

# WORKING PAPER

## Does the Depth of Trade Agreements Matter for Trade in Services? \*

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EMANES Working Paper N° 63 / December, 2022

### Abstract

*In recent years, deep trade agreements spread around the world and go beyond tariff reductions. We aim to test whether the depth of agreements foster trade in services. To do so, we use a structural gravity type model and build new indicators of the depth of agreements based on the number of articles that are legally enforceable and that are related to trade in services. We show that, while only the deepest trade agreement raise trade in services, the quality of institution determines how deep agreements affect both the intensive (measured by the quantity of trade) and extensive margins of trade (measured by the number of service sectors exports and the share of the highest service exported by a country). This result is more pronounced for some service provisions and is robust after we control for the endogeneity of deep trade agreements. Finally, our results also hold for MENA countries that we examine as an example of an emerging region that has a comparative advantage in services but whose most of the trade agreements are rather shallow.*

**JEL Classification:** F10, F14, L80.

**Keywords:** Trade Agreements, Services, Institutions, WTO commitments.

*\*We would like to thank participants to ETSG2022 in Ghent and the EMNES 2021 Conference. All remaining errors are ours.*

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# 1 Introduction

Trade agreements are heterogeneous. While most of them deal with tariff removal, more recent agreements include provisions that deal with services, investment, intellectual property rights, and non tariff measures. While tariffs reduction can boost trade in goods, services need deeper provisions given that behind the border barriers happen to become prohibitive<sup>1</sup>. Thus, this article examines the effect of deep trade agreements on the performance of trade in services measured by their level and their diversification. To do so, we chiefly focus on provisions that are directly related to trade in services.

Three main reasons explain the relevance of this topic. First, with the recent waves of protectionism and the failure of the multilateral system (Brexit, World Trade Organization Appellate Body crisis, the de facto failure of the Doha Development Round), regional trade agreements are currently perceived as the last resort to boost trade at least at the regional level. Obviously, deeper trade agreements are more likely to reach such a goal (Evenett and Baldwin (2020)). Second, with the servicification of the manufacturing sector, services became even more important in the manufacturing value chain thanks to advances in transportation and communications technology, that enabled the fragmentation of production process in different locations (Karam and Zaki (2020) and Crozet and Milet (2017)). This is why deeper trade agreements that should promote trade in services will also help improve the competitiveness of the manufacturing sector in emerging economies. Third, several emerging economies, while having a comparative advantage in services, the latter are still regulated and protected with cumbersome regulations. Hence, ratifying a binding deep agreement should overcome this issue by guaranteeing a more liberalized services sector.

Against this background, using the newly released ITPD-E data on bilateral services developed by Borchert and Di Ubaldo (2021) and the deep trade agreements dataset of the World Bank, this article examines the effect of deep trade agreements on the performance of trade in services measured by their level and their diversification. Thus, this paper contributes to the literature in three ways. First, it builds new indicators that measures the depth of trade agreements relying on general provisions on the one hand and on service provisions (GATS, TRIMS, TRIPS, etc.) on the other. Second, we introduce the quality of institutions to investigate how the latter can affect the implementation of deep trade agreements. Third, we distinguish between the impact on the intensive margin of trade relative to the extensive one. While the former is measured

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<sup>1</sup>For a comprehensive review of the literature on the analysis of trade in services, see Francois and Hoekman (2010).

by the level of trade, the latter is measured by the number of service sectors exports and the share of the highest service exported by a country. Finally, we extend the analysis to an under-researched emerging region, namely the Middle East and North Africa (MENA) that, while having a comparative advantage in services, is characterized by shallow agreements and a heavily regulated services sector.

Our main findings show that, while only the deepest trade agreements raise trade in services, the quality of institution determines how deep agreements affect both the intensive and extensive margins of trade. This result is even more pronounced for some service provisions and is robust after we control for the endogeneity of deep trade agreements. Finally, our results also hold for the MENA region.

The remainder of this paper is organized as follows. Section 2 provides a brief overview of the literature. Section 3 describes the data and presents some stylized facts. Section 4 presents the methodology. Section 5 is dedicated to the empirical results. Section 6 concludes and provides some policy recommendations.

## 2 Survey of the Literature

The literature on the impact of free trade agreements (FTA) on trade in services is less abundant than the one on trade in goods. The first papers in the 2000s have estimated the determinants of bilateral services trade and shown that gravity equation applies. They found a positive and significant effect of FTAs (Ceglowski (2006); Kimura and Lee (2006); Walsh (2006)) and Karam and Zaki (2013). More recently, Egger and Shingal (2021) confirm these results and highlight that the probability for two nations to sign a service trade agreement raises with the similarity of their service trade restrictiveness, while usual determinants also apply. From the newly released ITPD-E database, Borchert et al. (2022) show a stronger impact of common language on trade in services and to a lesser extent manufacturing compared to agriculture, mining and energy. The highest impact of Deep Trade Agreements (DTA) is observed for travel, financial services, and education, or in other words, services relying on communications.

Later, the literature has widely pointed out the importance to account for the depth of such agreements. The importance of analysing deep trade provisions for trade in services is widely acknowledged insofar as it requires changes in domestic (behind the border) regulations (see Rodrik (2018), for instance). Indeed, Mattoo (2022) shows that, when trade agreements become deeper,

they encompass a broader number of WTO+ areas, among which state aid. The deepest agreements cover areas linked to intellectual property rights, movement of capital and standards. In addition, [Borchert and Di Ubaldo \(2021\)](#) study the effect of services PTAs on cross-border services trade and countries' engagement in international services value chains using the newly released ITPD-E data on bilateral services trade ([Borchert et al., 2021](#)) and the services PTAs notified to the WTO, which are available from the novel World Bank Deep Trade Agreements (DTA) 2.0 database ([Mattoo et al., 2020](#)). Among the 64 services provisions in the World Bank database, and based on expert perception combined with principal component analysis, [Borchert and Di Ubaldo \(2021\)](#) select key measures of relevance for international trade in services and group them into seven principal policy areas (structure, scope (I and II), domestic regulations, other disciplines, modes of supply, accountability)<sup>2</sup>. The frequency of variables is weighted by the number of country pairs to which they apply. The authors then construct sets of ten mutually exclusive binary variables that correspond to the nine most frequently observed policy configurations plus one residual variable. [Borchert and Di Ubaldo \(2021\)](#), while describing them as either “ambitious” or “shallow”, find a stronger positive impact on trade in services when bilateral agreements include more provisions on services. The effect is also more pronounced for ambitious agreements with ratchet clause or dispute settlement. It is driven by trade in regulation intensive services (financial and business services and exchange of intellectual property rights). The impact takes time to materialise and reaches its highest level with a two-year lag.

They differ from [Dhingra et al. \(2021\)](#) who single out legally enforceable provisions and propose count measures for the depth of an agreement with a distinction between core (with a main economic relevance) and non-core provisions in each PTA. They use the World Input Output (WIOD) database with 31 regions and 31 sectors for the period 1995 until 2011 and the World Bank DTA database and find that deep trade commitments have a higher trade-expansion effect compared to shallow ones that are relatively larger for services than goods: a 30% boost in exports for services and nearly 25% for goods.

Relying on the Design of Agreements (DE TSA) database, [Dhingra et al. \(2018\)](#) show that services, investment and competition provisions contribute 50% to the overall impact of FTAs on trade in services, and between 30% and 35% on trade in goods. The authors estimate a gravity equation with high-dimensional fixed effects from the WIOD for 43 countries and grouped in 19 sectors (3

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<sup>2</sup>For more details on the provisions and chapters included in these policy area, see the presentation of the database for services in [Gootiiz et al. \(2020\)](#). The provisions are selected depending on their significance for services trade and empirical frequency distribution across services PTAs.

goods and 16 services) over the period 2000-2014, pooled by two-year intervals. The effect of these three provisions outweighs the FTA effect for trade in services sectors that facilitate the timely delivery of goods (accommodation and food service activities, transportation and storage). The liberalization of these measures is also particularly important for financial services and insurance activities (such as financial intermediation or fund management). Therefore, the authors conclude that their results support an increasing servitization of goods' exports.

In the same vein, [Mulabdic et al. \(2017\)](#) measure the depth of an agreement with a count of legally enforceable provisions in each PTA. They rely on the WIOD and on DTA database from the World Bank for the period 1995 to 2011. From a gravity equation with high dimensional fixed effects, they show that deep trade agreements raise total bilateral trade. When it comes to specific provisions favouring services trade, [Makus and Ridley \(2021\)](#) find that membership in legally enforceable Intellectual-Property-Related-Preferential Trade Agreements (IPA) reduce exports of low-intensive intellectual property products by partner countries towards third markets. Imports towards lower-income countries of some high-IP products are boosted only if IPAs are legally enforceable. As far as we are concerned, we follow the methodology of counting provisions in agreements, and introduce a 'depth' measure like [Guillin \(2013\)](#) and [Dhingra et al. \(2021\)](#). The former runs a principal components analysis and thus distinguishes three groups of low, medium and high liberalization and find that deeper agreements raise services trade.

