Round of trade negotiations in the WTO, it is clear that RTAs have become the more dynamic institution regulating international trade, even though the dispute settlement mechanisms of the WTO have also been very active. A first issue of interest is whether or not, as questioned by Bagwell, Bown and Staiger (2016) the WTO is 'passé' and, if not, what can the WTO do for low income countries that they cannot get (or get better than) through their membership in PTAs. Another is a finer knowledge of the landscape of these PTAs extending the methodology of Horn et al (2010b) to the large sample of South-South PTAs. How does the depth and breadth tradeoff affect the impact of PTAs in low income countries?³² In their review of the bilateral PTAs of the EU and the US with Southern partners, after controlling for 'legal inflation' in the EU PTAs, Horn et al. (2010) conjecture that the ground-breaking provisions (i.e. their WTO-X provisions not included in the agenda of the WTO negotiations) relate to regulatory issues suggests that these agreements are about exporting their regulatory approaches to their PTA partners.³³ Disdier et al. (2014) give evidence that the harmonization of technical barriers to trade by the Southern partner to the Northern's partner's standards increases its exports to the North and leads to trade deflection with the South. There is need to know more about whether harmonization to (less costly to implement) international rather than Northern regional standards would likely be preferable for Southern partners who would then avoid getting trapped in a hub-and-spoke structure with the Northern partner. An in depth analysis of the consequences of dispute settlement bodies in bilateral and regional TA is also missing. In particular the proliferation of State-Investor arbitration courts, where foreign firms can challenge governments outside the national judicial system, need to be examined. They clearly protect foreign investors, and provide with a clear legal framework, but there is anecdotal evidence that these arbitrators associated with bilateral trade or investment agreements have often overruled national regulators and legislators (Estache and Phillips,

³² With an extended codification of the depth of PTAs, will the larger estimates of the ATE effect of FTA participation for deep FTAs in Maggi's (2016, table 2) carry over to this data set?

³³ In the EU 'ground-breaking' provisions relate to competition policy and in the US to environmental and labour standards.

2016).³⁴ The extent to which these arbitrations courts provide an opportunity for legal forum shopping and an associated increase in judiciary uncertainty needs also to be further studied.

Third, while we have a relatively good handle on the motivations for trade agreements among large developed countries, it is less so for small developing countries. The credibility and commitment channel of Maggi and Rodriguez-Clare provides a promising avenue for understanding their participation in trade agreements, but we have little empirical support for its predictions that would help us assess the importance of this channel, and in which type of countries/situations/institutions they are more likely to play a more important role. Also while the theory explains why the developing country wants to commit through a trade agreement, it is unclear why the developed country participates at all in the agreement. Other papers have explored this issue through issue linkage (Lima, 2007), where the North has non-economic objectives (fight against terrorism or drugs), but it still does not explain why the North may want to enforce the agreements for other trade-related policies. Without any credible enforcement from the North, the South will not solve its time-inconsistency problems with a TA. This sits at odds with the rapid growth in low income countries membership of the WTO in spite of accession requirements becoming tougher. Signaling, fear of domino effects, and the role that uncertainty may play are probably interesting research avenues in this area.

Fourth, if most of the evidence on PTAs and trade policies towards non-members seems to support the view that PTAs are complementary to multilateralism, this evidence only scantily cover low-income countries. Thus in Africa, when ECOWAs recently moved to a CU, at the insistence of Nigeria, a 5 band tariff-structure was adopted suggesting a protectionist stance especially in view of the tariff overhang among members. Studies on the consequences of integration on trade policy towards non-members along the lines of those reviewed above are needed for low-income countries.

Fifth, we now have over two decades of experience with reciprocal North-South PTAs and only a few evaluations.³⁵ None are on reciprocal PTAs with low-income countries. The EU's current negotiations go beyond the DCFTAs currently under negotiation between the EU and Southern and Eastern neighbors: they also include the Economic Partnership Agreements (EPAs) with ACPs. For most members, the EPA partnerships apparently bring little. There is no market access for LDCs, rules of origin are still complex and they include some 'deep' provisions beyond multilateral negotiations, and are these provisions legally enforceable, or do they mostly reflect 'legal inflation'? Is institution-building really among the motivations for these agreements as often claimed? Did the costs associated with negotiating the deep African RTAs (SACU, CEMAC and UEMOA) which were borne by colonizers laid the foundations for more intensive trade later on? Increased trade among members would have raised the opportunity cost of future wars among members by increasing their inter-dependence along the lines suggested by Martin et al. (2008, 2012), Mayer and Thoenig (2016).

³⁴ The Uruguay-Phillip Morris dispute over the legislation banning smoking in enclosed public spaces passed in 2006 in Uruguay is an example of such a case. The international arbitration under the Uruguay-Switzerland bilateral investment agreement has decided to go ahead with the multi-million dollar claim by Phillip Morris that such a ban has hurt the companies' value in Uruguay where it had previously invested.

³⁵ NAFTA has been the subject of tenth and twentieth anniversary assessments. The EU has also just concluded DCFTAs with its Eastern neighbours (Ukraine, Georgia, Moldova) and is currently negotiating DCFTAs with its Southern Mediterranean neighbours.

4 Trade Promotion Organizations

Important externalities are associated with the gathering of foreign market information related to consumer preferences, business opportunities, quality and technical requirements, etc. Private firms alone will not provide sufficient foreign market information, as companies hesitate to incur research and marketing costs that can also benefit competitors. The same logic applies to pioneer exporters, who make a considerable investment in attempts to discover what works in foreign markets, cultivating contacts, establish distribution chains and other costly activities that can be directly or indirectly used by their rivals (Hausmann and Rodrik, 2003). The uncertainty associated with trading across markets with different regulations, weak institutions, and the overall lack of familiarity with foreign markets hurt exporters (Araujo, Mion and Ornelas, 2015). Trade promotion Organizations (TPOs) can provide this information without having each firm paying the cost of acquiring the necessary information.³⁶ In small developing countries being able to fulfill the large and diversified demand of importers in world markets will require some form of coordination across firms. Especially in low-income countries where credit constraints are significant, TPOs can help small and medium size firms cooperate to satisfy large demands in world markets.³⁷

Whether market failures come from externalities associated with foreign market information, discoveries by pioneer exporters, the absence of private insurance schemes, or coordination failures, they all support the case for government intervention to help domestic firms fully participate in international markets (Copeland, 2008). Since the beginning of the 20th century governments have addressed this type of market failure with TPOs that mainly aim at internalizing information spillovers and solving coordination failures.

While some of these market failures could be privately addressed through intermediaries or privately funded agencies, the presence of positive externalities that can go beyond the group of firms that directly benefit from their programs imply that, if left to the private sector, the type of services offered by these TPO will be underprovided. A private association of exporting firms will address the market failure associated with information spillovers for firms within the association, but when spillovers affect firms outside the association it will be again the source of inefficiencies. Here we focus on government sponsored TPOs. Section 5 addresses the role of private TRIs.

The early literature in the late 1980s and early 1990s was quite critical of TPOs. Kedia and Chhokar (1986), for example, found that export promotion programs in the United States have little impact, largely because of a lack of awareness in the private sector of the services that were offered by these government agencies. Keesing and Singer (1991) conducted a series of extensive interviews with senior officials at the ITC, European Commission, the Export Marketing Development Division of the Commonwealth Secretariat and numerous TPOs in developing and developed countries. The conclusion was that TPOs had failed in promoting exports, except in a few East Asian countries (Singapore, Hong Kong, Korea and Taiwan). The main reasons for this failure according to those interviewed by Keesing and Singer was the strong anti-trade bias embedded in most countries trade regimes, the

³⁶ The literature also refers to Export Promotion Agencies (EPAs). TPOs and EPAs will be used interchangeably

³⁷ There is also an important literature looking at how the sophistication of the export bundle can help export growth. Hausman, Hwang and Rodrik (2007) originally provide evidence of this across countries, whereas Jarreau and Poncet (2012) and Poncet and Sarosta (2013) provide evidence within China and show that the sophistication of the export bundle matters for growth, but only when considering the export bundle of domestic (not foreign firms) which do not participate in export processing programs. This hints to the limits for some of these programs to help economic growth.

bureaucratic nature of these agencies that lacked client orientation and that were staffed with civil servants who were out of touch with their clients in the private sector, as well as their lack of leadership and adequate funding. The few successful cases of trade promotion (Singapore, Hong Kong, Korea and Taiwan) all adopted more supply and enterprise-oriented strategies, as well as a more overall open trade regime.³⁸

By the late 1990s the strong bias against exports had vanished for most developing countries as trade reforms were put in place. This led many prominent development economists to adopt a more benign view of EPAs. In a study of how governments can promote non-traditional exports in Africa, one of Helleiner's main recommendations was to create an adequately funded EPA to help exporters overcome the costs and risks of entering unfamiliar and demanding international markets (Helleiner, 2002). We now survey the more recent studies highlighting what we know before turning to knowledge gaps to be filled.

4.1 Trade Promotion: what do we know?

The recent literature on the impact of trade promotion can be divided into studies that use country level information, and studies that use firm-level data. We review both starting with the macro level studies.

Macro-econometric studies

Rose (2005) uses a gravity framework where exports are explained by the traditional geographic determinants as well as the presence of a diplomatic representation in the destination market. He convincingly argues that over the last decades diplomatic representation has had a strong commercial component as other motives decline due to the falling communication costs. Whereas before many political decisions were made by embassies, nowadays the speed of communication leads to a much more centralized decision-making process where the most important decisions are made in capitals and less politically-oriented work is undertaken in embassies. Using an IV estimator where the presence of a diplomatic representation is instrumented using the country's importance as measured by proven oil reserves and its diplomatic attraction measured by the number of nice restaurants and sights, Rose finds that a consulate can increase bilateral exports by 6 to 10 percent.³⁹

Following Rose (2005), several papers have tried to focus more directly on export promotion rather than embassies and look at the impact of export promotion agencies' representation abroad on exports. Volpe Martincus et al. (2010) use information on the location of branches of TPOs for several Latin American and Caribbean countries over the period 1995-2004 and find that the presence of these branches is associated with higher exports of differentiated goods. Hayakawa et al. (2011) also find large effects for export promotion branches of Japan's and South Korea's TPOs.

But export promotion goes beyond office representation abroad. In fact only a fraction of TPO has offices abroad. A World Bank TPO survey of 2010 reveals that only 41 percent of TPOs have offices abroad, and among low income countries the share drops to 21 percent. There are many other large differences between low- and high-income countries' TPOs. In

³⁸ This is an example of the two-way causality between policies and institutions.

³⁹ These results are subject to the criticisms of Baier and Bergstrand (2007) mentioned above who show that panel data methods control better for omitted (time-invariant) endogeneity bias.

high-income countries, the median TPO budget represents 0.037% of GDP and 0.021% in the median low-income country. The median TPO employs 191 workers in high-income countries and only 50 in the median low-income country.⁴⁰ In both income groups, the lion share of funding comes from the government with a small share from bilateral and multilateral donors in the low-income group.

Spending patterns are similar across both income groups, the largest share going to marketing (trade fairs and missions) with 10-25% of the budget allocated to export support services, country image, and market research. TPO budgets are also allocated to the same type of firms across both groups with a greater focus on small and medium size firms relative to large firms. In both groups of countries, TPOs also tend to spend a larger share of their budget on established exporters rather than on non-exporters or new exporters and the relative importance given to established exporters is slightly higher in low income countries.

Using the survey implemented by the World Bank in 2005 Lederman, Olarreaga and Payton (2010) estimate an export equation with TPO's characteristics as explanatory variables. After instrumenting the export promotion budget with the number of years until the next election and the number of years since the TPO was created, and controlling for GDP per capita, trade restrictiveness at home and abroad, exchange rate volatility, and geography determinants of exports, they estimate that the marginal impact of the export promotion budget on exports is around 0.04. Thus, in this cross-section, a 1 percent increase in export promotion budgets leads to a 0.04 percent increase in exports. At the sample mean, 1 dollar spent on export promotion leads to 40 dollars of additional exports. Interestingly, export promotion delivers larger gains where most needed, i.e., when facing stronger market access barrier abroad (tariff and non-tariff barriers) or when exporting differentiated products rather than homogeneous goods.

