Building Bridges: The Effect of Major International Infrastructure Development on Trade*

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Abstract

Many countries wish to construct fixed links – i.e. bridges, tunnels or causeways – that can turn the sea barrier between them and their neighboring countries into a land connection. An important political goal of such fixed links is typically to increase trade flows. Still, huge investments of taxpayers' money is often necessary to undertake such international infrastructure developments. The question we ask in this paper is therefore: Do these large-scale infrastructure projects that establish fixed links between countries, and thereby effectively turn water connections into land connections, have any long-term effects on aggregate trade flows? To answer this question, we use the opening of the Öresund Bridge between Denmark and Sweden i 2000 as a quasi-natural experiment. We employ the Synthetic Control Method to construct a counterfactual Danish-Swedish trading relationship, and then evaluate the actual trade flows against the counterfactual synthetic trade flows that represent a world without a bridge. Our findings – which are robust to a large number of alternative estimation strategies and sensitivity analyses – suggest that in the period up until the financial crisis, the value of aggregate bilateral goods trade between Denmark and Sweden was 24,6 % larger than it would have been in the absence of a bridge.

Keywords: Fixed link, bridge, tunnel, causeway, infrastructure, Öresund, Øresund, trade, synthetic control method
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1 Introduction

Over the last few decades, it has become increasingly popular to invest in major infrastructure projects that – by creating tunnels, bridges or causeways, i.e. so-called fixed links – effectively turn previous sea connections between countries into *de facto* land connections. The Channel tunnel between the United Kingdom (UK) and France, which opened in 1994 is a prime example. Other examples of existing fixed links include the King Fahd Causeway between Saudi Arabia and Bahrain, the Hong Kong–Zhuhai–Macau Bridge connecting Mainland China with Hong Kong and Macau, and the Crimean Bridge between the Russian Federation and Crimea. While there are not that many *existing* international fixed links, a multitude of links have been proposed or are being constructed. Examples include the Fehmarn belt fixed link between Denmark and Germany currently under construction, a proposed Strait of Gibraltar crossing to connect Africa and Europe, the proposed Japan–Korea Undersea Tunnel, and the Irish Sea Bridge which, if built, would connect the island of Ireland to the island of Great Britain. Thus, there is a widespread interest in building fixed links.[1]

Politicians who propose building fixed links between countries typically hope to increase the economic integration between the countries that become linked, thereby stimulating international trade. At the same time, these major infrastructure projects also represent huge investments of tax payers' money. Thus, from a policy perspective, it is highly relevant to ask whether the intended economic goals are actually met. This is our focus in this paper. Specifically, we ask whether large-scale infrastructure projects that establish fixed links between countries, and thereby effectively turn water connections into land connections, have any long-term effects on aggregate bilateral trade flows.

To answer this question, we use the opening of the Öresund Bridge between Denmark and Sweden in the year 2000 as a quasi-natural experiment.[2] To understand the empirical context, Denmark and Sweden have very close political, economic, cultural and linguistic ties, and there is a long history of formal economic integration.[3] Further, even though the two countries are separated by a sea barrier, the local region was already fairly well-integrated with respect to transportation, and numerous ferry and hydrofoil services were available for people or goods to cross the water. Thus, the empirical context we are studying is one of a very well-integrated region with a fairly well-functioning existing cross-water transportation system. Within this context, a new rail and road bridge opened on July 1, 2000, and we ask: Was there more bilateral goods trade between Denmark and Sweden after the opening of the bridge than there would have been in the absence of a new bridge?

Why should the opening of the Öresund Bridge – and fixed links in general – have an effect on trade? We argue that there are several reasons. The most general theoretical argument is that fixed links are intrinsically different than ferry services in at least two important dimensions. First, fixed links offer continuous service, whereas ferries do not. Thus, with a fixed link there will typically not be waiting time - whenever the lorry or train shows up at the bridge or tunnel, it can just enter. By contrast, with a ferry, lorries or railway carriages

[1]There are also many examples of fixed links that connect different parts of the same country, such as the Golden Gate Bridge, the Chesapeake Bay Bridge-Tunnel and the Brooklyn Bridge in the US, the Akashi-Kaikyo Bridge in Japan, or the various bridges and tunnels that connect the European and Asian parts of Turkey across the Bosporus. In this paper, we focus on fixed links connecting different countries, but there is reason to believe that the economic effects of building fixed links to create land connections are very similar, whether or not the fixed link crosses an international border.

[2]The bridge and the details of the political decision and construction processes will be introduced in Section 2 below.

[3]For instance, already in the 1950's, the Nordic Passport Union created the right for Nordic citizens to travel between the countries without passport checks, as well as residing and working in other Nordic countries without a residence or work permit (the Nordic countries are typically defined as Denmark, Finland, Iceland, Norway, and Sweden). When Sweden joined the European Union (EU) in 1995 – Denmark had been a member since 1973 – most remaining policy-based trade barriers were removed.

will have to wait until the arrival of the next ferry, and then additionally wait in line until they can enter the ship. This means that fixed links will, all else equal, be associated with less waiting time than non-fixed links. Delays and waiting time are in turn known to significantly impede trade (see for example Hummels and Schaur, 2013). Second, non-fixed links necessitate some form of change in the mode of transportation, whereas fixed links do not. In the best case scenario, where the ferry is of a "roll-on/roll-off" type, this shift may not be very time or resource demanding. In other contexts, where the cargo itself needs to be offloaded, and then reloaded at the other side of the water, this intermodal shift could require more substantial investments of time and/or personnel. Thus, the argument would again be that fixed links allow firms to avoid costly waiting time, and potentially other direct costs.

Another reason why fixed links could have a positive impact on trade is that they do not only make it easier to transport goods, but also people. As argued in the literature on the importance of face-to-face communication (see for example Giroud, 2013; Bernard et al., 2019; Campante and Yanagizawa-Drott, 2017; Charnoz et al., 2017, and Söderlund, 2020), business travel can have substantial effects on economic outcomes such as international trade. If fixed links indeed increase the likelihood that business leaders will visit firms in other countries in person, this would be an additional mechanism through which the fixed link could boost goods trade.

There are also some reasons for expecting a trade effect that are specific to the case of the Öresund Bridge. Noting that most of the existing ferry services remained in business, the bridge may have contributed to increasing the competition between transport service providers, thereby putting a downward pressure on fees. This would have a direct effect on trading firms' costs. There is some anecdotal evidence in favor of this hypothesis: Knowles (2006) notes that one of the ways the ferry service providers managed to keep a surprisingly large share of their previous traffic was by offering discounts on multi-journey tickets. Further, by expanding the overall transportation capacity in the region, the new fixed link may also have reduced capacity constraints for road and rail transport. With a reduced potential for congestion and insufficient supply of transportation services, the bridge should thereby again help to prevent delays.

In summary, there are theoretical mechanisms through which we would expect a positive effect on aggregate trade when a fixed link is built. Still, to put our particular study in context, it is important to stress that the transportation possibilities in the Öresund region was fairly well-functioning already before the fixed link was built: With many ferry and hydrofoil services available, getting across the water was relatively easy. Thus, a reasonable interpretation is that if we do find an effect in this particular case, the effect would arguably be larger in other contexts where the new fixed link represents a more substantial improvement of the transportation infrastructure.

To estimate the trade creating effects of the Öresund Bridge we employ the Synthetic Control Method (SCM) which is becoming increasingly commonplace for evaluating treatment effects in comparative case studies. Intuitively, SCM works as a combination between matching and a difference-in-differences framework. So, to assess the effects of the bridge, we compare the actual value of aggregate bilateral trade to counterfactual synthetic trade flows that represent how much aggregate trade there would have been in the absence of a bridge. To generate the synthetic trade flows, we use an algorithm which computes the best weighted combination of comparison units (bilateral trade between other country pairs), where the weights are chosen to provide the best fit for the actual trade flows prior to the opening of the bridge. The time period we use to pick these weights is 1980-2000, and our donor pool of comparison units is all bilateral trading pairs among the rest of EU15 plus Iceland, Norway and Switzerland, except country pairs that contain Sweden or Denmark, or where both countries are members of the Euro zone. We then use these synthetic trade flows to evaluate the effects of the bridge in the period 2001-2008. Our findings suggest that in the period up until the financial crisis, the value of aggregate bilateral goods trade between Denmark and Sweden was 24,6 % larger than it would have been in the absence of a bridge. These results are robust to a large number of sensitivity analyses and alternative estimation methods, including standard econometric techniques such as difference-in-differences.

This paper is related to the broader literature on transportation costs and trade, and especially to the strand of this literature that focuses specifically on the link between transport infrastructure and various economic outcomes such as trade.[4] In an early paper, Clark et al. (2004) investigate port efficiency as a factor behind variation in shipping costs. Other papers have explored the importance of containerization (see for example Bernhofen et al., 2016; Coşar and Demir, 2018), issues relating to competition and market power (see for example Micco and Serebrisky, 2006; Hummels et al., 2009; Behrens and Picard, 2011), and endogeneous trade costs (see Brancaccio et al., 2020). Pascali (2017) analyzes the introduction of steam ships, and how they reduced transportation costs, and Kalouptsidi (2014) focuses on bulk shipping, and the impact of time to build and demand uncertainty on investment and prices. Feyrer (2009) uses the temporary closing of the Suez canal as a natural experiment to more clearly link distance effects to transportation costs.

In the somewhat narrower literature on transport infrastructure and trade, papers such as Bougheas et al. (1999), Limão and Venebles (2001), Francois and Manchin (2013), and Donaubauer et al. (2018) have established that there is indeed an important link between transport infrastructure in general and international trade. Further, Allen and Arkolakis (2019) incorporate traffic congestion into a quantitative general equilibrium spatial framework, allowing them to evaluate the welfare of transport infrastructure improvements. When applying this to the US highway network and the Seattle road network, they find that the returns to infrastructure investments in these contexts vary a lot depending on where the improvements are made. Other papers focusing on road transports include Volpe Martincus and Blyde (2013), Duranton et al. (2014), and Coşar and Demir (2016). Volpe Martincus and Blyde (2013) use the exogenous variation in access to domestic road infrastructure in Chile following an earthquake in 2010, to assess the effect of transportation infrastructure on firms' exports. Duranton et al. (2014) investigate the effects of US interstate highways on the level and composition of cities' exports. Coşar and Demir (2016) use variation in public investments in roads in Turkey to assess how the quality of internal transport infrastructure affects transportation costs. Lastly, Donaldson and Hornbeck (2016), Charnoz et al. (2017), Donaldson (2018) and Bernard et al. (2019) focus on the importance of railroads. Donaldson and Hornbeck (2016) develop a methodology for estimating the aggregate impact of railroads, and illustrate how the historical expansion of railroad networks in the US affected individual counties' market access (with respect to trading with other countries). Donaldson (2018) uses archival data from colonial India to analyze the impact of India's railroad network. Among his findings are that railroads in colonial India increased interregional and international trade. Whereas Donaldson and Hornbeck (2016) and Donaldson (2018) focuses on historical expansions of railroad networks, both Charnoz et al. (2017) and Bernard et al. (2019) analyze modern-day introductions of high-speed rail, and how this affects firm outcomes through increased face-to-face contact.[5]

While we hope to contribute to the broader literatures on the importance of transportation costs and infrastructure for international trade, our main focus in this paper is to assess how trade is affected when the construction of fixed links – i.e. bridges, tunnels, causeways etc – turn sea or water connections between countries into land connections. Here, the existing literature is sparse. In an early paper, Kay et al. (1989)

[4] See Hummels (2007) for an excellent empirical overview on transportation costs and trade.

[5] Charnoz et al. (2017) use the expansion of the French high speed rail network as a shock on travel time, while Bernard et al. (2019) use the expansion of high-speed rail in Japan.

analyze the welfare implications of building a Channel tunnel between the UK and France, concluding that the then future tunnel would have a large social benefit. Further, in two papers that are very relevant for us, Åkerman (2009) and Arnarson (2015) use the opening of the Öresund Bridge as an exogenous decrease in trade costs. Åkerman (2009) uses this exogenous variation to test the Melitz model's implications for aggregate productivity. While this is not the main aim, he is able to show that local firms in Malmö, i.e. the Swedish city closest to the bridge, export more to Denmark after the opening of the bridge. In a similar vein, Arnarson (2015) uses the exogeneous decrease in trade costs to evaluate models of multi-product exporters, with a focus on firm export entry decisions, and the within-firm adjustment regarding product scope and intensity. Consistent with the results in Åkerman (2009), he finds that local manufacturing firms in Malmö increase the aggregate firm trade flow when compared to firms in the geographically more distant Gothenburg and Stockholm. Also using the opening of the Öresund Bridge, but focusing on other outcomes, Achten et al. (2019) analyze how the opening of the bridge affected regional GDP per capita levels in Southern Sweden, and find a positive effect. Lastly, Volpe Martincus et al. (2014) use a temporary closing of the San Martín International Bridge between Argentina and Uruguay as an exogenous variation in transportation costs between these two countries, and can show that this has a negative effect on firm-level exports. [6]

Our paper hopes to make a contribution to this research literature by answering a highly policy-relevant question that has not been answered before. Compared to the vast majority of the literature, we focus on international as opposed to domestic infrastructure projects, and specifically investigate the effects of fixed links that differ from other infrastructure developments in that they change the mode of transportation. Among the four interesting papers that are closest to ours in that they in some way or another also focus on fixed links, the three that have some results on trade(i.e. Åkerman, 2009; Volpe Martincus et al., 2014; and Arnarson, 2015) only look at firm-level outcomes, while Achten et al. (2019) focus on income effects. Given the vast investments necessary to build fixed links, it is very relevant for policy-makers to also learn what the aggregate trade effects are. Similarly, all three existing papers that use the opening of the Öresund Bridge have in common that they look at local effects at the Swedish side (either for Malmö or Southern Sweden), whereas our results concern aggregate bilateral trade between the whole of Denmark and Sweden. Again, this information should be highly relevant to policymakers considering whether to invest in a similar infrastructure development.

2 Introducing the Øresund Bridge

Southern Sweden and Eastern Denmark are separated by a narrow strait, commonly known in English as the *Sound* (Öresund in Swedish, and Øresund in Danish), which connects the Kattegat strait with the Baltic Sea. The region surrounding the Sound is economically important for both countries, containing for example both the Danish capital Copenhagen – by far the largest city in the country – and Malmö, Sweden's third largest city. Discussions about connecting the two countries with a fixed link, such as a bridge or a tunnel, go back many decades. However, the formal decision to build the Øresund Bridge as a land connection between Copenhagen and Malmö was not taken until 1991. Due to political opposition in Sweden, linked among other things to concerns about adverse environmental effects, it then took until 1995 for construction work to begin. On 1 July, 2000, the Øresund Bridge was officially opened.

While the land connection between Copenhagen and Malmö is typically referred to as the "Øresund Bridge", strictly speaking it is a fixed link which consists of three parts: a road and railway *bridge*, a road

[6] A slightly related paper is also Blankespoor et al. (2018), who shows that the construction of a domestic bridge in Bangladesh led to increased technology adoption and re-allocation of land from low-value to high-value crops.

Figure 1. Main pre- and post-Øresund ferry routes between Denmark and Sweden.

(a) Pre-Øresund (b) Post-Øresund

and railway *tunnel*, and an artificial *island* that serves as the connecting point between the bridge and the tunnel. Please note that throughout the paper, we will, for convenience and in accordance with common usage, typically employ the term "Øresund Bridge", even though what we actually mean is the entire fixed land link between Copenhagen and Malmö.

Before the Øresund Bridge was built, Denmark and Sweden were connected by ferry services. The most important ferry route for goods transportation was between Elsinore, 46 km north of Copenhagen, and Helsingborg, 65 km north of Malmö, but there was also a ferry service between Malmö and Dragør just outside of Copenhagen. While the latter closed already in October 1999, the Elsinore-Helsingborg ferries have stayed in business, even though they stopped carrying trains as soon as the bridge opened. Thus, in practical terms, before the bridge opened, goods could only be transported via the various ferries across the Sound. From the year 2000, firms still had the possibility to send their lorries across the Elsinore-Helsingborg ferries, but in addition, they could also choose the Copenhagen-Malmö route across the bridge.[7]

3 Data and methodology

In this section we describe how we estimate the value of bilateral trade flows between Denmark and Sweden in the event the Øresund Bridge had not been built. We employ the SCM, adapted from Abadie and Gardeazabal (2003), Abadie et al. (2010) and Abadie et al. (2015), which is becoming increasingly commonplace for

[7]Note that the closing of the ferry between Dragør and Malmö in 1999 should be of little consequence in this context. According to Knowles (2006), less than 5 percent of all lorries crossing the Sound in 1999 chose the Dragør-Malmö ferry.

Table 1. Number of pre- and post-Øresund ferry departures between Denmark and Sweden by route.

Main ferry routes (1991-2010)	Pre-bridge departures	Post-bridge departures
Frederikshavn – Gothenburg	34,653	26,067
Grenaa – Varberg	6,954	5,836
Grenaa – Halmstad	5,553	
Helsinore – Helsingborg	427,037	425,035
Copenhagen[a] – Helsingborg	27,798	
Copenhagen[b] – Landskrona	26,667	
Copenhagen – Malmö	118,119	
Dragør – Limhamn	49,985	
Kastrup – Malmö	12,552	
Rønne – Ystad (out of view)	9,484	14,910
Other[c]	2,244	5,836
Total	720,846	482,104

Notes:
[a] Copenhagen (1,672), Tuborg Havn (229) and Copenhagen Freeport (25,897).
[b] Copenhagen (11,129) and Tuborg Havn (15,538).
[c] Before the opening of the bridge, a small number of services operated on the routes Copenhagen – Gothenberg (288), Hundested – Helsingborg (26), Snekkersten – Helsingborg (1,473), Skagen – Kungsham (112), and Skagen – Marstrand (145). After the dedication, a small number of services operated on the route Allinge – Simrishamn (901) and services on the routes Copenhagen – Malmö (6,062), Copenhagen – Landskrona (1,247), and Copenhagen – Helsingborg (2,046) operated in the early post-bridge years.
Source: Denmark's Statistics

comparative case studies. Our sample consists of Denmark and Sweden, the remaining countries in EU15[8] as well as three EFTA[9] countries (Norway, Switzerland and Iceland), which are observed over our sample period 1980-2008.[10] Belgium-Luxembourg is treated as one unit and so this leaves us with 17 countries and a set X containing 136 bilateral country pairs (ignoring the direction of trade). Of these 136 pairs, the subset X^{NT} comprises 105 bilateral pairs that do not contain Denmark and/or Sweden and this set will therefore serve as our "donor pool", that is, our stock of potential comparison units. The subset X^{T} comprises the 31 bilateral pairs involving Denmark and/or Sweden. It is assumed that our comparison units in X^{NT} are not affected by the treatment.

Let $\text{BTF}^{N}_{DNK-SWE,t}$ be the average bilateral trade flow (that is, the average of the two-way export flow) between Denmark and Sweden which would be observed at time t in the absence of the Øresund Bridge, and $\text{BTF}^{I}_{DNK-SWE,t}$ the actual recorded average bilateral trade flow at time t after the Øresund Bridge was built. Using this notation we can identify, from a theoretical perspective, the gain or loss (in percentage

[8]During the sample period, the EU15 comprises the following countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom.

