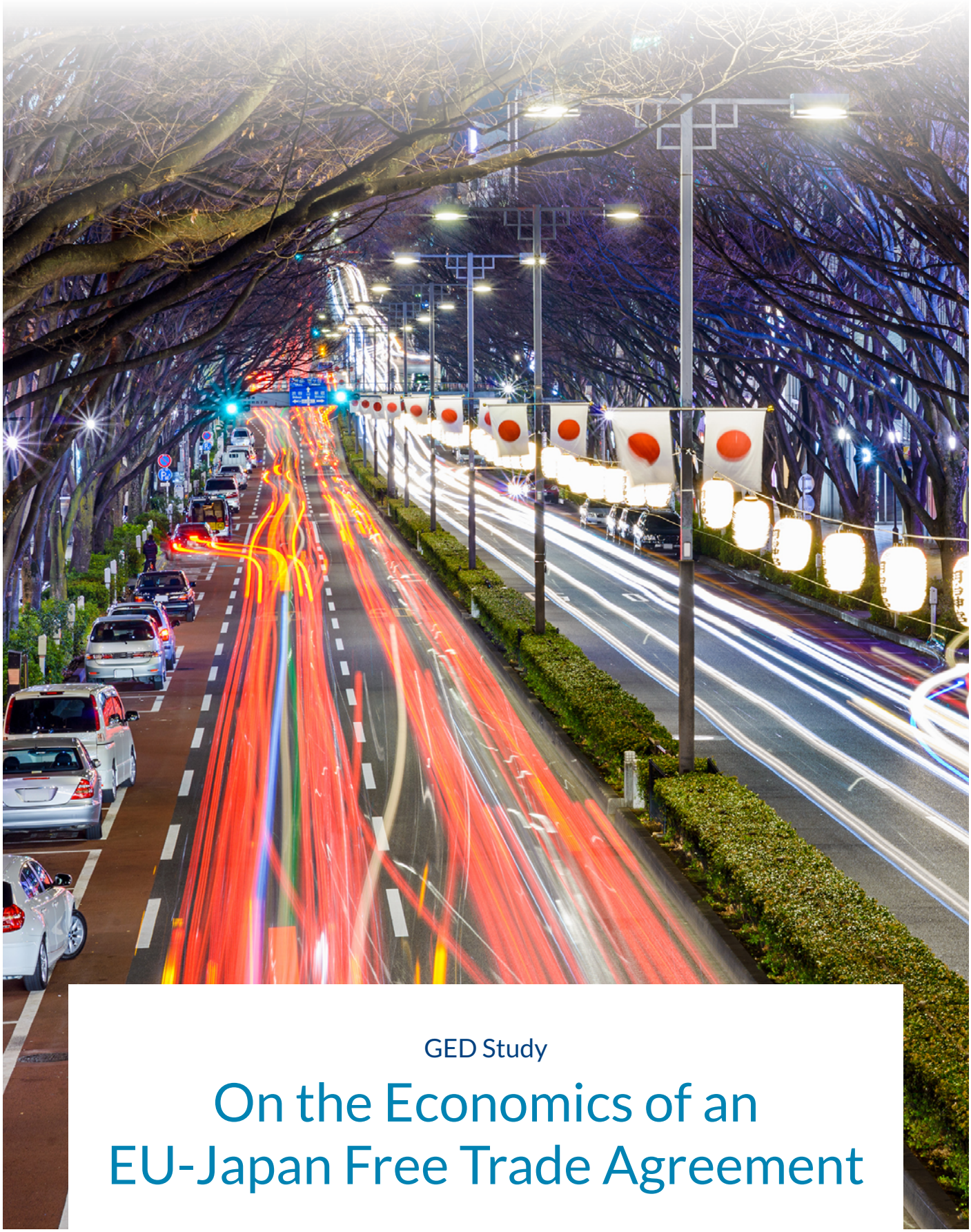
GED
Global Economic Dynamics



GED Study

On the Economics of an EU-Japan Free Trade Agreement

BertelsmannStiftung

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On the Economics of an EU-Japan Free Trade Agreement

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List of Acronyms

bn billions

CGE computable general equilibrium

CTPM contingent trade protective measures

DPJ Democratic Party of Japan

EPA Economic Partnership Agreement

EUR euros

EU-27 All official Member States of the European Union as of 1 January 2007

EU-28 All official Member States of the European Union as of 1 July 2013

EXP export-related measures

FSA Financial Services Agency

FTA Free Trade Agreement

FDI foreign direct investment

GDP gross domestic product

GI geographical indications

GPA Government Procurement Agreement

INSP border inspection

JA Japan Agricultural Cooperatives

JETRO Japan External Trade Organization

JIS Japanese Industrial Standards

JR Japan Railway Company

LDP Liberal Democratic Party of Japan

MAFF Ministry of Agriculture, Forestry and Fisheries

METI Ministry of Economy, Trade and Industry

m million

MFN most favoured nation

MLIT Ministry of Land, Infrastructure, Transport and Tourism

MOFA Ministry of Foreign Affairs

NAFTA North American Free Trade Agreement

NTB non-tariff barrier

NTM non-tariff measure

NTT Nippon Telegraph and Telephone Corporation

OECD Organisation for Economic Co-operation and Development

OTH other measures

PSE producer support estimate

PTA Preferential Trade Agreement

QC quality control measures

ROW rest of the world

SME small and medium-sized entreprise

SPS sanitary and phytosanitary (measures)

TBT technical barriers to trade

TFA Trade Facilitation Agreement

thsd thousand

TPP Trans-Pacific Partnership

Trade SIA Trade Sustainability Impact Assessment

TTIP Transatlantic Trade and Investment Partnership

UK United Kingdom

UNCTAD United Nations Conference on Trade and Development

USA United States of America

USD United States dollars

VA value added

WEO World Economic Outlook (a publication of the International Monetary Fund)

WTO World Trade Organisation

1 New thrust for the EU-Japan FTA?

1.1 Introduction

On 9 December 2016, the upper house of Japan's parliament approved the Trans-Pacific Partnership (TPP). Prime Minister Shinzo Abe has pushed for the TPP's ratification despite US President Trump's decision to pull out of the deal, insisting it would send a signal about Japan's continuing support to back global trade deals. With the Transatlantic Trade and Investment Partnership (TTIP), which the EU have been negotiating with the USA, equally in the 'freezer' (Commissioner Malmström), the chances are high that negotiations between the EU and Japan could now be quickly concluded after almost four years and 18 rounds of negotiations. Both the EU and Japan should have a strong incentive to fill the empty spot left by the withdrawal of the USA from global and regional trade talks.

This study revisits the case for an EU-Japan free trade agreement (FTA), providing estimates of its potential economic significance. The timing is right: in March 2017 Japan will be the partner country of CeBIT, the world's most important trade fair in electronics held in Hannover, Germany. Moreover, according to media reports, a conclusion of negotiations could be possible during 2017. The study underlying the opening of negotiations dates from 2011 (Francois et al., 2011) and uses data from 2007. Since then, the world economy has changed dramatically. Moreover, since recent developments in the EU have made it likely that Member States' parliaments have a formal say in the ratification of free trade agreements, it is useful to have information on the economic impact member by member. Existing analyses always presented aggregate results for all the 28 (or 27 Member States) without showing details for individual Member State. Finally, Brexit will change the economic benefits of an EU-Japan agreement for Japan, but it is an open question by how much this would be the case. Hence, it is about time to revisit the economics of the EU-Japan FTA.[1]

A key innovation in the proposed approach is to use the recently implemented EU-Korea agreement (which came into force in July 2011) as a benchmark and to use the most recent available data (from 2014) for the implementation of the simulation model. This tends to produce somewhat smaller effects than what official studies ordered by the EU Commission have found (see below).

The negotiations between the EU and Japan did not materialise out of thin air. To facilitate the trade relationships between the EU and Japan, a number of informal bilateral dialogues have been established - a Cooperation Framework aimed at promoting two-way investment via concrete actions exists since 2004. The EU-Japan Business Round Table, established in 1999, allows for a dialogue and an exchange of views between EU and Japanese businesses. Since 1979 the European

[1] Drawing on existing analysis, the Commission had ordered a Trade Sustainability Impact Assessment for the FTA between the EU and the Republic of Japan (European Commission, 2016). The simulation results in that analysis are, therefore, also based on 2007 baseline data. Moreover, there is no member state level analysis available anywhere so far.

Commission has been encouraging European enterprises to enter the Japanese market and has given them concrete assistance through promotional programmes such as the Executive Training Programme and the EU Gateway Programme.

