



LUND UNIVERSITY
School of Economics and Management

**OVERLAPPING TRADE AGREEMENTS:
STEPPING STONES OR STUMBLING
BLOCKS?**

Abstract:

This paper analyzes the effect of overlapping Trade blocs on Trade Facilitation. Using the time, documents and costs incurred as trade facilitation indicators, simulations show interesting yet important effects of an increase in Regional Trade Agreements on trade costs. The results suggest that when it comes to increasing regional trade agreements by 1%, costs are associated with an increase via the number of documents needed to export, by 0.05%, but reduce time delays by 0.08%. Countries related to Custom Unions are negatively affected by an increase in Regional Trade Agreements, with results showing that these countries face an additional burden of documentary compliance both for exporting and importing by 0.09% and 0.13%. Costs of exporting and importing are however reduced by 0.13% and 0.07% respectively. Understanding these effects offers important insight into how countries can better negotiate trade deals that are geared towards wholesome reduction of trade costs, including non-tariff barriers to trade.

Keywords: Trade Facilitation, Regional Trade Agreements, Overlapping Trade blocs, Proliferation, Spaghetti Bowl, New Regionalism.

Department of economics

NEKP01: Master Essay II

Spring 2018

Author: Christabel Ariekot

Supervisor: Joakim Gullstrand

Introduction

There is a general consensus today that Regional Trade Agreements (RTAs) are a key and irreversible feature of the global trading system. The recent years have seen a considerable increase in the number of Regional Trade Agreements with almost every country in the world being part of some form of regional agreement. This proliferation of the number of RTAs as share of preferential trade has resulted in what has now come to be known as a ‘spaghetti bowl.’

The Spaghetti Bowl as defined by different authors paints a picture of crisscrossing trade agreements characterized by very complex interactions between different and often overlapping regional trade agreements. Baldwin (2006) describes this overlap as a motley assortment of unilateral, bilateral and multilateral trade agreements among countries. Reasons for this overlap in RTAs include among others; the ‘domino effect’ where countries increasingly enter into RTAs for fear of exclusion from other RTAs, Political economy and security motivations, disenchantment with the multilateral processes especially the Doha Round, where countries felt that trade negotiations were taking a considerably longer time than desired, as well as economic considerations especially developing countries that consider RTAs as a platform for increasing economies of scale and competitive participation on the global scene.

With an increase in the number of RTAs coming into force, it is difficult to ignore the consequences of such actions by countries especially when it comes to trade cost reductions across borders. It may very well be argued that while most countries would like to have lower costs to trade and increase their competitive edge on the global market through RTAs, it is likely that the depth and scope variations across these agreements imply larger administrative and regulatory costs. The direction of this effect is important for not just developing economies, but for global trade as a whole. It can be argued that the more numerous the differences between agreements, the greater the threat to the goal of Trade Facilitation, as they inadvertently produce inefficiency, and difficulties in their various areas of application and control. Various authors have argued that the increasingly complicated web of RTAs raises concerns about overlap, duplication and conflicts of rules of origin and technical standards. It could also be that having more RTAs can lead to further delays since more documents are required. Obtaining and

submitting these documents in turn would require more paperwork and potential waiting times. Others have also argued that the more the trade agreements, the higher the costs of negotiation. On the other hand however, some authors feel that the relationship between the numerous trade agreements and trade facilitation is not a cause for concern. They argue that in many cases trade facilitation is in the least bit threatened by regional trade agreements, citing for instance that upgrading customs and border procedures and reductions in trade costs are largely non-discriminatory, even if the impetus for reform comes from regional rather than multilateral sources. They argue that many aspects of trade facilitation such as transparency and simplification of rules and procedures can be seen as akin to public goods, and once provided; they are open to be enjoyed by all trading partners, and not just countries within a particular regional agreement. Although this can be argued to be the case, it is still important to remember that in the wake of what has now come to be known as ‘New Regionalism,’ where RTAs are no longer viewed as a tool used to increase trade and support development, but rather involving much deeper aspects such as competition, labour and technology; it is possible that RTAs now go far beyond trade and incorporate social, economic and political objectives. It is therefore that the argument of similar International standards and measures of Trade facilitation may be limited in explaining the effect that overlapping RTAs could have on Trade facilitation. Evidence from studies shows that RTAs are becoming increasingly complex and in many cases establishing trade regimes which go beyond multilaterally agreed upon trade regulations, making it even more complicated to have goods cross from one border to another.

Clearly from the previous research, authors and researchers have rather mixed thoughts on the issue, indicating the gap and very limited research that has been done on this correlation. Since the policy focus of International organizations on trade facilitation has only recently been enhanced, it is not surprising that limited studies have been done investigating the subject via this particular angle. The aim of the essay is to investigate the effect that the increase in the number of Trade agreements has on trade facilitation. By looking at this effect, the essay seeks to investigate the empirical question of whether Trade Facilitation is threatened or encouraged when countries engage in numerous RTAs, using measures such as the number of documents needed to import and export, the costs of importing and exporting as well as the time it takes to import and export. Answering this question could be important in discussing the policy issues surrounding the ‘spaghetti bowl’ and the more recent the idea of ‘New regionalism.’ This could

encourage policy responses such as convergence and a greater effort towards implementing Trade Facilitation reforms especially under the context of the increasing Regional Trade Agreements. The paper also investigates which type of RTA is Trade facilitation most likely to be compatible with, since it is possible that the different forms of regional integration affect trade facilitation in various ways and to different extents. The paper uses a fixed effect model with panel data over an 8 year period from 2006 to 2014 and includes a sample of 120 middle income and low income countries, excluding those countries that are part of the EU. The empirical results show that increases in the number of RTAs are associated with 0.05% increase in number of documents required to export. On the other hand, increased implementation of RTAs is associated with less time taken in the import and export process, reducing time delays by 0.08%. Countries related to Custom Unions are negatively affected by an increase in Regional Trade Agreements, with results showing that these countries face an additional burden of documentary compliance both for exporting and importing of 0.09% and 0.13% However, costs of exporting and importing for these countries are additionally reduced by 0.13% and 0.07% respectively.

It is worth noting that as far as the spaghetti bowl and its effect on trade facilitation is concerned, very few empirical studies have been put forward to investigate this correlation, and I have not found any papers taking on the topic from this particular point of view. The essay therefore presents a platform onto which additional studies and investigations could be added.

The rest of this paper is structured as follows: First a discussion on trading blocs and trade facilitation; RTA boom, Trade Facilitation implementation and compatibility. The second section presents the empirical strategy and results, and the last part discusses the summary and conclusion.

Trading Blocs And Trade Facilitation

The boom in RTAs

Compared to previous decades, the proliferation of RTAs during the last ten years has taken place at an unprecedented rate, with countries such as Mexico and Singapore duplicating their number of FTAs within a span of only 10 years (Cornejo and Harris (2007)). As of January 2005, 312 RTAs had been notified to the GATT/WTO and a further 65 were estimated to be operational, although not yet notified. Of the RTAs in force, the most common category is the FTA, which accounts for 84 percent of all RTAs in force, while Partial scope agreements and Custom union agreements account for 8 percent, respectively (Crawford and Fiorentio, 2005) (Majluf 2004),(Krueger, 1997)). According to the World Trade Organization (WTO) there are 275 trade agreements now in force of which almost 70% are free trade agreements (WTO 2015). Recent trends show that countries across the world, including those traditionally reliant on multilateral trade facilitation, are increasingly making RTAs the centerpiece of their commercial policy while also engaging in more complex trade regimes that go beyond multilaterally agreed upon trade regulations. This phenomenon introduces new complexities at the systemic level, generating also new domestic requirements for the administration of the multiple and varied commitments especially since the scope and depth of these RTAs differ considerably, not just in terms of tariff preferences but also comprehensive coverage of trade regulatory rules (Crawford and Fiorentio (2005), Majluf (2004) Kurz, et.al (2008)).