[9]EFTA is the European Free Trade Association between Norway, Switzerland, Iceland and Liechtenstein

[10]The period after the financial crisis was characterised by significant volatility in the trade flows of all bilateral country pairs in our sample. There is evidence that international trade is more volatile than domestic production during recessions (see for example Novy and Taylor, 2020). Our concern is that the weights chosen by our synthetic algorithm may not be able to simultaneously model the long-run exponential trade growth of bilateral trade and the large and potentially country-pair specific shocks produced by the financial crisis and its aftermath. For this reason, we restrict our benchmark post-bridge period to the years before the financial crisis. As a robustness check, however, we extend the post-bridge period to include seven post-financial crisis years – 2009-2015.

terms) to bilateral trade as a result of constructing the Øresund Bridge between Denmark and Sweden as:

$$\alpha_{DNK-SWE,2001-2008} = \frac{\sum_{t=2001}^{2008} \left(\text{BTF}_{DNK-SWE,t}^{I} - \text{BTF}_{DNK-SWE,t}^{N}\right)}{\sum_{t=2001}^{2008} \text{BTF}_{DNK-SWE,t}^{N}}. \tag{1}$$

The Øresund Bridge was dedicated in July 2000 and we therefore set the treatment period as 2001-2008. Our placebo-in-time analysis below demonstrates that our results are robust to alternative treatment periods. It is assumed that the Øresund Bridge does not affect bilateral trade flows between Denmark and Sweden prior to its dedication in 2001 such that:

$$\alpha_{DNK-SWE,1980-2000} = \frac{\sum_{t=1980}^{2000} \left(\text{BTF}_{DNK-SWE,t}^{I} - \text{BTF}_{DNK-SWE,t}^{N}\right)}{\sum_{t=1980}^{2000} \text{BTF}_{DNK-SWE,t}^{N}} = 0.$$

In practice, however, it is possible that the treatment might have impacted bilateral trade flows prior to 2001 through various channels, such as the announcement of the construction of the bridge. We shall examine anticipation effects in more detail below. Since the Øresund Bridge was completed midway through the year 2000, we do not observe the bilateral trade flow which would have occurred in its absence. The challenge is therefore to construct a credible counterfactual. One possibility is to select a bilateral country pair from our donor pool X^{NT}, for example, the average bilateral trade flow between Switzerland and Austria. This approach, however raises some concerns. First, how can we be certain that the bilateral trade flow between Switzerland and Austria is representative of the trade flow that would have occurred between Denmark and Sweden if the Øresund Bridge had not been built? Second, the selection of Austria and Switzerland is inevitably arbitrary since this bilateral pair is just one of 105 potential counterfactuals. The logic behind the SCM is to restrict the donor pool to comparison units which closely resemble the structural process driving the case of interest prior to the treatment. We index the counterfactual bilateral country pairs in our donor pool $i = 1, ..., n$ such that $X_t^{NT} = \{\text{BTF}_{1,t}, ..., \text{BTF}_{n,t}\}$. An estimate of $\alpha_{DNK-SWE,2001-2008}$ in (1) can now be constructed as:

$$\hat{\alpha}_{DNK-SWE,2001-2008} = \frac{\sum_{t=2001}^{2008} \left(\text{BTF}_{DNK-SWE,t}^{I} - \sum_{i=1}^{n} w_i \text{BTF}_{i,t}\right)}{\sum_{t=2001}^{2008} \sum_{i=1}^{n} w_i \text{BTF}_{i,t}}. \tag{2}$$

where $\sum_{i=1}^{n} w_i \text{BTF}_{i,t}$ is our post-treatment synthetic average bilateral trade flow between Denmark and Sweden, that is, a weighted combination of bilateral country pairs in our donor pool. The parameter w_i is the weight associated with the ith counterfactual unit in X^{NT} such that $\sum_{i=1}^{n} w_i = 1$. As is standard in literature on SCM we select the vector $\mathbf{W}^*$ of weights which minimises,

$$\arg\min \sqrt{(\mathbf{Y}_{DNK-SWE} - \mathbf{YW})'\mathbf{V}(\mathbf{Y}_{DNK-SWE} - \mathbf{YW})}, \tag{3}$$

where $\mathbf{Y}_{DNK-SWE}$ is a vector of pre-bridge characteristics, or predictors, of our treated unit, and $\mathbf{Y}$ is a matrix of pre-bridge characteristics of our potential comparison units that are assumed not to be affected by the treatment. The SCM exercise is performed using four pre-bridge characteristics that are motivated by the gravity model of trade (Tinbergen, 1962). In particular, we use the log of the product of each country's GDP in every bilateral pair at time t; the weighted distance between each country; a dummy variable equal to unity for adjacency (or sharing a land border); and a dummy equal to unity if both countries are members of the EU. We obtain these variables from Centre d'Études Prospectives et d'Informations Internationales (CEPII), and we have extracted the bilateral trade flows from the United Nations Comtrade database. In addition to these four pre-bridge characteristics, we also include pre-treatment lags of the outcome variable, which is a common practice in the literature. We find that including all lags of the outcome variable as characteristics in our SCM produces the best pre-treatment fit. However, Kaul et al. (2015) show that this approach comes with the caveat that it eliminates the predictive power of the other characteristics. They argue further that if the other characteristics are important in terms of predicting the post-treatment outcome, omitting them can bias the synthetic model. We therefore follow the recommendation in Ferman et al. (2016) and employ different sets of lags reporting the results from all of them. Hence, in addition to reporting a synthetic model that includes all lags, we report a version of our model with three years of outcome lags – 1980, 1990 and 2000 – an approach which mirrors closely that of Abadie et al. (2010).

The term $\mathbf{V}$ is a diagonal and positive definite matrix containing the non-negative weights measuring the importance of each pre-bridge characteristic. $\mathbf{V}$ is chosen such that the mean squared prediction error of the outcome variable is minimised for the pre-treatment periods. As argued in Abadie et al. (2010) and Abadie et al. (2015), if the pre-treatment matching window is large enough, matching on pre-intervention outcomes helps to control for unobserved factors and for the heterogeneity of observed and unobserved factors. This is because "only units that are alike in both observed and unobserved determinants of the outcome variable as well as in the effect of those determinants on the outcome variable should produce similar trajectories of the outcome variable over extended periods of time" (Abadie et al., 2015). As long as the treatment unit as well as the synthetic control can be established to display very similar trajectories prior to the intervention, any discrepancy which occurs after the treatment can be interpreted as the effect of the treatment upon the outcome variable.

Within the standard application of the SCM, the use of inferential techniques is limited since probabilistic sampling is not employed to select the comparison units. As such, we only obtain one estimate of $\mathbf{W}^*$. In this paper, therefore, we will use an alternative approach to assess the statistical significance based on the subsampling procedure in Politis and Romano (1994) – a technique which was first proposed as an application to the SCM in Saia (2017). We construct $j = 1, ..., m$ subsamples of X^{NT}, where for each subsample we randomly exclude a fraction z of the comparison units. For each subsample j we run a synthetic control as described above,

$$\alpha_{DNK-SWE,j,2001-2008} = \frac{\sum_{t=2001}^{2008} \left(\text{BTF}^{I}_{DNK-SWE,t} - \sum_{i=1}^{n} w_{i,j}\text{BTF}_{i,j,t}\right)}{\sum_{t=2001}^{2008} \sum_{i=1}^{n} w_{i,j}\text{BTF}_{i,j,t}}. \tag{4}$$

Then we compute the average,

$$\overline{\alpha}_{DNK-SWE,2001-2008} = \frac{1}{m}\sum_{j=1}^{m}\left[\frac{\sum_{t=2001}^{2008} \left(\text{BTF}^{I}_{DNK-SWE,t} - \sum_{i=1}^{n} w_{i,j}\text{BTF}_{i,j,t}\right)}{\sum_{t=2001}^{2008} \sum_{i=1}^{n} w_{i,j}\text{BTF}_{i,j,t}}\right], \tag{5}$$

and standard deviation,

$$\sigma_{DNK-SWE,2001-2008} = \sqrt{\frac{1}{m-1}\sum_{j=1}^{m}\left(\alpha_{DNK-SWE,j,2001-2008} - \overline{\alpha}_{DNK-SWE,2001-2008}\right)^2}. \tag{6}$$

We arbitrarily set $z = \frac{1}{6}$ and $m = 500$. We also construct synthetic counterfactuals for the remaining bilateral trading pairs involving Denmark and Sweden in the set X^T. We index the bilateral pairs in X^T as $k = 1, .., l$ and construct a synthetic model for each k. In obtaining each synthetic model k, we use the same comparison units in the set X^{NT} that we used when constructing the Danish-Swedish synthetic model. Suppose the first

15 bilateral pairs in X^T are country pairs involving Denmark, the 16th pair is the Danish-Swedish bilateral pair and the pairs $k = 17, ..., 31$ are pairs involving Sweden. We compute the effect (if any) on aggregate trade following the completion of the Øresund Bridge for Sweden,

$$\overline{A}_{SWE,2001-2008} = \frac{1}{m}\sum_{j=1}^{m}\left[\frac{\sum_{t=2001}^{2008}\left(\sum_{k=16}^{31}\text{BTF}_{k,t}^{I} - \sum_{k=16}^{31}\sum_{i=1}^{n} w_{i,k,j}\text{BTF}_{i,j,t}\right)}{\sum_{t=2001}^{2008}\sum_{k=16}^{31}\sum_{i=1}^{n} w_{i,k,j}\text{BTF}_{i,j,t}}\right], \tag{7}$$

and for Denmark

$$\overline{A}_{DNK,2001-2008} = \frac{1}{m}\sum_{j=1}^{m}\left[\frac{\sum_{t=2001}^{2008}\left(\sum_{k=1}^{16}\text{BTF}_{k,t}^{I} - \sum_{k=1}^{16}\sum_{i=1}^{n} w_{i,k,j}\text{BTF}_{i,j,t}\right)}{\sum_{t=2001}^{2008}\sum_{k=1}^{16}\sum_{i=1}^{n} w_{i,k,j}\text{BTF}_{i,j,t}}\right]. \tag{8}$$

We measure the fit of our synthetic model over a specific time period as the average Root Mean Square Prediction Error (RMSPE), or the lack of fit between the outcome variable and its synthetic counterpart over the period $t = 1, .., T$ as:

$$\text{RMSPE} = \frac{1}{m}\sum_{j=1}^{m}\left(\frac{1}{T}\sum_{t=1}^{T}\left(\text{BTF}_{k,t}^{I} - \sum_{i=1}^{n} w_{i,j}\text{BTF}_{i,j,t}\right)^2\right)^{\frac{1}{2}}. \tag{9}$$

One particularly useful statistical measure is the ratio of post-treatment RMSPE to pre-treatment RMSPE. If the intervention occurs in period T_0, this allows us to express this ratio mathematically as,

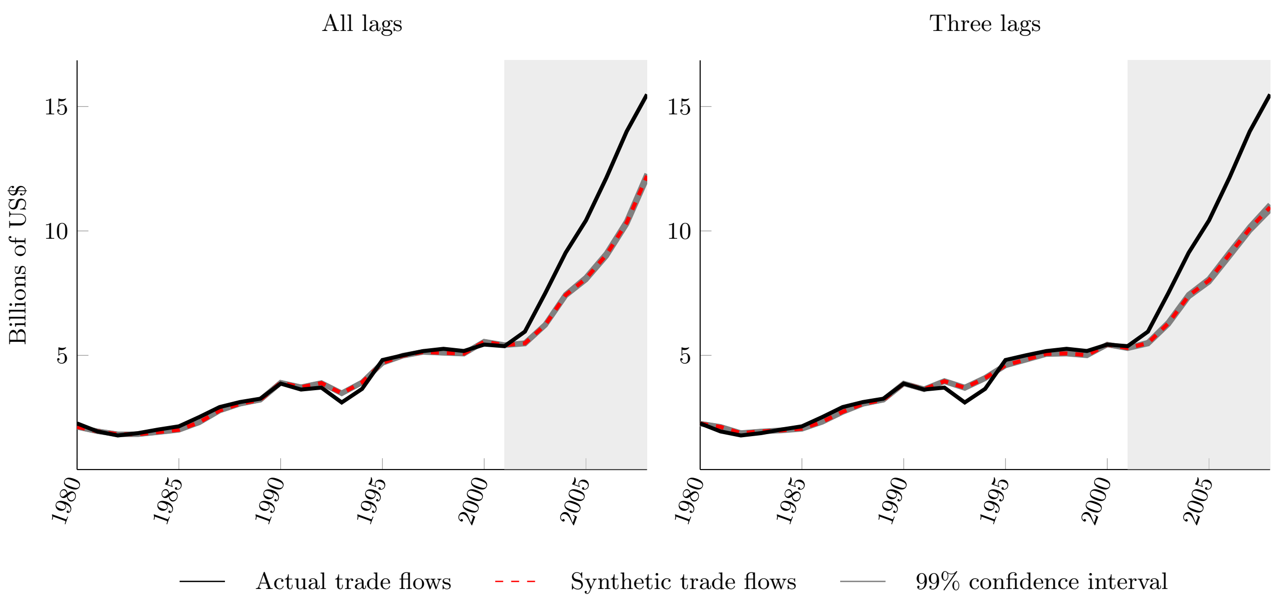
$$\text{Post-RMSPE/Pre-RMSPE} = \frac{\sum_{j=1}^{m}\left(\frac{1}{T-T_0}\sum_{t=T_0}^{T}\left(\text{BTF}_{k,t}^{I} - \sum_{i=1}^{n} w_{i,j}\text{BTF}_{i,j,t}\right)^2\right)^{\frac{1}{2}}}{\sum_{j=1}^{m}\left(\frac{1}{T_0-1}\sum_{t=1}^{T_0-1}\left(\text{BTF}_{k,t}^{I} - \sum_{i=1}^{n} w_{i,j}\text{BTF}_{i,j,t}\right)^2\right)^{\frac{1}{2}}}. \tag{10}$$

A large post-intervention RMSPE is not indicative of a large effect if the pre-treatment fit is poor, i.e. if the synthetic control does not closely reproduce the outcome of interest prior to intervention. We shall employ this ratio when comparing our synthetic models and in our placebo studies below.

4 Results

Figure 2 plots the evolution of the actual bilateral trade flow between Denmark and Sweden (solid line) and the synthetic counterfactual (dashed line) over the period 1980-2008. In addition to the gravity-inspired predictors described in the previous section, in the left panel we employ all outcome lags as predictors whereas in the right panel we use three lags – 1980, 1990 and 2000. As explained in the previous section, the synthetic trade flow is obtained through an algorithm which computes the weighted combination of comparison units providing the best fit of the actual trade flow prior to the opening of the Øresund Bridge. We compute 500 synthetic trade flows, where for every model we randomly exclude $\frac{1}{6}$th of the comparison units in the donor pool. Many country-pairs in our donor pool adopted a common currency, the euro, in 1999 with the physical currency coming into circulation in 2002. Since the timing of the adoption of the euro roughly coincides with the opening of the bridge, we exclude country pairs where both countries use the euro. The motivation for this is that the euro is likely to have generated positive effects upon trade and this may cause bias of our SCM. In our difference-in-differences estimator, we can explicitly control for euro adoption and we show below that our results are robust to any trade effects of the euro. Omitting euro-pairs from our donor pool reduces the number of comparison units from 105 to 50. The dashed line in Figure 2 is the average of the 500 synthetic models, and the dark gray area is the 99% confidence interval. We indicate the post-bridge period as the light gray area in the two panels in the figure. Note that the pre-bridge synthetic trade flow provides a good approximation of the actual flow for our two models in, respectively, the left and the right panel. Actual trade between Denmark and Sweden was subject to a boost between 1993 and 1995, an observation which is likely explained by a combination of factors. First, most European nations were affected by the early 1990s recession which had lead to trade falling between many bilateral country pairs in our sample. Sweden was particularly badly hit after a severe credit crunch and widespread bank insolvency in 1991-1992. As such, the boost to bilateral trade observed between 1993 and 1995 was partly a recovery in international trade. Second, the completion of the European Single Market in 1992, the formation of the European Economic Area (EEA)[11] in 1994 effectively granting Sweden full access to the internal market and Sweden's commitment to further European integration are likely to have contributed to increased trade.

Figure 2. Average actual and synthetic bilateral trade flows between Denmark and Sweden.



The synthetic trade flow is the flow that would have occurred if the bridge between Denmark and Sweden had not been built. Actual Danish-Swedish bilateral trade diverges substantially from synthetic trade after 2001, and this evolution of actual trade lies well outside the 99% confidence interval of the synthetic trade indicated in Figure 2. While both synthetic and actual trade in the period 1995-2001 can be characterised as a relationship with modest growth, the growth of actual trade picks up from 2001 onwards, substantially outstripping the growth of the synthetic counterfactual. In Table 2 we report the percentage difference between actual and synthetic bilateral trade over different periods. During the period before the opening of the bridge – our matching window – the difference between actual and synthetic Danish-Swedish trade was very small and similar for our two models. The estimate of our model using all outcome lags shows that actual trade outperformed synthetic trade by just under 0.3%, whereas the estimate for our three-lag model is just

[11]The EEA is an international agreement which at the time comprised the EU member states as well as the members of EFTA states except Switzerland which rejected membership in a national referendum. In 1994, Sweden was part of this group before its formal entry into the EU in 1995.

over -0.2%. The estimates of our post-bridge effects for 2001-2008 of our two models are also fairly similar with our all-lags model indicating a post-bridge effect of 24.5% and our three-lags model slightly higher at close to 28%. We report estimates of the post-bridge effect for several post-bridge subperiods – 2001-2002, 2003-2004 and 2005-2008. The results for the three subperiods indicate that the positive trade-creating effect of the bridge was subject to a slow start. The percentage difference between actual and synthetic trade was, respectively, nearly 4% in the all-lags model and nearly 5% in the three-lags model. The subsequent subperiods indicate a much larger effect of nearly 22% for both models between 2003-2004 and effects ranging between 31%-36% during 2005-2008.

We have reported the average value of RMSPE as defined in (9) for both the all-lags model and the three lags model. The average value of the RMSPE is obtained by computing the RMSPE of each model $j = 1, .., 500$, then taking the average. It is then straight-forward to compute the corresponding standard errors which are reported in Table 2. The average RMSPE for the pre-treatment period is roughly 0.15 for the all-lags model and roughly 0.22 for the three-lags model. This indicates that the average pre-treatment fit of the all-lags model is slightly better than the three-lags model. A visual inspection of Figure 2 confirms this finding. The three-lags synthetic model exhibits a greater underperformance in the early 1990s and a slightly higher overperformances in the mid- to late 1990s. In Table 2, we further report the ratio of post-RMSPE to pre-RMSPE which allows us to compare the all-lags model with the three-lags model. While the result of the all-lags model indicates a slightly smaller post-bridge trade effect, its average pre-treatment fit is better. For this reason, the post-treatment RMSPE to pre-treatment RMSPE is higher for the all-lags model with a value of nearly 16 compared to a value of just over 12 for the three-lags model.

Table 2. Percentage difference between actual and synthetic Danish-Swedish bilateral trade and measures of fit.

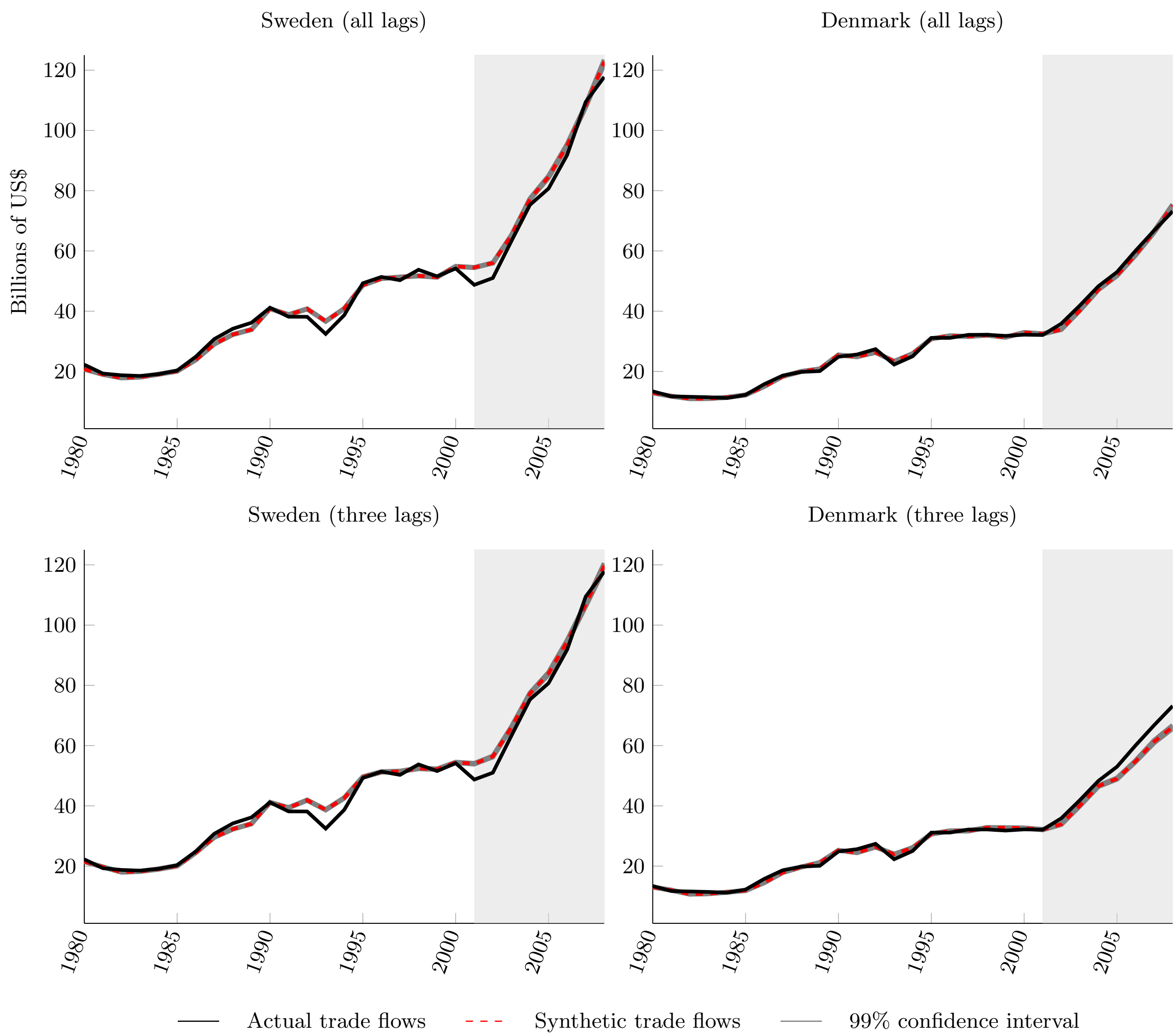
		2001-2008			
	1980-2000	2001-2008	2001-2002	2003-2004	2005-2008
Diff. actual vs synth. (all lags)	0.288 (0.009)	24.563 (0.192)	3.943 (0.068)	21.794 (0.102)	31.177 (0.281)
RMSPE (all lags)	0.149 (0.000)	2.348 (0.014)	0.339 (0.003)	1.503 (0.006)	3.136 (0.020)
Post-RMSPE/Pre-RMSPE (all lags)		15.774 (0.078)	2.285 (0.022)	10.117 (0.035)	21.062 (0.109)
Diff. actual vs synth. (three lags)	-0.234 (0.048)	27.824 (0.296)	4.998 (0.126)	21.454 (0.292)	36.570 (0.398)
RMSPE (three lags)	0.219 (0.001)	2.653 (0.021)	0.334 (0.006)	1.492 (0.015)	3.584 (0.029)
Post-RMSPE/Pre-RMSPE (three lags)		12.175 (0.088)	1.501 (0.023)	6.793 (0.050)	16.462 (0.129)

Notes: For each of our models, the table reports the percentage difference between actual and synthetic trade for different time periods between 1980-2008, the RMSPE as defined in (9) over each period, and the ratio of post-treatment RMSPE to pre-treatment RMSPE as defined in (10) for each of the post-treatment periods. Standard errors of the mean in parentheses.

