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The EU-Japan Economic Partnership Agreement and its relevance for the Austrian Economy

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Since the beginning of 2017, a paradigm change in international trade policy is observed. While the protectionist agendas are on the rise, the EU and Japan signed an Economic Partnership Agreement (EPA) on 17 July 2018. It is the most ambitious agreement of the EU with any Asian state. The study estimates the effect of the EU-Japan EPA for Austria based on qualitative analysis and a structural gravity model. The model predicts small but positive effects of around 0.01% of GDP for Austria. Highest gains are expected for manufactured goods, particularly in the medium- and high-tech sectors.

Keywords: Economic partnership, Free Trade Agreement, EPA, FTA, EU, Japan, South Korea, tariffs, non-tariff measures, structural Gravity model.
JEL-codes: D58, F13, O24, Q17.

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The global trade order is changing as the world's two biggest economies are following opposing trade policies. While the United States is turning its back on free trade with a protectionist 'America First' strategy, China is following a policy of strategic opening with diplomatic, investment-intensive and trade-promoting initiatives to revive the ancient Silk Road.

The diverging trade policies of the world's largest economies have given rise to a number of newly revived free trade negotiations. These include the Economic Partnership Agreement (EPA) between the EU and Japan. It was finalised by the end of 2017 and sent to the Council of the European Union for approval. It was signed on 17 July 2018 at the EU-Japan summit in Tokyo. Subsequently, the European Parliament needs to endorse the agreement.

The benchmark for this comparative analysis is the Free Trade Agreement (FTA) established with South Korea due to its geographical proximity to Japan and a comparable economic level of development. Back in 2011, when the FTA with South Korea started to be provisionally applied, it was considered the most ambitious agreement with any Asian economy. This distinction can now be given to the EPA with Japan.

As shown by databases analysing the increasing depth of free trade agreements by looking at the topics covered and enforceable, customs as well as export and import restrictions were at the core of FTAs for a long time. Starting in the 1990s, non-tariff measures to combat unfair trade practices or to guarantee high product and process quality gained weight. There are, however, still quite few agreements in place including topics such as the environment, labour, investment, agriculture or services. In addition to all topics covered within the FTA with South Korea, the EPA with Japan includes separate chapters – and therefore puts special focus – on small and medium-sized firms, as well as on agriculture, which is of particular interest for Austria.

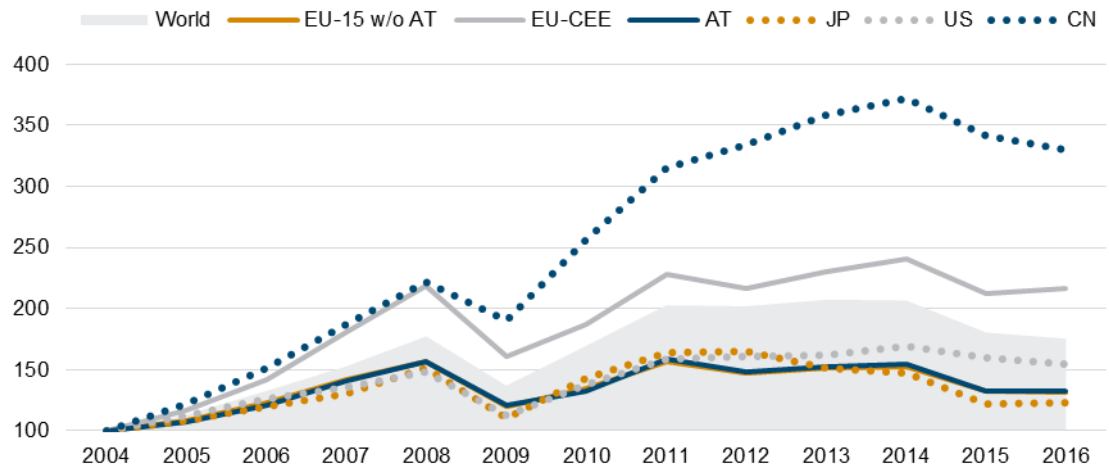
In this study, we employ a structural gravity model to estimate the potential gains from the EU-Japan EPA, which allows incorporating general equilibrium effects, including a proxy for non-tariff measures calculated from the Integrated Trade Intelligence Portal (I-TIP) database for trade in goods of the World Trade Organisation. The overall effects for a scenario including tariff reductions and improvements in regulations of non-tariff measures are positive albeit small. For Austria, the estimated trade effects result in a welfare gain of slightly above 0.01% of its gross domestic product (GDP), similar to the gains for Japan with as well about 0.01% of GDP.

1. The global trade order in transition

In recent years, global trade has seen major backlashes, both in economic as well as in political terms. With the global economic and financial crisis, trade volumes dropped by 20% within a year. However, already by 2011 world trade volumes had again surpassed pre-crisis levels (Figure 1.1). Another drop in global trade was again observable after 2013. Yet, regional developments varied considerably. While China's trade exceeded levels of 2008 already two years later, trade flows of Japan, the United States and the EU Member States of Central and Eastern Europe (EU-CEE) had recovered by 2011. However, trade volumes of the Western European EU Member States (EU-15, including Austria) saw further declines in trade volumes after 2011 and 2014, while Japan's trade volumes even dropped to almost crisis levels in 2015.

Figure 1.1 / Evolution of total trade volumes of Austria, the EU, the US, China and Japan

Year 2004 = index 100



Notes: Nominal trade in USD. Trade measured as exports plus imports. Source: UN Comtrade[1]; wiiw calculations.

Trade policy discussions have consequently focused on negotiations of deep and comprehensive free trade agreements. The United States was at the core of two major mega-regional agreements: the Transatlantic Trade and Investment Partnership (TTIP[2]) between the US and the EU, as well as the Transpacific Partnership (TPP[3]) between the US and countries in Latin America and Asia.

The context for international trade policy, however, has changed dramatically since US President Donald Trump took office in January 2017. The new US administration is accusing international trade developments of deteriorating American jobs and increasing domestic unemployment. Already during

[1] After recent modifications of UN Comtrade data in June 2018, trade data for Austria are consistent with figures presented by the national statistical office Statistik Austria.
[2] The European Commission on TTIP: http://ec.europa.eu/trade/policy/in-focus/ttip/
[3] The Office of the United States Trade Representative on TPP: https://ustr.gov/trade-agreements/free-trade-agreements/trans-pacific-partnership/tpp-full-text

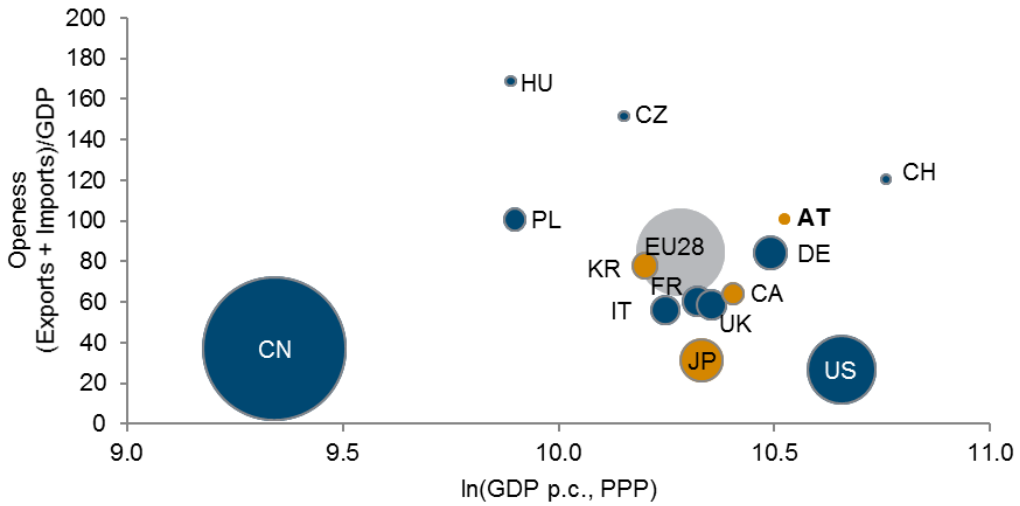
the first week of Donald Trump's presidency, the US withdrew from the TPP agreement and put TTIP negotiations on ice. Furthermore, US neighbours Canada and Mexico are put under pressure to renegotiate the North American Free Trade Agreement (NAFTA[4]). At the core of the 'America First' strategy is trade protectionism, with announced measures not necessarily being in conformity with rules of the World Trade Organisation (WTO).

The protectionist rhetoric of the US – the world's biggest economy – is starting to materialise, e.g. with tariffs on steel (25%) and aluminium (10%) products against the EU since 1 June 2018 or threats to increase tariffs of about 20% on European cars. Meanwhile pro-trade initiatives of China – the second largest economy in the world – gain in speed and significance. These include the Regional Comprehensive Economic Partnership (RCEP[5]) between fourteen Asian states, as well as Australia and New Zealand, or the widely discussed Chinese Belt and Road Initiative, also known as the 'New Silk Road'.

For Austria as a small open economy in the heart of Europe, a stable, rule-based trade environment is key to its economy (Figure 1.2). The EU (as part of TTIP) and Japan (as part of TPP) are trading partners and negotiating parties affronted by the US. However, with the US external policy becoming ever harder to predict, negotiations of other trade deals, e.g. between the EU and Canada (CETA[6]) or Japan, seem to have been revived (Frenkel and Walter, 2017).[7]

Figure 1.2 / Openness of Austrian trading partners

Austria's top 10 export destinations in 2017 plus Canada, Japan and South Korea



Source: Statistik Austria, World Bank Development Indicators; wiiw calculations.

[4] Text of the NAFTA agreement provided by the Government of Canada: http://international.gc.ca/trade-commerce/trade-agreements-accords-commerciaux/agr-acc/nafta-alena/fta-ale/index.aspx?lang=eng
[5] The Association of Southeast Asian Nations on RCEP: http://asean.org/?static_post=rcep-regional-comprehensive-economic-partnership
[6] The European Commission on CETA: http://ec.europa.eu/trade/policy/in-focus/ceta/
[7] The European Commission provides regular updates on the state of trade negotiations: http://trade.ec.europa.eu/doclib/docs/2006/december/tradoc_118238.pdf

One year after reaching an agreement in principle on the main elements of the Economic Partnership Agreement (EPA) at the EU-Japan summit in July 2017, the agreement was signed. The text was finalised in December 2017 and submitted to the Council for approval in April 2018. Following the signature at the EU-Japan summit in Tokyo on 17 July 2018, it will be forwarded to the European Parliament. The aim of the present study is to estimate the effects of the EU-Japan Economic Partnership Agreement for Austria based on qualitative and quantitative analysis.

The benchmark for the analysis is the free trade agreement established with South Korea in 2011 (EU, 2011). South Korea has been chosen due to its geographical proximity to Japan, a comparable economic state of development[8], and due to the fact that trade volumes between the EU and South Korea developed dynamically after the FTA's entry into force seven years ago.

The report is structured in four parts. The first part (Section 2) is dedicated to the components of the agreement and places the EPA with Japan in the context of the vast network of EU and Japanese trade agreements with other countries. The second part (Section 3) presents a descriptive analysis of trade relations with Japan and South Korea, identifying sectors and products affected by the agreement with Japan. The third part (Section 4) focuses on barriers to trade such as tariffs and non-tariff measures (NTMs) focusing on the evolution over time and patterns across important product categories. For the fourth part (Section 5), data on trade flows and trade policy measures are combined to estimate a structural gravity model to answer the question of medium-term trade effects for a number of countries including Austria and their effects on real gross domestic product (GDP).

[8] The GDP per capita at purchasing power parities (PPP) in 2016 was USD 37,740 for South Korea and USD 41,275 for Japan. Furthermore, both countries feature among the top 20 countries of the world according to the Human Development Index (HDI) of the United Nations, which considers the level of education and health in an economy in addition to GDP, with an index of 0.901 for South Korea and 0.903 for Japan.

2. The design of the EU-Japan EPA

The EPA with Japan is the first trade agreement of the European Union that explicitly includes the commitment to the Paris climate agreement and a chapter on 'Corporate Governance', highlighting the importance of well-functioning markets and sound financial systems based on transparency, efficiency, trust and integrity, particularly to attract investment.

