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## **Do Provisions in Free Trade Agreements Diversify Trade?**

A first look at the extensive margin of trade

2023

## Summary and policy recommendations

It is often claimed that many developing countries suffer from an undiversified export portfolio, making them sensitive to sector-specific shocks. A natural question therefore becomes whether joining an RTA and the agreement depth contribute to a more diversified export portfolio.

The indicative results found here suggest that, if anything, it is for the EU member states that we find a possible positive association between the evolution of the extensive margin of trade and the deepness of RTAs. A closer inspection of the results and different types of provisions suggests that, to the extent that we may find a result, it is the non-core provisions that are driving the expansion along the extensive margin (the number of goods exported by the EU-15 countries). For the EU's partner countries, on the other hand, there was no support for an expansion along the extensive margin in their exports to the EU associated with RTA participation or agreement depth. Due to a series of methodological challenges, these effects should not be interpreted as causal; instead, these results are to be interpreted as indicative, but perhaps more so than traditional descriptive evidence.

A second finding was that the theoretical link between various provisions is difficult to pin-point. For these reasons we rely on a division of provisions divided into "core" and "non-core" provisions, as suggested by Hofmann et al. (2017). Here we noted that following the grouping of provisions, as suggested by Hofmann et al. (2017), some rankings of RTA agreement depth, while mostly sensible, turned out in an unexpected way. For example, the EU-Cariforum agreement turned out in some groupings to be deeper than the EU-South Korea agreement. The underlying reason for this is rather technical but indicates that additional work linking various provisions to the extensive margin of trade is warranted. We suggest that both a theoretical driven, as well as a data-driven/machine-learning based approach, are interesting ways forward.

In terms of policy recommendations, the evidence should be used conservatively. As there are heterogeneous effects of trade agreements, and this may possibly be moderated by the non-core provisions, this might be an indication that more ambitious trade agreements are important to boosting trade at the extensive margin. This is similar to the policy recommendation in previous works by Kommerskollegium (2019), with the important distinction that this "ambition" is primarily a more diverse set of provisions rather than all trade related provisions for the extensive margin.

The most general policy recommendation we can give is that trade agreements should be formed with a high level of ambition and that this ambition should not be limited to economic factors alone. To this process policymakers should bring a reflective mindset, contemplating what policy might reduce which trade costs and how this, by extension, might facilitate trade.

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# 1 Introduction

The effect of trade liberalisation on the value of trade is extensively studied in the literature of international trade (Kehoe and Ruhl, 2013; Kommerskollegium, 2019). However, there is today an increased acknowledgement by scholars of a need to “open up the black box of the composition of trade flows” and thereby disentangle the heterogeneous effects of different policies on the content of trade (Kohl, et al., 2016; Falvey and Foster-McGregor, 2022). In this regard, knowledge of the effects of provisions in trade agreements on the number of new goods that become tradable (the extensive margin of trade) is especially interesting.

One reason for provisions that impact the extensive margin of trade and make previously untraded goods tradable is that many provisions are designed to remove, or lower barriers to trade for some but not necessarily all types of goods. However, evidence on how various provisions impact the extensive margin of trade is thin yet an important question.

It is well known that many developing countries struggle with a narrow and undiversified export portfolio (Amurgo-Pacheco, 2012), making these countries vulnerable to sector-specific shocks. Given that there are gains of trade along the extensive margin, and that underutilisation of this margin seems to be apparent for developing countries, it becomes relevant to study the relationship between regional trade agreements, provisions, and the extensive margin of trade (Felbermayr and Kohler, 2006; De Benedictis and Tailoi, 2011; Bista and Scheridan, 2021). Along these lines, it is stated by the EU commission that “The aim of the EU’s trade and development policy is to put trade at the service of inclusive growth and development for developing countries”. The argument does not stop here, however. Among developed countries, a key aspect of many of the EU’s regional trade agreements is to help and assist small and medium-sized firms to enter the export market, which ultimately leads to a more diversified export portfolio. Given this, it is double motivated to examine the trade agreements formed between the EU and partner countries and their possible effect on the extensive margin of trade. This report aims to fill this gap.

The analysis of how provisions in regional free trade agreements impact the extensive margin of trade is challenging. To avoid a critique of drawing overly far-reaching conclusions, in this report we choose to take an (advanced) descriptive approach rather than claiming strict causality. It is our hope that this work can give new insights, inspire and provide precedent for further research in these areas. This paper unfolds as follows: section 2 reviews the literature, section 3 describes the method and data utilised for the study, section 4 is the descriptive analysis and section 5 concludes.

## 2 Literature review

A change in trade flows can be disentangled to the change in previously traded goods (the intensive margin) and new goods entering trade (the extensive margin of trade). The definition of extensive margin of trade varies, however, depending on the question at hand but can be described as the diversification of trade that is either across partners, sectors, companies, or products. Not long ago the interest in the extensive margin of trade was shallow. For example, in Helpman et al. (2008) it is stated that most of the trade after 1970 up until 1997 was driven by countries trading more of previously traded goods, i.e., the intensive margin. However, Felbermayr and Kohler (2006) showed that relative contributions of the extensive and intensive margins vary over time.

The increased interest in the extensive margin of trade can partly be explained by the development of theoretical models, allowing for heterogeneous firms. Through the lens of heterogeneous firms, it becomes clear why, and how, trade liberalisations enable new firms and their associated products to enter exports (Melitz 2003). The extensive margin of trade can not only be referred to as new goods becoming traded; it can also point to new firms entering trade, or that already exporting firms broaden their export portfolio. One conclusion that scholars somewhat agree upon is that there are still gains of trade to be made at the extensive margin, in particular among developing countries. This is a conclusion drawn by, e.g., Felbermayr and Kohler (2006) and, from a macro perspective, De Benedictis and Tailoi (2011), where they show that the trade relations along the intensive margin are denser than along the extensive margin.

The greatest utilisation of the extensive margin of trade appears to be among high-income countries with an already relatively diversified industry (Amurgo-Pacheco, 2012). Hence, the pattern of the extensive margin among less diversified developing countries may be due to their peripheral position in the “product space” which makes it more difficult to restructure production to new avenues (Hidalgo et al., 2007). Even as the extensive margin of trade is traditionally associated with productivity gains (Melitz, 2003), it is becoming increasingly apparent that the extensive margin might be a key factor for growth take-off in developing countries as well (Bista and Scheridan, 2021), even more so than the intensive margin of trade (Mora and Olabisi, 2021). As export diversification is intimately tied to economic complexity, it can also have the effect of reducing fluctuations in economic growth as shown by a recent study by Cahn and Thanh (2022).