We report the matrix of non-negative weights of the pre-bridge characteristics, $\mathbf{V}$, in Table A1 in the Appendix. We note that the weights our synthetic algorithm attaches to the gravity-inspired predictors – $\ln \text{GDP}_i \times \text{GDP}_j$, Land Border, $\ln \text{Distance}_{ij}$ and EU - are very small. In fact, for the all-lags model, the weights are all less than 0.001, and for our three-lags model weights are less than 0.001 apart from the weight attached to the log of distance which is 0.001 on average. The algorithm attaches larger average weights to the outcome lags in both models. In the all-lags model, the average weights attached to outcome lags closer to the intervention year tend to be larger, and in our three-lags model the average weights are larger for the outcome lags of 1990 and 2000, respectively. The fact that the weights attached to the outcome lags are larger than the theory-motivated predictors is not uncommon in the literature on SCM.

In Figure 3 we sum up all 16 synthetic bilateral trade flows of, respectively, Sweden (left panel) and Denmark (right panel), according to (7) and (8). Similar to the Danish-Swedish synthetic model, we run an all-lags and three-lags, respectively, for aggregate Swedish and Danish trade. The aggregate synthetic trade flows follow the actual trade flows closely in both the pre- and post-bridge periods for both Denmark and Sweden, although we note an underperformance of Swedish trade in the early 1990s as the country was recovering from a credit crunch which seems somewhat more pronounced in the three-lags model. Our synthetic models of, respectively, Denmark's and Sweden's aggregate trade are therefore good models of actual trade, indicating that the two countries' bilateral trade series have not undergone significant structural change.

Figure 3. Aggregate Swedish (left-panel) and Danish (right-panel) trade.



In tables 3 and 4 we have produced the percentage effects of aggregate Danish and Swedish trade over different periods of time. In percentage terms neither actual aggregate Swedish nor aggregate Danish trade differ very much from their synthetic counterfactuals in the pre-bridge period. Aggregate Swedish trade overperforms by just over 0.3% according to the all-lags model, and underperforms by nearly -1.5% according to the three-lags model. Danish aggregate trade overperforms slightly in the pre-bridge period according to both the all-lags- and three-lags models. Inspection of Table 3 shows that aggregate Swedish trade has underperformed in the post-bridge period by nearly 4% in the all-lags model, and slightly less according to the three-lags model. Looking at the post-bridge subperiods, the underperformance of aggregate Swedish trade is greater in the immediate post-bridge years at close to 10%. Looking next at aggregate Danish trade in Table 4, we note that unlike aggregate Swedish trade, Denmark's actual trade has overperformed relative to its synthetic counterfactual. According to the all-lags model, the overperformance is a modest 1.2% whereas the results of the three-lags model indicates a much stronger overperformance at around 7%. This overperformance seems to have occurred in the period 2005-2008. The pre-treatment fit of our synthetic models as measured by the average RMSPE is poorer for our Swedish models, leaving a higher ratio of post-RMSPE to pre-RMSPE for the post-bridge period for Denmark.

Table 3. Percentage difference between actual and synthetic aggregate Swedish trade and measures of fit.

		2001-2008			
	1980-2000	2001-2008	2001-2002	2003-2004	2005-2008
Diff. actual vs synth. (all lags)	0.340 (0.006)	-3.826 (0.107)	-9.740 (0.025)	-2.688 (0.059)	-2.629 (0.160)
RMSPE (all lags)	1.600 (0.002)	4.696 (0.031)	5.397 (0.015)	2.029 (0.035)	5.171 (0.052)
Post-RMSPE/Pre-RMSPE (all lags)		2.938 (0.020)	3.375 (0.009)	1.269 (0.022)	3.237 (0.033)
Diff. actual vs synth. (three lags)	-1.438 (0.059)	-3.386 (0.139)	-9.904 (0.084)	-3.599 (0.098)	-1.534 (0.202)
RMSPE (three lags)	2.106 (0.007)	4.812 (0.076)	5.325 (0.050)	2.717 (0.048)	4.966 (0.130)
Post-RMSPE/Pre-RMSPE (three lags)		2.291 (0.036)	2.549 (0.025)	1.290 (0.023)	2.361 (0.061)

Notes: For each of our models, the table reports the percentage difference between actual and synthetic trade for different time periods between 1980-2008, the RMSPE as defined in (9) over each period, and the ratio of post-treatment RMSPE to pre-treatment RMSPE as defined in (10) for each of the post-treatment periods. Standard errors of the mean in parentheses.

Table 4. Percentage difference between actual and synthetic aggregate Danish trade and measures of fit.

		2001-2008			
	1980-2000	2001-2008	2001-2002	2003-2004	2005-2008
Diff. actual vs synth. (all lags)	0.167 (0.005)	1.262 (0.105)	2.328 (0.042)	3.115 (0.056)	0.338 (0.147)
RMSPE (all lags)	0.615 (0.002)	1.975 (0.032)	1.414 (0.009)	1.431 (0.021)	2.318 (0.051)
Post-RMSPE/Pre-RMSPE (all lags)		3.197 (0.048)	2.313 (0.016)	2.346 (0.035)	3.735 (0.078)
Diff. actual vs synth. (three lags)	0.061 (0.027)	7.039 (0.168)	2.936 (0.105)	4.062 (0.132)	9.325 (0.228)
RMSPE (three lags)	0.865 (0.004)	4.260 (0.082)	1.535 (0.020)	1.880 (0.048)	5.735 (0.114)
Post-RMSPE/Pre-RMSPE (three lags)		4.870 (0.081)	1.773 (0.021)	2.158 (0.050)	6.550 (0.114)

Notes: For each of our models, the table reports the percentage difference between actual and synthetic trade for different time periods between 1980-2008, the RMSPE as defined in (9) over each period, and the ratio of post-treatment RMSPE to pre-treatment RMSPE as defined in (10) for each of the post-treatment periods. Standard errors of the mean in parentheses.

In Tables A2 and A3, we produce Sweden's and Denmark's trade performance (the difference between actual an synthetic trade) against individual country pairs in percentage terms. The corresponding evolution of the two countries actual and synthetic trade flows against all bilateral pairs are produced graphically for Sweden (Figure A1 for the all-lags model and Figure A2 for the three-lags model) and Denmark (Figure A3 for the all-lags model and Figure A4 for the three-lags model) in the Appendix. We note from Table A2 that for the post-bridge period, Sweden's actual trade is below the synthetic trade against the majority of its bilateral trading relationships for both the all-lags model and the three-lags model. From Table A3 we observe a similar pattern for Sweden's neighbour. Denmark has performed poorly against the majority of bilateral pairs in the all-lags model, although the reverse is true for the three-lags model. Inspection of Table A3 shows that for the all-lags model, Denmark's trade performance has been relatively modest against most pairs, although with Spain being an exception. On the other hand, in the three-lags model, we can report a strong performance for Denmark against multiple pairs.

In tables A4-A7 in the Appendix we report the average weights attached to the comparison units for, respectively, Denmark's and Sweden's synthetic models. The all-lags Danish-Swedish model is reported in the last column in Table A4 (and rereported in Table A6 for convenience). The three-lags model is reported in table A5 (and rereported in Table A7. After inspection of these tables, we note that the all-lags model uses 18 of the 50 potential comparison units[12] to construct the synthetic counterfactual with relatively large average weights given to GBR-NOR (0.143), ISL-PRT (0.141) and NLD-NOR (0.298). The three-lags model uses 21 out of 50 potential comparison units with heavy reliance on three comparison units – BLX-CHE (0.458), BLX-GBR (0.187) and IRL-ISL (0.179).

5 Discussion and robustness

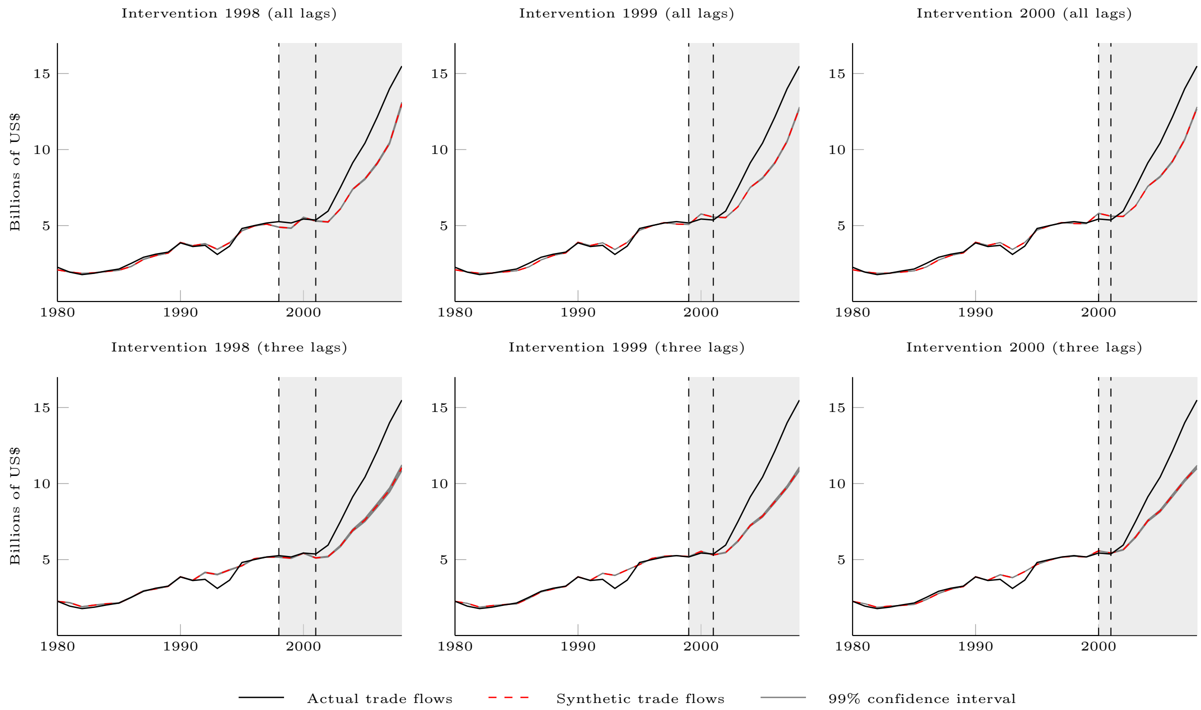
As we noted in the previous section, the use of inferential techniques is limited within the standard application of the SCM. We addressed this issue by using the subsampling procedure described in Politis and Romano (1994) to construct standard errors and confidence intervals. In this section, we will conduct further sensitivity tests that are common in the literature on SCM. First, we will analyse the sensitivity of our results to the choice of matching window. Our concern is that if we obtain a large bridge effect in a year in which the intervention did not occur, we could not be as confident as to the validity of our result. This is a standard falsification test which is usually referred to as a "placebo-in-time" test. We will also examine if the bridge was subject to "anticipation effects" whereby the positive effects upon trade might have occurred prior to the opening of the bridge in anticipation of the lower trade costs. Second, we construct synthetic controls for all of our comparison units in the "donor poll". The motivation behind running these models is to test whether our comparison units have been subject to treatments. If we observe a similar treatment effect for a large number of comparison units in our donor pool, then there may not be anything unusual about the Danish-Swedish trading relationship post bridge. Such a test is usually referred to as a "placebo-in-space" test. Third, we apply a standard difference-in-differences estimator using various fixed effects to estimate the bridge effect.

5.1 Placebo-in-time

It is possible that the bridge might have had a positive impact upon trade flows prior to its dedication through various channels such as the announcement of the construction of the bridge. Importers and exporters on

[12] Due to rounding to three decimals in the table, it is possible that some comparison units have been used in some of the 500 models but with the average weight being less than 0.001.

Figure 4. Average actual and synthetic bilateral trade flow between Denmark and Sweden using alternative intervention years.



both sides of Øresund may thus have anticipated that trade cost would be lower in the future leading them to change behaviour. In order to examine whether such anticipation effects might have affected trade prior to the opening of the bridge, we construct three synthetic models with the intervention years set to, respectively, the years 1998, 1999 and 2000. As with the benchmark synthetic model, we construct and all-lags and three-lags version of these models. Formally, suppose the 'false' intervention year is x, we are interested in the following treatment effects,

$$\overline{\alpha}_{DNK-SWE,x-2008} = \frac{1}{m}\sum_{j=1}^{m}\left[\frac{\sum_{t=x}^{2008}\left(\text{BTF}_{DNK-SWE,t}^{I} - \sum_{i=1}^{n} w_{i,j}\text{BTF}_{i,j,t}\right)}{\sum_{t=x}^{2008}\sum_{i=1}^{n} w_{i,j}\text{BTF}_{i,j,t}}\right], \quad x = 1998, 1999, 2000. \tag{11}$$

Since the bridge was not opened until July 2000, the years 1998, 1999 are essentially "false" years in which the intervention did not occur, whereas arguably the year 2000 could be a legitimate alternative to 2001 as the 'true' intervention date. Running these alternative models allows us to ascertain whether there is evidence that the bridge-effect was present in the data prior to its opening. We plot the synthetic models with these alternative intervention years in Figure 4 with solid lines indicate actual trade and the synthetic models the dashed lines. The post-intervention period is indicated as the shaded area with the area between the vertical dashed lines being the 'false' post-treatment years.

We report the corresponding percentage treatment effects in Table 5. The first model reported in the table is the all-lags model with the intervention year set in 1998 (the corresponding pre-treatment period is 1980-1997). In the fifth column we report the treatment effect in the 'false years'. The first model is characterised by a small treatment effect of nearly 4% in the 'false years', however, inspection of the corresponding model in Figure 4 shows that the overperformance occurred in 1998 and 1999 whereas actual trade returned to its synthetic counterfactual in 2000 and 2001. As such, we will interpret this overperformance as a fluctuation rather than an anticipation effect of the bridge. Looking at the remaining false treatment effects in Table 5, we note very small and mostly negative effects (with only the all-lags model with 1998 intervention year reporting a small but positive treatment). Inspection of Table 5 shows that the treatment effect in the years 2001-2008 (i.e. the 'true' bridge effect) ranges from 21.3-33.5% and arguably reasonably close to the estimates the benchmark models above. There is strong indication that all of our models report the largest trade-creating effect in the years 2005-2008 with a more modest effect in the immediate post-bridge year (2001-2004). Moreover, similar to our benchmark models reported above, we find that the all-lags models in Table 5 have better average fit with lower average pre-treatment RMSPE compared to the three-lags models. To summarise, we find that the results of the models with alternative intervention years are broadly consistent with our benchmark models, and there is not much evidence of any anticipation effects of the bridge.

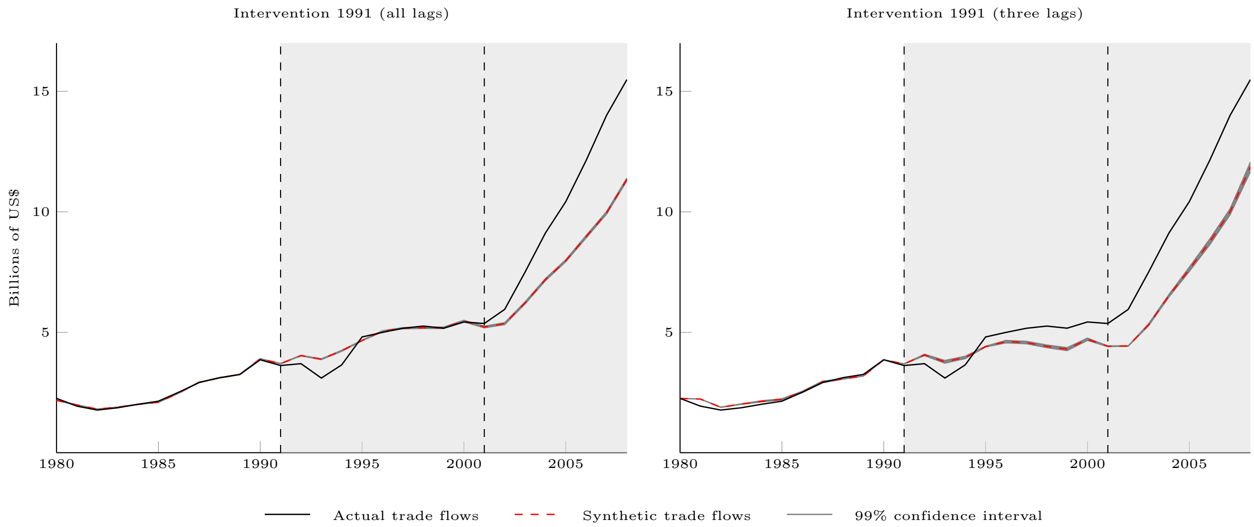
Table 5. Percentage difference between actual and synthetic Danish-Swedish trade with alternative intervention years.

				1998-2008				
Model	Pre-treatment period		Pre-treatment effect	False years	2001-2008	2001-2002	2003-2004	2005-2008
All lags	1980-1997	Diff. actual vs synth.	0.271 (0.009)	3.932 (0.085)	23.758 (0.166)	7.353 (0.110)	23.293 (0.082)	28.172 (0.271)
		RMSPE	0.139 (0.001)	0.307 (0.003)	2.225 (0.013)	0.514 (0.004)	1.580 (0.005)	2.916 (0.020)
		Post-RMSPE/Pre-RMSPE		2.240 (0.021)	16.066 (0.075)	3.770 (0.037)	11.482 (0.054)	21.028 (0.106)
	1980-1998	Diff. actual vs synth.	0.098 (0.007)	-2.135 (0.053)	22.394 (0.168)	2.106 (0.087)	20.911 (0.092)	28.449 (0.244)
		RMSPE	0.147 (0.000)	0.255 (0.002)	2.197 (0.013)	0.345 (0.003)	1.449 (0.005)	2.922 (0.018)
		Post-RMSPE/Pre-RMSPE		1.755 (0.018)	15.008 (0.080)	2.370 (0.021)	9.920 (0.044)	19.954 (0.110)
	1980-1999	Diff. actual vs synth.	0.037 (0.008)	-6.478 (0.072)	21.328 (0.162)	0.872 (0.070)	19.811 (0.086)	27.467 (0.236)
		RMSPE	0.144 (0.000)	0.378 (0.004)	2.132 (0.013)	0.316 (0.002)	1.385 (0.005)	2.842 (0.018)
		Post-RMSPE/Pre-RMSPE		2.651 (0.030)	14.798 (0.078)	2.203 (0.018)	9.637 (0.039)	19.720 (0.108)
Three lags	1980-1997	Diff. actual vs synth.	-4.089 (0.041)	1.170 (0.074)	33.517 (0.524)	9.859 (0.157)	29.746 (0.417)	41.457 (0.712)
		RMSPE	0.310 (0.002)	0.108 (0.004)	2.944 (0.037)	0.571 (0.007)	1.932 (0.021)	3.895 (0.052)
		Post-RMSPE/Pre-RMSPE		0.400 (0.018)	9.436 (0.099)	1.824 (0.017)	6.198 (0.050)	12.477 (0.146)
	1980-1998	Diff. actual vs synth.	-3.577 (0.043)	-1.285 (0.062)	29.786 (0.380)	5.088 (0.168)	23.567 (0.371)	39.136 (0.493)
		RMSPE	0.282 (0.001)	0.095 (0.004)	2.785 (0.026)	0.366 (0.007)	1.616 (0.019)	3.751 (0.036)
		Post-RMSPE/Pre-RMSPE		0.344 (0.014)	9.956 (0.096)	1.273 (0.020)	5.702 (0.052)	13.434 (0.135)
	1980-1999	Diff. actual vs synth.	-2.146 (0.050)	-2.587 (0.077)	25.390 (0.358)	2.204 (0.178)	18.492 (0.386)	34.530 (0.446)
		RMSPE	0.235 (0.001)	0.152 (0.004)	2.540 (0.024)	0.250 (0.008)	1.330 (0.020)	3.453 (0.033)
		Post-RMSPE/Pre-RMSPE		0.657 (0.018)	10.907 (0.097)	1.018 (0.024)	5.610 (0.060)	14.855 (0.137)

Notes: For each of our models, the table reports the percentage difference between actual and synthetic trade for different time periods between 1980-2008, the RMSPE as defined in (9) over each period, and the ratio of post-treatment RMSPE to pre-treatment RMSPE as defined in (10) for each of the post-treatment periods. Standard errors of the mean in parentheses.