As per the MENA region, the literature on trade in services is not abundant. [Marouani and Munro \(2009\)](#) assess barriers to service provision in the financial, telecom, and transport sectors in selected MENA countries. They find that, despite significant regulatory reforms in Egypt, Jordan, Lebanon and Morocco in the 2000's, several restrictions still impede this sector, especially those imposed on foreign equity participation. Moreover, [Karam and Zaki \(2013\)](#) show that being a WTO member and the number of bound commitments boost trade in services. Moreover, in a more recent paper, [Karam and Zaki \(2015\)](#) examine the nexus between trade in goods and trade in services in the MENA region. They show the decomposition of GDP growth reveals a greater impact of goods trade, although service trade is important. This is chiefly explained by the regulations and restrictions that are still imposed on the services sector in these countries.

Our contribution differs from [Borchert and Di Ubaldo \(2021\)](#) in three ways. First, we investigate the role of institutions and how they can affect the implementation of deep trade agreements. Second, we distinguish between general provisions and those related to services. Finally, we examine the effect of such agreements on both the intensive and the extensive margins of trade.

### 3 Data and Stylised facts

The quality of data on trade in services has always been a key issue. To avoid the combination of several data sources, we use the International Trade and Production Database for Estimation (ITPD-E) developed by [Borchert et al. \(2021\)](#). This dataset provides export flows for 243 reporting countries, 17 service sectors, and 17 years (from 2000 until 2016). We pool together all the sectors.<sup>3</sup>

Our agreements variables come from the dataset of the World Bank. This dataset on the content of preferential trade agreements (PTAs) maps 52 provisions in 279 PTAs notified at WTO signed between 1958 and 2016. It also includes information about legal enforceability of each provision. These provisions are divided into two groups. The first one includes the provisions falling under the current mandate of the WTO and already subject to some form of commitment in WTO agreements - when legally enforceable. It can take three values: 0 if the provision is not mentioned in the agreement or not legally enforceable; 1 if the provision is mentioned as legally enforceable but explicitly excluded by dispute settlement provision; and 2 if the provision is mentioned and legally enforceable. The same ranking holds for the second group of provisions that are outside the current mandate of the WTO - when legally enforceable (see Appendix 1 for a complete list of provisions).

For a given country, the degree of its trade integration relies on the dynamics of this country to be involved in trade negotiations and on the depth of the agreements this country signs. On this basis, we focus on the content of the agreements. We distinguish what is legally enforceable from what is just negotiated. A deep trade agreement contains a higher share of legally enforceable items than a shallow one. To discriminate the agreements, we consider two alternative measures of depth,  $Depth_1$  and  $Depth_2$ , which are calculated as follows:

$$Depth_1 = \frac{N^{le}}{(N^{le} + N^{ne})} \quad (1)$$

$$Depth_2 = \frac{N^{le}}{maxN} \quad (2)$$

with,  $N^{le}$  the number of legally enforceable items,  $N^{ne}$ , the number of non legally enforceable

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<sup>3</sup>List of sectors: Manufacturing services on physical inputs owned by others (154); Maintenance and repair services (155); Transport (156); Travel (157); Construction (158); Insurance and pension services (159); Financial services (160); Charges for the use of intellectual property (161); Telecommunications, computer, and information services (162); Other business services (163); Heritage and recreational services (164); Health services (165); Education services (166); Government goods and services (167); Services not allocated (168); Trade-related services (169); Other personal services (170).

items and  $N$ , the number of items.<sup>4</sup> Deep trade negotiations should result in a majority of legally enforceable items in the overall set of negotiations.

We define an agreement as "deep" as long as  $Depth_1$  or  $Depth_2$  are above the median; while an agreement is "shallow" when this measure is below the median. This means that the country-pair goes further in terms of trade negotiations than other countries. We calculate both measures by restricting the indices to trade agreements that cover services ( $Depth_1^{services}$  and  $Depth_2^{services}$ ). In Table 1, we report the correlations between the four measures of depth. While  $Depth_2$  is highly correlated with  $Depth_1^{services}$  and  $Depth_2^{services}$ ,  $Depth_1$  is less correlated with all other measures. Globally, we prefer the second definition (whether general or for services) given that it compares the number of provisions relative to the maximum number of provision one can have. Thus, it is more restrictive.

As for institutions, we rely on the Worldwide Governance Indicators (WGI) established by Kaufman et al. (2010), which capture six dimensions of governance (control of corruption, rule of law, regulatory quality, political stability, voice and accountability and government effectiveness). Our institutional variable is based on the absolute difference in the mean of these six dimensions between the exporter and the importer. We rely on this measure as trade in services depends on the distance in the quality of institutions between different trade partners.

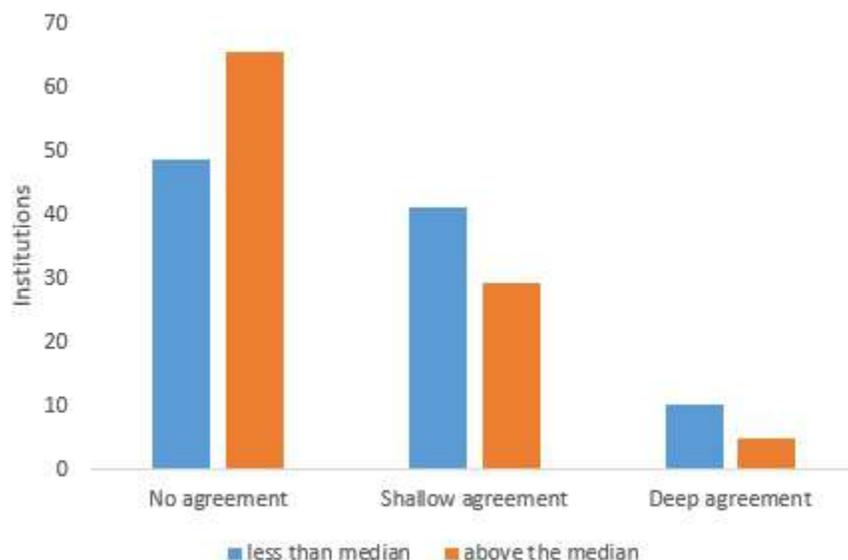
Table 1: Correlation between Depth measures

	$Depth_1$	$Depth_2$	$Depth_1^{services}$	$Depth_2^{services}$
$Depth_1$	1.0000			
$Depth_2$	0.3620	1.0000		
$Depth_1^{services}$	0.0063	0.6947	1.0000	
$Depth_2^{services}$	0.1779	0.9340	0.8874	1.0000

As it was mentioned before, we argue that the quality of institutions matters for the implementation of deep agreements. Thus, Figure 1 shows that larger differences in the quality of institutions are associated to less agreements between trade partners. In fact, when the difference in institutions is above the median, trade partners are not likely to have an agreement. In contrast, when the difference in institutions is less than the median, countries are more likely to sign both shallow and deep agreements.

<sup>4</sup>In total, 52 single items, or provisions, have been considered.

Figure 1: Institutional Differences and Agreement Depth

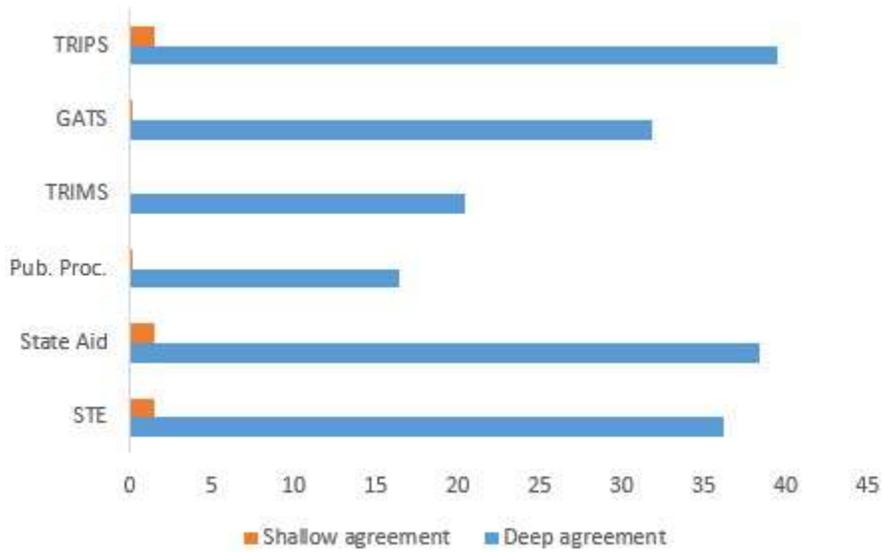


Source: Authors' own elaboration.

A closer look at the types of provisions included in the agreements shows that, whenever the agreement is deep, it is more likely to include different services provisions such as TRIPS, GATS, TRIMS, public procurement, state aid and the establishment of a competition authority (see Figure 2). Hence, if trade partners are to boost trade in services, deep agreements that include legally enforceable provisions are necessary. This is even more important between countries that have different development levels. Indeed, Figure 3 shows that deep agreements are more likely to be signed between high income countries, to a lesser extent between high and low income countries and almost nonexistent between low income ones. This confirms the fact that, given that high income countries have similar level of institutions, their agreements are deeper.