The reasons for this general pattern and expansion of RTAs are quite varied. Most authors argue that one of the major reasons that countries have formed even more RTAs is because of the so called ‘‘Domino effect’’ as first put forward by Baldwin (1993). The idea is that as the number of countries which are part of agreements increases, the countries that find themselves outside these agreements will face an increasing sense of discrimination, which in turn pushes them to sign new agreements even though this wouldn’t have been their first decision. This fear of exclusion saw a huge number of countries rushing to form more and more RTAs, especially in the recent past, leading to the proliferation that we see today (Baldwin (2006), Menon (2008), Crawford and Fiorentio (2005) Majluf (2004)). Another important argument for the increase in RTAs is what was perceived as a ‘sluggish progress’ in multilateral trade negotiations under the

Doha Development Round. Many countries felt that the WTO had failed to deliver in terms of trade liberalization at the multilateral level, leading them to forge their own trade agendas through RTAs, especially the Bilateral and Partial Scope Trade Agreements. According to Crawford and Fiorentio (2005), between January 2004 and February 2005 alone, 43 RTAs had been notified to the WTO, making it the most prolific RTA period in recorded history at that time. Other authors have claimed that most, if not all RTAs are politically motivated. Menon (2008) and Majluf (2004) argue that indeed political economy considerations are one of the driving forces behind a huge number of RTAs, and those political parties and politicians have a major role to play. Together with other authors, they argue that most governments seek to consolidate peace and security with their RTAs as well as increase their bargaining power in multilateral negotiations by first securing commitment at the regional level. Crawford and Fiorentio (2005) add that larger countries use RTAs to forge new alliances and diplomatic ties, thus ensuring or rewarding political support by providing increased discriminatory access to a larger market. Closely related to this is the idea that RTAs have increasingly been considered as trade policy instruments for deeper economic policy aims including complex strategies such as broader foreign policy, investment, competition, and labour standards. According to authors such as Kurz et.al (2008), RTAs are being embraced by WTO members as policy instruments, and in the best cases, as complementary to MFN. A report by UNCTAD (2004) shows that in Africa, regionalism has been embraced by more countries as a development strategy for bringing greater economies of scale and integration at the sub regional level, as well as used as a platform for competitive participation on the global scene. An example of such an RTA is COMESA that has now moved towards a customs union.

With a considerable number of reasons for forming RTAs, it is obvious that as more RTAs are being brought into force, the more complex and tangled the spaghetti bowl becomes. As the focus of RTAs shifts away from merely reducing trade taxes, the task of achieving agreements on the multilateral level has become even more difficult, as it now has to address deeper and more complex issues of integration. Cornejo and Harris (2007) argue that the restructuring of existing agreements and the signing of new ones expands the degree of overlap of FTAs with different origin regimes and non-coinciding tariff elimination schedules, further complicating preferential trade. Majluf (2004) also mentions that the spaghetti bowl panorama makes the

definition of policies and instruments of regionalism as a development tool a very complex task, and also introduces significant complexity in evaluating the systemic and developmental impact of the new regionalism.

Without ignoring the benefits of joining RTAs, more and more countries have become interested in not just reducing taxes involved in cross-border trade, but also reducing trade costs that are related to moving goods and services from one country to another. This has put trade facilitation at the forefront of trade discussions both at the multilateral and regional level, making it even more obvious that those countries need to address fervently the issue of non-tariff barriers to trade. However, with the increasing overlap witnessed today, one wonders whether the gains from promoting trade reforms that reduce trade costs, are actually diminished by multiple trade agreements, especially those that impose additional administrative and regulatory burdens. The task of this paper is to investigate this correlation and to show whether Trade facilitation is threatened or enhanced by the ‘spaghetti bowl.’

Trade Facilitation and its involvement in Regional Trade

In regards to understanding the effect of overlapping RTAs on Trade Facilitation, we start off by trying to define Trade facilitation and how it can be measured. We go on to show how trade facilitation has been involved in Regional Trade, and what the effect has been so far, and finally how an increase in RTAs could affect Trade Facilitation. It is important to note that perhaps one of the bigger challenges in trying to understand the involvement of Trade Facilitation and its effect on Trade both on the multilateral and regional level, has been defining what Trade Facilitation is and what it actually entails. Given the broad definition of trade facilitation, various authors have taken the liberty to use different measures of trade facilitation, as they see fit for their studies. It is difficult to highlight any specific measures that are commonly used; however custom related measures such as transparency and predictability, fees and charges as well as formalities and documentation requirements are some of those used by various authors. Most have also excluded measures to do with standards, technical barriers and preferential rules of origin.

The term ‘Trade Facilitation’ generally refers to measures aimed at reducing trade costs by easing the movement of goods across borders. The most commonly used definition is the one by

the WTO Trade Report (2015) where they define trade facilitation as ‘the simplification and harmonization of international trade procedures.’ Here, International trade procedures are the ‘activities, practices and formalities involved in collecting, presenting, communicating and processing data required for the movement of goods in international trade.’ Similarly, the Doha Ministerial Declaration (WTO, 2001) formally refers to trade facilitation as ‘expediting the movement, release and clearance of goods, including goods in transit.’ This terminology resonates with the one given by Persson (2013), where she loosely defines trade facilitation as ‘reforms aimed at making it easier for traders to move goods across borders, with specific focus on lowering transaction costs associated with cross-border trade procedures.’ Various authors such as Wilson, Mann and Otuski (2003) , Shepherd and Wilson (2009) and Milner, Morrissey, Zgovu (2008) have defined trade facilitation in much broader perspectives, including aspects such as streamlined and transparent regulatory environment, administrative procedures, customs formalities, competition policy, and technical barriers to trade. They move the focus from just behind the border practices to domestic policies and institutional structures, where capacity building plays a role. Although more simplified, the Organization for Economic Co-operation and Development (2016) includes dimensions such as product testing and impediments to labour mobility into its definition of trade facilitation. In this paper trade facilitation is narrowly defined as the ease of movement of goods from one country to another.

Similarly, the measures of trade facilitation are as broad as its definition, encompassing a large number of aspects from various authors. The most frequently used trade facilitation measure is from The World Bank Doing Business Database (2016) which measures the time it takes and costs incurred for goods to be transported from the factory gate to the shipping port. It measures the time and cost associated with documentary compliance, border compliance and domestic transport throughout the whole process of shipment of goods. The time is measured in hours, and 1 day is 24 hours. The data are gathered through questionnaires administered to local freight forwarders, custom brokers, port authorities and traders, which are then followed up by contacting third parties and consulting public sources. This measure has been used by several authors including Hummels (2001), Persson (2010) and Djankov, Freund and Pham (2010) to assess the effect that non-tariff barriers have on trade. Limao and Venables (1999) also use a similar approach, measuring the time it takes to transport a 40 feet standard container from the capital to the port. The shortfall of this measure however, is that it does not take into account

some of the country specific unobservable factors that could affect the transportation process over time from one country to another. Shepherd and Wilson (2009) use a rather different measure of trade facilitation based on various indicators including infrastructure, institutional transparency, good governance and domestic regulations, while Wilson, Mann and Otsuki (2003) use Port efficiency, Customs environment, Regulatory environment as well as E-business usage, as indicators of trade facilitation. We are however restricted from adopting some of these measures in our study, due to the limited data available from the Sub Saharan countries, for each of these categories. A more feasible measure that is used is from the World Bank Doing Business Trading across Borders section. This measure includes the time it takes to import goods from the port to the capital of a country, the documents needed to import and a 20-foot container and the costs involved in the import and export process. The time taken to import and export is measured using the number of days that goods take during transit, right from the originating country to the capital of the final country. The number of documents is simply the paperwork involved from the time that a container is to be imported from the country of origin to the final destination. This also involves clearance letters and permits to import and export the goods. The final indicator measures the cost involved in the import and export process, such as documentary compliance, border compliance as well as domestic transport. Previous authors using this measure have provided evidence that a 10% reduction in relative delays increases imports by about 4%.

Turning now to how Trade Facilitation has been involved in Regional Trade Agreements (RTAs), recent patterns and trends show that Trade Facilitation provisions were almost non-existent in early RTAs. However governments began to realize the need to expand their trade agenda and look beyond tariff policies (Neufeld (2014) Tadashi (2014) Moisé (2002)). Tadashi (2014) shows that recent RTAs have incorporated many articles for Trade Facilitation measures, partly because many governments have recognized that the benefits arising from preferential tariffs of an RTA could be impacted by unnecessary costs and delays at the borders. Thus Trade Facilitation has been increasingly considered critical to boosting intra-regional trade. Measures in the areas of transparency and predictability as well as customs cooperation are more frequently observed in RTAs than others. Factors influencing the implementation of Trade Facilitation in RTAs include among others; the date when the agreement was concluded, the type of RTA, level of development of signatories, number of RTAs concluded, special interest of key signatories and well as geography (Neufeld (2014) and Tadashi (2014)). It is however important to note that

individual treaties can differ in how they address Trade Facilitation measures, especially since there is no shared definition of Trade Facilitation (Beckford, 2014). Neufeld (2014) argues that RTAs have become diverse with their Trade Facilitation content, varying considerably as far as scope, precision and level of ambition. Beckford (2014) adds that the factors such as the definition of the Trade Facilitation used; the category of commitments to be enforced when the agreement takes place, and the pace of these various commitments, affects the impact of Trade Facilitation measures in RTAs.