A frequently posed question is if liberalisation of trade through trade agreements increases trade diversification (Debaere and Mostashari, 2010; Kehoe and Ruhl, 2013). This seemingly simple question requires revision given the increased heterogeneity of the effects of trade agreements (Kohl, et al, 2016; Mattoo et al, 2022). Thus, opening the “black box” of regional trade agreements and examining whether the variation in policy depth and policy breadth, individual provisions as well as other specific designs is warranted (Falvey and Foster-McGregor, 2022). Some stylised facts obtained in this space is that there is an association between the depth of the agreement and the intensive margin of trade (Hofmann et al, 2017; Mattoo et al,

2022), but the effects are heterogeneous (Soete and Van Hove, 2017; Falvey and Foster-McGregor, 2018; Mattoo et al, 2022). The effect of individual provisions has recently been recognized as an area calling for a disaggregated analysis (Breinlich et al, 2022; Falvey and Foster-McGregor, 2022). Along these lines, the extensive margin has received more attention recently in regard to the structure of the trade agreements. When trade facilitating measures are in focus, this is often associated with analyses studying the extensive margin (Besedeš and Prusa, 2011; Persson, 2013; Chipolina and Demaria, 2020).

### 3 Data and method

As an initial endeavour to examine the relationship between the extensive margin of trade and the provisions in trade agreements for the EU, we seek to establish a series of stylised facts. Our approach to this is primarily descriptive, which is warranted given the methodological, empirical, and theoretical complexity. Examples of challenges associated with the identification of causal effects include the fact that the relationship between trade policy and trade flows is endogenous. This endogeneity can, if not correctly handled, lead to biased estimates of the causal effect (Baier and Bergstrand, 2007). Further, as explained earlier, there is substantial RTA heterogeneity including the policy content of the agreements but also geographical, cultural, institutional and development characteristics of the country pair as well as the elasticity of substitution. It is easily understood that the combined effect of this heterogeneity adds complexity to the analysis (Chaney, 2008; Chauffour and Kleimann, 2012; Baier et al, 2018). Finally, we have the “normal” gravity forces that affect trade (distance and size of the economy), and these forces of economic gravity might be even more substantial for the extensive margin than for the value of trade (Lawless, 2010; Govindaraju and Foster-McGregor, 2021). Given this, a conservative interpretation of our mostly descriptive results is warranted.

If we can derive an association between a certain set of provisions and increase trade along the extensive margin, this can function as a precedent that is up to further analysis. This can also be useful to highlight the methodological and empirical problems that should be addressed in further analysis.

The analysis will focus on the EU and its trading partners. For the EU, the EU-15 will be used. As trade with Belgium and Luxemburg are merged together, we will have 14 EU-15 countries. Using the EU-15 and the period 2005-2015 leaves us with 12 different agreements spanning over 34 different partner countries with whom the EU formed, or provisionally applied, a regional trade agreement with. The 12 agreements are the following:

**Table 1. Agreements**

<b>Agreement</b>	<b>Partner countries</b>
<b>ALB</b>	Albania
<b>ADE</b>	Andean (Colombia and Peru)
<b>BIH</b>	Bosnia and Herzegovina
<b>CAM</b>	Central America (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama)
<b>CAR</b>	CARIFORUM countries (Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Dominican Republic, Grenada, Guyana, Jamaica, St. Lucia, St Vincent and the Grenadines, St. Kitts and Nevis, Suriname, Trinidad and Tobago)
<b>CMR</b>	Cameroon
<b>DZA</b>	Algeria
<b>ESA</b>	Eastern and South Africa (Madagascar, Mauritius, Seychelles, Zimbabwe)
<b>GEO</b>	Georgia
<b>KOR</b>	South Korea
<b>MDA</b>	Moldova
<b>PNG</b>	Papua New Guinea

The partner countries will be merged by agreement. In sum, we will work with 168 “country” pairs.<sup>1</sup>

### 3.1 Trade data

The data on imports and exports are collected from the Comtrade database and cover the years 2000-2019. The data will be used to construct a proxy for the extensive margin of trade. UN Comtrade data are reported in the Harmonized System (HS) classification. The number of unique HS-6 codes traded between will here be used to measure the extensive margin. Since the HS classification is regularly revised, our data requires conversion to a fixed classification scheme, and we chose HS 2012 revision as the baseline for this study.

### 3.2 Provisions data

The provisions dataset is a World Bank dataset that maps 52 different provisions across the PTAs signed and notified at WTO between 1958 and 2015 (Hofmann et al., 2017). The dataset contains information both regarding if a provision is included generally in the agreement and if it is legally enforced, which will be the information utilised in this study. The dataset covers 18 “core” provisions related to trade in goods and services as well as investment and competition policy. Roughly, the core provisions include WTO+ provisions and some “common” provisions conditional on their being legally enforced. The remaining 34 provisions cover a wider set of policy areas not necessarily related to trade, some of these are the following: environmental regulation, data protection, energy cooperation, financial information, and security

<sup>1</sup> 14\*12=168 (14 EU countries and 12 partners aggregated by agreements)



cooperation to name a few. The details of core and non-core provisions (following Hofman et al. 2017) are presented in the Appendix.

### 3.3 Event study and panel design

For some parts of the analysis, we utilise an event-study approach as well as a fixed effect panel estimation. The event study approach will be used to estimate an approximation of the general effect of a trade agreement on trade at the extensive margin. The fixed effects panel will be used for analysis of heterogeneous effects across trading partners.

Using complementary methods allows us not only to study the robustness of the results but also highlight certain characteristics of the relationship between RTAs, provisions, and the extensive margin of trade.<sup>2</sup> Under certain conditions, the event-study and difference-in-differences regression represents the causal effect. However, recent developments in this field have exposed a set of sensitivities suggesting a restrictive interpretation of the results. Hence, as a safeguard we stress that we do not fully consider the estimated effects as causal. The results are, however, clearly indicative and more informative than a traditional descriptive analysis.

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<sup>2</sup> A technical note. Both models will include country-pair and time-fixed effects. The country-pair fixed effects are included to control for endogeneity in the policy variable (trade agreement) and time-invariant trade costs (such as distance). The time-fixed effects are included to control for factors that are time-varying but invariant across entities. Specifically, the time-fixed effects allow us to control for general trends in the HS-codes as well as global economic shocks. These specifications are approximative of the recommended specification by Yotov et al. (2016).