In addition to the 'false year' models analysed thus far, we provide a further falsification test in which we reassign the intervention year to 1991. This is ten years prior to the opening of the bridge and any trade-creating effects are unlikely to have been contaminated by any anticipation effects. If we obtain a positive effect upon trade in the 'false' post-treatment period between 1991-2000 which is similar in magnitude to what we have identified as our bridge effect in previous models, we can be less confident that the trade-creating effects can be attributed to the opening of the bridge. A potential caveat of running this model is that the pre-treatment matching window is significantly shorter than any of our previous models and therefore a smaller number of years is being used to generate our post-treatment effects. We run an all-lags and three-lags version of the SCM here as well, with the all-lags model using as predictors all outcome lags

Figure 5. Average actual and synthetic bilateral trade flow between Denmark and Sweden using 1991 as intervention year.



between 1980-1990, and the three-lags model using outcome lags in the years 1980, 1985 and 1990. In Figure 5, we plot the synthetic models using 1991 as intervention year with the solid indicating actual trade and the dashed line the synthetic trade. The post-intervention period is the shaded area and we have indicated the 'false' treatment period as the area between the two vertical dashed lines in the figure. Inspection of the figure shows that the pre-treatment difference between actual and synthetic trade is particular small in the all-lags model whereas synthetic trade is consistently above actual trade in the first half (1980-1985) of the pre-treatment period in the three-lags model. Looking first at the all-lags model in the figure, the first part of the 'false' post-treatment period indicates that Danish-Swedish trade underperformed relative to its synthetic counterfactual. This is likely to have been the result of the early 1990s recession which was particularly severe in Sweden compared to European peer economies. In the remaining post-treatment period, actual trade returns to its synthetic trend, and the synthetic model is a good approximation of actual trade in this period. In the three-lags model, we observe a similar underperformance of actual trade relative to the synthetic model in the early 1990s, but unlike the all-lags model we observe an overperformance in the second half of the 'false' treatment period.

We report the corresponding percentage treatment effects in Table 6. The percentage effects confirm the observations we have made from our visual inspection of the figure. In the all-lags model, the table reports an underperformance of close to 8% whereas the percentage difference between actual and synthetic trade is close to zero in the second half of the 'false' intervention period. In the three-lags model, the table similarly reports an underperformance in the first half of the 1990s, but there is a strong overperformance in the second half. The pre-treatment fit as measured by the RMSPE is significantly better in the all-lags model at 0.04 compared with a value of nearly 0.17 in the three-lags model. We note further that the post-bridge trade effects in the all-lags model are broadly similar to our benchmark models with a trade-creating effect between 2001-2008 of just over 28%. Looking at the subperiods – 2001-2002, 2003-2004 and 2005-2008 – the trade-creating results of the all-lags model are similar to, albeit slightly larger, than the corresponding result in the benchmark all-lags model. Our three-lags model with 1991 as intervention year, on the other hand, seems to show significant larger post-bridge trade effects with the trade-effect in the 2001-2008 period close to 36% and with the percentage effects in the subperiods being much larger than for any of our previous models. To summarise, the results of our all-lags model with 1991 as intervention year are broadly consistent with our benchmark models in terms of a fairly good pre-bridge fit and post-bridge trade effect. Considering the three-lags model with 1991 as intervention year, we cannot rule out that there was a positive trade effect which pre-dates the opening of the bridge. However, given that the three-lags model has a poorer pre-treatment fit and generally reports trade-effects that are inconsistent with our previous models, we have greater confidence in the results of the all-lags model, and we consider the evidence of a pre-bridge effect upon trade somewhat weak.

Table 6. Percentage difference between actual and synthetic Danish-Swedish trade using 1991 as intervention year.

		1991-2008						
	1980-1990	1991-2008	1991-1995	1996-2000	2001-2008	2001-2002	2003-2004	2005-2008
Diff. actual vs synth. (all lags)	0.049 (0.005)	14.773 (0.154)	-7.957 (0.068)	-0.134 (0.180)	28.516 (0.221)	6.958 (0.257)	23.956 (0.274)	36.082 (0.239)
RMSPE (all lags)	0.042 (0.000)	1.780 (0.008)	0.472 (0.003)	0.177 (0.006)	2.637 (0.012)	0.477 (0.009)	1.641 (0.015)	3.522 (0.016)
Post-RMSPE/Pre-RMSPE (all lags)		43.602 (0.349)	11.592 (0.113)	4.051 (0.126)	64.605 (0.524)	11.474 (0.210)	40.294 (0.438)	86.279 (0.695)
Diff. actual vs synth. (three lags)	-2.399 (0.172)	23.101 (0.235)	-5.095 (0.223)	15.024 (0.438)	35.731 (0.475)	27.772 (0.130)	40.435 (0.461)	36.119 (0.677)
RMSPE (three lags)	0.166 (0.005)	1.996 (0.018)	0.436 (0.013)	0.832 (0.008)	2.885 (0.028)	1.266 (0.004)	2.406 (0.018)	3.562 (0.043)
Post-RMSPE/Pre-RMSPE (three lags)		15.539 (0.296)	2.741 (0.025)	6.527 (0.110)	22.565 (0.441)	9.731 (0.148)	17.976 (0.280)	28.267 (0.600)

Notes: For each of our models, the table reports the percentage difference between actual and synthetic trade for different time periods between 1980-2008, the RMSPE as defined in (9) over each period, and the ratio of post-treatment RMSPE to pre-treatment RMSPE as defined in (10) for each of the post-treatment periods. Standard errors of the mean in parentheses.

5.2 Placebo-in-space

As an alternative to our placebo-in-time test, we reassign the treatment not in time but in space. We obtain a synthetic control estimate for all of our comparison units in the sample, which allows us to compare our estimated Danish-Swedish trade effect of the bridge with the distribution of placebo effects obtained from all other bilateral trading pairs in the sample. We will deem the bridge effect significant if it is unusually large relative to the distribution of treatment effects. As we have alluded to earlier in Section 3, it is not useful to compare the treatment effects without consideration of the goodness of the pre-treatment fit of each of our synthetic models. We will therefore follow the literature by comparing the ratio of post-treatment RMSPE to pre-treatment RMSPE for all comparison units as defined in (10). When constructing the synthetic models for the other comparison units we run an experiment which mirrors the one we constructed for Danish-Swedish trade. For each comparison unit, we suppose some major infrastructure have been put up between the members of the bilateral pair reducing the cost of trade. The set X' contains 81 comparison units (the full sample consists of 136 bilateral pairs of which 55 are excluded since they use the euro as currency in the post-treatment period). The subset $X_k^{NT'}$ comprises the bilateral pairs that do no contain any members of the bilateral pair k which will be treated as our "donor pool". The subset $X_k^{T'}$ comprises all bilateral pairs containing at least one of the members of bilateral pair k.

For each bilateral pair k, we compute 500 synthetic models, where for every model we exclude $\frac{1}{6}$th of comparison units in each k's respective donor pools. We then compute the the ratio of post-treatment RMSPE to pre-treatment RMSPE for each of the 500 models, and calculate the average RMSPE and their corresponding standard errors and confidence intervals. We refer to the corresponding values as placebo effects, or 'fake' treatment effects and report them Figure 6. In the left panel, we report placebo effects in which all synthetic models have been generated using all outcome lags, and in the right panel we use three lags (1980, 1990 and 2000). We highlight our treated (Danish-Swedish) unit in ‘red’ and in both panels, we indicate and label comparison units which received a positive weight in their respective (all-lags or three-lags) benchmark Danish-Swedish models using a square marker and comparison units that our synthetic algorithm did not select are indicated as triangles. We report the 99% confidence intervals for each placebo effect in the two panels. In the all-lags model, our the Danish-Swedish unit ranks seventh as measured by the value of the ratio of post-treatment to pre-treatment RMSPE and in the three-lags model, it ranks third. The distribution of placebo effects in the all-lags model has mean 6.4 and standard deviation 4.6. The value of the Danish-Swedish post- to pre-treatment ratio is 15.78 and we compute the z-score as 2.04. This gives a corresponding p-value of 0.02. The three-lags model has mean of 4.3 and standard deviation 2.8. With a post- to pre-treatment ratio for the Danish-Swedish unit we can similarly calculate the z-score and p-value, respectively, as 2.84 and 0.002.

5.3 Difference-in-differences estimator

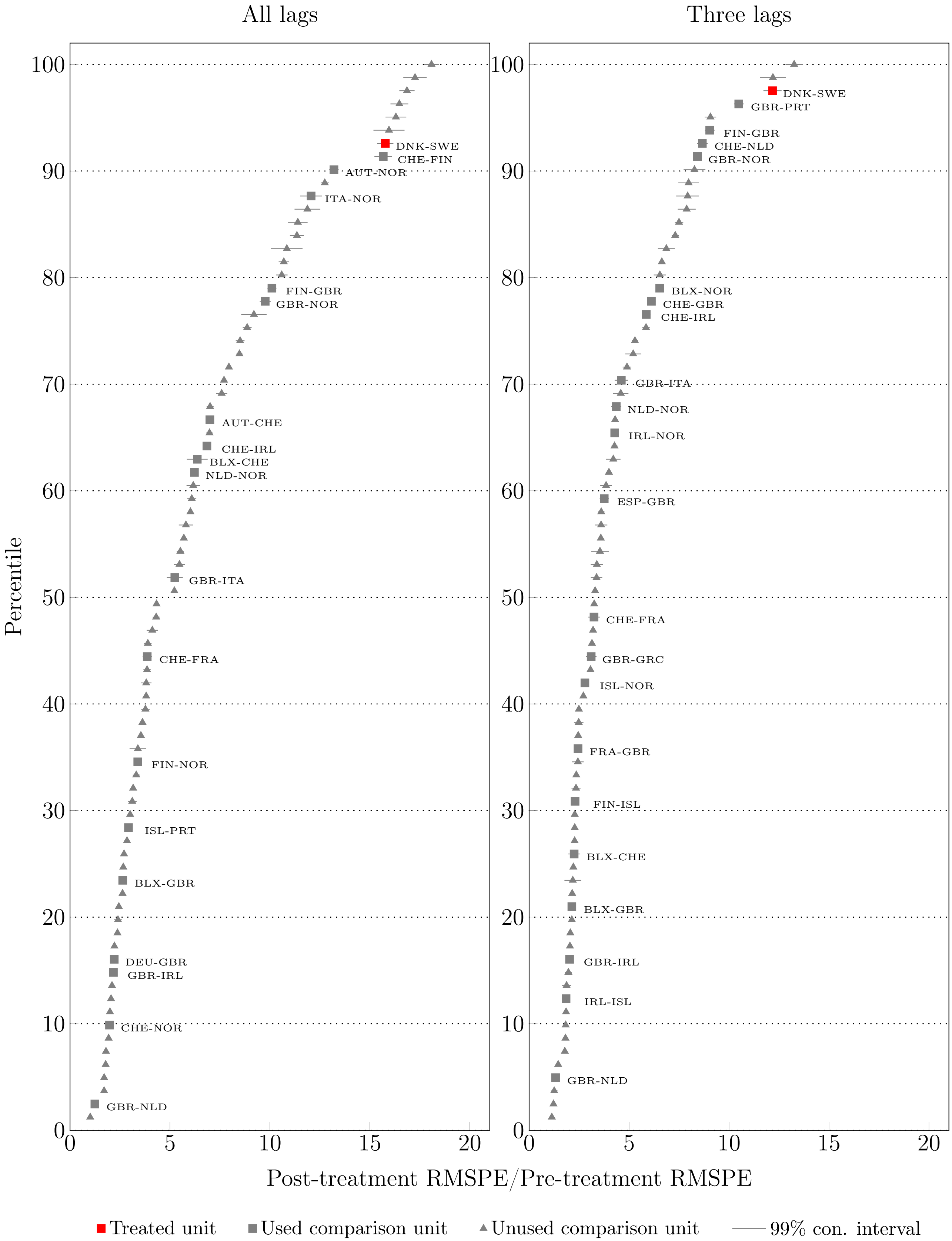
We supplement our SCM using a standard difference-in-differences estimator with panel fixed effects. Our benchmark difference-in-differences estimator regresses the average of the log of the two-way export flows on the following regressors:

$$\mathrm{BTF}_{kt} = \beta_0 + \beta_1 \ln(\mathrm{GDP}_{it} \times \mathrm{GDP}_{jt}) + \beta_2 \mathrm{EU}_{kt} + \beta_3 \text{Post-bridge} + \beta_4 \text{DNK-SWE} \times \text{post-bridge} + \epsilon_{ijt}, \quad (12)$$

$\ln(\mathrm{GDP}_{it} \times \mathrm{GDP}_{jt})$ is the product of the GDP of country i and country j in bilateral pair k; EU_{kt} is a dummy variable which equals one if the bilateral pair k is a member of the EU at time t; Post-bridge takes the value 1 for the post-treatment period 2001-2008; and the interaction term DNK-SWE $\times$ post-bridge is 1 for Danish-Swedish trade in 2001 and thereafter. In the benchmark version of this regression we exclude euro-pairs as we did with our SCM, but we shall include them in an extended version of the model with a dummy variable controlling for Euro adoption below. We run the regression by OLS with country-pair fixed effects and report the results in Table 7 column (1). The coefficients on the product of the bilateral trading pairs’ GDPs is positively signed and is highly significant as we would expect in a gravity model. Similarly, the EU dummy is positive and significant. We are particularly interested in the coefficient on DNK-SWE $\times$ post-bridge, which would give us a measure of how much trade the bridge has created. We note that this coefficient takes the value 0.27 and is significant at the 1% level. This coefficient estimate implies that the bridge has increased Danish-Swedish bilateral trade by roughly 30%.[13] In order to analyse the timing of the bridge effect, we break the Danish-Swedish post-bridge interaction term into three post-bridge subperiods – 2001-2002, 2003-2004 and 2005-2008. The coefficient estimates of the subperiods in our difference-in-differences estimator reported in column (2) are broadly similar to, albeit slightly larger than, our benchmark estimates using the SCM. The bridge effect is largest in the period 2005-2008 with a coefficient of 0.372 (45%) which is significant at the 1% level, and slightly more modest at, respectively, 0.14 (14%) between 2001-2002 and 0.18 (20%) between 2003-2004, both highly significant. In column (3), we specify further subperiods to examine the timing of the positive effect upon trade between Denmark and Sweden. In particular, we specify interactions between our Danish-Swedish dummy and separately six year dummies with the first three in the pre-bridge period, and the last three in the post-bridge period. The coefficients on the interactions with the 1998 and 1999 year dummies, respectively, are 0 and -0.02 and insignificant, indicating that there was no trade creation prior to

[13] We take anti-logs of the coefficient to obtain the percentage effect.

Figure 6. Ratio of post-treatment RMSPE to pre-treatment RMSPE for all comparison units.



The figure reports placebo effects, that is the ratio of post-treatment to pre-treatment RMSPE as defined in (10), for 81 comparison units on the horizontal axis and each unit's ranking (percentile) on the vertical axis.

2000. The interaction with the 2000 year dummy, however, indicates a positive and significant trade-creating effect of 0.09 (9%), and this rises to 0.11 (12%) in 2001, 0.13 (13.7%) in 2002 and 0.15 (15.7%) in 2003. We cover the remaining post-bridge period with an interaction between the Danish-Swedish dummy and a dummy covering 2004-2008. This interaction term shows a very strong post-bridge effect of 0.34 (40%). In column (4) we test for trade creation in the 10 years prior to the opening of the bridge. We find that Danish-Swedish trade suffered a significant loss of around -0.16 (17%) in the first half of the 1990s (between 1991-1995), and there was no effect upon Danish-Swedish trade in the second half (1996-2000). These findings are broadly consistent with our all-lags model with the 1991 as intervention year, albeit with a more negative effect between 1991-1995. Throughout this paper, we have considered eight post-bridge years and found strong and significant trade-creating effects. In column (5) we extend our post-bridge period with a further seven years between 2009-2015. We find that the trade-creating effects of the bridge survive well beyond the financial crisis with a positive and significant coefficient estimate of 0.26 (29%). This is only marginally below the post-bridge effect in our benchmark years 2001-2008.

In Table 8, we rerun the regressions in columns (1)-(4) but now including the bilateral pairs that adopted the euro in the post-intervention period. The motivation was excluding these pairs in the SCM is that the euro was introduced at more or less the same time as the completion of the bridge. As such, if the euro was subject to any positive trade-creating effects, the comparison units in our Danish-Swedish synthetic model would be subject to potential bias. In our standard regression which we run in this subsection, however, we are able to directly control for the adoption of the euro through a dummy variable. The euro variable should remove the variation in the data due to the euro. The first regression in Table 8 is the counterpart of the first regression in Table 7 with the additional euro-pair observations and a control variable. We find that the post-bridge effect falls slightly from 0.27 (30%) to 0.24 (26.7%) but remains highly significant. The estimates of our bridge-effect by subperiod – 2001-2002, 2003-2004 and 2005-2008 – in column (2) of Table 8 are also marginally smaller than their counterparts in Table 7 but remain highly significant. Our analysis of the subperiods between 1998-2003 are broadly similar with euro-pairs included although the bridge-effect now kicks in in 2001 rather than 2000 which we found in Table 7 column 3. In the last column of Table 8 we report results for trade-creating effects of the 1990s and we find significant negative effects, now also very negative effects in the second half of the 1990s.

Thus far we have averaged the two-way trade flows and analysed the trade effects of the bridge on average trade flows. This strategy was appropriate when using the SCM since the opening of the bridge coincided with a significant depreciation of the Swedish krona. This would make the analysis of directional trade flows between Denmark and Sweden problematic in the synthetic model due to the challenge of isolating the trade effects of the bridge from those of the depreciation of the krona. However, using a model with time-varying fixed effects allows us to further analyse the direction of the bridge effect. We run the following econometric model,

$$\begin{aligned}\ln \text{Exports}_{ijt} = \beta_0 + \beta_1 \ln(\text{GDP}_{ijt} \times \text{GDP}_{jit}) + \beta_2 \text{Euro} + \beta_3 \text{EU} + \beta_4 \ln \text{Distance} + \beta_5 \text{Adjacency} \\ + \beta_6 \text{DNK-SWE} \times \text{post-bridge} + \beta_7 \text{SWE-DNK} \times \text{post-bridge} + \epsilon_{ijt}, \quad (13)\end{aligned}$$

where the variables Distance (the weighted distance in kilometres between countries within each bilateral pair) and Adjacency (a binary variable taking the value 1 if members of bilateral pair share a land border) are included in specifications without time-invariant fixed effects, and we similarly include a specific dummy for, respectively, Danish exports to Sweden and Swedish exports to Denmark, DNK-SWE and SWE-DNK,

Table 7. Difference-in-differences with average of two-way trade flows

	(1)	(2)	(3)	(4)	(5)
$\ln \text{GDP}_i \times \text{GDP}_j$	0.510***	0.510***	0.499***	0.526***	0.482***
	(0.008)	(0.008)	(0.008)	(0.010)	(0.006)
EU	0.116***	0.116***	0.108***	0.124***	0.091***
	(0.018)	(0.018)	(0.018)	(0.018)	(0.019)
Post-bridge	-0.002	-0.002	0.034***	-0.046**	0.061***
	(0.014)	(0.014)	(0.013)	(0.019)	(0.012)
DNK-SWE × post-bridge (2001-2008)	0.265***				0.260***
	(0.048)				(0.051)
DNK-SWE × post-bridge (2001-2002)		0.135***		0.095***	
		(0.027)		(0.032)	
DNK-SWE × post-bridge (2003-2004)		0.181***		0.130***	
		(0.032)		(0.035)	
DNK-SWE × post-bridge (2005-2008)		0.372***		0.313***	
		(0.033)		(0.036)	
DNK-SWE × pre-bridge (1998)			0.000		
			(0.027)		
DNK-SWE × pre-bridge (1999)			-0.024		
			(0.027)		
DNK-SWE × pre-bridge (2000)			0.087***		
			(0.028)		
DNK-SWE × post-bridge (2001)			0.113***		
			(0.028)		
DNK-SWE × post-bridge (2002)			0.128***		
			(0.027)		
DNK-SWE × post-bridge (2003)			0.146***		
			(0.027)		
DNK-SWE × post-bridge (2004-2008)			0.336***		
			(0.044)		
DNK-SWE × pre-bridge (1991-1995)				-0.158***	
				(0.033)	
DNK-SWE × pre-bridge (1996-2000)				-0.039	
				(0.043)	
DNK-SWE × post-bridge (2009-2015)					0.257***
					(0.029)
Observations	2349	2349	2349	2349	2916
R^2	0.985	0.985	0.985	0.985	0.982
Country-pair fixed effects	Yes	Yes	Yes	Yes	Yes
Year dummies	No	No	No	No	No

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Robust standard errors in parentheses
The Post-bridge dummy covers actual or placebo intervention periods

Table 8. Difference-in-differences with average of two-way trade flows with euro-pairs