As earlier noted, there are have been considerable descriptive studies on the relationship between regional trade and trade facilitation, however very few of these are empirical. Nonetheless, those that have tried to study the effects of trade facilitation on regional trade have shown that generally trade facilitation has a positive impact on regional Trade as it reduces costs of importing and exporting goods especially costs brought about by time delays. A paper by Kurz, et.al (2008) where they investigate the impact of trade facilitation on trade flows in the SADC region, using time, costs and documents required as trade facilitation measures, shows that time required to import and export is the most important source of trade facilitation. They argue that time is consistent with costs associated with longer processes for managing external trade in border customs offices. They put forward an idea; ‘Make it quicker’ which in practice means to double human resources in the customs office or even to expand customs infrastructure at the border, in addition to improving infrastructure (highways, railways, ports and airports) in order to move goods more quickly from one country to the other. Their analysis shows that although exporters do not object to tariff reductions negotiated at the regional level through RTAs, cost reductions via better infrastructure and a shorter waiting time at the border have a much higher cost reducing impact than tariff reductions could have. Using an example from Namibia, Zambia and Botswana, Maur (2008) highlights the importance of having harmonized standards in these countries and how they could reduce trade costs, if the countries worked together. He gives an example of the different transport standards such as varying axle loads permissible for trucks between these countries, and the changing rail gauges width for trains that necessitate unloading and reloading of goods, which in turn disrupt the supply chain. He adds that compliance with different regulations at each border increases compliance costs as well as the time that is spent in transit. He also mentions the costs of duplication that are magnified by the number of

regulations, such as entry visa requirements, technical and phyto-sanitary standards, security checks, etc, all of which involve producing paper documentation at border posts, storage in bonded warehouses and physical inspections. An example by Maur (2008) shows how costs were reduced through shared border administration, where Norway, Sweden and Finland signed cross border cooperation agreements which allowed them to share the cost of individually manning the 1,630km long border between Norway and Sweden, and the 739km long border between Norway and Finland, making the costs of border surveillance and customs administration a lot less costly for the individual countries. Schiff and Winters (2003) give the example of COMESA's regional carrier's licensing system which helps traders avoid paying multiple licenses, thus tackling duplication at the regional level. Another example is the Yellow Card or Third Party Regional Motor Vehicle Insurance scheme under COMESA, which allows traders to purchase insurance covering transport in the region (Arvis, 2005). These studies together with some others (Moisé, 2002), support the idea that trade facilitation needs to be encouraged at the regional level.

Concerning developing countries, which are economically too small to offer full range of standards conformity assessment, the World Bank (2005) recommends that they could benefit from regional integration by setting up regional accreditation bodies that could provide cheaper and better testing, building on economies of scale and comparative advantage. The World Bank (2005) also lists several areas of facilitation in which they view RTAs can lead to improvement and these include: alignment of customs codes with international standards; simplification and harmonization of procedures (e-documents and single document); alignment of tariff structures with the HS; transparency; effective implementation of the WTO valuation agreement; joint work towards customs integrity; establishment of joint border posts; and joint training centers.

From the studies discussed, it is clear to see that Trade Facilitation is indeed a vital part of trade at the regional level that need not be compromised. Through harmonized standards and regulations, efficient customs procedures, as well as improved and well coordinated infrastructure, trade both at the regional and multilateral level increases with less cumbersome procedures and costs. The empirical reality demonstrated by the gravity model (Anderson and Wincoop, 2004) where a country's trade flows are negatively affected by the trade barriers such as distance and enhanced when countries share the same language, legal systems, history, etc, is

clear evidence that both ‘natural’ and geographical barriers to trade create costly obstacles to International trade, and one of the important ways to deal with them is through trade facilitation (Maur, 2008).

Trade Facilitation and overlapping Trade Agreements

Considering the importance of Trade facilitation in promoting regional trade, the question still falls on whether actual impact is realized through its implementation. It is interesting to see from the existing body of research that, although most recent RTAs have incorporated some form of Trade Facilitation reforms in their agreements, there still exists a gap between the inclusion of these reforms and their actual implementation. Maur (2008) highlights that despite being broad in scope; many existing regional agreements are more shallow than deep when it comes to Trade facilitation, thus offering quite a lot of flexibility to members to escape enforcement. Indeed, he finds that in the case of EU, beyond the upward harmonization for the internal market, the most ambitious attempts at facilitation of trade on standards have been through stand alone mutual recognition agreements and are limited to conformity assessment. Moisé (2002) mentions that indeed RTAs generally fall short of common rules and procedures, and although harmonization is high on the agenda in some RTAs, facilitation mostly rests on common principles that are tailored to the specific circumstances of each participating country and as result, implementation is somewhat different in each country. Duval, et. al(2016) add that commitments made through trade agreements are not necessarily a good proxy for actual implementation in the ground, since RTAs typically have very weak dispute resolution mechanisms, with no penalties or mechanisms in place to ensure a commitment will be effectively implemented. They find a weak positive correlation between the depth of trade facilitation commitments made by a country through its RTAs and actual implementation. Indeed the question of strong political will to implement these reforms comes into play when it comes to commitment (Maur, 2008).

As highlighted by Beckford (2014), measuring trade impact from the Trade facilitation agreements is a task filled with uncertainty, since it depends on several factors some of which include the mere definition of trade facilitation, commitment of involved parties and the quantification of some Trade facilitation measures that may require subject and structural factors to come into play, for example judicial appeals. Neufeld (2014) and Maur (2008) show that in

addition to no- or very limited arrangements for technical assistance and capacity building, RTAs do not have a forceful ability to enforce their Trade facilitation commitments as a result of not being endowed with a binary system of dispute resolution. Maur (2008) mentions that the poor record on transit illustrates the more general failure of most regional institutions to deliver tangible trade facilitation reform, The EU, and to a lesser extent the APEC being among the exceptions. He argues that today the enforcement in RTAs limits the scope of trade facilitation to few dimensions which aim at simplifying the job of the customs authorities, which include transparency requirements with frequent reference to GATT articles, for example. On the other hand, harmonization is only limited to better mutual understanding of day-to-day operations. In Africa, Mc Tiernan (2006) reports that only COMESA and the trans-Kalahari corridor (an *ad hoc* transit cooperation agreement) have provoked changes in customs practice.

Perhaps the bigger issue when it comes to impact of trade facilitation on trade in Regional Agreements is that of trade diversion affects, that usually arises from discrimination. According to UNCTAD (2004) this is likely to happen when trade facilitation measures have their own discriminatory effect. Although for most trade facilitation measures this is not the case, the report argues that a possibility for several important policies such as mutual recognition and transport infrastructure policies, if left to just a privileged group in the RTA, is likely to bring about discrimination. It is important to note however, that recent studies on the issue of discrimination and trade facilitation in regional trade agreement are still rather mixed. While there is caution especially from International Trade bodies about what effects could arise from countries pursuing their own individual reforms, there are general findings that when it comes to the regional level, most (but not all) trade facilitation measures are similar to those that are internationally recognized. Most authors find that the Trade facilitation measures discussed and also those being implemented at the bilateral level are indeed compatible with International standards. As highlighted by Tadashi (2014), it is not practical for a customs administration to identify the goods or persons that are eligible for a measure, as significant financial resources and time are required to manage the system and allow for such differentiation. In the same spirit Duval, et. al (2016) find evidence that trade facilitation provisions in RTAs result in multilateral non-discriminatory trade costs reduction over time. However, this doesn't mean that some Trade Facilitation measures are not open for discrimination. The same authors explain that the

discriminatory effect could arise for certain measures even if implemented on a non-discriminatory basis; where some countries that are already regular trading partners benefit more than those that are geographically or culturally further apart. Maur (2008) adds that indeed enforcement of border agency controls is still highly localized especially near border crossings, which means that third parties to the RTA agreements still incur costs.

