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EU Exit and Impacts on Northern Ireland's Services Trade

Evidence from Services Trade Restrictiveness Indices

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EXECUTIVE SUMMARY

The UK's planned exit from the European Union (EU) potentially has profound implications for businesses that sell into European markets, and consumers and businesses who buy from European suppliers. Those exchanges are currently structured by the European Single Market, but would have to be structured differently following EU exit.

Goods markets have received extensive attention in research and in the media, but the same is not true of services. This difference is striking given that services account for 75% of gross value added in Northern Ireland, and 22% of external sales by Northern Ireland firms. In light of these numbers, it is clear that changes to the legal structures regulating the ability of Northern Ireland firms and consumers to buy or sell services in European markets has the potential to have a major impact on the local economy.

The purpose of this research project is to take the first steps towards a better understanding of how EU exit could affect the ability of firms and consumers in Northern Ireland to buy and sell services following EU exit. It starts from a recognition that data on services policies are much harder to collect than those for goods, given that there is no equivalent of the ad valorem tariff that is common in goods markets. All policies affecting services trade are effectively non-tariff measures (NTMs). As such, there is no single quantitative index available that makes it possible to summarize their economic effects. Instead, researchers need to work through sectoral regulations using a pre-established key to convert qualitative information on laws and policies into quantitative information on the degree of restrictiveness of those policies.

We adopt the OECD's methodology for undertaking this process, which leads to production of Services Trade Restrictiveness Indices (STRIs) for individual sectors. Our team of lawyers and economists, with cooperation from the OECD Secretariat, has collected data on baseline services policies in Northern Ireland, distinguishing between policies that affect EU service providers, and those from other countries. To our knowledge, this represents the first time that the STRI methodology has been used to collect data on services policies in a sub-national jurisdiction. This first step in the project makes it possible to understand the policies currently applied in services markets in Northern Ireland. All data were validated by the Northern Ireland Civil Service and partners as part of the process.

In addition, we have considered four plausible scenarios that put bounds on the types of arrangements that could be put in place between the UK and the EU following exit, namely:

1. Norway-like agreement.
2. CETA-like agreement.
3. Northern Ireland remains in the EU Single Market but the rest of the UK exits.
4. No deal, so the parties revert to most favored nation (MFN) policies.

The purpose of this analysis is not to recommend a particular course of action. Instead, it is to inform the public and decision makers about the ways in which these scenarios, which are admittedly stylized, could affect the incentives facing firms and consumers in Northern Ireland. By converting the various STRIs into ad valorem equivalent (AVE) terms, we can provide some basic information on how the tariff-equivalent restrictiveness of policies facing firms and consumers would change in these scenarios.

To be clear, it is not our intention to forecast the path of EU exit. There is currently great uncertainty about that process. We have deliberately chosen simple, stylized scenarios in order to highlight the kinds of economic effects that would be in play in more realistic, detailed scenarios. The method we

have implemented is fully transparent: a full database of regulations has been provided to DfE along with this report. As a result, it is open to future research to consider additional or alternative scenarios as they become relevant in policy discussions.

Full details of our results are presented in the tables below. Broadly speaking, we find that policy arrangements that generally continue existing policy treatment of and from the EU have little or no impact on the ability of firms and consumers in Northern Ireland to buy and sell services in EU markets. These scenarios are a Norway-like agreement, or continued Northern Ireland participation in the Single Market even when the rest of the UK leaves. By contrast, a more typical RTA covering services, such as a CETA-like agreement, would likely have significant negative implications for the ability of Northern Ireland firms and consumers to access EU markets to buy and sell services. An important caveat to that finding is that we have considered bound, rather than applied, policies in the context of CETA, so our results are an upper bound on the level of restrictiveness that could be expected under this scenario. Finally, a no deal scenario, by reverting to MFN treatment, has clear potential to impair the ability of Northern Ireland firms and consumers to access EU services markets, either as buyers or sellers. Although the size of these effects varies across sectors, the general direction and rank ordering of scenarios in terms of their implications for consumers and businesses in Northern Ireland is the same for all sectors.

Table: Average AVEs faced by Northern Ireland exporters, percent.

	Baseline	Norway	CETA	NI Only SM	No Deal	Non-EEA
Accounting services	7	7	24	7	32	31
Air transport	13	13	28	13	38	47
Architecture services	5	5	12	5	26	20
Broadcasting	5	5	18	5	21	38
Commercial banking	8	8	21	8	24	44
Computer services	6	6	16	6	32	37
Construction	4	4	12	4	18	24
Courier services	15	15	32	15	47	211
Distribution services	6	6	11	6	17	23
Engineering services	4	4	9	4	18	19
Insurance	3	3	15	3	24	50
Legal services	7	7	14	7	34	36
Logistics customs brokerage	3	3	13	3	14	24
Logistics storage and warehouse	6	6	14	6	15	25
Maritime transport	3	3	17	3	19	32
Road freight transport	3	3	11	3	19	18
Telecommunication	7	7	9	7	16	24

Source: Authors.

Table: Average AVEs faced by Northern Ireland consumers, percent.

	Baseline	Norway	CETA	NI Only SM	No Deal	Non-EEA
Accounting services	4	5	29	4	30	30
Air transport	13	15	33	13	34	34
Architecture services	3	3	15	3	19	19
Broadcasting	7	8	14	7	17	17
Commercial banking	4	6	21	4	24	24
Computer services	2	4	22	2	33	33
Construction	2	3	13	2	16	16
Courier services	28	31	45	28	56	56
Distribution services	9	10	16	9	18	18
Engineering services	1	1	11	1	15	15
Insurance	0	5	23	0	24	24
Legal services	8	9	82	8	82	82
Logistics customs brokerage	4	6	15	4	15	15
Logistics storage and warehouse	7	8	15	7	16	16
Maritime transport	4	6	18	4	18	18
Road freight transport	7	11	15	7	21	21
Telecommunication	7	18	16	7	18	18

Source: Authors.

We stress that our results assume no changes in MFN policies, either of Northern Ireland or of EU countries. On the import side, it is possible for the UK to liberalize its MFN policy settings following EU exit, but it would, by definition, have to extend that treatment to all trading partners that are members of the WTO. The EU could potentially do likewise, but we have seen no suggestions in the press or elsewhere that such a move is on the agenda in Brussels. Only one half of the equation is therefore within the control of the British government. MFN liberalization could be used in an attempt to offset some of the loss of domestic market access that would result from some of the scenarios, but it would result in according substantially more favorable treatment to a wide range of markets. From an economic point of view, it is primarily increased imports that drive the gains from trade, through increased variety and decreased prices for consumers, so this point is an important one to keep in mind (Arkolakis et al., 2012). At the present time, however, there is no technical plan or proposal for such a large scale liberalization.

Given the nature of this assignment, we explicitly refrain from offering recommendations based on our results. The intention of this project is solely to collect and disseminate high quality information, so that the public and those in positions of responsibility can better assess their options in terms of future arrangements with the EU in relation to services.

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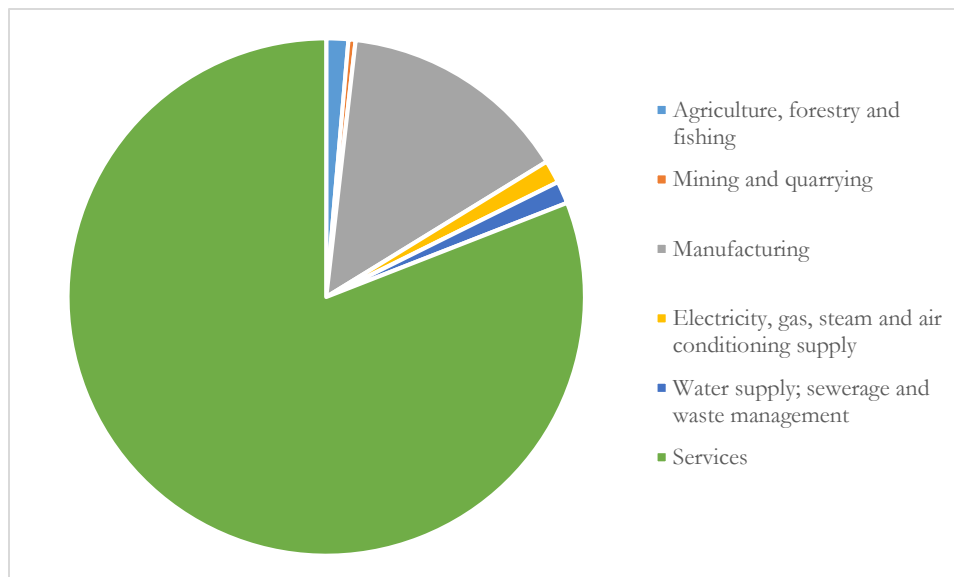
1 INTRODUCTION AND PROJECT OVERVIEW

The UK's impending exit from the European Union (EU) has received extensive economic analysis from a variety of sources, including academics and interest groups, as well as official agencies. The trade policy implications of exiting the EU are potentially profound, but two aspects stand out as relatively understudied in the technical literature, and therefore less discussed in public policy discussions. The first is the geographical distribution of changes in economic activity across the component parts of the UK following EU exit. It is well known that any change in trade policy has different implications for sub-national units depending on the nature and extent of their specializations, and the precise structure of the policy change. The second aspect is services: according to the World Bank's World Development Indicators, services accounted for just over 70% of all economic activity in the UK in 2017, and over 80% of total employment. However, most policy discussions have focused on the goods markets implications of EU exit. Modeling efforts like Dhingra et al. (2017) cover services as well as goods, but present their findings in terms of aggregate effects and do not present detailed information by sector. As a result, they do not highlight the particular issues that arise in the context of services trade. Dhatta and Dhingra (2018) combine sectoral results with patterns of local specialization to identify impacts at the level of local authorities, but do not present a detailed discussion.

1.1 The Services Sector in Northern Ireland

Data for Northern Ireland reinforce the impression given by a consideration of the UK as a whole. Figure 1 shows the breakdown of gross value added in 2016 by major economic aggregate. Services, excluding industries like water and electricity, which were historically regarded as services, suggests that the sector accounts for around 75% of gross value added. In other words, services are relatively more important to the economy of Northern Ireland than they are to the economy of the UK as a whole, even though the latter is, in world terms, already a highly services-dependent economy.

Figure 1: Breakdown of gross value added by major economic aggregate, Northern Ireland, 2016.

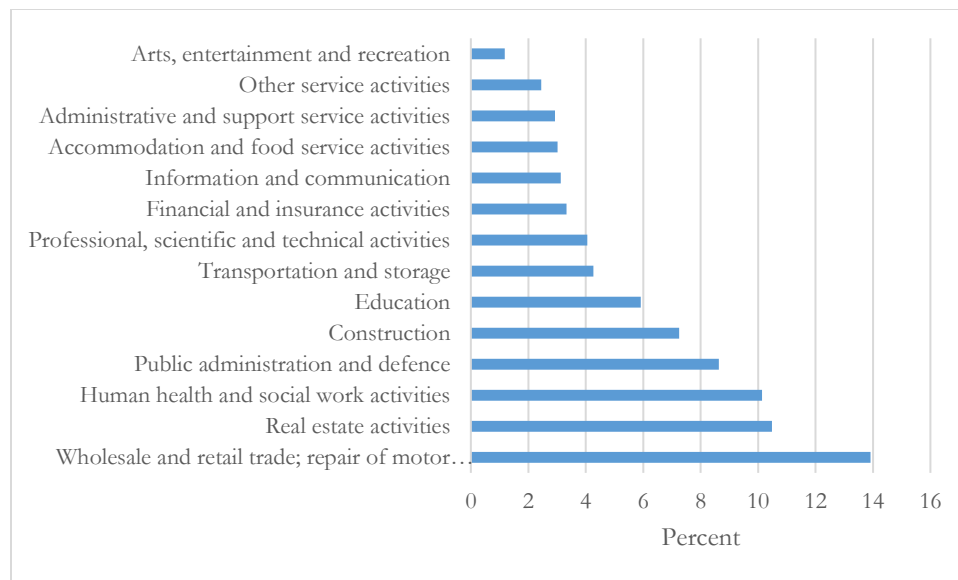


Source: DfE.

Of course, part of the reason for these large numbers is the vast range of activities covered by the “services” classification. In the modern economy, services in fact cover a considerable number of

subsectors. The same is true of manufacturing, but the difference becomes more pronounced over time in high income environments, as demand tends to shift further towards services. Figure 2 shows, however, that some subsectors on their own account for a significant share of the Northern Ireland economy. For instance, wholesale and retail trade makes up nearly 14% of aggregate gross value added, i.e. of all economic activity in Northern Ireland. Real estate and health both make up around 10%, while construction makes up around 7%. These numbers are large, and based on the figures presented above for the UK as a whole, likely translate into even higher proportions of employment, given that services sectors tend to be relatively labor intensive. Just as the figures for the UK highlighted the stakes for the country as a whole in EU exit from a services point of view, the data specifically for Northern Ireland show that the total amount of economic activity that will be affected by EU exit specifically in services is likely to be higher in this sub-national unit than elsewhere in the UK.

Figure 2: Percent of gross value added in Northern Ireland accounted for by services sub-sectors, 2016.



Source: DfE.

1.2 Nature of Services Trade

Historically, economists and commentators tended to assimilate services to the “non-tradeable” sector. However, this position changed radically in the 1980s and 1990s, as it was recognized that technological and organizational changes were making services easier to trade internationally (see Francois and Hoekman, 2010, for a review). This development was reflected in the GATT Uruguay Round negotiations, which gave birth to the General Agreement on Trade in Services (GATS), now part of the WTO’s legal infrastructure. Similarly, regional trade agreements (RTAs), including the EU, have dealt more extensively with services in recent years. It is not an exaggeration to say that under the structure of services trade recognized by the GATS and most RTAs, there is now no such thing as a service that is literally non-tradeable, in the sense that a domestic provider cannot sell it to a foreign consumer.