	(1)	(2)	(3)	(4)
$\ln \text{GDP}_i \times \text{GDP}_j$	0.537***	0.537***	0.527***	0.542***
	(0.006)	(0.006)	(0.006)	(0.008)
EU	0.177***	0.177***	0.183***	0.190***
	(0.014)	(0.014)	(0.014)	(0.014)
Euro	0.190***	0.190***	0.171***	0.160***
	(0.014)	(0.014)	(0.014)	(0.013)
Post-bridge	-0.055***	-0.055***	-0.014	-0.051***
	(0.012)	(0.012)	(0.011)	(0.013)
DNK-SWE × post-bridge (2001-2008)	0.237***			
	(0.047)			
DNK-SWE × post-bridge (2001-2002)		0.127***		0.012
		(0.031)		(0.032)
DNK-SWE × post-bridge (2003-2004)		0.155***		0.036
		(0.034)		(0.036)
DNK-SWE × post-bridge (2005-2008)		0.332***		0.211***
		(0.035)		(0.037)
DNK-SWE × pre-bridge (1998)			-0.040	
			(0.033)	
DNK-SWE × pre-bridge (1999)			-0.065**	
			(0.033)	
DNK-SWE × pre-bridge (2000)			0.050	
			(0.033)	
DNK-SWE × post-bridge (2001)			0.078**	
			(0.033)	
DNK-SWE × post-bridge (2002)			0.088***	
			(0.033)	
DNK-SWE × post-bridge (2003)			0.094***	
			(0.033)	
DNK-SWE × post-bridge (2004-2008)			0.268***	
			(0.046)	
DNK-SWE × pre-bridge (1991-1995)				-0.186***
				(0.034)
DNK-SWE × pre-bridge (1996-2000)				-0.124***
				(0.045)
Observations	3944	3944	3944	3944
R^2	0.987	0.987	0.987	0.987
Country-pair fixed effects	Yes	Yes	Yes	Yes
Year dummies	No	No	No	No

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Robust standard errors in parentheses
The Post-bridge dummy covers actual or placebo intervention periods

in such specifications. We report the results for the difference-in-differences estimator in (13) in Table 9. In columns (1) and (2), we use country-pair fixed effects with the first specification excluding pairs using the euro and the second including them while explicitly controlling for euro membership with a dummy. We are particularly interested in the coefficients on DNK-SWE × post-bridge and SWE-DNK × post-bridge + ϵ_{ijt}, respectively, the first being our estimate of the effect of the bridge on Danish exports to Sweden, and the second being our estimate of the effect on Swedish exports to Denmark. Inspection of these coefficients reveal that our estimate of Danish exports to Sweden is larger than our estimate of Swedish exports to Denmark. Our estimate for our bridge-effect on Danish exports to Sweden is 0.34 (39.8%) whereas for Swedish exports to Denmark we get 0.2 (21.7%). In column (2) we report the same model specification including euro-pairs and a dummy variable for euro membership. We find similar coefficient estimates for the directional bridge effects although slightly smaller. In columns (3) and (4), respectively, we use time-varying importer- and exporter fixed effects. We find the bridge effect for Danish exports to Sweden is 0.48 (61.4%) in the specification without euro-pairs, and slightly smaller in the specification that uses them. On the other hand, the bridge effects for Swedish exports to Denmark are smaller whether on not the euro-pairs are used. Our estimate on the specification that uses the euro-pairs is 0.34 (40.8%) and slightly smaller on the specification that includes them. Since the specifications in (3) and (4) do not comprise time-invariant fixed effects, we can include the time-invariant gravity variables Distance and Adjacency. The coefficients on the log of distance have the usual sign and magnitude (close to -1) and are statically significant. Similarly, the coefficients on adjacency are positive and significant in line with existing literature. The specifications in columns (5) and (6) employ multiple layers of fixed effects, the time-invariant country-pair fixed effects and the time-varying importer- and exporter fixed effects. Inspection of these columns show that the bridge effect show that the coefficient estimates in specification (5) and (6), respectively, are the same as in (3) and (4), respectively, albeit with smaller standard errors.

We perform a formal test of equality of the coefficients of, respectively , Danish and Swedish exports, or DNK-SWE × post-bridge and SWE-DNK × post-bridge + ϵ_{ijt} by applying the following formula:

$$\frac{\beta_6 - \beta_7}{\sqrt{\text{Var}[\beta_6] + \text{Var}[\beta_7] - 2 \times \text{Cov}[\beta_6, \beta_7]}}.$$

We obtain the relevant statistics for our specification in column (1) in Table 9 from the variance-covariance matrix generated in Stata as $\text{Var}[\beta_6] = 0.00194788$, $\text{Var}[\beta_7] = 0.00297423$ and $\text{Cov}[\beta_6, \beta_7] = 0.00012904$. Taking the coefficient estimates from column (1) gives us a t-statistic equal to 2.03 and a p-value of just under 0.02 (0.021069). The corresponding p-values for the remaining specifications in columns (2), (3), (4), (5) and (6), respectively, are (at 3 digits) 0.019, 0.122, 0.120, 0.029 and 0.024. Thus, the estimated bridge effect for Danish exports to Sweden is larger and significantly different from the bridge effect for Swedish exports to Denmark on the majority of our specifications, although for specifications (3) and (4) the difference is not statistically significant.

6 Product-level trade

In this section, we will use product-level trade data to decompose the trade-effect of the Øresund bridge by broad categories of products. We will make use of several product classifications. First, we split products into a differentiated and two homogeneous groups using the classification in Rauch (1999). Second, we categorise goods according to their bulkiness with a bulky category and a non-bulky category. Third, we split products

Table 9. Difference-in-differences with directional trade flows

	(1)	(2)	(3)	(4)	(5)	(6)
$\ln \text{GDP}_i \times \text{GDP}_j$	0.510***	0.537***				
	(0.007)	(0.005)				
EU	0.116***	0.177***				
	(0.016)	(0.012)				
Euro		0.190***				
		(0.013)				
$\ln \text{Distance}_{ij}$			-1.000***	-1.099***		
			(0.037)	(0.025)		
Adjacency			0.510***	0.339***		
			(0.041)	(0.024)		
Post-bridge	-0.002	-0.055***				
	(0.013)	(0.011)				
DNK-SWE × post-bridge (2001-2008)	0.335***	0.306***	0.479***	0.447***	0.479***	0.447***
	(0.044)	(0.042)	(0.105)	(0.089)	(0.052)	(0.048)
SWE-DNK × post-bridge (2001-2008)	0.196***	0.167***	0.342***	0.310***	0.342***	0.310***
	(0.055)	(0.055)	(0.092)	(0.078)	(0.058)	(0.051)
DNK-SWE			0.166***	0.388***		
			(0.060)	(0.050)		
SWE-DNK			0.097*	0.320***		
			(0.053)	(0.044)		
Observations	4698	7888	4698	7888	4698	7888
R^2	0.975	0.978	0.947	0.948	0.984	0.986
Country-pair fixed effects	Yes	Yes	No	No	Yes	Yes
Importer-year fixed effects	No	No	Yes	Yes	Yes	Yes
Exporter-year fixed effects	No	No	Yes	Yes	Yes	Yes
Year dummies	No	No	No	No	No	No
Euro-pairs	No	Yes	No	Yes	No	Yes

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
Robust standard errors in parentheses

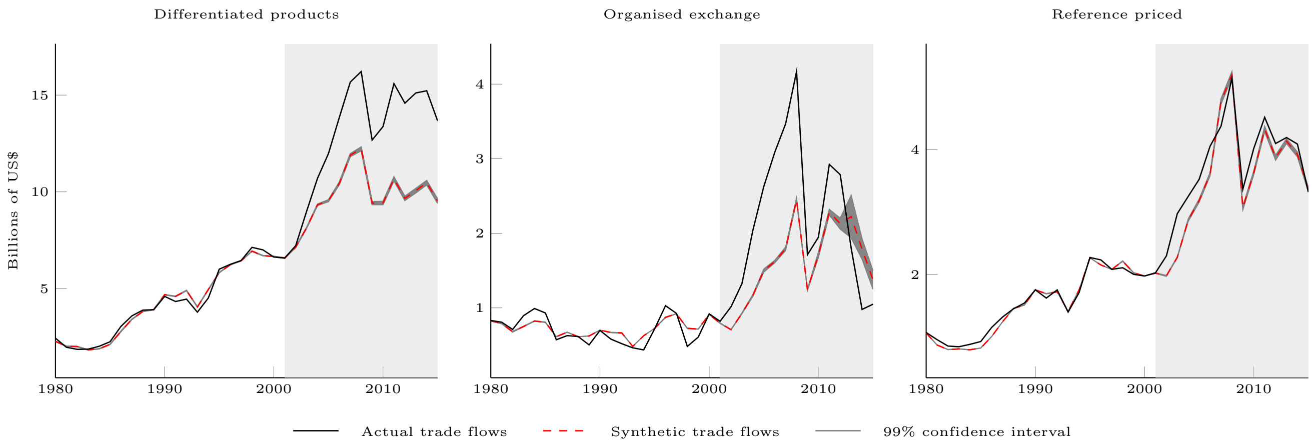
into three broad categories according to durability. We consider each in turn.

6.1 Rauch classifications

Rauch (1999) classifies goods into three broad categories: 1) products traded on organised exchanges, 2) products that are reference priced, and 3) all other products. The first two categories are meant to capture homogeneous (or roughly homogeneous) products, while the third one captures the idea of differentiated products where brands and product networks are important. We would a priori expect that homogeneous products (or products that are either traded on organised exchanges or have reference prices quoted in major trade publications) will, following a reduction in trade costs, have a more immediate effect upon trade than those products that are based on production networks and consumer loyalty. In this subsection, we re-run the SCM in (5) for each type of product category. We report the result of each synthetic unit in Figure 7. The actual Danish-Swedish trade series outperform their synthetic units for all three product categories, although we note some catch-up of the synthetic units for the "Organised exchange" and the "Reference priced" units in the middle and right panels, respectively, of the figure.

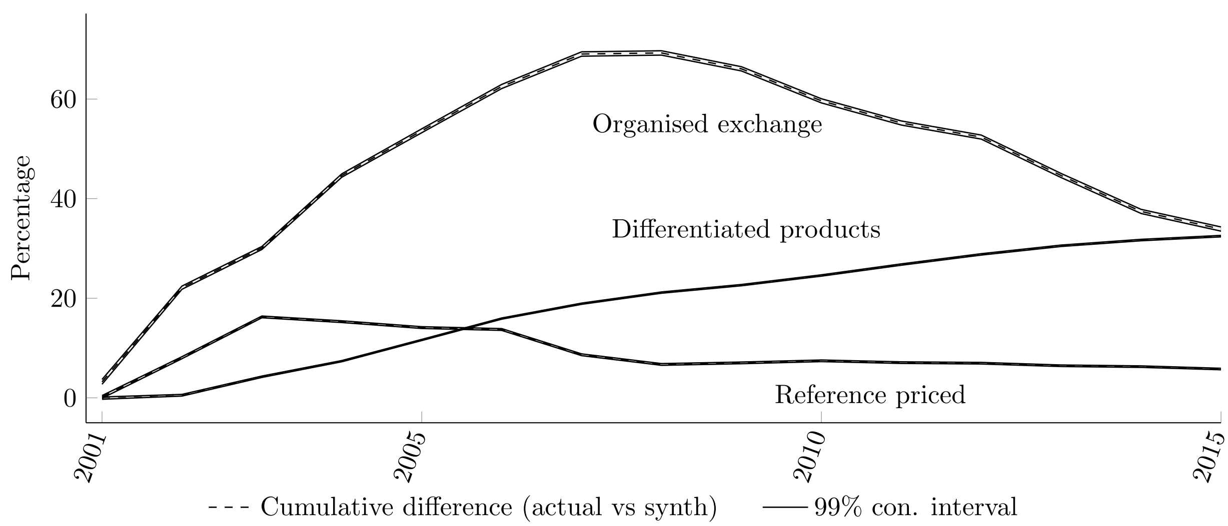
In order to facilitate a comparison of the three product categories, we report the cumulative difference between the actual and synthetic units in percentage terms of each category Figure 8. Inspection of this figure shows that There are large and immediate effects for goods trade on organised exchanges and those that are referenced priced, with goods traded on organised exchanges having actual trade exceeding synthetic trade by

Figure 7. Synthetic and actual trade for each Rauch (1999) classification



over 60% between 2006 and 2009. For reference priced goods, there is a similar immediate overperformance of actual relative to synthetic trade, albeit smaller than for goods traded on organised exchanges. For both these categories, the Øresund effect diminishes over time, although for goods traded on organised exchanges this is mainly driven by a reorientation of Swedish oil imports from Denmark to Russia. Differentiated products show little immediate effect, but rather a gradual effect. By 2015, actual trade in differentiated products have overperformed relative to synthetic trade by over 32%.

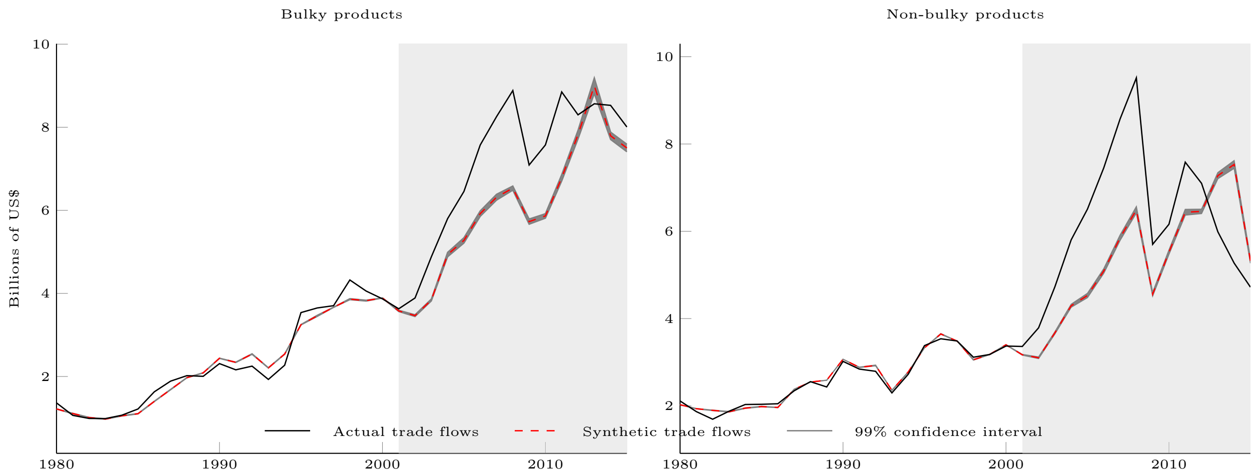
Figure 8. Cumulatative percentage effect for each Rauch (1999) product category



6.2 Bulky vs. non-bulky goods

In this section, we examine whether the Øresund effect has been larger for non-bulky products. We expect that the maritime boundary between Denmark and Sweden might have acted as a deterrent for the transportation of non-bulky items. We obtain a measure of shipping costs (cost of insurance and freight) from US customs data and compute the ratio of shipping costs to total trade value for each product. We then classify products below the median as "bulky" and those above as "non-bulky". We then re-run the SCM in (5) for separately

Figure 9. Synthetic and actual trade flows for "bulky" and "non-bulky" products



for "bulky" and "non-bulky" products, and report the results in Figure **??**. We observe from this figure that actual trade of both bulky and non-bulky products have overperformed relative to their synthetic units, albeit there is some catch-up towards the end of our post-treatment window with the synthetic unit having overtaken actual trade for non-bulky products. For ease of comparison, we report the cumulative effect for "bulky" and "non-bulky" products, respectively, in Figure 10. The overperformance of non-bulky products is initially larger although over the entire period they overperform by roughly the same amount. One potential explanation for this observation is that actual trade of"non-bulky" products took a disproportionately larger hit following the financial crisis. The global recession would have had the effect of squeezing profit-margins for firms possibly driving many Danish and Swedish exporters out of business. This effect may have been larger for Danish and Swedish exporters relative to their synthetic counterfactuals since the trade was relatively newly created and may not have benefited from consumer loyalty.

Figure 10. Cumulative percentage effect for "bulky" and "non-bulky" products

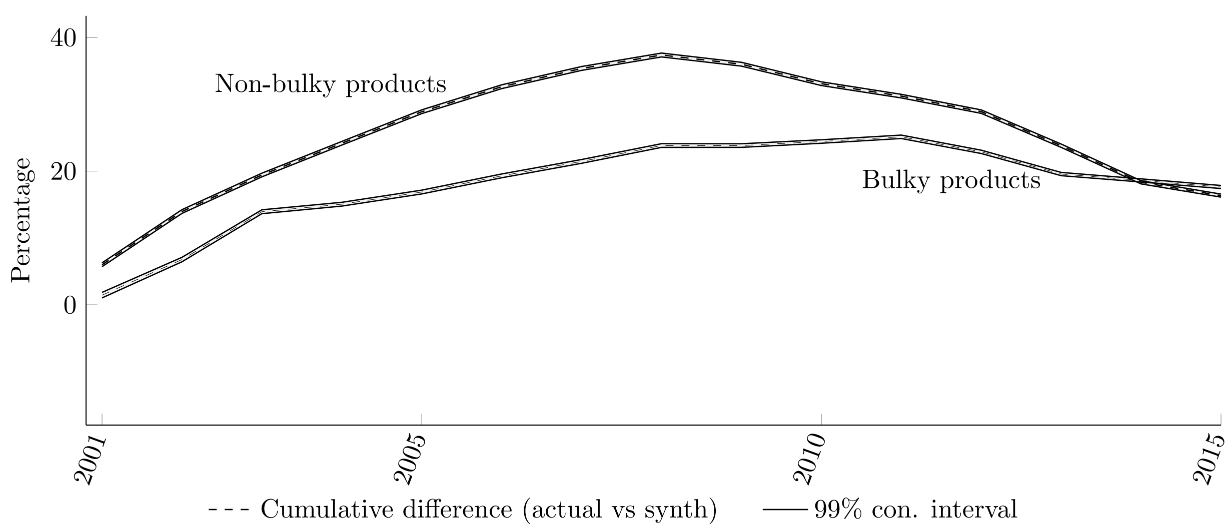
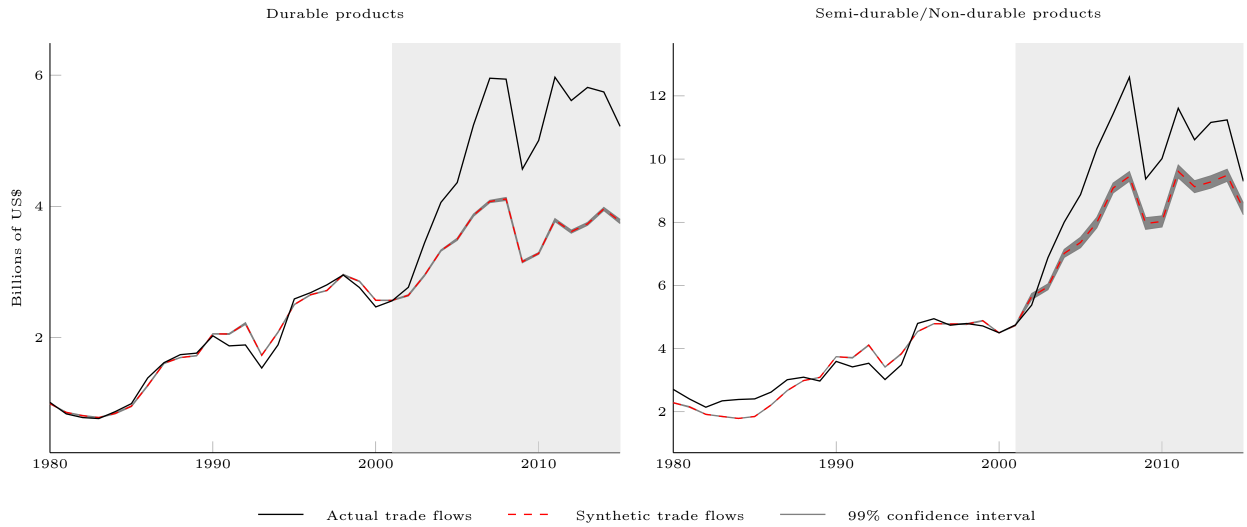


Figure 11. Synthetic and actual trade flows for durable and the aggregate of semi-durable and non-durable products

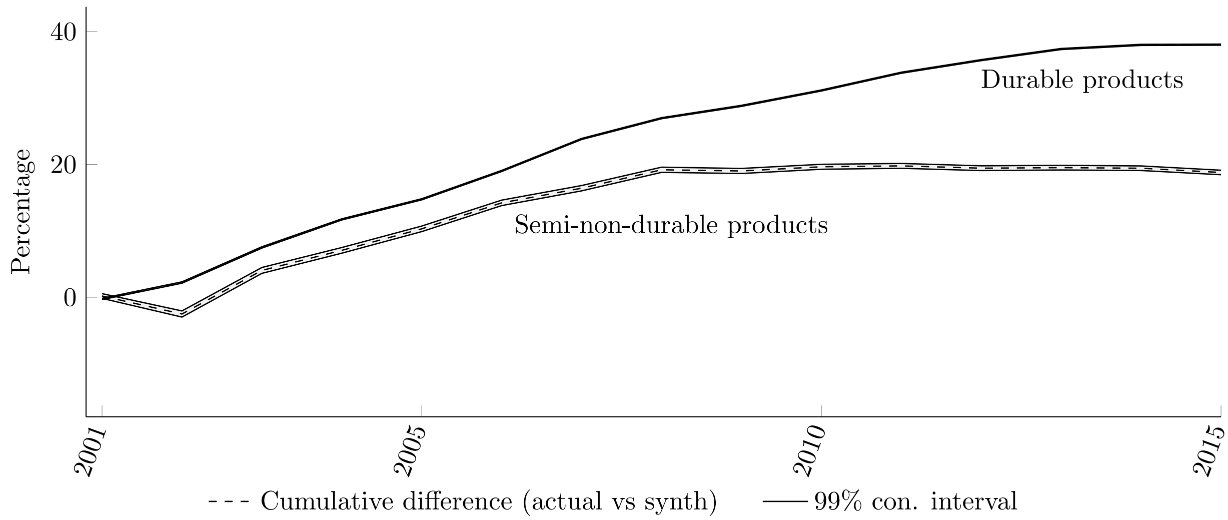


6.3 Durability

We finally split products into categories according to durability. The motivation is that the continuous service which the Øresund bridge has offered exporters might have disproportionately benefited exporters of less durable products. We can categorise products into durable, semi-durable and non-durable products. Unfortunately, we were unable to obtain a good pre-treatment fit for our non-durable products, so we have aggregated non-durable and semi-durable products. We re-run the SCM in (5) for, respectively, Durable products and the aggregate of semi-durable and non-durable products, and report the result in Figure 11. We observe that actual trade of both durable and semi-durable/non-durable products, respectively, has outperformed their respective synthetic units. For ease of comparison, we report the cumulative effect for durable and the aggregate of semi-durable and non-durable products, respectively, in Figure 12. Inspection of this figure shows that the cumulative overperformance of durable products exceeds that of the other category for every year. In fact, for the entire post-treatment period, durable products overperformed by 38% whereas the less durable products overperformed by only 19%.