Table 2.1 / Topics covered by trade agreements with Japan, Canada and South Korea

	Chapters in the EPA with Japan	Topic covered by CETA with Canada	Topic covered by the FTA with South Korea
Chapter 1:	General provisions	Ch. 1	Ch. 1
Chapter 2:	Trade in goods	Ch. 2	Ch. 2
Chapter 3:	Rules of origin and origin procedures	+	+
Chapter 4:	Customs matters and trade facilitation	Ch. 6	Ch. 6
Chapter 5:	Trade remedies	Ch. 3	Ch. 3
Chapter 6:	Sanitary and phytosanitary measures	Ch. 5	Ch. 5
Chapter 7:	Technical barriers to trade	Ch. 4	Ch. 4
Chapter 8:	Trade in services, investment liberalisation and electronic commerce	Ch. 9, 16	Ch. 7
Chapter 9:	Capital movements, payments and transfers and temporary safeguard measures	+	Ch. 8
Chapter 10:	Government procurement	Ch. 19	Ch. 9
Chapter 11:	Competition policy	+	Ch. 11
Chapter 12:	Subsidies	Ch. 7	Ch. 11
Chapter 13:	State-owned enterprises, enterprises granted special rights or privileges and designated monopolies	Ch. 18	Ch. 11
Chapter 14:	Intellectual property	Ch. 20	Ch. 10
Chapter 15:	Corporate Governance	+	+
Chapter 16:	Trade and sustainable development	Ch. 22, 24	Ch. 13
Chapter 17:	Transparency	Ch. 27	Ch. 12
Chapter 18:	Good regulatory practices and regulatory cooperation	Ch. 21	+
Chapter 19:	Cooperation in the field of agriculture	+	+
Chapter 20:	Small and medium-sized enterprises	+	+
Chapter 21:	Dispute settlement	Ch. 29	Ch. 14
Chapter 22:	Institutional provisions	Ch. 26	Ch. 15
Chapter 23:	Final provisions	Ch. 30	Ch. 15

Note: Information collected based on texts of the agreements. Source: FTA with South Korea: Official Journal of the European Union, L 127, 14 May 2011; EPA with Japan: http://trade.ec.europa.eu/doclib/press/index.cfm?id=1684; CETA with Canada: http://ec.europa.eu/trade/policy/in-focus/ceta/ceta-chapter-by-chapter/.

Table 2.1 compares the 23 chapters of the EU-Japan EPA with the Free Trade Agreement (FTA) with South Korea, which was provisionally applied starting from 2011 and fully entered into force in 2015, and with the Comprehensive Economic and Trade Agreement (CETA) between the EU and Canada, which provisionally entered into force in September 2017.

The agreement with South Korea was considered the most ambitious agreement with any Asian country. It is outlined in fifteen chapters, showing a strong focus on non-tariff measures, with separate chapters on sanitary and phytosanitary measures to protect human, animal and plant life, as well as technical barriers to trade ranging from labelling or packaging requirements to conformity assessments. In addition, trade remedies were dealt with, such as antidumping measures to combat unfair trade practices as well as countervailing duties against subsidised exports or safeguards for agricultural products.

The agreement achieved with Canada contains twice as many chapters and is a mixed agreement as it covers also the field of investment in addition to trade. It puts a strong focus on specific sectors, having separate chapters on financial services (Ch. 13), maritime transport services (Ch. 14), and telecommunications (Ch. 15). Furthermore, it includes sections on trade and labour (Ch. 23) as well as on the movement of people for business purposes (Ch. 10).

What makes the EU-Japan EPA more attractive for Austria than the FTAs with South Korea or Canada is that it includes separate chapters – and puts therefore particular focus – on small and medium- sized firms, as well as on agriculture. The agricultural sector is very often exempted from negotiations and an area where tariffs still play a crucial role in international trade.

Table 2.2 / Tariff profiles

MFN applied, 2016	Total	Industry	Agriculture
EU	5.2%	4.2%	11.1%
Japan	4.0%	2.5%	13.1%
South Korea	13.9%	6.8%	56.9%
Canada	4.1%	2.2%	15.6%

Source: WTO, ITC, UNCTAD (2017).

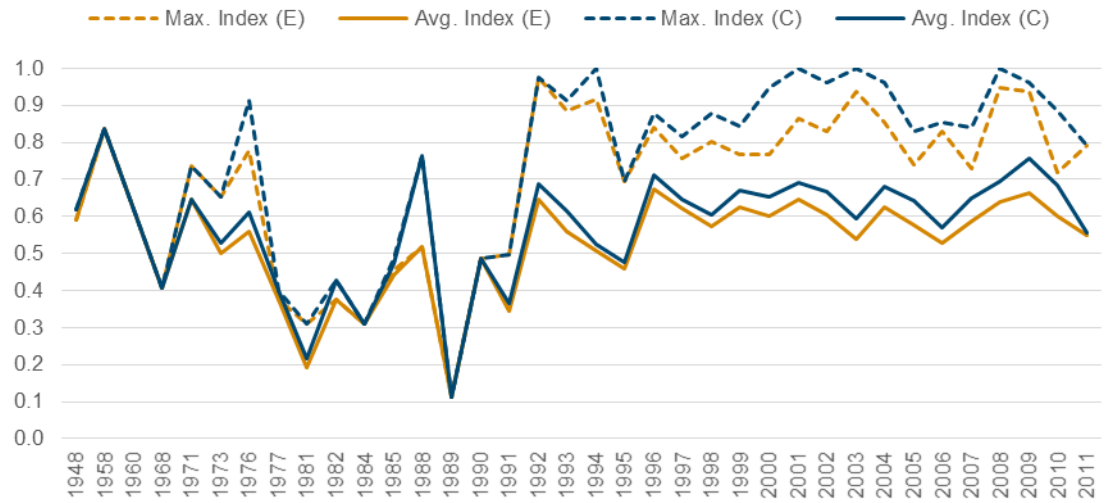
Table 2.2 shows simple averages of most-favoured nation[9] (MFN) tariffs applied by the EU, Japan, South Korea, and Canada, calculated for agricultural products, non-agricultural products and over all products. It clearly shows that for both agricultural goods as well as manufactured goods there is room for reductions, but that tariffs are a particular trade barrier for selected agricultural products resulting in average tariffs of more than 50% for South Korea. Japan and Canada show very similar profiles, with much lower tariffs than South Korea, particularly for agricultural products. Compared to the EU, their markets for industrial goods seem more liberalised but their agricultural markets more sheltered by

[9] The MFN principle is the guiding principle of the WTO. It states that members of the WTO are not supposed to grant some members more favourable trading conditions than other members. Exceptions include agreements for the benefit of developing and least-developed countries as well as free trade agreements.

higher tariffs. The European Commission states that by implementing the EPA over time[10] 85% of EU agri-food products will be able to enter Japan entirely duty-free[11].

Most of the world's deepest agreements have been established by the EU on one part. The Trade Agreement Heterogeneity Database set up by Kohl et al. (2017) provides an index for trade agreements between the years 1948 and 2011, counting the topics covered (C) and provisions that are also enforceable (E). Figure 2.1 depicts the average index per year across trade agreements as well as the maximum index of any trade agreement per year. Agreements with scores higher than 0.95 include agreements between the EU and Member States prior to accession, as well as the agreements with Macedonia (2001), Jordan (2002), Chile (2003), and CARIFORUM (2008).[12]

Figure 2.1 / Depth of trade agreements is increasing over time



Source: Kohl et al. (2017), wiiw visualisation. Notes: C – topics covered; E – provisions enforceable.

Topics rarely included in these agreements concern labour regulations, the environment, investment and services. Out of 296 agreements covered by the Trade Agreement Heterogeneity Database, customs procedures, export and import restrictions, capital mobility as well as antidumping (ADP) and countervailing duties (CVD) were part in more than 210 agreements each. 188 agreements cover the agricultural sector, 163 include sanitary and phytosanitary measures (SPS), 138 discuss technical barriers to trade (TBTs), and 103 agreements relate to public procurement. Much less frequently, trade agreements deal with services trade (86), investment (85), environmental (66) and labour issues (43).

The agreements of the EU with Japan, South Korea and Canada cover all these policy areas:

- **Environment and labour:** Chapter 16 of the EU-Japan EPA is dedicated to the issue of trade and sustainable development. It reaffirms the importance of labour standards put forth by the International Labour Organisation (ILO) and the commitment to multilateral environmental

[10] Schedules for tariff line reductions published by the European Commission are outlined for a period of 21 years.
[11] We will refer to some products and specific schedules in Section 4.
[12] Other agreements with scores higher than 0.95: NAFTA (1994), Chile-US (2003), Australia-US (2004), Australia-Chile (2009).

agreements such as the UN Framework Convention on Climate Change (1992) and – for the first time in an EU trade agreement – the Paris Agreement (2015).[13] Although both parties can implement different measures to achieve environmental and labour objectives, they emphasise in the EPA that these should not be implemented in a discriminatory manner and never be lowered to increase competitiveness.

CETA devotes Chapter 22 to sustainable development including environmental protection and Chapter 23 to labour standards. Similar to the EPA with Japan, the agreement with South Korea summarises environmental and labour standards in Chapter 13 on sustainable development. Relating to the latter, the European Economic and Social Committee (EESC) argued in October 2017 for consultations with the South Korean government regarding the implementation of its commitments on freedom of association and collective bargaining.

- **Services trade:** Specific sub-sections of the EU-Japan EPA deal with the regulatory framework of postal and courier services, telecommunication, financial and maritime transport services as well as e-commerce. These sectors were treated in separate chapters in CETA. The agreement with South Korea is framed more broadly with Chapter 7 applying to all services trade, excepting audio-visual services, national maritime cabotage and services related to air transport.

  It is worth noting that the EU is generating a trade surplus in services with all three countries, largely offsetting the negative trade balance in goods with Japan and South Korea as well as exceeding the trade surplus in goods with Canada, despite trade volumes in services being much lower than volumes in goods trade.

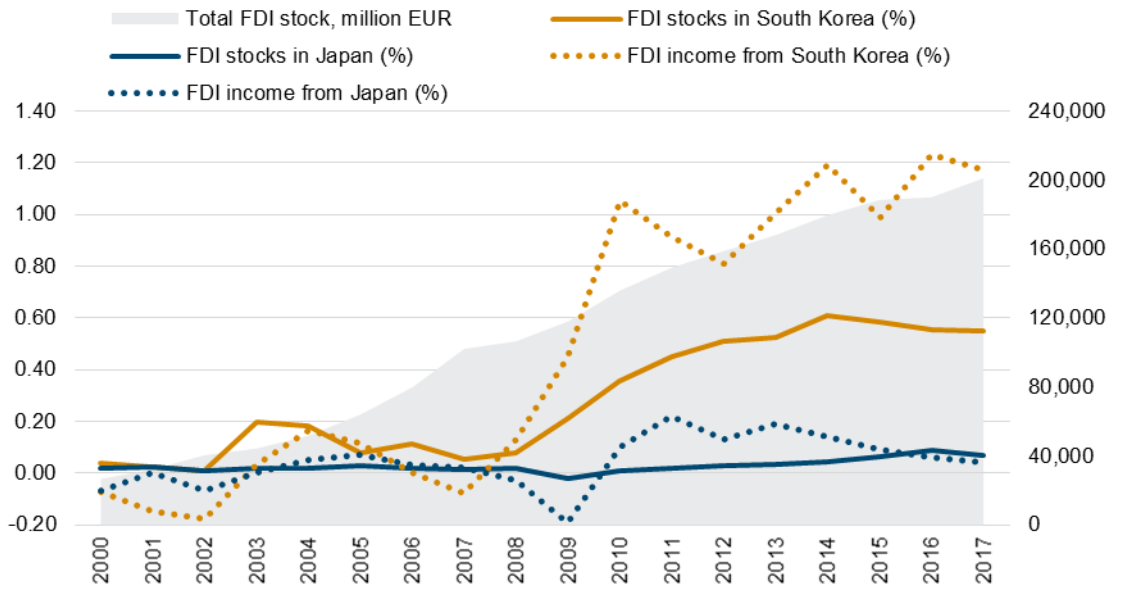
- **Investment:** The aim of increasing investment is repeatedly emphasised in the EU-Japan EPA. The focus in this respect is on increased transparency, market access, national treatment and corporate governance, but does not include investment protection standards and the topic of dispute resolution. Negotiations on these matters take place in parallel, with the next negotiating meeting being planned for late autumn.[14]

  The agreements with Japan and South Korea both incorporate services and investment liberalisation in one chapter. In this area, the agreement with Canada is deeper, though more resource-intensive to implement: The inclusion of investment protection changes the type of agreement to a mixed agreement requiring not only the consent of the Council and the European Parliament but also the ratification by all national parliaments in the EU before it can fully enter into force.

  However, reviewing the evolution of Austrian foreign direct investment (FDI) to Japan and South Korea suggests that the FTA with South Korea was having a great impact on investment stocks and incomes generated, without having an investment protection regulation in place (Figure 2.2). The share of Austrian FDI in South Korea increased from 0.08% in 2008 to 0.55% in 2017, while its share in Japan only increased from 0.02% to 0.07% during the same period.[15] The fDi Markets database additionally suggests that the number of Austrian greenfield investments is increasing for South Korea but decreasing for Japan.

[13] The latter is in stark contrast to the US, with US President Donald Trump announcing the US withdrawal from the agreement in June 2017.
[14] European Commission: http://trade.ec.europa.eu/doclib/press/index.cfm?id=1888 (11 July 2018)
[15] For the year 2009, FDI statistics of OeNB even record disinvestment from Japan.