In a panel from a follow-up survey conducted by the World Bank and by the European Trade Promotion Organization in 2010 and 2015, Olarreaga, Sperlich and Trachsel (2016) can control for unobserved heterogeneity by using country and year fixed effects, and estimate that, on average, a 1 percent increase in export promotion budgets results in an increase in exports of 0.074 percent, which is higher than the returns estimated by Lederman et al (2010). At the sample mean an additional dollar spent on export promotion yields 87 dollars of exports.⁴¹

Next, they use a semi-parametric model where the coefficient measuring the returns to export promotion budgets depend on TPO characteristics to estimate which among the observable TPO characteristics yield larger returns. They found that having a larger share of private sector seats in the executive board, and a focus on established exporters and large and medium size firms (rather than small) tend to raise export returns. A larger share of the budget funded by the government also tends to increase returns, except when it is getting close to being fully publicly funded. These results would suggest that for programs to be visible and generate externalities, they should probably be targeted to large established

⁴⁰ The institutional structure of TPOs tends to be more similar across income groups (about 50% are either an autonomous or semi-autonomous government agency, and the Executive Board seats in the hands of the private sector is around 50 percent in both income groups)

⁴¹ At the sample mean, in an early cross-section on a smaller sample, Lederman et al. (2012 estimate that 1 dollar spent on export promotion leads to 40 dollars of additional exports. Interestingly, export promotion delivers larger gains where most needed, i.e., when facing stronger market access barrier abroad (tariff and non-tariff barriers) or when exporting differentiated products rather than homogeneous goods. One reason why the returns may be higher in the panel when endogeneity is better addressed could be reverse causality: countries with larger export promotion agencies are those that tend to have lower exports.

exporters even if these may be the firms which may least need assistance. These exploratory results call for a better understanding of the tradeoff between helping firms' needs and maximizing spillovers from TPO programs and are an avenue for future research if we want to understand how TPO programs should work.

Since the ultimate objective of export promotion is not to increase exports per se, but rather to increase economic and social well-being by addressing market failures associated with export activities, are the returns to export promotion in terms of GDP as large as the returns in terms of exports? Extending their semi-parametric model, Olarreaga et al. (2016) estimate the returns in terms of GDP per capita rather than exports. They find that on average a 1 percent increase in export promotion budgets generates a 0.065 percent increase in GDP per capita. These are very large returns.⁴² At the sample mean, 1 dollar spent on export promotion generates 384 dollars in terms of GDP.

To explain such large returns one probably needs to move beyond learning-by-doing or learning-by exporting for firms benefitting from the export promotion programs. Some sort of externality is needed where the benefits from export promotion are not limited to treated firms, but also affect firms which do not directly benefit from the program. Learning from the experiences of successful and unsuccessful exporters that benefit from export promotion programs can be one important mechanism through which non-exporters or exporters to other markets or of other products can indirectly benefit from export promotion. In this case small amounts in export promotion can have a large impact in terms of export growth. The even larger returns in terms of GDP could also partly reflect learning-by-doing. Firms benefitting from the program become more productive, and their growth does not only translate into larger exports, but also larger domestic sales.

Learning-by-doing or by-observing is not necessarily specific to the supply side: it can also occur on the demand side. As exporting firms become more successful in the export market, in the presence of asymmetric information about the quality of products, observing provides valuable information to domestic consumers regarding the quality and reputation of the firm and therefore increases the domestic demand for the products of exporting firms as shown by Shy (2000). Note, that as underlined by Copeland (2008), it is not clear that in such a setup export promotion is welfare-increasing as there is probably too much exporting in the asymmetric information equilibrium. Therefore understanding whether learning-by-observing occurs on the demand or supply side in the domestic economy has important welfare implications for export promotion that so far have been unexplored.

To check if the very large returns could be driven by very large returns in high income countries, we run the same specification as in Olarreaga et al. (2016) but in a sample of low and middle income countries (with a GNP per capita in 2005 dollars below 12,736 dollars). Results are reported in table 5. We obtain as large returns as in the full sample if not larger. Indeed the export returns in the low and middle income sample in column (2) are larger than those in column (1), and the GDP per capita returns are very similar in the two samples when comparing columns (7) and (6). However, when we test for difference in returns by interacting a low and middle income country dummy with the TPO budget in the full sample we tend to obtain smaller returns in low and middle- income countries regardless of whether

⁴² They also explore the heterogeneity of impact across different agency characteristic and found that agencies that tend to spend a larger share of their budget on marketing activities tend to generate larger gains in terms of GDP. Note that interestingly, they do not find that the determinant of export returns are the same as the determinants of GDP returns, which suggest that programs and agencies' characteristics need to clearly define their objectives.

or not we instrument the TPO budget with TPO characteristics (share of public funding and share of seats in the executive board hold by the private sector) as can be seen in columns (3), (5), (8) and (10).

Table 5 : Returns to export Promotion in a sample of low-income countries

Thus, returns to export promotion are on average lower in low and middle income countries although the differences in average returns between high income, and low and middle income countries is not very large. According to the instrumental variable estimates in columns (5) and (10), GDP per capita returns are on average 11 percent smaller, and export returns 16 percent smaller in low and middle income countries. One would expect higher returns in low-income countries. Attenuation bias, different characteristics of the export bundle resulting from weaker domestic institutions could explain these results. It could be that the returns to TPO funding are highest for middle-income countries with more contract intensive export bundles. Note that these results are also limited by the sample size for low-income countries so that one cannot label this a “TPO puzzle”, but rather view these results as a call for further work before suggesting that there is room for improvement in TPO activities in low income countries.⁴³

It could also be that low income countries TPO programs are not as efficient as they high income countries counterparts. Figure 2 contrasts the performance indicators used in the two groups of countries. In low-income countries, performance is evaluated in terms of the number of exporters and the value of exports while in high income countries the number of clients and client satisfaction surveys are used more frequently. Note that 96 percent of TPOs in high income countries have formal client follow up routines, whereas this is the case in only 72 percent of TPOs in low income countries. Given that as discussed above a focus on exporters and export growth may be misleading when the ultimate objective of export promotion is income growth, a shift in low income countries to the performance evaluation methods used in high income countries may be desirable.

Figure 2: Distribution of TPO measures of performance by Key Performance Indicator

While the evidence of macro-studies suggests that there may be large gains from export promotion both in terms of exports and real income, they clearly face the problem of omitted confounding factors which must certainly contribute to the large estimates reported in these studies. Moreover, it is almost impossible for these studies to identify the mechanisms through which these gains and externalities operate. Studies using firm level data are more likely to deal with confounding factors than macro studies and provide greater internal validity.

⁴³ Olarreaga et al. (2016) found that the TPO characteristics that matter for export returns do not necessarily matter for GDP per capita return. For example a focus on a few targeted sectors rather than all sectors yield larger export returns, but it does not affect the returns in terms of GDP per capita. And some characteristics that tended to yield larger returns in terms of exports yield lower returns in terms of GDP per capita. This is the case for example of the share of funding coming from public sources, which tends to increase export returns, but reduces GDP per capita returns. These results are important, because they suggest that what may matter for export returns may not work if the TPO objective is to increase income per capita. Thus, putting objectives and evaluating the performance of TPOs in terms of export growth may be counterproductive when the ultimate objective is to increase economic well-being.

Micro-econometric studies

With greater internal validity, micro-econometric studies are complements to the macro-studies. They help identify the externalities suggested by the large return estimates from the macro studies reviewed above and, more generally identify the mechanisms through which different programs operate. They can also (at least sometimes) allow for a clearer identification strategy of the causal links between export promotion and exports or income growth. Most literature at the firm level has also found a positive impact of export promotion on exports. The early firm level literature has used customs data and has found that firms that benefit from export promotion programs see improvements in their extensive margins as they export a larger number of products to a larger number of countries.

Volpe and Carballo (2008) use a matching difference-in-difference estimator in a sample of Peruvian exporting firms (customs data) and find that export promotion affects exports mainly through firm's extensive margin in terms of both new export markets and new products, but has little impact on the intensive margin.

Volpe and Carvallo (2010) go beyond average effects of export promotion programs on exports and disentangle the impact of Prochile's programs on exports of Chilean exporting firms across their size distribution. They found that small firms benefit more than large firms. Among small firms the effect is driven by the intensive rather than extensive margins. This result is also confirmed in a sample of Argentinean exporting firms in Volpe, Carballo and Garcia (2012).

Van Biesebroeck, Konings and Volpe (2015) show that export promotion has helped Belgian and Peruvian firms survive in export markets that were more hardly hit by the great recession, leading also to higher sales along the intensive margin as sales were 20 percent higher for firms that benefitted from the program. Note that as pointed out by the authors this does not mean that programs need to be scaled up, as it is not clear what will be the effect of these programs if they were to be provided to all firms. Note also that the fact that there is a large impact on exports does not justify the use of these instruments from an economic point of view. One would need to identify the externalities associated with these programs before deciding it to scale them up.

Cadot, Fernandez, Gourdon et Mattoo (2015) focus on the impact of a Tunisian export promotion program on exporting firms behavior and found using a difference-in-difference estimator that firms benefitting from the program increase their exports along the extensive and intensive margin, but that the impact disappears after three years. Their result is very interesting for at least two reasons. First, the fact that the impact disappears can be due to the uncertainty associated with the institutional environment in Tunisia which raises interesting questions regarding the effectiveness of export promotion programs similar to the critiques addressed in the early literature to programs that were operating in an environment with a strong anti-export bias. Second, and perhaps more interestingly, the economic case for export promotion relies on the existence of spillovers from firms benefitting from the program to firms that are not directly benefitting from the program. Yet, all of the literature surveyed so far assumes that there are no externalities, and looks at the impact on exporting

firms. The fact that after three years the impact vanishes in Tunisia could be due to the presence of strong externalities which supports the case for export promotion.⁴⁴

Another problem with the micro-economic studies surveyed so far is that they rely on customs data, rather than firm level data, so they make it impossible any analysis of the firm extensive margin, i.e., the decision for firms to start exporting. In order to address this type of questions and the externalities that may exist between exporting and non-exporting firms it is necessary to match customs-level data with firm-level data. This has been done in the studies surveyed below.

Cruz (2014) matches firm and customs data in Brazil and provides evidence of export promotion services helping Brazilian medium-size firms enter the export market. So combining this result with the results of Volpe et al. (2010) and Volpe et al. (2012) suggests that export promotion helps medium size firms enter export markets and small exporting firms diversify across products and markets.

Lederman, Olarreaga and Zavala (2016) show in a sample of Latin American firms that export promotion helps firms enter into and survive in export markets, but participation in export promotion programs has little impact on the intensive margin. Schminke and Van Biesebeek (2015) also show that export promotion works mainly through the extensive margin in a sample of Belgian firms, but in the case of experienced exporters we also observe increases in their intensive margin.

More recently, randomized experiments at the firm level have shown that the returns to export promotion can be large. Atkin, Khandelwal and Osman (2014) conduct an experiment where they offer to a random set of firms the opportunity to export high quality carpets to retailers in the United States and Europe. They found that treated firms had an increase in profits of around 20 percent and larger increases in the quality of goods they produced, which is consistent with learning-by-exporting.

Breinlich, Donaldson, Nole and Wright (2015) also conduct a controlled trial by providing targeted information to a randomly selected set of firms regarding the benefits and costs of exporting. Their objective is to assess the role that information plays on the perceptions that firms have about costs and benefits of selling in international markets. They found that treated non-exporters become less likely to export, whereas treated exporters become more likely to export, suggesting that the provision of information can have an impact on firms' behavior.

Using data for Colombian firms, Volpe and Carballo (2010b) show that the bundling of TPO services provides larger returns. Through diff-in-diff and propensity matching they identify that a combination of counselling, trade agenda and trade missions and fairs provide larger returns for targeted firms than the sum of actions in isolation. Much more of this type of work is needed to guide TPOs in their interventions. For example, are trade fairs as effective as trade missions? Which fair? Which type of trade mission? Is Colombia special? We do not know the answers to these questions.

A growing literature is focusing on the identification of positive externalities from exporting to non-exporting firms suggested by the macro results described above. Using an employer-

⁴⁴ Cadot et al. (2015) do not find evidence of spillovers in their paper although they recognize that not finding some type of spillover precludes the absence of other types of spillovers. Cruz (2014) finds strong evidence of spillovers from export promotion programs in Brazil.

employee dataset for Portugal Mion and Opromolla (2014) find that there is a wage premium for managers associated with their previous experience as managers in firms that were exporting to similar markets. This wage premium is as large as the one associated with the firm's productivity. Similarly Fernandes and Tang (2014) show that Chinese firms learn from the export experience of their neighbors and that this is particularly helpful in entering export markets. Wei, Wei and Xu (2015) using a structural model of incentives to export and become a "pioneer" found that there are spillovers associated with the discovery of new export markets (export "pioneers") as well as important costs, but that their size may not necessarily justify government intervention because of the importance of first-mover-advantages, and the fact that as long as "pioneer" profits are larger than the discovery costs, there is no market failure even in the presence of positive spillovers across firms.⁴⁵

4.2 Trade Promotion and Development: what we would like to know?

We have surveyed the literature on the impact of TPO on exports and development and have identified several areas for future research.