## 4 Analysis

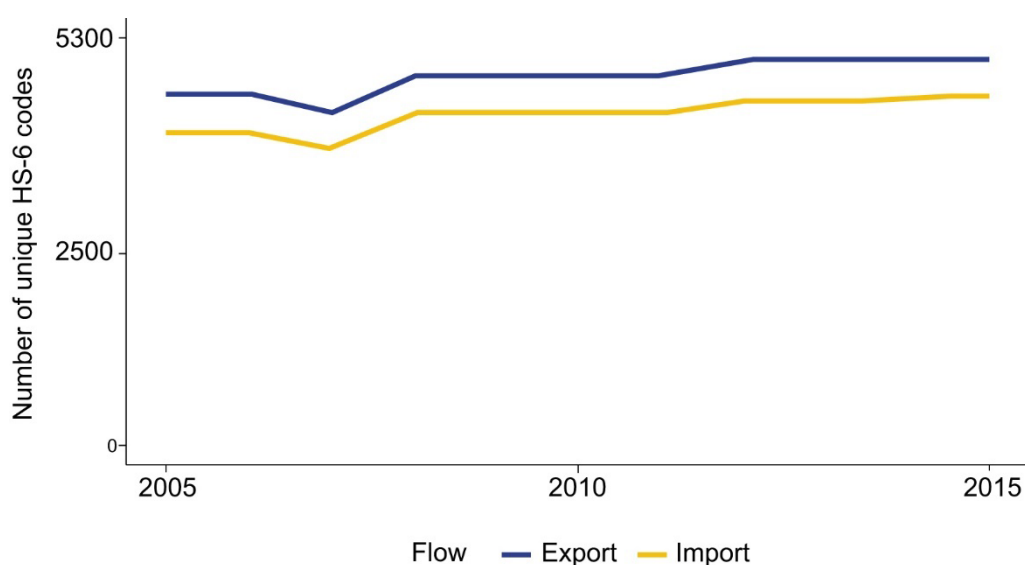
This chapter consists of four parts where sections 4.1 and 4.2 present a traditional descriptive analysis taking a birds-eye view of trends in trade-flows in relation to trade agreements. Sections 4.3 and 4.4 are considered descriptive, but more indicative than traditional descriptive analysis. That is, these sections are close to a causal analysis and can under some circumstances qualify as such. For technical reasons, however, we suggest a restrictive or indicative interpretation of the results that can inspire further analysis of provisions in RTAs.

### 4.1 EU-15 and trade diversification over time

The extensive margin of trade tends to show an increase over time, and the EU has quite a diversified export to most of its partners. For some of the EU's trading partners, their export portfolio appears less diversified.

As established by the literature (Fekbermayr and Kohler, 2006; De Benedictis and Tailoi, 2011), there is a trend of increasingly diversified trade over time. However, trade in the extensive margin seems less pronounced among developing countries . By comparing the number of products traded, approximated by the set of unique HS-6 codes between the EU and its trading partners over time, we get an indication of the trend in the extensive margin of trade. This we do for both imports and exports between the EU-15 and its partner countries.

**Figure 1. Number of unique products (HS-6 codes) imported and exported by the EU-15 within the scope of 12 analysed RTAs**

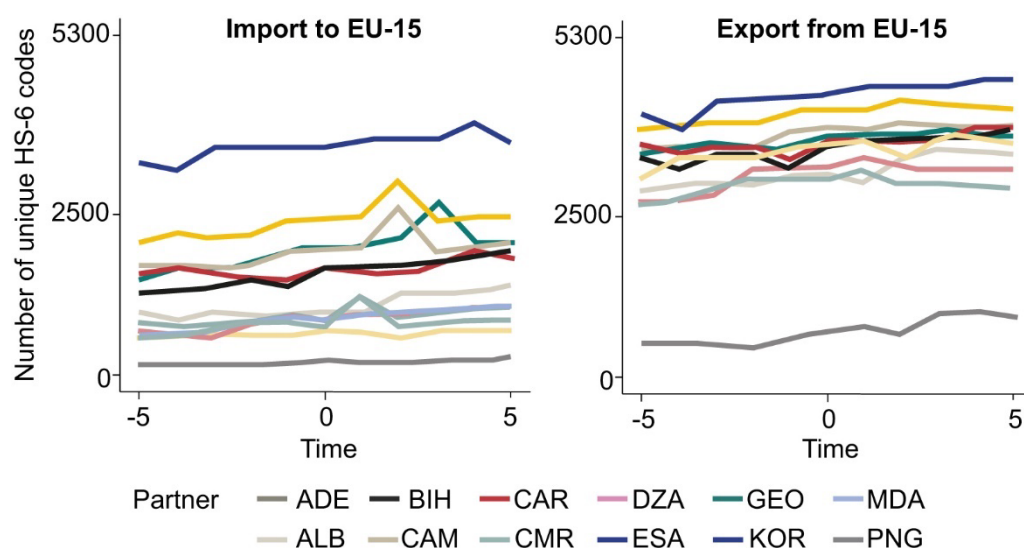


Note: Y-axis indicates the number of unique HS6-codes traded; it is bounded at approximately 5300 HS6-codes. The trade flows are between the EU-15 and 12 RTA-partners, provisionally applied during the years 2005–2015.

As seen in Figure 1, both imports and exports show a slight increase over time.<sup>3</sup> This trend could be reflecting growth in economic complexity (more diverse domestic production) and thus more diversified trade; it does not necessarily have to be an effect of trade liberalisation. Figure 1 also shows that the EU-15 exports are slightly more diversified to their partner countries than the imports from them and the trend might be stronger for imports, which is possibly related to a ceiling problem.<sup>4</sup> It is important to note that Figure 1 is an aggregation of 15 EU countries and 12 RTAs, i.e. a large aggregate.

In Figure 2 we proceed by disaggregating total EU-15 trade within the scope of each RTA, separating them into 12 individual import and export flows. By this mean we may more clearly reveal RTA-specific variation in the extensive margin of trade. Figure 2 visualises the import and export of unique HS-6 codes over time by RTA.

**Figure 2. Number of traded goods (HS-6 codes) RTAs**



Note: Y-axis indicates the number of unique HS6-codes traded. The vertical line indicates one year prior to "treatment" (provisional application of the RTA).<sup>5</sup>

In Figure 2 the pattern of increasing trade along the extensive margin as seen in Figure 1 is disaggregated to the partner level, revealing that the trend in the extensive margin for the EU varies by partner. In general, the trend appears slightly positive for most

<sup>3</sup> The trend should, however, be interpreted conservatively, given that it can be a statistical artifact from the revisions in HS codes.

<sup>4</sup> Returning to the ceiling problem, there are two ceilings for how many products could be traded. The first ceiling is the existing number of HS-codes. If a country exports goods in all HS-cods to a destination, there is no space for the extensive margin to evolve. The second ceiling is the diversity of domestic production. Exports cannot be more diversified than the industry. Hence, there is a connection between the diversity of the domestic industry and the extensive margin of trade.

<sup>5</sup> Short names for country groups are ADE: Andean (Colombia and Peru), ALB: Albania, BIH: Bosnia and Herzegovina, CAM: Central America (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama), CAR: CARIFORUM countries (14 Caribbean countries), CMR: Cameroon, DZA: Algeria, ESA: Eastern and South Africa (Madagascar, Mauritius, Seychelles, Zimbabwe), GEO: Georgia, KOR: South Korea, MDA: Moldova, PNG: Papua New Guinea

agreements, but any catalysing effect of trade liberalisation is more difficult to infer. Another interesting pattern found in Figure 2 (left panel) is the discrepancy between the imports from South Korea (KOR) compared to all other partner countries (RTAs). South Korea is the largest and most developed economy covered in this study with export products in almost 1000 more unique HS-6 codes to the EU-15 compared to the second-ranked RTA-partner. Figure 2 also shows lower-income countries such as Algeria, Cameroon, Georgia, Moldova and Papua New Guinea as the least diversified exporters to the EU-15. This suggests that the limited diversification of the export portfolio among the least developed countries may be due to a less diversified industrial structure in these countries. Hence, to some extent, the question is whether these countries have, or do not have, a wide set of firms and industries able to export their goods to the EU.