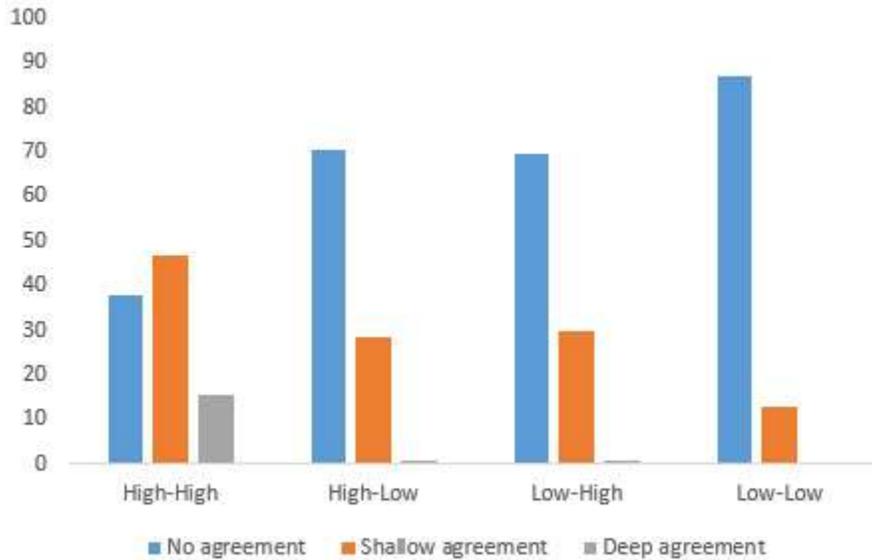
After presenting these stylized facts, we empirically examine whether deep trade agreements affect the level and the diversification of services exports.

Figure 2: Service Provisions and Agreement Depth



Source: Authors' own elaboration.

Figure 3: Development Level and Agreement Depth



Source: Authors' own elaboration.

## 4 Methodology

Several issues need to be addressed in order to properly estimate the structural gravity model. We follow the recommendations of [Yotov et al. \(2016\)](#). First, we do not use the log-transformation of the model as suggested by [Silva and Tenreyro \(2011\)](#), but we estimate the gravity equation (3) using panel data with the Poisson Pseudo Maximum Likelihood (PPML thereafter) estimator in

order to consider zero flows (which are substantial in the case of trade in services) and to take into account the issue of heteroscedasticity in bilateral trade data. Second, we introduce three sets of fixed-effects to control for unobservable country-specific characteristics as well as pair-specific characteristics (see [Baier et al. \(2019\)](#)). [Anderson and Van Wincoop \(2003\)](#) argue for the inclusion of multilateral resistance terms enabled with the exporter-time and importer-time fixed effects. Besides, those sets of fixed-effects allow us to control for any observable and unobservable time-varying characteristics specific to each exporter ( $\beta_{it}$ ) and importer ( $\gamma_{jt}$ ). With panel data, the gravity equation should be estimated using country-pair fixed effects ( $\delta_{ij}$ ). This is justified by the endogenous nature of bilateral trade policy ([Baier and Bergstrand, 2007](#)) but also by the pervasive control of all time-invariant characteristics specific to each country-pair. Note that country-pair fixed-effects outperform compare to the standard bilateral gravity variables (such as geographical distance, common language, etc) to measure bilateral trade costs (see among others [Agnosteva et al. 2014](#); [Egger and Nigai 2015](#)).

$$X_{ijt} = \exp[\alpha_1 Agreement_{ijt}^{Services} + \alpha_2 Institutions_{ijt} + \beta_{it} + \gamma_{jt} + \delta_{ij}] + \epsilon_{ijt} \quad (3)$$

Our dependent variable,  $X_{ijt}$ , is the bilateral exports in level from country  $i$  to country  $j$  at year  $t$  for the intensive margin. Turning to the extensive margin of trade, we consider: i) the number of active sectors for each country-pair at year  $t$ ; ii) the share of the main service sector in total bilateral exports at year  $t$ . Both measures assess the degree of trade diversification by country-pair and by year.

In order to measure the role played by trade agreements, the use of a binary variable equals to one if the given country-pair is involved in a common agreement at a given year -and zero otherwise- is not fully satisfactory. Regarding the prior literature on the depth of agreements, we emphasize the role of all the agreements signed by a given country-pair and their contents.  $Agreement_{ijt}^{Services}$  is our main variable of interest and represents a vector of variables which seek to measure the depth of the agreement between the country  $i$  and the partner  $j$  at year  $t$ . It encompasses general measures of trade liberalization and more services specific ones such as GATS provisions.

The variable  $Institutions_{ijt}$  is the absolute difference of the institutional quality between country  $i$  and country  $j$  at year  $t$ . We expect a negative sign of  $\alpha_2$ . As the institutional quality between two countries increases, the trade lowers due to higher uncertainty and higher bilateral trade costs.

Our analysis is extended in three ways. First, we focus on specific provisions related to services

to see to what extent they boost trade in services. Second, we control for the endogeneity of signing a deep trade agreement. Third, we also extend the analysis to the region MENA as an example of an emerging region that has a comparative advantage in services but that is characterized by shallow agreements and a heavily regulated services sector.

## 5 Results

### 5.1 Baseline Model

Table 2 shows our baseline results where the depth of the agreement matters regardless of the definition. Indeed, our two definitions (whether the depth is measured by the share of legally enforceable provisions in the total number of provisions or the maximum number of provisions) show that shallow agreements do not have a statistically significant effect on trade in services. In contrast, deep ones have a positive impact on services (columns (1) to (4)) with  $Depth_2$  having a slightly higher effect compared to  $Depth_1$ . This shows that the higher share of legally enforceable articles in the total number of articles matters more than just when a country-pair signs an agreement containing a higher number of legally enforceable items than the average. The same results holds when we restrict these two definitions to the provisions related to services only (columns (5) to (8)). Thus, when an agreement is more centered on services, it is likely to significantly boost trade. This finding confirms the outcomes of [Dhingra et al. \(2018\)](#) and [Borchert and Di Ubaldo \(2021\)](#). In addition, the absolute difference of the quality of institutions negatively affects trade in services. Generally, services liberalization is more affected by the quality of institutions in a country, compared to goods one. This pertains to the facts that services have an intangible nature. Thus, they cannot be stored, their characteristics are not observable before purchase, their consumption is often coincident to production and they do not physically move. This is in line with [Karam and Zaki \(2019\)](#) who show that the exporter's institutional gap exerts a significant negative impact on service exports, even after controlling for the endogeneity of the institutional gap. In contrast, when the agreement depth is interacted with institutions, no significant effect was found.

While the depth of services agreements matters for the intensive margin of trade, the extensive one is also affected. Indeed, the previous analysis assumes that the inclusion of service provisions is perceived as a variable cost that affects the value of trade in services at the intensive margin level. However, it can also be perceived as a fixed cost that affects the extensive margin of trade.

This is why we run two different sets of regressions to test the latter hypothesis. From a policy perspective, this is important as it helps us examine whether deep agreements can lead to exports diversification. To do so, and as it was mentioned before, we consider two country-specific variables as a dependent variable: i) the number of active sectors exported by a country ii) the share of the most exported service sector. Results are displayed in Table 3. First, results do not differ substantially across samples. Deep trade integration in services implies a stronger export diversification given that, when a country signs trade agreements, it diversifies its range of services sectors exported. The coefficient of the agreement depth positively and significantly impacts the number of sectors but negatively the share of the most exported sector suggesting that the country is more likely to export a greater number of service sectors. Thus, deeper agreements can potentially lead to exports diversification. This results holds for the two definitions of depth and when the latter are calculated for all provisions and services provisions. In contrast, the absolute difference in the quality of institutions is not statistically significant for the extensive margin of trade. Hence, while institutions matter for the intensive margin, they do not for the extensive one.

These regressions confirm the significance of deep trade agreements for trade in services. Yet, such aggregate regressions hide the heterogeneity of different provisions and the nature of signing countries. The following extensions focus on these two points.

## 5.2 Extensions

### 5.2.1 Which Provisions Matter?

As it has been mentioned before, one of our contributions lies in the fact that we distinguish between general provisions and those that are directly related to trade in services. Tables 4, 5 and 6 present these results for the intensive and extensive margins respectively.

Interestingly, when an agreement includes competition related provisions (STE refers to the establishment or maintenance of an independent competition authority), trade in services is boosted when the agreement is deep (see Table 4). The same results hold for public procurement and TRIPS that matter only when they are deep. This is why when the agreement is shallow, the coefficient turns to be insignificant showing to what extent a non-ambitious agreement does not affect trade in services. Our results confirm the findings of Dhingra et al. (2018) and Makus and Ridley (2021).

In addition, when the agreement is shallow, it could be associated to a trade diversion effect leading to a decrease in trade. This applies to the case of shallow provisions related to STE, public procurement and GATS. Indeed, the country can refrain from partners with whom trade agreements are shallow to trade with those who have deeper agreements.