First, and perhaps more importantly, we need more evidence on the extent of information and other spillovers associated with trade promotion. Their existence is an important precondition for export promotion.⁴⁶ The pure economic case for export promotion relies on the presence of information externalities from firms being treated by the program to other firms who benefit indirectly from the program. The evidence on this type of learning-by-observing is small and ambiguous. Clerides et al. (1998) find that the probability of becoming an exporter is positively affected by the share of exporters in the local industry. Greenaway and Kneller (2003) find similar results in a sample of UK firms. On the other hand Bernard and Jensen (2004) found no impact in a sample of US firms and Aitken et al. (1997) find that there exist spillovers but only from foreign multinationals (MNEs), and not from general export activity. To our knowledge the only study that looks at how export promotion spillovers to other firms is Cruz (2014) (and to some extent Cadot et al., 2015) who explores how the share of treated firms in a region and industry affects the export behavior of non-treated firms. This implicitly assumes that externalities happen within and not across regions and industries. This may be a strong assumption. As an alternative and using matched employer-employee data, Cruz is able to track the movement of workers from exporting to non-exporting firms and observe the impact on the export behavior of non-exporting firms.

The recent literature on identifying export externalities (Fernandes and Tang, 2014, Mion and Opromolla, 2014, Wei et al., 2015) can provide a good starting point to examine the impact of export promotion on firms that are not directly targeted by the program. Importantly, when spillovers are present, the methodologies used to measure the impact of TPO programs need to be adapted to control for these negative or positive externalities. To understand how TPO programs should be designed, we need a better understanding of the tradeoff between helping firms' needs and maximizing spillovers from TPOs' programs.

⁴⁵ Indeed the presence of externalities is not a sufficient condition for a market failure. For a market failure to occur one would need that the cost of entering new markets is smaller than the profits for the discoverer, and the latter become larger in the presence of strong first-mover-advantages.

⁴⁶ One could think justifying export promotion along the lines of a club good, where there is non-rivalry in the consumption of information and knowledge obtained in foreign markets. However, the way this information is generated by TPOs implies externalities, as the information is obtained with the help of successful and not so successful exporting firms in different markets.

Second, and as argued earlier learning-by-doing or learning-by-exporting does not provide a justification for export promotion by itself. It may explain the large returns and the larger GDP than export returns, but it does not provide a justification for intervention without some other market failure. For example, there may be a case for intervention in the presence of learning-by-doing if access to credit is limited which does not allow firms to invest in learning-by-doing (Copeland, 2008). Note that this is more likely to be the case in low income countries with weak market institutions.

The literature on learning-by-exporting tends to suggest that there is very little learning-by-exporting in developed countries and that the fact that more productive firms tend to export is due to selection rather than learning-by-exporting. However, recent evidence tends to suggest that this may be different in a developing country context. Blalock and Gertler (2004) provide evidence for Indonesia, Van Biesebroeck (2005) for nine Sub-Saharan African countries,⁴⁷ and Foster et al. (2014) for half of Sub-Saharan African countries. Thus, more studies that look at the extent to which credit constraints (and other market failures) are preventing low income countries' firms to benefit from learning-by-exporting are needed. Identification is needed of which type of firms suffers the most from credit constraints (or other market failures) and simultaneously which type has the largest potential for learning-by-exporting. This set may be empty, but one could conjecture that small firms are precisely those that meet the two conditions (stronger credit constraints and larger potential for learning-by-exporting). But if as argued earlier, learning occurs when products are sold in the domestic market, then there may be too much exporting, and export promotion could be counterproductive. Sorting out the source of these learning externalities is crucial to improve our understanding of how TPO activities work.

Third, the literature on which are the best instruments available to TPOs to address different types of market failures is scant although the theory delivers clear messages on the question of in-kind assistance versus subsidies. Blackorby and Donaldson (1988) show that the latter will affect firm behavior and lead to inefficient outcomes, where firms would show interest in exporting only to benefit from the subsidy, whereas a training program has no commercial value. However, when firms are credit constrained, the more efficient instrument may indeed be financial assistance. Likewise, we know very little about the employment effects of TPOs, an issue of importance in low-income countries.⁴⁸ More generally, the link between the market failure justifying intervention and the instruments being used has not been empirically explored. This would help get closer to the elusive welfare implications of TPO programs.

⁴⁷ The nine countries are Burundi, Cameroon, Cote d'Ivoire, Ethiopia, Ghana, Kenya, Tanzania, Zambia, and Zimbabwe

⁴⁸ Using firm-level data, Munch and Schaur (2015) find that export promotion positively affects employment in small firms.

5 Private Trade Institutions

Market failures across international markets can sometimes be corrected by private institutions and in the area of environmental economics, particularly climate change, it is increasingly recognized that private authority—both delegated and entrepreneurial—is taking on the role of regulation to implement and enforce rules to manage global environmental problems (Green 2014). Whether it is information externalities that are corrected by private certification schemes rather than by government setting of standards, or excessive market power that are corrected by "Fair Trade" type mechanisms rather than (domestic or international) competition policy, or Walmart deciding to go green, there is a crucial distinction between public and private trade institutions that makes the study of the latter more complex. By definition private institutions set voluntary schemes, and participation by foreign or domestic firms is often conditional on satisfying a set of requirements either in terms of product characteristics or the production process itself.

We restrict our review of the literature on private institutions in two dimensions. First, we only review the literature on private trade institutions, i.e., those that affect international trade flows across countries. Second, we focus on the impact of private trade institutions on social and economic outcomes in low income countries. Do "fair trade" mechanisms help poor farmers in low income countries? Do consumer boycotts in the North help improve workers conditions or the environment in the South? As we will see, sometimes apparently well-designed private institutions may give rise to unexpected outcomes.⁴⁹

5.1 Private Trade Institutions: what do we know?

Missing domestic institutions may be the most important hurdle for producers (especially small producers) in low-income countries wishing to export. Negri and Porto (2016) study burley tobacco that accounts for close to 60% of Malawi's export earnings. Using household survey data, they compare the performance of producers belonging to burley tobacco clubs with non-members. The clubs have written documents that define rights and rules. These clubs perform collective action, ease access to auction floors and provide other services, all of which contribute to lower transaction costs. Negri and Porto establish that club membership causes a significant increase in output per acre and in sales per acre, and that the difference in yields and sales generated by club membership is equivalent to increases in tobacco prices of between 37 and 54 percent. One cannot generalize from this case study, though it suggests that in the low-income environment of the majority of LDCs where the bulk of activity is in rural areas, local nonmarket institutions can play a major role in facilitating crop production associated with exports. In effect the lack of domestic institutions is a significant barrier for agricultural producers to get goods to local markets and intermediaries, and from there, to export.

Asymmetric information regarding product, seller, or production processes characteristics can jeopardize markets with high-costs characteristics. Like in the classic lemon's market problem that focuses on product characteristics, the markets for environmentally safe or socially responsible products may not exist if producers cannot credibly convey to consumers

⁴⁹ For some, the development of 'private authority' is essential especially in the design of public good policies like climate policies (See Green, 2013). Probably tangential to this project except insofar as it relates to SDGs in developing countries.

who care about the production processes they employ satisfy certain requirements. These information asymmetries tend to be exacerbated by borders, ethnolinguistic diversity that become larger with differences in regulations and their enforcement across countries. Labeling and third party certification schemes are the private sector response to these potential market failures.

Another related important objective of labeling schemes is to introduce economic incentives for firms in domestic and foreign countries to adopt production processes that are more respectful of workers, the environment and other socio-economic objectives. This idea is not new and can be traced back to at least the slave abolitionist in the United States and the "free produce" movement, which introduced in the early XIX century "free labor" stores in the United States. As discussed by Glickman (2004) these stores only sold goods that were produced without slavery. While the movement was not economically very successful, it did introduce the idea that this type of scheme can help consumers have both a more responsible consumption, but also help change the way goods are produced. Labelling has a dual role, as certification of products through tests and as a setter of standards. First, it ensures that the market for products that may be more costly to produce is able to exist and therefore ensures consumer gains. Second, it creates incentives to produce goods in a more socially or environmentally responsible manner.

The theory of labelling tends to suggest that it is welfare improving as the provision of information in a world with asymmetric information will increase welfare. Podhorsky (2013) develops a two-country model with differentiated products and imperfectly-informed consumers. Consumers in both countries value the quality (think production process) of goods, but cannot discern across different types of goods without certification. Firms in each country differ in their abilities to produce quality, and the distribution of technological ability is superior in the home country. Podhorsky shows that even in the case where the certification program is partly set for protectionist purposes (to improve the home-country terms-of-trade) welfare is higher both at home and abroad because of the gains associated with the information provided to consumers.⁵⁰

But assuming that global demand for certified products is large enough is not a sufficient condition for these certification schemes to reach their economic and social outcomes in the South. The most studied certification schemes are Fairtrade programs. Fairtrade programs ensure that the price paid to certified producers (p^{FT}) is always above the world price (p^W), and never below a certain minimum price (\bar{p}):

$$p^{FT} = \max(p^W; \bar{p}) + \text{social premium}$$

In the case of coffee the Fairtrade minimum price (\bar{p}) is USD 1.40 per pound of washed Arabica, and the social premium is USD 0.20, which ensures a minimum Fairtrade price of

⁵⁰ This is unlikely to be a general result as it relies on the assumption that preferences are identical in both countries, i.e., consumers care in the same way about the "quality" of the products being certified, an assumption that is unlikely to hold when considering standard setting between the North and the South.. Also, a labelling scheme on socially responsible products may end up having no impact at all if at the existing equilibrium price without information the demand for socially responsible products is smaller than the existing supply of socially responsible products. In this case, the (disequilibrium) price of socially responsible products would be smaller after certification which implies that the new and old equilibrium price will be identical for all goods (Mattoo and Singh, 1994).

USD 1.60 per pound.⁵¹ This also ensures that Fairtrade farmers always receive a price that is higher than the world price by the equivalent of the social premium.⁵²

There is a large empirical literature suggesting that the price received by farmers participating in Fairtrade certification schemes is indeed higher, and that the quality of products and production processes is improved. However, most of the existing studies suffer from identification problems as they compare before and after outcomes for certified farmers only without any control group, or they compare certified and non-certified farmers in a cross-section.

There are a few noteworthy exceptions. Dragusanu, Giovanucci and Nunn (2014) provide evidence for coffee producers in Costa Rica using a difference-in-difference estimator. Balineau (2013), using panel data, shows that Fairtrade had a significant impact on the quality of cotton produced by certified Malian growers and that the quality produced by noncertified but geographically close producers also increased via spillover effects, while controlling for selection bias and the possibility of a mean reversion process. As in the case of export promotion, the importance and size of spillovers from certified producers deserves more attention to better establish causality since, in the presence of contagion between the treated and the control group, it becomes trickier to measure the impact of treatment.⁵³

Learning externalities as in Balineau (2013) are one reason why there may be contagion. But simpler market forces can also lead to biased estimates. In a theoretical analysis of Fairtrade programs, Podhorsky (2015) introduces monopsonistic intermediaries in these markets. The introduction of the Fairtrade scheme creates an alternative distribution channel that bypasses intermediaries. Podhorsky (2015) shows that the Fair Trade program reduces the market power of oligopsonistic intermediaries, which makes not only farmers benefiting from the program better off, but also farmers excluded from the program who now face less powerful intermediaries and benefit from higher prices. On the other hand, Baland and Duprez (2007) show that the introduction of this type of schemes in the presence of insufficient demand for certified products will lead to winners and losers. This suggests that any attempt at measuring the impact of Fairtrade certification on prices received by farmers need to take into account the impact of the introduction of the scheme on the degree of competition in the market of non-certified products.⁵⁴

There is also an important literature suggesting that labeling and in particular Fair Trade programs may not necessarily be welfare increasing. Fairtrade mechanisms that aim at improving the livelihood of poor workers in a sustainable manner may end up bringing little

⁵¹ See <http://www.fairtrade.net/products/coffee.html> for up to date information on minimum prices and social premiums. Note also that since 2014 the world price for mild Arabica coffee has been above the minimum price of USD 1.40 per pound.

⁵² To benefit from these higher prices, farmers need to comply with some minimum standards for workers' conditions (no forced or child labor, no gender discrimination and wages that respect labor laws), environmental standards, and be organization in producer cooperatives where decisions are made democratically and the benefits from the social premium are invested in socially and environmentally desirable projects. The cost of certification is around USD 1500 and USD 2000.