An important argument that could perhaps bring a good conclusion to the issue of discrimination is that for trade facilitation to work, it requires not only the elimination of distortionary and inefficient rules and practices, but also that there is an ambitious and positive agenda of reform that includes internationally compatible legislation, systems and skills. Schiff and Winters (2003) argue that making policies more compatible undoubtedly involves strong political will to fight against the vested interests in border agencies as well as a different institutional setting than the classical exchange of trade concessions. In short, stronger and more permanent institutions than those of multilateral trade negotiations are needed because implementation of trade facilitation reforms will require at least coordination, and more likely, harmonization and mutual recognition of rulings. The limitations to the actual impact of trade facilitation appear to be rather complex and not as straight forward as theory would suggest. However, given such difficulties faced at the regional level, the much debated question then becomes; what happens to trade facilitation when even more RTAs are involved.

Trade Facilitation and the Spaghetti Bowl.

Authors such as Sopranzetti (2017) argue that it is likely that with overlapping trade agreements, the mere costs of negotiation have increased. Maur (2008) argues that when RTAs involve more than two partners, questions of administration, costs and transit management are raised. He adds that RTAs have contributed to create new impediments to trade, which require more sophisticated trade facilitation measures because border formalities become more complex, especially when it comes to discriminating between preferential and non-preferential trade. As earlier discussed, the recent trend for most countries has been to sign numerous RTAs, and as of today, almost all countries in the world are part of some form of regional agreement. This picture becomes even more tangled considering how vastly different these RTAs are in terms of political, and economic dimensions. An example from Crawford and Fiorentio (2005) shows that

compared to Europe, RTA dynamics in the Western Hemisphere are more heterogeneous in nature with several major players engaged in multilayered RTA processes and not necessarily sharing similar objectives. They add that negotiation and administration of multiple agreements is likely to strain the institutional capacity of even the largest countries and in some cases, exporters may choose to forgo the preferential rates offered under an RTA, if the margin of preference is not large enough to offset the administrative burden of complying with the rules. Various authors, including a report from UNCTAD (2004) cite that membership of multiple RTAs places a tremendous burden on the administrative capacity of countries especially small and developing countries. Kreuger (1997) argues that with overlaps, even more export of protection and disputes with customs over origin and satisfaction of rules of origin would likely result. He adds that inevitably, the customs clearance process itself would become more complex.

Cornejo and Harris (2007) argue that the overlapping of agreements in matters of origin impacts negatively on national authorities and economic operators, increasing operating costs for both. They add that managing non-preferential imports alone poses challenges for customs such as reconciling contradictory goals in matters relating to trade facilitation, security, control, and the application for risk analysis criteria. Another argument they put forward is that the existence of hundreds of tariff elimination baskets with different speeds, and product compositions, and the management and application of different origin requirements, certification and verification system, increase the complexity of the task. When it comes to the supply side of goods, trade becomes even more complicated for producers that have to incorporate additional accounting requirements such as different methods of calculating regional value, requirements for inventory management of finished products, and inputs, all of which are not technically feasible and generate higher costs. Menon (2008) goes a step further to explain that with overlaps, comes not just the increased cost of doing business, but also welfare losses that are associated with trade diversion due to inconsistencies between various elements of the agreements. These could include different schedules for phasing out tariffs, different rules of origin, exclusions, conflicting standards, and differences in rules dealing with anti-dumping and other regulations and policies. He adds that it may not always be easy to implement some of these policies by

‘folding several FTAs together’ that have different tariff rates and innumerable rules of origin, which are often defined differently by product.

When it comes to developing countries, Maur (2008) shows that regional corridor agreements in Sub-Saharan African are largely not operational for most of the transit traffic, and are superseded by national, non-harmonized, overlapping and discriminatory provisions such as: compulsory customs escort, non-harmonized transit charges, or specific country documentation for transit. Even worse is that administrative burden adds to the regulatory burden, with lack of coordination between different agencies in charge of controlling transit goods (customs, police, sanitary controls) and all this brings about inefficiency of these agencies which multiplies the costs of trade. Caution from Crawford and Fiorentio (2005) to developing countries (and to some extent developed countries), is that development of complex networks of non-MFN trade relations and of regulatory regimes which increasingly touch upon policy areas unchartered by multilateral trade agreements may place them in a weaker position than under the multilateral framework. They add that such RTA proliferation is already undermining transparency and predictability in international relations, through trade and investment diversion.

Thus far, it appears that more complex and deep regional integration may for the above reasons pose threats to the elimination of cross border trade barriers. Most authors seems to fear that the overlap of the RTAs will bring about a complicated web of trade policy issues that would eventually be too deep and too difficult for particular countries to untangle, thus the efforts towards easier and less costly movement of goods from one country to another would be a much prolonged goal.

As earlier mentioned however, there are some other authors that are rather optimistic about the relationship between the ‘spaghetti bowl’ and how it could affect trade facilitation. Much of this optimism stems from the ideas that even though countries are increasingly involved in various trade agreements, the goal to ease cross border trade for most countries still remains, leading to possible convergence of these policies and reforms, and a high degree of non-discrimination in their implementation. Indeed, one would argue that although the above arguments are to be considered seriously, the picture painted by the ‘pessimists’ seems rather grim and quite

inconclusive especially since their arguments are taken from just a few aspects of trade facilitation, such as the rules of origin. Other facets of trade facilitation such as use of modern technology to induce faster clearance procedures and encourage efficiency at customs units, quicker dissemination of information on requirements and regulations to all trading partners, proper training of management and staff to enhance productivity, fostering increasing cooperation and communication between officials from different government agencies to encourage better coordination, use of audit based control measures during customs clearing, transparency and risk management, and coupled with increased capacity building, better infrastructure and institutions, could be applied on a non-discriminatory basis, and thus see more countries reap gains from trade facilitation and still part of a large number of Regional trade agreements.

Based on some of these arguments, the objective of this paper is not only to empirically investigate the correlation that exists between Trade Facilitation and the increased number of Regional Agreements, but to also investigate which types of Regional Trade Agreements are more likely to be compatible with Trade Facilitation measures. As mentioned by Menon (2008), a general limitation of the proposals put forward in dealing with the spaghetti bowl effect is that they tend to implicitly group all kinds of RTAs together as a homogenous group. What most countries forget however is that these proposals are critical in determining whether or not a particular remedy is likely to be effective in minimizing the negative effect of the spaghetti bowl, based on how they operate under these different types of RTAs. It is therefore important to define the different ways in which different types of Regional Trade Agreements might interact with Trade Facilitation measures, bearing in mind that the effect of increased Regional Trade Agreements could vary tremendously, depending on the type of Regional Agreement that a country is involved with. Unfortunately, views on which type of RTAs are more compatible with Trade Facilitation are rather mixed. While some studies argue that Trade Facilitation measures thrive better under the Customs Union set up, based on factors such as diminished rules of origin among members, and stronger institutions which allow them to carry out more ambitious reforms (Maur, 2008), other authors like Crawford and Fiorentio (2005) support the idea that since FTAs are faster to conclude and require a lower degree of policy coordination among members, they are less complicated and a viable option for Trade Facilitation to thrive. Given such varying

views on the compatibility of RTAs with Trade Facilitation, it is therefore that this paper investigates these effects.

Empirical-Strategy

An empirical difficulty faced by most researchers in trying to find a causal relationship between two variables is the possibility that the investigation is influenced by unobservable factors that can affect countries over time. The most common way to control for these factors is to employ the Fixed Effects Model. Many researchers use the model to control for unobserved heterogeneity related to specific country and individual effects. Although this study is interested in simply investigating a correlation between the two main variables, it is still important to exploit the structure of the fixed effects estimator that allows us to control for the differences that may exist across and within the countries. Coupled with the basic fixed effect model are time fixed effects that are used to control for factors that could affect countries over time such as business cycles, climate, etc.

The baseline models of this paper are made up of trade facilitation indicators including the time it takes to import and export goods from one country to another, the documents needed to import and export as well as the costs involved in the export and import process. A total of six specifications, measuring the importing and exporting estimations for each indicator, are used as dependent variables. The number of regional trade agreements implemented by a country is used as the main explanatory variable, together with GDP and Population variables. Dummy variables for the time fixed effects are also included to the model.