At the EU-Japan Summit of 28 May 2011, the EU and Japan agreed to work towards a new framework for their bilateral relations and to explore the desirability to pursue a free trade agreement. In line with the Summit conclusions, a joint scoping exercise was conducted to determine the scope and the level of ambition of a future free trade agreement. The exercise defined a number of non-tariff barriers to trade that are considered by the EU as obstacles in accessing the Japanese market. Following the successful completion of the scoping exercise, in July 2012 the Commission recommended the Council to launch negotiations for a free trade agreement between the EU and Japan and in November 2012 the Council authorized the Commission to start the negotiations. The first round of negotiations took place in Brussels in April 2013.

Various reports by EU Trade Insights allow characterising the state of play in the EU-Japan negotiations as follows: offensive interests for the EU in the ongoing negotiations lie in the area of agriculture, food, railroad equipment, geographical indicators and non-tariff measures (NTMs). Japanese offensive interests are in the automobile industry (where the EU still has a 10% tariff) and various NTMs. For example, Tokyo has reiterated its request for an exemption on the traditional Japanese liquor from EU rules on packaging because Japanese Shochu liquor is traditionally sold in 720 ml bottles (the EU's spirit drinks bottle sizes are strictly regulated and only 100-ml, 200-ml, 350-ml, 500-ml, 700-ml, 1000-ml, 1500-ml, 1750-ml, and 2000-ml are allowed on the EU market).

Japan asked for tariff elimination on a number of products not covered in the EU's first offer, including car parts, other vehicles (motorcycles) and rubber products. The EU in turn asked for shorter staging on leather goods and shoes, including those products not offered by Tokyo in its first offer. The EU also asked for shorter staging on wine and the elimination of Japan's 3.5 % tariff for Bluefin Tuna. 'Overall, Japan continues to insists on 'parallelism' between tariffs and non-tariff measures (NTMs), in particular in the car sector', the Commission said in its report. 'For Japan the period for the elimination of tariffs on cars should be the same as the staging period for the elimination of NTMs on the Japanese side', it added. But the Commission is afraid that linking these two issues might block progress in the whole talks.[2]

On public procurement, including market access in the area of railways, 'the positions remain widely divergent', the Commission reported. Japan is still reluctant to add new entities apart from those already covered by the Government Procurement Agreement (GPA). At the same time Japan insists that the EU specifies what concessions it can offer in return for the removal of the operational safety clause. On geographical indications (GIs), Japan informed the EU that its ministry of agriculture has finalised its search for conflicting names with EU foodstuffs. Consequently, out of 72 GIs, 61

[2]This and the following quotes are taken from different reports published on Border lex: http://www.borderlex.eu/eutradeinsights/.

were found 'not too problematic', the Commission reported. It added that the ministry is 'reflecting whether to proceed with the rejection of the conflicting names without publishing them' - a move that the Commission finds 'unacceptable'. Japan has proposed that 8 GIs be protected under the FTA. This would fall dramatically short of the number of protected GIs in the EU-Canada agreement (143 GIs).

1.2 Existing literature

Several quantitative impact assessments with respect to the EU-Japan free trade agreement have been presented over the years with differing main focuses. The EU's Directorate General for Trade published a quantitative study in 2010 conducted by Sunesen et al. (2010) that assesses the impact of bilateral barriers to trade and investment between the EU and Japan. This first study accounts for both a reduction in tariffs and non-tariff measures with two possible extreme scenarios, a minimum and maximum non-tariff barrier (NTB) reduction that constitute the possible range of achievable trade liberalization. Based on a CGE model a liberalization of trade is predicted to result in an increase in EU exports to Japan by 23 % or EUR 14 billion if tariffs were abolished, including tariffs in agriculture. The largest gains from tariff dismantling would occur in agricultural and processed foods exports. In the case of a maximum liberalization scenario, EU exports could increase by almost 50 % or EUR 29 bn if the cost of NTBs in Japan were reduced to the defined possible extent. The largest trade expansions are expected to arise in the chemicals (including pharmaceuticals) industry, followed by motor vehicles and medical equipment. A less ambitious tariff reduction-based agreement could increase Japanese exports to the EU by around 30 % which amounts to EUR 25 bn. The biggest growth in exports is expected to appear in the motor vehicles industry (EUR 16 bn). A comprehensive trade liberalization that includes an ambitious elimination on non-tariff barriers would result in additional exports by EUR 28 bn. With the less ambitious scenario, the motor vehicle industry, followed by the chemical and electronic industry, would be the biggest winners. The study concludes that a combination of both bilateral elimination of tariffs and the reduction of non-tariff measures would be beneficial to firms and consumers in both economies and economic welfare would increase by EUR 33 bn in the EU and EUR 18 bn in Japan. A third of the benefits for the EU originate from tariff dismantling; the rest are expected from NTB reduction. For Japan, the vast majority of benefits result from NTB reduction.

A second analysis of an EU-Japan free trade agreement is presented by Benz and Yalcin (2015). While the study also employs a CGE model to assess potential gains from bilateral trade liberalization, it is the first analysis to quantify economic effects between Japan and the EU that accounts for the importance of intra-industry trade and taking appropriate consideration of NTBs. In contrast to related studies the simulations build on a monopolistic competition model extended by a search-matching framework of the labour markets. Clearly, there are differences, not only in bilateral trade barriers but also in how efficient the EU and Japanese labour markets work. A new and important

aspect of this study is the modelling of the different labour markets in the considered economies.

The simulations of the specific model predict that tariff elimination will result in a 0.07 % increase in Japanese gross domestic product (GDP) while the EU's GDP is expected to grow by an additional 0.02 %. Growth effects are substantially larger in a comprehensive liberalization including NTB reductions, with Japanese GDP increasing by 0.86 %, whereas GDP in the EU will rise by 0.2 %. The expected amount of additional employment created from the trade agreement is relatively low. Instead, however, the model predicts strong firm entry and exit dynamics in both Japan and the EU, meaning that less productive firms are forced out of the market and more productive firms expand. Aggregating these effects, Japan and the EU would experience a significant increase in productivity in the 'tariff plus NTB reduction' scenario, around 0.5 % for Japan and 0.1 % in the EU. Consequently, most of the benefits from an EU-Japan FTA do not come from additional employment but from a higher average firm productivity. This is a core and new result of the Benz and Yalcin analysis.

A third report has been recently published by the EU's DG Trade and authored by the European Commission (2016). Their EU-Japan Trade Sustainability Impact Assessment (Trade SIA) was conducted in support of the negotiations of a comprehensive trade and investment agreement between the EU and Japan. The study defines two major aims: 1) to integrate sustainability into trade policy by informing negotiators of the possible social, environmental and economic consequences of a trade agreement; 2) to make information on the potential impact available to all actors. The study expects long-term GDP growth after an EU-Japan FTA amounting to 0.76 % for the EU and 0.3 % for Japan if a symmetric liberalisation policy is applied. Moreover, bilateral exports are estimated to increase by 34% for the EU and by 29 % for Japan, while the total export increase is at around 4 % for the EU and 6 % for Japan. The authors emphasise three important channels through which expected growth in both regions are realised:

The first effect originates from lower trading costs and the resulting higher bilateral exports. With these adjustments, export-driven growth is particularly important in food and feed, where bilateral exports from the EU could increase by 294 %. Motor vehicles, medical devices and pharmaceuticals/chemicals are also expected to grow above average. The second adjustment channel stems from decreasing prices due to import-driven competition, which enhances consumer welfare, while the third channel originates from new investments measured in terms of foreign direct investment (FDI) inflows. An important finding of this third study is that, in particular, Japan has transformed the economy from an export-led trade model successfully into investment-driven trade. As a consequence affiliate companies in foreign markets are able to participate in local growth developments, such as in the EU.

Table 1 summarises those industries in the EU and Japan that can expect the largest gains from a bilateral trade liberalisation, as modelled and simulated by the European Commission (2016).

Common to all existing studies is that trade liberalisation between Japan and the EU is expected

Table 1: Top-5 industries in terms of export gains

EU 28 bilateral export gains (share of export increase)	***Japan bilateral export gains (share of export increase)***
Food, feed, processed foods (55%)	Motor vehicles (47%)
Other manufacturing (14%)	Other machineries (21%)
Chemicals (incl. pharmaceuticals) (12%)	Electrical machinery (10%)
Business services (4%)	Chemicals (incl. pharmaceuticals) (8%)
Motor vehicles (3%)	Other transport equipment (7%)

Source: European Commission (2016).

to result in welfare gains, particularly if NTBs are significantly reduced. While the expected overall gains differ slightly across the studies (due to the different model assumptions), interestingly the sectoral winners turn out to be very similar.