When we look at the impact of specific provisions on the extensive margin of trade (Tables 5 and 6), only public procurement and GATS provisions matter when they are deep as they increase the number of exported sectors and reduce the concentration of bilateral exports. This underlines the importance of competition policy for trade liberalization and market integration. In contrast, STE and state aid do not lead to exports diversification when they are shallow for the same reason mentioned above. In fact, shallow agreements can lead to more concentration if provisions related to competition are not legally enforceable. In addition, TRIPS and TRIMS do not have any significant effect on trade in services. This can be explained by the failure to reach a consensus on a specific negotiating agenda among WTO Members in the 2000s regarding competition policy. This is why the latte was dropped from the Doha Round and the WTO Working Group on this topic has since been inactive (OECD, 2019).

In a nutshell, while the depth of the agreement matters for both the intensive and the extensive margins, some service provisions shall matter only when they are deep. If the latter are shallow, countries might experience trade diversion or a higher concentration of exports.

### 5.2.2 Does the Development Level Matter?

It is important to take the development level of trade partners into consideration as better institutions and deeper agreements might be a characteristic of high-income countries. Thus, we run the regressions of the intensive margin for different income levels of the exporter and the importer. Table 7 shows that deep agreements exert a positive and statistically significant impact on trade between low income countries and between high incomes one (intra-flows). Yet, when the exporter (the importer) is a high income (low-income) country, the deep agreements variable is either insignificant or dropped from the regression because of the lack of variability. This results holds for the two definitions of depth ( $Depth_1$  and  $Depth_2$ ) and for the two types of provisions (overall and services).

It is important to note also that shallow agreements are positive and significant when the

trade flow takes place between two low-income countries. This shows to what extent most of the agreements of emerging economies are globally shallow. Hence, while they can boost trade in services, the effect is smaller when compared to deeper agreements. This is why if developing countries want to boost their trade in services, more efforts are needed to include services provisions in their RTAs and make them legally enforceable, and thus deeper.

Tables 8, 9 and 10 extend the results of 7 but with a special focus on different types of services provisions. Several remarks are worthy to be mentioned. First, for trade flows that take place between low-income countries, service provisions will not matter unless they are deep (STE, state aid, public procurement, TRIMS, GATS and TRIPS). It is also worthy to note that the absolute difference in the quality of institutions impedes trade between low-income countries. Second, when such provisions are shallow, they might lead to trade diversion between high and low income countries. This is the case of STE and state aid, which confirms also how these provisions can reduce the anti-competitive practises that might negatively affect trade between high and low income countries. Third, and most importantly, these tables show that, for public procurement, GATS, TRIPS and TRIMS, the shallow variable is dropped in most of the regressions, showing that such provisions, when included between trade partners are more likely to be deep. Finally, more distant institutions between the exporter and the importer are likely to reduce the effect of deep provisions related to STE, state aid, GATS and TRIPS, especially between low income countries. This is why in order to make deep trade agreements effective, institutional reforms are needed.

### 5.2.3 The Case of the MENA Region

As it was mentioned before, the MENA region is of particular interest for several reasons. First, it is one the regions that has a comparative advantage in services that are regulated. Second, this region might have a potential if it has deeper agreements given that most of them are, so far, rather shallow .

Table 11 and 12 show the results for the MENA region that are qualitatively similar to those of the whole sample given that deep trade agreements boost the quantity of exports (see Table 11) and lead to exports diversification 12). The difference in institutions also affect the intensive margin of trade. Yet, there are three main differences. First, while the coefficient of the interaction between the MENA region and the deep agreement is insignificant in most of the regressions, that of the shallow agreement is less robust. Second, when we limit the analysis to the provision of services only, the interaction with the MENA region is positive and significant for shallow agreements and

insignificant for deep one. The result can be attributed to the fact that most of the agreements of the MENA region are rather shallow dealing with tariff liberalization without addressing harmonization of rules and regulations or non-tariff measures (Kheir El Din and Ghoneim (2005) and Aboushady et al. (2021)). In addition, most of the agreements include a limited number of legally enforceable provisions, which reduces their depth and thus their effect.

A more detailed look at services provisions (Table 13, 14 and 15) confirms the previous findings. Indeed, when the agreement includes provisions related to state aid (related to assessment of anti-competitive behavior; annual reporting on the value and distribution of state aid given), trade in services increases. This is of particular importance for the MENA region that is characterized by heavy regulations pertaining to services and anti-competitive practices. While the interaction between MENA and public procurement is insignificant, it is important to note that the revised WTO Agreement on Government Procurement (GPA) entered into force in April 2014. Yet, most of the MENA countries are neither observers nor party to the agreement. This is why most of the provisions related to GPA are not binding and thus do not affect trade in services. Moreover, the interaction coefficient is not statistically significant for GATS and TRIPS in the intensive margin. As per the extensive margin, services provisions are associated to more concentration of exports for the MENA region (especially for STE, state aid, TRIMS, and TRIPS). While this result might seem to be counter-intuitive, it also shows to what extent this region is still characterized by a predominance of shallow agreements (Kheir El Din and Ghoneim (2005)).

### 5.3 Robustness Checks

Finally, as it has been shown by the literature, signing and ratifying an agreement might be endogenous given that countries might choose to conclude an agreement with partners with whom the level of trade is already high. This is why, to control for that, we adopt an instrumental variable where we instrument the depth of the agreement with the level of depth of the other partners of the trade partner in question. For instance, if we examine the case of Jordan who has an agreement with the EU, the USA and Israel among others, we measure the depth of the agreements signed between the latter countries and their other partners (excluding Jordan) as it will measure their external policy in general and the depth of the agreements of the partners of the partner will affect

Jordan only through its partners<sup>5</sup>. Table 9 shows the results of the IV estimation and confirms the positive effect of the depth of the agreement for all provisions or only those related to services (see 16).

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<sup>5</sup>This IV strategy is also proposed by [Mattoo et al. \(2022\)](#)

Table 2: Agreement Depth and Intensive Margin

	Overall				Services			
	<i>Depth</i> <sub>1</sub>		<i>Depth</i> <sub>2</sub>		<i>Depth</i> <sub>1</sub>		<i>Depth</i> <sub>2</sub>	
	Exports	Exports	Exports	Exports	Exports	Exports	Exports	Exports
Shallow	0.0030 (0.080)	0.0387 (0.115)	0.0591 (0.074)	0.0080 (0.108)	0.0034 (0.080)	0.0583 (0.113)	0.0592 (0.074)	0.0075 (0.108)
Deep	0.6806*** (0.126)	0.9542*** (0.248)	0.9311*** (0.270)	0.8953*** (0.288)	0.6915*** (0.123)	0.8603*** (0.225)	0.8907*** (0.223)	0.8629*** (0.245)
Abs. Diff. Inst.	-0.1680* (0.099)	-0.1174 (0.110)	-0.1695* (0.099)	-0.2067* (0.113)	-0.1682* (0.099)	-0.1145 (0.110)	-0.1697* (0.099)	-0.2051* (0.113)
Shallow*Abs. Diff. Inst.		-0.0443 (0.113)		0.0688 (0.096)		-0.0779 (0.110)		0.0696 (0.096)
Deep*Abs. Diff. Inst.		-0.2106 (0.149)		0.0184 (0.264)		-0.1312 (0.143)		-0.0021 (0.256)
Observations	49,408	49,408	49,408	49,408	49,408	49,408	49,408	49,408

The dependent variable is the trade in services in levels. Estimates are obtained with the PPML estimator.

Exporter-time, importer-time, country-pair fixed effects are included. Standard errors are clustered by country pair.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 3: Agreement Depth and Extensive Margin

	Overall							
	<i>Depth</i> <sub>1</sub>				<i>Depth</i> <sub>2</sub>			
	Nb. Sect.	Nb. Sect.	Share	Share	Nb. Sect.	Nb. Sect.	Share	Share
Shallow	-0.0193 (0.028)	-0.0182 (0.042)	-0.0129 (0.022)	-0.0341 (0.035)	0.0288 (0.022)	0.0320 (0.034)	-0.0569*** (0.020)	-0.0703** (0.032)
Deep	0.1079*** (0.031)	0.1479*** (0.047)	-0.1308*** (0.023)	-0.1796*** (0.033)	0.5626*** (0.110)	0.5217*** (0.113)	-0.1209*** (0.032)	-0.1346*** (0.043)
Abs. Diff. Inst.	0.0222 (0.020)	0.0286 (0.023)	0.0142 (0.017)	0.0007 (0.019)	0.0174 (0.020)	0.0092 (0.024)	0.0166 (0.017)	0.0105 (0.020)
Shallow*Abs. Diff. Inst.		0.0006 (0.027)		0.0179 (0.025)		-0.0031 (0.021)		0.0125 (0.021)
Deep*Abs. Diff. Inst.		-0.0329 (0.026)		0.0419* (0.024)		0.1045* (0.059)		0.0123 (0.049)
Observations	48,457	48,457	48,457	48,457	48,457	48,457	48,457	48,457
	Services							
	<i>Depth</i> <sub>1</sub>				<i>Depth</i> <sub>2</sub>			
	Nb. Sect.	Nb. Sect.	Share	Share	Nb. Sect.	Nb. Sect.	Share	Share
Shallow	-0.0155 (0.026)	0.0007 (0.037)	-0.0229 (0.021)	-0.0523 (0.033)	0.0295 (0.022)	0.0311 (0.034)	-0.0570*** (0.020)	-0.0729** (0.032)
Deep	0.1209*** (0.031)	0.1596*** (0.055)	-0.1324*** (0.023)	-0.1679*** (0.037)	0.4028*** (0.072)	0.3571*** (0.082)	-0.1261*** (0.030)	-0.1206*** (0.043)
Abs. Diff. Inst.	0.0234 (0.020)	0.0349 (0.023)	0.0135 (0.017)	-0.0012 (0.020)	0.0192 (0.020)	0.0129 (0.024)	0.0165 (0.017)	0.0126 (0.020)
Shallow*Abs. Diff. Inst.		-0.0173 (0.025)		0.0296 (0.022)		-0.0014 (0.021)		0.0148 (0.021)
Deep*Abs. Diff. Inst.		-0.0304 (0.031)		0.0288 (0.028)		0.0791 (0.057)		-0.0282 (0.045)
Observations	48,457	48,457	48,457	48,457	48,457	48,457	48,457	48,457

Estimates are obtained with the PPML estimator.