Figure 2.2 / Austrian FDI stocks and income



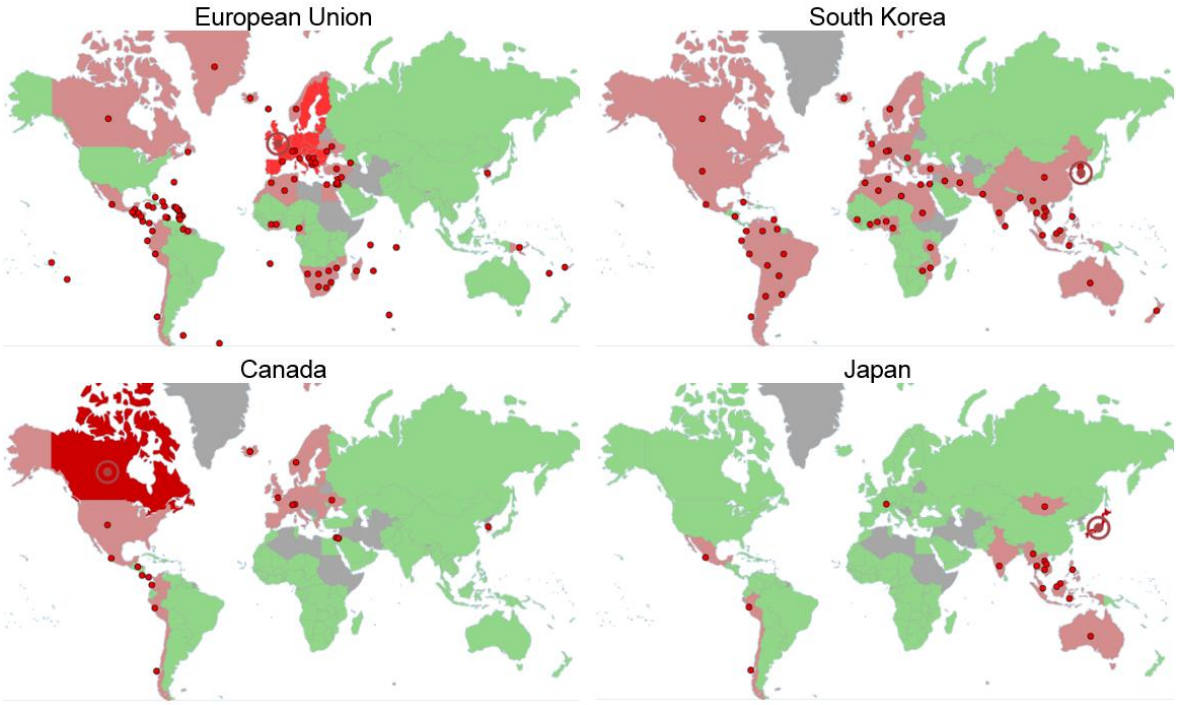
Source: Oesterreichische Nationalbank (OeNB), wiiw calculations.

The size of the effects of certain trade agreement depends on the content and scope of the agreements, but also on how many trade agreements with other partners have been previously established (Figure 2.3) and whether there can be trade diversion effects between exporters of the same goods in addition to trade creation effects. Dür et al. (2014) provide a database on trade agreements for the period 1950-2009, showing that the number of newly established trade agreements strongly increased after the establishment of the WTO in 1995, mainly being intercontinental agreements (196), predominantly bilateral in nature. The number of trade agreements within Africa (63) and Asia (112) falls short to agreements set up within America (172) or Europe (196).

South Korea and the EU established a vast network of trade agreements globally. The number of agreements between South Korea and countries in South America, Asia and Oceania is exceeding those with the EU by far. However, none of the agreements comes as close in depth as the common market of the European Union, hence trade diversion effects resulting from the bilateral agreement with South Korea are less likely to negatively affect EU markets. On the other hand, given that South Korea was the only developed economy in Asia with which the EU had established a deep FTA, other Asian countries – including Japan – might have experienced losses after the deal.

Looking at the trade agreements of Canada and Japan shows a very different picture. These two economies formalised their trade ties only very locally. Canada focuses on the American continent and has only recently established stronger transatlantic relations, while Japan mainly established trade agreements with countries in South Asia and Oceania. In the case of the EU-Japan EPA, but also in the case of CETA if NAFTA re-negotiations fail, trade diversion effects with gains for the EU and potential trade losses for the US are a realistic scenario.

Figure 2.3 / Network of trade agreements of the EU, South Korea, Canada and Japan

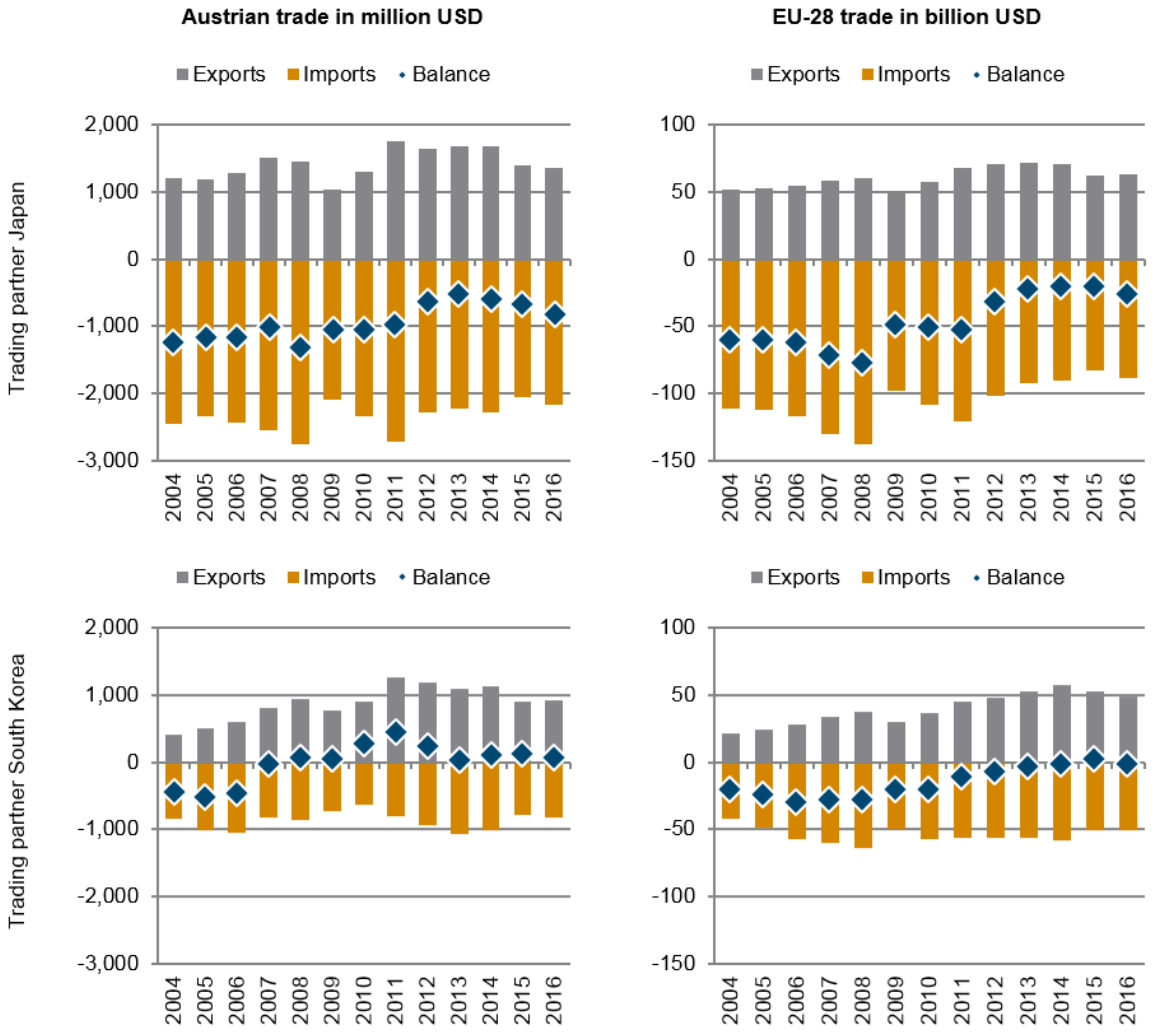


Source: WTO Regional Trade Agreements Database. Note: Parties in red, WTO members in green, neither members of a regional trade agreement nor WTO members in grey. Each red dot represents a partner country or region (such as the EU), accentuating agreements with small (island) economies.

3. The structure of trade relations with Japan

Japan ranks second among the EU's trading partners in Asia, after China. Both exports and imports are dominated by machinery, electrical equipment, motor vehicles, pharmaceuticals and chemicals. According to Eurostat, EU exports and imports of goods both exceeded EUR 60 billion in 2017, with the trade balance being negative for the EU, but decreasing, particularly since 2011. Trade in services is of a lower magnitude, with imports of below EUR 20 billion and exports of around EUR 30 billion, however, showing a positive trade balance of around EUR 10 billion and thus exceeding the negative trade balance of trade in goods (Figure 3.1).

Figure 3.1 / Goods trade between the EU/Austria and Japan and South Korea over time



Source: Comtrade.

The scales of the graphs in Figure 3.1 were intentionally set the same for trade with Japan and South Korea to highlight that trade flows between the EU and South Korea – the latter being the EU's ninth largest export destination for goods – amount to only about two thirds of flows between the EU and Japan. Comparable to Japan, the most important product group in terms of trade is machinery and appliances. The EU's negative trade balance with South Korea in goods trade was continuously reduced from 2007 onwards and in recent years has been even slightly positive, while it has been clearly positive for trade in services.

The evolution of Austria's trade with Japan resembles trade trends of the EU with Japan, but its experience with South Korea looks quite different. The decrease in Austrian imports from South Korea after the financial crisis was much more pronounced, resulting in a significantly positive trade balance in 2011. However, during the recent years, trade flow levels have been similar to 2008 with exports and imports being almost balanced.

There are indications of a trade diversion effect of the EU FTA with South Korea, with trade flows with South Korea recovering strongly after 2010, while trade with Japan – and in particular imports from Japan – decreased. This pattern is visible in Figure 3.1 for both Austria as well as the EU as a whole.

Exports to Japan and South Korea are much more diversified than imports from these trading partners (Figure 3.2). The composition of goods exported from Austria is more similar between Canada and South Korea, with shares of almost 20% observable for the transport sector, shares of close to or above 30% for machinery and electronic equipment and non-negligible shares for metal products and chemicals. Compared to the EU, wood products are relatively more important for the Austrian export industry. It is striking that the share of Austrian exports of machinery and electronic equipment to Japan is much lower than that in exports to Canada and South Korea but also when compared to exports to all trading partners in the world.

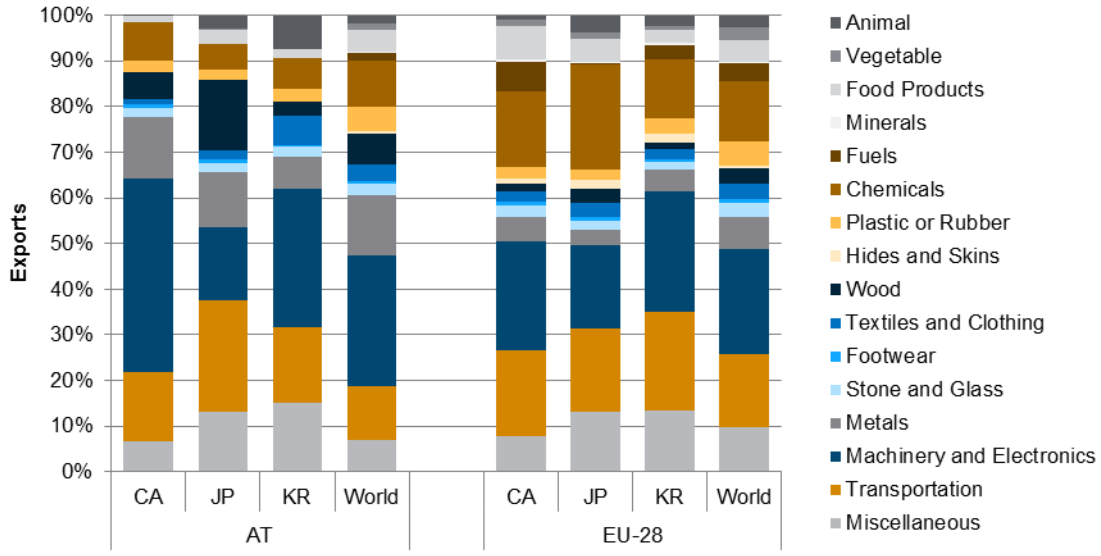
The transport sector (roughly 30%) and machinery and electronic equipment (about 40%) dominate the product composition of Austrian imports from South Korea and Japan, accounting for more than two thirds of all imports. The biggest difference arises for chemicals (JP: 10%, KR: 2%). For imports from Canada, the metal industry appears more important for Austria, while the product group covering stone and glass stands out when considering the EU as a whole.