The increasing tradability of services is reflected in the data for Northern Ireland. Based on trade statistics supplied by DfE, we estimate that services trade within the meaning of the balance of payments represented around 18% of total exports in 2016, up from 12% in 2011. It is important to note, as is discussed further below, that this figure only provides partial coverage of the ways in which

services can be traded internationally. It therefore represents a lower bound of the true level of services trade integration of Northern Ireland. Using a broader measure, namely sales of services by external destination, which covers more services trade than the balance of payments measure, suggests that 22% of external sales were accounted for by services in 2016. Of those external sales of services, two-thirds were to elsewhere within the UK, but around 20% were to the EU, mostly the Republic of Ireland (IRL). Again, these figures suggest that Northern Ireland's services trade relationship with the EU, particularly IRL, is important from an economic point of view. Changes to the set of policies that underlie that trading relationship—namely the UK's relationship to the EU Single Market—have the potential to affect that trade, and thus impact the firms and jobs that underlie the export data.

Given the increasing importance of services trade across Europe, the EU has placed considerable emphasis in recent years on deepening the Single Market for services. Technically and politically, this exercise is a very complex one, and integration of services markets within the EU remains imperfect (de Bruijn et al., 2008). Nonetheless, leaving the Single Market for services, under whatever form exit may take, will necessarily have consequences for services markets in the UK, including Northern Ireland, both in terms of how they are regulated, but also in an economic sense in terms of output and employment. The extent of those effects can be analyzed and debated, but that they will take place following a fundamental change in services trade policy is a point on which economists widely agree.

1.3 Project Overview

Against this background, Developing Trade Consultants (DTC) was retained by the Department for the Economy of Northern Ireland (DfE) to produce an analysis of the potential stakes involved for Northern Ireland's services trade of EU exit, using the OECD's Services Trade Restrictiveness Index methodology (STRI). To be clear, we have not been asked to produce a quantitative estimate of the impact of any particular exit scenario in terms of GDP or employment. Instead, we have been asked to codify and quantify the state of services policies under different plausible scenarios, and to convert those policies to ad valorem tariff equivalents (AVEs). This information can then be used in a separate computable general equilibrium (CGE) modeling exercise to produce impact assessments in terms of standard economic variables.

Using a team of lawyers and economists, we have applied the OECD STRI methodology to collect data from original sources on services policies under the baseline (current policies as at 2018), and under plausible exit scenarios. We stress that we do not make any assessment as to the likelihood of any particular EU exit scenario in fact coming to pass. Nor do we attempt to codify a forecast of the most likely exit scenario. The reason is that political-level declarations and policy discussions typically do not contain adequate technical detail to make it possible to code data at a disaggregated level without making numerous additional assumptions. Second, we believe there is still great uncertainty as to the exact form that EU exit will take, in particular in services markets. We therefore believe it is more pertinent to consider a small number of “broad strokes” scenarios that help put upper and lower bounds on the possible impacts of EU exit for services markets, in full knowledge that no scenario is likely to literally capture the final structure of EU exit at a detailed level.

The focus of this report is on services markets in Northern Ireland specifically. However, in order to assess the potential effects of EU exit on Northern Ireland's services markets, including trade relationships, it is necessary to look more broadly at services policies in other major markets. We therefore treat Northern Ireland separately from the rest of the UK, which is typically assessed as England in services policy work, where there are policy differences due to the devolution settlement across the UK. We also look, when necessary, at policies in EU and other markets.

Against this background, the report proceeds as follows. The next section examines the services dimensions of EU exit, after presenting some basic background material on the nature and legal structure of services trade. Section 3 then discusses the OECD STRI methodology, and shows how it can be used to produce information of relevance to policy discussions on the effects of EU exit. Section 4 then discusses data analysis and coding for the baseline STRIs, which assess policies in effect in Northern Ireland as at 2018. The following section then presents our methodology for collecting and coding data for a set of policy-relevant counterfactual scenarios designed, as mentioned above, to put upper and lower bounds on the potential policy effects of EU exit. After discussing data collection and coding, Section 5 presents our methodology, based on OECD work, for calculating AVEs based on the STRIs. We then move to discuss results, focusing on the AVE impacts of the various scenarios under consideration, and considering differences across sectors and scenarios. Section 7 concludes.

2 SERVICES DIMENSIONS OF EU EXIT

This section starts with an analysis of the framework economists and lawyers use to analyze and regulate international trade in services. It moves from there to a consideration of services trade within the EU, and the dimensions in which UK policies could be affected following EU exit. In discussing the current state of play, and recognizing its uncertainty, we offer, based on consultations with DfE, four scenarios that could offer reasonable bounds on the types of trading arrangements that could be put in place between the EU and UK, including Northern Ireland, following exit.

2.1 Framework for International Trade in Services

Conceptualizing trade in goods has historically been relatively straightforward: a product is treated as an export if it is produced in one country and physically shipped to another, crossing an international border in the process. Trade policy measures have therefore focused on the act of crossing borders, which is where tariffs (taxes on imports) are levied. As world average tariff rates have fallen, attention has shifted to non-tariff measures (NTMs), in essence the range of regulatory measures that affect the incentives facing exporting producers and importing consumers. NTMs are sometimes applied at the border, but are often also applied behind the border, in the sense that they are general regulations, like product standards, that affect all goods, domestic and foreign alike (see UNCTAD, 2018, for a review). So although attention has moved away somewhat from border measures over time, trade in goods is still conceptualized largely in terms of the physical movement of products from one place to another.

The situation in services is, of course, completely different (Francois and Hoekman, 2010). Services have historically been seen as disembodied, in the sense that there is no physical evidence of their movement in the way that there is for a physical good. At the same time, analysts have emphasized the continuing need for proximity between buyers and sellers of services: the example most often given is a haircut, in which the provider (a hairdresser) has to be physically proximate to the purchaser (the consumer), and it is not practical to “move” the service in the way that is possible for goods. Considerations such as these gave rise to the historical treatment of services as part of the non-tradeable economy.

As previously noted, that view changed considerably in the 1980s and 1990s. The rise of information and communication technologies (ICTs) made it possible to trade more and more services at a distance: for instance, a business in one country can deal with a lawyer (a professional services provider) in another country by using telephone or fax links, or now email or messaging services. This is the type of services trade that is most easily captured in trade statistics, specifically the balance of payments.

But when negotiations on trade in services started in earnest in the Uruguay Round (1998-1994), it was quickly realized that in the modern economy, there are in fact multiple ways of trading services internationally. This realization gave rise to the definition of four Modes of Supply for international trade in services, specifically:

- **Mode 1:** Pure cross-border trade in services. When a lawyer in Northern Ireland gives advice to a client in IRL using email and the telephone only, there is an export of professional services from Northern Ireland to IRL, and correspondingly an import to IRL from Northern Ireland, equal to the value of the invoice paid by the client.
- **Mode 2:** Movement of the consumer. When a French student comes to study at a university in Northern Ireland, there is an export of educational services from Northern Ireland to France, and correspondingly an import to France from Northern Ireland, equal to the value of fees paid by the student.

- **Mode 3:** Commercial establishment. When a German bank establishes a subsidiary in Northern Ireland, there is an export of banking services from Germany to Northern Ireland, and correspondingly an import to Northern Ireland from Germany, equal to the sales of the affiliate within Northern Ireland.
- **Mode 4:** Temporary movement of service providers. When a construction crew from Northern Ireland is sent to work on a building site in IRL, there is an export of construction services from Northern Ireland to IRL, and correspondingly an import to IRL from Northern Ireland, equal to the value of the remuneration of the construction team. This mode of supply does not cover permanent migration for work purposes, but only temporary movements.

Box: Measuring Trade in Services

More than two decades after the conclusion of the Uruguay Round and the establishment of the WTO—with the GATS as a core part—statistical knowledge of trade under the four Modes of Supply remains limited (Francois and Hoekman, 2010). WTO and its partners are currently working to produce estimates of services trade by Mode of Supply, but it is based on a simplified method for most countries, rather than direct data collection, and so is necessarily approximate. That dataset is still in the experimental stage, so it is not appropriate to quote figures from it here. Nonetheless, the available information suggests that at a global level, around half of all services trade takes place through Mode 3, an additional 30% through Mode 1, 15% through Mode 2, and 5% through Mode 4. These numbers are necessarily very approximate, and are intended to provide a guide only. The key takeaway is that the figures presented above for trade in services relative to goods was based only on the balance of payments, which notably does not capture Mode 3 at all, and captures some other modes only partially. As a result, trade in services in the GATS sense is likely much larger relative to goods than indicated by the balance of payments figures presented above. Again, this highlights the importance to Northern Ireland of understanding what is at stake in terms of its services trade relationships following EU exit.

2.2 Services Trade and Policy

In addition to differences in the ways of trading services relative to goods, there are also differences in the ways that policies can restrict or distort that trade. As noted above, goods are most often related to tariffs (taxes on imports) applied at the border. Such measures typically do not exist in services, because there is no physical passage of a border related to the transaction that gives rise to the trade, although providers and consumers themselves may move. As a result, all measures affecting services trade are effectively NTMs.

Clearly, any regulatory measure has the capacity to affect the incentives of producers or consumers, and as such can potentially have an impact on trade. But the GATS and RTAs that cover services do not by any means prevent governments from regulating their services markets. Indeed, they typically explicitly recognize the right to regulate. But trade agreements impose two key disciplines: most favored nation (MFN) treatment, which means that the same policy has to be applied to all trading partners, except in defined cases such as a valid RTA, or listed exemptions in national schedules of commitments; and national treatment, which means that foreign and domestic service providers need to be treated in the same way, again subject to exceptions. These two rules are the main legal infrastructure underlying international trade in services, as in goods. Upon this foundation, countries then exchange schedules, in which they agree to particular bindings on the restrictiveness of policies they can apply in each services sector. These bindings are effectively ceilings on restrictiveness. Actually applied policies are often much more liberal than policy bindings. The difference between applied and bound policies is commonly referred to as “water”, and also occurs in goods agreements.

Miroudot and Pertel (2015) use the OECD STRI methodology to assess the level of water in services, and find that it is substantial, i.e., as we have indicated, applied policies are usually significantly more liberal than GATS bindings.

Clearly, quantifying services policies and assessing their economic impacts is a complex task relative to the baseline case of tariffs in goods markets. Tax incidence is well understood in microeconomics, and data are easy to come by. Collecting data on regulatory measures—whether NTMs in goods or in services—requires examination of primary texts, and use of a coding system to map particular policy measures to quantitative indicators. We discuss the methodology for doing so in more detail below, in relation to the OECD STRI methodology.

2.3 New Ways of Trading Services

An additional element that needs to be considered in the current global economy is embodied services trade. New data from the OECD-WTO Trade in Value Added (TiVA) database suggest that a substantial amount of services output is “embodied” as inputs in physical products, and then effectively exported indirectly.¹ For instance, a manufacturer of processed foods uses transport services as an input, to move supplies from one location to another, and to ship final output to consumers. The value of those transport services is effectively incorporated in the price paid by the final consumer, and represents an indirect way of trading transport services.

No data are available for Northern Ireland, but data for the UK as a whole suggest that just under 40% of the gross value of manufacturing exports is accounted for by value added originating in the services sector (both domestic and foreign, largely European). This kind of trade in embodied services is quantitatively important, and the input-output linkages behind it are suggestive of additional impacts of changes to services trade policies: it is not just final consumers of services that are affected, but also intermediate consumers, i.e. businesses, that then often export. So reforms to services policies can be expected to have significant spillover or “knock on” effects to other parts of the economy. For instance, Hoekman and Shepherd (2017) find evidence at the level of individual firms, as well as aggregate trade data, that performance of the services sector is positively linked to the export ability of manufacturing firms.

2.4 Services Trade in the EU and the Single Market

The four pillars of the EU Single Market are freedom of movement of goods, services, capital, and persons. Subsequent treaties, Directives, and Regulations have specified what, in concrete terms, these freedoms mean for particular markets and in particular cases. But it is important to stress that they correspond closely to the GATS Modes of Supply: free movement of services covers Mode 1, free movement of capital covers Mode 3, and free movement of persons covers Modes 2 and 4. Of course, effective implementation of these freedoms is complex in practice. Nonetheless, the EU’s legal framework for the Single Market in services is a most comprehensive set of rules covering international trade in services that goes significantly further in reducing barriers to intra-regional trade than do bindings in most other RTAs. The GATS uses a positive list framework for scheduling concessions, meaning that countries only accept policy bindings where they explicitly indicate such. Many RTAs have replicated this approach, although there are also examples of negative lists, where all sectors are covered by a particular discipline unless explicitly excluded. The EU framework, however, goes much

¹ There have been calls to label this kind of trade “Mode 5”, following the GATS classification outlined above. However, to date “Mode 5” trade does not have any distinct legal reality, either in the WTO Agreements or any RTA. We therefore refer to it using technical language, namely embodied services trade.

further. By definition, it covers all sectors and Modes of Supply. The European Commission and the Court of Justice have the ability to enforce compliance with Directives and Regulations designed to deepen the common market. As such, the degree of effective policy liberalization within the EU—limited in scope to other EU or EEA members—is much greater than what is available on MFN terms, or even in most other RTAs.

The comparatively liberal environment for intra-EU services trade is reflected in the importance of that trade in global perspective. Considering only services trade as recorded in the balance of payments—so excluding Mode 3—over 40% of the UK’s total services exports go to EU countries. Any change to the regulatory structure governing this trade, including EU exit, clearly has the potential to affect that very significant amount of trade. To be clear, the importance of the UK’s services trade with the EU is a factor of geography as well as regulatory measures: the commonly used gravity model of trade suggests that countries trade more with those markets closest to them when all other factors are kept constant (Kimura and Lee, 2006). But there is also clear evidence that regulatory measures affect the value of services trade (van der Marel and Shepherd, 2010), which means that liberalization of intra-EU trade can correspondingly be expected to increase the value of that trade above what it would be in the absence of such liberalization, keeping all other factors constant. Similarly, removal of a relatively liberal policy framework would cause the value of trade to fall, although some of the loss would be made up by exports to third markets, as influenced by factors like distance and market size.