Data and Sample

The study uses a sample consisting of 120 middle income and low income countries, excluding those that belong to the EU. The selection of this sample was based on the empirical evidence that shows that increases in the number of RTAs in the most recent years has mostly been amongst middle income and low income countries. Other factors such as degree of homogeneity of their level of economic growth, colonial influence, cultural and religious diversity, and geographical location were considered. The study focuses on Regional Trade Agreements that are already implemented by these countries over the time period 2006-2014. This time period is chosen because it is the between these years that the world has seen the biggest proliferation of

RTAs, and also because it is the longest period for consistent data on Trade Facilitation indicators.

The sample countries are at more or less similar levels of economic growth, much of which has been influenced by the quality of their institutions, colonial influence, and culture. These countries have faced similar colonial powers that established common official languages, systems and influenced the way that they developed past their colonial times. It is statistically evident that these countries share similar challenges such as poor infrastructure, corruption and low levels of technology, all of which affect their economic growth and International trade. Having this level of homogeneity allows us to compare these countries much easier, without having to control for a large number of unique factors for each individual country. A bigger factor that comes into play is that these countries have had stronger motivations to increase their membership to various trading blocs. More than the advanced countries, middle income and low income countries have played into the ‘Domino Effect’ over the recent years, due to the increased fear of discrimination. Similarly, middle income and low income governments have felt the need to increase their bargaining power in multinational negotiations by first securing commitment at the regional level. In Africa, especially, countries have used Regional Trade Agreements as a development strategy for bringing greater economies of scale, and as a platform for competitive participation on the global scene.

On the other hand, when including the middle income and low income countries that are part of the EU, it is important to consider that the number of Regional Trade Agreements that each country has is not easily separable from its individual motivations for having such a large number of RTAs implemented. Approximately 40 Regional Trade Agreements have been signed by the EU as a Customs Union, with different countries, joining at different periods of time. The task of disentangling these time periods from the number of RTAs for each of these countries is quite tedious and very time consuming. There is also an increased risk of Endogeneity when it comes to these countries. For these reasons, the study considered these countries unique to the sample, and thus was excluded.

In most recent studies, Trade Facilitation has been measured using various indicators. This study uses the time it takes to import and export goods from one country to another, the costs involved as well as the documents required, as measures of trade facilitation. The time is measured in the

days that it takes for goods to be moved from the country of origin, to the final destination, costs are measured in US. Dollars and they exclude insurance costs and informal payments for which no receipt is issued. Documents are any paperwork involved that are mandatory for exporting and importing. Data for these indicators is taken from the World Bank's Doing Business Database (2017). The Doing Business database records the time and cost associated with the logistical process of importing and exporting goods. It measures the time and cost associated with documentary compliance, border compliance and domestic transport throughout the whole process of shipment of goods. The time is measured in hours, and 1 day is 24 hours. Documentary compliance captures the time and cost associated with compliance with the documentary requirements of all government agencies of the origin economy, destination economy and any transit economies. This time and cost could be the time spent to get the document issued and stamped, gathering information and preparing documents such as customs declaration or certificate of origin. All electronic or paper submissions of information requested by any government agency in connection with the shipment are considered to be documents obtained, prepared and submitted during the export and import process. The aim is to measure the total burden of preparing the bundle of documents that will enable completion of the international trade from the product and partner. The data are gathered through questionnaires administered to local freight forwarders, custom brokers, port authorities and traders, which are then followed up by contacting third parties and consulting public sources. To ensure consistency in data collection for the period over which the study is done, data after 2014 is excluded from the study because in 2015, the Doing Business database uses a new approach to measuring the trade process, where they now consider the product of comparative advantage for each economy when measuring export procedures and focus on a single very common manufactured product for import procedures. Changes in methodology are aimed at increasing the economic and policy relevance of the indicators, reflecting actual directions and volumes of trade. These changes however do not render our choice of data source and methodology irrelevant.

Data for the rest of the variables included in the model are obtained from standard sources. Data on the number of Regional Trade Agreements was obtained from the World Trade Organization (2017). Data for GDP is measured in current US dollars and was obtained from the World Bank Development Indicators database (2017). Data from Population was obtained from the United Nations Population Division database (2017).

Empirical Specification

The baseline fixed effects model is estimated in logarithm form as follows:

EQUATION (1)

$$\ln TF_{it} = \alpha_i + \beta_2 \ln \text{Number of RTAs}_{it} + \beta_3 \ln GDP_{it} + \beta_4 POP_{it} + \lambda_t + \varepsilon_{it}$$

Where TF_{it} is the trade facilitation indicator, measured for each country i at time t . The explanatory variable of interest is $\ln \text{Number of RTAs}_{it}$ which is the number of regional trade agreements implemented by country i at time t . This variable measures the correlation between trade facilitation and overlapping trade agreements. The variable will show what happens to trade facilitation, measured different by time, cost and documentation, when the number of RTAs that a country is involved with increases. Other explanatory variables include each country's GDP and their Population. λ_t are the dummy variables controlling for time fixed effects. ε_{it} is the disturbance term.

To measure the correlation between different types of Regional Trade Agreements and trade facilitation, additional specifications are made. An interaction variable between the type of Regional Trade Agreement and the number of RTAs is included to the baseline model, to investigate the relationship. Two different types of Regional Trade Agreements are used, including Customs Unions, and Free Trade Agreements. The estimated model is as shown below:

EQUATION (2)

$$\ln TF_{it} = \alpha_i + \beta_2 \ln \text{Number of RTAs}_{it} + \beta_3 \ln GDP_{it} + \beta_4 POP_{it} + \beta_5 \ln \text{Number of RTAs}_{it} * CU_{it} + \beta_6 \ln \text{Number of RTAs}_{it} * FTA_{it} + \lambda_t + \varepsilon_{it}$$

Where: $\beta_5 \ln \text{Number of RTAs}_{it} * CU_{it} + \beta_6 \ln \text{Number of RTAs}_{it} * FTA_{it}$ are interaction variables between the number of RTAs and Customs Union, and Number of RTAs and Free Trade Agreements, respectively, for each country i at time t . Each of these variables measures the compatibility between Custom Unions (CU) and Free Trade Agreements (FTA) and trade Facilitation, measured with the same indicators as in the baseline equation. Each interaction

variable is given by the product of the number of RTAs variable and a dummy variable for Custom Union and FTA respectively, each taking on the value 1 if a country is part of this type of RTA at time t and the value 0 if not. Each variable estimates whether a country related to, for example, a CU is influenced more or less by an increase in number of RTAs. The number of RTAs variable still measures the direct effect between Trade Facilitation and RTA overlap, just as in equation (1). The rest of the variables continue to estimate the same effects as in the baseline model.

The dependant variable is Trade facilitation measured by time, cost and documents required in the import and export of goods of country i . Costs are measured in US dollars, time is measured in number of days it takes to import goods from the capital of one country to another, while documents is the number of letters, certificates and other forms of verification needed. The study excludes other indicators of trade facilitation such as infrastructure, since they are much harder to measure and monitor, and have limited data availability.

Gross Domestic Product (GDP) and population for each country are used as controls in the model. Both variables control for country's size, but one from a nominal perspective (GDP) while the other in real terms. Together, they also control for the income level since an increase in GDP, given the size of the population implies that the income per capital increases. These variables capture both market size changes and income changes (GDP per capita). If GDP increases, the market size increases, but at the same time, income increases, even if the size of the population is unchanged. A large market size is usually good indication of trading capacity of the country, and thus increased international trade. There is empirical evidence of this effect by the gravity model (Anderson and Wincoop, 2004) where a country's trade flows are positively affected by GDP and population. On the one hand, it can be argued that countries that have a large trade value have vested interests in being part of international and regional trade, and therefore improve the ease with which goods move across borders. It can therefore be expected that countries with larger GDP would be heavily interested in investing in trade facilitation by reducing the costs and time required to import and export, thus a negative sign on the dependant variable. On the other hand however, a negative impact on trade costs could arise with higher degree of corruption, or limited institutional capability, which in turn increases time delays,

documentary compliance and costs, thus giving a positive sign. Both GDP and Population can affect Trade facilitation negatively or positively.