Note to Anna and Maria: we may want to attach an explantion to this.

Figure 12. Cumulative percentage effect for durable and the aggregate of non-durable and semi-durable products



7 Concluding remarks

In this paper we have examined the effect of the Øresund Bridge on bilateral goods trade between Denmark and Sweden. According to our benchmark model bilateral trade between the two countries is 44% higher than it would have been if the bridge had not been built. This finding is robust to a number of sensitivity checks.

The finding contributes to the literature on the effects on national borders on trade. The Øresund Bridge is a quasi-natural experiment involving a sea border which was effectively transformed into a land border. Our result can therefore guide researchers and policy-makers alike to the trade costs associated with sea crossings. In addition, given that the bridge is an example of a major infrastructure project it contributes to a growing literature which assesses their impact upon a range of economic variables. Our results are therefore likely to be relevant to other major infrastructure projects such as the planned bridge between Denmark and Germany and to any additional infrastructure linking the UK to continental Europe or the island of Ireland.

The result that integration between two countries was substantially deepened by linking them through major infrastructure may lead researchers to analyse other economic outcomes that may have been affected. Fist, a consistent finding in the literature is that trade integration leads to higher business cycle synchronisation between nations. The sudden increase in trade we have documented in this paper might serve as a quasi-natural experiment for testing whether business cycles have become more synchronised between Denmark and Sweden. Second, It is likely that Foreign Direct Investment has been boosted or that the bridge has affected migration patterns beyond Malmö and Copenhagen. Finally, since this paper has restricted attention to aggregate bilateral trade, we have not been able to pick up the heterogeneity across products which is likely to exist. Further research may address some of these issues.

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Appendix

Table A1. Matrix of non-negative average weights of each pre-bridge characteristic in benchmark synthetic model.

Predictor	Weight (all lags)	Weight (three lags)
$\ln \text{GDP}_i \times \text{GDP}_j$	< 0.001 (0.000)	< 0.001 (0.000)
Land Border	< 0.001 (0.000)	< 0.001 (0.000)
$\ln \text{Distance}_{ij}$	< 0.001 (0.000)	0.001 (0.000)
EU	< 0.001 (0.000)	< 0.001 (0.000)
$\text{BTF}_{DNK-SWE,1980}$	0.011 (0.000)	0.062 (0.000)
$\text{BTF}_{DNK-SWE,1981}$	0.009 (0.000)	-
$\text{BTF}_{DNK-SWE,1982}$	0.009 (0.000)	-
$\text{BTF}_{DNK-SWE,1983}$	0.010 (0.000)	-
$\text{BTF}_{DNK-SWE,1984}$	0.011 (0.000)	-
$\text{BTF}_{DNK-SWE,1985}$	0.012 (0.000)	-
$\text{BTF}_{DNK-SWE,1986}$	0.018 (0.000)	-
$\text{BTF}_{DNK-SWE,1987}$	0.028 (0.000)	-
$\text{BTF}_{DNK-SWE,1988}$	0.037 (0.000)	-
$\text{BTF}_{DNK-SWE,1989}$	0.040 (0.000)	-
$\text{BTF}_{DNK-SWE,1990}$	0.056 (0.000)	0.607 (0.002)
$\text{BTF}_{DNK-SWE,1991}$	0.051 (0.000)	-
$\text{BTF}_{DNK-SWE,1992}$	0.061 (0.000)	-
$\text{BTF}_{DNK-SWE,1993}$	0.045 (0.000)	-
$\text{BTF}_{DNK-SWE,1994}$	0.058 (0.000)	-
$\text{BTF}_{DNK-SWE,1995}$	0.082 (0.000)	-
$\text{BTF}_{DNK-SWE,1996}$	0.085 (0.000)	-
$\text{BTF}_{DNK-SWE,1997}$	0.089 (0.000)	-
$\text{BTF}_{DNK-SWE,1998}$	0.092 (0.000)	-
$\text{BTF}_{DNK-SWE,1999}$	0.093 (0.000)	-
$\text{BTF}_{DNK-SWE,2000}$	0.103 (0.000)	0.329 (0.002)

Notes: The table reports the average weights associated with each pre-bridge characteristic for the all-lags and three-lags models, respectively, used in the benchmark synthetic models in Section 4.

Table A2. Sweden against individual pairs

Diff actual vs synth.	AUT	BLX	CHE	DEU	ESP	FIN	FRA	GBR	GRC	IRL	ISL	ITA	NLD	NOR	PRT
All lags															
1980-2000	0.011	-0.250	0.789	0.281	-0.384	0.967	0.650	1.534	0.950	0.008	-3.073	-0.215	-0.690	0.697	-2.287
	(0.000)	(0.138)	(0.000)	(0.007)	(0.000)	(0.174)	(0.220)	(0.273)	(0.673)	(0.282)	(0.588)	(0.464)	(0.252)	(0.166)	(0.000)
2001-2008	-3.950	9.122	-30.865	-1.013	4.993	8.637	-1.528	-24.833	-25.674	-36.188	41.412	1.602	-15.804	6.330	-13.501
	(0.000)	(1.938)	(0.000)	(0.997)	(0.000)	(12.202)	(0.847)	(7.560)	(0.685)	(0.252)	(0.276)	(0.599)	(1.153)	(6.101)	(0.000)
Three lags															
1980-2000	-4.679	2.258	-0.659	-1.149	-9.625	-6.247	-7.062	4.152	-12.212	-5.566	-3.824	-9.307	8.006	-1.133	-12.914
	(0.261)	(0.329)	(0.051)	(0.065)	(1.180)	(0.076)	(1.195)	(0.079)	(0.356)	(0.310)	(4.221)	(0.181)	(0.153)	(0.592)	(0.132)
2001-2008	3.056	21.202	-29.796	-6.768	-3.109	-1.779	16.368	-21.165	-4.167	-32.945	11.883	-10.944	-4.118	8.230	-26.953
	(2.416)	(0.296)	(0.693)	(1.459)	(7.532)	(0.510)	(1.023)	(0.083)	(4.037)	(4.496)	(4.830)	(1.763)	(0.316)	(1.153)	(2.649)

Table A3. Denmark against individual pairs

Diff actual vs synth.	AUT	BLX	CHE	DEU	ESP	FIN	FRA	GBR	GRC	IRL	ISL	ITA	NLD	NOR	PRT
All lags															
1980-2000	0.000	-0.201	-1.040	-0.040	-0.419	0.420	-0.007	1.009	0.542	-1.274	-2.899	0.393	0.026	0.175	-1.090
	(0.371)	(0.279)	(0.000)	(0.047)	(0.130)	(0.551)	(0.171)	(0.020)	(0.431)	(0.462)	(1.246)	(0.048)	(0.063)	(0.127)	(0.173)
2001-2008	1.280	-1.004	-27.384	3.053	24.766	-2.659	-5.534	-8.124	-3.381	-10.973	-7.993	3.268	11.182	3.934	-20.947
	(4.995)	(1.057)	(0.000)	(1.161)	(0.282)	(5.416)	(0.414)	(4.888)	(1.561)	(0.738)	(2.389)	(0.740)	(2.523)	(1.970)	(2.104)
Three lags															
1980-2000	-5.981	1.096	8.661	3.605	-6.978	-3.068	1.912	-2.319	-23.188	-24.900	5.320	0.403	0.994	9.664	-20.918
	(0.279)	(0.678)	(0.322)	(0.363)	(1.335)	(0.471)	(1.932)	(0.062)	(5.961)	(3.188)	(3.135)	(1.177)	(1.447)	(0.062)	(2.613)
2001-2008	-4.853	25.675	-21.686	8.455	55.906	-3.304	7.686	-12.894	-14.109	13.405	-1.319	8.379	16.813	19.315	-34.733
	(6.160)	(8.333)	(0.164)	(5.144)	(22.543)	(8.277)	(10.351)	(0.512)	(10.482)	(8.001)	(4.937)	(9.262)	(6.339)	(1.242)	(6.283)

Table A4. Average weights attached to comparison units in the Swedish synthetic all-lags models.

Comparison units	AUT	BLX	CHE	DEU	ESP	FIN	FRA	GBR	GRC	IRL	ISL	ITA	NLD	NOR	PRT	DNK
AUT-CHE	0.165 (0.000)	0.025 (0.003)	0.011 (0.002)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.005 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.001 (0.000)
AUT-GBR	0.005 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.040 (0.004)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.031 (0.001)	0.000 (0.000)	0.000 (0.000)	0.020 (0.001)	0.000 (0.000)	0.000 (0.000)	0.004 (0.000)	0.000 (0.000)
AUT-ISL	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.002 (0.001)	0.001 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
AUT-NOR	0.009 (0.002)	0.000 (0.000)	0.083 (0.008)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.001)	0.000 (0.000)	0.000 (0.000)	0.005 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.003 (0.001)	0.033 (0.002)
BLX-CHE	0.028 (0.001)	0.000 (0.000)	0.116 (0.001)	0.082 (0.005)	0.000 (0.000)	0.040 (0.004)	0.004 (0.001)	0.137 (0.010)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.036 (0.003)	0.000 (0.000)	0.023 (0.002)
BLX-GBR	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.188 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.003 (0.001)	0.000 (0.000)	0.000 (0.000)	0.002 (0.000)
BLX-ISL	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.002 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
BLX-NOR	0.061 (0.001)	0.047 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.015 (0.000)	0.004 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.042 (0.001)	0.000 (0.000)
CHE-DEU	0.000 (0.000)	0.002 (0.000)	0.009 (0.000)	0.122 (0.003)	0.000 (0.000)	0.001 (0.000)	0.002 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.005 (0.000)	0.000 (0.000)	0.000 (0.000)	0.003 (0.000)	0.000 (0.000)
CHE-ESP	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
CHE-FIN	0.000 (0.000)	0.011 (0.001)	0.002 (0.001)	0.000 (0.000)	0.114 (0.004)	0.006 (0.002)	0.080 (0.007)	0.000 (0.000)	0.000 (0.000)	0.020 (0.002)	0.005 (0.000)	0.056 (0.008)	0.000 (0.000)	0.002 (0.001)	0.000 (0.000)	0.035 (0.003)
CHE-FRA	0.001 (0.000)	0.094 (0.001)	0.059 (0.000)	0.198 (0.004)	0.000 (0.000)	0.199 (0.002)	0.186 (0.001)	0.073 (0.002)	0.002 (0.000)	0.000 (0.000)	0.000 (0.000)	0.076 (0.001)	0.000 (0.000)	0.138 (0.001)	0.000 (0.000)	0.152 (0.001)
CHE-GBR	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.039 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
CHE-GRC	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
CHE-IRL	0.002 (0.000)	0.007 (0.002)	0.000 (0.000)	0.000 (0.000)	0.220 (0.004)	0.000 (0.000)	0.028 (0.003)	0.000 (0.000)	0.086 (0.001)	0.360 (0.001)	0.000 (0.000)	0.000 (0.000)	0.051 (0.003)	0.000 (0.000)	0.000 (0.000)	0.007 (0.002)
CHE-ISL	0.007 (0.002)	0.003 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.003 (0.001)	0.000 (0.000)	0.064 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
CHE-ITA	0.005 (0.000)	0.000 (0.000)	0.020 (0.001)	0.339 (0.004)	0.000 (0.000)	0.019 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.007 (0.001)	0.000 (0.000)	0.002 (0.000)	0.007 (0.001)	0.000 (0.000)
CHE-NLD	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.004 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
CHE-NOR	0.333 (0.003)	0.001 (0.000)	0.818 (0.001)	0.001 (0.000)	0.000 (0.000)	0.198 (0.005)	0.145 (0.009)	0.000 (0.000)	0.002 (0.000)	0.000 (0.000)	0.055 (0.001)	0.524 (0.006)	0.000 (0.000)	0.009 (0.001)	0.746 (0.002)	0.013 (0.002)
CHE-PRT	0.042 (0.004)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.007 (0.001)	0.000 (0.000)
DEU-GBR	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.110 (0.001)	0.000 (0.000)	0.001 (0.000)	0.022 (0.000)	0.005 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.027 (0.000)	0.000 (0.000)	0.006 (0.001)	0.000 (0.000)	0.002 (0.000)
DEU-ISL	0.006 (0.001)	0.113 (0.004)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.022 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
DEU-NOR	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
ESP-GBR	0.000 (0.000)	0.142 (0.001)	0.000 (0.000)	0.000 (0.000)	0.089 (0.001)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.004 (0.000)	0.003 (0.000)	0.000 (0.000)	0.002 (0.000)	0.239 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
ESP-ISL	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.196 (0.010)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
ESP-NOR	0.000 (0.000)	0.229 (0.006)	0.000 (0.000)	0.000 (0.000)	0.007 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.351 (0.002)	0.000 (0.000)	0.000 (0.000)	0.085 (0.008)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
FIN-GBR	0.027 (0.001)	0.000 (0.000)	0.005 (0.000)	0.165 (0.005)	0.000 (0.000)	0.559 (0.004)	0.175 (0.002)	0.202 (0.004)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.215 (0.004)	0.000 (0.000)	0.122 (0.003)
FIN-ISL	0.010 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.284 (0.004)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
FIN-NOR	0.003 (0.000)	0.133 (0.010)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.003 (0.000)	0.001 (0.000)	0.000 (0.000)	0.002 (0.001)	0.019 (0.002)	0.000 (0.000)	0.017 (0.003)
FRA-GBR	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
FRA-ISL	0.210 (0.004)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.437 (0.003)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.035 (0.003)	0.000 (0.000)
FRA-NOR	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.002 (0.000)	0.000 (0.000)	0.000 (0.000)	0.011 (0.001)	0.009 (0.001)	0.000 (0.000)	0.000 (0.000)
GBR-GRC	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.061 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
GBR-IRL	0.002 (0.000)	0.009 (0.001)	0.000 (0.000)	0.000 (0.000)	0.002 (0.000)	0.000 (0.000)	0.072 (0.001)	0.011 (0.001)	0.000 (0.000)	0.007 (0.000)	0.000 (0.000)	0.005 (0.001)	0.081 (0.002)	0.005 (0.001)	0.000 (0.000)	0.080 (0.002)
GBR-ISL	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.043 (0.004)	0.000 (0.000)
GBR-ITA	0.009 (0.000)	0.029 (0.001)	0.000 (0.000)	0.005 (0.001)	0.000 (0.000)	0.000 (0.000)	0.006 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.008 (0.000)	0.001 (0.000)	0.024 (0.001)	0.000 (0.000)	0.057 (0.001)
GBR-NLD	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.029 (0.002)	0.000 (0.000)	0.007 (0.001)	0.036 (0.001)	0.062 (0.003)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.057 (0.000)	0.000 (0.000)	0.083 (0.001)	0.000 (0.000)	0.050 (0.002)
GBR-NOR	0.000 (0.000)	0.000 (0.000)	0.003 (0.000)	0.138 (0.002)	0.000 (0.000)	0.130 (0.001)	0.000 (0.000)	0.476 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.243 (0.001)	0.000 (0.000)	0.143 (0.001)
GBR-PRT	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.223 (0.004)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.038 (0.001)	0.000 (0.000)
GRC-ISL	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.020 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
GRC-NOR	0.219 (0.004)	0.004 (0.001)	0.048 (0.005)	0.000 (0.000)	0.436 (0.007)	0.024 (0.003)	0.424 (0.008)	0.001 (0.000)	0.128 (0.001)	0.010 (0.001)	0.029 (0.000)	0.408 (0.007)	0.000 (0.000)	0.000 (0.000)	0.108 (0.008)	0.000 (0.000)
IRL-ISL	0.018 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.031 (0.004)	0.001 (0.000)	0.004 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
IRL-NOR	0.000 (0.000)	0.009 (0.003)	0.000 (0.000)	0.000 (0.000)	0.001 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.107 (0.008)	0.000 (0.000)	0.000 (0.000)	0.002 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
ISL-ITA	0.017 (0.003)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.065 (0.003)	0.000 (0.000)	0.347 (0.005)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.003 (0.001)	0.000 (0.000)
ISL-NLD	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.028 (0.004)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.125 (0.005)	0.278 (0.004)	0.045 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
ISL-NOR	0.008 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
ISL-PRT	0.000 (0.000)	0.033 (0.003)	0.016 (0.003)	0.000 (0.000)	0.037 (0.003)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.021 (0.002)	0.297 (0.001)	0.000 (0.000)	0.000 (0.000)	0.028 (0.003)	0.013 (0.003)	0.141 (0.005)
ITA-NOR	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.004 (0.000)	0.000 (0.000)	0.000 (0.000)	0.004 (0.001)	0.000 (0.000)	0.015 (0.002)
NLD-NOR	0.000 (0.000)	0.294 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.025 (0.000)	0.004 (0.000)	0.000 (0.000)	0.708 (0.001)	0.371 (0.002)	0.000 (0.000)	0.298 (0.002)
NOR-PRT	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.143 (0.003)	0.000 (0.000)

Notes: The table reports the list of potential comparison units (first column) together with the corresponding average weights used in the synthetic algorithm for all country pairs involving Sweden in the all-lags model. Standard errors in parentheses.

Table A5. Average weights attached to comparison units in the Swedish synthetic three-lags models.