Exporter-time, importer-time, country-pair fixed effects are included. Standard errors are clustered by country pair.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 4: Service Provisions and Intensive Margin

	STE		State Aid		Pub. Proc.	
	Exports	Exports	Exports	Exports	Exports	Exports
Shallow	-0.6890*** (0.265)	-1.0641*** (0.265)	-0.2325 (0.369)	0.0021 (0.578)	-0.1171* (0.061)	-0.2317* (0.140)
Deep	0.1618** (0.079)	0.1167 (0.108)	-0.0712 (0.079)	-0.0638 (0.124)	0.2185*** (0.070)	0.2159** (0.098)
Abs. Diff. Inst.	-0.1642* (0.098)	-0.2039* (0.114)	-0.1660* (0.099)	-0.1588 (0.125)	-0.1662* (0.098)	-0.1670 (0.104)
Shallow*Abs. Diff. Inst.		1.0720** (0.487)		-0.6585 (0.776)		0.2314 (0.200)
Deep*Abs. Diff. Inst.		0.0679 (0.120)		-0.0120 (0.152)		0.0048 (0.133)
Observations	49,408	49,408	49,408	49,408	49,408	49,408
	TRIMS		GATS		TRIPS	
	Exports	Exports	Exports	Exports	Exports	Exports
Shallow			-1.1414*** (0.255)	-1.9372*** (0.276)		
Deep	0.0047 (0.086)	-0.0874 (0.118)	0.0722 (0.076)	0.0102 (0.110)	0.1284* (0.073)	0.1805* (0.103)
Abs. Diff. Inst.	-0.1643* (0.099)	-0.2252** (0.100)	-0.1684* (0.099)	-0.2183** (0.108)	-0.1623* (0.099)	-0.1121 (0.115)
Shallow*Abs. Diff. Inst.				3.8554*** (0.440)		-0.6184 (0.725)
Deep*Abs. Diff. Inst.		0.1279 (0.096)		0.0841 (0.097)		-0.0827 (0.114)
Observations	49,408	49,408	49,408	49,408	49,408	49,408

The dependent variable is the trade in services in levels. Estimates are obtained with the PPML estimator

Exporter-time, importer-time, country-pair fixed effects are included. Standard errors are clustered by country pair.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 5: Service Provisions and Extensive Margin (1)

	STE				State Aid			
	Nb. Sect.	Nb. Sect.	Share	Share	Nb. Sect.	Nb. Sect.	Share	Share
Shallow	-0.1354** (0.067)	-0.1977* (0.111)	-0.0234 (0.065)	0.0546 (0.087)	-0.1739*** (0.057)	-0.1885** (0.078)	0.0230 (0.038)	-0.0085 (0.056)
Deep	-0.0106 (0.028)	0.0070 (0.039)	-0.0100 (0.022)	-0.0195 (0.031)	-0.0448 (0.031)	-0.0162 (0.042)	0.0058 (0.025)	-0.0182 (0.036)
Abs. Diff. Inst.	0.0187 (0.020)	0.0280 (0.023)	0.0170 (0.017)	0.0143 (0.019)	0.0175 (0.020)	0.0345 (0.024)	0.0176 (0.017)	0.0045 (0.020)
Shallow*Abs. Diff. Inst.		0.1225 (0.158)		-0.1287 (0.087)		0.0353 (0.096)		0.0430 (0.066)
Deep*Abs. Diff. Inst.		-0.0204 (0.023)		0.0113 (0.023)		-0.0336 (0.025)		0.0281 (0.023)
Observations	48,457	48,457	48,457	48,457	48,457	48,457	48,457	48,457
	Pub. Proc.				TRIMS			
	Nb. Sect.	Nb. Sect.	Share	Share	Nb. Sect.	Nb. Sect.	Share	Share
Shallow	0.1217*** (0.038)	0.2360*** (0.045)	-0.0058 (0.083)	0.0191 (0.124)				
Deep	0.1230*** (0.030)	0.1010** (0.041)	-0.0483** (0.020)	-0.0435 (0.029)	0.0150 (0.025)	-0.0118 (0.039)	-0.0243 (0.021)	-0.0002 (0.030)
Abs. Diff. Inst.	0.0194 (0.020)	0.0135 (0.021)	0.0175 (0.017)	0.0188 (0.018)	0.0193 (0.020)	0.0106 (0.022)	0.0173 (0.017)	0.0237 (0.018)
Shallow*Abs. Diff. Inst.		-0.1913*** (0.048)		-0.0418 (0.079)				
Deep*Abs. Diff. Inst.		0.0390 (0.034)		-0.0080 (0.027)		0.0244 (0.025)		-0.0232 (0.024)
Observations	48,457	48,457	48,457	48,457	48,457	48,457	48,457	48,457

Estimates are obtained with the PPML estimator

Exporter-time, importer-time, country-pair fixed effects are included. Standard errors are clustered by country pair.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 6: Service Provisions and Extensive Margin (2)

	GATS				TRIPS			
	Nb. Sect.	Nb. Sect.	Share	Share	Nb. Sect.	Nb. Sect.	Share	Share
Shallow	0.0339 (0.033)	-0.0620 (0.059)	-0.2392* (0.140)	-0.1170 (0.153)				
Deep	0.0349* (0.020)	0.0007 (0.030)	-0.0101 (0.019)	0.0236 (0.027)	0.0071 (0.020)	-0.0084 (0.028)	-0.0136 (0.016)	-0.0160 (0.025)
Abs. Diff. Inst.	0.0189 (0.020)	0.0018 (0.023)	0.0171 (0.017)	0.0313* (0.019)	0.0196 (0.020)	0.0101 (0.023)	0.0170 (0.017)	0.0148 (0.019)
Shallow*Abs. Diff. Inst.		0.4592* (0.240)		-0.5947** (0.295)		0.0884 (0.147)		0.0649 (0.112)
Deep*Abs. Diff. Inst.		0.0366* (0.021)		-0.0357 (0.022)		0.0159 (0.019)		0.0025 (0.019)
Observations	48,457	48,457	48,457	48,457	48,457	48,457	48,457	48,457

Estimates are obtained with the PPML estimator.

Exporter-time, importer-time, country-pair fixed effects are included. Standard errors are clustered by country pair.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 7: Intensive Margin and Development Level

	Overall							
	<i>Depth</i> <sub>1</sub>				<i>Depth</i> <sub>2</sub>			
	Low Low Exports	High Low Exports	Low High Exports	High High Exports	Low Low Exports	High Low Exports	Low High Exports	High High Exports
Shallow	-	0.2667*** (0.079)	0.0631 (0.097)	0.0559 (0.094)	0.4103*** (0.122)	0.2625*** (0.075)	0.0710 (0.088)	0.0620 (0.093)
Deep	0.5259*** (0.138)	0.2290* (0.121)	0.1306 (0.126)	1.0962*** (0.289)	0.8691*** (0.167)			0.9398*** (0.285)
Abs. Diff. Inst.	-0.3885* (0.215)	0.7000 (0.604)	-0.8330 (1.481)	-0.1189 (0.113)	-0.4557** (0.231)	0.6995 (0.604)	-0.8317 (1.482)	-0.1214 (0.113)
Observations	5,098	9,748	9,537	23,803	5,098	9,748	9,537	23,803
	Services							
	<i>Depth</i> <sub>1</sub>				<i>Depth</i> <sub>2</sub>			
	Low Low Exports	High Low Exports	Low High Exports	High High Exports	Low Low Exports	High Low Exports	Low High Exports	High High Exports
Shallow	0.7062*** (0.240)	0.2683*** (0.079)	0.0692 (0.096)	0.0560 (0.094)	0.4103*** (0.122)	0.2625*** (0.075)	0.0709 (0.088)	0.0620 (0.093)
Deep	0.4888*** (0.155)	0.2131* (0.119)	0.0848 (0.124)	1.0525*** (0.245)	0.8691*** (0.167)	-0.2276 (0.230)	-0.4932* (0.262)	0.9107*** (0.240)
Abs. Diff. Inst.	-0.3814* (0.218)	0.6995 (0.604)	-0.8319 (1.481)	-0.1193 (0.113)	-0.4557** (0.231)	0.6959 (0.604)	-0.8354 (1.483)	-0.1217 (0.113)
Observations	5,098	9,748	9,537	23,803	5,098	9,748	9,537	23,803

Estimates are obtained with the PPML estimator.