When plotting exports from the EU-15 to the partners in Figure 2 (right panel), the asymmetry between export and import is highlighted by comparing exports to imports (left panel). The EU-15 exports to these partner countries is more diversified than the imports, plausibly reflecting the EU's dynamic economy covering many sectors. Thus, the discrepancy in the development status of the partner and the extensive margin of trade are more apparent for EU-15 imports than exports, where the EU-15 exports with at least 2500 unique HS-6 codes to almost all partners, whereas imports are much more heterogeneous.

In other words, the EU has quite a diversified export to most of its partners, with the diversity of imports showing more variation. This indicates that possible underutilisation of trade in the extensive margin for developing countries most likely is among the partners' export (EU-15 import).<sup>6</sup>

## 4.2 Regional trade agreement characteristics and the extensive margin

There is a tendency that trading partners with a diversified portfolio of traded goods tend to sign deeper agreements.

Most research looking into the association between trade flows and RTA provisions is considering the intensive margin of trade rather than the extensive margin. The intensive margin of trade has a positive correlation with the depth of trade agreements, described in Hofmann et al., (2017) and Mattoo et al., (2022). This means that the deeper the agreement is, the greater the trade flow. Considering the time and efforts spent on negotiating advanced, deep free trade agreements, this observation suggests that the extra work associated with the negotiation of provisions might have a pay-off. Results along this line of reasoning were also obtained in Kommerskollegium (2019) where the greatest increase in trade were found among deep RTAs.

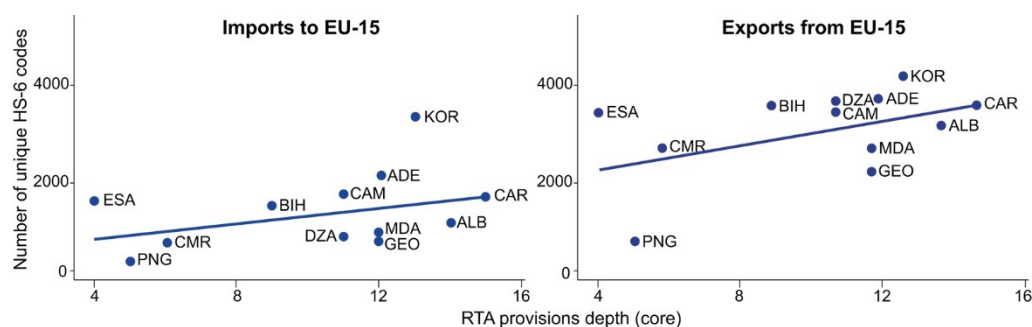
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<sup>6</sup> The slight increase in the number of traded HS codes could be a statistical artifact of revisions in the HS codes

It has also been shown that the intensive and extensive margins of trade are positively correlated with each other; hence, if one grows, so does the other (Fernandes et al., 2018). Thus, regardless of whether both margins are a result of, or a determinant to signing a deep trade agreement, it is probable that all three factors are associated. We therefore expect a trinity between agreement depth, and the intensive, and extensive margin of trade. That is, countries that trade larger values also trade a larger number of goods, and thus also sign deeper agreements.

To examine these associations, we in Figure 3 present some descriptive statistics for imports and exports at the extensive margin between the EU-15 and the 12 RTA-partners in the year 2005. The description is based on the “core depth” as a measure of agreement depth. The core depth is measured as the most frequently included provisions (see Appendix 1).

**Figure 3. The number of traded goods (HS-6 codes) by agreement and agreement depth**



Note: Left panel – Association between the unique HS-6 codes imported to the EU-15 by partners and the agreement core depth in 2005. Right panel – Association between the unique HS-6 codes exported from the EU-15 by partners and the agreement core depth in 2005.<sup>7</sup>

As seen in Figure 3, there is a moderate association between the number of products imported and exported to and from the EU-15 and the core depth of the trade agreement later undertaken.

Figure 3 only shows that there is a raw association before the agreement and does not tell us anything about the possible effects of the agreement. The positive relationship seen in Figure 3 is also apparent when examining the raw correlations between agreement core depth and trade along the extensive margin for the year 2005. Thus, there is a tendency that trading partners with a diversified portfolio of traded goods tend to sign deeper agreements. Moreover, in connection to earlier studies, the raw correlation between the extensive and intensive margin of trade displays a moderate to high correlation as shown by Fernandes et al. (2018). This implies that both the margins as well as the agreement depth are associated with each other; thus, countries that trade more along *both* margins tend to sign deeper agreements.

<sup>7</sup> Short names for country groups are ADE: Andean (Colombia and Peru), ALB: Albania, BIH: Bosnia and Herzegovina, CAM: Central America (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama), CAR: CARIFORUM countries (14 Caribbean countries), CMR: Cameroon, DZA: Algeria, ESA: Eastern and South Africa (Madagascar, Mauritius, Seychelles, Zimbabwe), GEO: Georgia, KOR: South Korea, MDA: Moldova, PNG: Papua New Guinea.

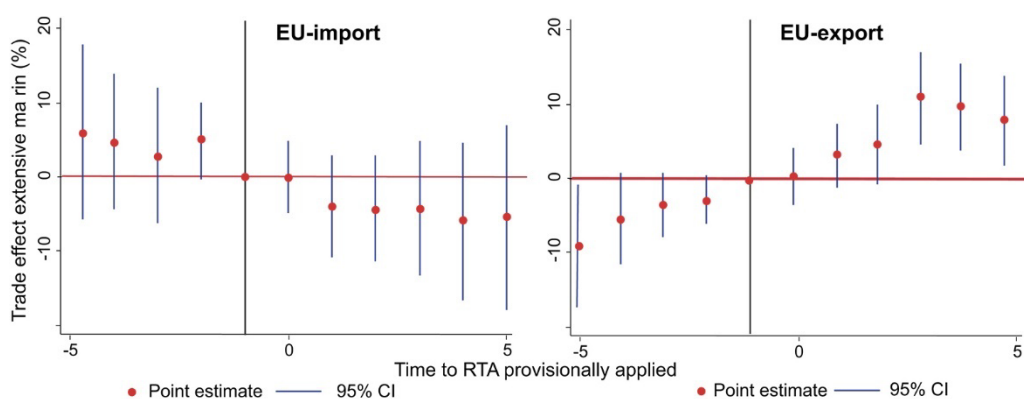
The raw correlations and Figure 3 are in line with the expectations of the associations of trade at both margins as well as the agreement depth (specifically core depth). Thus, it becomes apparent that deep regional trade agreements with many provisions included mainly applies to trade partners with whom we initially have large and diversified trade flows. This is to some extent a complicating factor when estimating the effects of trade agreements on the extensive margin of trade.

### 4.3 Regional agreements' impact on the extensive margin of trade

We cannot exclude that there are possible positive effects of trade agreements on the extensive margin of trade for the EU's exports. There are however no signs of an impact on the extensive margin of EU's import.