Comparison units	AUT	BLX	CHE	DEU	ESP	FIN	FRA	GBR	GRC	IRL	ISL	ITA	NLD	NOR	PRT	DNK
AUT-CHE	0.001 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.450 (0.004)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.001)	0.000 (0.000)	0.181 (0.012)	0.000 (0.000)	0.000 (0.000)
AUT-GBR	0.027 (0.004)	0.053 (0.005)	0.000 (0.000)	0.000 (0.000)	0.023 (0.005)	0.000 (0.000)	0.196 (0.003)	0.000 (0.000)	0.006 (0.001)	0.008 (0.002)	0.000 (0.000)	0.135 (0.009)	0.003 (0.001)	0.000 (0.000)	0.012 (0.002)	0.001 (0.000)
AUT-ISL	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.047 (0.003)	0.034 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.008 (0.001)	0.000 (0.000)
AUT-NOR	0.255 (0.008)	0.004 (0.001)	0.011 (0.004)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.002 (0.000)	0.000 (0.000)	0.091 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.005 (0.001)	0.000 (0.000)
BLX-CHE	0.097 (0.001)	0.050 (0.003)	0.213 (0.001)	0.168 (0.008)	0.000 (0.000)	0.203 (0.005)	0.010 (0.002)	0.485 (0.005)	0.000 (0.000)	0.000 (0.000)	0.002 (0.000)	0.002 (0.000)	0.000 (0.000)	0.012 (0.002)	0.000 (0.000)	0.458 (0.001)
BLX-GBR	0.000 (0.000)	0.059 (0.001)	0.000 (0.000)	0.122 (0.003)	0.000 (0.000)	0.000 (0.000)	0.004 (0.001)	0.272 (0.003)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.014 (0.001)	0.006 (0.001)	0.000 (0.000)	0.187 (0.001)
BLX-ISL	0.000 (0.000)	0.002 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.032 (0.003)	0.034 (0.003)	0.255 (0.008)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.001)
BLX-NOR	0.001 (0.000)	0.008 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.002 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.006 (0.001)
CHE-DEU	0.000 (0.000)	0.000 (0.000)	0.003 (0.000)	0.280 (0.001)	0.000 (0.000)	0.011 (0.001)	0.001 (0.000)	0.004 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.062 (0.001)	0.000 (0.000)	0.050 (0.001)	0.001 (0.000)	0.000 (0.000)
CHE-ESP	0.001 (0.000)	0.006 (0.001)	0.000 (0.000)	0.000 (0.000)	0.005 (0.002)	0.000 (0.000)	0.002 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.008 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
CHE-FIN	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.002 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
CHE-FRA	0.001 (0.000)	0.000 (0.000)	0.007 (0.001)	0.097 (0.008)	0.000 (0.000)	0.292 (0.002)	0.006 (0.000)	0.174 (0.003)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.002 (0.001)	0.000 (0.000)	0.289 (0.003)	0.000 (0.000)	0.004 (0.001)
CHE-GBR	0.000 (0.000)	0.005 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.203 (0.002)	0.007 (0.002)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.003 (0.001)	0.029 (0.002)	0.000 (0.000)	0.018 (0.002)
CHE-GRC	0.005 (0.002)	0.002 (0.000)	0.003 (0.002)	0.000 (0.000)	0.036 (0.004)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.002 (0.000)	0.000 (0.000)	0.011 (0.001)	0.001 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
CHE-IRL	0.000 (0.000)	0.150 (0.004)	0.000 (0.000)	0.000 (0.000)	0.005 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.544 (0.002)	0.001 (0.000)	0.000 (0.000)	0.277 (0.006)	0.004 (0.001)	0.000 (0.000)	0.001 (0.000)
CHE-ISL	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.023 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.003 (0.001)	0.000 (0.000)
CHE-ITA	0.003 (0.000)	0.000 (0.000)	0.045 (0.000)	0.021 (0.002)	0.025 (0.001)	0.031 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.027 (0.002)	0.000 (0.000)	0.003 (0.001)	0.012 (0.000)	0.000 (0.000)
CHE-NLD	0.000 (0.000)	0.182 (0.005)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.039 (0.002)
CHE-NOR	0.374 (0.006)	0.002 (0.000)	0.716 (0.003)	0.000 (0.000)	0.001 (0.000)	0.001 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.037 (0.001)	0.035 (0.004)	0.000 (0.000)	0.000 (0.000)	0.389 (0.005)	0.000 (0.000)
CHE-PRT	0.024 (0.004)	0.002 (0.000)	0.117 (0.011)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.010 (0.001)	0.004 (0.001)	0.000 (0.000)	0.000 (0.000)	0.064 (0.007)	0.000 (0.000)
DEU-GBR	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.025 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.003 (0.000)	0.000 (0.000)	0.007 (0.001)	0.000 (0.000)	0.000 (0.000)
DEU-ISL	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.031 (0.003)	0.006 (0.002)	0.003 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
DEU-NOR	0.000 (0.000)	0.003 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.027 (0.003)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.012 (0.001)	0.000 (0.000)	0.000 (0.000)
ESP-GBR	0.000 (0.000)	0.035 (0.002)	0.000 (0.000)	0.000 (0.000)	0.066 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.017 (0.001)	0.000 (0.000)	0.000 (0.000)	0.011 (0.001)
ESP-ISL	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.003 (0.001)	0.000 (0.000)	0.008 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.009 (0.002)	0.000 (0.000)
ESP-NOR	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.413 (0.009)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.010 (0.003)	0.002 (0.000)	0.005 (0.001)	0.003 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
FIN-GBR	0.009 (0.001)	0.003 (0.001)	0.001 (0.000)	0.011 (0.003)	0.000 (0.000)	0.014 (0.003)	0.485 (0.006)	0.015 (0.003)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.008 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.055 (0.005)
FIN-ISL	0.004 (0.001)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.153 (0.005)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.002 (0.001)
FIN-NOR	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.040 (0.004)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.461 (0.007)	0.000 (0.000)	0.000 (0.000)
FRA-GBR	0.000 (0.000)	0.002 (0.000)	0.000 (0.000)	0.006 (0.002)	0.001 (0.000)	0.000 (0.000)	0.003 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.003 (0.000)
FRA-ISL	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.033 (0.004)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.018 (0.004)	0.000 (0.000)	0.013 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.008 (0.002)	0.000 (0.000)
FRA-NOR	0.000 (0.000)	0.003 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.004 (0.001)	0.000 (0.000)	0.000 (0.000)	0.003 (0.000)	0.001 (0.000)	0.000 (0.000)	0.526 (0.006)	0.002 (0.000)	0.000 (0.000)	0.000 (0.000)
GBR-GRC	0.238 (0.001)	0.053 (0.003)	0.001 (0.000)	0.000 (0.000)	0.210 (0.003)	0.099 (0.002)	0.075 (0.004)	0.000 (0.000)	0.226 (0.000)	0.230 (0.001)	0.000 (0.000)	0.194 (0.003)	0.066 (0.001)	0.000 (0.000)	0.279 (0.000)	0.016 (0.001)
GBR-IRL	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.034 (0.003)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.160 (0.001)	0.086 (0.001)	0.000 (0.000)	0.017 (0.001)
GBR-ISL	0.000 (0.000)	0.002 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.012 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
GBR-ITA	0.000 (0.000)	0.002 (0.000)	0.000 (0.000)	0.044 (0.002)	0.000 (0.000)	0.001 (0.000)	0.062 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.033 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.005 (0.001)
GBR-NLD	0.000 (0.000)	0.009 (0.001)	0.000 (0.000)	0.015 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.017 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.003 (0.001)	0.000 (0.000)	0.053 (0.002)
GBR-NOR	0.005 (0.001)	0.001 (0.000)	0.017 (0.002)	0.409 (0.008)	0.000 (0.000)	0.009 (0.002)	0.067 (0.004)	0.177 (0.012)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.020 (0.001)	0.000 (0.000)	0.010 (0.002)	0.000 (0.000)	0.039 (0.004)
GBR-PRT	0.114 (0.003)	0.256 (0.003)	0.000 (0.000)	0.000 (0.000)	0.112 (0.007)	0.024 (0.002)	0.004 (0.001)	0.000 (0.000)	0.017 (0.002)	0.020 (0.002)	0.000 (0.000)	0.115 (0.006)	0.007 (0.001)	0.000 (0.000)	0.035 (0.003)	0.040 (0.001)
GRC-ISL	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.014 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.216 (0.003)	0.000 (0.000)
GRC-NOR	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.696 (0.006)	0.018 (0.002)	0.023 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.001)	0.000 (0.000)
IRL-ISL	0.028 (0.001)	0.026 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.005 (0.001)	0.000 (0.000)	0.000 (0.000)	0.008 (0.001)	0.124 (0.003)	0.332 (0.005)	0.000 (0.000)	0.000 (0.000)	0.017 (0.001)	0.000 (0.000)	0.179 (0.001)
IRL-NOR	0.006 (0.001)	0.036 (0.003)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.131 (0.012)	0.002 (0.000)	0.000 (0.000)	0.017 (0.002)	0.001 (0.001)	0.000 (0.000)	0.009 (0.001)
ISL-ITA	0.003 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.004 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.162 (0.011)	0.003 (0.001)	0.087 (0.004)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.147 (0.010)	0.000 (0.000)
ISL-NLD	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.001)	0.005 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
ISL-NOR	0.003 (0.000)	0.004 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.019 (0.002)	0.051 (0.003)	0.000 (0.000)	0.000 (0.000)	0.003 (0.001)	0.000 (0.000)	0.034 (0.003)
ISL-PRT	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.012 (0.001)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)
ITA-NOR	0.000 (0.000)	0.001 (0.000)	0.052 (0.002)	0.000 (0.000)	0.110 (0.006)	0.000 (0.000)	0.031 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.002 (0.000)	0.539 (0.005)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
NLD-NOR	0.000 (0.000)	0.226 (0.006)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.091 (0.008)	0.000 (0.000)	0.000 (0.000)	0.007 (0.001)
NOR-PRT	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.149 (0.006)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.002 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)

Notes: The table reports the list of potential comparison units (first column) together with the corresponding average weights used in the synthetic algorithm for all country pairs involving Sweden in the three-lags model. Standard errors in parentheses.

Table A6. Average weights attached to comparison units in the Danish synthetic all-lags models.

Comparison units	AUT	BLX	CHE	DEU	ESP	FIN	FRA	GBR	GRC	IRL	ISL	ITA	NLD	NOR	PRT	SWE
AUT-CHE	0.021	0.059	0.007	0.018	0.000	0.000	0.051	0.000	0.000	0.000	0.001	0.018	0.002	0.036	0.000	0.001
	(0.001)	(0.002)	(0.001)	(0.004)	(0.000)	(0.000)	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)	(0.003)	(0.000)	(0.000)
AUT-GBR	0.001	0.021	0.000	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.013	0.024	0.000	0.000	0.000
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.003)	(0.000)	(0.000)	(0.000)
AUT-ISL	0.002	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.092	0.009	0.000	0.000	0.000	0.001	0.000
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.007)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
AUT-NOR	0.165	0.085	0.545	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.002	0.090	0.002	0.032	0.000	0.033
	(0.001)	(0.004)	(0.005)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.006)	(0.001)	(0.004)	(0.000)	(0.002)
BLX-CHE	0.003	0.025	0.017	0.035	0.000	0.016	0.001	0.712	0.000	0.000	0.000	0.000	0.096	0.107	0.000	0.023
	(0.000)	(0.001)	(0.000)	(0.003)	(0.000)	(0.001)	(0.000)	(0.004)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.002)
BLX-GBR	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.000	0.000	0.002
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
BLX-ISL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.203	0.000	0.002	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.009)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
BLX-NOR	0.021	0.000	0.000	0.393	0.000	0.000	0.245	0.064	0.000	0.001	0.000	0.009	0.021	0.006	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.005)	(0.000)	(0.000)	(0.002)	(0.005)	(0.000)	(0.000)	(0.000)	(0.001)	(0.002)	(0.001)	(0.000)	(0.000)
CHE-DEU	0.001	0.000	0.006	0.221	0.000	0.000	0.031	0.000	0.000	0.000	0.003	0.009	0.000	0.010	0.001	0.000
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CHE-ESP	0.001	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CHE-FIN	0.000	0.000	0.000	0.000	0.000	0.055	0.000	0.000	0.000	0.000	0.014	0.000	0.000	0.000	0.000	0.035
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.005)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)
CHE-FRA	0.007	0.044	0.000	0.002	0.000	0.041	0.008	0.002	0.000	0.000	0.000	0.058	0.003	0.000	0.000	0.152
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
CHE-GBR	0.001	0.000	0.001	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CHE-GRC	0.545	0.000	0.003	0.000	0.216	0.000	0.016	0.000	0.298	0.000	0.000	0.000	0.003	0.000	0.037	0.000
	(0.003)	(0.000)	(0.001)	(0.000)	(0.006)	(0.000)	(0.003)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.003)	(0.000)
CHE-IRL	0.000	0.009	0.000	0.000	0.002	0.001	0.000	0.000	0.000	0.160	0.000	0.000	0.021	0.000	0.000	0.007
	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.002)
CHE-ISL	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.040	0.000	0.002	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CHE-ITA	0.000	0.000	0.041	0.071	0.000	0.000	0.030	0.001	0.001	0.000	0.000	0.014	0.000	0.019	0.003	0.000
	(0.000)	(0.000)	(0.000)	(0.007)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)
CHE-NLD	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
CHE-NOR	0.006	0.000	0.079	0.000	0.000	0.002	0.000	0.008	0.000	0.000	0.014	0.347	0.000	0.000	0.000	0.013
	(0.001)	(0.000)	(0.005)	(0.000)	(0.000)	(0.001)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)	(0.000)	(0.000)	(0.002)
CHE-PRT	0.071	0.001	0.458	0.000	0.018	0.000	0.000	0.000	0.003	0.000	0.016	0.000	0.108	0.008	0.397	0.000
	(0.002)	(0.001)	(0.003)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.007)	(0.001)	(0.001)	(0.000)
DEU-GBR	0.000	0.000	0.000	0.009	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
DEU-ISL	0.104	0.102	0.003	0.002	0.000	0.000	0.083	0.000	0.000	0.000	0.006	0.159	0.008	0.053	0.000	0.000
	(0.001)	(0.002)	(0.000)	(0.001)	(0.000)	(0.000)	(0.005)	(0.000)	(0.000)	(0.000)	(0.000)	(0.004)	(0.001)	(0.005)	(0.000)	(0.000)
DEU-NOR	0.000	0.000	0.000	0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.047	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)
ESP-GBR	0.000	0.002	0.000	0.025	0.062	0.000	0.028	0.000	0.000	0.002	0.000	0.001	0.000	0.001	0.005	0.000
	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ESP-ISL	0.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.004)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ESP-NOR	0.000	0.232	0.000	0.000	0.102	0.000	0.000	0.000	0.008	0.147	0.017	0.000	0.000	0.000	0.006	0.000
	(0.000)	(0.001)	(0.000)	(0.000)	(0.004)	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
FIN-GBR	0.000	0.000	0.000	0.000	0.000	0.076	0.000	0.046	0.000	0.000	0.000	0.000	0.051	0.002	0.000	0.122
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.006)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.003)
FIN-ISL	0.000	0.001	0.004	0.000	0.000	0.113	0.000	0.000	0.000	0.000	0.065	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.010)	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
FIN-NOR	0.001	0.109	0.000	0.000	0.000	0.015	0.012	0.000	0.000	0.000	0.019	0.000	0.096	0.076	0.000	0.017
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.004)	(0.003)	(0.000)	(0.003)
FRA-GBR	0.000	0.000	0.000	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
FRA-ISL	0.064	0.000	0.000	0.000	0.582	0.000	0.008	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.524	0.000
	(0.003)	(0.000)	(0.000)	(0.000)	(0.006)	(0.000)	(0.002)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.004)	(0.000)
FRA-NOR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.023	0.000	0.000	0.001	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GBR-GRC	0.016	0.010	0.000	0.000	0.055	0.000	0.084	0.000	0.037	0.000	0.000	0.001	0.000	0.003	0.000	0.000
	(0.001)	(0.001)	(0.000)	(0.000)	(0.002)	(0.000)	(0.005)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)
GBR-IRL	0.000	0.005	0.000	0.000	0.000	0.016	0.000	0.009	0.000	0.000	0.000	0.000	0.070	0.000	0.000	0.080
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)
GBR-ISL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)
GBR-ITA	0.000	0.004	0.000	0.197	0.000	0.000	0.018	0.000	0.000	0.000	0.000	0.042	0.003	0.041	0.000	0.057
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
GBR-NLD	0.000	0.000	0.000	0.000	0.000	0.011	0.000	0.065	0.000	0.000	0.000	0.002	0.002	0.000	0.000	0.050
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)
GBR-NOR	0.000	0.000	0.000	0.059	0.000	0.011	0.000	0.209	0.000	0.000	0.000	0.000	0.000	0.009	0.000	0.143
	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.004)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)
GBR-PRT	0.007	0.001	0.000	0.027	0.017	0.000	0.114	0.000	0.011	0.000	0.000	0.089	0.209	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.003)	(0.002)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.002)	(0.000)	(0.000)	(0.000)
GRC-ISL	0.001	0.000	0.039	0.000	0.018	0.000	0.000	0.000	0.340	0.000	0.596	0.000	0.000	0.000	0.059	0.000
	(0.000)	(0.000)	(0.005)	(0.000)	(0.004)	(0.000)	(0.000)	(0.000)	(0.008)	(0.000)	(0.004)	(0.000)	(0.000)	(0.000)	(0.006)	(0.000)
GRC-NOR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
IRL-ISL	0.000	0.001	0.000	0.000	0.032	0.000	0.000	0.000	0.238	0.029	0.020	0.000	0.000	0.000	0.003	0.000
	(0.000)	(0.001)	(0.000)	(0.000)	(0.004)	(0.000)	(0.000)	(0.000)	(0.006)	(0.004)	(0.003)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
IRL-NOR	0.000	0.024	0.000	0.003	0.028	0.000	0.000	0.000	0.000	0.184	0.000	0.000	0.267	0.000	0.125	0.000
	(0.000)	(0.002)	(0.000)	(0.001)	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)	(0.004)	(0.000)	(0.000)	(0.005)	(0.000)	(0.001)	(0.000)
ISL-ITA	0.010	0.000	0.000	0.000	0.000	0.019	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.004)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ISL-NLD	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.535	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ISL-NOR	0.003	0.174	0.000	0.000	0.000	0.000	0.000	0.000	0.148	0.001	0.106	0.000	0.003	0.002	0.000	0.000
	(0.001)	(0.004)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)
ISL-PRT	0.002	0.000	0.005	0.000	0.000	0.739	0.000	0.062	0.000	0.024	0.063	0.003	0.002	0.000	0.000	0.141
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.004)	(0.000)	(0.002)	(0.000)	(0.003)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.005)
ITA-NOR	0.023	0.278	0.001	0.016	0.002	0.000	0.462	0.000	0.063	0.000	0.010	0.328	0.001	0.607	0.006	0.015
	(0.001)	(0.001)	(0.000)	(0.002)	(0.000)	(0.000)	(0.004)	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)	(0.002)	(0.001)	(0.002)
NLD-NOR	0.000	0.003	0.000	0.000	0.000	0.077	0.000	0.000	0.000	0.003	0.007	0.000	0.187	0.128	0.000	0.298
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.003)	(0.000)	(0.002)
NOR-PRT	0.099	0.000	0.000	0.000	0.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.027	0.000
	(0.001)	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)

Notes: The table reports the list of potential comparison units (first column) together with the corresponding average weights used in the synthetic algorithm for all country pairs involving Denmark in the all-lags model. Standard errors in parentheses.

Table A7. Average weights attached to comparison units in the Danish synthetic three-lags models.