Exporter-time, importer-time, country-pair fixed effects are included. Standard errors are clustered by country pair.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 8: Intensive Margin, Service Provisions and Development Level

	STE							
	Low-Low Exports	High-Low Exports	Low-High Exports	High-High Exports	Low-Low Exports	High-Low Exports	Low-High Exports	High-High Exports
Shallow		-1.5889*** (0.246)	-0.8530*** (0.237)	-0.7099** (0.278)		-4.6166** (1.815)	-1.7326 (1.490)	-1.0148*** (0.280)
Deep	0.7156*** (0.173)	0.0477 (0.095)	-0.0102 (0.145)	0.1971** (0.082)	0.7164*** (0.243)	0.1192 (0.468)	0.9052* (0.527)	0.1847 (0.120)
Abs. Diff. Inst.	-0.2940 (0.233)	0.6898 (0.606)	-0.8368 (1.476)	-0.1176 (0.112)	-0.2928 (0.385)	0.6866 (0.600)	-0.8015 (1.488)	-0.1337 (0.154)
Shallow*Abs. Diff. Inst.						3.0325* (1.704)	0.8966 (1.536)	1.0523 (0.685)
Deep*Abs. Diff. Inst.					-0.0036 (0.672)	-0.0360 (0.229)	-0.5084* (0.282)	0.0245 (0.192)
Observations	5,098	9,748	9,537	23,803	5,098	9,748	9,537	23,803
	Pub. Proc.							
	Low-Low Exports	High-Low Exports	Low-High Exports	High-High Exports	Low-Low Exports	High-Low Exports	Low-High Exports	High-High Exports
Shallow				-0.1131* (0.066)				-2.3054** (1.093)
Deep	0.4760*** (0.153)	0.2719*** (0.102)	0.0464 (0.173)	0.2878*** (0.077)	0.0749 (0.379)	0.4773 (0.889)	-0.2870 (0.605)	0.2518** (0.109)
Abs. Diff. Inst.	-0.3987* (0.220)	0.6856 (0.607)	-0.8372 (1.475)	-0.1171 (0.112)	-0.4406* (0.240)	0.6914 (0.608)	-0.8322 (1.477)	-0.1296 (0.121)
Shallow*Abs. Diff. Inst.						1.6531 (1.806)	5.6842** (2.766)	4.7430** (2.217)
Deep*Abs. Diff. Inst.					1.1738 (1.054)	-0.1316 (0.559)	0.2257 (0.404)	0.0757 (0.192)
Observations	5,098	9,748	9,537	23,803	5,098	9,748	9,537	23,803

Estimates are obtained with the PPML estimator.

Exporter-time, importer-time, country-pair fixed effects are included. Standard errors are clustered by country pair.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 9: Intensive Margin, Service Provisions and Development Level

	State Aid							
	Low-Low Exports	High-Low Exports	Low-High Exports	High-High Exports	Low-Low Exports	High-Low Exports	Low-High Exports	High-High Exports
Shallow		-0.7920 (0.840)	-0.3971 (0.248)	-1.2818*** (0.241)		-6.8925*** (1.297)	-2.5211 (2.066)	-0.8517*** (0.277)
Deep	0.5165*** (0.135)	-0.0554 (0.180)	-0.1992 (0.165)	-0.0963 (0.087)	1.0670*** (0.289)	-0.0216 (0.378)	0.7481* (0.432)	-0.0692 (0.136)
Abs. Diff. Inst.	-0.3860* (0.215)	0.6890 (0.606)	-0.8472 (1.468)	-0.1240 (0.113)	0.4028 (0.383)	0.6777 (0.604)	-0.7907 (1.497)	-0.0923 (0.161)
Shallow*Abs. Diff. Inst.						4.8347*** (0.786)	1.2959 (1.373)	-0.8144* (0.490)
Deep*Abs. Diff. Inst.					-1.4571* (0.748)	-0.0102 (0.218)	-0.6937** (0.278)	-0.0521 (0.201)
Observations	5,098	9,748	9,537	23,803	5,098	9,748	9,537	23,803
	TRIMS							
	Low-Low Exports	High-Low Exports	Low-High Exports	High-High Exports	Low-Low Exports	High-Low Exports	Low-High Exports	High-High Exports
Shallow								
Deep	0.4933* (0.297)	0.2635*** (0.076)	0.0719 (0.090)	-0.0098 (0.112)	0.6842** (0.332)	0.3643 (0.458)	-0.1666 (0.369)	-0.0308 (0.125)
Abs. Diff. Inst.	-0.3230 (0.235)	0.7001 (0.604)	-0.8319 (1.482)	-0.1187 (0.112)	-0.1531 (0.204)	0.6960 (0.603)	-0.8120 (1.445)	-0.1428 (0.131)
Shallow*Abs. Diff. Inst.								
Deep*Abs. Diff. Inst.					-0.7370 (0.558)	-0.0650 (0.275)	0.1550 (0.230)	0.0521 (0.201)
Observations	5,098	9,748	9,537	23,803	5,098	9,748	9,537	23,803

Estimates are obtained with the PPML estimator.

Exporter-time, importer-time, country-pair fixed effects are included. Standard errors are clustered by country pair.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 10: Intensive Margin, Service Provisions and Development Level

	GATS							
	Low-Low Exports	High-Low Exports	Low-High Exports	High-High Exports	Low-Low Exports	High-Low Exports	Low-High Exports	High-High Exports
Shallow				-1.1255*** (0.239)				-0.2951 (0.443)
Deep	0.4166*** (0.161)	0.2591*** (0.076)	0.0667 (0.089)	0.1189 (0.088)	1.0382*** (0.309)	0.4246 (0.421)	-0.3716 (0.344)	0.1105 (0.122)
Abs. Diff. Inst.	-0.3968* (0.225)	0.6994 (0.604)	-0.8321 (1.481)	-0.1187 (0.112)	-0.1294 (0.199)	0.6822 (0.601)	-0.8005 (1.425)	-0.1292 (0.150)
Shallow*Abs. Diff. Inst.						5.0977*** (0.826)	4.7565*** (1.261)	-4.1005* (2.104)
Deep*Abs. Diff. Inst.					-1.4457** (0.596)	-0.1079 (0.255)	0.2870 (0.216)	0.0177 (0.188)
Observations	5,098	9,748	9,537	23,803	5,098	9,748	9,537	23,803
	TRIPS							
	Low-Low Exports	High-Low Exports	Low-High Exports	High-High Exports	Low-Low Exports	High-Low Exports	Low-High Exports	High-High Exports
Shallow								
Deep	0.5076*** (0.136)	0.2207** (0.098)	-0.0851 (0.112)	0.2054*** (0.078)	1.2273*** (0.316)	0.1512 (0.338)	0.7465* (0.419)	0.2388** (0.113)
Abs. Diff. Inst.	-0.3867* (0.215)	0.6900 (0.607)	-0.8380 (1.474)	-0.1126 (0.113)	0.6172 (0.394)	0.6893 (0.611)	-0.7921 (1.502)	-0.0718 (0.154)
Shallow*Abs. Diff. Inst.					-2.4517*** (0.858)	-0.4294 (1.186)	0.4281 (0.807)	
Deep*Abs. Diff. Inst.					-1.9474** (0.830)	0.0412 (0.199)	-0.5149** (0.244)	-0.0679 (0.188)
Observations	5,098	9,748	9,537	23,803	5,098	9,748	9,537	23,803

Estimates are obtained with the PPML estimator.

Exporter-time, importer-time, country-pair fixed effects are included. Standard errors are clustered by country pair.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 11: Intensive Margin in the MENA Region

	Overall				Services			
	<i>Depth</i> <sub>1</sub>		<i>Depth</i> <sub>2</sub>		<i>Depth</i> <sub>1</sub>		<i>Depth</i> <sub>2</sub>	
	Exports	Exports	Exports	Exports	Exports	Exports	Exports	Exports
Shallow	0.0029 (0.080)	0.0030 (0.080)	0.0588 (0.074)	0.0592 (0.074)	0.0030 (0.080)	0.0035 (0.080)	0.0589 (0.074)	0.0592 (0.074)
Deep	0.6791*** (0.126)	0.6804*** (0.126)	0.9308*** (0.270)	0.9306*** (0.270)	0.6920*** (0.123)	0.6914*** (0.123)	0.8922*** (0.223)	0.8903*** (0.223)
Shallow*MENA	-2.6182*** (0.672)		1.1983** (0.557)		1.2565** (0.558)		1.1983** (0.557)	
Deep*MENA	0.7364 (0.529)				0.5435 (0.612)		0.4268 (0.698)	
Abs. Diff. Inst.	-0.1680* (0.099)	-0.1609 (0.100)	-0.1695* (0.099)	-0.1625 (0.100)	-0.1682* (0.099)	-0.1612 (0.100)	-0.1697* (0.099)	-0.1626 (0.100)
Abs. Diff. Inst.*MENA		-0.4210 (0.559)		-0.4202 (0.558)		-0.4213 (0.558)		-0.4210 (0.558)
Observations	49,408	49,408	49,408	49,408	49,408	49,408	49,408	49,408

Estimates are obtained with the PPML estimator.