⁵³ On the basis of an examination of 92 RCTs published in top journals over 2009-14, Peters et al. (2015) warn that the papers do not discuss the hazards of external validity nor do they provide information to assess potential problems.

⁵⁴ Note that it is not clear that the result in Podhorsky (2015) is robust to the introduction of intermediaries facing downward sloping demand curves. In her paper intermediaries are price takers. It seems that the introduction of downward sloping demand curves may actually lead to lower prices for non-certified producers. In any case what matters for identifying the impact of certification is to account for the externality regardless of whether the externality is positive or negative.

gains to participating farmers in the presence of free entry, as rents get dissipated in a system where higher prices are set, but quantities are fixed (de Janvry et al., 2014). Indeed, certified Fairtrade farmers are not allowed to sell all their production at the higher price offered by the label. They can only sell the share of their production that is required by the Fairtrade buyer. As more farmers enter the Fairtrade program attracted by higher prices, the quantity that each farmer is allowed to sell at the Fairtrade price is reduced, and the benefit of participation in the program for the certified farmer is reduced. de Janvry et al. (2014) show that expected profits from participation in a Fairtrade coffee cooperative in Central America are close to zero when taking into account farmers' output that is certified but not sold at Fairtrade prices. The realized profits for participating farmers are even negative when the world price is above \bar{p} .

There are also critiques regarding the long term incentives that these types of schemes create in low income countries. Collier (2007) questions the dynamics benefits of Fairtrade certification which provides benefits to farmers as long as they keep on producing the same products that left them in poverty and that world prices for these products remain low. In such a setup there are probably more efficient ways of addressing poverty concerns that do not create incentives to keep on producing the "wrong" bundle of goods.

On eco-labelling, Fischer and Lyons (2014 and 2015) study the impact on environmental quality of competition between NGOs-sponsored labels and industry-sponsored labels in a model of credence goods (where the consumer cannot assess if the product is environmentally friendly). When labelling is multi-tiered, deterioration in environmental quality is unambiguous.

Another source of private external enforcement are consumer boycotts in the North that responds to environmental, labor or human rights violations in developing countries, and may help developing countries engage in institutional reforms. The literature has highlighted that these types of initiatives can backfire as they only indirectly address distortions. For example, Basu and Zarghamee (2009) have shown that consumer boycotts based on child labor violations in the South can lead to more, not less child labor, as it hurts not only firms using child labor, but also the families of working children. Baland and Duprez (2007a) also illustrate how replacement of child workers by adult workers in the export sector and the shift of child workers to the non-traded sector due to boycotts in the North can result in lower levels of welfare in the South as well as increases in child labor. Targeting poverty and increasing the incentives to attend school with conditional cash transfer programs may be a more efficient way of addressing child labor issues than restrictions on international trade.⁵⁵

Trading platforms and reputation mechanisms

The literature on intermediaries in low-income countries focuses on their market power, often at the expense of small farmers –notably for marketing boards and stabilization funds, although predatory pricing may also have other causes.⁵⁶ Small producers face relatively

⁵⁵ See also Bharadwaj, Lakdawala, and Li (2014) studies of the child labor ban legislation passed in India in the 1980s. that evidences that poor families were worse off after the ban.

⁵⁶ Case studies on cash crops by Mc Millan et al. (2003) on cashew nuts in Mozambique and Melo et al (2000) on vanilla in Madagascar give support to Olson's Logic of Collective Action (2005), i.e. a case of exploitation of the many (small farmers) by the few (intermediaries). Melo (2010) compares the two case studies providing counterfactual simulations of the distributional impact of raising the number of traders. From a sample of 6 cash crops in Africa, Mc. Millan (2001) gives evidence that predatory taxation and the inability of governments to commit to low taxes is due to sunk costs and low discount factors rather than to marketing boards. The political-economy literature on trade policy is not reviewed here..

high costs of entering international markets, and when they enter them they will often face much larger intermediaries that will exploit their market power. The advent of the internet and online markets such as eBay, Amazon and Alibaba is changing the landscape for both manufacturing and agricultural firms. It drastically reduces the costs of entering international markets and help bypass large intermediaries altogether to directly reach international consumers in very distant markets.

Lendle et al. (2015) show how online markets help match buyers and sellers far apart through a reduction in search costs. They estimate that the effect of distance on international trade flows is 65 percent smaller on eBay than on offline markets. This means that transactions that would have never taken place in offline markets because buyers and sellers were too far apart are made possible in online markets. Interestingly the distance-reduction effect of online platform is stronger where most needed. Indeed, the reduction is larger in low income countries that import differentiated goods (with more information requirements), when trading partners speak a different language, and when corruption, income inequality and uncertainty avoidance are high in the importing country.

Access to international markets has been made more democratic by online platforms. Lendle et al. (2013) show that contrary to what is observed offline, almost all US firms selling on eBay in the domestic US market also sell in international markets. The share of exporters is 84 percent among US firms selling on the eBay platform which is several orders of magnitude larger than what is generally observed offline for US firms (see Bernard et al, 2012). Among low income countries this is even more striking with almost all firms in low income countries selling on eBay in the domestic market also exporting (see Figure 2). They also tend to export to many more markets than their offline counterparts (Lendle and Vézina, 2015).

Interestingly these exporting firms also tend to be much smaller than their offline counterparts, suggesting that the fixed costs necessary to access international markets via online platforms are much smaller than offline. This is important because tackling growing within country income inequality is a challenge facing policymakers. Large reductions in trade costs through the development of online platforms can help democratize access to global markets and therefore contribute to reductions in income inequality through better access to international larger markets for small and less productive firms (see Helpman et al. 2010, and Helpman et al., 2014). Thus, instead of having only large firms benefitting from access to thick international markets, online platforms allow small and low productive firms in low income countries to also benefit from being able to sell in these thick international markets, but also niche markets that may be a better match for some small firms.

A reason why entry costs are particularly small in online platforms is that they provide a relatively costless mean for establishing reputation as a reliable seller of good products, even when located in a region or country with bad reputation or institutions. This is because the feedback mechanisms of both buyers and sellers provided by most online platforms may provide sufficient trust for trading relationships that would not have occurred otherwise to take place (Lendle et al., 2015).

Interestingly the feedback provided by online platforms is more useful when it is most needed. Agrawal, Lacetera and Lyons (2015) using data from o-Desk, an online job platform, show that the information provided by the worker's previous experience on the platform disproportionately helps workers from developing countries find new contracts at higher wages. The prospects (and limitations) for the internet to overcome institutional and

government failures, and perhaps foster institutional improvements is intriguing and deserves further attention.

5.2 Private Trade Institutions and Development: what we would like to know?

The review of private TRI and development above identifies several research avenues. First, the existence of private trade institutions such as labeling and certification schemes is justified by the presence of information asymmetries. Addressing these market failures and allowing markets that would not have otherwise existed to prevail through labeling and certification is a desirable answer by the private sector from a global perspective. From the perspective of small producers in low-income countries, the evidence so far suggests this may not always be the case. More work is needed to better understand which schemes are more likely to achieve their development objectives (Fairtrade schemes with fixed quantities are unlikely to do so for example).

Second, in their review of the Fairtrade literature, Dragusanu, Giovanucci and Nunn (2014) call for a tightening of the methodologies used so as to control for contagion through learning by non-participating farmers and general equilibrium effects in local markets (stronger or weaker monopsony power for intermediaries for example). The impact evaluations should also compare the characteristics of farmers that participate in these schemes with those that remain outside, as non-participants may be poorer as they may be unable to pay the rapidly rising certification costs.

Third, some initiatives may also be too small to matter. FairTrade labeling that aims at reducing poverty by providing minimum prices to farmers as well as a social premium evaluated represents only 0.005 percent of world trade as can be seen in Table 6. Even for coffee which represents 55 percent of total Fair Trade sales, the share of Fair Trade products in total world trade is barely 1.4 percent.⁵⁷ For all other products it is significantly below 1 percent. For these initiatives to have an impact in working conditions and promote environmentally friendlier production processes in developing countries there is a need to scale them up. The extent to which they can be scaled up, and the desirability of scaling up some of these initiatives have been challenged by the work of de Janvry et al. (2014) and others. These are areas that need to be further explored.

Fourth, an important related issue on which more work is needed is the proliferation of Fairtrade labels, but also other types of labeling. Differing interests lead to competition between labelling groups. Ibanez, L. and G. Grolleau (2008), Mason (2013) Fischer and Lyons (2013) develop the theory. Balineau (2013) and de Janvry, McIntosh and Sadoulet (2014) give evidence on cotton and coffee respectively. It seems that agency problems may grow as the number of Fair Trade labels increases. It may not be in the interest of private certifying agencies to fully enforce certification requirements. This in turn creates problems for the consumer, who does not know whether to trust the certification and the value of the schemes may dissipate. One common critique is that there is not much more than a bit of marketing behind some of these certifying schemes which benefit from the willingness to clear the consciousness of consumers in more developed countries. There is also a need for a better understanding of the financing of many of these certification institutions. Many are financed by the fees collected from the firms they are supposed to certify (e.g., Fair Trade or

⁵⁷ Note that we are only taking the sales under the Fairtrade label. This is the main Fair Trade certification mechanism, but there are others which account for a smaller portion of Fair Trade sales.

Fair Labor Association). This can lead to some serious conflict of interests which can jeopardize their effectiveness and can lead to deterioration in the trust put by consumers in these schemes.

Fifth, another problem raised by Dragusanu, Giovanucci and Nunn (2014) in their survey of the economics of Fair Trade is that in certified cooperatives the trust that farmers have on the cooperative and its leader is smaller than in non-certified cooperatives. This is apparently largely due to the use of the social premium that gets paid to the cooperative by the buyer and which allocation is not always clear to the individual farmer who is member of the cooperative.

Sixth, regarding online platforms the extent to which online platforms have helped small producers circumvent monopsony power by offline intermediaries is an area that to our knowledge remains largely unexplored.⁵⁸ It would seem that such an exercise would require the matching of online and offline sales at the firm level which has proven difficult to do so far, though it is technically not impossible if statistical offices and firms are willing to lift the confidentiality of the name of each firm. Otherwise pseudo-panel techniques could be used.

More generally, the matching of online and offline data at the firm level will help address concerns regarding self-selection biases. Indeed firms participating on online markets may be very different from firms not participating in online markets which may explain part of the existing results in the literature. For example, distance may matter less online not because it reduces search costs, but because of the preferences of owners and managers of online firms that are more open to remote international markets.

Last, but not least, providing access to online platforms can also be an efficient tool to promote exports as almost all firms participating in online markets also export. An impact evaluation of programs providing access to online markets on the export behavior of treated firms and the extent to which there are spillovers to other firms seems an interesting research avenue for understanding how export promotion can help small firms. The role of hard and soft infrastructure (roads, transport and postal services) in making these schemes efficient should also be carefully evaluated.

⁵⁸ Access to mobile phones has also been shown to encourage political mobilization during economic downturns in Africa (Manacordi and Tesi 2016)

6 Concluding Remarks

The relationship between domestic institutions—mostly contracting institutions--and trade has been recently covered and surveyed by Nunn and Trefler (2015). Here we have concentrated on less-covered trade-related institutions (TRIs). We have surveyed the literature on Trade Agreements (TAs), Trade Promotion Organizations (TPOs) and private Trade Related Institutions (TRIs) and assess what type of TRI is more likely to help the development prospects of low income countries. Throughout the survey, we highlight the tension between the more micro-focused contributions that are closest to dealing with the attribution problem at the cost of external validity and the more macro studies cross-country studies that face the problem of confounding influences.

In sections 3.2, 4.2 and 5.2, we discuss in detail the specific areas in which we believe we need to learn more about the impact on development of TA, TPOs and private TRIs, respectively. Below we highlight some of the research avenues we think are the most promising.

Regarding TAs, many issues require further work and are discussed in section 3.2. Some research avenues have been however long due. We need a better understanding of the rationales behind the participation of low income countries in TAs. Time inconsistency in government policies is probably a good candidate, but the existing models cannot really explain why there is enforcement if low income countries have no market power. Combining the time-inconsistency rationale with models of profits-shifting as in Mrázová (2015) or production relocation as in Ossa (2011) could provide a way out.

Second, with PTA agreements covering greater provisions (e.g. labor and environmental clauses, regulatory measures), we need to understand how the increase in breadth affects the depth of these agreements (i.e. full elimination of NTBs) and how domestic supporting institutions are impacted.

Third, are PTAs complementary to multilateralism when it comes to PTAs among low income countries. Almost all existing evidence is on developed countries or Latin America and East Asia. Do results extend to Sub-Saharan Africa and South Asia?