1.3 Main findings

Our main findings can be summarised as follows:

1. **Diverging foreign market service modes.** The EU and Japan have adopted very different modes of serving foreign markets. Due to historically high levels of protection in the USA and in Europe, Japanese firms have opened production sites in foreign markets instead of serving them via exports. Thus, they circumnavigate tariffs and non-tariff barriers. Moreover, in trade negotiations, due to this model, Japan had little incentives to open its own market. Europe, in contrast, relies much more on exports to serve foreign markets. This, too, is due to the historical development of the EU customs union and single market, which has fostered an export-led growth model.

2. **Potential.** Japan is a relatively closed economy. In 2011, only about 14% of its final demand is spent on foreign value added, which is lower than the OECD country average. If it followed average practice, that share should be about 18 % in Japan.

3. **The scenario.** To obtain a realistic quantification of welfare gains from an EU-Japan trade agreement, it is useful to turn to the experience gained from the EU-Korea agreement that entered into force in 2011. This agreement boosted goods trade quite substantially, mostly by reducing non-tariff trade barriers. Services trade, however, did not grow so much. It makes sense to assume that the EU-Japan agreement should be able to unlock at least the same gains. This scenario defines a lower bound to our estimates because the EU-Korea agreement has been in force for only a few years.

4. **Gains in Japan.** A conservative estimate puts the welfare effects for Japan at about EUR 9 bn. This is equivalent to 0.23 % of GDP in 2014. This is an income gain that materialises every year after the enforcement of the EU-Japan agreement for a period of about 10 years.

5. **Winners in the EU.** The EU members could expect total income gains worth about EUR 11 bn per year. The countries with the largest gains in absolute numbers are Germany (EUR 3.4 bn), United Kingdom (EUR 1.6 bn), France (EUR 1.2 bn) and the Netherlands (EUR 0.9 bn). In terms of relative gains, the countries with the largest gains are Ireland (0.19 %), Netherlands (0.14 %), Luxembourg (0.13 %), and Germany (0.11 %).

6. **EU periphery.** All EU countries are expected to benefit, even if some receive only a small proportion. This is the case of several peripheral countries such as Greece, Portugal, or Romania, who would register gains smaller than 0.02 %.

7. **Losers.** China, Korea, and Taiwan are expected to suffer from the EU-Japan trade agreement due to trade diversion effects. However, the damage is relatively minor. Across these three countries, it is less than EUR 1.5 bn. Other third countries, such as Mexico or the USA, would gain from the agreement. Again, effects would be small. In total, world income would go up by about EUR 18 bn. Thus, overall, the rest of the world would lose about EUR 2 bn.

8. **Brexit.** An agreement between the EU and Japan would be worth substantially less for Japan without the United Kingdom taking part. Brexit will reduce the economic gains from the agreement for Japan by about 14 %. This lies below the UK's share of 18 % in EU GDP, because Brexit would allow Japan to gain market share in the EU at the expense of the UK (which would be fenced out with new trade barriers).

9. **Upper bound estimates.** Our assumption that the expected trade cost reductions due to the EU-Japan agreement would be similar to those measured for the already-existing EU-Korea agreement is extremely conservative. Using a uniform NTB reduction in line with estimates in the literature, the income gains from the EU-Japan agreement go up very substantially. Then German GDP could go up by almost 0.7 % and that of Japan by as much as 1.6 %.

10. **Sectoral effects, Europe.** In Europe, the agreement would have quite substantial positive value added effects in the pharmaceutical industry, in the area of food, beverages and tobacco, and in the motor vehicles sector. Amongst the services sectors, wholesale trade would benefit most. Some losses must be expected in the machinery industry. In the area of services, minor losses could materialise in computer programming or the entertainment industry.

11. **Sectoral effects, Japan.** In Japan, substantial gains would arise for the computer and electronics sectors. Also the motor vehicle and machinery industries would benefit, albeit at a much smaller scale. Losses could arise in the pharmaceutical sector and in wholesale trade. The agrifood industry would also lose, albeit to a very moderate degree.

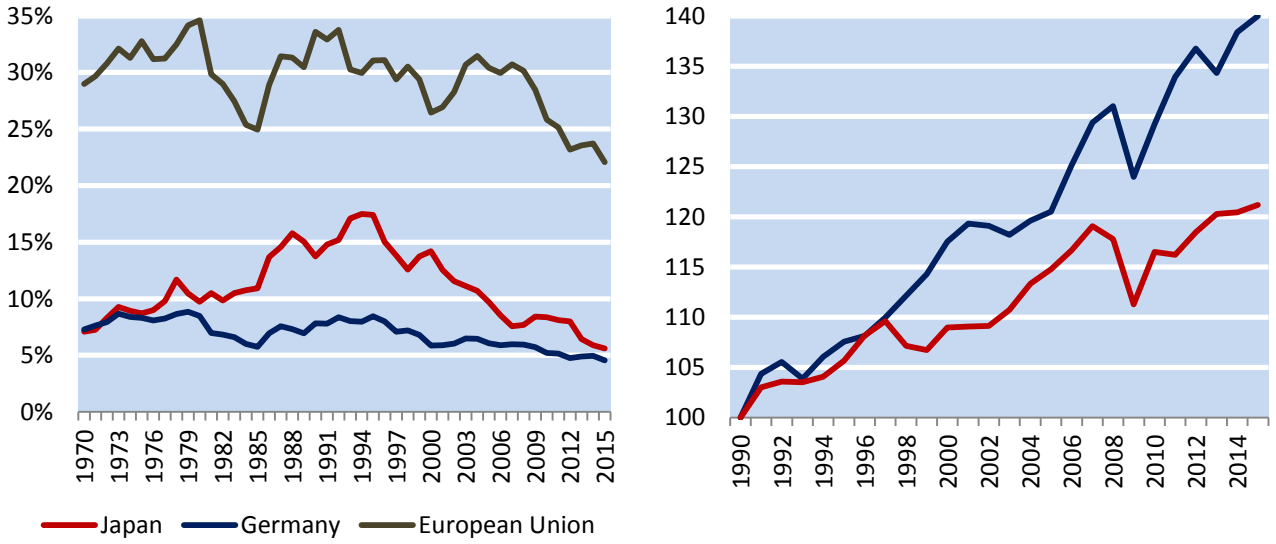
12. **Punch line.** Despite the fact that the EU and Japan pursue very different models of foreign market access, and notwithstanding the reality of relatively low tariffs, even in a very conservative scenario, there are substantial welfare gains to be reached from the agreement. What is more important, however, is the systemic role of a successfully concluded agreement between two of the largest world trading powers: it would send a strong signal, supporting an open, global trade order based on rules and cooperation.

The study is structured as follows: in Chapter 2, we start with a short presentation of the Japanese economy. Next, we provide an overview of the EU-Japan economic relationship. Then, in Chapter 3 we show that Japan has a relatively high level of protection against foreign imports in many sectors. We provide tariff and non-tariff barriers in goods and services sectors. Next, Chapter 4 briefly describes the Ifo simulation model and Chapter 5 contains the results of three scenarios, for which general equilibrium consistent results on outcomes are provided. Chapter 6 discusses the pitfalls and stumbling blocks of the agreement. The final chapter proposes a number of policy conclusions.

2 The rationale for an EU-Japan deal in a nutshell

Measured at current market prices, Japan is the third biggest economy in the world (USD 4 120 bn as of 2015), after the USA and China, and about 25 % greater than Germany. Its economy has been growing only sluggishly after the burst of the real estate bubble in 1992; indeed, since 1990, real per capita income measured in purchasing power parities has grown by only about 0.77 % per year (Germany: 1.35 % p.a.); see Figure 1. As a consequence, Japan's share in the value of world output (and demand, both measured in USD) collapsed from about 15 % in the 1990s to the value of 5.6 % observed today (Germany: 4.6 %). Nonetheless, the EU and Japan together account for more than a third of the world's GDP.

Figure 1: Shares in world GDP, current USD (1970-2015) and evolution of real GDP per capita in purchasing power parities, 1990=100, 1990-2015



Source: World Development Indicators, World Bank.