Mayer et al. (2018) present empirical evidence using a gravity model on a number of important points. First, they show, as has the previous literature, that distance matters for services trade: in other words, countries tend to trade more with the markets closest to them. There is no sense in which the “world is flat” for services trade, even with the great advances seen in ICTs over recent decades. The second important point they make is that EU membership has a much stronger trade promoting impact than membership of an “average” RTA: it is about three times larger, which is about the same difference as they observe for goods trade. Although the Single Market is imperfect, the data suggest that it is nonetheless more strongly trade promoting for its members than is a typical RTA. Together, these results help explain why so much of Northern Ireland’s services exports are directed to the EU, in particular IRL: these markets are much closer than other major sources of demand, and policies restricting exporters in Northern Ireland are less of an impediment than is the case for other markets, even those with which the UK, through the EU, as a “standard” RTA in place that covers services trade. Using firm-level data for Northern Ireland, InterTradeIreland (2018) finds that EU membership facilitates market entry by firms in Northern Ireland and IRL-owned firms, but impacts sales only for IRL-owned firms. These results also suggest that for Northern Ireland, much of the impact of the EU effect in the broader literature may be associated with the special trading relationship with IRL.

2.5 Dimensions of Policy Change under EU Exit

Given the importance of the services sector in the UK economy, and in particular in Northern Ireland, it is striking that so little public debate and analysis has focused in detail on this sector. From the perspective of Northern Ireland, there are, of course, certain issues related to goods trade that are of great importance for political and social reasons, such as the possibility of physical infrastructure at the border with IRL. We do not address those issues explicitly, as our remit is to look at services trade only. We therefore consider how EU exit could potentially affect the regulatory framework and market access possibilities facing service providers in Northern Ireland.

The most obvious dimension in which UK services markets would be affected following EU exit would be that the country, including devolved authorities under the constitutional settlement, would have further breadth to set its own regulatory policies in services markets, without necessarily following measures agreed upon within the EU. The UK would be free to adopt regulations that are more or less restrictive than current EU policies, or policies that are equally restrictive but simply different from those in force in the EU-28 (taking account of the scope member states already have to implement EU rules differently in their own services markets as a matter of practice). Liberalizing UK services policies could make it easier for providers from third markets to enter, but there would be cost in terms of trade with the EU due to the impact of regulatory heterogeneity, which is known to decrease trade flows (Nordas, 2016). The main legal constraint under which UK regulatory authority would operate would then be the GATS, with policy bindings as defined in its schedule of commitments (which is currently being negotiated independently from the EU), and the core rules of MFN treatment and national treatment.

A second dimension is market access for Northern Ireland service providers. As the discussion above makes clear, the available empirical evidence strongly suggests that withdrawal from the Single Market in services would make it more difficult for local firms to access European markets. There are different scenarios for what the future trading relationship between the UK and the EU could look like, but the empirical evidence suggests that measures that are less comprehensive than Single Market membership are likely to worsen market access relative to that benchmark (the current baseline). Again, the UK would have the power to alter its own regulations in a way that may reduce trade costs with third markets, for instance by reducing regulatory heterogeneity with another market, like the USA, while increasing it with Europe. In this case, trade gains with that third market would be a positive force in the ledger, to balance against worsened market access with Europe. The importance of gravitational forces suggests, however, that it would be difficult to build up third country trade sufficiently to completely compensate for lost market access in Europe. Nonetheless, the balance of costs and benefits from this kind of regulatory change is not an issue we provide a full answer on, as it requires a detailed empirical analysis of trade flows and their determinants; our remit is only to look at the impact of EU exit on services policies.

An additional dimension of market access relates to the EU trade agreements with third countries. If the UK succeeds to these agreements on the same terms, then market access would likely stay approximately what it is now. If it does not, access to these third country markets would also become more difficult. After leaving the Single Market, the UK would be free to sign its own trade agreements with third countries, which could in principle be more liberal or less liberal than those the EU has signed. However, that prospect is not an immediate one, as trade agreements typically take years to negotiate.

Thus far, we have kept the discussion general, and have not focused on particular sectors or modes of supply. Of course, there are particular regulatory issues that arise in each sector, which will need to be dealt with on a case by case basis. Although they have specificities, the general pattern of discussions will necessarily be around the issues we have identified above. The same is generally true of modes of supply, but there is one dimension that deserves special attention: the link between Mode 4 trade and freedom of movement as it relates to natural persons.

We do not address the public debate on freedom of movement, but simply note that if free movement for EU citizens is no longer guaranteed following EU exit, that would necessarily restrict trade under Mode 4. Again assuming that the EU applies similar restrictions on a reciprocal basis, it would mean that service providers from Northern Ireland looking to sell services within the EU through personal

contact would need to ensure compliance with relevant visa and work permit rules, which is not currently the case under the Single Market. This measure would tend to restrict trade in Mode 4 services.

The reason for singling out this one mode of supply for special treatment is that it is linked to the issue of border infrastructure on the island of Ireland. The Common Travel Area (CTA) between IRL and the UK predates the Single Market, and effectively guarantees free movement of natural persons between the two countries. Based on legal advice received by DfE, we understand that the CTA would continue in force following EU exit, and would allow service providers to move between the two countries without visa checks at the point of entry, as is currently the case. Following EU exit, the environment for Mode 4 services trade between the UK, including Northern Ireland, and IRL would remain more liberal than the discussion above suggested would generally be the case for trade with other EU members.

Any conceivable way in which the UK could exit the EU would involve a combination, perhaps a complex one, of the various issues discussed above. In summary, there is the likelihood of market access losses with respect to the EU in a general sense, but there could also be market access gains with third countries. However, the balance between these two effects depends in part on the trade and regulatory policies put in place in UK services markets following exit. We therefore do not comment on the balance of gains and losses as a matter of principle. We leave it to others to work out the empirical details of this calculation as the services landscape becomes clearer.

2.6 Current State of Play: Services in EU Exit and Plausible Scenarios

Following the meaningful vote on the Withdrawal Agreement in the House of Commons on January 15th, 2018, it is impossible to say much for certain regarding the conditions or timing of EU exit. We do not present a detailed analysis of the Withdrawal Agreement, as it has not received Parliament's approval in the UK. We note that the UK lodged an Article 50 declaration on March 29th, 2017, thereby beginning a two-year period of negotiation leading to EU exit. That period expires on March 29th, 2019. However, the European Court of Justice ruled in December 2018 that the UK has the legal possibility of unilaterally revoking that declaration prior to that date. We do not express any view on the likelihood or desirability of such a course of action, we simply note that it is one possibility among many.

In keeping with the emphasis of public discussions on EU exit on goods markets, the Withdrawal Agreement says relatively little on services. The Political Declaration accompanying it states that the EU and the UK “should conclude ambitious, comprehensive, and balanced arrangements on trade in services and investment in services”. However, it only goes on to identify a selection of issues that such arrangements could address, going into more detail in the case of financial services, but generally not addressing specific regulatory questions that frame market access. The Agreement itself, for its indicative value only following the meaningful vote, provides for a common customs territory in goods, but does not specify analogous arrangements for services. We conclude that even before the meaningful vote, the landscape facing service providers in Northern Ireland with respect to EU exit was extremely uncertain, with no clear boundaries in place for what a future arrangement with the EU might look like in terms of technical issues like rules and standards, or market access guarantees. However, the intent of the Withdrawal Agreement is to preserve current market access conditions for services during the UK's transition period; the uncertainty stems from the fact that the future relationship that would govern trade in services is as yet quite uncertain and ranges across a number of different possibilities.

Against this background, we stress that we do not try to map out a particular course of action as the most likely scenario for EU exit in services markets. Instead, we take a number of plausible scenarios to provide indications of what might be possible in the future. Figures based on these scenarios, which we present below, are not intended to be forecasts for a given time horizon, but instead are provided to give a sense of what the reasonable bounds of the impact of different scenario types might be. We explicitly refrain from expressing a view on the likelihood or desirability of any particular scenario type in light of current, and ever changing, political developments.

Concretely, we consider the following scenarios, based on extensive discussions with DfE:

1. **Norway-Like Agreement:** Under this scenario, the UK, including Northern Ireland, would exit the EU but sign a deep RTA with the EU containing provisions based on Norway's undertakings within EFTA, or indeed accede to EFTA itself. We assume that the objective of the UK is not to liberalize further with respect to EU service providers, so we compare current treatment of EU service providers in the UK (and Northern Ireland) and Norway, and retain as an indicator of what a Norway-like agreement could look like, the less liberal of the two. The pertinence of this scenario is that the agreement with Norway represents an outline of what the EU would be willing to accept as a close association agreement going well beyond a traditional RTA. Policies in EU countries would remain unchanged, as they currently treat Norwegian service providers in the same way as UK service providers.
2. **CETA-Like Agreement:** Under this scenario, the UK, including Northern Ireland, would exit the EU but sign an RTA with the EU containing provisions based on Canada's undertakings in CETA. Again we assume that the objective of the UK is not to liberalize further with respect to EU service providers. But similarly, we assume that the UK does not wish to close its markets, and therefore would not alter its MFN policies to make them more restrictive than they currently are. We therefore compare current policy settings in the UK and Northern Ireland with those agreed under CETA, and take whichever is less liberal, subject to current MFN settings being an absolute maximum. We assume that EU countries apply the provisions of CETA agreed at the European level, and when provisions differ across member states, they apply those of IRL, as Northern Ireland's largest trading partner. The pertinence of this scenario is that it indicates what could be expected under a more standard RTA between the UK and the EU, as opposed to the closer association of a Norway-like agreement.
3. **Northern Ireland Only in the Single Market:** Under this scenario, the UK as a whole exits the EU, but Northern Ireland remains in the Single Market while the other parts of the UK are outside it. From a legal perspective, this scenario is very challenging. But for modeling purposes, we can assume that Northern Ireland continues to apply its current policies with respect to EU service providers, and vice versa, but that the rest of the UK switches to MFN policies, as does the EU with respect to the rest of the UK. We further assume that mutual recognition within the UK means that no additional barriers are erected to trade between Northern Ireland and the rest of the UK as a result of this scenario. We believe the pertinence of this scenario is that it demonstrates the types of considerations that could arise in keeping services markets on the island of Ireland unified at the same time as the UK exits the EU.
4. **No Deal:** Under this scenario, EU exit occurs without any form of trade agreement in services between the UK, including Northern Ireland, and the EU. As a result, all parties revert to applying MFN policies to each other's service providers. We note that applied MFN policies are much more liberal than what is contained in GATS schedules, which are bound or ceiling policies; see the discussion of water in the GATS, above. We assume that neither party is interested in further restricting its market, and so does not make use of EU exit to put in place

more restrictive MFN policy settings. The pertinence of this scenario is that it shows the types of effects that could be involved in moving abruptly out of a close integration agreement like the Single Market without any other form of agreement in place, other than joint membership of the WTO, which imposes the obligation to apply the same trade policies to all trading partners unless an RTA is in place, or an explicit derogation has been listed in a country's schedule of commitments.

Together, these scenarios help put some generally plausible bounds on the shape, and potential trade policy implications, of EU exit. We re-emphasize that the objective here is not to conduct an economic impact analysis, but to produce an input into such an analysis, namely summary indicators of how services policies would change under the various scenarios. We now turn to an examination of how we do that.

3 QUANTIFYING SERVICES POLICIES: THE OECD STRI METHODOLOGY

3.1 Overview of the STRI Methodology

Measuring trade restrictiveness for services is different from measuring it for goods. Goods encounter trade barriers from border taxes (customs duties), as well as quantitative restrictions (quotas) and other NTMs. These measures are typically applied at the border, but some NTMs can also be applied behind the border, in the form of regulatory measures and standards that affect trade. In services trade, frictions come primarily from regulatory measures, which are more akin to NTMs in goods. In goods, comparing restrictiveness of tariffs across countries is relatively simple at the product-level: it is possible to simply compare tariff schedules, with a higher ad valorem tariff indicating a more restrictive policy stance. While difficult issues of aggregation arise in the construction of economy-wide measures of restrictiveness even in goods (e.g., Kee et al., 2009), the situation is much less complicated than in services due to the preponderance of tariffs.

Conceptually, three stages are involved in estimating the restrictiveness of trade policy settings in services. First, it is necessary to collect data on a wide range of regulations that affect the ability of service providers to contest markets (entry barriers), and the cost of doing business for providers in the market (ongoing conduct barriers). Individual regulatory measures need to be coded according to a pre-determined key so that the qualitative information contained in them can later be transformed into a quantitative scale, where a higher score indicates a more restrictive policy. To provide some intuition, Table 1 presents examples of common restrictions affecting particular modes of supply.

Table 1: Examples of policy restrictions by mode of supply.

Mode	Examples of restrictions
Mode 1: Cross-border supply	<ul style="list-style-type: none"> • Requirement for foreign service providers to establish a commercial presence, i.e., requiring them to switch to another mode of supply; • Restrictions on business outsourcing; • Regulations on consumer protection that unduly restrict trade.
Mode 2: Consumption abroad	<ul style="list-style-type: none"> • Travel restrictions to the country where the service supplier is based and the service is offered; • Regulations on domestic recognition of documents proving the act of receiving certain services (e.g., domestic recognition of foreign degrees in educational services).
Mode 3: Commercial presence	<p>Restrictions on establishment:</p> <ul style="list-style-type: none"> • Licenses; • Quotas on establishment; • Restrictions on certain forms of legal entity; • Minimum capital requirements; • Limitations on the share of foreign capital; • Prohibition of FDI in certain sectors; • Location conditions. <p>Restrictions on operation:</p> <ul style="list-style-type: none"> • Local content requirements; • Operational permits and licenses.
Mode 4: Movement of natural persons	<ul style="list-style-type: none"> • Visa requirements; • Quotas on inflows of temporary workers; • Limitation of the maximum period of stay.

Source: Authors.

Once this data collection exercise has been completed sector by sector—because heterogeneity is more of a factor in services trade than is the case for goods—it is necessary to move to the second step of the methodology, namely aggregating individual policy measures to produce what has come to be termed a Services Trade Restrictiveness Index (STRI). STRIs are sector-specific, and summarize the level of restrictiveness of the full set of regulations affecting that sector, both horizontal measures (i.e., those that affect all sectors), and sector-specific measures. A key issue that arises in this kind of aggregation is weighting: should all measures be given equal weights in the STRI, or are some types of policies more restrictive than others? Various approaches to this question are possible, ranging from purely statistical weighting schemes (e.g., Dihel and Shepherd, 2007) to the use of expert judgment.