The second type of TRI we examine are TPOs. They should have a leading role to address the multiple market failures faced by firms in low-income countries. Research from macro and micro studies suggests that they have a large and positive impact on exports and GDP. However, from a welfare perspective the case for export promotion relies on the existence of spillovers from firms benefiting from the programs to other firms. There is little direct evidence on how common are these spillovers, and what are their determinants. We need more evidence on how externalities spread across firms.

Second, learning-by-doing or learning-by-exporting can also provide a justification for export promotion but only in the presence of some market failure, like credit constraints. This is more likely to be observed in low income countries. A better understanding of which are the firms that are more likely to be simultaneously subject to learning-by-exporting and the likelihood and negatively affected by market failures would be very useful to understand the welfare implications of export promotion programs.

There is also a large scope to better understand what type of export promotion program are more effective in low income countries (in-kind assistance versus subsidies, participation in fairs versus technical assistance, etc.). More generally, the link between the market failure justifying intervention and the instruments being used has not been empirically explored.

Regarding the literature labelling and certification there is a need for more carefully identified causal impacts of adoption. Like in export promotion programs, externalities from participation in the program are likely to be very large. Identifying these externalities is important to correctly evaluate the impact of different programs. The question of the need for scaling up some of these programs that are too small to matter is important.

Last, but not least, the extent to which online platforms may help small producers circumvent monopsony power by offline intermediaries is a promising research area. An impact evaluation or randomized control trial of programs providing access to online markets on domestic and foreign sales of treated firms and the extent to which there are spillovers to other firms seems an interesting research avenue. Understanding the heterogeneity of the impact in different geographic, institutional and infrastructure environments is also an interesting line of research.

References

- Acemoglu, D. S. Johnson, and J. Robinson (2005). The Rise of Atlantic Trade, Institutional Change and Economic Growth. *American Economic Review* 95, 546-579.
- Agrawal, Ajay, Nicola Lacetera and Elizatbeth Lyons (2013). Does Information Help or Hinder Job Applicants from Less Developed Countries in Online Markets?, NBER # 18720.
- Albornoz, Fernando, Hector Calvo-Pardo, G. Corcos and Emanuel Ornelas (2012). "Sequential Exporting." *Journal of International Economics* 88(1), 17-31.
- Allee, Todd, and Jamie Scalera (2012) The Divergent Effects of Joining International Organizations: Trade Gains and the Rigors of WTO Accession. *International Organization* (66), 243-76.
- Anderson, James and Yoto Yotov (2016) Terms of Trade and Global Efficiency Effects of Free Trade Agreements, 1990-2002, *Journal of International Economics* 99, 276-98
- Anson, José, Olivier Cadot and Marcelo Olarreaga (2006). Tariff Evasion and Customs Corruption: Does PSI Help?. *The BE Journal of Economic Analysis & Policy* 5 (1)
- Antràs, Pol and Robert Staiger (2012). Offshoring and the Role of Trade Agreements, *American Economic Review*, 102(7), 3140-3183.
- Araujo, Luis, Giordano Mion, and Emanuel Ornelas (2015). Institutions and Export Dynamics. Mimeo, London School of Economics.
- Arcand, Jean-Louis, Marcelo Olarreaga and Laura Zoratto (2015). Weak Governments and Trade Agreements. In Andreas Dür and Manfred Elsig (Eds): The purpose, design and effects of preferential trade agreements. Cambridge University Press.
- Arvis, Jean-François, Yves Duval, Ben Shepherd, and C. Utktham (2013), «Trade Costs in the Developing World: 199-2010», WBPRWSP#6309
- Atkin, David, Amit Khandelwal and Adam Osman (2015). Exporting and Firm Performance: Evidence from a Randomized Experiment. Mimeo, Yale University
- Atkin, David, and Dave Donaldson (2015) « Who is Getting Globalized ? The Size and Implications of Intra-National Trade Costs" NBER #21439.
- Bagwell, Kyle and Robert W. Staiger (1999). An Economic Theory of GATT, *American Economic Review* 89(1), 215-248.
- Bagwell, K., R. Staiger (2002). *The Economics of the World Trading System*. MIT Press.
- Bagwell, K., and R. Staiger (2010). The WTO: Theory and Practice, *Annual Review of Economics*, 223-56
- Bagwell, K. and R. Staiger (2011). What do Trade Negotiators Negotiate About? Empirical Evidence from the World Trade Organization. *American Economic Review* 101(4), 1238-73

- Bagwell, K. and R. Staiger (forthcoming). Handbook of Commercial Policy, North-Holland
- Bagwell, C. Bown and R. Staiger (2015). Is the WTO Passé? Journal of Economic Literature, forthcoming.
- Baier, Scott L. & Bergstrand, Jeffrey H., 2007. Do free trade agreements actually increase members' international trade? Journal of International Economics 71(1), 72-95.
- Baier, Scott, Jeffrey Bergstrand and Ronald Mariuto (2014). Economic Determinants of PTAs Revisited. Review of International Economics 22(1), 31-58
- Baland, Jean-Marie and Cédric Duprez (2007). 'Made in Dignity': The Impact of Social Labels. Working Papers 1001, University of Namur.
- Baland, Jean-Marie and Cédric Duprez (2007a). Are Fair Trade Labels Effective Against Child Labour? CEPR discussion paper 6259.
- Baldwin, Richard E. (2014). WTO 2.0: Governance of 21st. Century Trade. The Review of International Organizations. 9(2), 261-83. (also Trade, Policy Insight #64 CEPR).
- Balineau, Gaëlle (2013). Disentangling the Effects of Fair Trade on the Quality of Malian Cotton, World Development 44(C), 241-255.
- Bardhan, Pranab (2006) Institutions, Trade and Development, mimeo, Berkeley
- Basu, Kaushik and Homa Zarghamee (2009). Is product boycott a good idea for controlling child labor? A theoretical investigation. Journal of Development Economics 88, 217-220.
- Bergstrand, Jeffrey, Mario Larch, and Yot Yotov (2015). Economic Integration agreements, border effects and distance elasticities in the gravity equation, European Economic Review 78, 307-27
- Berman, Nicola, Mathieu Couttenier, Dominic Rohner and Mathias Thoenig (2014). This Mine is Mine! How Minerals Fuel Conflict in Africa. CEPR DP#10089
- Bernard, Andrew, Bradford Jensen, Stephen Redding and Peter Schott (2012). The empirics of firms heterogeneity and international trade. Annual Review of Economics 4(1), 283-313.
- Bhagwati, J. (1992). Regionalism and Multilateralism: An Overview in Melo and Panagariya (eds)
- Bharadwaj, Prashan, Lea Lakdawala, and Nicholas Li, 2014. Perverse consequences of well-intended regulations: evidence from India's child labor ban. NBER working paper 19602
- Bigsten, Arne, Paul Collier, Stefan Dercon et al... (2000) Contract Flexibility, and Dispute Resolution in African Manufacturing. Journal of Development Studies 36(4), 1-17.
- Biesebroeck, Johannes Van (2005). Exporting raises productivity in sub-Saharan African manufacturing firms. Journal of International Economics 67(2), 373-391.
- Biesebroeck, Johannes van, Jozef Konings and Christian Volpe-Martincus, 2015. Did export promotion help firms weather the crisis? Economic Policy, 31 (86) .

- Blalock, Garrick and Paul Gertler, 2004. Learning from exporting revisited in a less developed setting. *Journal of Development Economics* 75, 397–416
- Blackorby, Charles and David Donaldson. 1988. Cash versus Kind, Self-Selection, and Efficient Transfers, *American Economic Review* 78(4): 691-700.
- Blanchard, Emily, Chad Bown, and Robert Johnson (2016) *Global Supply Chains and Trade Policy*, CEPR DP#11044
- Bohara, A, K. Gawande, P. Sanguinetti (2004) Trade Diversion and declining tariffs: evidence from Mercosur, *Journal of International Economics* 64, 65-88
- Bown, Chad (2009). *Self-Enforcing trade: Developing Countries and the WTO Dispute Settlement*, Washington, D.C. Brookings Institutions
- Bown, chad and Kara Reynolds (2015) *Trade Agreements and Enforcement: Evidence from WTO Dispute Settlement*, World Bank WPS #7242
- Bown, Chad. (2015). *What's Left for the WTO?*, World Bank DP#7502
- Brecher, Richard (1974). Minimum wage rates and the pure theory of international trade. *Quarterly Journal of Economics* 88(1), 98-116.
- Breilich, Holger, Dave Donaldson, Patrick Nolen, and G. Wright (2015). Information and Attitudes towards Exporting Evidence from a Randomized Controlled Trial. Paper presented at GEP conference in Ningbo.
- Brenton, Paul, Christian Saborowski, Erik Von Uexkull (2010) What explains the low survival of developing country exports, *World Bank Economic Review*, 24(3), 474-99
- Broda, Christian, Nuno Limão, and David Weinstein (2008) Optimal Tariffs and Market Power: The evidence", *American Economic Review*, 98(5), 2032-65
- Cadot, Olivier, Ana Fernandes, Julien Gourdon, Aaditya Mattoo and Jaime de Melo (2014)) *Evaluating Aid for Trade: A Survey of Recent Studies*, *The World Economy*, 37(4), 516-529
- Cadot, Olivier, Ana Fernandes, Julien Gourdon and Aaditya Mattoo (2015). Are the benefits from export support durable? *Journal of International Economics* 97(2), 310-324.
- Calvo-Pardo, Hector, Caroline Freund, Emmanuel Ornelas (2009) *The Asean Free Trade agreement: impact on trade flows and external trade barriers in Costs and benefits of Regional Economic Integration*, Oxford, Oxford University Press.
- Chichilnisky, Graciela (1994). North-South Trade and the Global Environment, *American Economic Review* 84(4), 851-74.
- Chor, Davin (2010). Unpacking Sources of Comparative Advantage: A Quantitative Approach , *Journal of International Economics* 82(2), 152-67.
- Collier, Paul (2007). *The bottom billion*. Oxford University Press.

Collier, Paul (2010). *The Plundered Planet: How to Reconcile Prosperity with Nature*. Oxford University Press.

Collier, Paul and Anthony J Venables (2010). International rules for trade in natural resources, *Journal of Globalisation and Development* 1(1).

Conconi, Paola and Carlo Perroni (2012). Conditional versus unconditional Trade Concessions for Developing Countries. *Canadian Journal of Economics*, 45,613-631

Conconi, Paola and Carlo Perroni (2015).Special and Differential Treatment of Developing Countries in the WTO. *World Trade Review*, 14,67-86

Copeland, Brian R., 2008. Is there a case for trade and investment promotion policy? in Dan Ciuriak (ed.), *Trade Policy Research 2007* (Ottawa: Foreign Affairs and International Trade Canada).

Copeland, Brian R., and M. Scott Taylor. 2009. Trade, Tragedy, and the Commons. *American Economic Review* 99(3), 725-49.

Cruz, Marcio (2014). *Essays in trade and development economics*, Phd dissertation: Graduate Institute of International and Development Studies, Geneva.

Davis, Christina and Meredith Wilf (2016). WTO Membership. Chp. 20 in Lisa Martin ed

Dell, Melissa (2010). The Persistent Effect of Peru's Mining Mita. *Econometrica* 78(6), 1863-1903.

Disdier, Anne-Célia, Lionel Fontagné and Olivier Cadot (2015). North-South Standards Harmonization and International Trade. *The World Bank Economic Review* 29(2), 327-352.

Djankov, Simeon and Sandra Sequeira (2014). Corruption and Firm Behaviour: Evidence from African Ports. *Journal of International Economics* 94(2), 277-329

Dollar, David, and Aart Kraay (2003) Institutions, Trade and Growth, *Journal of Monetary Economics* 50, 133-62.

Dragusanu, Raluca, Daniele Giovannucci and Nathan Nunn (2014), The Economics of Fair Trade. *Journal of Economics Perspectives* 28(3), 217-236.

Dragusanu, Raluca and Nathaniel Nunn (2014). The Impacts of Fair Trade Certification: Evidence from Coffee Producers in Costa Rica. *Mimeo*

Dutt, Pushan and Daniel Traça (2010). Corruption and Bilateral Trade Flows: Extortion or Evasion? *The Review of Economics and Statistics* 92(4), 843-60.

Eicher, Theo, and Christian Henn (2011). In Search of WTO Trade Effects: Preferential Trade Agreements Promote Trade Strongly but Unevenly. *Journal of International Economics* 83(2), 137-53.

Ehrlich, S. (2007). Access to Protection: Domestic Institutions and Trade Policies in Democracies. *International Organization* 61(3), 571-605.