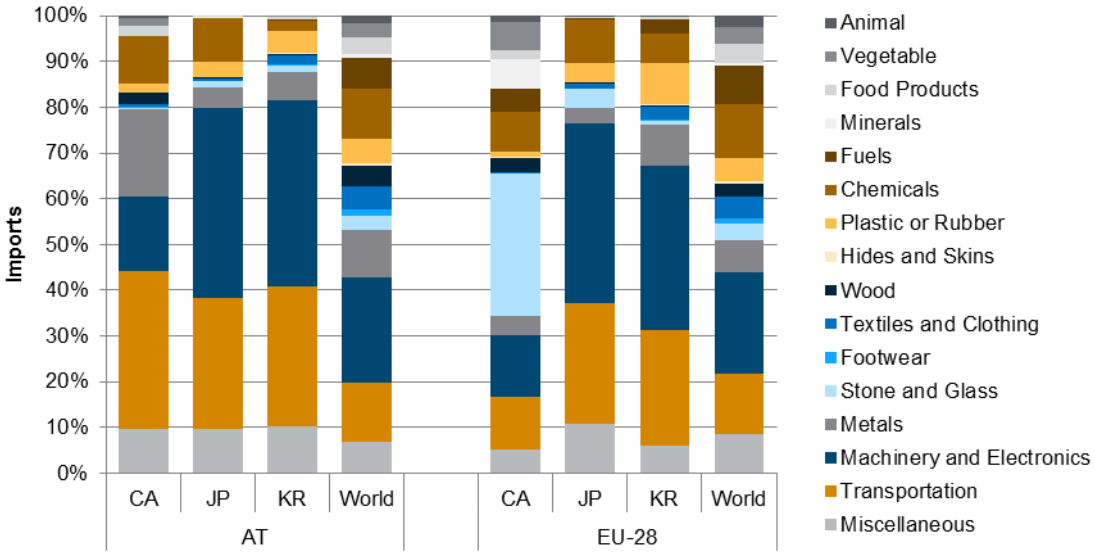
Compared to the product mix of the year 2011, Austrian trade with South Korea today is more diversified. One product group – machinery and electronics – saw a severe drop in shares of more than 8 percentage points, both on the export as well as on the import side. Interestingly, roughly 30% of Austrian imports from Japan and South Korea in 2011 related to the transportation sector. Since then, that share has decreased by 2 percentage points for Japan but increased by 2 percentage points for South Korea. Vehicles had received quite some attention in the FTA negotiations with South Korea. When the FTA entered into force, tariffs were eliminated by both parties for vehicle parts; after three years tariffs were abolished for medium-sized and large cars; finally, after five years, also tariffs on small cars were set to zero. In the negotiations on vehicles with Japan, the focus was not on tariffs but non-tariff measures. The agreement puts forth that the EU and Japan apply the same international standards on product safety and environmental sustainability, rendering extra testing procedures unnecessary and pushing EU-Japan cooperation in international standard-setting fora. In case one of the parties does not

adhere to the agreed international standards, the EPA with Japan includes a separate dispute settlement mechanism for vehicles and a safeguard clause allowing for the reintroduction of tariffs.

There was also a shift in Austrian exports away from machinery and electronic equipment (-8 percentage points, pp) towards textiles and clothing, wood products, goods of stone and glass, chemicals but also food products. In 2011, food product exports of Austria to South Korea accounted for only 0.6% but have climbed to 2.0% since then. Diversification of exports to Japan is also taking place, but at a slower pace. Furthermore, for three product categories, the trends for exports to Japan are opposing those for South Korea: For both Japan and South Korea the share of Austrian chemical exports in total exports to these countries amounted to roughly 6% but decreased by 0.5 pp for Japan and increased by 1.2 pp for South Korea. Wood products amounted to 18% of total Austrian exports to Japan in 2011, but this share decreased by 2.6%, while it was at a negligibly low level for South Korea in 2011 but has increased by 2.1 pp since then.

Figure 3.2 / Product composition of Austrian and EU-28 trade in 2016





Source: Comtrade.

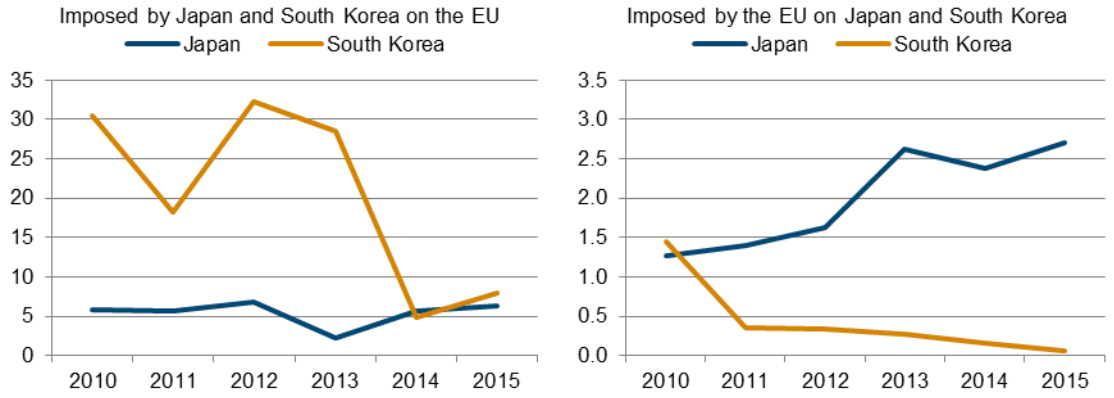
4. Tariffs and NTMs on their way down and up

Tariffs and non-tariff measures (NTMs) are at the heart of trade negotiations amongst other important issues (e.g. the special discussion on SMEs in the EU-Japan EPA). This section therefore compares the levels and trends of tariffs and non-tariff measures focusing on trade of the EU with Japan and South Korea in a comparative perspective.

4.1. STILL GREAT POTENTIAL FOR TARIFF CUTS IN AGRICULTURE

In this section, the evolution of tariff rates between the EU and Japan as well as between the EU and South Korea is analysed. Figure 4.1 shows the trade-weighted tariffs amongst the trading partners. Starting with the average tariff rate imposed on imports originating from the EU, one finds that South Korea imposed tariffs at around 30% before the FTA, which in 2014 dropped to around 5%. The initial South Korean tariff rates were about five times higher than those imposed by Japan on EU products, which stand at about 6% today.

Figure 4.1 / Trade-weighted tariffs



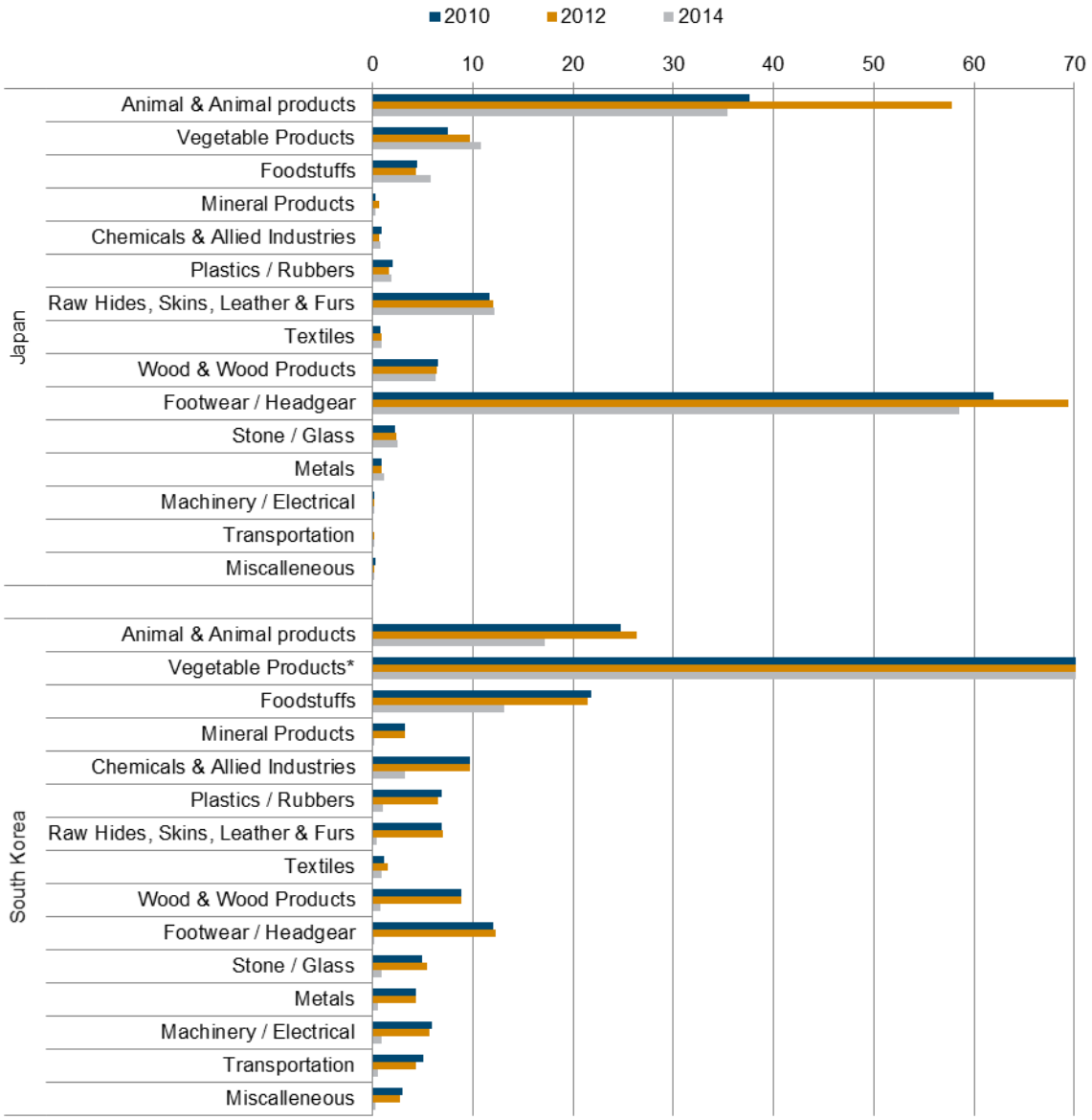
Note: Figures show trade-weighted tariffs. The high average tariff rates are mostly due to high tariffs on HS10 and HS11 products.
Source: UNCTAD TRAINS; wiiw calculations.

These figures need to be compared with the tariff rates the EU imposes on imports from Japan or South Korea. As can be seen in the right panel of Figure 4.1, tariff rates for imports of South Korean products were very low already in 2010, with about 1.5%, and are nowadays negligible. 70% of all tariff lines were duty-free on the first day of the entry into force of the EU-South Korea FTA. With the exception of some sensitive agricultural goods, trade was duty-free after five years.[16] Even for agricultural products, the share of duty-free tariffs lines should increase from 40% in 2011 to 85% by 2021.

[16] For the full schedule of tariff reductions see European Union [EU] (2011).

Tariffs imposed on imports of Japanese products to the EU show a weighted average of about 2.5%, but have been increasing compared to 2010 or 2011, implying increased European demand for Japanese products targeted by tariffs. Nevertheless, EU tariffs on Japanese goods are about 3.5 percentage points lower than Japanese tariffs on EU products. Figure 4.2 and Figure 4.3 show a breakdown of these tariff rates by product groups.

Figure 4.2 / Japanese and South Korean tariffs on EU exports, by product groups
Trade-weighted tariffs



Source: UNCTAD TRAINS; wiiw calculations. * Tariffs on imports of vegetable products to South Korea range between 78% in 2014 and 352% in 2012 due to some single product outliers.

Both EU trading partners impose relatively high tariffs on agricultural goods. For animals and animal products, tariffs average almost 40% for Japan and 25% for South Korea. Sensitive products for South Korea include e.g. milk products, starting with a tariff of 176% for milk powder or 89% for

evaporated milk. For these products, tariff measures have been replaced by non-tariff measures by introducing tariff-rate quotas. Paragraph 6 of Annex 2-A-1 of the FTA outlines the time schedule over 16 years for increases in the quantity of milk products (in metric tonnes) originating from the EU that shall enter South Korea duty-free.

While tariffs on many other product categories, with rates between 5% and 10% before the FTA, have become very small, South Korea still imposes relatively high tariffs on foodstuffs, at about 10%.

Tariffs for vegetable products are still particularly high. Some of the highest tariffs can be found for vegetable roots[17] (887.4%), which shall, however, be eliminated within 15 years. Tariffs on particular species of beans were eliminated within five years starting at a level of 607.5%. Seed potatoes[18] started off with 304% and shall be duty-free within ten years.

For other products high tariffs remain, e.g. for peeled garlic[19] with a very high tariff of 360% or WON 1,800/kg (whichever is greater) or for sweet peppers[20] with a tariff of 270% or WON 6,210/kg (whichever is greater) or for ginseng tail[21] with a tariff of 754.3%. There are, however, many vegetable products for which the very high tariff rates, e.g. cucumbers and gherkins[22], or egg-plant[23] at 27%, were set to zero on the day of the entry into force of the FTA. In order to achieve tariff reductions, the parties also agreed on possible non-tariff measures, e.g. for specific ginseng root extract powder[24], the tariff of 754.3% shall be eliminated within 15 years. However, Annex 3 specifies levels of import volumes, which – if exceeded – trigger higher tariffs.

Tariffs imposed by Japan on EU products are already very low for a number of products and in the range of South Korean tariffs after the implementation of the FTA. Exceptions are vegetable products, with tariff rates of about 10%, raw hides, skins, leather and furs with slightly more than 10%, and wood and wood products with tariff rates of above 10%.

Some concrete examples with currently high tariffs include margarine (excluding liquid margarine)[25] with a tariff of 29.8%, which shall be stepwise reduced over five years to 0% from the 6th year onwards. Preserved meat, meat offal or blood containing meat of bovine animals or swine are currently facing a 21.3% tariff but shall enter duty-free within a period of 11[26] to 16[27] years.