Interestingly, Figure 1 qualifies the widely held view that Japan's growth performance after the burst of the real estate bubble in the 1990's was a disaster. To obtain a realistic view of economic development in Japan, one has to take into account that the size of the population has shrunk slightly since then, so that per capita GDP has grown faster. Moreover, it is also important to account for different local price levels in making cross-country comparisons. However, these qualifications notwithstanding, the recent growth history of Japan is clearly disappointing.

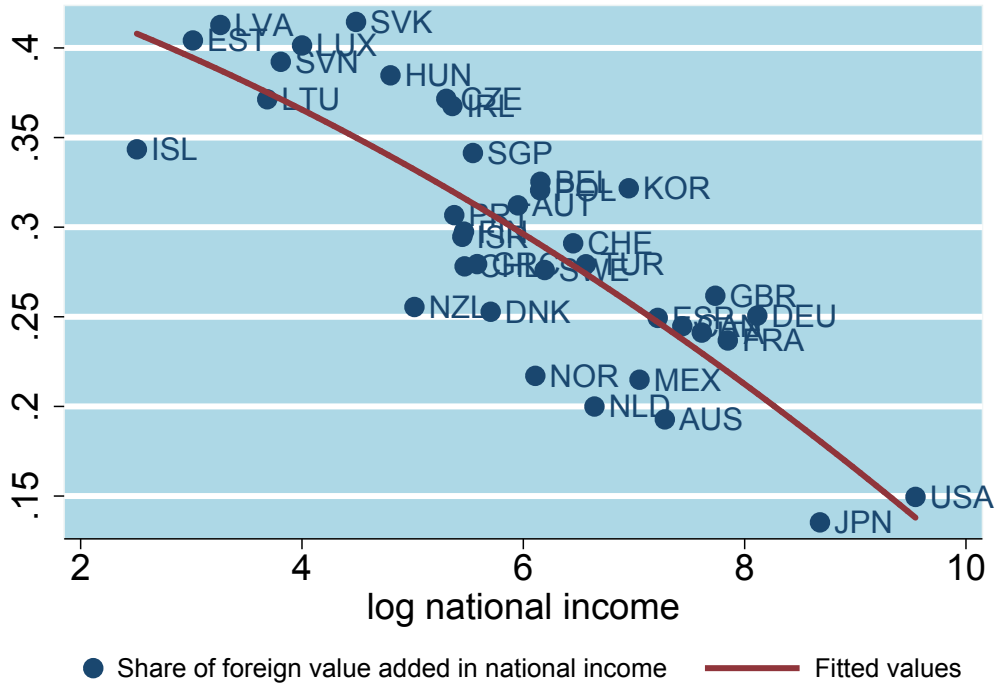
Nonetheless, Japan is an extremely interesting but ambivalent market: it is technologically very advanced as a main innovator of automated and robotised manufacturing and has one of the world's best internet infrastructures. On the other hand, its economy is dominated by small and medium-sized entreprises (SMEs), and technology adoption in businesses is often small. And the country is still relatively protectionist, in particular when looking at non-tariff barriers; see EU Commission

(2016). Moreover, even if China may have surpassed Japan in terms of real GDP in 2012, Japan remains almost equal to the size of the Chinese market measured in consumption, given China's structurally low rates. As investors, Japan and China are also of equal importance, at 8.4 and 8.6 % respectively of global FDI outflows.

2.1 EU trade with Japan: aggregate perspective

Japan is a relatively closed economy. In 2011, only about 13.5 % of its final demand was spent on foreign value added, which is quite low compared to other OECD countries; see Figure 2. For example, in Germany, the share is about 25 %; in the USA it is about 15 %. Clearly, larger economies tend to serve a larger fraction of domestic demand with domestic production, but Japan lies below the prediction of a simple quadratic model that regresses the share of foreign value added in demand on the size of the domestic economy. If Japan followed an average practice, that share should be about 18 %.

Figure 2: Share of foreign value in total domestic demand versus domestic income, 2011

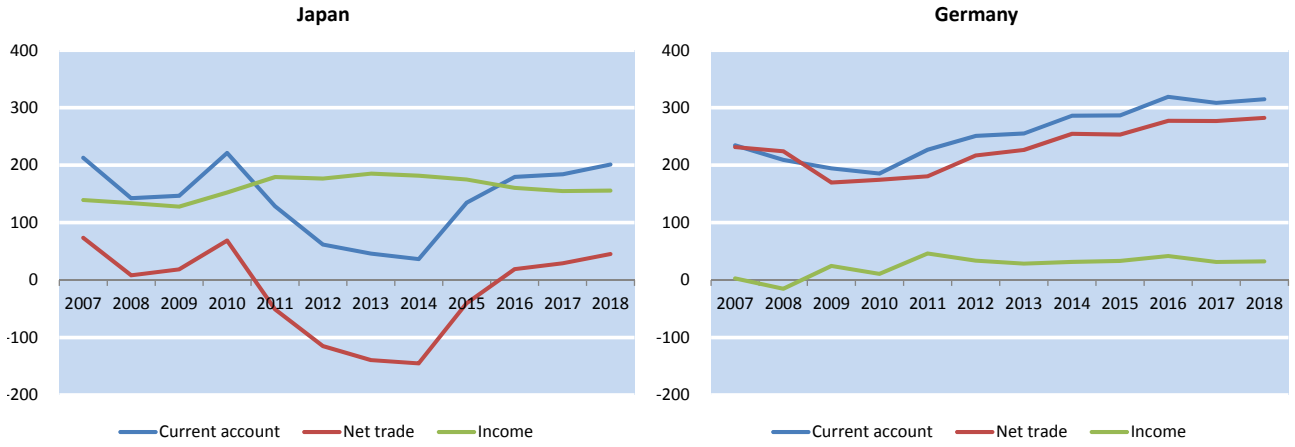


Source: OECD TiVA data; own calculations and illustration. Income variable is in logs of billions of USD. The regression line is a quadratic fit with estimated constant 0.937, linear term coefficient 0.006 and quadratic term coefficient -0.004. The R-squared of this equation is 55 %.

Japan's external position is characterised by a diminishing surplus on the current account and a persisting minor trade deficit since 2011, although Japan has seen a trade surplus for many years

since the Second World War. The Japanese economy now depends more on the income account surplus coming from the activities of Japanese companies abroad. Figure 3 makes this very clear: in 2016, a current account surplus of about USD 180 bn consisted of net foreign income of more than USD 160 bn. Compared to this, many Eurozone countries display a very different picture. For example, Germany's current account surplus of USD 320 bn is almost entirely driven by a trade surplus of about USD 277 bn; income from foreign investment plays a much smaller role. This reflects a fundamental difference in the two country's business models (besides very low returns on the substantial German net foreign asset position).

Figure 3: Net trade, FDI income and the current account: Japan versus Germany, in bn USD



Source: OECD Economic Outlook, November 2016. Own illustration.

Table 2 shows the structure of EU imports from Japan for the year 2014,[3] broken down into goods and services. The yearly total for goods is EUR 56 bn; for services it is EUR 8 bn. The share of services in total EU imports from Japan is, therefore, only about 12 %. This is substantially lower than the average of the EU-28 imports of services, which lies around 20 % for the year of 2014. The largest importers of goods from Japan are Germany (EUR 15 bn), the Netherlands (EUR 9 bn), UK (EUR 8 bn), and Belgium (EUR 7 bn). The data, however, hides the fact that imports into France, Italy or Poland (or any other EU Member State) often pass through Belgian or Dutch ports and may be booked there as imports. The Trade in Value Added (TiVA) statistics of the Organisation of Economic Cooperation and Development (OECD) support this view, but they are only available up to 2011. Our simulation model does account for the difference between value added flows and gross trade flows and can therefore deal with the issue. Nonetheless, it is striking how concentrated imports from Japan are to only a few EU countries. The top four destinations mentioned above account for almost 70 % of all goods imports from Japan.

In the services area, the concentration of imports to only a few EU countries is less pronounced.

[3] Comprehensive information on trade in services is not available for more recent years.

The four countries (Germany, UK, Netherlands, Belgium) account for 56 % of all services imports from Japan into the EU. The most important destination is the UK (EUR 2.2 bn); its share in the EU total (27 %) is larger than Germany's share in goods trade (26 %). Table 2 also reports the share of imports from Japan in the countries' total imports. Two facts stand out. First, Ireland is the country with the largest share of goods imports from Japan (7.6 %), followed by Belgium (6.5 %), Luxembourg (5.0 %) and Germany (4.9 %). The other countries fall short of these standards; in some countries the share of imports from Japan is less than 1 % (e.g. in Greece, the Baltics or Bulgaria). This implies that welfare gains from lower tariffs or non-tariff barriers will be unevenly distributed, as lower costs of imports benefit countries with higher import shares from Japan more. Second, import shares in the area of services are substantially lower than those for goods. In most countries, the share is below 1 %; for the larger EU members such as the UK, France or Germany, the share is slightly above 1 %. However, the relative importance of Japan in the area of services certainly does not match the relative importance of the country in global GDP.