Third, once the STRIs have been obtained, an econometric model can be used to relate them to economic outcomes of interest, such as prices, costs, or trade flows, to produce estimates of the economic impacts of restrictions on services trade. This methodology is originally due to the Australian Productivity Commission (see Dee, 2005, for a review).

3.2 International STRI Projects

Since first being deployed in selected sectors in the early 2000s, STRIs have been taken up by leading international organizations active in the trade domain. The World Bank's STRI project covers 103

countries and five sectors (Borchert et al., 2014). It records policy restrictions in place in around 2008-2010, based on a survey of law firms for developing countries, and publicly available sources for OECD countries. The range of policy restrictions captured is relatively narrow, focusing only on those that embody legal discrimination against service suppliers from other countries. The World Bank is currently updating the database in conjunction with the WTO, but as of writing, these data are not available.

The second major STRI project is conducted by the OECD. It covers 44 countries and 22 sectors. The database and indices are updated annually starting in 2014. As such, it represents a more detailed reading of policies in sectoral terms than the World Bank database, and has the advantage of representing a clear moment in time, with regular updates. In addition, it also captures some non-discriminatory policies that affect services trade. This is an important point: as Dee (2005) argues, it is likely that non-discriminatory services policies typically have bigger economic impacts than discriminatory measures, because they affect the real resource cost of doing business, not just the ability of incumbent firms to earn economic rents. Whereas the World Bank project primarily relies on law firms to supply information on policy restrictions, the OECD collects data directly, then validates it with government. Based on its greater level of sectoral specificity, its inclusion of some non-discriminatory policies, its data collection methodology, and the fact that it is updated regularly, we believe that the OECD STRI currently represents the efficient frontier in terms of quantifying barriers to trade in services.

3.3 The OECD Approach

In terms of the three steps identified above, we can briefly summarize the OECD methodology, which is set out in full by Geloso-Grosso et al. (2015). The first step is undertaken by the team directly using Excel sheets to code information about possible policy restrictions, and to note sources for transparency and dialogue purposes. These sheets have been provided to DfE, and support the results reviewed in Section 6. Most measures are coded as one (restriction) or zero (no restriction), or where there is a numerical answer, the methodology applies thresholds for binary scores. One complexity of services regulations is that apparently liberal policies in one area can be rendered *de facto* null and void by a single highly restrictive measure in another area. For instance, if the foreign equity limit for services firms in a particular sector is zero—i.e., FDI is not permitted—then a lack of other specific measures dealing with foreign providers does not mean that the sector is liberal: in fact, it is completely closed for Mode 3. For that reason, the OECD methodology takes account of dependencies among measures by coding dependent measures as one if there is a related measure that has the effect of closing the market. On the flipside, complementary measures are grouped and scored as zero only if all measures in the bundle are not restrictive.

To aggregate these data into an STRI, the OECD methodology applies expert weights. Specifically, the organization convened expert meetings for each sector, to bring together experts proposed by member countries, as well as others from the World Bank, WTO, and the Secretariat itself, including specialized departments. Together, these experts concentrated on identifying relevant policy measures for inclusion in the STRI, and deciding on how each measure should be weighted relative to the others.

Finally, to translate the numerical STRI—which ranges between zero and one—into an economic impact, Benz (2017) uses the concept of an *ad valorem* equivalent. We adapt his method here, as per the explanation in Section 5. AVEs measure the size of the wedge, in percentage terms, that policies drive between producer prices in the exporting country and consumer prices in the importing country. They can be used directly in a CGE model to establish economic impacts associated with different policy scenarios, in terms of variables like GDP or employment.

We follow the OECD's approach here, in the interests of rigor, comparability, and transparency. We emphasize that the STRIs constructed in this way measure de jure restrictions in place, not other de facto impediments that may exist to the operations of services firms. That is an important, but distinct, question. The next section discusses our approach to data collection and analysis in more detail, noting in particular the innovation of looking at preferential (within the EU) as well as MFN policies, and the relationship between baseline and counterfactual data collection techniques.

4 DATA ANALYSIS AND CODING

DTC's data collection and coding processes began on the 29th of July and ended on the 10th of December 2018. Our team covered a total of 17 sectors in Northern Ireland (see Annex 1). The results of the coding process are based on data available as of December 2018, when DfE completed its validation process.

DTC coded responses to 1643 variables per coding exercise, and it conducted a total of five coding iterations. Each of the former required a thorough analysis of more than 200 regulatory and legislative sources, and of the provisions of an RTA, respectively. Most of these sources were freely available online, with only a few exceptions where DTC required expert assistance from DfE.

The OECD Secretariat provided DTC with coding sheets identical to the ones used to undertake their own STRI data collection. To further ensure that the analysis of legislative and regulatory sources resulting in the final coding was rigorous, comparable, and transparent, DTC also relied on the OECD's Sector Guidelines. It is worth underlining that the team measured *de jure* restrictions in place and did not consider any *de facto* impediments that may otherwise obstruct trade in services flows.

The final data collected according to the OECD's protocols was submitted to its Secretariat, that graciously agreed to assist in producing aggregate STRIs using their own proprietary algorithm to weight and convert data to summary indices. We discuss these results separately below. This section describes the data collection exercise in more detail, in the interests of being as transparent and replicable as possible.

In the remainder of this section, we discuss the coding exercises undertaken for the baseline and each counterfactual scenario separately. We provide details on the types of data collected, the sources consulted, and the methods used to ensure completeness and consistency. The presentation makes use of concrete examples that guide the reader through exactly how particular analytical decisions were made.

4.1 Baseline STRIs

The baseline scenario represents the current state of play for services trade in Northern Ireland. It has two components: policies applied to service suppliers from EU member countries, and policies applied to other countries under the MFN rule. We consider each in turn.

4.1.1 MFN Policies

This coding exercise was meant to produce the standard OECD STRI based on MFN policies (general trade in services policy environment) that Northern Ireland maintains as of 2018. The baseline for this exercise was the OECD's UK STRI that includes a data series for the UK as a whole. Departures from the UK STRI were recorded in those cases where the laws of Northern Ireland differed from those applicable in England, Scotland, or Wales.

The following steps were undertaken as part of the coding exercise:

- Identifying the complete set of laws and regulations cited in the OECD's UK STRI.
- Verifying the extent to which those sources also applied to Northern Ireland (via study of the Devolution settlement), and subsequently developing a list of Northern Ireland-specific references.
- Thoroughly reading Northern Ireland-specific references, together with the OECD's Sector Guidelines, to produce the final coding indices.

Online sources were used for the legal and policy research, supplemented by direct consultations with DfE and the OECD. DfE was requested to validate the findings in partnership with NICS and confirm that the policy differences with respect to the OECD's UK STRI were accurate. The validation process was successful, and no adjustments of substance were necessary.

To see how the coding process was undertaken in practice, we consider an example, which is the same across all scenarios. We take measure 2_3_2 from the maritime transport STRI. This measure is coded based on the length of time natural persons are permitted to stay on the national territory in the context of providing services, in this case typically crew members of a vessel. The entry is equal to the number of months of stay that are authorized under the law.

To code this measure under MFN settings, we first used the UK MFN database and coding. We then checked legal sources to establish whether or not the same treatment applies in Northern Ireland. Having satisfied ourselves that that is indeed the case, we followed the UK MFN coding of 61 months. The summary below shows all elements coded for this measure in the database supplied to DfE:

Sector: Maritime transport

Heading: Restrictions to movement of people

Sub-heading: Duration of stay for natural persons is limited (months)

Variable no.: 2_3_2

Measure: Limitation on duration of stay for contractual services suppliers (months)

Answer 2018: 61

Source 1: Immigration Rules.

Details 1: UK, Archive of Immigration Rules, published on 25 February 2016, last amended on 6 July 2018, Part 6A, 245HC.

Hyperlink 1: <https://www.gov.uk/government/publications/immigration-rules-archive-11-january-2018-to-14-january-2018>

Source 2: Visas and Immigration.

Details 2: UK, Government, Visas and Immigration: Working Visas, Tier 2 (General) Visa.

Hyperlink 2: <https://www.gov.uk/tier-2-general>

Comment: For Tier 2 (General) Visa, the maximum duration of stay is 5 years and 1 month.

4.1.2 Preferential (EEA) Policies

This coding exercise produces a preferential OECD STRI based on intra-EU policies that apply in Northern Ireland. The focus of this coding iteration was the treatment of EU service providers (and not rest-of-the-world) in Northern Ireland. The OECD's EEA UK STRI, which includes a data series for the UK as a whole, served as a baseline. Departures from the EEA UK STRI were recorded in those cases where the laws of Northern Ireland differed from those applicable in England, Scotland, or Wales.

The following steps were undertaken as part of the coding exercise:

- Identifying relevant EU Directives and Regulations applicable in each sector of interest.
- Verifying transposition laws of those EU Directives and Regulations in the UK as a whole, and in Northern Ireland specifically.
- Analyzing each Directive and Regulation for Northern Ireland-specific derogations or opt-outs.

Online sources were used for the legal and policy research, supplemented by direct consultations with DfE and the OECD. DfE was requested to validate the findings in partnership with NICS and confirm that the policy differences with respect to the OECD's UK STRI were accurate. The validation process was successful, and no adjustments of substance were necessary.

We again present a concrete coding example using the permitted length of stay of natural persons in the maritime transport sector. For the EEA coding, we first used the EU legislation on the movement of natural persons, namely relevant Treaties and Directives. We then checked whether any instruments transposed those rules into UK law. In this case, we found that a specific Northern Ireland regulation applied. We examined that regulation and found that there were no restrictions for the movement of natural persons from EEA countries in this sector, so the answer was coded as “NA” (not applicable) as per OECD coding guidelines. The summary below sets out the coding approach and sources for this example.

Sector: Maritime transport

Heading: Restrictions to movement of people

Sub-heading: Duration of stay for natural persons is limited (months)

Variable no.: 2_3_2

Measure: Limitation on duration of stay for contractual services suppliers (months)

Answer 2018: na

Source 1: Treaty on the Functioning of the European Union.

Details 1: Treaty on the Functioning of the European Union, entered into force on 1 December 2009, Article 45.

Hyperlink 1: <http://eur-lex.europa.eu/legalcontent/EN/TXT/PDF/?uri=CELEX:12012E/TXT&from=EN>

Source 2: Conduct of Employment Agencies and Employment Businesses Regulations (Northern Ireland) 2005.

Details 2: NI, Conduct of Employment Agencies and Employment Businesses Regulations (Northern Ireland) 2005, No. 395, entered into force on 25 December 2005.

Hyperlink 2: <http://www.legislation.gov.uk/nisr/2005/395/contents/made>

Source 3: Directive 96/71/EC

Details 3: Directive 96/71/EC of the European Parliament and of the Council of 16 December 1996 concerning the posting of workers in the framework of the provision of services

Hyperlink 3: <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:31996L0071>

4.2 Counterfactual STRIs

The previous section looked at coding of the baseline STRIs, namely those capturing policies in effect in fact as of 2018. This section is concerned with coding counterfactual STRIs, namely “imagined” STRIs based on a particular policy scenario linked with EU exit. We follow the scenarios set out above in presenting each case separately. In all cases, we have retained the CTA in its present form, so movement of natural persons between the UK and IRL is assumed to be without restriction, even if restrictions are introduced vis-à-vis other EU nationals in some of the scenarios.

4.2.1 Norway Scenario

Under the Norway scenario, Northern Ireland would maintain preferential policies for service providers from the EU in much the same way Norway currently does, even though it is not an EU member but is a member of the EEA. Before turning to the coding of this scenario, it is important to stress that EU members do not all treat service providers from other EU member states in exactly the

same way, due to differences in implementation of relevant Regulations and Directives, or delays in their application. The Norway scenario therefore does not necessarily involve Northern Ireland simply keeping its current policy settings with respect to EU-origin service providers. Rather, we have assumed that the desire of UK negotiators for this scenario would be to negotiate an agreement that is at least no more liberal than current policy settings, and preferably less liberal, in line with the desire to exit the EU.

In coding this scenario, therefore, we compared STRIs for Northern Ireland and Norway at the level of individual questions, and adopted the less liberal of the two as the answer to the relevant question for this counterfactual exercise. We believe this approach puts some structure on what could be envisaged as acceptable to negotiating partners given the incentives behind EU exit negotiations, but also what has been accepted historically by those same negotiating partners.

The following steps were undertaken as part of the coding exercise:

- Studying the Northern Ireland EEA coding.
- Studying the Norway EEA coding.
- Comparing the two code sets.

To make the process clear, we again trace through the coding example of restrictions on the movement of natural persons in the maritime transport sector. We started by using the Northern Ireland EEA coding, as discussed above. We checked that against the Norway EEA coding to see which was more restrictive. In this case, Norway and Northern Ireland both apply the same treatment for movement of natural persons in the maritime transport sector, so the final coding for this scenario was unchanged from the Northern Ireland EEA coding. Sources similarly remain identical.

Sector: Maritime transport

Heading: Restrictions to movement of people

Sub-heading: Duration of stay for natural persons is limited (months)

Variable no.: 2_3_2

Measure: Limitation on duration of stay for contractual services suppliers (months)

Answer 2018: na

Source 1: Treaty on the Functioning of the European Union.

Details 1: Treaty on the Functioning of the European Union, entered into force on 1 December 2009, Article 45.

Hyperlink 1: <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:12012E/TXT&from=EN>

Source 2: Conduct of Employment Agencies and Employment Businesses Regulations (Northern Ireland) 2005.

Details 2: NI, Conduct of Employment Agencies and Employment Businesses Regulations (Northern Ireland) 2005, No. 395, entered into force on 25 December 2005.

Hyperlink 2: <http://www.legislation.gov.uk/nisr/2005/395/contents/made>

Source 3: Directive 96/71/EC

Hyperlink 3: Directive 96/71/EC of the European Parliament and of the Council of 16 December 1996 concerning the posting of workers in the framework of the provision of services.