Engerman, Stanley and Kenneth Solokoff (2012). *Economic Development in the Americas since 1500: Endowments and Institutions*. Cambridge University Press.

Engerman, Stanley and Kenneth Solokoff (2000). Paths of Development in the New World. *Journal of Economic Perspectives* 76, 166-76.

Estache, Antonio and Caroline Philippe (2016). What if the TTIP Changed the Regulation of Public Services ? Lessons for Europe from Developing Countries. ECARES working paper 2016-26.

Estevadeordal, Antoni, Caroline Freund, Emmanuel Ornelas (2008) Does Regionalism affect trade regionalism towards non-members? *Quarterly Journal of Economics* 123, 1531-75

Ethier, Wilfred, J. (1998). Regionalism in a Multilateral World. *Journal of Political Economy* 106(6), 1214-45.

Ethier, Wilfred, J. (2013). The Trade-Agreement Embarrassment. *Journal of East Asian Economic Integration* 17. 243-60

Feder, Gershorn (1982) On Exports and Economic Growth, *Journal of Development Economics* 12, 59-73.

Felbermayr, Gabriel and Farid Toubal (2010). Cultural Proximity and Trade. *European Economic Review* 54(2), 279-93.

Fernandez, Ana and Heiwai Tang (2014). Learning to export from neighbors. *Journal of International Economics* 94, 67-84.

Fernandez, R. and J. Portes (1998). Returns to Regionalism: An Analysis of Nontraditional Gains from Regional Trade Agreements, *World Bank Economic Review*, 12(2), 197-220.

Feyrer, James (2009) Distance, Trade and Income: The 1967 to 1975 Closing of the Suez Canal as a Natural Experiment,

Finger, J. Michael (1999). The WTO's Special Burden on Less Developed Countries. *Cato Journal* 19(3), 425-37.

Finger, J. Michael and P. Schuler (2000). Implementation of the Uruguay Round: The Development Challenge. *The World Economy* 23(4), 511-25.

Finger, Michael and Philip Schuler eds. (2004). *Poor Peoples Knowledge: Promoting Intellectual Property in Developing Countries*, Oxford University Press for the World Bank.

Fink, Carsten and Keith Maskus (2005). *Intellectual property and development: lessons from economic research*. Oxford University Press for the World Bank.

Fischer, Carolyn (2010). Does Trade Help or Hinder the Conservation of Natural Resources? *Review of Environmental Economics and Policy* 4(1), 103-121.

Fischer, Carolyn and Thomas P. Lyon, 2014. Competing Environmental Labels, *Journal of Economics & Management Strategy* 23(3), 692-716.

Fisman, R. and Wei, S. (2004). Tax Rates and Tax Evasion: Evidence from Missing Imports in China. *Journal of Political Economy*, 112(2), 471-496.

Foletti, Liliana, Marco Fugazza, Alessandro Nicita and Marcelo Olarreaga (2011). Smoke in the (Tariff) Water. *World Economy* 34(2), 248-264.

Foroutan, Faezeh, (1992) Regional Integration in Sub-Saharan Africa in Melo and Panagariya, eds.

Foroutan, Faezeh, (1998) Does Membership in a Regional Preferential Trade Arrangement Make a Country More or Less Protectionist? *The World Economy* 21(3), 305-55

Foster-McGregor, Neil, Anders Isaksson and Florian Kaulich (2014). Learning by exporting versus self-selection: new evidence from 19 Sub-Saharan African countries. *Economic Letters* 125(2), 212-214.

François, Joseph, and Miriam Manchin (2013) Institutions, Infrastructure and Trade, *World Development*, 46, 165-75.

Freund, Caroline and Emanuel Ornelas, 2010. Regional Trade Agreements, *Annual Review of Economics*, Annual Reviews, vol. 2(1), pages 139-166, 09.

Gatti, Roberta, 1999. Corruption and trade tariffs, or a case for uniform tariffs, *Policy Research Working Paper Series 2216*, The World Bank.

Grossman, Gene (2016) The Purpose of Trade Agreements, in Bagwell and Staiger eds.

Glickman, Lawrence (2004). Buy for the Sake of the Slave: Abolitionism and the Origins of American Consumer Activism. *American Quarterly* 56(4), 889-912.

Green, Jessica (2013). *Rethinking Private Authority: Agents and Entrepreneurs in Global Environmental Governance*, Princeton University Press.

Grether, J.M. N. Mathys and J. de Melo (2012). Unravelling the World-Wide Pollution Haven Effect. *Journal of International Trade and Development* 21(1), 131-62

Guiso, Luigi, Paolo Sapienza and Luigi Zingales (2009) Cultural biases in Economic Exchange. *Quarterly Journal of Economics* 124(3), 1095-1131.

Golberg, Penelopi, and Ninca Pavnick (forthcoming) The Effects of Trade Policy in Bagwell and Staiger eds.

Gopinath, Gita, Elhanan Helpman and Kenneth Rogoff eds. (2014) *Handbook of International Economics*, North-Holland

Hainmueller, J., M. Hiscox, and S. Sequeira. 2015. Consumer Demand for the Fair Trade Label: Evidence from a Multi-Store Field Experiment, *Review of Economics and Statistics*

Handley, Kyle (2014). Exporting under trade policy uncertainty: Theory and evidence, *Journal of International Economics* 94(1): 50-66.

- Handley, Kyle and Nuno Limao (2015). Trade and investment under policy uncertainty: theory and firm evidence, *American Economic Journal: Economic Policy* 7(4).
- Hausmann, Ricardo, Jason Hwang and Dani Rodrik (2007). What you export matters, *Journal of Economic Growth* 12(1), 1-25.
- Hausmann, Ricardo Dani Rodrik (2003). Economic development as self-discovery, *Journal of Development Economics* 72(2), 603-633.
- Hayakawa, Kazunobu, Hyun-Hoon Lee, and Donghyun Park (2011). Do export promotion agencies increase exports? IDE Discussion Paper No. 313.
- Head, Keith and Thierry Mayer (2014) Gravity Equations: Workhorse, toolkit and Cookbook, chapter 4 in Gopinath et al. eds.
- Helleiner, Gerald K. (2002). Non-traditional Export Promotion in Africa: Experience and Issues, Palgrave MacMillan.
- Helpman, Elhanan, Oleg Itskhoki, and Stephen Redding (2010) . Inequality and unemployment in a global economy. *Econometrica* 78(4), 1239-1283.
- Helpman, Elhanan, Oleg Itskhoki, Marc-Andreas Muendler and Stephen Redding (2015) . Trade and Income Inequality: from theory to estimation. Mimeo. Princeton University.
- Hogan, Paul, Donald Keesing, and and Andrew Singer (1991). The Role of Support Services in Expanding Manufactured Exports in Developing Countries, mimeo, World Bank,
- Horn, Henrik, Giovanni Maggi and Robert Staiger (2010a). Trade Agreements as Endogenously Incomplete Contracts, *American Economic Review*
- Horn, Henrik, Petros Mavroidis and André Sapir (2010b). Beyond the WTO: An Anatomy of EU and US Preferential Trade Agreements, *The World Economy*, 33(11), 1565-1588
- Ibanez, L. and G. Grolleau, (2008). Can Ecolabeling Schemes Preserve the Environment?, *Environmental and Resource Economics* 40, 233-249.
- Janvry, Alain de, Craig McIntosh and Elisabeth Sadoulet (2015). Fair Trade and Free Entry: Can a Disequilibrium Market Serve as a Development Tool?, *The Review of Economics and Statistics* 97(3), 567-573.
- Jarreau, Joachim and Sandra Poncet (2012). Export sophistication and economic growth: evidence from China. *Journal of Development Economics* 97, 281-292.
- Javorcik, Beata, W. Keller and J. Tybout (2008). Openness and Industrial Response in a Wal-Mart World: A Case Study of Mexican Soaps, Detergents and Surfactant Producers, *The World Economy*, Wiley Blackwell, vol. 31(12), pages 1558-1580, December
- Javorcik, B and G Narciso (2013). Accession to the World Trade Organization and Tariff Evasion, CEPR Discussion Paper 9592.

Johns, Leslie and Lauren Peritz (2016). The Design of Trade Agreements chp. 18 in Lisa Martin ed

Karacaovali, Baybars and Nuno Limão (2008) The clash of liberalizations: Preferential vs. multilateral trade liberalization in the European Union, *Journal of International Economics*, 74(2), 299-327

Kaufmann, D. A. Kraay, and M. Mastruzzi (2003) Governance Matters III: Governance Indicators for 1996-2002. WP#3106, World Bank

Kedia, Ben, and Jagdeep Chhokar (1986). An Empirical Investigation of Export Promotion Programs, *Columbia Journal of World Business* 21, 13-20.

Keessing, Donald and Andrew Singer (1991). Development Assistance Gone Wrong: Failures in Services to Promote and Support Manufactured Exports, Economic Development Institute, The World Bank.

Keller, W- and C. Shiue (2008). Institutions, Technology and Trade. NBER #13913

Khandelwal, Amit K. Peter K. Schott and Shang-Jin Wei, 2013. Trade Liberalization and Embedded Institutional Reform: Evidence from Chinese Exporters, *American Economic Review* 103(6), 2169-95, October.

Kotabe, Massaki and Michael R. Czinkota (1992). State government promotion of manufacturing exports: a gap analysis, *Journal of International Business Studies* 23(4), 637-658.

Krishna, Pravin (2003). Are Regional Trade Partners Natural? *Journal of Political Economy* 111(1), 202-26.

Krishna, Pravin (2013) Preferential Trade Agreements in the World Trading System: A Multilateralist View. in R. Feenstra and A. Taylor eds. *Globalization in an Age of Crisis: Multilateral Economic Cooperation in the Twenty-First Century*, University of Chicago Press.

Leamer, Edward, and James Levinsohn (1995). International Trade: The Evidence. Gene Grossman and Kenneth Rogoff eds. *Handbook of International Economics* vol. 3

Lederman, Daniel, Marcelo Olarreaga and Lucy Payton (2010). Export Promotion Agencies: Do They Work? *Journal of Development Economics* 91, 257-265.

Lederman, Daniel, Marcelo Olarreaga and Lucas Zavala (2016). Export promotion and firm entry into and survival in export markets, *Canadian Journal of Development Economics*, forthcoming.

Lendle, Andreas, Marcelo Olarreaga, Simon Schropp and Pierre-Louis Vézina (2015). There goes gravity: how eBay reduces trade costs. *Economic Journal* 126, 401-441.

Lendle, Andreas, Marcelo Olarreaga, Simon Schropp and Pierre-Louis Vézina (2013). eBay Anatomy. *Economics Letters* 121, 115-120.

- Lendle, Andreas and Pierre-Louis Vézina (2015). Internet technology and the extensive margin of trade: evidence from Ebay in emerging economies. *Review of Development Economics* 19(2), 375-386.
- Levchenko, Andrei (2007). Institutional Quality and International Trade, *Review of Economic Studies* 74(3), 791-819.
- Levchenko, Andrei (2012). International Trade and Institutional Change, *Journal of Law, Economics and Organization*.
- Limão, Nuno (2006). Preferential Trade Agreements as Stumbling Blocs for Multilateral Trade Liberalization: Evidence from the US, *American Economic Review*, 96(3), 896-914
- Limão, Nuno (2007). Are preferential trade agreements with non-trade objectives a stumbling block for multilateral liberalization? *The Review of Economic Studies* 74 (3), 821-855.
- Limão, Nuno. (2016). Preferential Trade Agreements. Chapter 5 in Bagwell and Staiger eds. *Handbook of Commercial Policy*, North-Holland Also NBER #22138,
- Liu, Xuepeng and Emmanuel Ornelas (2014) Free Trade Agreements and the Consolidation of Democracy. *American Economic Journal: Macroeconomics*, 6(2), 29-70
- Ludema, Ronald, and Anna-Maria Mayda (2013) Do Terms of Trade Effects Matter for Trade Agreements, *Quarterly Journal of Economics*, 128(4), 1837-1893.
- Maggi, Giovanni (2014). International Trade Agreements, chp. 6 in Gopinath et al. eds Also Cowles Dp #1417
- Maggi, Giovanni and Andrés Rodríguez-Clare (2007). A Political-Economy Theory of Trade Agreements, *American Economic Review* 97(4) 1374-1406.
- Maggi, Giovanni and Andres Rodriguez-Clare (1998). The Value of Trade Agreements in the Presence of Political Pressures. *Journal of Political Economy* 106(3), 574-601.
- Manacorda, Marco and Andrea Tesi (2016) Liberation Technology: Mobile Phones and Political Mobilization in Africa. CEPR #11278
- Mansfield, E., and E. Reinhardt (2007). International Institutions and the Volatility of International Trade. *International Organization* 62(4), 621-52
- Martin, P. T. Mayer and M. Thoenig (2008). Make Trade, not War, *Review of Economic Studies* 75(3), 865-900
- Martin, P. T. Mayer and M. Thoenig (2012). The Geography of Conflicts and Regional Trade Agreements, *American Journal: Macroeconomics* 4(4), 1-35
- Martin, Lisa, ed (2016) *The Oxford Handbook of the Political Economy of Trade*,
- Mason, Charles (2013). The economics of eco-labeling: theory and empirical implications, *International Review of Environmental and Resource Economics* 6, 341-72

Mattoo, Aaditya and Harsha Singh (1994). Eco-labeling: policy considerations, *Kyklos* 47(1), 53-65.