Table 3 looks at Europe's exports to Japan. In the area of goods, these amounted to about EUR 53 bn. Hence, Europe has a small trade deficit here of approximately EUR 3 bn. Regarding services, the situation is the opposite. Exports of about EUR 11 bn exceed imports of EUR 8 bn by EUR 3 bn, so that the grand balance is almost in equilibrium for the year 2014. Figure 4 illustrates this fact more clearly, drawing on quarterly data from 2006 to 2016. It shows that the trade deficit that the EU was traditionally having with Japan has more or less closed, despite fluctuations in more recent quarters.

In 2014, Germany had a surplus of exports over imports to Japan of about EUR 2.5 bn; the UK, Belgium and Netherlands had deficits. This highlights again the fact that the latter two act as ports of entry for Japanese goods. Interestingly, Italy has substantial exports of goods of more than EUR 5 bn while its imports amount to less than EUR 3 bn. EU services exports to Japan behave more similarly to the overall patterns than imports. They account for about 17 % of total exports; this is a value much closer to the grand average than what is observed on the import side. The fact is simply that Japan does not seem to have a comparative advantage in services. The main services exporters from the EU to Japan are the UK (22 %) and Germany (21 %), but France also occupies an important place (13 %). Importantly, the composition of services exports is very different across EU countries. In the UK, financial services dominate; in Germany, it is business services and in France it is tourism.

The next two figures study the evolution of EU-Japan trade over the last decade. Using quarterly data, the figures compare the dynamics of trade with Japan to Korea and the rest of the world. Normalising all series to the value of 100 in the first quarter of 2011, Figure 5 covers imports while Figure 6 covers exports. It is interesting to include Korea because the EU concluded a free trade agreement with this country which went into effect in July 2011. The figures do suggest that after 2011 trade with Korea developed more dynamically than trade with Japan. Without providing a

Table 2: EU imports from Japan (2014)

	Goods			Services		
Country	Mn EUR	Share on EU (%) imports	Share of imports from ROW(%)	Mn EUR	Share on EU (%) imports	Share of imports from ROW(%)
AUT	779	1.4	2.5	95	1.2	0.7
BEL	7355	13.1	6.5	295	3.7	0.8
BGR	84	0.1	0.8	2	0.03	0.1
CYP	38	0.1	2.7	0.3	0.004	0.02
CZE	939	1.7	3.7	15	0.2	0.4
DEU	14520	25.8	4.9	1559	19.4	1.7
DNK	285	0.5	1.3	761	9.5	2.8
ESP	1985	3.5	1.8	196	2.4	0.7
EST	31	0.1	1.2	2	0.02	0.1
FIN	276	0.5	1.5	130	1.6	1.9
FRA	4214	7.5	2.6	1004	12.5	1.4
GBR	7679	13.6	3.2	2157	26.9	1.8
GRC	200	0.4	0.8	95	1.2	0.8
HRV	20	0.0	0.5	3	0.0	0.1
HUN	887	1.6	4.7	25	0.3	0.6
IRL	1437	2.6	7.6	318	4.0	0.6
ITA	2703	4.8	1.8	313	3.9	1.3
LTU	27	0.0	0.3	1	0.0	0.02
LUX	192	0.3	5.0	301	3.7	1.0
LVA	13	0.0	0.5	0	0.01	0.02
MLT	49	0.1	2.6	3	0.04	0.3
NLD	9344	16.6	4.0	513	6.4	0.9
POL	1070	1.9	2.1	94	1.2	0.8
PRT	253	0.4	1.7	6	0.1	0.1
ROU	230	0.4	1.6	9	0.1	0.1
SVK	294	0.5	2.0	2	0.03	0.1
SVN	72	0.1	0.9	2	0.02	0.1
SWE	1292	2.3	3.5	121	1.5	0.5
Total	56268	100		8022	100	

Source: COMEXT (2017), WIOD (2017).

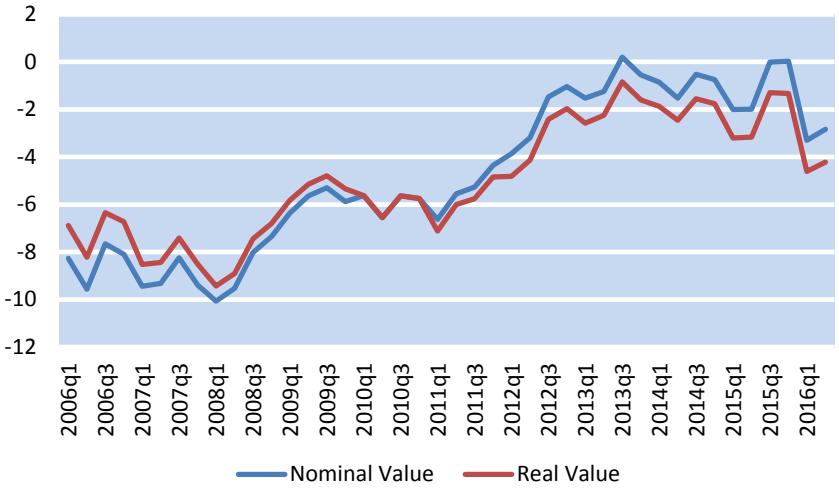
formal proof, the illustrations highlight the possibility that the divergence is due to the FTA. It also visualises the hope that a trade agreement with Japan could trigger a similar development.

Table 3: EU exports to Japan (2014)

	Goods			Services		
Country	Mn EUR	Share on EU (%) imports	Share of imports from ROW(%)	Mn EUR	Share on EU (%) imports	Share of imports from ROW(%)
AUT	1216	2.3	3.1	95	0.9	0.9
BEL	3058	5.8	3	672	6.2	1.9
BGR	28	0.1	0.3	20	0.2	0.7
CYP	0.8	0.002	0.1	2	0.02	0.2
CZE	769	1.5	3.4	157	1.4	2.2
DEU	17085	32.5	3.7	2263	20.7	2.8
DNK	1515	2.9	5.2	175	1.6	0.8
ESP	2612	5.0	3	314	2.9	1.1
EST	59	0.1	1.8	10	0.1	1
FIN	824	1.6	3.6	97	0.9	1.1
FRA	6818	13	4.1	1392	12.7	1.8
GBR	5240	10	2.7	2404	22	2.5
GRC	44	0.1	0.3	32	0.3	0.5
HRV	35	0.1	0.9	4	0.04	0.3
HUN	404	0.8	2.5	122	1.1	2.4
IRL	1748	3.3	4.4	748	6.8	1.5
ITA	5339	10.1	3.1	535	4.9	1.3
LTU	36	0.1	0.3	3	0.03	0.2
LUX	57	0.1	2.3	150	1.4	0.6
LVA	33	0.1	1	5	0.1	0.4
MLT	105	0.2	10.6	6	0.1	0.4
NLD	3096	5.9	2.6	1208	11.1	2.2
POL	491	0.9	1.3	201	1.8	1.5
PRT	124	0.2	0.9	44	0.4	1.1
ROU	210	0.4	1.4	64	0.6	0.8
SVK	101	0.2	1	27	0.3	0.9
SVN	35	0.1	0.5	11	0.1	0.7
SWE	1517	2.9	3	155.3	1.4	0.9
Total	52613	100		10929	100	

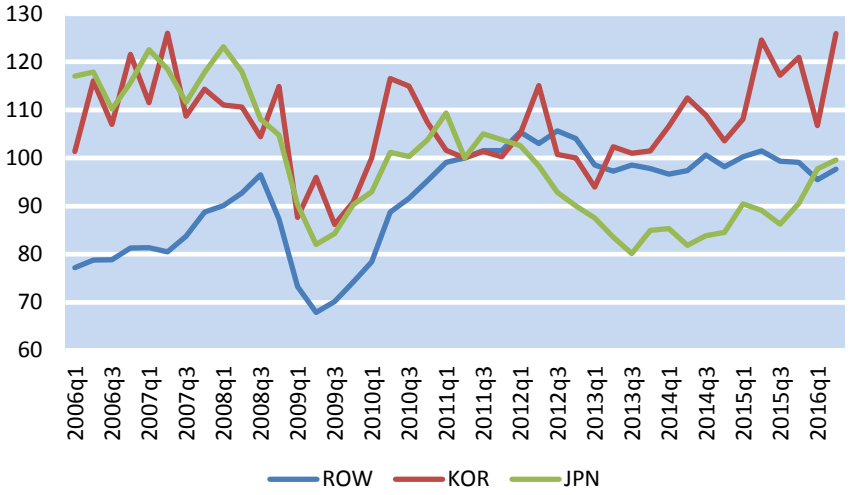
Source: COMEXT (2017), WIOD (2017).