Details 3: <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:31996L0071>

4.2.2 CETA Scenario

To code the CETA scenario, we refer directly to the CETA text. The Agreement came into force provisionally on September 21st, 2017, and many of its provisions have time periods of some years within which to be implemented. We therefore work with the provisions of the agreement (bindings) rather than applied policies, which may be incomplete, in this case. To proxy UK policies in the case of signing a CETA-like agreement, we use the corresponding concessions of Canada under CETA, as the EU's partner. To proxy EU policies in the case of signing a CETA-like agreement, we refer to EU-level concessions in the agreement, filled in with further details from IRL's concessions in cases where not all EU member states adopt the same rules. We have not coded the CETA scenario separately for each EU member state, as Northern Ireland's trade is most closely tied to IRL, which makes that country's policies the most relevant from an analytical point of view. Policies will not vary too widely from that baseline across the EU, but we would note that IRL has a relatively liberal regime, so our approach probably slightly understates the level of restrictiveness in other EU countries under a CETA-like agreement.

A key difference between the CETA scenario and the other scenarios is that given the current stage of implementation of the agreement, we can only code bound policies, not effectively applied policies. Our coding therefore represents a ceiling, or the maximum level of restrictiveness a party could implement and still be in accordance with the requirements of a CETA-like agreement. We recognize that applied policies would likely be more liberal than this benchmark, but it is currently not possible to assess them in a meaningful way. Nonetheless, bindings are also important as they put bounds on the type of treatment businesses can expect, and can affect commercial certainty (Miroudot and Lamprecht, 2018).

We start the presentation with the UK side of a CETA-like agreement. The focus here was to code the Canadian provisions/reservations in CETA that represent a probable position that the UK and NI would adopt, given the likely negotiating boundaries of the EU. Since the CETA core body provisions are quite broad, they were only useful from a complementary perspective (when the annexes were silent on a certain sector). Given the Canadian reservations are province-specific, and varied, we decided to code Ontario reservations (in those cases where provincial variation is present), and otherwise consider federal reservations. Where a sector at issue was fully liberalized (computer services), or when a matter was not addressed in CETA (mutual recognition agreements), the team used the fallback Northern Ireland MFN coding.

The guiding principle DTC used here was to consider CETA's reservations and annexes against Northern Ireland's existing MFN policies, and to take whichever is more liberal. Where CETA policies are more liberal, that suggests that EU negotiating partners may require that as a condition of signing a CETA-like agreement. Where existing MFN policies are more liberal, we do not believe they would change under a CETA-like agreement. We therefore recognize the difference between bound and applied rates in the CETA context, and make an attempt to combine information on both that provides a sensible indication of the direction a CETA-like agreement could take.

The following steps were undertaken as part of the coding exercise:

- Identifying the CETA provisions that were relevant to each sector.
- Analyzing the CETA annexes and reservations that were relevant to each sector.
- Making a side by side comparison be made between the substance of reservations and the Northern Ireland MFN coding.

To work through an example in this case, we need to first consider the Northern Ireland side of a CETA-like agreement. We therefore examined the text of CETA and found specific articles dealing with the duration of stay for natural persons (12 months), based on the obligations assumed by Canada under the agreement. The current Northern Ireland MFN regime is 61 months, which is more liberal than the CETA bound policy. Under the assumption that the UK would not change its MFN policies to less liberal settings in order to facilitate less liberal policies with regard to EU countries under a CETA-like agreement, we concluded that the coding should mirror current MFN policies. The entry is therefore 61 months. Sources provide the relevant articles of CETA, as well as the current UK policies.

Sector: Maritime transport

Heading: Restrictions to movement of people

Sub-heading: Duration of stay for natural persons is limited (months)

Variable no.: 2_3_2

Measure: Limitation on duration of stay for contractual services suppliers (months)

Answer 2018: 61

Source 1: EU and Canada Comprehensive and Economic Trade Agreement.

Details 1: Comprehensive and Economic Trade Agreement, between the EU and Canada, entered provisionally into force on September 2017, Art. 10.8(4).

Hyperlink 1: <http://ec.europa.eu/trade/policy/in-focus/ceta/ceta-chapter-by-chapter/>

Source 2: Immigration Rules.

Details 2: UK, Archive of Immigration Rules, published on 25 February 2016, last updated on 6 July 2018, Part 6A, 245HC.

Hyperlink 2: <https://www.gov.uk/government/publications/immigration-rules-archive-11-january-2018-to-14-january-2018>

Source 3: Visas and Immigration.

Hyperlink 3: UK, Government, Visas and Immigration: Working Visas, Tier 2 (General) Visa. <https://www.gov.uk/tier-2-general>

Comment: Under UK legislation, for Tier 2 (General) Visa, the maximum duration of stay is 5 years and 1 month. MFN treatment is more liberal than CETA. So it is very likely that such a more liberal regime will remain under a CETA-like Agreement.

We then repeated the process under the obligations accepted by the EU, and specifically IRL, in CETA. The summary is below, with the steps followed similar as to the above.

Sector: Maritime transport

Heading: Restrictions to movement of people

Sub-heading: Duration of stay for natural persons is limited (months)

Variable no.: 2_3_2

Measure: Limitation on duration of stay for contractual services suppliers (months)

Answer 2018: 12

Source 1: EU and Canada Comprehensive and Economic Trade Agreement.

Details 1: Comprehensive and Economic Trade Agreement, between the EU and Canada, entered provisionally into force on September 2017, Art. 10.8(4).

Hyperlink 1: <http://ec.europa.eu/trade/policy/in-focus/ceta/ceta-chapter-by-chapter/>

4.2.3 Northern Ireland Only in Single Market

The two scenarios above required original data collection and manipulation in order to produce counterfactual STRIs. The third scenario, that Northern Ireland stays in the EU Single Market while

the rest of the UK leaves it, does not require this kind of coding. Instead, we can assume that Northern Ireland retains its current preferential policies with respect to EU service providers, and similarly that EU countries maintain their current preferential policies with respect to Northern Ireland service providers. By contrast, trade between EU countries and the rest of the UK reverts to MFN terms.

The question of trade between Northern Ireland and the rest of the UK in this instance is in fact a complex one. Although not directly captured in the STRIs, the reality of leaving the Single Market is that substantial regulatory divergence could then take place. To prevent this divergence turning into a trade barrier between Northern Ireland and the rest of the EU, we assume that a system of mutual recognition can be put in place such that no barriers exist for such trade. We do not investigate in detail the nature of such an arrangement, nor comment on its feasibility, but simply note that it is necessary in order for this scenario to have a clear sense in terms of outcomes that could, in fact, be observed in some form.

4.2.4 No Deal

Similarly, the no deal scenario does not require any further data collection. In this case, trade between Northern Ireland and the rest of the UK, on one side, and EU member states on the other, simply reverts to MFN terms. The standard OECD STRIs contain comprehensive data on MFN policy settings, so we can easily use them to fill in this scenario.

5 CONVERSION OF STRIS TO AD VALOREM (TAX) EQUIVALENTS

As noted above, an STRI is a quantitative summary of the restrictiveness of policies affecting trade in services. A higher score indicates greater restrictiveness, but a score of, say 0.5, does not indicate that policies are necessarily “twice” as restrictive as a score of 0.25. The interpretation is largely ordinal, and scores cannot easily be compared across sectors.

To undertake more detailed comparisons, and to use STRIs in a CGE model, a necessary intermediate step is to convert them to ad valorem equivalents (AVEs). An AVE is, simply, the tariff (tax) equivalent of a particular STRI score. So if we say that a score of 0.5 equates to an AVE of 20%, it means that the policy restrictions together drive a 20% wedge between the price paid by the consumer in the importing country, and the price received by the producer in the exporting country. This approach involves a major simplification, namely an assumption that services policies can be properly understood as primarily affecting variable trade costs (per shipment). It is likely that many services policies in fact create fixed cost barriers to market entry, in the sense that the cost must be paid once regardless of quantity shipped (see Dee, 2005, for a review). Such barriers are likely more distortionary than variable cost barriers because they reduce competition in the importing market. As a result, we believe that AVEs represent a lower bound for the actual level of economic distortion introduced by services policies, but we work with them because they are well understood, easily integrated into standard CGE models, and there is a substantial literature on estimating them from the available data. Fixed cost barriers are less well understood, and there is no easy way to convert them to an indicator with the same ease of interpretation as an AVE.

An economic model is necessary to convert an STRI score to an AVE. Many approaches are possible, but the simplest is to use a gravity model, which expresses bilateral trade between two countries as proportional to their economic sizes, and inversely proportional to the trade costs (including policies) between them. This is the approach adopted by the OECD (Benz, 2017), which we adapt here.

The current standard for gravity modeling (Anderson et al., 2018) takes the following form (omitting sectoral notation):

$$(1) X_{ij} = \left(\frac{t_{ij}}{\Pi_i P_j} \right)^{1-\sigma} Y_i E_j$$

$$(2) P_j^{1-\sigma} = \sum_i \left(\frac{t_{ij}}{\Pi_i} \right)^{1-\sigma} Y_i$$

$$(3) \Pi_i^{1-\sigma} = \sum_j \left(\frac{t_{ij}}{P_j} \right)^{1-\sigma} E_j$$

$$(4) p_j = \frac{Y_j^{1-\sigma}}{\gamma_j \Pi_j}$$

Where: X is exports in value terms from country i to country j; E is expenditure in country j; Y is production in country i; t captures bilateral trade costs; sigma is the elasticity of substitution across varieties; P is inward multilateral resistance, which captures the dependence of bilateral shipments into j on trade costs across all inward routes; Π is outward multilateral resistance, which captures the

dependence of bilateral shipments out of i on trade costs across all outward routes; π is the exporter's supply price of country i ; and γ is a positive distribution parameter of the CES function.

The model is typically estimated using fixed effects, and so collapses into the following form:

$$(5) X_{ij} = \exp(T_{ij}\beta + \pi_i + \chi_j)e_{ij}$$

Where: T is a vector of observables capturing different elements of trade costs; π is a set of exporter fixed effects; χ is a set of importer fixed effects; and e is a standard error term.

The trade costs function can be specified as follows:

$$T_{ij}\beta = \beta_0 \log(\text{dist}_{ij}) + \beta_1 \text{contig}_{ij} + \beta_2 \text{colony}_{ij} + \beta_3 \text{comcol}_{ij} + \beta_4 \text{comlang}_{-off}_{ij} \\ + \beta_5 \text{intl}_{ij} + \beta_6 \text{STRI}_j * \text{intl}_{ij} + \beta_7 \text{rta}_{ij}$$

where dist is bilateral distance, contig is a dummy taking the value of one where countries share a common land border, colony is a dummy equal to unity when one country was a colony of the other, comcol is a dummy equal to unity when the two countries had a common colonizer, comlang_{-off} is a dummy equal to unity where countries have a common official language, intl is a dummy equal to one for international transactions (exporter and importer are different countries), STRI is the indicator of services trade restrictiveness, and RTA is a dummy equal to one if the two countries are members of the same RTA.

Then following Benz (2017), the AVE in percentage terms is calculated as follows:

$$AVE = 100 * \left(\frac{\exp(-\text{STRI}_j) * \beta_6}{1 - \sigma} - 1 \right)$$

The elasticity parameter is not observed, so we follow the OECD in setting it equal to 3. Final values of the AVEs are sensitive to this choice, but the ordering of countries and scenarios is not. We run the regression using the PPML estimator, and source data on gross value exports of services—including self-trade—from the OECD-WTO TiVA database. This database covers 63 countries that account for over 90% of world GDP, and is available for 2014, the earliest year for which STRI data are available. This approach to estimation—using PPML with fixed effects and data on self-trade—accords with current best practice in the literature, as typified by Anderson et al. (2018). Control variables, namely geographical and historical links, come from the CEPII distance dataset. Our RTA dummy comes from De Sousa (2012).

We take two approaches to estimating AVEs. First, we estimate an aggregate model on total services exports, using an average STRI score across all sectors as the policy variable. Second, we estimate sectoral models where it is possible to concord trade data with STRI data. That is only possible for a few sectors because internationally comparable trade data are only available for relatively aggregate sectors, whereas the STRI s are sometimes very disaggregated. Where possible, we calculate AVEs using sector-specific results. For sectors where that is not possible, we use results from the aggregate model to construct AVEs. In including the STRI in the gravity estimations, we innovate relative to the previous literature by using the OECD's EU-specific STRI s for intra-regional trade among the EU-28 and EEA members. Previous work has only used MFN policies, sometimes with a dummy interaction term to take account of EU specificities.

Table 2 reports estimation results. All models presented in Table 1 show a negative and statistically significant coefficient on the sectoral STRI , which accords with intuition: a higher STRI score means

a more restrictive policy environment, which should correlate with lower observed trade, keeping all other factors constant. The magnitude of the effect varies across sectors, which again is as expected. The only sector for which we do not report results is transport: the STRI coefficient is statistically insignificant, likely because the sectoral definition of the trade data (all transport) is much more aggregate than that of the STRIs themselves (transport by mode), which makes it difficult to obtain an overall indication of the restrictiveness of the transport sector.

Table 2: Gravity model estimates.

	Aggregate	Construction	Distribution	Financial	Computer	Communications
STRI*Intl	-2.362 *** (0.440)	-2.559 * (1.395)	-2.916 *** (0.569)	-3.620 *** (1.171)	-3.937 *** (0.986)	-6.134 *** (1.256)
Log(dist)	-0.504 *** (0.044)	-0.947 *** (0.142)	-0.511 *** (0.044)	-0.504 *** (0.087)	-0.482 *** (0.078)	-0.735 *** (0.115)
Contig	0.141 (0.127)	0.288 (0.267)	0.457 *** (0.117)	-0.693 * (0.363)	0.106 (0.251)	0.246 (0.259)
Colony	0.405 ** (0.166)	0.504 * (0.274)	0.407 *** (0.154)	0.179 (0.395)	0.120 (0.197)	0.321 (0.241)
Comcol	0.538 *** (0.156)	0.561 (0.387)	0.431 ** (0.189)	-0.215 (0.434)	2.025 *** (0.341)	1.178 *** (0.344)
Comlang	0.530 *** (0.178)	-0.213 (0.349)	0.247 * (0.129)	1.420 *** (0.355)	0.610 *** (0.215)	0.553 ** (0.224)
Intl	-4.480 *** (0.101)	-6.176 *** (0.273)	-3.628 *** (0.114)	-4.891 *** (0.259)	-3.965 *** (0.221)	-3.936 *** (0.283)
RTA	-0.005 (0.119)	-0.192 (0.207)	0.299 *** (0.085)	-0.772 *** (0.291)	0.171 (0.183)	0.005 (0.142)
Observations	2772.000	2772.000	2772.000	2772.000	2772.000	2772.000

Source: Authors. Note: Estimation is by PPML in all cases, with exports as the dependent variable. Robust standard errors adjusted for clustering by country pair are in parentheses below the parameter estimates. Statistical significance is indicated as follows: * (10%), ** (5%), and *** (1%).