Some of the highest tariffs to be found for Japan concern products of or containing sugar. Glucose and glucose syrup containing added flavouring or colouring[28] are currently subject to tariffs of 29.8% or 23 yen/kg (whichever is greater) which shall be reduced to 7.5% or 5.75 yen/kg within 20 years. Glucose and glucose syrup containing added sugar[29] are still targeted with a tariff of 85.7% or 60.90 yen/kg

[17] HS code 0714101000.
[18] HS code 0701100000.
[19] HS code 0703201000.
[20] HS code 0709601000.
[21] HS code 1211201320.
[22] HS code 0707000000.
[23] HS code 0709300000.
[24] HS code 1211202210.
[25] HS code 1517100000.
[26] HS codes 1602312100, 1602322100.
[27] HS codes 1602100000, 1602200100.
[28] HS code 1702301000.
[29] HS code 1702302100.

(whichever is greater). For this product a tariff rate quota was agreed upon (TRQ-13), increasing the aggregate quota quantity from 1,780 metric tonnes in the first year to 5,340 metric tonnes for the 12th year and thereafter. A constant tariff rate quota (TRQ-16) of 500 metric tonnes, which should be subject to review, was negotiated for other sugar or sugar syrup blends containing added sugar[30], which are facing a tariff of 114.2% or 89.50 yen/kg. Caramel[31] is currently taxed with a 50% tariff or 25 yen/kg, but shall enter the Japanese market duty-free starting from the 11th year of the EPA application.

The European Commission states that when the EPA with Japan enters into force, 90% of all products (tariff lines) exported by the EU will enter Japan duty-free. By the time the agreement is fully implemented, this figure shall increase to 97%. The products with the greatest scope for tariff cuts belong to the agricultural sector. On the EU level, pork meat is the EU's main agricultural product exported to Japan and shall enter Japan duty free while tariffs on beef will be reduced from 38.5% to 9% over 15 years. The second most important European agricultural export product is wine, currently facing a 15% tariff. Tariffs on wine and other alcoholic beverages will be eliminated on the first day of the EPA's application.

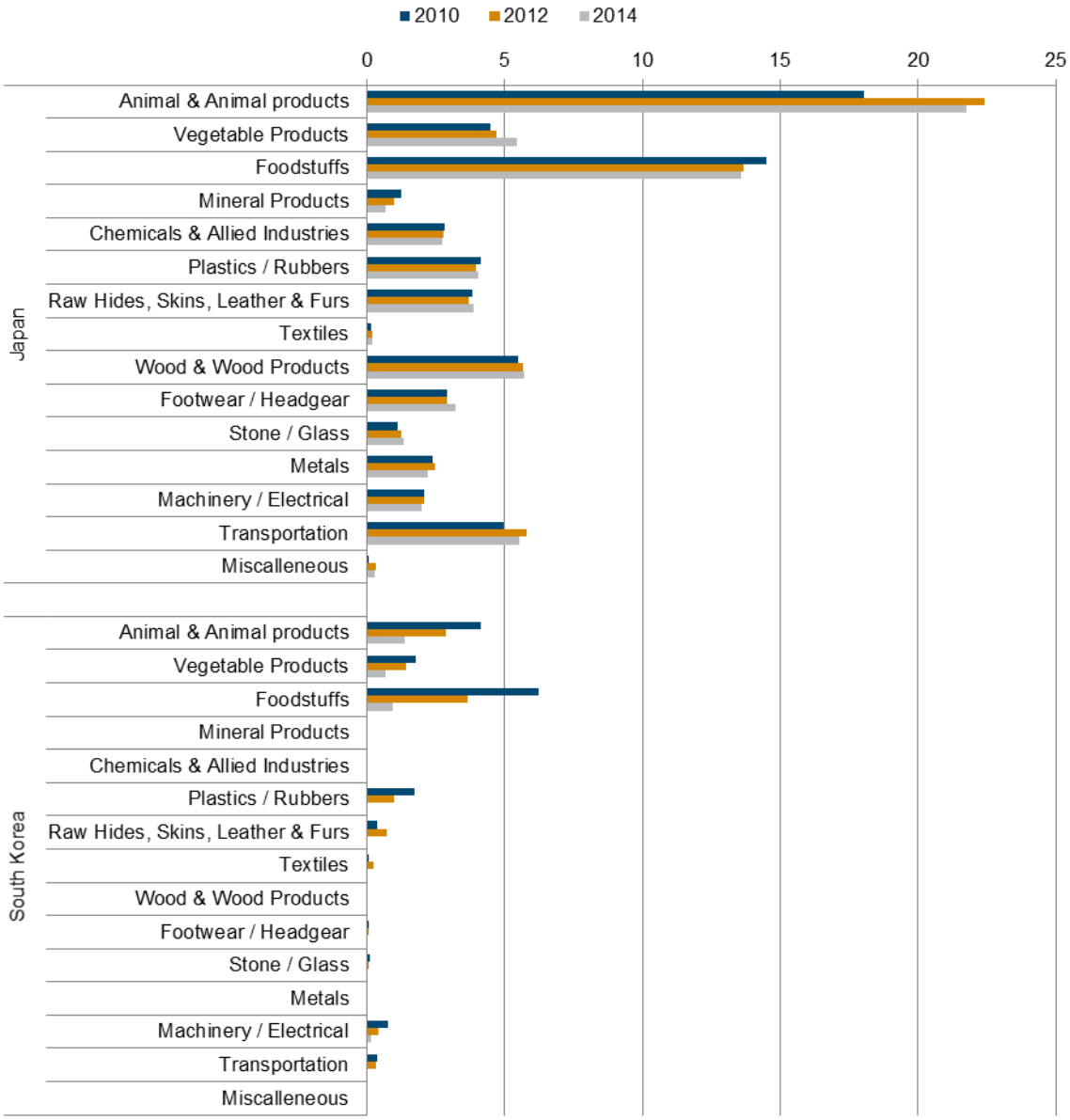
From the EU viewpoint, tariff rates for all imports from South Korea are at a very low level already consistent with the results in Figure 4.1. On the other hand, for imports from Japan, tariff rates are still high for animals and animal products, foodstuffs, timber and wood products and products of the transportation sector with rates above 15%, 10% and 5% respectively. For all other product categories, tariffs are lower than 5%.

Very few products imported from Japan face tariffs higher than 20%. These include some types of vehicles for the transport of goods[32], starting with a tariff of 22%, which should be eliminated within seven years. Together with the agreement on international car safety standards, thereby achieving convergence of regulatory requirements and facilitating vehicle approval, these tariff cuts might have a strong impact on trade between the EU and Japan in vehicles and car parts, and – given the share of the transport sector in Austrian exports – also for the Austrian economy.

Likewise some fish are facing a 22% tariff (albacore or longfinned tuna[33], skipjack or stripe-bellied bonito[34], southern bluefin tuna[35] and Pacific bluefin tuna[36]), which shall be abolished after 15 years. For many edible vegetables, roots, fruit and nuts, the EU agreed to eliminate all ad valorem components of the customs duties on the day of entry into force of the EPA, while keeping specific duty components in place. For other products, mixed duties stay in place but are reduced over time. These include cocoa powder containing added sugar; for instance, the base rate for cocoa powder containing 5-65% by weight of sucrose or isoglucose currently is 8.0% plus EUR 25.20/100 kg. Over a period of 15 years, it shall be reduced to 6.0%, plus EUR 18.90/100 kg.

[30] HS code 170290521.
[31] HS code 170290300.
[32] HS codes 87043291, 87043299, 87043131, 87043139, 87042391, 87042399, 87042291, 87042299, 87042131, 87042139.
[33] HS code 03023190.
[34] HS code 03023390.
[35] HS code 03023690.
[36] HS code 03034599.

Figure 4.3 / EU tariffs imposed on Japanese/South Korean exports, by product groups
Trade-weighted tariffs by product groups



Source: UNCTAD TRAINS; wiiw calculations.

4.2. THE EVOLUTION OF NON-TARIFF MEASURES

The second important component in the trade policy area and negotiations in free trade agreements is non-tariff measures. These are more difficult to grasp due their diverse nature, technical structure, and complex impacts on traded quantities, the prices and qualities of exports and imports. In particular, it has to be emphasised that these non-tariff measures cannot and should not be considered as pure 'trade costs' or barriers to trade, which would imply that their reduction would – as in the case of tariffs – lead to an increase in trade flows. Many non-tariff measures do also lead to more trade, e.g. due to harmonisation of standards (for a detailed discussion see Bratt, 2014; Ghodsi et al., 2016).

Unfortunately, in many models assessing the impacts of FTAs (and the EU-Japan EPA) only the 'trade-hampering' effect is modelled including an 'ad-valorem' equivalent of NTMs, whose reduction leads to welfare gains. So far, the literature is only at the very beginning of properly assessing the impacts of non-tariff measures on a large scale and of incorporating this into the various models such as CGE (computable general equilibrium) approaches.

In this section, we show some indicators of non-tariff measures imposed by the EU and Japan in the form of notifications of non-tariff measures to the WTO provided via the Integrated Trade Intelligence Portal (I-TIP)[37]. There are many different NTMs, which are overviewed in Ghodsi et al. (2017). In this section we only show the evolution of the most important categories in the context of the EU-Japan EPA, i.e. technical barriers to trade (TBTs), sanitary and phytosanitary measures (SPS) and quantitative restrictions (QRs) which account for the bulk of these notifications.

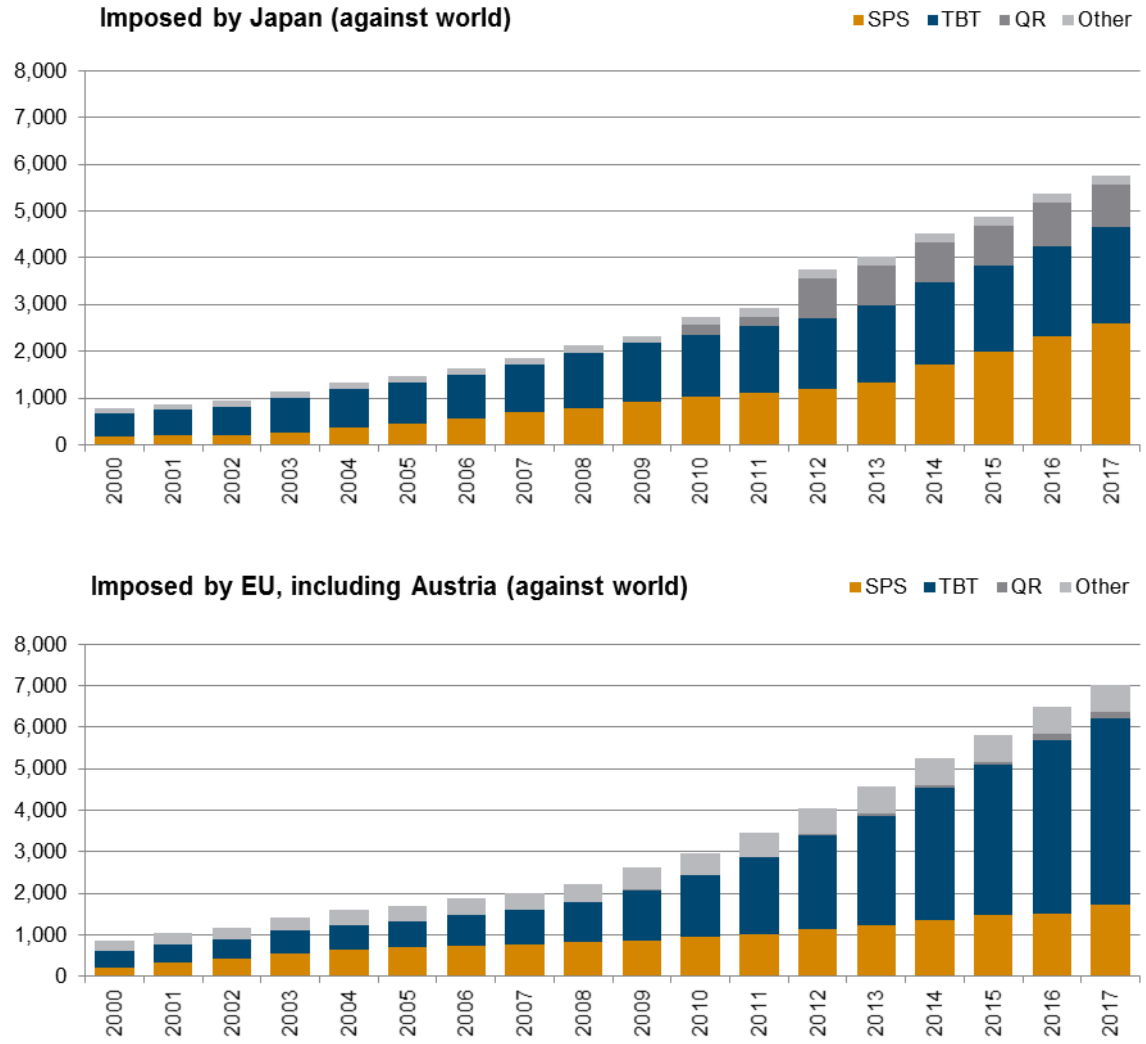
Sanitary and phytosanitary measures aim at protecting human, animal and plant life and therefore most often target the agricultural sector. Two bilateral SPS measures of the EU against Japan were notified to the WTO, requiring testing of food and feed imports originating from certain regions of Japan following the accident at the Fukushima nuclear power station.[38] No bilateral measures were imposed by Japan on the EU, or Austria.