The number of RTAs variable measures the increased overlap of regional trade agreements. This is the most important explanatory variable and it shows the correlation between trade facilitation and increased number of trading blocs. This is measured by the number of regional agreements that a country has implemented within a given period of time. It is possible that the effect of this coefficient on the dependant variable could either be negative or positive. One reason for a positive effect could be that the more RTAs a country implements, the more complex the rules and regulations required for import and export. The number of documents is also expected to increase due to additional rules and special requirements. Adhering to these various rules of origin, research of information and even changing product design to suit various standards could make the import and export process more complicated, thus increasing the costs and time delays at the border. On the other hand a negative sign can also be expected, since it's possible that increased number of RTAs has both a non-discriminatory and convergence effect, where the standards could be harmonized, rules and regulations minimized, and capacity required in dealing with customs and border control across countries is increased. A similar effect is expected for the interaction variable. The interaction variable estimates whether a country that is related to a particular type of RTA, is influenced more or less by the number of RTAs. The effect of this coefficient on the dependant variable is just as ambiguous as the effect of increased number of RTAs. Depending on the dominating positive or negative effect of overlap on trade facilitation, the type of regional trade agreement is likely to be affected the same way.

Estimation Issues

The study uses a Fixed Effects estimation model to estimate the relationship between Trade Facilitation and overlapping trade blocs. This estimator has an advantage over the Ordinary Least Squares Estimator (OLS) because it maintains consistent estimates even when there are unobserved factors that affect the dependent variable and are correlated with the observed regressor. Given the panel structure of our model, the OLS estimator would be biased due to endogeneity and heteroskedasticity. It is not possible to deal with this kind of heteroskedasticity under OLS by simply applying a robust covariance matrix and therefore choosing an estimator that is able to deal with it, is a much viable option. The Fixed effect estimator remains consistent

under heteroskedasticity, by looking ‘within’ each country and controlling for the country specific differences across the countries that are related to the explanatory variables. This is very important for our dataset because other factors such as past political environment, security and national policies, that could affect how many regional agreements a country engages into, are likely to affect our results, if not controlled for. However, one limitation of this estimation model is that for some time-invariant variables, there could be problems of perfect collinearity, although this is most likely in bilateral estimations of trade flows.

To control for factors that influence all countries in a similar way over time, a Time Fixed Effects Estimator is included in the model. The quality of the Fixed Effects model depends on the extent of variation of the regressor over time i.e. time differences. It is therefore important to capture factors such as business cycles, climate, etc, that affect the countries in the same way over time.

Using several measures of trade facilitation ensures that we study the effect of the overlap, over more than just one indicator. This allows us to not only have a variety of results for analysis, but to also check for robustness of results.

Table 1: Summary Statistics for Key Variables

	(1)	(2)	(3)	(4)	(5)
VARIABLES	N	Mean	Standard deviation	min	max
Num of RTAS	1,688	3.829	3.349	0	22
GDP	1,693	3.177e+15	2.729e+15	1.311e+08	9.991e+15
Population	1,746	3.210e+12	4.000e+13	9,894	5.501e+14
Docs to export	1,256	7.145	1.962	3	15
Time to export	1,270	27.91	15.97	8	102
Cost to export	1,270	1,537	1,049	390	9,050
Docs to import	1,256	8.363	2.591	3	21
Time to import	1,269	33.57	24.26	7	339
Cost to import	1,269	1,966	1,935	317	24,845

Empirical Results

The regression analysis using the Fixed Effects model was generally successful. Table 2 shows the regression results and standard errors of running equation (1), as the main baseline model while table 3 shows results for equation (2).

Table 2: Summary of Main Results; The Effect of overlapping regional trade agreements on trade facilitation.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Docs export	Cost export	Time export	Docs import	Cost import	Time import
No. of RTAs	0.0525** (0.0236)	0.0605 (0.0519)	-0.0871* (0.0484)	0.0170 (0.0297)	0.0455 (0.0542)	-0.0899* (0.0540)
GDP	0.00428 (0.00285)	0.00287 (0.00247)	0.00316 (0.00196)	0.00326 (0.00247)	0.00269 (0.00270)	0.00277 (0.00290)
Population	0.105** (0.0443)	0.0716 (0.112)	0.125** (0.0630)	0.0395 (0.0542)	0.0539 (0.0895)	0.134* (0.0709)
Constant	0.171 (0.715)	6.106*** (1.782)	1.115 (1.033)	1.408 (0.877)	7.803*** (1.677)	2.230 (1.419)
Observations	1,149	1,163	1,163	1,149	1,162	1,162
R-squared	0.102	0.208	0.381	0.109	0.210	0.201
Country Effects	Yes	Yes	Yes	Yes	Yes	Yes
Time-Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
No. of countries	120	120	120	120	120	120

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The coefficient for the GDP is not easily interpretable since results are statistically insignificant

and close to zero. It can be argued that with further information on factors affecting these countries, the results could be different. Omitted variable effects and small sample size, restricting variations could also affect the results.

Results for the population coefficient show positive signs, although the results are statistically significant for only two of the indicators. The results show that there is a statistically significant positive effect of population on the documents needed to export and time taken to export, with coefficients (0.105**) and (0.125**) respectively. This can be interpreted as a 1% increase in population increases the cost in exporting through an increase in the number of documents needed to export by 0.1% and an increase in time delays by 0.125%. The results for the other trade facilitation indicators are not statistically significant. As earlier noted however, the effect of this variable could have also been the opposite.

On a rather interesting note, the results for the main explanatory variable are mixed with varying signs. The coefficient for the number of regional trade agreements is an indicator for overlapping trade blocs, and it measures the effect that an increase in RTAs has on trade facilitation. This is the core analysis of this paper. A statistically positive effect is obtained for the number of RTAs on the documents required to export, with a coefficient of (0.0525**). The interpretation of this result is that if the number of RTAs increases by 1%, then the costs of exporting in the number of documents increases by 0.05%, assuming that both the number of Regional Trade Agreements and number of documents are continuous over time. Another statistically significant result is for the Time taken during the export and import process. For both these indicators, there is a negative effect, with coefficients (-0.0871*) for time taken to export and (-0.0899*) for time taken to import. This shows that as the number of RTAs increases by 1%, the time delays reduce by 0.08% during both importing and exporting.

A possible explanation for the positive effect on the number of documents to export could be that an increase in the number of RTAs increases the documents needed in the certification and verification process of exporting. It is possible that having more RTAs as a country, could increase the rules and regulations that traders have to comply with, such as rules of origin, as well as increases accounting requirements that may include regional value on products and requirements for inventory management. This not only increases the documents required for

custom processing and clearance but also the administrative burden of complying with these rules. Unharmonized and country specific documentation for transit are also likely to increase the documents required in the export process, leading to higher trade costs. On the other hand, an increase in the number of RTAs could imply better use and exchange of modern technology as well as a faster convergence of policies and reforms that are non-discriminatory, and this could be a possible explanation for the negative effect of the number of RTAs on time delays. Use of modern technology induces faster custom clearance procedures, and efficiency at border units. There is also quicker dissemination of information on requirements and regulations to trading partners, as well as better use of audit based control during customs clearing, and risk management. It is also possible that with increased RTAs, there is shared institutional capacity building and infrastructural development. All these factors, if taken into consideration are plausible explanations for the results that we see i.e. an increase in the number of documents for exporting, due to an increase in RTAs, but at the same time decrease in time delays, and close to zero impact on the costs of exporting. A plausible reason could be that if the number of documents needed to export increases by the number of RTAs, the trade costs also increase but at the same time these costs decrease due to a reduction in time delays during export, thus the zero impact that we see on the Cost to export variable.

Table 3: Effect of type of RTA on Trade Facilitation.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Docs export	Cost export	Time export	Docs import	Cost import	Time import
No. of RTAs	0.0468** (0.0233)	0.0686 (0.0540)	-0.0887* (0.0493)	0.00740 (0.0296)	0.0542 (0.0564)	-0.0926* (0.0545)
Custom Union	0.0938* (0.0559)	-0.131* (0.0704)	0.0363 (0.0441)	0.134* (0.0803)	-0.0743** (0.0361)	0.141 (0.0901)
FTA	-0.00165 (0.00547)	0.0146 (0.0107)	0.00368 (0.00789)	0.00332 (0.00644)	-0.00177 (0.0135)	-0.0123 (0.0153)
GDP	0.00442 (0.00287)	0.00263 (0.00246)	0.00315 (0.00196)	0.00341 (0.00250)	0.00257 (0.00268)	0.00294 (0.00289)

Population	0.111** (0.0425)	0.0610 (0.106)	0.126** (0.0633)	0.0455 (0.0524)	0.0520 (0.0886)	0.146** (0.0678)
Constant	0.0868 (0.687)	6.272*** (1.691)	1.098 (1.040)	1.318 (0.851)	7.828*** (1.666)	2.027 (1.382)
Observations	1,149	1,163	1,163	1,149	1,162	1,162
R-squared	0.114	0.217	0.383	0.126	0.210	0.206
Country-Effects	Yes	Yes	Yes	Yes	Yes	Yes
Time-Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of country	120	120	120	120	120	120

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 3 shows the results obtained from equation (2), where an interaction variable between the number of RTAs and type of RTA is added to the baseline models. The types of RTAs included are; Customs Union and Free Trade Agreement. These variables measure the compatibility of different RTAs with the Trade Facilitation indicators, by showing whether countries related to each of these RTAs are influenced more or less by the number of RTAs.