6 DISCUSSION OF RESULTS

This section presents results in terms of AVEs. We take the export side (AVEs facing Northern Ireland exporters; foreign market access) and the import side (AVEs facing Northern Ireland consumers; domestic market access) separately. We present group averages (EU and non-EU countries) rather than data on individual countries, in order to improve readability and to provide an overall summary of market access changes associated with the various scenarios. Data on individual countries are available from DfE. Averages are calculated by applying 2017 current US dollar GNI weights. Annex 2 contains full details of the relevant numbers; the presentation here is graphical.

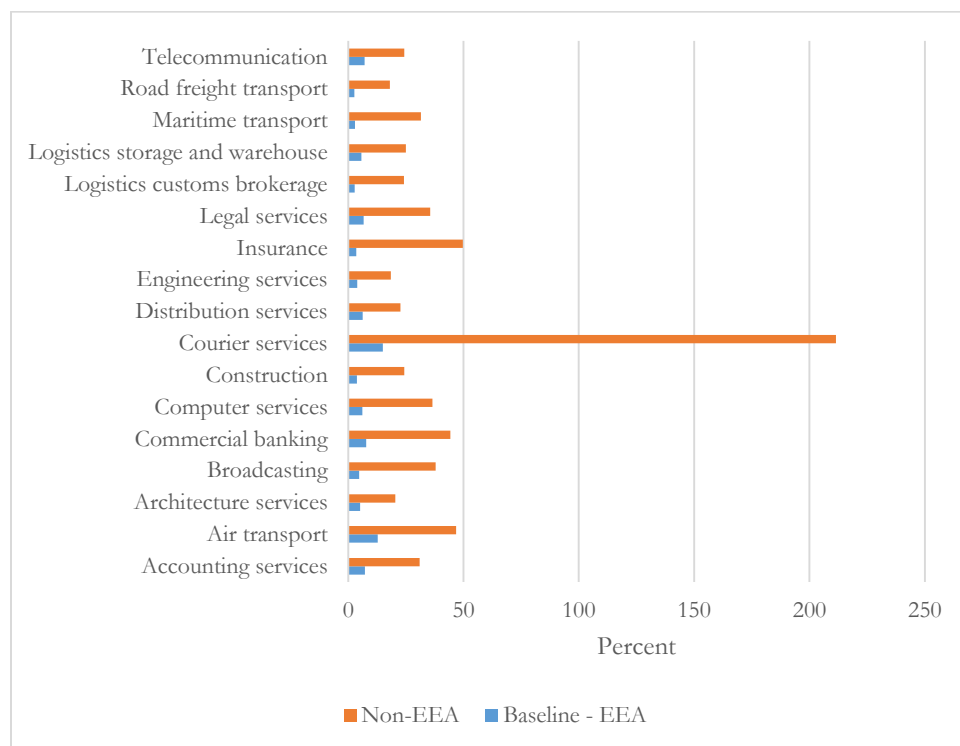
6.1 Baseline

Before discussing the results for the various scenarios, we provide some commentary on the baseline. There are two important issues for the baseline. The first is the difference between policy settings in Northern Ireland and those in the rest of the UK, based on the OECD's UK STRI. In most sectors, those differences are very small, no more than one or two percentage points in AVE terms; scores are frequently identical. There are a number of exceptions, however. For MFN policies, courier services have an AVE of 56% for Northern Ireland, but 49% for the UK. Similarly in distribution services, policies in Northern Ireland are slightly more restrictive, 18% versus 12%. By far the largest difference is in legal services, where the AVE for Northern Ireland is high at 82%, versus 16% for the rest of the UK. This major gap is due to a different regulatory approach to allowing the entry of foreign firms. When we move to considering policies vis-à-vis EU exporters, the differences are again very small in nearly all cases, but it is important to stress, as we make clear below, that AVEs are much lower for policies affecting European exporters than they are for policies affecting exporters from third countries. Sectors with significant differences are again courier services (28% in Northern Ireland versus 16% in the UK), distribution services (9% in Northern Ireland versus 3% in the rest of the UK), and legal services (8% in Northern Ireland versus 3% in the rest of the UK). The overall picture is therefore one of major policy convergence in services markets between Northern Ireland and the rest of the UK, but with some significant differences in a small number of sectors. This finding is unsurprising given the nature and scope of the constitutional arrangements in the UK.

6.2 Trade with Non-EU Countries

We can now move to consider the scenarios individually. First, on the export side, there are no policy changes in non-EU markets under any of the scenarios. As a result, AVEs facing Northern Ireland firms exporting to non-EU destinations are unchanged under all scenarios. We therefore first present the baseline in terms of AVEs facing Northern Ireland firms exporting to EU and non-EU destinations respectively. Figure 3 shows that, in line with the research discussed above, current market access conditions are much more liberal within the EU—in this case including Norway and Iceland, so technically the EEA—than outside it. The effect of the EU Single Market for services is clear in the much lower AVEs for intra-European trade compared with extra-European trade. This pattern is uniform across all sectors, although the difference varies from one to another. In most cases, AVEs faced by Northern Ireland exporters dealing with non-EEA countries are a multiple of those they face when dealing with EEA countries. In courier services, where the difference is largest, the AVE for intra-European trade is 15%, whereas for non-EEA trade it is 211%; in telecommunications, where the difference is smallest, it is still 7% versus 24%. Clearly, membership of the Single Market in services has a significant positive effect on the market access conditions facing firms in Northern Ireland.

Figure 3: AVEs facing Northern Ireland exporters, baseline, EEA and non-EEA countries.

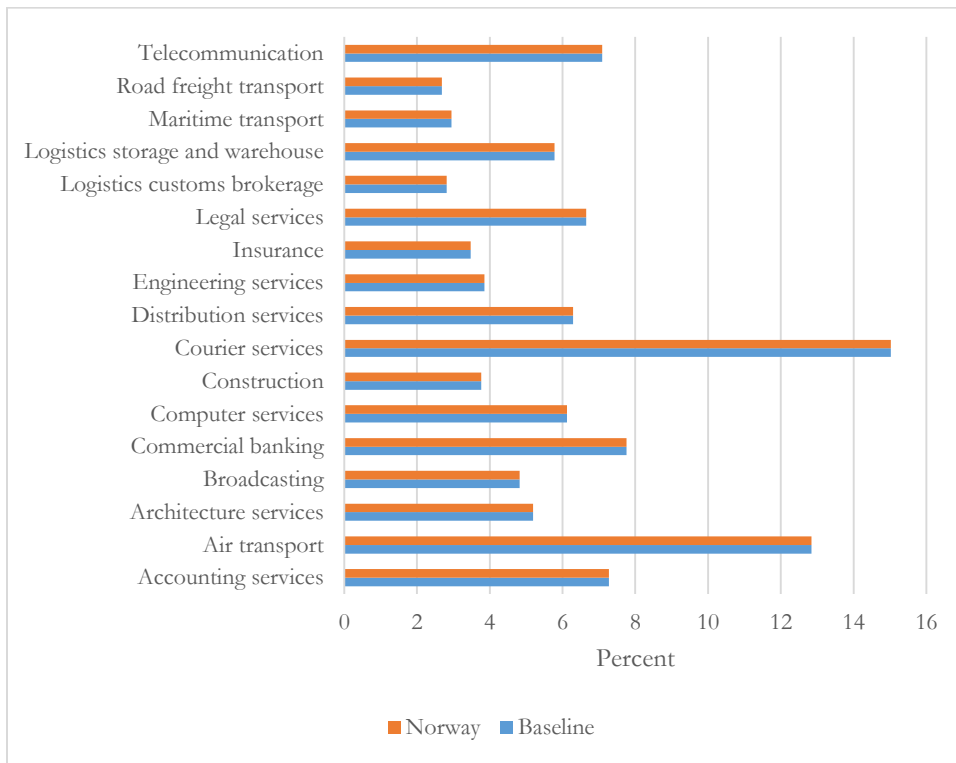


Source: Authors.

6.3 Trade with EU Countries: Export Side

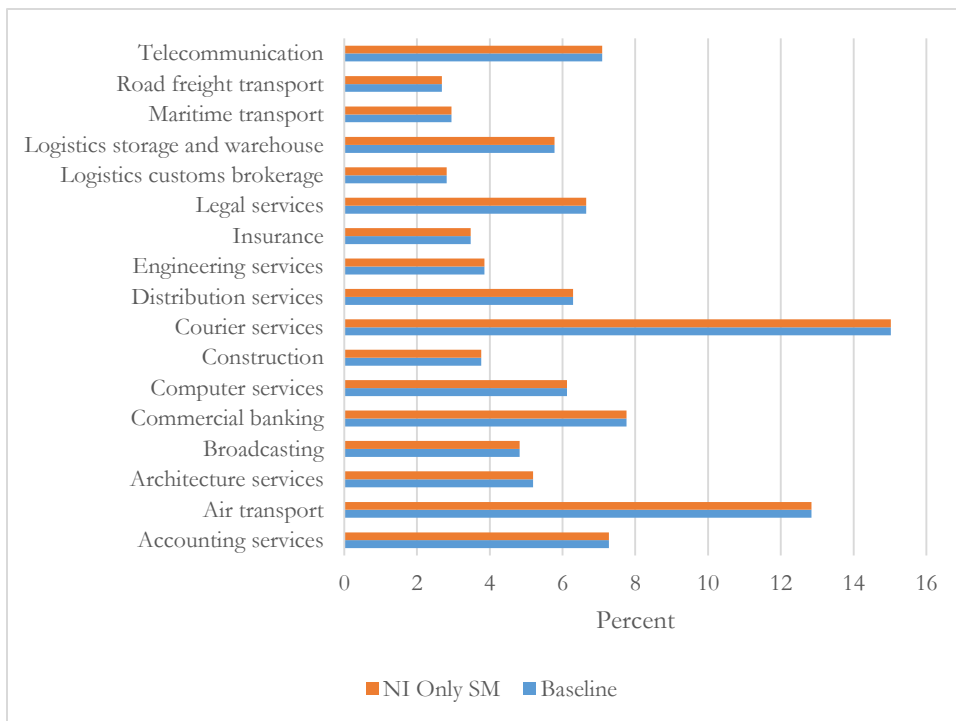
Having established the baseline, we now move to a consideration of the various scenarios. Figure 4 considers a Norway-like agreement. Since we are on the export side—market access conditions facing Northern Ireland exporters—there is no change from baseline in this scenario. The rationale is that other EU members currently treat Norwegian firms in the same way they treat firms from Northern Ireland, so under the hypothesis of a Norway-like agreement, that equivalence of treatment would continue. The same is true for the scenario in which Northern Ireland remains in the Single Market while the rest of the UK leaves (Figure 5): continued membership of the Single Market would imply that market access conditions would not change.

Figure 4: AVEs facing Northern Ireland exporters, baseline and Norway scenario.



Source: Authors.

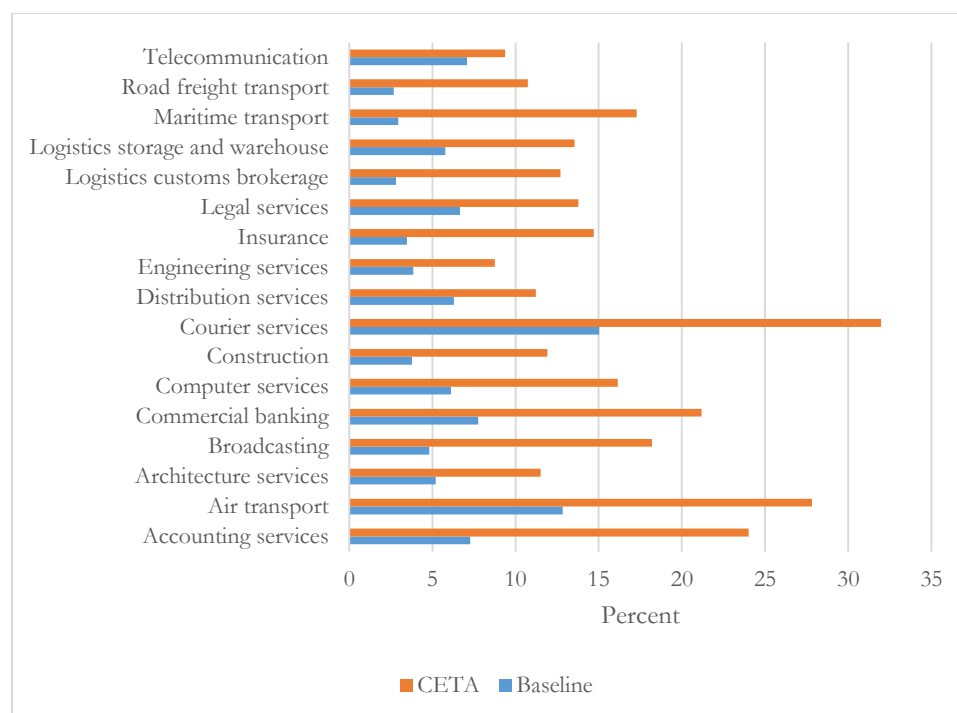
Figure 5: AVEs facing Northern Ireland exporters, baseline and Northern Ireland only in the Single Market scenario.



Source: Authors.

This continuity of treatment is not in evidence in the other two scenarios, however. Figure 6 shows results for CETA. Whereas a Norway-like agreement retains a close association with the EU, CETA’s provisions are considerably less liberal, and more like those of a standard RTA. As a result, AVEs are higher in every sector under the CETA scenario than under the baseline, Norway, or Northern Ireland in the Single Market scenarios. The difference is smallest in telecommunications (7% in the baseline, versus 9% under a CETA-like agreement), and largest in maritime transport (3% in the baseline, versus 17% under CETA). Clearly, and again in line with the research cited above, a “standard” RTA would result in less favorable access for firms in Northern Ireland to the EU Single Market than either the baseline, Norway scenario, or the Northern Ireland only in the Single Market scenario.