Figure 4: EU-Japan trade balance (quarterly, bn EUR)



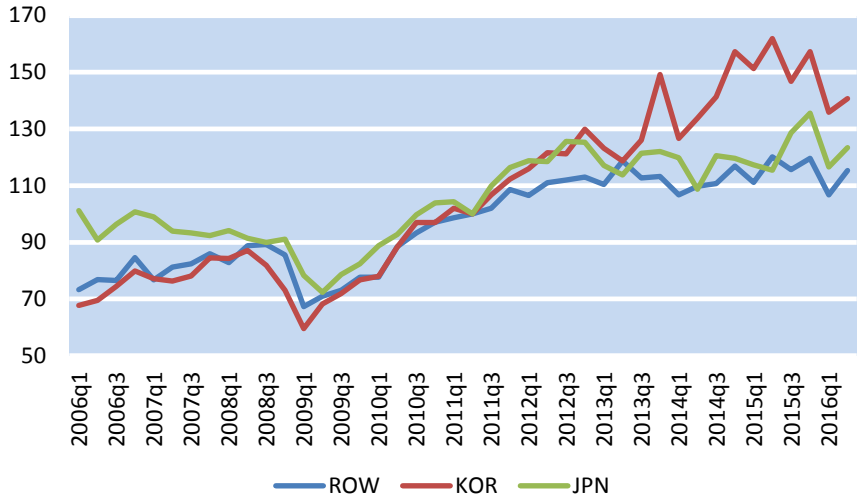
Source: COMEXT (2017), OECD (2017).

Figure 5: Evolution of EU imports from Japan in comparison with EU imports from Korea and the rest of the world



Source: COMEXT (2017), own calculations.

Figure 6: Evolution of EU exports to Japan in comparison with EU exports to Korea and the rest of the world



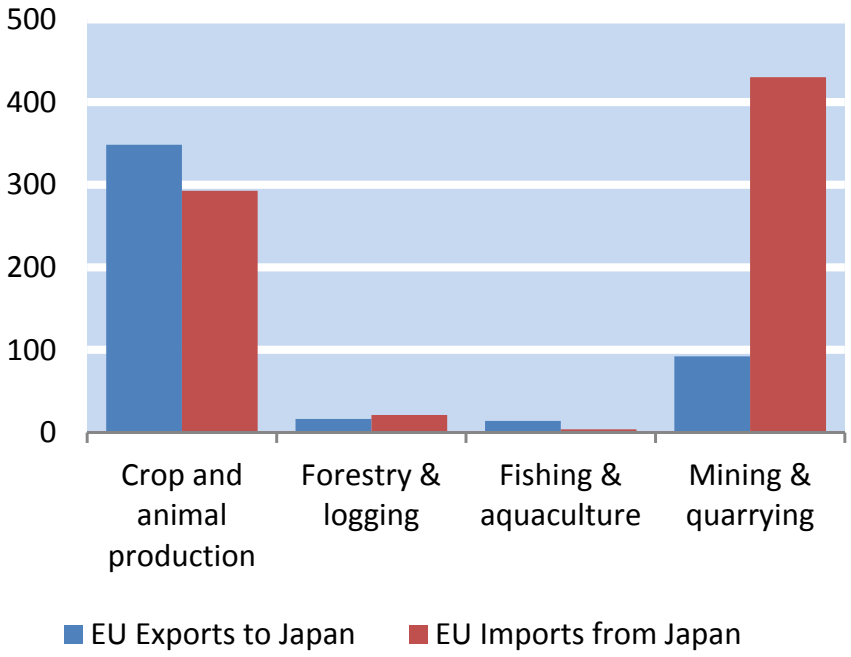
Source: COMEXT (2017), own calculations.

2.2 EU trade with Japan: sectoral perspective

Figure 7 illustrates bilateral trade flows between Japan and the EU for 56 industries in 2014. Accordingly, across all the industries in the three panels (primary industries, manufacturing and services) bilateral trade volumes are partly very similar, while for some leading industries either the EU or Japan turns out to export or import significantly more than the partner economy. Within the primary sectors a major difference is observed in the mining and quarrying products, in which Japan exports four times more to the EU than it imports. This development is not only a one-time effect in 2014 but has prevailed since the last decade. The other three primary sectors don't show large differences in the bilateral trade volumes, but it becomes obvious that forestry and logging as well as the fishing and aquaculture sectors exhibit relative low trade volume with a potential for larger trade. These sectors are also characterised by relative high protective tariff and non-tariff measures.

Within the manufacturing industries (Figure 8) the EU stands out with three sectors that export far larger volumes to Japan than vice versa. These are the motor vehicle, machinery and computer industries in which EU exports to Japan are more than double those of Japanese imports in the same industries. Japan, on the other hand, turns out to have a great advantage in the pharmaceutical industry with an export volume of EUR 5 bn in 2014 while the EU exported products worth EUR 350 m to Japan. A similar asymmetry but less distinct is observed in the chemical industry in which Japanese exports surpass European exports by EUR 1.5 bn. One reason for these strong structural differences across this traditionally export oriented industries can be traced back to the different business models between Japan and the EU. As illustrated below, Japan serves the European market to a large extent via affiliate Japanese enterprises founded in eastern EU countries, particularly since

Figure 7: Bilateral sectoral trade between Japan and EU in 2014 (in m Euros): Primary sectors

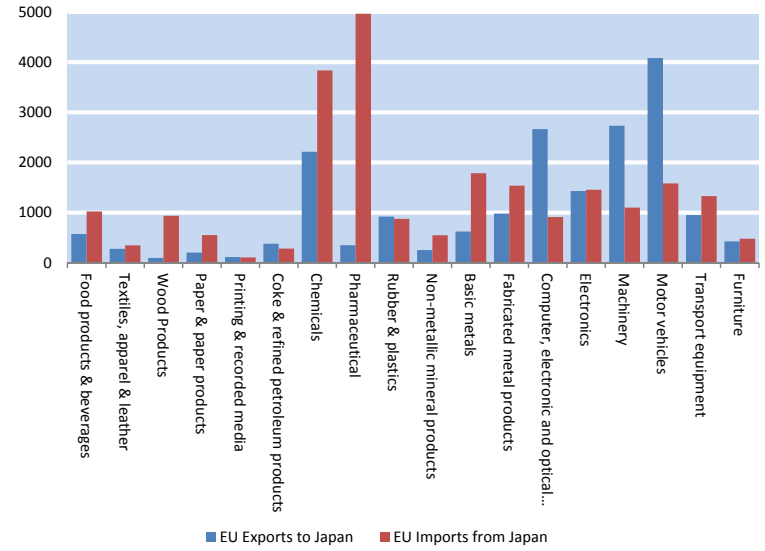


Source: WIOD (2016), own illustration.

2006. Accordingly, it should be not surprising if Japanese direct exports in the motor vehicles, machinery and computer industries will not increase dramatically after the elimination of trade barriers. Japan is most likely to maintain its business model in those industries over the next decade given the large foreign direct investments in the respective eastern EU industries.