Comparison units	AUT	BLX	CHE	DEU	ESP	FIN	FRA	GBR	GRC	IRL	ISL	ITA	NLD	NOR	PRT	SWE
AUT-CHE	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.045 (0.004)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
AUT-GBR	0.009 (0.002)	0.026 (0.005)	0.000 (0.000)	0.000 (0.000)	0.015 (0.003)	0.024 (0.005)	0.038 (0.007)	0.000 (0.000)	0.004 (0.001)	0.006 (0.001)	0.000 (0.000)	0.039 (0.008)	0.036 (0.007)	0.000 (0.000)	0.008 (0.002)	0.001 (0.000)
AUT-ISL	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.036 (0.003)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.357 (0.010)	0.044 (0.004)	0.041 (0.004)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.533 (0.006)	0.000 (0.000)
AUT-NOR	0.529 (0.005)	0.027 (0.003)	0.093 (0.010)	0.000 (0.000)	0.000 (0.000)	0.021 (0.003)	0.008 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.028 (0.003)	0.001 (0.001)	0.005 (0.001)	0.000 (0.000)	0.000 (0.000)
BLX-CHE	0.000 (0.000)	0.022 (0.001)	0.020 (0.000)	0.001 (0.001)	0.000 (0.000)	0.189 (0.002)	0.011 (0.000)	0.674 (0.004)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.023 (0.001)	0.036 (0.001)	0.179 (0.002)	0.000 (0.000)	0.458 (0.001)
BLX-GBR	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.012 (0.002)	0.000 (0.000)	0.001 (0.000)	0.002 (0.000)	0.120 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.011 (0.001)	0.000 (0.000)	0.000 (0.000)	0.187 (0.001)
BLX-ISL	0.021 (0.003)	0.010 (0.002)	0.000 (0.000)	0.000 (0.000)	0.023 (0.002)	0.001 (0.001)	0.000 (0.000)	0.000 (0.000)	0.129 (0.007)	0.103 (0.008)	0.048 (0.004)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.061 (0.006)	0.001 (0.001)
BLX-NOR	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.056 (0.006)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.001 (0.000)	0.062 (0.006)	0.000 (0.000)	0.006 (0.001)
CHE-DEU	0.000 (0.000)	0.000 (0.000)	0.002 (0.000)	0.154 (0.003)	0.000 (0.000)	0.000 (0.000)	0.029 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.027 (0.001)	0.000 (0.000)	0.008 (0.000)	0.000 (0.000)	0.000 (0.000)
CHE-ESP	0.000 (0.000)	0.000 (0.000)	0.070 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.005 (0.000)	0.000 (0.000)	0.000 (0.000)	0.071 (0.003)	0.000 (0.000)	0.000 (0.000)
CHE-FIN	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
CHE-FRA	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.131 (0.003)	0.000 (0.000)	0.000 (0.000)	0.002 (0.000)	0.039 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.003 (0.001)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.004 (0.001)
CHE-GBR	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.005 (0.001)	0.002 (0.001)	0.000 (0.000)	0.018 (0.002)
CHE-GRC	0.088 (0.008)	0.000 (0.000)	0.017 (0.004)	0.000 (0.000)	0.001 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
CHE-IRL	0.002 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.063 (0.002)	0.149 (0.005)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.092 (0.002)	0.000 (0.000)	0.000 (0.000)	0.020 (0.002)	0.025 (0.004)	0.000 (0.000)	0.001 (0.000)
CHE-ISL	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.012 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
CHE-ITA	0.000 (0.000)	0.000 (0.000)	0.020 (0.000)	0.157 (0.005)	0.000 (0.000)	0.000 (0.000)	0.009 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.009 (0.001)	0.000 (0.000)	0.009 (0.000)	0.000 (0.000)	0.000 (0.000)
CHE-NLD	0.000 (0.000)	0.000 (0.000)	0.013 (0.001)	0.000 (0.000)	0.000 (0.000)	0.008 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.408 (0.003)	0.000 (0.000)	0.039 (0.002)
CHE-NOR	0.016 (0.002)	0.000 (0.000)	0.865 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.005 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.015 (0.001)	0.011 (0.002)	0.000 (0.000)	0.014 (0.001)	0.000 (0.000)	0.000 (0.000)
CHE-PRT	0.001 (0.001)	0.000 (0.000)	0.057 (0.007)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.006 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
DEU-GBR	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.004 (0.001)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.002 (0.000)	0.000 (0.000)	0.000 (0.000)
DEU-ISL	0.002 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.003 (0.001)	0.035 (0.004)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.002 (0.001)	0.000 (0.000)	0.000 (0.000)	0.013 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
DEU-NOR	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.002 (0.000)	0.000 (0.000)	0.000 (0.000)
ESP-GBR	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.011 (0.001)
ESP-ISL	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.001)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
ESP-NOR	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
FIN-GBR	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.004 (0.001)	0.000 (0.000)	0.018 (0.002)	0.004 (0.001)	0.121 (0.011)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.002 (0.001)	0.004 (0.001)	0.001 (0.000)	0.000 (0.000)	0.055 (0.005)
FIN-ISL	0.000 (0.000)	0.003 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.007 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.091 (0.009)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.002 (0.001)
FIN-NOR	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.004 (0.001)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
FRA-GBR	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.003 (0.000)
FRA-ISL	0.002 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.019 (0.003)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.004 (0.002)	0.000 (0.000)	0.003 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.006 (0.002)	0.000 (0.000)
FRA-NOR	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
GBR-GRC	0.277 (0.000)	0.870 (0.001)	0.000 (0.000)	0.374 (0.004)	0.588 (0.001)	0.249 (0.001)	0.913 (0.001)	0.154 (0.003)	0.262 (0.001)	0.352 (0.002)	0.000 (0.000)	0.930 (0.001)	0.783 (0.001)	0.000 (0.000)	0.368 (0.001)	0.016 (0.001)
GBR-IRL	0.000 (0.000)	0.009 (0.000)	0.000 (0.000)	0.136 (0.002)	0.000 (0.000)	0.003 (0.000)	0.000 (0.000)	0.010 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.099 (0.001)	0.000 (0.000)	0.000 (0.000)	0.017 (0.001)
GBR-ISL	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.114 (0.003)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
GBR-ITA	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.122 (0.007)	0.000 (0.000)	0.000 (0.000)	0.034 (0.001)	0.011 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.004 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.005 (0.001)
GBR-NLD	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.002 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.002 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.053 (0.002)
GBR-NOR	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.001 (0.000)	0.023 (0.003)	0.000 (0.000)	0.000 (0.000)	0.005 (0.000)	0.002 (0.000)	0.000 (0.000)	0.017 (0.002)	0.000 (0.000)	0.039 (0.004)
GBR-PRT	0.024 (0.002)	0.074 (0.007)	0.000 (0.000)	0.052 (0.005)	0.045 (0.004)	0.097 (0.004)	0.148 (0.014)	0.026 (0.003)	0.014 (0.001)	0.019 (0.002)	0.000 (0.000)	0.120 (0.011)	0.113 (0.010)	0.000 (0.000)	0.024 (0.002)	0.040 (0.001)
GRC-ISL	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.005 (0.001)	0.000 (0.000)	0.131 (0.003)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.023 (0.003)	0.000 (0.000)
GRC-NOR	0.066 (0.006)	0.021 (0.003)	0.000 (0.000)	0.000 (0.000)	0.291 (0.008)	0.002 (0.001)	0.000 (0.000)	0.000 (0.000)	0.041 (0.005)	0.043 (0.004)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.008 (0.002)	0.000 (0.000)
IRL-ISL	0.109 (0.002)	0.114 (0.003)	0.009 (0.000)	0.000 (0.000)	0.007 (0.001)	0.192 (0.003)	0.000 (0.000)	0.000 (0.000)	0.020 (0.003)	0.490 (0.005)	0.578 (0.002)	0.000 (0.000)	0.040 (0.001)	0.236 (0.003)	0.028 (0.003)	0.179 (0.001)
IRL-NOR	0.026 (0.001)	0.000 (0.000)	0.005 (0.001)	0.000 (0.000)	0.056 (0.003)	0.075 (0.005)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.028 (0.003)	0.002 (0.000)	0.000 (0.000)	0.001 (0.001)	0.103 (0.007)	0.000 (0.000)	0.009 (0.001)
ISL-ITA	0.023 (0.005)	0.004 (0.001)	0.000 (0.000)	0.000 (0.000)	0.058 (0.006)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.357 (0.010)	0.001 (0.001)	0.002 (0.000)	0.004 (0.001)	0.000 (0.000)	0.000 (0.000)	0.141 (0.009)	0.000 (0.000)
ISL-NLD	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
ISL-NOR	0.019 (0.002)	0.019 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.063 (0.004)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.022 (0.003)	0.062 (0.005)	0.000 (0.000)	0.016 (0.001)	0.031 (0.003)	0.000 (0.000)	0.034 (0.003)
ISL-PRT	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.017 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
ITA-NOR	0.000 (0.000)	0.000 (0.000)	0.017 (0.002)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.022 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
NLD-NOR	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.005 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.019 (0.002)	0.014 (0.002)	0.000 (0.000)	0.007 (0.001)
NOR-PRT	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.034 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)

Notes: The table reports the list of potential comparison units (first column) together with the corresponding average weights used in the synthetic algorithm for all country pairs involving Denmark in the three-lags model. Standard errors in parentheses.

Figure A1. The evolution of Swedish actual and synthetic trade against individual bilateral pairs (all lags)

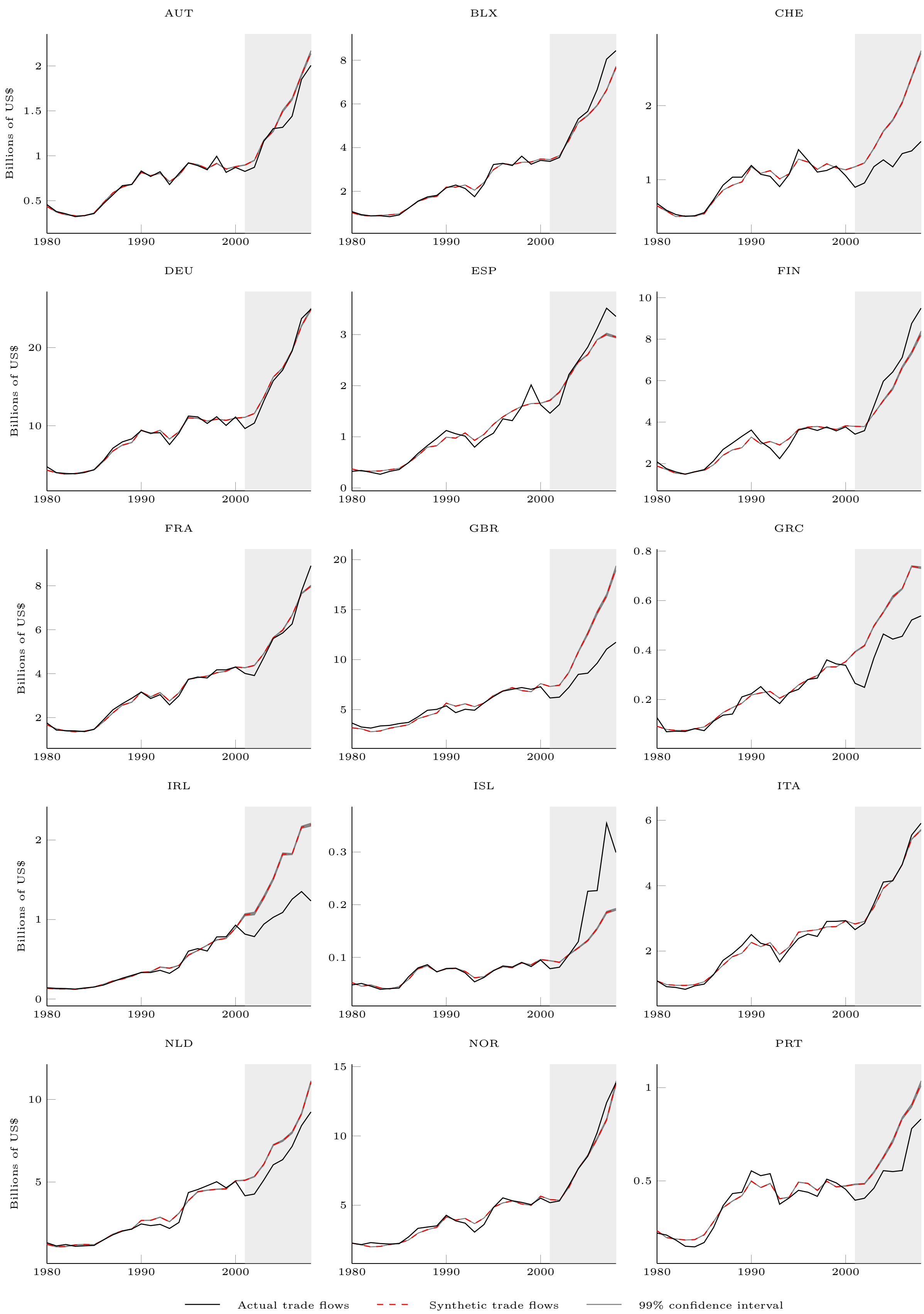

Figure A2. The evolution of Swedish actual and synthetic trade against individual bilateral pairs (three lags)

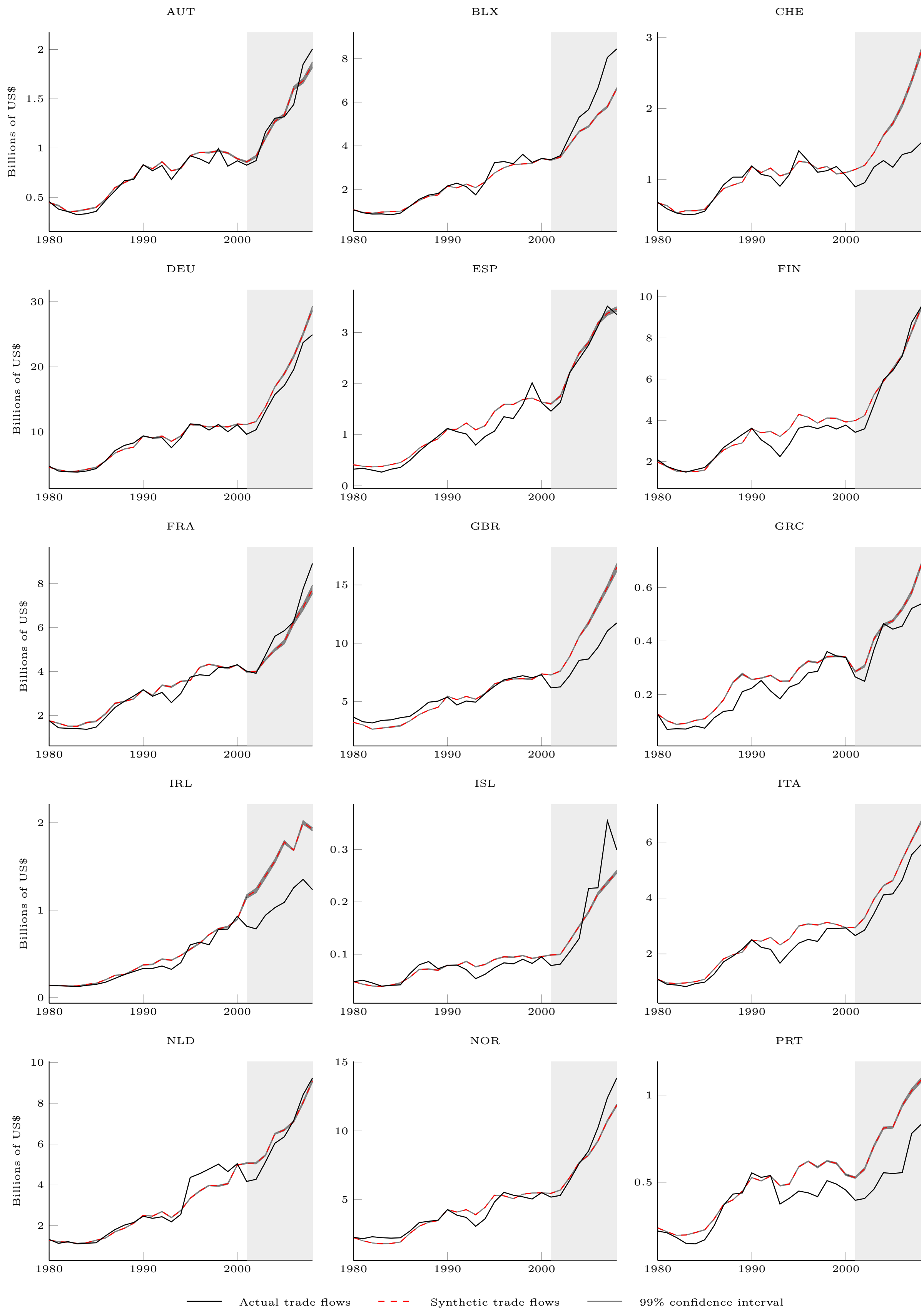

Figure A3. The evolution of Danish actual and synthetic trade against individual bilateral pairs (all lags)

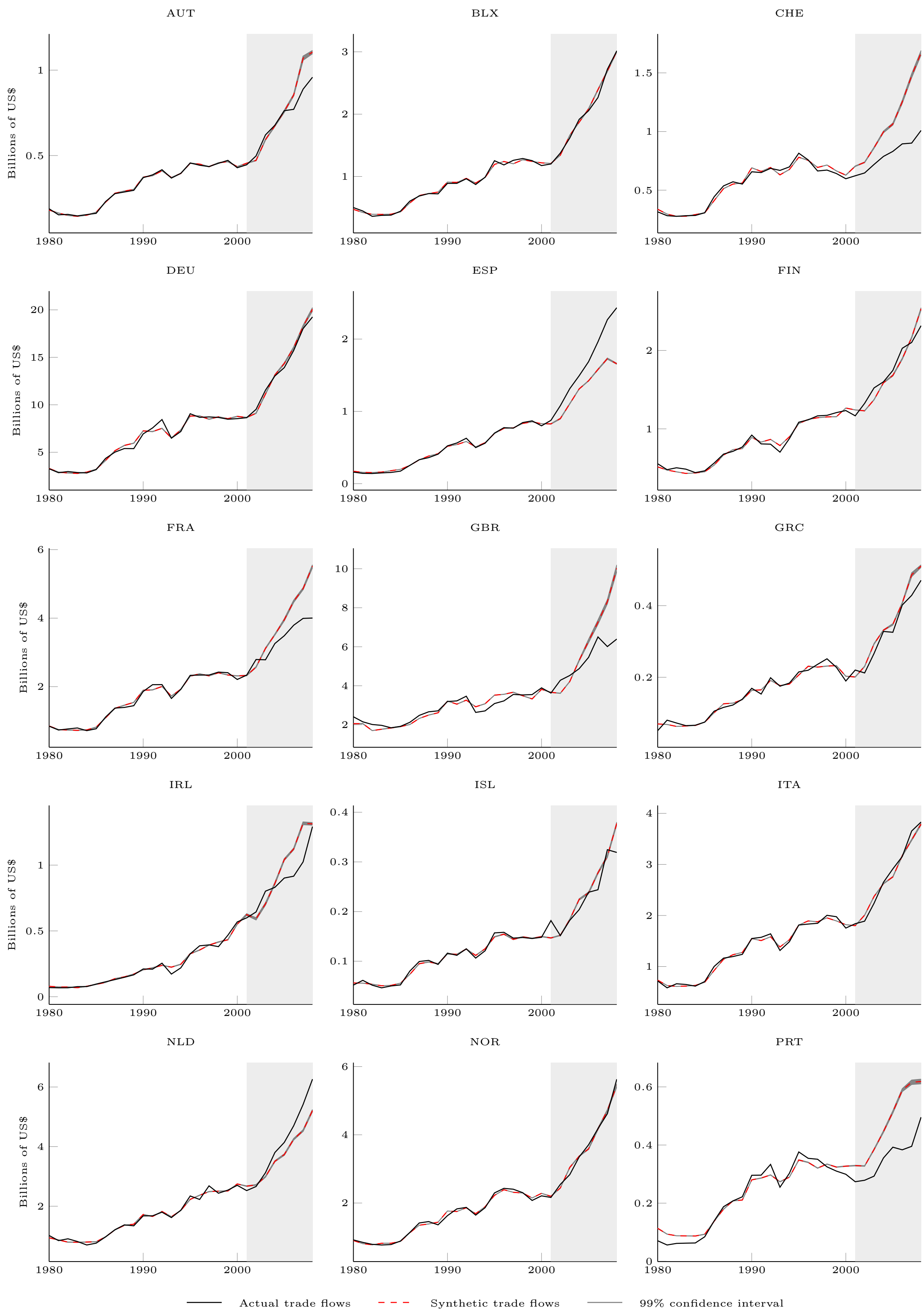

Figure A4. The evolution of Danish actual and synthetic trade against individual bilateral pairs (three lags)

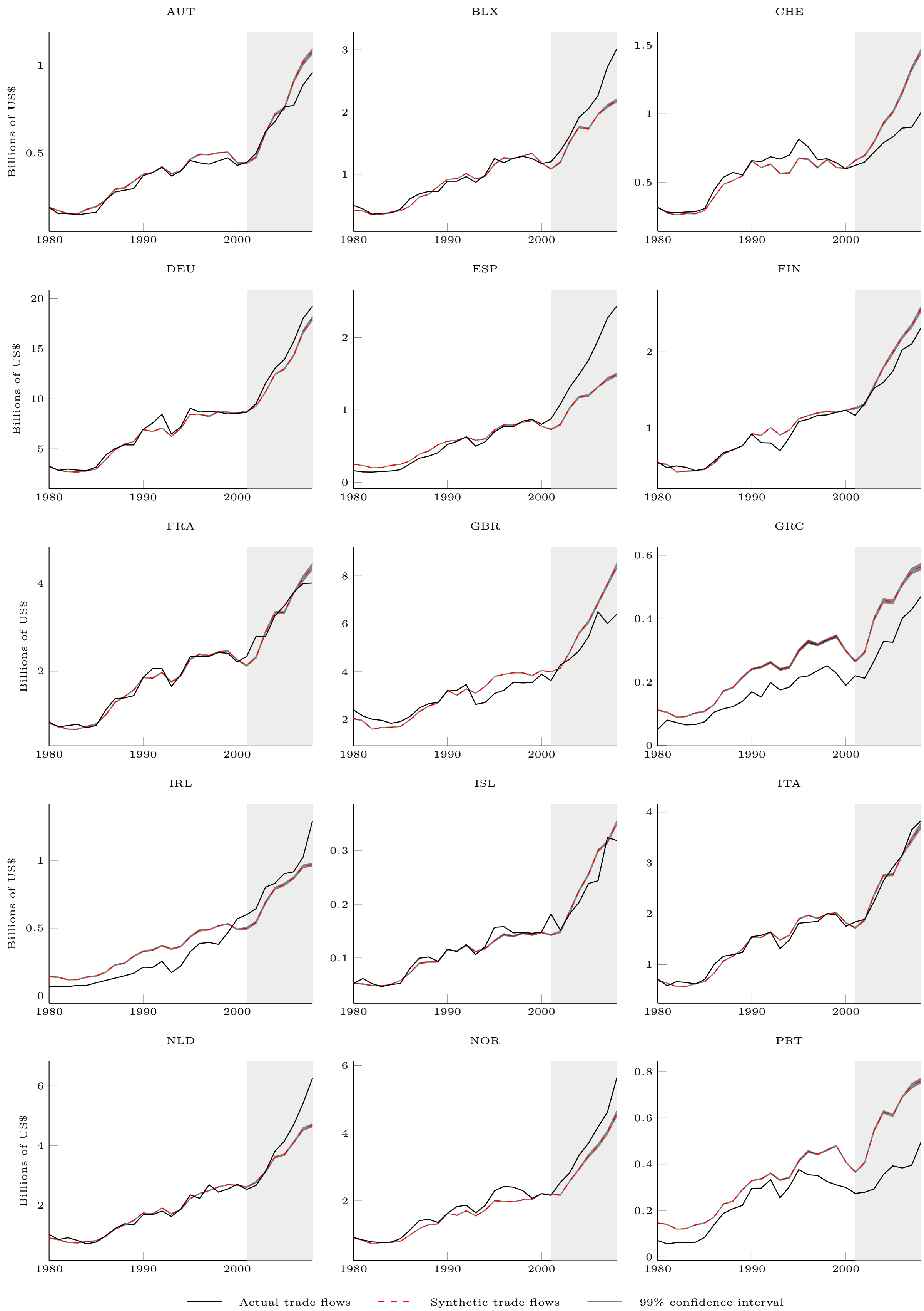

Table A8. Countries used in our dataset and their International Organization for Standardization (ISO) codes

Country	ISO code
Austria	AUT
Belgium-Luxembourg	BLX
Switzerland	CHE
Germnay	DEU
Denmark	DNK
Spain	ESP
Finland	FIN
France	FRA
United Kingdom	GBR
Greece	GRC
Iceland	ISL
Ireland	IRL
Italy	ITA
Netherlands	NLD
Norway	NOR
Portugal	PRT
Sweden	SWE