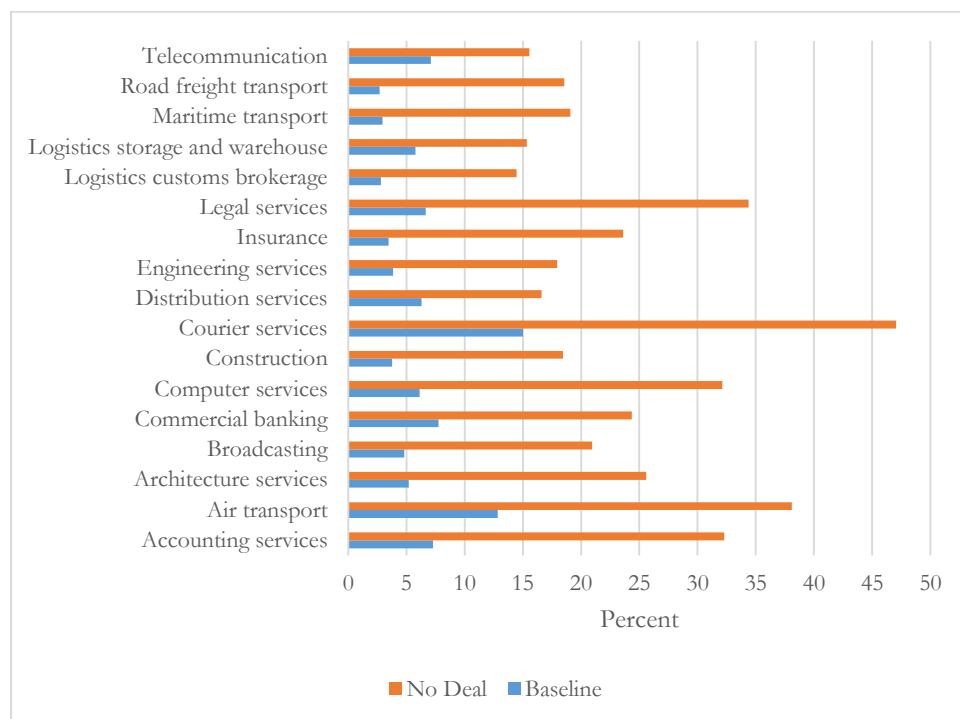
Figure 6: AVEs facing Northern Ireland exporters, baseline and CETA scenario.



Source: Authors.

Figure 7 shows results for the no deal scenario. In this case, policy treatment for Northern Ireland exporters to the EU reverts to MFN policy settings. Unsurprisingly in light of previous results, as well as the research cited above, those policies are much more restrictive than those in any of the other scenarios. Compared to the baseline, the difference is largest in insurance (24% under no deal, versus 3% in the baseline), and smallest in telecommunications (16% under no deal, versus 7% in the baseline).

Figure 7: AVEs facing Northern Ireland exporters, baseline and no deal scenario.



Source: Authors.

This consideration of the export side of our results makes four points clear:

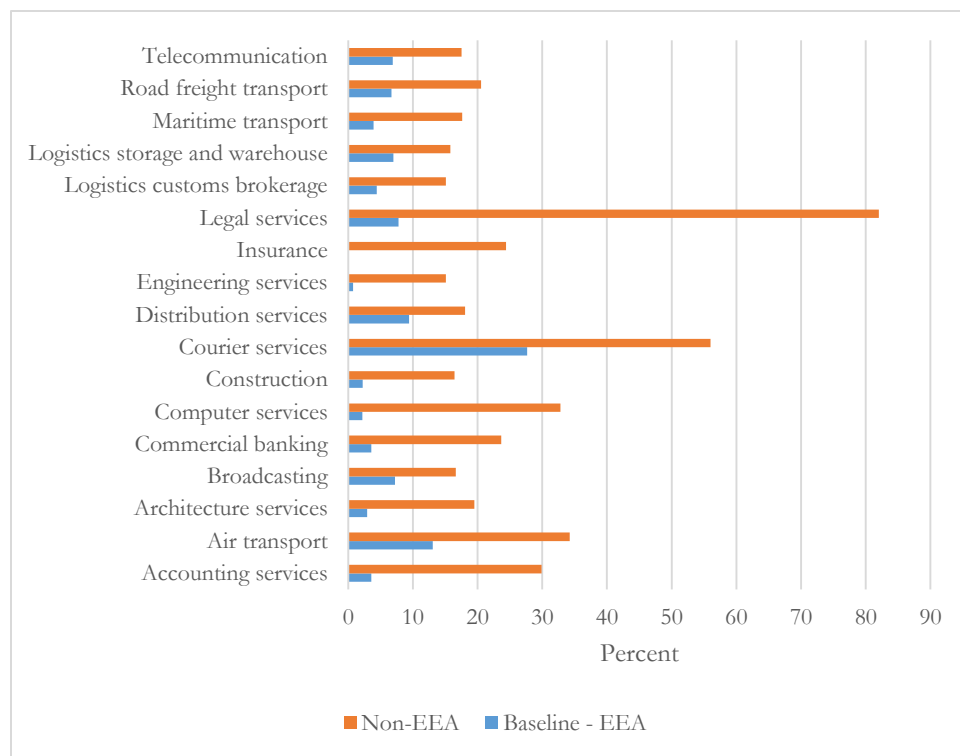
- Current market access to EEA countries is much easier than to countries outside the Single Market, as indicated by much lower ad valorem equivalents.
- The Norway and Northern Ireland in the Single Market scenarios do not alter that pattern, but allow Northern Ireland exporters to continue with the same treatment in EU markets that they currently have.
- The CETA and no deal options result in substantial changes in the ability of Northern Ireland firms to access the EU's services markets. The size of that effect differs from one sector to another, but it is uniformly large in percentage terms, and would likely represent a significant loss of export competitiveness for Northern Ireland firms.
- The worsening of market access to the EU is more significant under the no deal scenario than under a CETA-like agreement.

6.4 Trade with EU Countries: Import Side

We now turn to the import side, to focus on the ability of firms and consumers in Northern Ireland to access services from abroad. As for the export side, we have assumed throughout that Northern Ireland does not change its MFN policies, so the market access it accords firms in countries located outside the EEA is uniform across all scenarios. Figure 8 shows the comparison with the baseline. It is the mirror image of the export side: Northern Ireland accords much more generous market access to service providers from the EEA than to those from third countries. The difference is largest in insurance services, where the AVE is zero for EEA service providers, but 24% for those in third countries. It is smallest in distribution services (18% versus 9%). But the pattern is uniform across

sectors: Northern Ireland policies always accord superior market access to EEA firms versus those from third countries in the baseline.

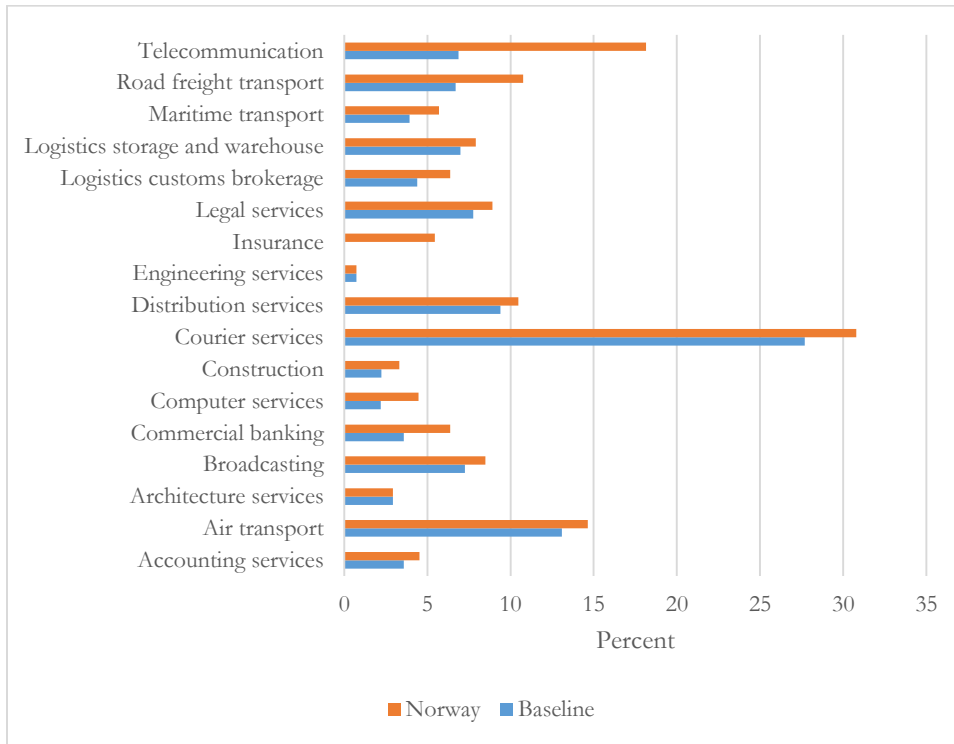
Figure 8: AVEs facing Northern Ireland consumers, baseline, EEA and non-EEA countries.



Source: Authors.

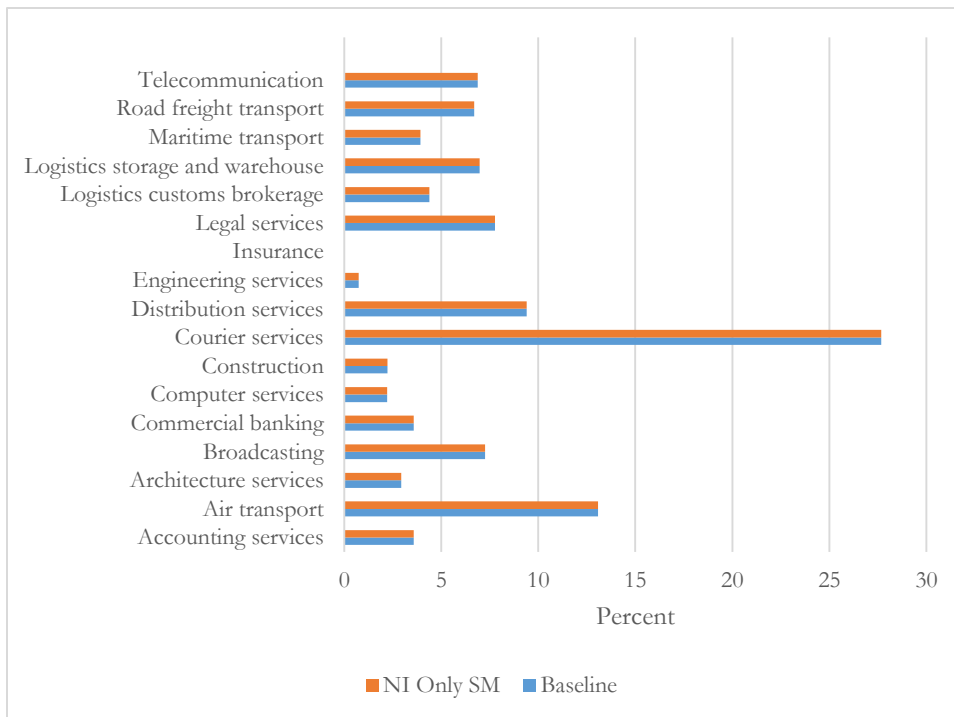
Figures 9 and 10 consider the Norway and Northern Ireland only in the Single Market scenarios respectively. The second of these results in no change from baseline, because by definition Northern Ireland remains in the EU Single Market and therefore continues to accord European service providers the same treatment as at present. Under the Norway scenario, there are some slight increases in reported AVEs. The reason is that there are some sectors where the EU has accepted a slightly lesser degree of opening in Norway than from Northern Ireland under current arrangements, so there is potentially some room to offer slightly less liberal treatment that would still be acceptable. But the differences are relatively small, typically amounting to only one or two percentage points in AVE terms.

Figure 9: AVEs facing Northern Ireland consumers, baseline and Norway scenario.



Source: Authors.

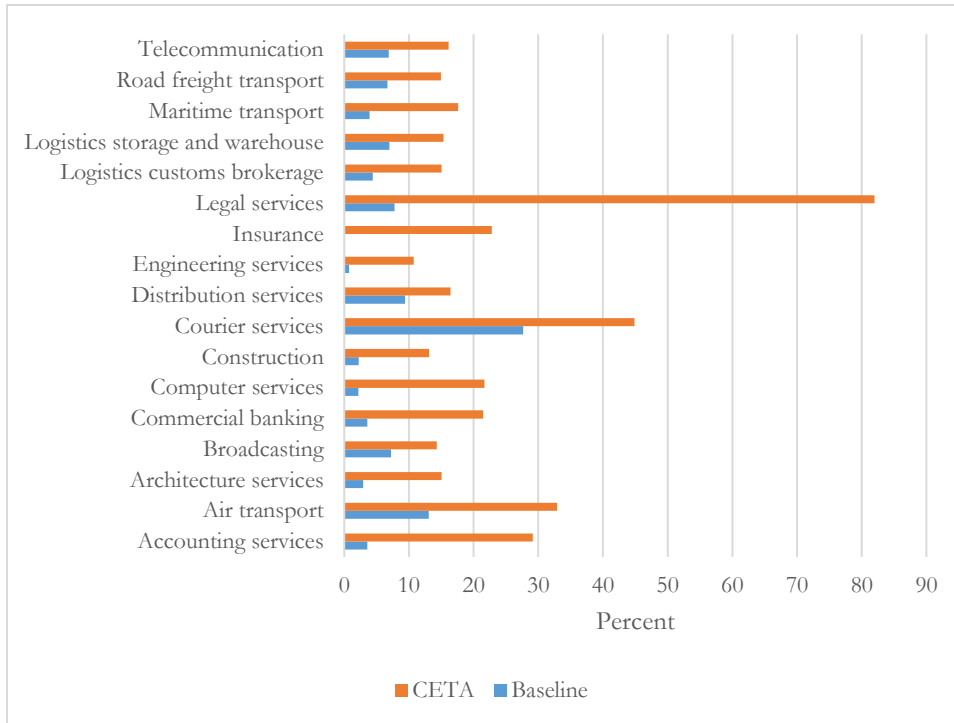
Figure 10: AVEs facing Northern Ireland consumers, baseline and Northern Ireland only in the Single Market scenario.