Existing literature suggests that trade liberalisation generally increases the number of traded goods as well as the value of previously-traded goods (the extensive and intensive margin) (Debaere and Mostashari, 2010; Kehoe and Ruhl, 2013). In this section we utilise an event study approach to study how regional trade agreement impacts the extensive margin of trade. As pointed out in the methodological section, under certain conditions the results below can be interpreted as a causal effect, we however advocate a restrictive/indicative interpretation of the results.

**Figure 4. Estimated growth effect of RTAs on the number of traded goods<sup>8</sup>**



Note: Y-axis is the effect on the extensive margin of trade, i.e., the effect in the number of unique HS-6 codes traded. X-axis indicates time to trade agreement provisionally applied. Vertical line indicates one year prior to the RTA implementation.

Our estimations presented in Figure 4 (right panel) suggest a possible positive effect on the number of unique products exported by the EU-15 to their RTA-partners (this result might, however, be driven by a common trend). For imports (left panel), however, we do not see any evidence of an expansion along the extensive margin.

<sup>8</sup> The figure is based on an event-study approach and should be interpreted conservatively given the methodological shortcoming mentioned in this section.

That is, the results suggest that while there might be evidence suggesting an expansion of the number of goods exported by the EU, we do not see a similar development for our trading partners export to the EU.<sup>9</sup>

In line with most analysis of RTAs, we note that it seems to take a couple of years for the free trade agreements to mature to their full effect (Kommerskollegium 2019). Specifically, there is a tendency for the implied positive effects for exports to take place after 3-5 years (Figure 4, right panel). The results in Figure 4 can be taken as an indication that the effect of trade liberalisation on the extensive margin is skewed in favour of the export of more developed countries. This could, however, also be a consequence of the more central positions developing countries have in the “production space” (Hidalgo et al., 2007), where they can easily expand production to new sectors.<sup>10</sup>

### Theoretical considerations

A common underpinning used to analyse the extensive and intensive margins of trade is that of trade costs. Stemming from the influential Melitz (2003), scholars have linked the margins of trade to fixed and variable costs.

Disentangling what is a variable- and what is a fixed cost is not a straightforward task, especially in relation to provisions. For example, a provision with the purpose of harmonisation can have an asymmetric effect on costs depending on how easily a country can adapt to new legislation and standards. Moreover, such a provision might possibly affect both variable costs (more expensive per product adapted to a new standard) and fixed costs (one-time cost in uncertainty related to each export). The point here is merely reflective. Considering what policy impacts what cost is a mechanism to consider in relation to drafting trade agreements that aim diversify trade.

## 4.4 Peeking into the black box of provisions in regional trade agreements and the extensive margin of trade

By examining the effects of agreement depth on the extensive margin of trade we find that the depth in non-core provisions is positively associated with an expansion of trade in the extensive margin. For the more commonly applied core provisions, no such relationship is detected.

During the last years there is a strand of papers emerging that have moved toward disaggregating trade agreements to understand what the main drivers of the effects of trade liberalisation are. Specifically, as data on the individual provision level have become available (Hofmann et al., 2017; Mattoo et al., 2020), the unit of analysis has become more disaggregated.

<sup>9</sup> There is a (mostly) non-significant pre-treatment trend in exports suggesting that the parallel trend assumption may be at risk, hence suggesting a careful interpretation regarding the results for the exports of the EU.

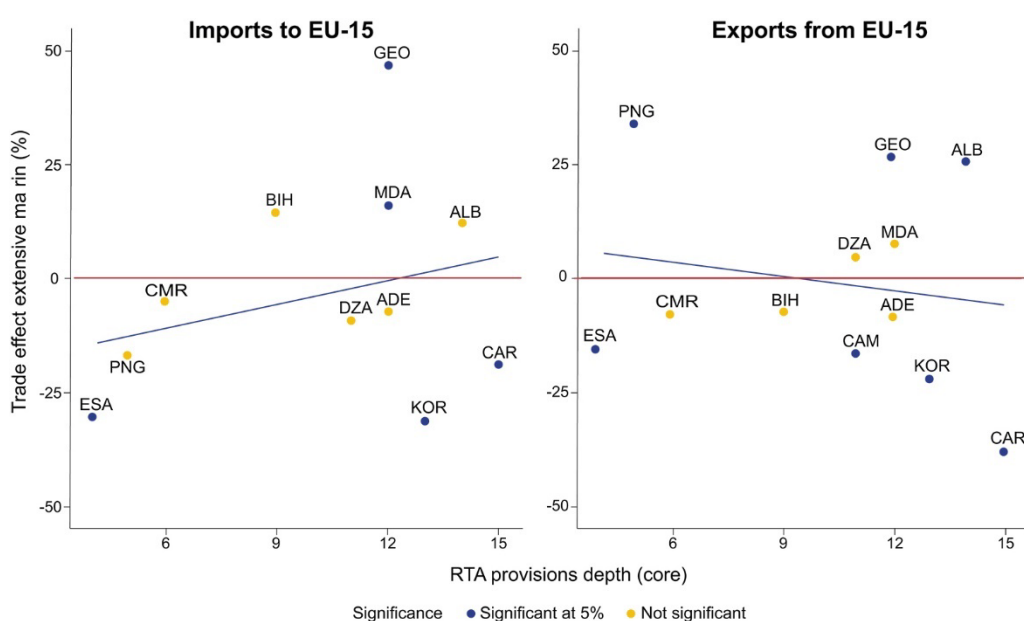
<sup>10</sup> Thus, we need to caveat that the current production structure might possibly be a confounding factor.

As one of the few studies employing provisions in relation to the extensive margin of trade, Falvey and Foster-McGregor (2022) come short of identifying consistent effects of both groups, and individual provisions on the extensive margin. Therefore, they argue for further disaggregation of the applied provisions. Their idea is that by looking into the details, this might solve for the many heterogeneous motives hiding behind the individual provisions.<sup>11</sup>

As there is no consensus on how provision can, or cannot, be grouped with respect to their impact on the extensive margin, the development of a theory-guided approach is therefore welcomed. The starting point for this analysis will be “agreement depth” (total number of provisions), and the number of “core” and “non-core” provisions, as suggested by Hofman et al. (2017).

For the analysis we use a fixed effects panel where we estimate an effect on the extensive margin of the trade agreement by each RTA for the EU-15.

**Figure 5. Estimated impact of RTA core depth on the number of traded goods**



Note: Y-axis is the average effect of RTA on extensive margin of trade 5 years post provisionally applied. X-axis is agreement core depth. Green point colour indicates a significant effect at the 5 per cent level.<sup>12</sup>

The effect of EU-15 imports from their partner countries, as seen in Figure 5 (left panel), varies modestly with the agreement core depth. Figure 5 (right panel) suggests that for exports from the EU-15, there appears to be in principle no association

<sup>11</sup> The dataset from Mattoo et al. (2020) is even more granular than data used by Hofmann et al. (2017).