The results from the Customs Union estimates show statistically positive estimates on the documents needed to export and import, with coefficients (0.0938*) and (0.134*) respectively. The direct effect of increase in the number of RTAs on documents for exporting for all countries is also positively statistically significant at (0.0468**). This shows that a 1% increase in the number of RTAs for all countries is 0.0468%, but countries under a customs union face an additional effect of 0.0938%. On the other hand, the direct effect of increasing number of RTAs on the number of documents required to import is zero for all countries, since the coefficient is statistically insignificant, but countries belonging to a customs union face additional costs because the number of documents increases by 0.134% as the number of RTAs increase by 1%. The possible explanation for these results could be that Custom Unions require harmonization of

external trade policies and, more complex negotiations on rules of origin and standards are required to export to countries outside the union. These additional requirements increase the number of documents needed to export, thus increasing the costs to trade.

There is also a statistically negative effect on the costs to export and import variable, with coefficients (-0.131*) and (-0.0743**) respectively. While the direct effect of number of RTAs on costs for exporting, for all countries is 0.06%, countries under a Customs Union have an additional reduction in costs of export of 0.08% and import (0.074%), when the number of RTAs increase by 1%. The rest of the variables are not statistically significant. A plausible explanation could be that since Custom Unions do not require implementation of rules of origin among the members, this greatly reduces the cost of import within the Union. It is also possible that costs incurred when importing to markets within the union are eliminated at transit points, where countries adopt common legislation, standards, etc. Stronger and shared institutional capacities as well as infrastructural networks are also likely to reduce costs to trade within the Union, since they are easier to implement in a shared geographical location.

Results for FTAs are not statistically significant.

Limitations and Caveats

A huge challenge with estimating the effects of Trade Facilitation is usually determining the ‘appropriate’ measures that reflect the true needs of a particular region. As earlier highlighted, there are various measures that have been proposed by various authors that are expected to affect results for particular samples. Notwithstanding the limited data available for each of these measures when it comes to low income countries, this paper confines itself to using only three trade facilitation indicators.

Additionally, the diversity of RTAs in terms of their design and structure is something to be considered when making this kind of correlation. It is difficult to generalize substantive content of Trade Facilitation and its implementation, based on just a few factors. While some RTAs are limited to a narrowly defined set of measures, some others are broad in terms of their scope, detail and commitment. It is therefore important to note that there could be better indicators of trade facilitation that could be used to show a much more accurate effect of increasing Regional

Trade Agreements on Trade Facilitation. Further research is encouraged using a broader set of indicators tailored to match the various structures and design of the RTAs.

It is also worth noting that in this study, heterogeneous factors that could bias results such as corruption, level of infrastructure, effectiveness of institutional structures across different countries, differentiation of products whereby some products are generally much more difficult to clear and import than others, are not accounted for. The obvious reason for this omission is the limited data available for these countries. Factors such as corruption and effectiveness of institutional structures are generally difficult to measure, especially in developing countries. Level of infrastructure is also almost impossible to account for.

Last but not least, more data could lead to further work concentrated on the form of empirical specification required to give a much more precise impact. Further research could be done, to include other variables that affect both overlapping trade blocs and trade facilitation such as landlockedness, over a longer period of time, to establish a stronger effect.

Summary and Conclusion

This study set out with the aim of assessing the effect of overlapping trade blocs on trade facilitation, and hopefully add to the literature from prior studies on the empirical relationship between the two variables. Using a sample of 120 middle and low income countries over a period of 8 years, the results show that conditional on the assumption that both trade facilitation and the number of RTAs are continuous variables, an increase in the number of Regional Agreements increases trade costs by increasing the number of documents required to export by 0.05%. From a logical point of view, this result is not surprising because as countries implement more RTAs, the more complex the rules and regulations become, and thus more documents required in the certification, and verification process. On the other hand, the study also shows that time delays in the import and export process decrease by 0.08%. Non-discriminatory trade facilitation measures such as improved infrastructure, strong institutional capacity building, coupled with increased use of modern technology in the customs clearance process, could be some of the reasons explaining these results. These factors when implemented at the regional level play a key role in reducing time delays, and thus reducing trade costs.

Additional results investigating the compatibility of different types of Regional Trade Agreements show that Free Trade Agreements do not seem to have a large statistical effect on trade facilitation, a result that is rather surprising. When it comes to Custom Unions however, countries related to Custom Unions are negatively affected by an increase in Regional Trade Agreements. Results from the study show that the burden of documentary compliance both for exporting and importing increases by 0.09% and 0.13% respectively. One could argue that factors such as increased complexity in negotiation on standards and rules of origin as well as great deal of harmonization of external policies at the Customs Union level could increase the burden of documentation required by traders. On the other hand, costs associated with exporting and importing are reduced by 0.13% and 0.07% respectively, when a country under a Custom union increases its number of RTAs by 1%. Elimination of transit barriers, as well as shared institutional capacity and infrastructure could be reasons to explain these results.

These results are a step further into highlighting the great role that regional trade agreements play in affecting trade costs. Without fully exhausting all factors that could affect trade facilitation both at the regional and multilateral level, these results give important insight into how the increasing overlap and rapid proliferation of Regional Agreements could impact efforts geared towards reducing non-tariff trade barriers. Countries need to consider the costs that could come with trying to have more trading blocs, and to possibly negotiate trade deals that increase rather than diminish International Trade. While Trade Facilitation content might be considered broad to implement, there are still measures that are discernable and could be implemented by most RTAs. Efforts towards convergence and implementation of non-discriminatory measures of Trade Facilitation are therefore highly encouraged at the multilateral and regional level. Capacity building and technical assistance is also encouraged especially to less developed countries, as well as enforcement of Trade Facilitation commitment across all RTAs.

The paper also raises the possibility to further investigate the effect of overlapping trade deals using appropriate amount of data, larger sample, longer period of study, and a broader set of Trade Facilitation indicators. One interesting consideration would be further research into how heterogeneous factors such as corruption, level of infrastructure, and effectiveness come into play when analysis this effect.

References

Allen. D (2006). The impact of Regional Trade Agreements and Trade Facilitation in the Middle East and North Africa Region. World Bank Policy Research Working Paper.

Anderson, J. E. and E. van Wincoop (2004). Trade Costs, *Journal of Economic Literature*, Vol. 42, No. 3, pp. 691-751. Available at SSRN: <https://ssrn.com/abstract=1674807>

Arndt, et.al (2007). Evaluation of An Appropriate Model for a SADC Customs Union. Report commissioned by the SADC Secretariat. Final draft, 7 August 2007.

Arvis. J.F. (2005). Transit and the special Case of Landlocked countries. *Customes Mordernisation Handbook*, ed. Luc De Wulf and Jose B. Sokol, ch.11. Washington DC: World Bank.

Baldwin R. E (2006). A Domino Theory of Regionalism. NBER Working Paper Series. Working Paper No.4465.

Baldwin R. E (2006). Multilateralising Regionalism: Spaghetti Bowls as Building Blocs on the Path to Global Free Trade, *The World Economy*, Blackwell Publishing, vol. 29(11), pages 1451-1518, November.

Beckford. D.S. (2014). WTO Agreements on trade facilitation and implications for intra-regional trade: The case of Cariocom.

www.sela.org/.../t023600006254-0-jamaica_wto_agreement_on_trade_facilitation..

Cornejo. R and J. Harris (2007). Convergence in the Rules of Origin Spaghetti Bowl: A methodological Proposal. Institute for the Integration of Latin America and the Caribbean.