Source: Authors.

The situation is different for a CETA-like agreement (Figure 11). Results indicate that the market access of EU service providers would be significantly altered by a passage to this kind of arrangement. The reason is that CETA, as a typical trade agreement rather than a Norway-like close association agreement, allows both sides substantially more room to implement restrictive policies. The difference is largest in insurance services, where the AVE would increase from zero to 23%, and smallest in courier services, where the AVE would change from 28% to 45%.

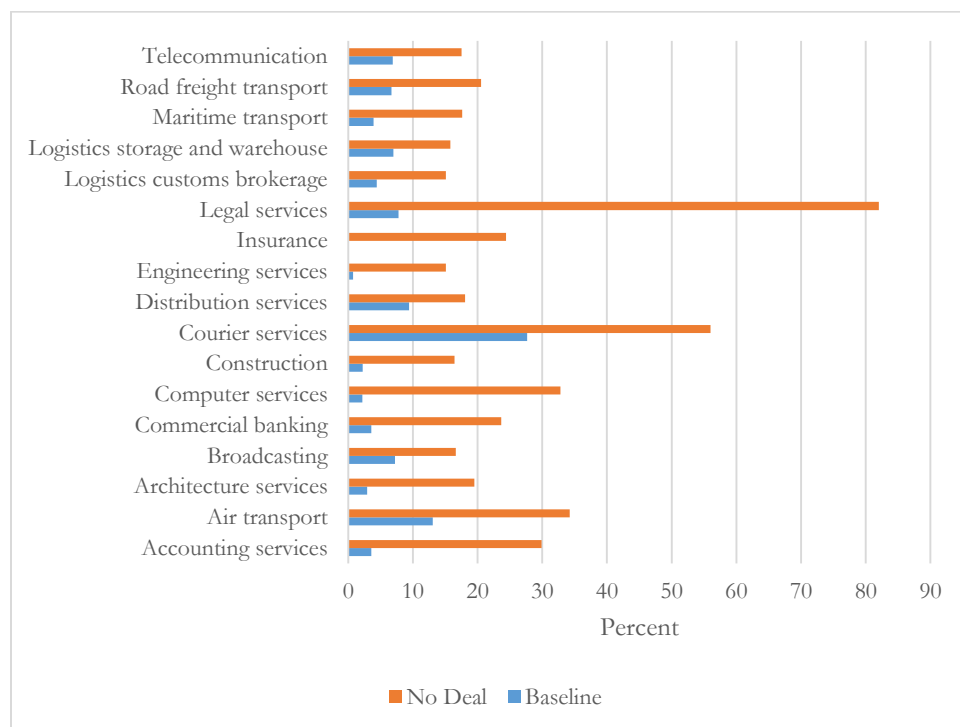
Figure 11: AVEs facing Northern Ireland consumers, baseline and CETA scenario.



Source: Authors.

Finally, Figure 12 turns to the no deal scenario. AVEs uniformly increase substantially in this scenario relative to baseline, because Northern Ireland is assumed to revert to its existing MFN policies in relation to service providers from EU countries. In insurance services, the shift is from an AVE of zero to one of 24%, while in computer services the move would be from 2% to 33%. On the smaller side, distribution services would change from 9% to 18%.

Figure 12: AVEs facing Northern Ireland consumers, baseline and no deal scenario.



Source: Authors.

Summarizing results from the import side, we can conclude as follows:

- Impacts on the consumer side are broadly similar to what was seen on the export side. This should come as no surprise in light of the concept of reciprocity that governs trade negotiations.
- The only difference is that a Norway-like agreement could potentially result in some tightening of policy settings in Northern Ireland, but to a relatively limited extent.
- The Norway scenario and the Northern Ireland only in the Single Market scenario do little or nothing at all to affect the AVEs facing consumers in Northern Ireland, and as such would be unlikely to have a major impact on their ability to access services from European providers.
- By contrast, the CETA and no deal scenarios would, in ascending order of restrictiveness, significantly negatively impact the ability of firms and consumers in Northern Ireland to access services supplied by European firms in all sectors.

7 CONCLUSION

This report has examined plausible scenarios for services markets in Northern Ireland following EU exit. It has applied the OECD's STRI methodology to collect data on baseline and counterfactual policy settings, the latter based on scenarios considered to be plausible bounds on possible outcomes in discussions with DfE. Although we have presented in basic terms the regulatory and market access issues surrounding EU exit, we have not drawn any conclusions as to either the legality or feasibility of particular policies, nor as to their economic impact in terms of variables like GDP or employment. Rather, we have focused on transparently implementing the OECD methodology and developing a dataset that can be further refined over time should other plausible scenarios enter into discussion. Our results are an input into broader efforts to understand the implications of EU exit for services markets in Northern Ireland, and in particular provide the basis to undertake a CGE modeling effort to compare the economic impacts of the various scenarios we have considered.

Our key findings are all contained in Section 6. Broadly speaking, we find that policy arrangements that generally continue existing policy treatment of and from the EU have little or no impact on the ability of firms and consumers in Northern Ireland to buy and sell services in EU markets. These scenarios are a Norway-like agreement, or continued Northern Ireland participation in the Single Market even when the rest of the UK leaves. By contrast, a more typical RTA covering services, such as a CETA-like agreement, would likely have significant negative implications for the ability of Northern Ireland firms and consumers to access EU markets to buy and sell services. An important caveat to that finding is that we have considered bound, rather than applied, policies in the context of CETA, so our results are an upper bound on the level of restrictiveness that could be expected under this scenario. Finally, a no deal scenario, by reverting to MFN treatment, has clear potential to impair the ability of Northern Ireland firms and consumers to access EU services markets, either as buyers or sellers. Although the size of these effects varies across sectors, the general direction and rank ordering of scenarios in terms of their implications for consumers and businesses in Northern Ireland is the same for all sectors.

We stress that our results assume no changes in MFN policies, either of Northern Ireland or of EU countries. On the import side, it is possible for the UK to liberalize its MFN policy settings following EU exit, but it would, by definition, have to extend that treatment to all trading partners that are members of the WTO. The EU could potentially do likewise, but we have seen no suggestions in the press or elsewhere that such a move is on the agenda in Brussels. Only one half of the equation is therefore within the control of the British government. MFN liberalization could be used in an attempt to offset some of the loss of domestic market access that would result from some of the scenarios, but it would result in according substantially more favorable treatment to a wide range of markets. From an economic point of view, it is primarily increased imports that drive the gains from trade, through increased variety and decreased prices for consumers, so this point is an important one to keep in mind (Arkolakis et al., 2012). At the present time, however, there is no technical plan or proposal for such a large scale liberalization.

Given the nature of this assignment, we explicitly refrain from offering recommendations based on our results. The intention of this project is solely to collect and disseminate high quality information, so that the public and those in positions of responsibility can better assess their options in terms of future arrangements with the EU in relation to services.

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ANNEX 1: LIST OF SECTORS COVERED

1. Accounting
2. Architecture
3. Engineering
4. Legal
5. Broadcasting
6. Telecommunications
7. Air Transport
8. Maritime transport
9. Road Freight Transport
10. Courier
11. Distribution
12. Commercial Banking
13. Insurance
14. Computer
15. Construction
16. Logistics storage and warehouse
17. Logistics customs brokerage

ANNEX 2: AVERAGE AVEs BY SECTOR AND SCENARIO

Table 3: Average AVEs faced by Northern Ireland exporters, percent.

	Baseline	Norway	CETA	NI Only SM	No Deal	Non-EEA
Accounting services	7	7	24	7	32	31
Air transport	13	13	28	13	38	47
Architecture services	5	5	12	5	26	20
Broadcasting	5	5	18	5	21	38
Commercial banking	8	8	21	8	24	44
Computer services	6	6	16	6	32	37
Construction	4	4	12	4	18	24
Courier services	15	15	32	15	47	211
Distribution services	6	6	11	6	17	23
Engineering services	4	4	9	4	18	19
Insurance	3	3	15	3	24	50
Legal services	7	7	14	7	34	36
Logistics customs brokerage	3	3	13	3	14	24
Logistics storage and warehouse	6	6	14	6	15	25
Maritime transport	3	3	17	3	19	32
Road freight transport	3	3	11	3	19	18
Telecommunication	7	7	9	7	16	24

Source: Authors.

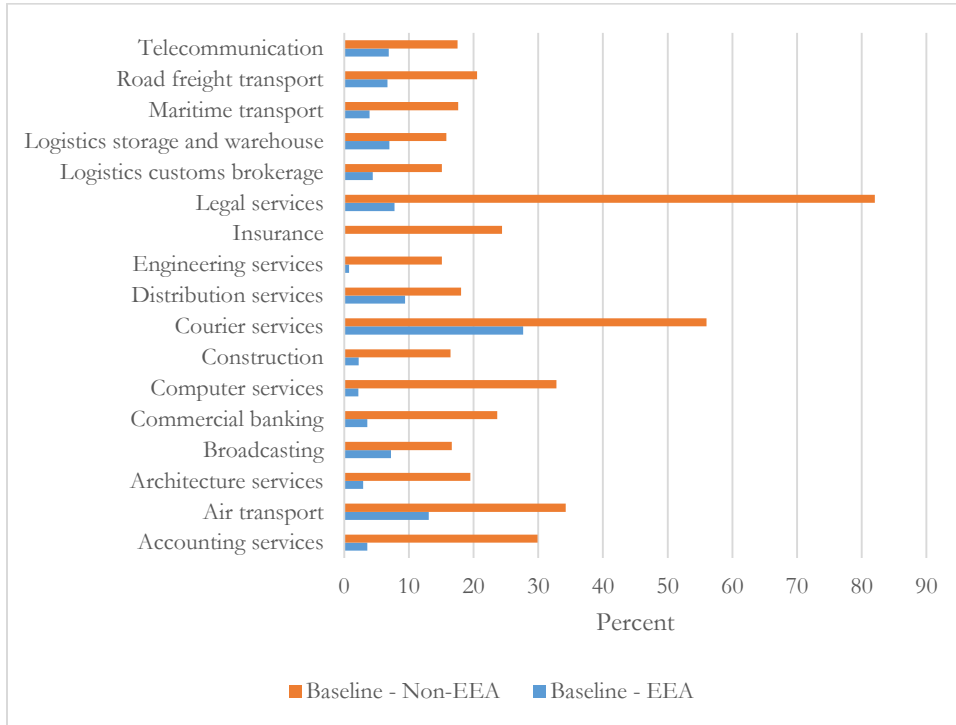
Table 4: Average AVEs faced by Northern Ireland consumers, percent.

	Baseline	Norway	CETA	NI Only SM	No Deal	Non-EEA
Accounting services	4	5	29	4	30	30
Air transport	13	15	33	13	34	34
Architecture services	3	3	15	3	19	19
Broadcasting	7	8	14	7	17	17
Commercial banking	4	6	21	4	24	24
Computer services	2	4	22	2	33	33
Construction	2	3	13	2	16	16
Courier services	28	31	45	28	56	56
Distribution services	9	10	16	9	18	18
Engineering services	1	1	11	1	15	15
Insurance	0	5	23	0	24	24
Legal services	8	9	82	8	82	82
Logistics customs brokerage	4	6	15	4	15	15
Logistics storage and warehouse	7	8	15	7	16	16
Maritime transport	4	6	18	4	18	18
Road freight transport	7	11	15	7	21	21
Telecommunication	7	18	16	7	18	18

Source: Authors.

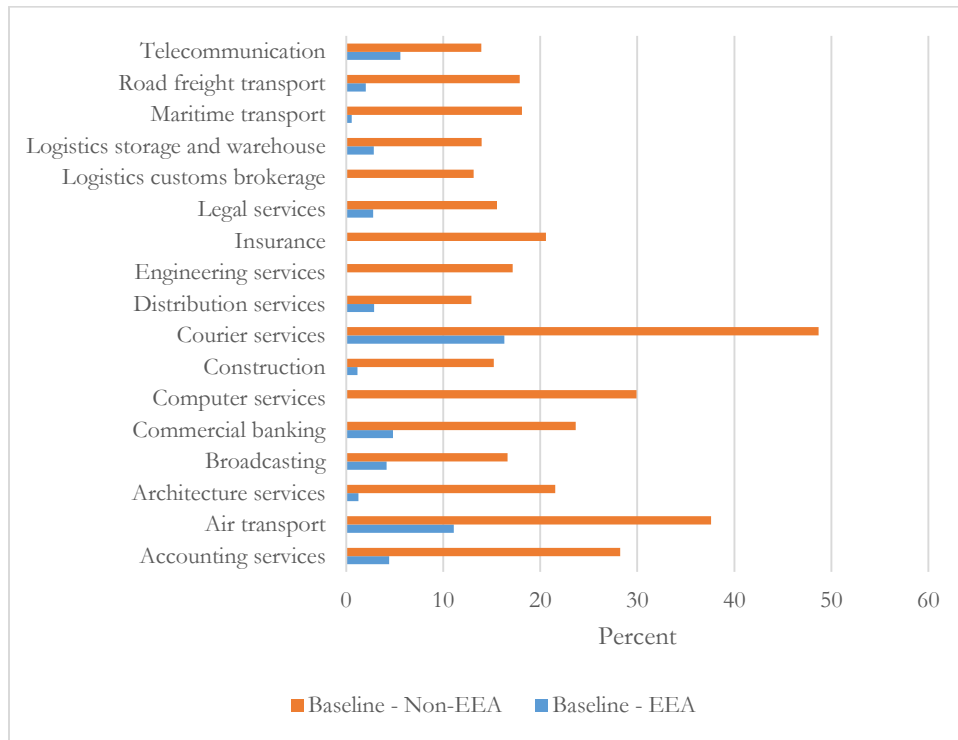
ANNEX 3: AVERAGE AVEs FOR NORTHERN IRELAND AND THE REST OF THE UK

Figure 13: Average AVEs by partner country group, Northern Ireland.



Source: Authors.

Figure 14: Average AVEs by partner country group, Rest of UK.



Source: Authors.