Technical barriers to trade relate to product standards, from product safety to packaging and labelling requirements. They primarily concern manufactured goods. While SPS may be emergency measures targeting specific trading partners, TBTs are regulations applying to all trading partners. The effects may, however, differ depending on the similarity of regulations between trading partners.

Figure 4.4 shows the number of notifications to the WTO imposed by Japan (against the world) and the ones Austria (or the EU) imposed against the world.[39] The first striking fact is that the number of such notifications has been strongly increasing over time. For example, the number of notifications made by the EU (Austria) increased from less than 1,000 in the year 2000 to more than 7,000 in 2017; a similar increase is observed for Japan. The second observation is that the bulk of notifications are related to SPS and TBTs, which account for about 35% and 45%, respectively of notifications from Japan and for 24% and 64%, respectively of notifications from the EU. Third, the structure of EU versus Japanese notifications differs to some extent. For Japan, SPS measures play a larger role, whereas for the EU TBTs account for the majority of notifications of NTMs to the WTO and their number has increased particularly strongly over the last years. Japan has also imposed more quantitative restrictions since the crisis, which cannot be observed for the EU. These quantitative restrictions primarily refer to global quotas, prohibitions and non-automatic licencing, with notifications to the WTO every two years. These concern e.g. import quotas on marine products or the prohibition of imports of firearms, child pornography, or narcotic drugs.[40]

[37] I-TIP Goods Database of the WTO: http://i-tip.wto.org/goods/default.aspx?language=en
[38] WTO documents G/SPS/N/EEC/397 (1 April 2011) and G/SPS/N/EU/15 (11 April 2012). Official Journal of the European Union OJ L80, 26 March 2011.
[39] A few of such notifications to the WTO are bilateral and are not considered here (e.g. antidumping measures).
[40] WTO document G/MA/QR/N/JPN/3 (7 October 2016).

Figure 4.4 / Number of NTMs imposed by type

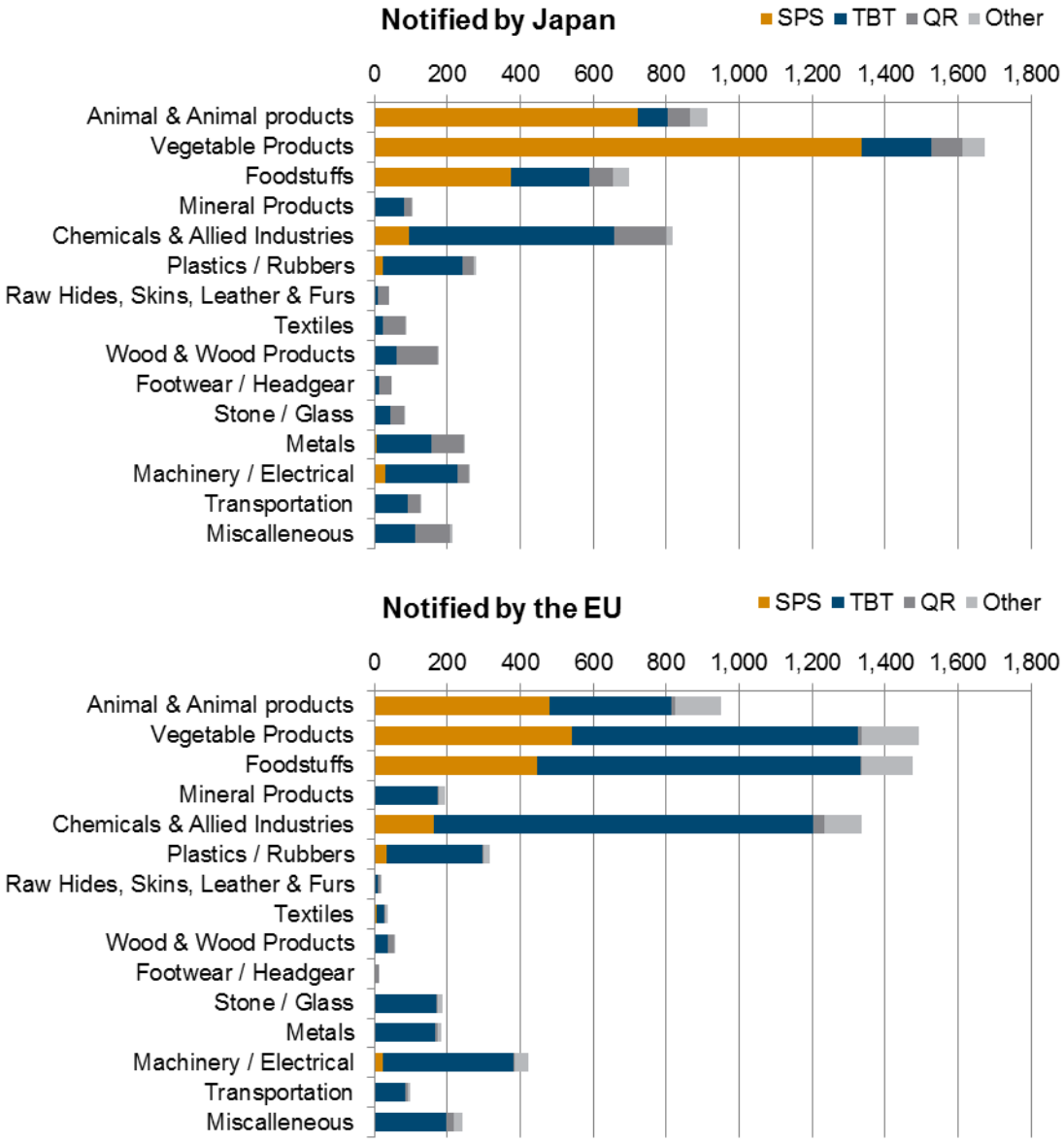


Source: WTO I-TIP database; wiiw calculations.

These notifications to the WTO can also be broken down by product groups as shown in Figure 4.5. The bulk of SPS notifications from Japan target animals and animal products as well as vegetable products with 1,300 and 700 notifications, respectively. TBTs are important for chemicals and allied industries with about 500 notifications, as well as machinery and electronic equipment, products of the plastics and rubber industries with about 20 notifications.

The EU made about 500 SPS notifications for each of the three product groups (i) animals and animal products, (ii) vegetable products and (iii) foodstuffs. But generally, TBT measures dominate the picture, with particularly high numbers for vegetable products and foodstuffs with about 700 notifications each, chemicals and allied industries with more than 1,000 measures, as well as machinery and electronic equipment with almost 400 notifications.

Figure 4.5 / Number of NTMs imposed by type of NTM and product groups, 2017



Source: WTO I-TIP database; wiiw calculations.

Finally, it might be interesting to see to what extent these notifications of NTMs are related to trade flows. A simple measure suggested in the literature (see Bora et al. (2002) as outlined in Section 5) is the coverage ratio, which calculates the share of trade flows at the 6-digit level for which such a regulation is in place in per cent of total trade flows. Table 4.1 compares these shares for EU-Japan and EU-South Korea trade.

Table 4.1 / Coverage ratios of TBTs and SPS, 2005-2014

Year	Importer: Austria				Exporter: Austria			
	Exporter: Japan		Exporter: South Korea		Importer: Japan		Importer: South Korea	
	TBTs	SPS	TBTs	SPS	TBTs	SPS	TBTs	SPS
2005	0.89	0.08	0.96	0.02	0.65	0.17	0.49	0.20
2006	0.88	0.08	0.93	0.02	0.64	0.14	0.64	0.24
2007	0.82	0.08	0.80	0.03	0.63	0.15	0.64	0.23
2008	0.90	0.08	0.88	0.03	0.68	0.17	0.61	0.22
2009	0.90	0.10	0.93	0.04	0.66	0.22	0.57	0.21
2010	0.92	0.10	0.92	0.04	0.66	0.21	0.71	0.30
2011	0.92	0.10	0.95	0.04	0.67	0.21	0.77	0.27
2012	0.93	0.10	0.95	0.03	0.66	0.21	1.00	0.27
2013	0.93	0.11	0.95	0.04	0.86	0.18	1.00	0.23
2014	0.92	0.12	0.93	0.08	0.88	0.19	1.00	0.29

Source: WTO I-TIP database; wiiw calculations.

For Austria as an importer, TBTs matter for more than 90% of imports from Japan and South Korea – with coverage rations increasing over time. This is because the number of TBTs in place is larger and the bulk of trade is in products for which TBTs matter more (e.g. chemicals, rubber and plastics, machinery and electrical equipment). The share of imports for which SPS matter is much lower (12% for Japan and 8% for South Korea), mostly due to the smaller share of products imported for which SPS matter.

For Japanese imports from Austria, the share was as well at about 90% in 2014 and has been increasing over time. As for South Korean imports from Austria, data indicates that TBTs even matter for all Austrian exports to South Korea. The shares with respect to SPS are at 20% for Japan and about 30% for South Korea, and thus much higher than for the reverse flows of products from Japan and South Korea to the EU. Overall, we might expect an increase in the coverage ratio for SPS measures in light of the negotiated tariff schedules, potentially increasing trade in agricultural goods.

5. Assessing the impact of the EPA

For the analysis of the EU-Japan EPA a structural gravity model is applied which allows capturing real GDP effects of trade agreements and non-tariff measures based on a regression analysis capturing also general equilibrium effects. The model used here extends the existing literature in two aspects: First, it uses a unique database which includes almost all European economies (particularly the Western Balkan countries, but also, for example, Ukraine) and thus goes beyond recent contributions in the geographical scope. Second, the effects of non-tariff measures (NTMs) are modelled based on available data rather than being estimated. As known from the literature, the effects of NTMs are an important contribution to the assessment of the welfare effects of trade agreements which still needs detailed research.

In earlier studies on the effects of the EU-South Korea FTA, Decreux et al. (2010) estimated a GDP effect for the EU of 0.08% and for South Korea of up to 0.84%, using estimated ad-valorem equivalents of NTMs. They find that trade protection by NTMs exceeded tariff protection and that NTM protection by South Korea was higher than in the EU, particularly for textiles, machinery and foremost cars. Indeed, exports of motor vehicles to South Korea increased by more than 200% and imports by about 50% within the first four years of the FTA implementation, with Austria being among the top 3 countries within the EU making use of tariff preferences under the FTA (with the EU preference utilisation rate ranging between 6% and 91%) (EC, 2016a). However, some negative effects of NTMs persist, e.g. SPS measures related to authorisation procedures impeding EU beef and pork exports.

An assessment of barriers to trade between the EU and Japan carried out by Sunesen et al. (2009) found by means of surveys that NTMs increased the cost of exporting to Japan by 10% to 30%. A follow-up study by Francois et al. (2011) formed the basis for NTM-reducing scenarios in the European Commission's impact assessment report on EU-Japan trade relations (2012) accompanying the recommendation to authorise negotiations of an EU-Japan EPA. It strongly argues for a reduction of NTMs, stating that a 20% reduction would be substantially lower than what was achieved for the FTA with South Korea, while a 50% reduction can be regarded as ambitious. For the ambitious NTM reduction scenario the Commission expected GDP gains by the year 2020 of 0.8-1.9% for the EU and of 0.7% for Japan. The trade sustainability impact assessment of the EU-Japan EPA (EC, 2016b) concludes that the economic effects of the agreement with Japan might be of similar magnitude as the TTIP agreement with the US, given Japan's higher complementarity to the EU economy and higher levels of tariff and NTM protection.

5.1. THE STRUCTURAL GRAVITY MODEL

The model is based on the recent methodological advances of gravity modelling which allow to model general equilibrium effects. Anderson and Van Wincoop (2003) introduced the concept of 'multilateral resistances', which is usually seen as the starting point of the 'structural gravity model' approach that is nowadays very prominent in the international trade literature. In particular, Anderson and Van Wincoop (2003) showed that a trade flow between two countries is not only dependent on the specific properties of the two countries (such as the distance between them, their respective GDPs), but also on the trade

links to other nations. Yotov et al. (2016) summarise the literature around the structural gravity model and give best practice examples. In this report we follow their recommendations and, in particular, use Poisson pseudo-maximum likelihood (PPML) estimation, include intra-national trade flows and use heteroskedasticity-robust standard errors. For the estimation of counterfactuals, we draw on Yotov et al. (2016) who provide an intuitive algorithm.

The specification of the gravity equation we apply is

$$X_{ij,t} = \exp[\pi_{i,t} + \chi_{j,t} + \mu_{ij} + \beta_1 \mathrm{FTA}_{ij,t} + \beta_2 \mathrm{NTM}_{ij,t} + \beta_\tau \tilde{\tau}_{ij,t}] \times \epsilon_{ij}$$

where i and j are the indices for exporter and importer countries, t indexes the time. $X_{ij,t}$ is the dependent variable which will be bilateral gross exports. $\pi_{i,t}$, $\chi_{j,t}$ are exporter- and importer-time fixed effects, and μ_{ij} are the country-pair fixed effects. While exporter- and importer-time fixed effects account for multilateral resistances, the country-pair fixed effects control for possible endogeneity in trade policy (see Baier and Bergstrand, 2007). FTA captures (four different types of) free trade agreements, while NTM stands for non-tariff measures such as antidumping procedures (ADP), sanitary and phytosanitary measures (SPS) and technical barriers to trade (TBT) that will be included in our estimations.