Crawford. J. and R. V.Fiorentio (2005). The changing Landscape of Regional Trade Agreements. World Trade Organisation.

Djankov, Simeon, C. Freund and C. S. Pham (2006). Trading on Time, *World Bank Policy Research Working Paper* No. 3909.

Doha WTO Ministerial (2001) MINISTERIAL DECLARATION. World Trade Organisation.
WT/MIN(01)/DEC/1. https://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_e.html

Duval. Y, N. Neufeld and C. Utoktham (2016). Does Trade Facilitation Provisions in Regional Trade Agreements matter? Impact on trade costs and multilateral spillovers. The Asia-Pacific Research and Training Network on Trade. www.artnetontrade.org.

Hummels. D (2001). Time as a trade barrier. Purdue University

Krueger. O.A. (1997). Trade policy and economic development: How we learn. The American Economic Review; Mar 1997; 87, 1; ABI/INFORM Global pg. 0_6

Kurz S, and Offer. T, F. Povel (2008). SADC Trade Integration- The effect of trade Facilitation on Sectoral Trade: A quantitative Analysis. Monitoring Regional Integration in Southern Africa Yearbook 2008.

Limao. N and A. J. Venables (1999). Infrastructure, Geography Disadvantage and Transport. Policy Research Working Paper. WPS-2257. The World Bank Development Research Group

Majluf. L.A (2004). Swimming in the Spaghetti Bowl: Challenges for developing Countries Under the 'New Regionalism.' United Nations Conference On Trade And Development. Policy Issues In International Trade And Commodities. Study Series No. 27.

Maur. J.C (2008). Regionalism and Trade Facilitation: A primer. World Bank Development Research Group.

McTiernan. A. (2006). Customs and Business in Africa: A Better Way Forward Together. Report prepared for Business Action for Improving Customs Administration in Africa (BAFICAA). <http://webarchive.nationalarchives.gov.uk/20100918113753/http://www.sitpro.org.uk/policy/baficaa/baficaareport.pdf>.

Menon. J (2008). Dealing with the Proliferation of Bilateral Trade Agreements. Asia-Pacific Economic Cooperation. Discussion Paper Series. Discussion Paper No.60

Milner.C, O.Morrissey and Z. Eviou (2008). Trade facilitation in developing countries, CREDIT Research Paper, No. 08/05, Center for Research in Economic Development and International Trade, University of Nottingham.

Moisé. E (2002). Relationship between Regional Trade Agreements and Multilateral Systems: Trade Facilitatio. Organisation for Economic Co-operation and Development.

Moisé, E. and S. Sorescu (2013). Trade Facilitation Indicators: The Potential Impact of Trade Facilitation on Developing Countries' Trade. *OECD Trade Policy Papers*, No. 144, OECD Publishing, Paris. DOI: <http://dx.doi.org/10.1787/5k4bw6kg6ws2-en>

Neufeld. N. (2014). Trade Facilitation Provisions in Regional Trade Agreements-Traits and Trends. World Trade Organisation. Working Paper No.ERSD-2014-01.

OECD Annual Report (2005) <https://www.oecd.org/about/34711139.pdf>.

OECD (2015) (www.oecd.org/ech/tradepolicy/facilitation)

OECD (2016).<http://www.oecd.org/tad/benefitlib/trade-costs.htm>

Persson, M. (2010). Trade Facilitation and the Extensive Margin. Research Institute of Industrial Economics (IFN)

Schiff .M. and Winters, L. A. (2003). Regional Integration and Development. Washington, DC: World Bank and Oxford University Press. © World Bank.

<https://openknowledge.worldbank.org/handle/10986/15172> License: CC BY 3.0 IGO.

Shepherd. B and J. S. Wilson (2009). Trade facilitation in ASEAN member countries: Measuring progress and assessing priorities. *The World Bank, 1818 H St. NW, Washington, DC 20433, United States.*

Sopranzetti S. (2017). Overlapping free trade agreements and international trade: A network approach. *World Econ.* 2017;00:1–18. <https://doi.org/10.1111/twec.12599>

Tadashi.Y.(2014). Trade Facilitation in Regional Trade Agreements. World Customs Organisation.

Trade and Development Report (2004). Policy Coherence, development strategies and integration into the world economy.UNCTAD/TDR/2004. ISBN: 92-1-112635-5/ISSN: 0255-4607.Sales No: E.04.II.D.29

.The World Bank Business Database. <http://www.doingbusiness.org/>

Wilson, J. S, C L. Mann and T. Otsuki (2003). Trade Facilitation and Economic Development:A New Approach to Quantifying the Impact”, *World Bank Economic Review*, Vol. 17, No.3, pp. 367-389.

World Trade Report (2015). Speeding up trade: benefits and challenges of implementing the WTO Trade Facilitation Agreement. World Trade Organization.

https://www.wto.org/english/res_e/booksp_e/world_trade_report15_e.pdf

World Bank Doing Business Trading Across Borders section. <http://www.doingbusiness.org>.

World Bank’s Development Indicators. <http://data.worldbank.org/data>
catalog/worlddevelopment-indicators

United Nations Conference on Trade and Development (2017).

<http://unctad.org/en/Pages/DITC/Services/Statistics-on-services.aspx>

United Nations Conference On Trade And Development (2011). Trade Facilitation In Regional Trade Agreements. *unctad.org/en/PublicationsLibrary/dtl1b2011d1_en.pdf*.

Appendix

SAMPLE COUNTRIES: MIDDLE INCOME AND LOW INCOME COUNTRIES:

Afghanistan, Albania, Algeria, Angola, Argentina, Armenia, Azerbaijan, Bangladesh, Belarus, Belize, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Burkina Faso, Burundi, Cape Verde, Cambodia, Cameroon, Central African Republic, Chad, China, Colombia, Comoros, Congo-Dem. Rep., Congo-Rep., Costa Rica, Côte d’Ivoire, Cuba, Djibouti, Dominica, Dominican Republic, Ecuador, Egypt-Arab rep., El Salvador, Equatorial Guinea, Eritrea, Ethiopia, Fiji, Gabon, The Gambia, Georgia, Ghana, Grenada, Guatemala, Guinea, Guinea-Bissau, Guyana, Haiti, Honduras, India, Indonesia, Iran-Islamic Rep., Iraq, Jamaica, Jordan, Kazakhstan, Kenya, Kiribati, Korea-Dem. People’s Rep., Kosovo, Kyrgyz Republic, Lao PDR, Lebanon, Lesotho, Liberia, Libya, Macedonia-FYR, Madagascar, Malawi, Malaysia, Maldives, Mali, Marshall Islands, Mauritania, Mauritius, Mexico, Micronesia-Fed. Sts., Moldova, Mongolia, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nauru, Nepal, Nicaragua, Niger, Nigeria, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Russian Federation, Rwanda, Samoa, São Tomé and Príncipe, Senegal, Serbia, Sierra Leone, Solomon Islands, Somalia, South Africa, South Sudan, Sri Lanka, St. Lucia, St. Vincent and the Grenadines, Sudan, Suriname, Swaziland, Syrian Arab Republic, Tajikistan, Tanzania, Thailand, Timor-Leste, Togo, Tonga, Yemen-Rep., Zambia, Zimbabwe

Table 4: Key Variables and Sources.

No.	Variable	Data source
1	Trade Facilitation Indicators	World Bank’s Doing Business indicators http://www.doingbusiness.org <i>Doing Business</i> records the time and cost associated with the logistical process of exporting and importing goods. Under the new methodology introduced this year, <i>Doing Business</i> measures the time and cost (excluding tariffs) associated with three sets of procedures—documentary compliance, border compliance and domestic transport—within the overall process of exporting or importing a shipment of goods.

<p>2. Regional Trade Agreements</p>	<p>World Trade Organization (WTO). WTO is the only global International organization dealing with rules of trade between nations. At the heart are the WTO agreements, negotiated and signed by the bulk of the world's trading nations and ratified in their parliaments.</p>
<p>3. Gross Domestic Product (GDP)</p>	<p>World Development Indicators. http://www.worldbank.org/ World Development Indicators (WDI) is the primary World Bank collection of development indicators, compiled from officially recognized international sources. It presents the most current and accurate global development data available, and includes national, regional and global estimates.</p>
<p>4. Population</p>	<p>United Nations Population Division Database</p>