Exporter-time, importer-time, country-pair fixed effects are included. Standard errors are clustered by country pair.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 12: Extensive Margin in the MENA REegion

	Overall				Services			
	<i>Depth</i> <sub>1</sub>		<i>Depth</i> <sub>2</sub>		<i>Depth</i> <sub>1</sub>		<i>Depth</i> <sub>2</sub>	
	Nb. Sect.	Share						
Shallow	-0.0146 (0.028)	-0.0208 (0.022)	0.0338 (0.022)	-0.0687*** (0.020)	-0.0065 (0.026)	-0.0330 (0.021)	0.0343 (0.022)	-0.0688*** (0.020)
Deep	0.1152*** (0.031)	-0.1533*** (0.023)	0.4542*** (0.093)	-0.1376*** (0.032)	0.1192*** (0.032)	-0.1460*** (0.023)	0.3754*** (0.074)	-0.1401*** (0.031)
Shallow*MENA	-0.7525*** (0.287)	0.3665* (0.211)	-0.3309*** (0.084)	0.2989*** (0.092)	-0.5170*** (0.093)	0.2559*** (0.091)	-0.3306*** (0.084)	0.2990*** (0.092)
Deep*MENA	-0.3809*** (0.090)	0.3571*** (0.094)			-0.2239*** (0.061)	0.3713*** (0.120)	-0.2564* (0.151)	0.4026*** (0.114)
Abs. Diff. Inst.	0.0220 (0.020)	0.0143 (0.017)	0.0173 (0.020)	0.0169 (0.017)	0.0232 (0.020)	0.0137 (0.017)	0.0190 (0.020)	0.0166 (0.017)
Observations	48,457	48,457	48,457	48,457	48,457	48,457	48,457	48,457

Estimates are obtained with the PPML estimator.

Exporter-time, importer-time, country-pair fixed effects are included. Standard errors are clustered by country pair.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 13: Intensive Margin and Service Provisions in the MENA REgion

	STE		State Aid		Pub. Proc.	
	Exports	Exports	Exports	Exports	Exports	Exports
Shallow	-0.6890*** (0.265)	-0.6881*** (0.265)	-0.2340 (0.372)	-0.2322 (0.369)	-0.1171* (0.061)	-0.1163* (0.061)
Deep	0.1614** (0.079)	0.1619** (0.079)	-0.0721 (0.079)	-0.0709 (0.079)	0.2186*** (0.070)	0.2185*** (0.070)
Shallow*MENA			1.4295* (0.758)			
Deep*MENA	0.7011 (0.629)		1.3285** (0.558)		-0.2482 (0.308)	
Abs. Diff. Inst.	-0.1642* (0.098)	-0.1571 (0.099)	-0.1661* (0.099)	-0.1590 (0.100)	-0.1662* (0.098)	-0.1591 (0.100)
Abs. Diff. Inst.*MENA		-0.4261 (0.558)		-0.4245 (0.558)		-0.4245 (0.558)
Observations	49,408	49,408	49,408	49,408	49,408	49,408
	TRIMS		GATS		TRIPS	
	Exports	Exports	Exports	Exports	Exports	Exports
Shallow			-1.1413*** (0.255)	-1.1402*** (0.255)		
Deep	0.0047 (0.086)	0.0047 (0.086)	0.0723 (0.076)	0.0722 (0.076)	0.1281* (0.073)	0.1286* (0.073)
Shallow*MENA						
Deep*MENA	-2.4126*** (0.917)		-0.2285 (0.274)		0.7442 (0.589)	
Abs. Diff. Inst.	-0.1643* (0.099)	-0.1572 (0.100)	-0.1684* (0.099)	-0.1614 (0.100)	-0.1623* (0.099)	-0.1552 (0.100)
Abs. Diff. Inst.*MENA		-0.4260 (0.558)		-0.4215 (0.558)		-0.4282 (0.558)
Observations	49,408	49,408	49,408	49,408	49,408	49,408

Estimates are obtained with the PPML estimator.

Exporter-time, importer-time, country-pair fixed effects are included. Standard errors are clustered by country pair.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 14: Extensive Margin and Service Provisions in the MENA Region

	STE				State Aid			
	Nb. Sect.	Nb. Sect.	Share	Share	Nb. Sect.	Nb. Sect.	Share	Share
Shallow	-0.1335** (0.067)	-0.1351** (0.067)	-0.0263 (0.065)	-0.0233 (0.065)	-0.1657*** (0.058)	-0.1738*** (0.057)	0.0150 (0.039)	0.0230 (0.038)
Deep	-0.0052 (0.028)	-0.0104 (0.028)	-0.0213 (0.022)	-0.0099 (0.022)	-0.0390 (0.031)	-0.0446 (0.031)	-0.0066 (0.025)	0.0059 (0.025)
Shallow*MENA					-0.3829** (0.185)		0.2188** (0.112)	
Deep*MENA	-0.2265*** (0.077)		0.2028*** (0.076)		-0.2810*** (0.080)		0.2512*** (0.094)	
Abs. Diff. Inst.	0.0188 (0.020)	0.0236 (0.021)	0.0169 (0.017)	0.0197 (0.018)	0.0175 (0.020)	0.0224 (0.021)	0.0176 (0.017)	0.0203 (0.018)
Abs. Diff. Inst.*MENA		-0.0684 (0.081)		-0.0239 (0.050)		-0.0680 (0.081)		-0.0242 (0.050)
Observations	48,457	48,457	48,457	48,457	48,457	48,457	48,457	48,457
	Pub Proc.				TRIMS			
	Nb. Sect.	Nb. Sect.	Share	Share	Nb. Sect.	Nb. Sect.	Share	Share
Shallow	0.1217*** (0.038)	0.1226*** (0.038)	-0.0059 (0.083)	-0.0054 (0.083)				
Deep	0.1216*** (0.031)	0.1229*** (0.030)	-0.0469** (0.020)	-0.0483** (0.020)	0.0162 (0.025)	0.0148 (0.025)	-0.0270 (0.021)	-0.0243 (0.021)
Shallow*MENA								
Deep*MENA	0.2363 (0.153)		-0.0576 (0.066)		-0.7858*** (0.128)		0.4033*** (0.060)	
Abs. Diff. Inst.	0.0194 (0.020)	0.0244 (0.021)	0.0175 (0.017)	0.0202 (0.018)	0.0194 (0.020)	0.0242 (0.021)	0.0170 (0.017)	0.0200 (0.018)
Abs. Diff. Inst.*MENA		-0.0689 (0.081)		-0.0243 (0.050)		-0.0687 (0.081)		-0.0244 (0.050)
Observations	48,457	48,457	48,457	48,457	48,457	48,457	48,457	48,457

Estimates are obtained with the PPML estimator.

Exporter-time, importer-time, country-pair fixed effects are included. Standard errors are clustered by country pair.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 15: Extensive Margin and Service Provisions in the MENA Region

	GATS				TRIPS			
	Nb. Sect.	Nb. Sect.	Share	Share	Nb. Sect.	Nb. Sect.	Share	Share
Shallow	0.0339 (0.033)	0.0350 (0.033)	-0.2397* (0.140)	-0.2386* (0.140)				
Deep	0.0353* (0.021)	0.0347* (0.020)	-0.0124 (0.019)	-0.0102 (0.019)	0.0119 (0.020)	0.0072 (0.020)	-0.0231 (0.017)	-0.0135 (0.016)
Shallow*MENA								
Deep*MENA	-0.0757 (0.153)		0.1101 (0.072)		-0.2154*** (0.071)		0.1852*** (0.068)	
Abs. Diff. Inst.	0.0190 (0.020)	0.0239 (0.021)	0.0171 (0.017)	0.0198 (0.018)	0.0197 (0.020)	0.0246 (0.021)	0.0169 (0.017)	0.0196 (0.018)
Abs. Diff. Inst.*MENA		-0.0684 (0.081)		-0.0240 (0.050)		-0.0691 (0.081)		-0.0240 (0.050)
Observations	48,457	48,457	48,457	48,457	48,457	48,457	48,457	48,457

Estimates are obtained with the PPML estimator.

Exporter-time, importer-time, country-pair fixed effects are included. Standard errors are clustered by country pair.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 16: IV Estimation

	IV			
	Exports	Exports	Exports	Exports
Shallow	5.2614*** (0.378)			
Deep		5.1570*** (0.798)		
Shallow ser.			2.4064*** (0.336)	
Deep ser.				1.8791*** (0.378)
Observations	21,757	21,757	21,757	21,757

## 6 Conclusion

This paper examines how deep trade agreements affect trade in services. Using the newly released ITPD-E data on bilateral services, we bridge two strands of the empirical literature on trade agreements and trade in services. This paper’s contribution is threefold. First, it builds new indicators that measures the depth of trade agreements relying on general provisions on the one hand and on service provisions (GATS, TRIMS, TRIPS, etc.) on the other. Second, we introduce the quality of institutions to investigate how the latter can affect the implementation of deep trade agreements. Third, we distinguish between the impact on the intensive margin relative to the extensive margin of trade. Finally, we extend the analysis to an under-researched emerging region, namely the Middle East and North Africa (MENA) that, while it has a comparative advantage in services, is characterized by shallow agreements and a heavily regulated services sector.