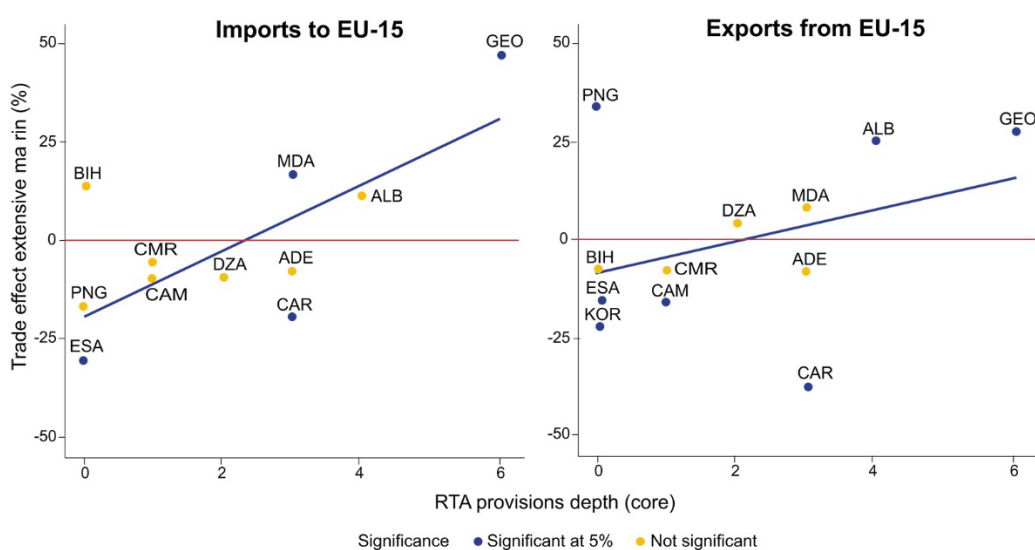
<sup>12</sup> Short names for country groups are ADE: Andean (Colombia and Peru), ALB: Albania, BIH: Bosnia and Herzegovina, CAM: Central America (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama), CAR: CARIFORUM countries (14 Caribbean countries), CMR: Cameroon, DZA: Algeria, ESA: Eastern and South Africa (Madagascar, Mauritius, Seychelles, Zimbabwe), GEO: Georgia, KOR: South Korea, MDA: Moldova, PNG: Papua New Guinea.



between core depth and the extensive margin. That is, it is difficult to argue for a positive relation between agreement core depth and growth in the extensive margin.

Does this mean that there is no association between provisions and the extensive margin? Not necessarily. Some provisions are included in almost all agreements and some provisions are related to security and so on. It is difficult to a priori judge which provisions are most related to the extensive margin and therefore should be focused on. Possibly, a more theory-guided approach might give us an indication. Given the difficulty of disentangling the theoretical properties in the individual provisions, and thus grouping them in theoretically relevant bundles, this is an avenue for further research. As we take an exploratory approach to our analysis, we fall short of finding a relevant grouping from theory, but there is one association that piques our interest. This is the association between trade effect in the extensive margin and the non-core depth of the agreements. Non-core depth is simply the difference when subtracting core provisions from the total number of provisions (see Appendix 1). Non-core provisions are thus a diverse set of provisions such as environmental laws, data protection, energy, labour rights, etc.

**Figure 6. Estimated impact of RTA non-core depth on the number of traded goods**



Note: Y-axis is the average effect of RTA on the extensive margin of trade 5 years post provisionally applied. X-axis is the agreement core depth. Green point colour indicates a significant effect at the 5 per cent level.<sup>13</sup>

The association in Figure 6 shows that agreements that include a relatively large set of non-core provisions has a moderate association with trade at the extensive margin for both exports and imports. This possibly captures the different motives and ambition of the agreements.

<sup>13</sup> Short names for country groups are ADE: Andean (Colombia and Peru), ALB: Albania, BIH: Bosnia and Herzegovina, CAM: Central America (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama), CAR: CARIFORUM countries (14 Caribbean countries), CMR: Cameroon, DZA: Algeria, ESA: Eastern and South Africa (Madagascar, Mauritius, Seychelles, Zimbabwe), GEO: Georgia, KOR: South Korea, MDA: Moldova, PNG: Papua New Guinea.

Motives of the agreement are discussed in Soete and Van Hove (2017) through a lens of economic vs. political motives as well as in Falvey and Foster-McGregor (2022), where new vs. existing corporate interests are in focus. Do the non-core provisions capture any of these motives? Possibly, given that the more non-core provisions cover a diverse range of policy areas such as environmental laws, data protection, energy, labour rights, etc. However, Soete and Van Hove (2017) do not find a consistent effect on the extensive margin across the political vs. economical continuum.

Given that the non-core provisions are more political in nature, they can be unrelated to the corporate interest as discussed by Falvey and Foster-McGregor (2022). Possibly, the more ambitious trade agreements provide a more level playing field and thus benefit new exporters. Whatever the motives may be, they might be difficult to fully capture in a statistical model given their elusive and varying nature.

A final observation is that the grouping of provisions with respect to their impact on the extensive margin is anything but trivial. Here we followed the grouping of provisions as suggested by Hofman et al. (2017) in their World Bank report. The grouping of RTAs into core vs. non-core provisions, conditioned on being legally binding, is intuitive and mirrors our understanding of the structure of the EU's RTAs. Some unexpected anomalies did, however, occur. For example, it could be found that, in Hofman et al. (2017), the EU-Cariforum agreement appeared in some regards as a deeper agreement than the EU-South Korea agreement. It should nevertheless be pointed out that, as of today, no consensus exists concerning how to divide provisions with respect to their relation to the extensive margin of trade. Ways forward on this issue may be a targeted data-driven approach, a theoretical approach, or a combination of these.