Mavroidis, P. and J- de Melo (2015). Climate Change Policies and the WTO: Greening the GATT Revisited in S-Barrett, C. Carraro and J. de Melo eds, *Towards a Workable and Effective Climate Regime*, CEPR and FERDI p.225-39

Mayer, Thierry and Mathias Thoenig (2016) Regional Trade Agreements and the Pacification of Eastern Africa. IGC Working paper.

Maystre, Nicolas, Jacques Olivier, Mathias Thoenig and Thierry Verdier (2014) Product-based cultural change: Is the Village Global, *Journal of International Economics*,

Melo, J. de (2010). Trade Reforms in Natural-Resource-Abundant Economies in G. Porto and B. Hoekman eds. *Trade Adjustment Costs in Developing Countries: Impacts, Determinants and Policy Responses*, CEPR and World Bank

Melo, Jaime de and Arvind Panagariya (1992) Introduction in Melo and Panagariya eds. pp. 3-21

Melo, Jaime de, Arvind Panagariya and Dani Rodrik (1992). Regionalism: A Country Perspective in Melo and Panagariya eds., 159-201

Melo, Jaime de and Arvind Panagariya eds. (1992). *New Dimensions in Regional Integration*, Cambridge University Press and CEPR.

Melo, Jaime de, Claudio Montenegro and Arvind Panagariya (2012) *Regional Integration, Old and New*, WBSP #985

Melo, Jaime de and Yvonne Tsikata (2015). Regional Integration in Africa: Challenges and Prospects in Monga and Lin eds. *The Oxford Handbook of African Economics*

Melo, J. de, M. Olarreaga and W. Takacs (2000). Pricing Under Double Market Power: Madagascar and the International Vanilla Market, *Review of Development Economics*, 4(1), 1-20.

Melo, Jaime de and Julie Régolo (2014). The African Economic Partnership Agreements with the EU: Reflections Inspired by the Case of the East African Community. *Journal of African Trade*, 2014, vol 1

Mcmillan, M. (2001). Why Kill the Golden Goose? A political Economy Model of Export Taxation, *The Review of Economics and Statistics*, 83(1), 170-84.

Mcmillan, M. K. Horn and D. Rodrik (2003). When Economic Reform Goes Wrong: Cashews in Mozambique, *Brookings Trade Forum*, 97-151.

McCallum, John (1995) National Borders Matter: Canada-US Regional Trade Patterns", *American Economic Review* 85(3), 615-23

Michalopoulos Stelios and Elias Papaioannou (2013), "Pre-colonial Ethnic Institutions and Contemporary African Development", *Econometrica*, 81(1): 113-152.

Michalopoulos Stelios and Elias Papaioannou (2014), "National Institutions and Subnational Development in Africa", *Quarterly Journal of Economics*.

Milgrom, Paul, Douglas North, and Barry Weingast (1990). The Role of Institutions in the Revival of Trade: The Law Merchant, Private Judges, and the Champagne Fairs, *Economics and Politics*, 2(1), 1-23 (to check)

Mion, Giordano and Luca Oromolla (2014). Managers' mobility, trade performance and wages. *Journal of International Economics* 94, 85-101.

Moncarz, Pedro, Marcelo Olarreaga and Marcel Vaillant (2016). Regionalism as industrial policy: evidence from Mercosur. *Review of Development Economics* 20(1), 359-373.

Mrázová, Monika (2015). Trade agreements when profits matter. Mimeo, University of Geneva.

Munch, Jacob and Georg Schaur (2015). The effect of export promotion on firm-level performance, mimeo presented at ETSG conference in Paris.

Nicita, Alessandro, Marcelo Olarreaga and Peri Silva (2015), Cooperation in WTO's tariff waters, mimeo University of Geneva.

Negri, Mariano and Guido Porto, 2016. Burley Tobacco Clubs in Malawi: Non-Market Institutions for Exports, *International Economics*, forthcoming.

Nordhaus, William. 2015. Climate Clubs: Overcoming Free Riding in International Climate Policy, *American Economic Review* 105, 1-32.

Novy, Dennis (2013) "Gravity Redux: Measuring international Trade Costs with Panel Data", *Economic Inquiry*, 51(1), 101-121-

Nunn, Nathaniel, (2007). Relationship-Specificity, Incomplete Contracts, and the Pattern of Trade , *Quarterly Journal of Economics*

Nunn, Nathaniel and Daniel Trefler (2010). The Structure of Tariffs and Long-run Growth. *American Economic Journal: Macroeconomics.*, 158-94

Nunn, Nathaniel and Daniel Trefler (2015). Domestic Institutions as a Source of Comparative Advantage, chp. 5 in Gopinath et al. eds. *Handbook of International Economics*.

Ollarreaga, Marcelo, Stefan Sperlich and Virginie Trachsel (2016). Export promotion: what works? CEPR DP#1120.

Ornelas, Emmanuel (2016) Special and Differential Treatment for Developing Countries, in Bagwell and Staiger eds.

Ossa, Ralph (2011). A New Trade Theory of the GATT/WTO Negotiations, *Journal of Political Economy* 119(1), 122-152.

Ossa, Ralph (2014) Trade Wars and Trade Talks with Data (2014) *The American Economic Review*, 104(12), 4104-46.

- Ozden, Caglar and Eric Reinhardt (2005) The Perversity of Preferences: GSP and Developing Country trade Policies. *Journal of Development Economics*. 78,1-21
- Peters, Jorg, Jorg Langbein and Gareth Roberts (2015). Policy Evaluation, Randomized controlled Trials, and External Validity- A Systematic Review,
- Podhorsky, Andrea (2013). Certification Programs and North–South Trade. *Journal of Public Economics* 108: 90–104.
- Podhorsky, Andrea (2015). A Positive Analysis of Fair Trade Certification. *Journal of Development Economics* 116: 169–185.
- Polaski, Sandra. (2004). Cambodia Blazes A New Path to Economic Growth and Job Creation, Carnegie Paper
- Poncet, Sandra and Felipe Starosta (2013). Export upgrading and growth: the prerequisite of domestic embeddedness. *World Development* 51, 104-118.
- Pritchett, Lance (2013) Comments on Institutions, Trade and Growth, *Journal of Monetary Economics*, 50, 163-66
- Puga, D. and D. Trefler (2014). International Trade and Institutional Change: Medieval Venice's Response to Globalization. *Quarterly Journal of Economics*, 753-821
- Regan, D. H. 2006. What are Trade Agreements for? Two Conflicting Stories told by Economists with a Lesson for Lawyers. *Journal of International Economic Law* 9, 951-88
- Regan, D. H. 2015. Explaining Trade Agreements: The Practitioners' story and the standard model. *World trade Review*, 14(3), 391-417
- Rose, Andrew (2004). Which International Institutions Promote International Trade, *Review of International Economics*,
- Rose, Andrew (2005). Does the WTO Make Trade More Stable?, *Open Economies Review* 16(1), 7-22.
- Rose, Andrew K. (2007). The Foreign Service and Foreign Trade: Embassies as Export Promotion, *The World Economy* 30(1), 22-38.
- Ruta, Michele, and Anthony J Venables (2013). International trade in natural resources: practice and policy, *Annual Review of Resource Economics*.
- Sapir, Andre (1998) The Political Economy of EC Regionalism. *European Economic Review*, 42, 717-32
- Schminke, Annette and Johannes Van Biesebroeck (2011). Using Export Market Performance to Evaluate Regional Preferential Policies in China, CEPR DP#8696
- Schminke, Annette and Johannes Van Biesebroeck (2015). The Impact of Export Promotion on Export Market Entry, mimeo, University of Leuven.

- Sequeira, Sandra (forthcoming). Corruption, Trade Costs and Gains from Tariff Liberalization: Evidence from Southern Africa. *American Economic Review*,
- Schiff, M. and A. Winters, (2003). *Regional Integration and Development*, World Bank,
- Shy, Oz (2000). Exporting as a Signal for Product Quality. *Economica* 67(265), 79–90.
- Spolaore, Enrico (2013) What is European Integration Really About? A Political Guide for Economists, *Journal of Economic Perspectives*, 27(3), 125-44
- Spolaore, Enrico and Romain Wacziarg (2014). How Deep are the Roots of Economic Development, *Journal of Economic Literature*, 51(2), 1-45
- Spolaore, Enrico and Romain Wacziarg (2009). The Diffusion of Development, *Quarterly Journal of Economics*, 124(2), 469-529
- Subramanian, Arvind & Wei, Shang-Jin (2007). The WTO promotes trade, strongly but unevenly, *Journal of International Economics* 72(1), 151-175.
- Tang, M-K, and S-J Wei (2009). The Value of Making Commitments Externally Evidence from WTO Accessions, *Journal of International Economics*, 78(1), 216-229
- Tsui, Kevin (2011) More oil, less Democracy: Evidence from Worldwide Crude Oil Discoveries”, *The Economic Journal*, 121, 89, 115-22
- Trefler, Daniel (1995) The Case of Missing Trade and Other Mysteries, *American Economic Review* 85(5), 1029-46
- Vezina, Pierre-Louis (2014) Race to the Bottom Tariff Cutting. *Review of International Economics*, 22(3), 444-58.
- Victor, David (2015). *The Case for Climate Clubs*, E-15 Initiative, ICSTD
- Volpe, Christian and Jerónimo Carballo (2008). Is export promotion effective in developing countries? Firm-level evidence on the intensive and the extensive margins of exports. *Journal of International Economics* 76: 89-106.
- Volpe, Christian and Jerónimo Carballo (2010). Beyond the average effects: The distributional impacts of export promotion programs in developing countries. *Journal of Development Economics* 92, 201-214.
- Volpe, Christian and Jerónimo Carballo (2010a). Export promotion: bundled services work better. *World Economy* 33, 1718-1756.
- Volpe, Christian, Jerónimo Carballo, and Pablo M. Garcia (2012). Public programs to promote firms’ exports in developing countries: Are there heterogeneous effects by size categories? *Applied Economics* 44(4), 471–491.
- Wacziarg, Romain and Karen Welch (2008) *Trade Liberalization and Growth: The Evidence*, World Bank Economic Review,

Wade, Robert (2003). What strategies are viable for developing countries today? The World Trade Organization and the shrinking of 'development space'. *Review of International Political Economy* 10(4), 621-644.

Wei, Shangjin, Ziru Wei and Jianhuan Xu (2014). Assessing Market Failures in Export Pioneering Activities: Evidence from Chinese Exporters. CEPR DP 10187.

Whalley, John (2011) What Role for Trade in a Post 2012 Global Climate Policy Regime”
The World Economy, 34(11), 1844-62

World Trade Organization (2011) World Trade Report: The WTO and Preferential Trade Agreements: From co-existence to Coherence.

Xu, Ankai (2015). The Trade of Virtual Water: Do Property Rights Matter?(mimeo) GIIS.