5.2. DATA

For the modelling approach various data sources have to be combined:

Trade data: The 'wiiw Integrated Europe Input-Output Database' is an input-output database that comprises trade flows (gross exports and value added exports, among others) of 50 countries (all European countries except Kosovo, Belarus and Moldova plus several major non-European economies) and 32 industries for the years 2005 to 2014. Conceptually, this inter-country input-output database is methodologically constructed similarly to the World Input-Output Database WIOD (see Timmer et al., 2016). The process of data construction is presented in Reiter and Stehrer (2018) in which also results of the effects of EU integration of Central, East and Southeast European economies are reported. Here, we will make use of this rich data set to estimate the probable effect of a trade agreement between Japan and the European Union. Using an input-output database for this research endeavour has several advantages. First, trade flows are balanced, which means that the reported exports by country A to country B are always equal to the reported imports of B from A. This is rarely the case in trade databases such as UN Comtrade. Second, an input-output database provides consistent information on intra-country flows, which is recommended to be included in the gravity estimations as it is bias-reducing. Third, the data allow for separate estimation by industry sectors, as well as for final demand and intermediate input trade flows. Finally, the data not only allow analysing gross aggregate trade flows but also trade in terms of value added.

NTM Data: The second important data source is the 'wiiw NTM Database': it draws on NTM data collected by the WTO, which provides a unique source of information on NTMs. Unfortunately, the raw data, though very extensive, have the drawback of missing product codes. Without product codes it is not possible to match an imposed non-tariff measure with the corresponding trade flow, thus these missing codes pose a serious constraint on the ability to use the data for sensible research. Therefore, the database has been enhanced by using several computational techniques to fill in missing product

codes of the Harmonised System (HS). For a detailed description of the process, we refer the interested reader to Ghodsi et al. (2017).[41]

Given the various types of NTMs, the three most frequently applied NTMs (ADPs, SPS and TBTs) are kept separate whereas the other NTMs are grouped together to keep the presentation concise and brief.[42] Quantifying NTMs is a difficult undertaking. In this contribution, we use the trade coverage ratio of NTMs as defined in Bora et al. (2002) to aggregate the detailed NTM data up to national (or industry) level:

$$\mathrm{Cov}_{\mathrm{ijt}} = \frac{\sum_{\mathrm{k}} \mathrm{D}_{\mathrm{ijkt}} \mathrm{V}_{\mathrm{ijkt}}}{\sum_{\mathrm{k}} \mathrm{V}_{\mathrm{ijkt}}}$$

where D is a dummy indicating that there is an NTM imposed by country i on imports from country j at time t, affecting product k. Similarly, V_{ijkt} is the corresponding trade flow.

Trade agreement data: To assess the effects of the EU-Japan EPA, one needs comparable agreements, which are estimated in the gravity framework as benchmarks. These results are then used to calculate the counterfactual effect of the EU-Japan EPA. For this we use data on trade agreements provided by Egger and Larch (2008), which allow distinguishing between four types of regional trade agreements: First, free trade agreements (FTA) are agreements that follow GATT Article XXIV. Stabilisation and Association Agreements (SAA) capture the effect of trade integration of the Western Balkan countries with the EU. Similarly, the 'EFTA' dummy models agreements that the Western Balkan countries adopted with the countries of the European Free Trade Association. Finally, customs unions, such as the European Single Market, are controlled for with the 'CU' dummy. This division allows us to single out the different effects of these trade agreements.

Tariff data: Tariff data are obtained from UNCTAD's Trade Analysis Information System (TRAINS). Tariff rates are aggregated from the HS 6-digit level to the 32 industries level by weighting the tariff line with the corresponding trade flow. This introduces a bias, as high tariffs often lead to lower trade volumes and thus to lower weights, which we need to keep in mind when interpreting regression results. However, as the trade economics literature still lacks a first-best method for aggregating tariffs and the resulting estimates for the three methods proposed in Bouët et al. (2004) are very close to each other, we will stick to trade-weighted aggregate tariffs.

5.3. ESTIMATION

Using these data and the gravity equation above, the model is estimated first at the total economy bilateral level (see Table 5.1). At the national level, one finds solid positive effects of all trade agreement/integration variables. A coefficient of 0.085 for an FTA means that bilateral trade flows with an FTA are about $(e^{0,085} - 1) * 100 \approx 9\%$ higher than without one. Furthermore, the tariff variable shows a strong significant and – as expected – negative impact.

[41] The data allow to differentiate various non-tariff measures; included are (i) antidumping duties, (ii) countervailing measures, (iii) quantitative restrictions, (iv) (special) safeguards, (v) sanitary and phytosanitary measures, (vi) state-trading enterprises, (vii) technical barriers to trade, (viii) tariff-rate quotas and (ix) export subsidies.
[42] Robustness checks indicate that this does not affect the results.

Table 5.1 / Regression results (total economy level)

Variables affecting bilateral exports	Coefficient	Std. error	Pr(> |z|)
FTA	0.085***	0.0010	0.000
SAA	0.229***	0.0050	0.000
EFTA	0.214***	0.0170	0.000
CU	0.053***	0.0030	0.000
Weighted tariff	-0.003***	0.0000	0.000
log(ADP coverage)	0.150***	0.0090	0.000
log(SPS coverage)	-0.253***	0.0040	0.000
log(TBT coverage)	0.135***	0.0020	0.000
log(Other NTM coverage)	-0.016***	0.0010	0.000

Source: wiiw calculations.

Non-tariff measures, however, exhibit a somewhat mixed picture as anticipated. We find the expected negative effects for SPS and the grouped NTMs, but for ADP and TBTs we see positive trade effects. For antidumping measures, this is surprising. One explanation for this result could be that the causality is actually in the other direction: Very high exports of a country cause an importer country to impose an antidumping measure. Thus, high bilateral trade flows would be associated with high numbers (or a high coverage ratio) of ADP measures and we would find this kind of result in a gravity estimation.

Technical barriers to trade (TBTs) are used by countries to define certain technical characteristics that a product must have to be allowed to be imported. Our country sample consists largely of industrialised economies with a large share of trade in higher-tech products. Firms in these countries find it probably much easier to comply with foreign standards and quality requirements than firms from developing countries. It is thus not unlikely that a TBT favours trade between industrialised countries (that can adapt to technical specifications) while penalising firms from countries applying other standards. In the case of the EU-Japan EPA, positive TBT effects should be expected from the negotiating outcome of the EU and Japan to adopt the same international standards on product safety for motor vehicles, to apply the international textiles labelling system or the international standard on quality management systems for medical devices.

The model has also been estimated for various industry aggregates: (i) agriculture and mining; (ii) total manufacturing; and (iii) services; further, manufacturing trade has been split into trade in low-technology, medium-low-technology, medium-high-technology and high-technology manufacturing products (according to OECD classification[43]). Results are generally similar to those at the total economy level, though of course with different magnitudes concerning the effects of trade policy measures.

5.4. SCENARIOS

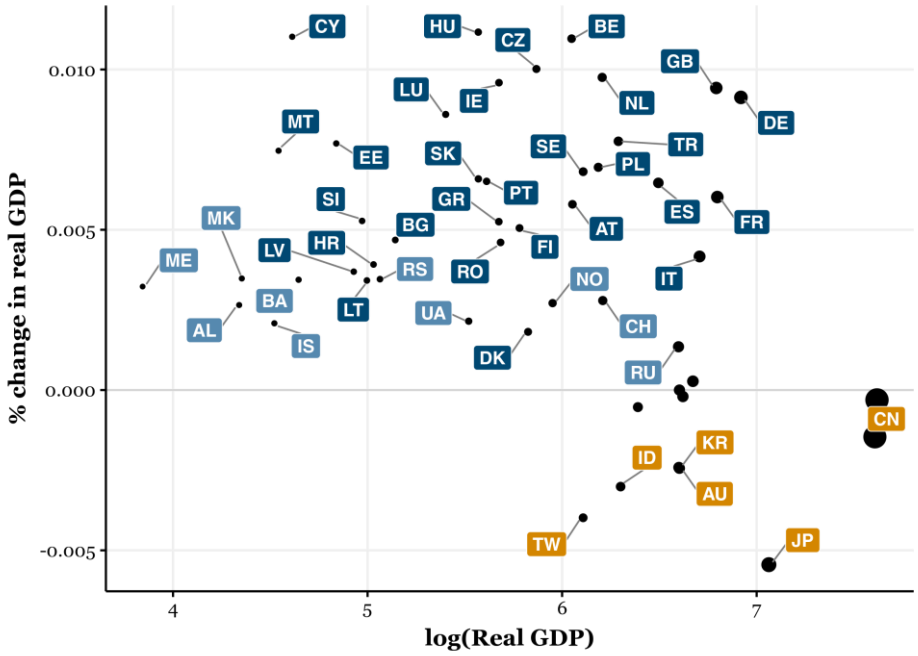
We estimate the effects of the EU-Japan EPA for two scenarios. The first scenario considers a (shallow) agreement between EU countries and Japan, which is modelled as to create an FTA between those countries and setting all tariffs to zero. The second scenario additionally considers NTMs in two ways: NTMs with negative impacts (from the regressions above) are being brought down to 0. In addition, a

[43] See Industry classification in the Appendix for details.

positive effect on technical barriers to trade is boosted by doubling the NTM coverage rates with positive effects on the bilateral trade flows.

Results of the first scenario of a 'shallow EPA', considering only tariff cuts, are reported in Figure 5.1. The countries shaded in dark-blue are the EU-28 Member States, the countries in light blue are the remaining European countries included in the database and the orange countries are non-European countries for which we have data. In line with the results of Felbermayr et al. (2017a) we find that Japan slightly loses from such an agreement; the other non-European countries also lose slightly due to trade-distortion effects. The results also point towards small gains from the agreement for the European countries with magnitudes being broadly in line with the ones reported in Felbermayr et al. (2017a) for the tariff-only scenario.

Figure 5.1 / Real GDP impact of the EU-Japan EPA (FTA and tariff scenario)



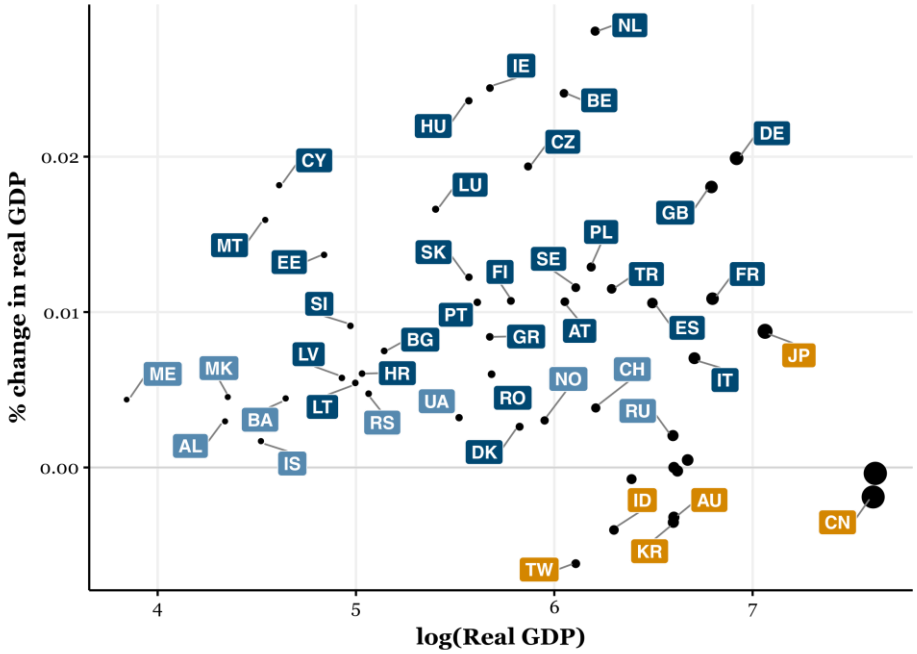
Source: wiiw calculations.

The second scenario of a 'deep EPA' models a positive impact of the agreement on NTMs as outlined above. These results are reported in Figure 5.2. The results change for Japan, which in this case is expected to gain from the EU-Japan EPA, whereas the remaining non-European countries still face some very small losses; interestingly, these are lower than in the first scenario. The positive effects for the European countries on average double compared to the first scenario, indicating the important role of NTMs. The results would point to an increase in real GDP for Austria of about 0.005% in the first scenario and about 0.01% in the second scenario.

The overall employment effects can be expected to be in a similar magnitude though they tend to be smaller due to the fact that export gains will mostly occur in the manufacturing industries, which are less labour-intensive.

Thus, compared to Felbermayr et al. (2017a), the effect of the NTMs is estimated to be significantly lower. The most important reason is that in the approach by Felbermayr et al. (2017a) these effects are estimated and equivalent to a relatively large reduction in trade costs (see Felbermayr et al., 2017b). Calculating ad-valorem equivalents based on the NTM data used in this paper, the average ad-valorem rates of NTMs are much lower, which explains the lower effects.[44] Second, these structural gravity models do not take into account quality changes in the traded products, which could further increase the gains from trade. Third, these effects do not materialise immediately but only over a certain time period for two reasons: (i) the tariff reductions and changes in NTMs are scheduled over a long period of up to 20 years, and (ii) it takes time for the structural changes and adjustments to take place in the economies which is estimated to stretch over a period of 10-12 years (Head and Mayer, 2014).