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## Appendix

**Table A1. Core and non-core provisions**

Core vs non-core	Provision	ALB 2006	ADE 2008	BIH 2008	CAM 2013	CAR 2008	CMR 2014
Core	wto plus ftaindustrial	2	2	2	2	2	2
Core	wto plus ftaagriculture	2	2	2	2	2	2
Core	wto plus customs	2	2	2	2	2	2
Core	wto plus exporttaxes	2	2	2	2	2	2
Core	wto plus sps	0	2	0	1	2	0
Core	wto plus tbt	0	2	0	2	2	0
Core	wto plus ste	2	2	2	1	2	0
Core	wto plus ad	2	1	1	1	1	1
Core	wto plus cvm	2	1	1	1	1	1
Core	wto plus stateaid	2	1	2	2	2	0
Core	wto plus publicprocurement	2	2	0	2	2	2
Core	wto plus trims	0	0	0	0	0	0
Core	wto plus gats	0	2	0	2	2	0
Core	wto plus trips	2	2	2	2	2	0
Non-core	wto X anticorruption	0	0	0	0	0	0
Core	wto X competitionpolicy	2	1	2	1	2	0
Non-core	wto X environmentallaws	0	0	0	1	2	0
Core	wto X ipr	2	2	2	2	2	0
Core	wto X investment	2	0	0	2	2	0
Non-core	wto X labourmarketregulation	0	0	0	1	2	0
Core	wto X movementofcapital	2	2	0	0	2	2
Non-core	wto X consumerprotection	0	0	0	0	0	0
Non-core	wto X dataprotection	2	2	0	0	2	2
Non-core	wto X agriculture	0	0	0	0	0	0
Non-core	wto X approxlegis	2	0	0	0	0	0
Non-core	wto X audiovisual	0	0	0	0	0	0
Non-core	wto X civilprotection	0	0	0	0	0	0
Non-core	wto X innovationpolicies	0	0	0	0	0	0
Non-core	wto X culturalcooperation	0	0	0	0	0	0
Non-core	wto X economicpolicydialogue	0	0	0	0	0	0
Non-core	wto X educationandtraining	0	0	0	0	0	0
Non-core	wto X energy	0	0	0	0	0	0
Non-core	wto X financialassistance	0	0	0	0	0	0
Non-core	wto X health	0	2	0	0	0	0
Non-core	wto X humanrights	0	0	0	0	0	0
Non-core	wto X illegalimmigration	2	0	0	2	0	0
Non-core	wto X illicitdrugs	0	0	0	0	0	0
Non-core	wto X industrialcooperation	0	1	0	0	0	0
Non-core	wto X informationsociety	0	0	0	0	0	0
Non-core	wto X mining	0	0	0	0	0	0
Non-core	wto X moneylaundering	0	0	0	0	0	0
Non-core	wto X nuclearsafety	0	0	0	0	0	0
Non-core	wto X politicaldialogue	0	0	0	0	0	0
Non-core	wto X publicadministration	0	0	0	0	0	0
Non-core	wto X regionalcooperation	0	0	0	0	0	0
Non-core	wto X researchandtechnology	0	0	0	0	0	0
Non-core	wto X sme	0	0	0	0	0	0
Non-core	wto X socialmatters	2	0	0	0	0	0
Non-core	wto X statistics	0	0	0	0	0	0
Non-core	wto X taxation	0	0	0	0	0	0
Non-core	wto X terrorism	0	0	0	0	0	0
Non-core	wto X visaand asylum	0	2	0	0	0	0

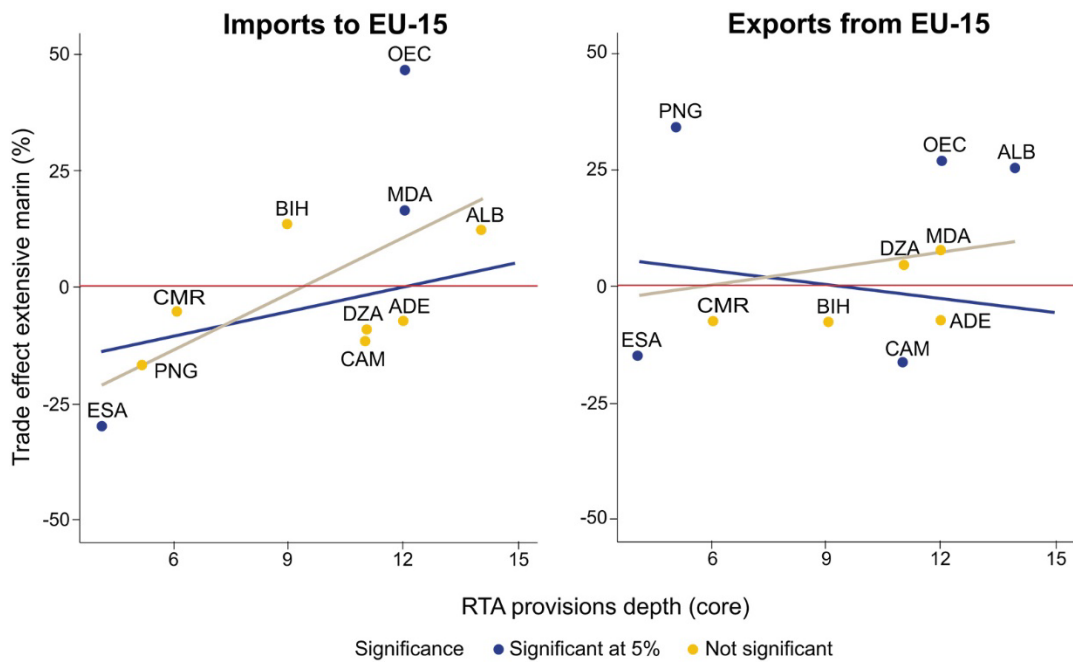
Note: (2=legally enforced, 1=mentioned but excluded by dispute settlement provision, 0=Not mentioned nor legally enforced)