Yang, Dean (2008). Can Enforcement Backfire? Crime Displacement in the Context of Customs Reform in the Philippines, *The Review of Economics and Statistics*, 2008, 90(1), 1-14

Table 1: Number of active PTAs, Goods, Goods and Services, and regional type, 2010

	Goods	Goods & Services
Developed-Developed	13	9
Developed-Developing	36	40
Developing-Developing	145	41
Bilateral	104	64
Plurilateral	38	11
Plurilateral (At least 1 party is a PTA)	52	15
Intra-regional	110	33
Cross-regional	84	57

Source: WTO (2011, table B5). Active PTAs

Table 2: Tariff Water in the WTO

	All goods	Agriculture	Manufacturing
All countries	0.11	0.26	0.09
High income countries	0.07	0.25	0.05
Middle income countries	0.16	0.23	0.16
Low income countries	0.36	0.72	0.33

Source: Foletti et al. (2011)

Table 3: Main Preferential Trade Agreements in Africa

Abbreviation	Name of RTA	Type of Agreement	Members	Year Originated	Year Agreement Signed	Objective
AMU	Arab Maghreb Union	Free Trade Area	Algeria, Libya, Mauritania, Morocco, Tunisia	1988	1989	· Economic and political unity among Maghreb countries.
Agadir	Agadir Agreement	Free Trade Area	Egypt, Jordan, Morocco, Tunisia	2001	2004	· Establish an FTA among members prior to a Euro-Mediterranean FTA as envisaged in The Barcelona Process. · Boost competitiveness of their products into European Union (EU) markets; expand cooperation, commercial exchange and free trade between members. · Agadir Agreement spectrum includes customs, services, certificates of origin, government purchases, financial dealings, preventive measures, intellectual property, standards and specifications, dumping and mechanisms to resolve conflicts.
EMCC/CEMAC	Economic and Monetary Community of Central Africa	Customs & Monetary Union	Cameroon, Central African Republic (L), Chad (L), Congo, Equatorial Guinea, Gabon	1959 ¹	1994	· Create a common market based on the free movement of people, goods, capital and services. · Ensure a stable management of the common currency. · Secure environment for economic activities and business in general. · Harmonize regulations of national sectoral policies.
COMESA	Common Market for Eastern and Southern Africa	Customs Union	Burundi (L), Comoros, DR Congo, Djibouti, Egypt, Eritrea, Ethiopia (L), Kenya, Libya, Madagascar, Malawi (L), Mauritius, Rwanda (L), Seychelles, Sudan, Swaziland (L), Uganda (L), Zambia (L), Zimbabwe (L)	1965 ²	1993	· Achieve sustainable economic and social progress in all Member States through increased co-operation and integration in all fields of development particularly in trade, customs and monetary affairs, transport, communication and information, technology, industry and energy, gender, agriculture, environment and natural resources.
EAC	East Africa Community	Customs Union	Burundi (L), Kenya, Rwanda (L), Tanzania, Uganda (L)		1999	· Widen and deepen co-operation among Partner States in, among others, political, economic and social fields for their mutual benefit. To this extent the EAC countries established a Customs Union in 2005 and a Common Market in 2010. Enter into a Monetary Union and ultimately become a Political Federation of the East African States.
ECOWAS	Economic Community of West African States	Trade, Currency, Political Union	Benin, Burkina Faso (L), Cape Verde, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali (L), Niger (L), Nigeria, Senegal, Sierra Leone, Togo	1965 ³	1975/1993	· Achieve a common market and a single currency. Provide for a West African parliament, an economic and social council and an ECOWAS court of justice to replace the existing Tribunal and enforce Community decisions. The treaty also formally assigned the Community with the responsibility of preventing and settling regional conflicts.
PAFTA	Pan-Arab Free Trade Area	Free Trade Area	Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Sudan, Syria, Tunisia, United Arab Emirates, Yemen		1997	· Elimination of customs duties and other fees and duties having similar effects. · Eliminate all non tariff barriers, including Administrative, Monetary, Financial and Technical barriers. · Preferential treatment for least developed member states.
SACU	Southern African Customs Union	Customs & Monetary Union	Botswana (L), Lesotho (L), Namibia, South Africa, Swaziland (L)	1910 ³	2002	· Facilitate the cross-border movement of goods between the territories of the Member States. · Create effective, transparent and democratic institutions to ensure equitable trade benefits to Member States. · Promote conditions of fair competition in the Common Customs Area and investment opportunities.
SADC	Southern African Development Community	Free Trade Area	Angola, Botswana (L), Lesotho (L), Malawi (L), Mauritius, Mozambique, Namibia, South Africa, Swaziland (L), Tanzania, Zambia (L), Zimbabwe (L)	1980 ⁴	1996	· Enhance growth and poverty alleviation; support the socially disadvantaged through Regional Integration. · Evolve common political values, systems and institutions; Promote and defend peace and security. · Promote self-sustaining development on the basis of collective self-reliance and the inter-dependence of Member · Achieve complementarity between national and regional strategies and programmes. · Achieve sustainable utilisation of natural resources and effective protection of the environment. · Strengthen and consolidate historical, social and cultural affinities.
WAEMU /UEMOA	West African Economic and Monetary Union	Customs & Monetary Union	Benin, Burkina Faso (L), Côte d'Ivoire, Guinea-Bissau, Mali (L), Niger (L), Senegal, Togo		1994	· Increase competitiveness through open markets; rationalize and harmonize the legal environment. · Convergence of macro-economic policies and coordination of sectoral policies; create a Common Market. · The coordination of sectoral policies.
GCC	Gulf Cooperation Council	Political & Economic Union	Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates		1981	· Formulate similar regulations in religious, finance, trade, customs, tourism, legislation and administration. Establish a common currency.

Source: WTO RTA database

Note: 1. Creation of Equatorial Customs Union; 2. Creation of Preferential Trade Area for Eastern and Southern Africa; 3. First agreement signed; 4. Creation of Southern African Development Community; (L) for landlocked members

Source: Melo and Tsikata (2015, table 1)

Table 4: Depth and Breadth of Measures in a Selection of Developing-country RTAs

		Breadth					
		Type of trade		Technology	Factors of production		
		Goods	Goods & services	Innovation & IPR	Investment & Capital	Labor	All
Depth	Tariffs (τ)	1.00	0.48	0.57	0.62	0.38	0.33
	τ & NTBs	1.00	0.48	0.57	0.62	0.38	0.33
	τ & BTB policies	0.90	0.47	0.58	0.63	0.37	0.32
	τ & other policies	0.38	0.75	0.88	0.88	0.88	0.75
	All	0.33	0.71	0.86	0.86	0.86	0.71

Source: Authors calculations from data in the WTO Trade Report (2011)

Notes: Share of Agreements that cover different combinations of depth (columns) and breadth (rows) measures. An RTA covers a type of measure if at least one of the measures in that category is covered. NTB= Non-tariff barriers (export taxes, SPS, TBT, STE, AD, CVM); BTB= Behind-the-border (state aid, government procurement, TRIMs, TRIPs, competition policy). Technology (TRIPs, IPR, Innovation policies, Research and Technology). Labor (Labor Market regulation, Social matters, illegal immigration, visa and asylum) Other policies: see Maggi (2016, table A1).

Sample: 21 South-South trade agreements selected on the basis of per capita income

Table 5: Returns to export promotion in low income countries

	Log of Exports of Goods and Services					Log of GDP				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Log of TPO Budget	0.051* (0.022)	0.072* *	0.061* *	0.101* *	0.086* *	0.057* *	0.056* *	0.061* *	0.051* *	0.066* *

		(0.027)	(0.022)	(0.031)	(0.020)	(0.014)	(0.017)	(0.013)	(0.023)	(0.028)
Log of Population	2.119* (0.507)	1.666* (0.503)	2.392* (0.507)	1.780* (0.434)	2.496* (0.441)		0.223 (0.342)	0.853* (0.284)	0.027 (0.299)	0.753* (0.241)
Log of TPO Budget*LIC			-.013** (0.004)		-.014** (0.004)			-.007** (0.002)		-.007** (0.001)
# obs.	530	326	530	302	505	549	340	549	316	524
R ²	0.997	0.996	0.997	0.995	0.994	0.997	0.993	0.997	0.993	0.997

Source: Author's estimations.

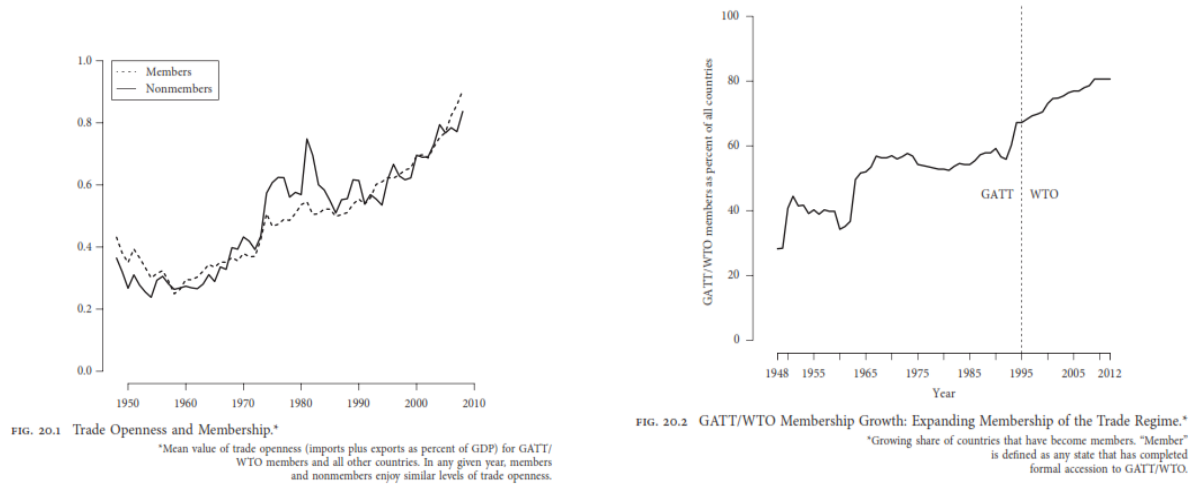
Note: All regressions have country and year FE. Columns (1) to (3) and (6) to (9) are estimated using ordinary least squares. Columns (4) to (5) and (9) to (10) are estimated using the share of the executive board seats in the hands of the private sector and the share of public funding, as well as their interaction as instruments. Columns (1), (3), (5), (6), (8) and (10) used the entire sample. All other columns include only low and middle income countries (LIC) with a income per capita below USD 12,736. Robust standard errors are in parenthesis; * stands for significance at the 5 percent level and ** for significance at the 10 percent level.

Table 6: Importance of Fair Trade Exports in Total World Trade, 2013.

Product	HS codes	FT sales (million EUR)	FT sales (million USD)	Share in Total FT	World Trade (million USD)	Share of FT in world trade
Coffee	0901	519	692	55%	38453	1.3497%
Bananas	0803	137	183	15%	17552	0.7805%
Cocoa	1801	96	128	10%	11333	0.8471%
Sugar	1701	62	83	7%	29595	0.2095%
Flowers and plants	0602; 0603	47	63	5%	17293	0.2718%
Fresh and dried Fruit, and nuts	08 ex 0803	26	35	3%	121532	0.0214%
Tea, herbs and spices	09 ex 0901; 0910	24	32	3%	38175	0.0629%
Cotton and Quinoa	5201; 121299	14	19	1%	18260	0.0767%
Honey	0409	6	8	1%	2435	0.2464%
Other	Other codes	13	17	1%	19985372	0.0001%
Total sales		944	1259	100%	20280000	0.0047%

Source: Authors calculations using UN's Comtrade for world trade data (available through wits.worldbank.org), Fairtrade (2014), Fair Trade Monitoring Trade and Benefits for fair trade sales, and FAO (2014), International Quinoa trade (<http://www.fao.org/3/a-i4042e/i4042e20.pdf>). Data is for year 2013 (except world trade in quinoa which is for 2012).

Figure 1: Openness (1a) and Membership Growth (1b) in the GATT/WTO



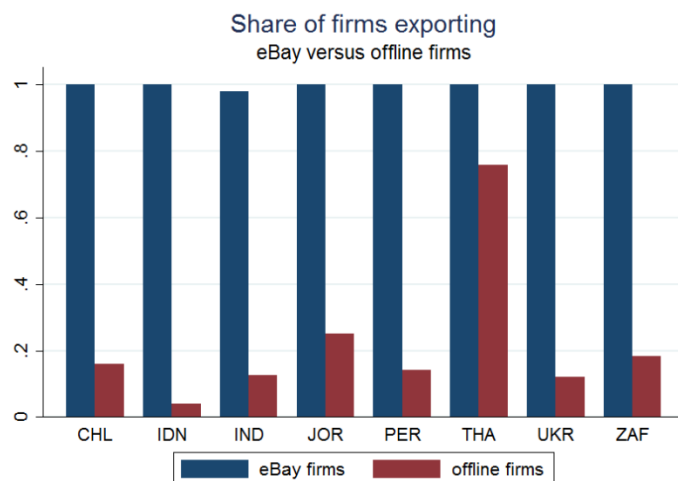
Source: Johns and Peritz (2015)

Figure 2: Distribution of TPO measures of performance by Key Performance Indicator



Note: The median is indicated by x. The top of the box provides the 75th percentile of the distribution and the bottom of the box the 25th percentile. The top and bottom whiskers provide the adjacent values to the 75th and 25th percentiles.

Figure 3: Online platforms and the cost of entering export markets



Source: Lendle and Vézina (2015)