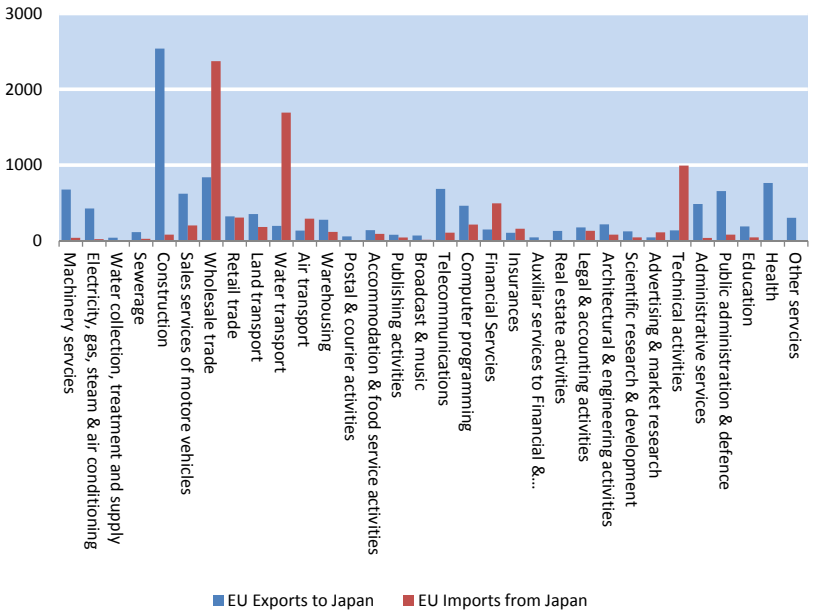
Figure 9 illustrates bilateral trade flows between Japan and the EU across different service industries. In contrast to the previously discussed industries, a large heterogeneity across the service sectors is observed. Accordingly, in some service industries the EU is already successfully active in Japan, such as in the construction, health and machinery services, with an export volume of around EUR 2.5 bn, EUR 760 m, and EUR 670 m in 2014. Japanese exports in these sectors turn out to be negligible so far, while in other industries a reversed pattern is prevailing. For example, in the whole sale services, water transport and technical activities, Japan achieves trade volumes between EUR 2.3 bn and EUR 1 bn while EU exports in the same industries remain on a relatively low level. Implicitly, with the new trade agreement, there is a large potential to balance the observed asymmetries across the different service sectors, while at the same time there are several service industries in which both Japan and the EU can increase bilateral trade by eliminating non-tariff barriers and market access regulations, which are the only trade-restricting measures in services compared to the primary and secondary industries.

Figure 8: Bilateral sectoral trade between Japan and EU in 2014 (in m EUR): Manufacturing industries



Source: WIOD (2016), own illustration.

Figure 9: Bilateral sectoral trade between Japan and EU in 2014 (in m EUR): Service sectors

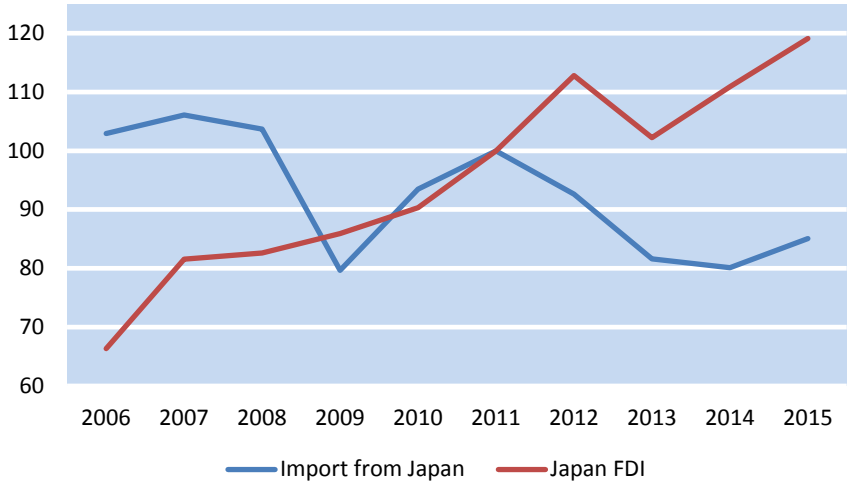


Source: WIOD (2016), own illustration.

2.3 Foreign direct investment

Figures 10 and 11 show how foreign direct investment (FDI) from Japan into Europe compares with Japanese imports into Europe, and how FDI from Europe into Japan compares with European exports to Japan. The comparison is interesting and relevant because it highlights once again the different business models of the two entities. Japanese FDI into Europe has increased dynamically from 2006 to today, while Japanese exports to Europe have not grown at all. This suggests that Japanese firms have increasingly decided to serve European consumers via local production. In contrast, European FDI in Japan has fluctuated over the period 2006 to today without any discernible trend. Exports, however, have been more dynamic.

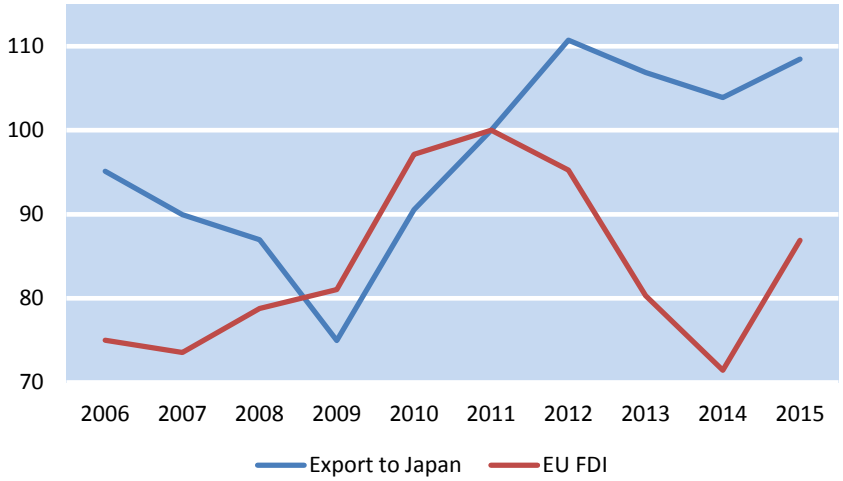
Figure 10: Comparison of imports from Japan and Japanese FDI stock in Europe



Source: COMEXT (2017), Eurostat (2017), own calculations.

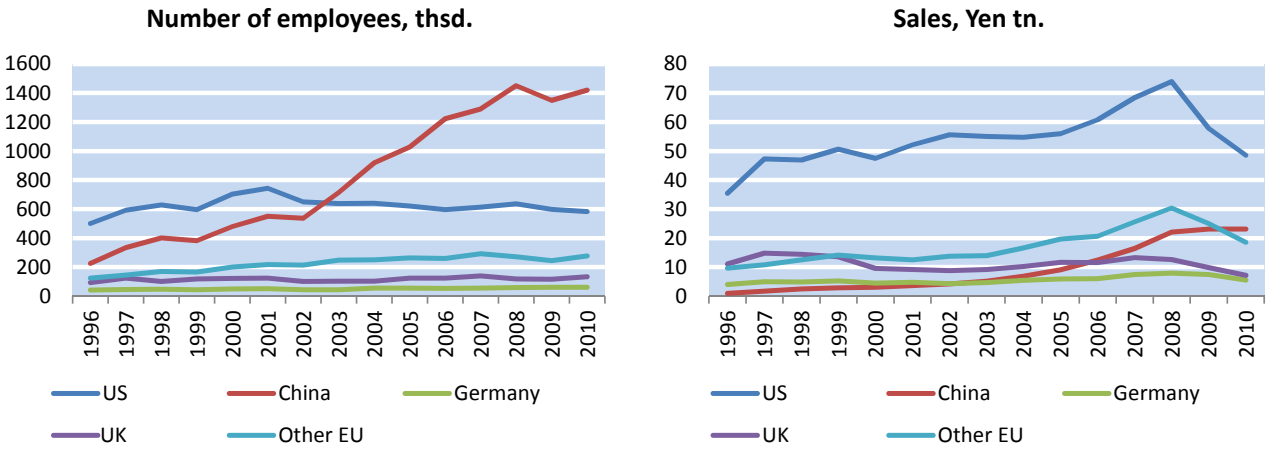
Figure 12 looks more closely at the composition of Japanese FDI in the world. Very clearly, China and the USA dominate the picture, both in terms of employees of Japanese affiliates and in terms of local sales of those affiliates. However, within Europe, the UK stands out as the country attracting most FDI.

Figure 11: Comparison of exports to Japan and European FDI stock in Japan



Source: COMEXT (2017), Eurostat (2017), own calculations.

Figure 12: Number of employees and sales of Japanese affiliates overseas



Source: METI. Own illustration.