**Table A1. Core and non-core provisions, (continued)**

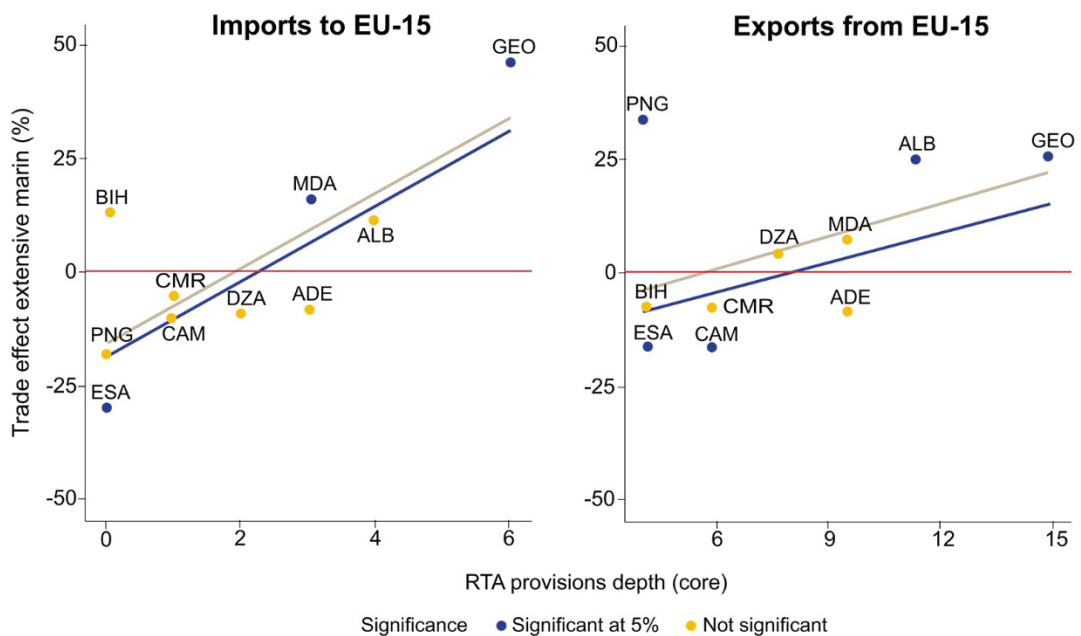
Core vs non-core	Provision	DZA 2005	ESA 2012	GEO 2014	KOR 2011	MDA 2014	PNG 2009
Core	wto_plus_ftaindustrial	2	2	2	2	2	2
Core	wto_plus_ftaagriculture	2	2	2	2	2	2
Core	wto_plus_customs	2	2	2	2	2	2
Core	wto_plus_exporttaxes	2	2	2	2	2	2
Core	wto_plus_sps	0	0	2	1	2	0
Core	wto_plus_tbt	0	0	2	2	2	0
Core	wto_plus_ste	2	0	1	2	0	0
Core	wto_plus_ad	2	1	1	1	1	1
Core	wto_plus_cvm	2	1	1	1	1	1
Core	wto_plus_stateaid	0	0	2	2	2	2
Core	wto_plus_publicprocurement	0	0	2	2	2	0
Core	wto_plus_trims	0	0	0	0	0	0
Core	wto_plus_gats	2	0	2	2	2	0
Core	wto_plus_trips	0	0	2	2	2	0
Non-core	wto_X_anticorruption	0	0	0	0	1	0
Core	wto_X_competitionpolicy	2	0	1	1	1	0
Non-core	wto_X_environmentallaws	0	0	0	1	2	0
Core	wto_X_ipr	2	0	2	2	2	0
Core	wto_X_investment	0	0	0	2	0	0
Non-core	wto_X_labourmarketregulation	0	0	0	1	2	0
Core	wto_X_movementofcapital	2	0	2	2	2	0
Non-core	wto_X_consumerprotection	0	0	0	0	1	0
Non-core	wto_X_dataprotection	2	0	2	0	1	0
Non-core	wto_X_agriculture	0	0	0	0	1	0
Non-core	wto_X_approxlegis	0	0	2	0	1	0
Non-core	wto_X_audiovisual	0	0	0	1	1	0
Non-core	wto_X_civilprotection	0	0	0	0	1	0
Non-core	wto_X_innovationpolicies	0	0	0	0	0	0
Non-core	wto_X_culturalcooperation	0	0	0	1	1	0
Non-core	wto_X_economicpolicydialogue	0	0	0	0	1	0
Non-core	wto_X_educationandtraining	0	0	0	0	1	0
Non-core	wto_X_energy	0	0	2	0	2	0
Non-core	wto_X_financialassistance	0	0	2	0	1	0
Non-core	wto_X_health	0	0	0	0	1	0
Non-core	wto_X_humanrights	0	0	0	0	0	0
Non-core	wto_X_illegalimmigration	0	0	2	0	0	0
Non-core	wto_X_illicitdrugs	0	0	0	0	1	0
Non-core	wto_X_industrialcooperation	0	0	0	0	1	0
Non-core	wto_X_informationssociety	0	0	0	0	1	0
Non-core	wto_X_mining	0	0	0	0	1	0
Non-core	wto_X_moneylaundering	0	0	0	0	1	0
Non-core	wto_X_nuclearsafety	0	0	0	0	0	0
Non-core	wto_X_politicaldialogue	0	0	0	0	1	0
Non-core	wto_X_publicadministration	0	0	0	0	1	0
Non-core	wto_X_regionalcooperation	0	0	0	0	1	0
Non-core	wto_X_researchandtechnology	0	0	0	0	1	0
Non-core	wto_X_sme	0	0	0	0	0	0
Non-core	wto_X_socialmatters	2	0	0	0	1	0
Non-core	wto_X_statistics	0	0	0	0	1	0
Non-core	wto_X_taxation	0	0	0	0	1	0
Non-core	wto_X_terrorism	0	0	0	0	1	0
Non-core	wto_X_visaand asylum	0	0	2	0	1	0

Note: (2=legally enforced, 1=mentioned but excluded by dispute settlement provision, 0=Not mentioned nor legally enforced)

**Figure A1. Robustness test (Removing South Korea and CARIFORUM),**  
 blue line = old slope, grey line = new slope



**Figure A2. Robustness test (Removing South Korea and CARIFORUM),**  
 blue line = old slope, grey line = new slope



## Sammanfattning

### *Summary in Swedish*

En ofta omdiskuterad skillnad mellan utvecklade länder och utvecklingsländer är diversifieringsgraden i den inhemska industrin och deras utrikeshandel. Ett diversifierat näringsliv och utrikeshandel medför flera fördelar, bland annat ökad ekonomisk resiliens och minskad konjunkturkänslighet.

Det är sedan tidigare känt att handelsavtal bidrar till en ökad handel. Vad som är mindre känt är vilka åtaganden i handelsavtal som bidrar till en mer diversifierad varuhandel. I denna rapport görs en ansats till att undersöka sambandet mellan åtagandestrukturen i handelsavtal och diversifieringsgraden av varuhandeln i ett urval av tolv regionala handelsavtal undertecknade mellan åren 2005 och 2015 mellan EU-15 och dess partnerländer.

Sambandet mellan åtaganden i frihandelsavtal och handelns diversifieringsgrad är svårt att studera. Problematiken ligger bland annat i att det inte råder någon samsyn om hur olika åtaganden relaterar till handelns diversifieringsgrad. Det finns också en rad metodtekniska problem. Med hänsyn till dessa reservationer begränsar sig rapporten därför till en (kvalificerad) deskriptiv analys av dessa samband. Ambitionen är att väcka intresse för frågan och bereda väg för fortsatt analys på området.

Analysen sker i tre steg. I steg ett ser vi närmare på sambandet mellan frihandelsavtal och handelns diversifieringsgrad. I steg två introducerar vi omfattningen av åtaganden i de olika frihandelsavtalen som en förklaringsvariabel till hur frihandelsavtal kan påverka handelns diversifieringsgrad. I det tredje och sista steget delas slutligen de olika åtagandena upp i olika kategorier.

Den genomförda analysen visar på heterogena effekter av handelsavtal för varuhandelns diversitet. Ett resultat är att handelns diversifieringsgrad tycks vara positivt relaterad till antalet ”ovanliga” åtaganden (icke-kärnåtaganden enligt Hofman et al. (2017)), vilket möjligtvis är en indikator för ambitionsnivån i avtalen.

Ytterligare en observation är att det är svårt att klassificera åtaganden med avseende på deras påverkan på handelns diversifieringsgrad (den extensiva marginalen). Vår uppdelning av åtaganden följde den uppdelning som introducerades av Hofman et al. (2017) i en rapport skriven för Världsbanken. En för oss oväntad observation var att givet den indelning av åtaganden som förespråkas av Hofman et al. (2017) framstod EU-Sydkorea avtalet som mindre ambitiöst än EU-Cariforum avtalet. En lärdom av detta är att mycket arbete återstår för att vi på ett tydligt sätt kan tackla frågan om hur olika åtaganden kan och bör kopplas till handelns diversifieringsgrad.

Ett medskick till framtida forskning och analys är att undersöka och föreslå infallsvinklar om hur åtaganden kan grupperas. Grupperna kan arbetas fram genom teori, men en datadriven approach är också möjlig. Ett ytterligare medskick som riktas till beslutsfattare som har ett inflytande över handelsavtalens utformande är att reflektera kring vilka åtaganden som kan reducera vilka handelskostnader för att på det sättet öka handeln diversifieringsgrad.



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We provide the Swedish Government with analyses, reports and policy recommendations. We also participate in international meetings and negotiations.

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