Figure 5.2 / Real GDP impact of the EU-Japan EPA (FTA, tariff and NTM scenario)



Source: wiiw calculations.

Table 5.2 present the results by broad industries and countries. Effects in the agricultural industries are generally small for the EU-28 countries, though relatively large for Japan with 0.015%, mostly resulting from a strong export growth effect. Gains from the EPA in manufacturing are mostly occurring in the medium-high- and high-tech industries, which also account for the bulk of trade between the EU and Japan. With machinery, electronic equipment and the transport sector representing 40% of Austrian

[44] In Felbermayr et al. (2017a) the effect of the tariff only scenario is 0.01% and for tariffs plus NTBs 0.05% (Table 4, page 42). Assuming that trade costs fall as observed in average trade agreements (Head and Mayer, 2014) the effects are substantially larger with about 0.34% for Austria (assuming a uniform reduction of NTBs across sectors). These sensitivity analyses are summarised in Felbermayr et al. (2017a): 'The robustness check teaches a lesson which is well-known from other trade policy analyses: it matters greatly for the income effects of free trade agreements as to how big a trade liberalisation effort one is willing to assume.'

exports to Japan and roughly 70% of imports from Japan (as outlined in Section 3), this is also an important result for Austria.

Japan wins the most (0.64% of real value added in medium-high-tech manufacturing and 0.10% in medium-low-tech manufacturing) compared to EU countries such as Germany, Great Britain, or the Netherlands with gains of around 0.10% in the medium-high-tech industries. It is also interesting to note that according to this scenario a number of countries might face losses in the medium-high-tech industries; these are mostly EU-CEE countries (due to relatively strong price pressures and relatively low increases in exports).

Table 5.2 / Industry-specific effects on real value added (FTA, tariff and NTM scenario)

ISO 2	Country	Agriculture	Manufacturing				
			Total manufacturing	Low-tech	Medium-low-tech	Medium-high-tech	High-tech
AT	Austria	0.000	0.053	0.004	0.005	0.016	0.011
BE	Belgium	-0.003	0.082	0.003	0.035	0.105	-0.014
BG	Bulgaria	0.000	0.000	0.005	-0.010	-0.049	0.010
CY	Cyprus	0.000	0.010	0.004	0.000	-0.053	0.005
CZ	Czech Rep.	0.008	0.050	0.004	0.036	-0.028	0.027
DE	Germany	0.004	0.115	0.005	0.023	0.130	0.020
DK	Denmark	0.010	0.112	0.001	0.036	0.017	-0.001
ES	Spain	-0.002	0.026	0.005	-0.002	-0.007	0.000
EE	Estonia	-0.001	0.112	0.005	0.007	0.129	0.016
FI	Finland	-0.002	0.079	0.001	0.001	0.074	0.008
FR	France	0.003	0.062	0.006	0.022	0.071	-0.010
GB|UK	Great Britain	0.002	0.083	0.003	0.021	0.101	0.009
GR|EL	Greece	0.000	0.011	0.004	-0.009	-0.067	0.002
HR	Croatia	0.001	0.019	0.003	-0.008	-0.066	-0.003
HU	Hungary	0.003	0.090	0.005	0.066	0.066	0.026
IE	Ireland	0.001	0.215	0.004	0.076	0.179	0.009
IT	Italy	0.001	0.040	0.006	0.001	0.020	-0.009
LT	Lithuania	0.000	-0.007	0.001	-0.005	-0.064	0.007
LU	Luxembourg	0.000	0.013	0.002	0.019	-0.052	0.009
LV	Latvia	-0.002	0.034	0.005	-0.024	-0.037	0.005
MT	Malta	0.190	0.329	-0.025	0.082	0.153	0.042
NL	Netherlands	0.007	0.087	0.003	0.036	0.118	-0.051
PL	Poland	0.000	0.013	0.003	-0.005	-0.033	0.012
PT	Portugal	-0.001	0.011	0.006	0.000	-0.037	0.008
RO	Romania	-0.003	-0.012	0.002	-0.012	-0.078	0.003
SK	Slovakia	0.000	0.014	0.003	-0.002	-0.030	0.014
SI	Slovenia	0.001	0.000	0.005	-0.017	-0.063	0.002
SE	Sweden	-0.002	0.100	0.004	0.022	0.073	0.017
JP	Japan	0.015	0.296	-0.016	0.102	0.623	-0.024

Source: wiiw calculations.

6. Conclusions

The EU-Japan Economic Partnership Agreement (EPA) is relevant for at least two reasons: First, it is strategically and politically important in times of rising protectionism (mostly driven by the stance of the US administration) as a signal sent by the EU and Japan to support rule-based trading principles, underlined by its chapter on corporate governance. In addition, it strengthens internationally approved standards, but also goals such as the Paris climate agreement. Second, it is important as it represents a comprehensive trade deal with the EU's second largest trading partner in Asia (after China).

Current Japanese tariffs are comparable to tariff levels of South Korea (after the implementation of the EU FTA with South Korea). Gains from tariff cuts are still to be expected, particularly for agricultural products. However, non-tariff measures play a greater role. But trade effects of NTMs are more difficult to assess quantitatively. The existing literature points towards both trade-hampering and trade-promoting effects. We refer to NTM notifications to the WTO and find rather modest effects of NTMs (due to the fact that already existing NTMs are also trade-enhancing).

Potential gains from the EU-Japan EPA have been estimated applying a structural gravity model which allows incorporating general equilibrium effects. Differently from other approaches, in this model a proxy for non-tariff measures calculated from the WTO I-TIP database is employed. The overall effects from tariff reductions are generally positive but rather small and amount to about 0.006% of GDP for Austria. For Japan such a tariff-only scenario would even result in small welfare losses in terms of GDP.

Allowing for positive effects of non-tariff measures due to the EPA on average doubles these effects for most countries. The impact of the EPA on NTMs is expected to either decrease the negative effects of sanitary and phytosanitary measures, e.g. approval and clearance processes, or increase the trade-enhancing effects of TBTs, e.g. by agreeing to international standards reducing the costs of compliance with Japanese labelling requirements. For Austria these effects result in a welfare gain of slightly above 0.01% of GDP, and in this scenario welfare gains for Japan would become positive as well with about 0.01% of GDP, pointing to the important role of non-tariff measures. It should be noted that these effects will materialise only over a longer time period, i.e. 15-20 years given the schedules of changes in tariffs and non-tariff measures. Compared to the existing literature, these estimates are similar with respect to their patterns but more cautious with respect to the levels of GDP changes. This mostly results from a different modelling strategy concerning NTMs, which takes their already existing trade-enhancing effect into account.

Perhaps somewhat surprising, the effects on the agricultural industries are rather modest despite the larger tariff reductions in this area, which are, however, negotiated for very specific products, which have little weight in overall trade. Some tariffs, e.g. as high as 114.2% for sugar products (HS 170290.521), or milk products (in particular milk powder, with tariffs of more than 25% plus additional tariffs per kilogramme) might be considered prohibitive. Empirical models do not allow to estimate effects for products for which no or only very low levels of previous trade flows were observed.

The agricultural sector is illustrative of the interplay between tariffs and non-tariff measures, which is as of today only little understood and not yet implementable in empirical models: In order to achieve tariff cuts, negotiating parties often agree on non-tariff measures such as safeguard clauses, or tariff-rate quotas. These measures – though trade-restricting in nature – therefore allow for tariff reductions, agreements on common standards and hence are ultimately trade-promoting.

As for the most important results concerning gains in manufacturing, first, the largest gains from trade are expected in the medium-high- and high-tech industries. This is important for Austria, as more than 40% of its exports to and 70% of imports from Japan constitute machinery, electronic equipment and the transport sector. Second, these positive effects are not observable for all countries; the model results suggest small losses in terms of real value added in these industries for some countries, including EU Member States of Central and Eastern Europe.

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Appendix

A.1. ABBREVIATIONS

CEE	Central and Eastern Europe
CETA	Comprehensive Economic and Trade Agreement (between the EU and Canada)
CU	Customs Union
CVD	Countervailing Duties
EESC	European Economic and Social Committee
EFTA	European Free Trade Association (Iceland, Liechtenstein, Norway, Switzerland)
EPA	Economic Partnership Agreement (in the study: between the EU and Japan)
FDI	Foreign direct investment
FTA	Free Trade Agreement
GDP	Gross Domestic Product
I-TIP	Integrated Trade Intelligence Portal (of the WTO)
MFN	Most-favoured nation principle of the World Trade Organisation
NAFTA	North American Free Trade Agreement (between Canada, Mexico and the United States)
NTB	Non-tariff barrier
NTM	Non-tariff measure
QR	Quantitative restrictions
RCEP	Regional Comprehensive Economic Partnership (between 16 countries in Asia and Oceania)
SAA	Stabilisation and Association Agreement
SPS	Sanitary and phytosanitary measure
TBT	Technical barrier to trade
TPP	Transpacific Partnership
TTIP	Transatlantic Trade and Investment Partnership (between the EU and the United States)
WTO	World Trade Organisation

A.2. COUNTRY CODES

AT	**Austria**	FI	Finland	LV	Latvia
AU	Australia	FR	France	MT	Malta
BE	Belgium	GB	Great Britain	NL	the Netherlands
BG	Bulgaria	GR	Greece	PL	Poland
CA	**Canada**	HR	Croatia	PT	Portugal
CN	China	HU	Hungary	RO	Romania
CY	Cyprus	ID	Indonesia	SE	Sweden
CZ	Czech Republic	IE	Ireland	SI	Slovenia
DE	Germany	IT	Italy	SK	Slovakia
DK	Denmark	**JP**	**Japan**	TR	Turkey
EE	Estonia	**KR**	**South Korea**	TW	Taiwan
ES	Spain	LT	Lithuania	**US**	**United States**
EU	**European Union**	LU	Luxembourg		

Industry code	Industry group	Technology group	Description
A	Agriculture & Mining		Crop and animal production, hunting and related service activities; Forestry and logging; Fishing and aquaculture
B	Agriculture & Mining		Mining and quarrying
CA	Manufacturing	low	Manufacture of food products; beverages and tobacco products
CB	Manufacturing	low	Manufacture of textiles, wearing apparel, leather and related products
CC	Manufacturing	low	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials; Manufacture of paper and paper products; Printing and reproduction of recorded media
CD	Manufacturing	medium-low	Manufacture of coke and refined petroleum products
CE	Manufacturing	medium-high	Manufacture of chemicals and chemical products
CF	Manufacturing	high	Manufacture of basic pharmaceutical products and pharmaceutical preparations
CG	Manufacturing	medium-low	Manufacture of rubber and plastic products; Manufacture of other non-metallic mineral products
CH	Manufacturing	medium-low	Manufacture of basic metals; Manufacture of fabricated metal products, except machinery and equipment
CI	Manufacturing	high	Manufacture of computer, electronic and optical products
CJ	Manufacturing	medium-high	Manufacture of electrical equipment
CK	Manufacturing	medium-high	Manufacture of machinery and equipment n.e.c.
CL	Manufacturing	medium-high	Manufacture of motor vehicles, trailers and semi-trailers; Manufacture of other transport equipment
CM	Manufacturing	low	Manufacture of furniture; other manufacturing; Repair and installation of machinery and equipment

Industry code	Industry group	Description
D	Services	Electricity, gas, steam and air conditioning supply
E	Services	Water collection, treatment and supply; Sewerage, waste management, remediation activities
F	Services	Construction
G	Services	Wholesale and retail trade and repair of motor vehicles and motorcycles; Wholesale trade, except of motor vehicles and motorcycles; Retail trade, except of motor vehicles and motorcycles
H	Services	Land transport and transport via pipelines; Water transport; Air transport; Warehousing and support activities for transportation; Postal and courier activities
I	Services	Accommodation and food service activities
J	Services	Publishing activities; Motion picture, video, television programme production; programming and broadcasting activities; Telecommunications; Computer programming, consultancy, and information service activities
K	Services	Financial service activities, except insurance and pension funding; Insurance, reinsurance and pension funding, except compulsory social security; Activities auxiliary to financial services and insurance activities
L	Services	Real estate activities
M	Services	Legal and accounting activities; activities of head offices; management consultancy activities; Architectural and engineering activities; technical testing and analysis; Scientific research and development; Advertising and market research; Other professional, scientific and technical activities; veterinary activities
N	Services	Rental and leasing activities; Employment activities; Travel agency, tour operator reservation service and related activities; Security and investigation, service and landscape, office administrative and support activities
O	Services	Public administration and defence; compulsory social security
P	Services	Education
Q	Services	Human health activities; Residential care activities and social work activities without accommodation
R	Services	Creative, arts and entertainment activities; libraries, archives, museums and other cultural activities; gambling and betting activities; Sports activities and amusement and recreation activities
S, T	Services	Activities of membership organisations; Repair of computers and personal and household goods; Other personal service activities; Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use
U	Services	Activities of extraterritorial organisations and bodies

wiiw