Our main findings, in line with the literature, show that only the deepest trade agreements raise trade in services. Moreover, while the depth of the agreement matters for both the intensive and the extensive margins, some service provisions shall matter only when they are deep. If the latter are shallow, countries might experience trade diversion. When the development level is taken into account, service provisions will not matter unless they are deep (STE, state aid, public procurement, TRIMS, GATS and TRIPS) to boost trade flows between low-income countries. Finally, our results hold for the MENA region and when the endogeneity of the agreement depth is taken into consideration.

From a policy perspective, two recommendations are worthwhile to be mentioned. First, deep agreements are a necessary but not sufficient condition to boost trade in services. Indeed, the

more the provisions are directly related to trade in services, the more the latter is promoted. This is why, if emerging economies are to improve the competitiveness of their services sector, more explicit articles dealing with services have to be included and enforced in trade agreements. Second, in order to reap the benefits of deep trade agreements, reforming institutions should be a key priority. Indeed, given that services are highly dependent on rules and regulations, the latter are more effective when the quality of institutions improves. This includes the rule of law, the regulatory quality and a sound business environment.

Table 17: List of provisions included

WTO-plus areas	
FTA Industrial	Tariff liberalization on industrial goods; elimination of non-tariff measures
FTA Agriculture	Tariff liberalization on agriculture goods; elimination of non-tariff measures
Customs	Provision of information; publication on the Internet of new laws and regulations; training
Export Taxes	Elimination of export taxes
SPS	Affirmation of rights and obligations under the WTO Agreement on SPS; harmonization of SPS measures
TBT	Affirmation of rights and obligations under WTO Agreement on TBT; provision of information; harmonization of regulations; mutual recognition agreements
STE	Establishment or maintenance of an independent competition authority; nondiscrimination regarding production and marketing condition; provision of information; affirmation of Art XVII GATT provision
AD	Retention of Antidumping rights and obligations under the WTO Agreement (Art. VI GATT)
CVM	Retention of Countervailing measures rights and obligations under the WTO Agreement (Art VI GATT)
State Aid	Assessment of anticompetitive behavior; annual reporting on the value and distribution of state aid given; provision of information
Public Procurement	Progressive liberalization; national treatment and/or non-discrimination principle; publication of laws and regulations on the Internet; specification of public procurement regime
TRIMs	Provisions concerning requirements for local content and export performance of FDI
GATS	Liberalization of trade in services
TRIPs	Harmonization of standards; enforcement; national treatment, most-favored nation treatment
WTO-X areas	
Anti-Corruption	Regulations concerning criminal offence measures in matters affecting international trade and investment
Competition Policy	Maintenance of measures to proscribe anticompetitive business conduct; harmonization of competition laws; establishment or maintenance of an independent competition authority
Environmental Laws	Development of environmental standards; enforcement of national environmental laws; establishment of sanctions for violation of environmental laws; publications of laws and regulation
IPR	Accession to international treaties not referenced in the TRIPs Agreement
Investment	Information exchange; Development of legal frameworks; Harmonization and simplification of procedures; National treatment; establishment of mechanism for the settlement of disputes
Labour Market Regulation	Regulation of the national Labour market; affirmation of International Labour Organization (ILO) commitments; enforcement
Movement of Capital	Liberalization of capital movement; prohibition of new restrictions
Consumer Protection	Harmonization of consumer protection laws; exchange of information and experts; training
Data Protection	Exchange of information and experts; joint projects
Agriculture	Technical assistance to conduct modernization projects; exchange of information
Approximation of Legislation	Application of EC legislation in national legislation
Audio Visual	Promotion of the industry; encouragement of co-production
Civil Protection	Implementation of harmonized rules
Innovation Policies	Participation in framework programmes; promotion of technology transfers
Cultural Cooperation	Promotion of joint initiatives and local culture
Economic Policy Dialogue	Exchange of ideas and opinions; joint studies
Education and Training	Measures to improve the general level of education
Energy	Exchange of information; technology transfer; joint studies
Financial Assistance	Set of rules guiding the granting and administration of financial assistance
Health	Monitoring of diseases; development of health information systems; exchange of information
Human Rights	Respect for human rights
Illegal Immigration	Conclusion of re-admission agreements; prevention and control of illegal immigration
Illicit Drugs	Treatment and rehabilitation of drug addicts; joint projects on prevention of consumption; reduction of drug supply; information exchange
Industrial Cooperation	Assistance in conducting modernization projects; facilitation and access to credit to finance
Information Society	Exchange of information; dissemination of new technologies; training
Mining	Exchange of information and experience; development of joint initiatives
Money Laundering	Harmonization of standards; technical and administrative assistance
Nuclear Safety	Development of laws and regulations; supervision of the transportation of radioactive materials
Political Dialogue	Convergence of the parties' positions on international issues
Public Administration	Technical assistance; exchange of information; joint projects; Training
Regional Cooperation	Promotion of regional cooperation; technical assistance programmes
Research and Technology	Joint research projects; exchange of researchers; development of public-private partnership
SME	Technical assistance; facilitation of the access to finance
Social Matters	Coordination of social security systems; non-discrimination regarding working conditions
Statistics	Harmonization and/or development of statistical methods; training
Taxation	Assistance in conducting fiscal system reforms
Terrorism	Exchange of information and experience; joint research and studies
Visa and Asylum	Exchange of information; drafting legislation; training

Table 18: List of provisions included related to services

WTO-plus areas	
STE	Establishment or maintenance of an independent competition authority; nondiscrimination regarding production and marketing condition; provision of information; affirmation of Art XVII GATT provision
State Aid	Assessment of anticompetitive behavior; annual reporting on the value and distribution of state aid given; provision of information
Public Procurement	Progressive liberalization; national treatment and/or non-discrimination principle; publication of laws and regulations on the Internet; specification of public procurement regime
TRIMs	Provisions concerning requirements for local content and export performance of FDI
GATS	Liberalization of trade in services
TRIPs	Harmonization of standards; enforcement; national treatment, most-favored nation treatment
WTO-X areas (general provisions related to services)	
Anti-Corruption	Regulations concerning criminal offence measures in matters affecting international trade and investment
Competition Policy	Maintenance of measures to proscribe anticompetitive business conduct; harmonization of competition laws; establishment or maintenance of an independent competition authority
Environmental Laws	Development of environmental standards; enforcement of national environmental laws; establishment of sanctions for violation of environmental laws; publications of laws and regulation
Investment	Information exchange; Development of legal frameworks; Harmonization and simplification of procedures; National treatment; establishment of mechanism for the settlement of disputes
Labour Market Regulation	Regulation of the national Labour market; affirmation of International Labour Organization (ILO) commitments; enforcement
Movement of Capital	Liberalization of capital movement; prohibition of new restrictions
Consumer Protection	Harmonization of consumer protection laws; exchange of information and experts; training
Approximation of Legislation	Application of EC legislation in national legislation
Civil Protection	Implementation of harmonized rules
Economic Policy Dialogue	Exchange of ideas and opinions; joint studies
Energy	Exchange of information; technology transfer; joint studies
Financial Assistance	Set of rules guiding the granting and administration of financial assistance
Human Rights	Respect for human rights
Industrial Cooperation	Assistance in conducting modernization projects; facilitation and access to credit to finance
Nuclear Safety	Development of laws and regulations; supervision of the transportation of radioactive materials
Political Dialogue	Convergence of the parties' positions on international issues
Public Administration	Technical assistance; exchange of information; joint projects; Training
Regional Cooperation	Promotion of regional cooperation; technical assistance programmes
Social Matters	Coordination of social security systems; non-discrimination regarding working conditions
Statistics	Harmonization and/or development of statistical methods; training
Taxation	Assistance in conducting fiscal system reforms
Terrorism	Exchange of information and experience; joint research and studies
Visa and Asylum	Exchange of information; drafting legislation; training
WTO-X areas (specific provisions related to services)	
IPR	Accession to international treaties not referenced in the TRIPs Agreement
Data Protection	Exchange of information and experts; joint projects
Audio Visual	Promotion of the industry; encouragement of co-production
Innovation Policies	Participation in framework programmes; promotion of technology transfers
Cultural Cooperation	Promotion of joint initiatives and local culture
Education and Training	Measures to improve the general level of education
Health	Monitoring of diseases; development of health information systems; exchange of information
Information Society	Exchange of information; dissemination of new technologies; training
Mining	Exchange of information and experience; development of joint initiatives
Money Laundering	Harmonization of standards; technical and administrative assistance
Research and Technology	Joint research projects; exchange of researchers; development of public-private partnership
SME	Technical assistance; facilitation of the access to finance

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EMANES acknowledges the financial assistance of the European Union within the context of the EU project “Support to economic research, studies and dialogue of the Euro-Mediterranean Partnership” under contract number ENPI/2014/354-488 (2014-2019).

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