3 Trade policy issues in Japan

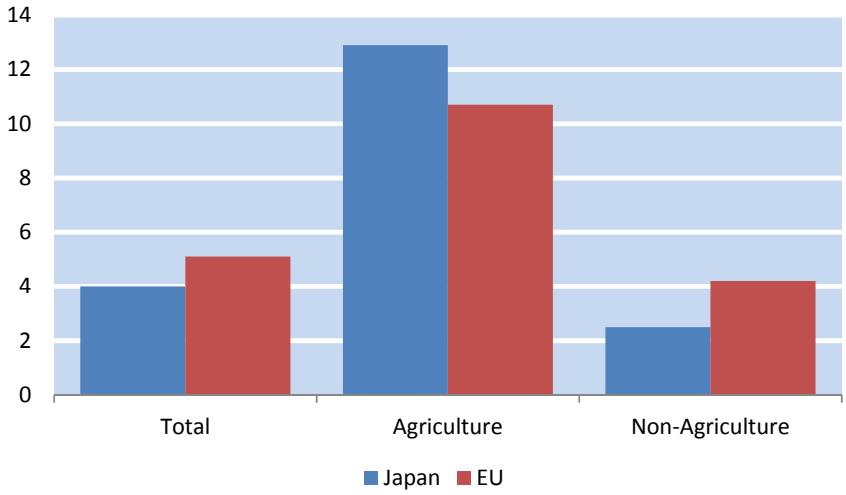
Current Japanese reforms addressed as Abenomics (referring to the economic policies advocated by Shinzo Abe) have changed some economic structures. During the structural reform by 'Abenomics', several trade policies were revised. This puts more stress on improving the trade balance through enhancing the productivity of Japanese firms. The focus of Japan's trade policies under Abenomics involves various types of free trade agreements such as the Trans-Pacific Partnership (TPP) and Economic Partnership Agreements (EPAs). Furthermore, Japan takes strategic approaches to emerging markets. The Japanese government helps firms export more Japanese manufacturing and agricultural products, sustains supplies of natural resources and promotes inward FDI. There are several government bodies responsible for trade policies in Japan. The Ministry of Foreign Affairs (MOFA) and the Ministry of Economy, Trade and Industry (METI) are responsible for general trade policies. Furthermore, some other ministries are responsible for specific policies, for example the Cabinet Office, the Ministry of Finance, the Ministry of Agriculture, Forestry and Fisheries (MAFF), the Ministry of the Environment and the Ministry of Land (MLIT), Infrastructure, Transport and Tourism. In addition to these government ministries, several government agencies are largely related to trade policies such as the Bank of Japan and the Japan External Trade Organization (JETRO). JETRO is a responsible agency for trade promotion, both exports and imports, and the activation of inward/outward FDI.

3.1 Tariff protection

A large array of traded products between Japan and the EU is subject to import duties (tariffs), which comply with the World Trade Organisation's (WTO) regulations. At the same time, in both regions around one quarter of products are not subject to import duties. Across all goods that are protected by tariffs, around 85 % of the bound duties turn out to be below 10 percentage points. Except for a handful of traded goods with tariff peaks, the remaining product lines reach import duties of around 30 % in the EU and 35 % in Japan. Peak tariff rates reach 60 % in Japan and 75 % in the EU. Figure 13 illustrates that average applied MFN tariffs over all protected goods were below 5 percentage points. However, distinguishing between agriculture and non-agriculture goods illustrates that average MFN tariffs, particularly in the former sector, reached average protection levels above 10 % both in the EU and Japan.

Figure 14 summarises the prevailing applied tariff rates for EU industries for which trade data is available. Accordingly, average tariffs do not only differ between agricultural and non-agricultural sectors but also significantly across manufacturing industries. Weighted tariffs reach, on average, around 10 % in the case of chemical products. Moreover, in the traditionally export oriented industries machinery, electronics and non-metallic mineral products average tariff rates amount up to

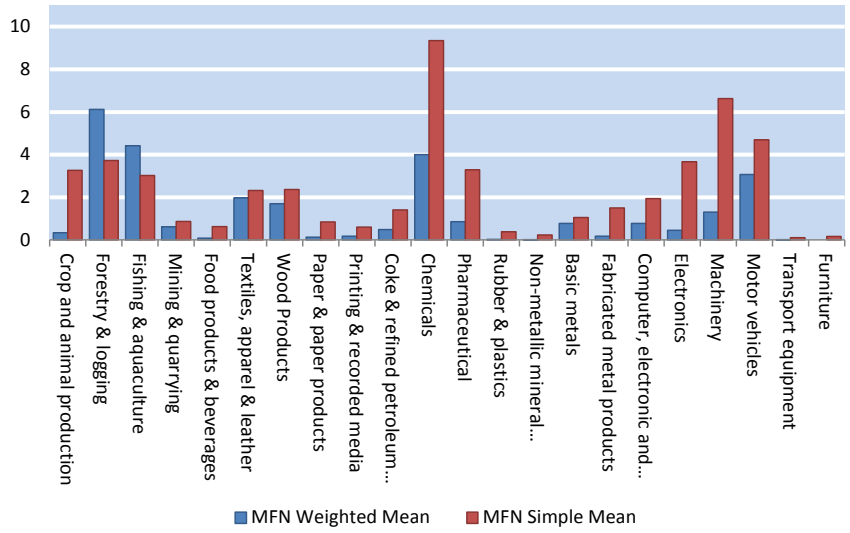
Figure 13: Simple average applied MFN tariffs (%)



Source: WTO Tariff Profiles; own illustration.

8 percentage points representing a relatively large range for potential costs savings by tariff elimination. The graph also illustrates that in some industries simple and weighted tariffs substantially differ. Two sources can drive these statistical patterns. Either some products are protected with very high prohibitive tariffs resulting in no trade and hence weighted tariffs are biased downwards, or some goods with low tariffs are strongly traded resulting in lower weighted tariffs.

Figure 14: EU import tariffs (%)

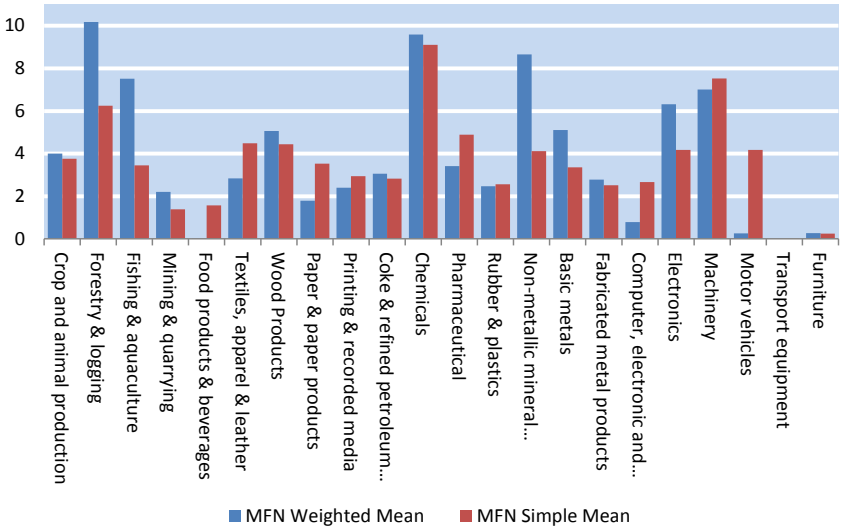


Source: WTO Tariff Profiles; own illustration.

Figure 15 illustrates the equivalent Japanese tariff distribution across the same industries as depicted for the EU. While Japan also shows a strong tariff variation across the listed industries, interestingly

tariff rates in most of the industries turn out to be on average lower than in the respective European industry. Particularly, the difference between weighted applied MFN tariffs between the EU and Japan turn out to be substantially different. Tariffs for machinery products, for example are on average at around 7.5 % in the EU and 6.6 % in Japan. However, if one accounts for the trade volumes for each tariff line in the sector, weighted average tariffs in the EU remain at around 7 %, while in Japan the respective tariffs drop down to below 2 %. Hence, for a large share of EU exports to Japan with relative high tariff rates, we do not observe large export volumes. One reason for this structural difference in the weighted applied tariffs between the EU and Japan could lie in the aforementioned business model of Japanese affiliate enterprises located in the EU. It is possible for Japan to circumvent relative high tariffs, for example in the machinery sector, because a certain share of Japanese products are produced within the EU, while at the same time European companies serve the Japanese market with the full range of products in the machinery industry predominantly via trade. One expectation resulting from this tariff pattern is that reciprocal tariff liberalisation between the EU and Japan will most likely be relatively more beneficial for EU exporters if compared with expected Japanese exports.

Figure 15: Japanese import tariffs (%)



Source: WTO Tariff Profiles; own illustration.

Overall, these simple statistics demonstrate that for a critical number of traded products tariffs still represent a sizeable barrier and their elimination is relevant for additional welfare gains. At the same time it is worth emphasising that in comparison with other countries, the average tariff rates between the EU and Japan are on average relative low (e.g. China has a simple average MFN-bound rate of 10 %). It is therefore unlikely that the elimination of only these relatively low tariffs will lead to strong trade and output effects in the aggregate.

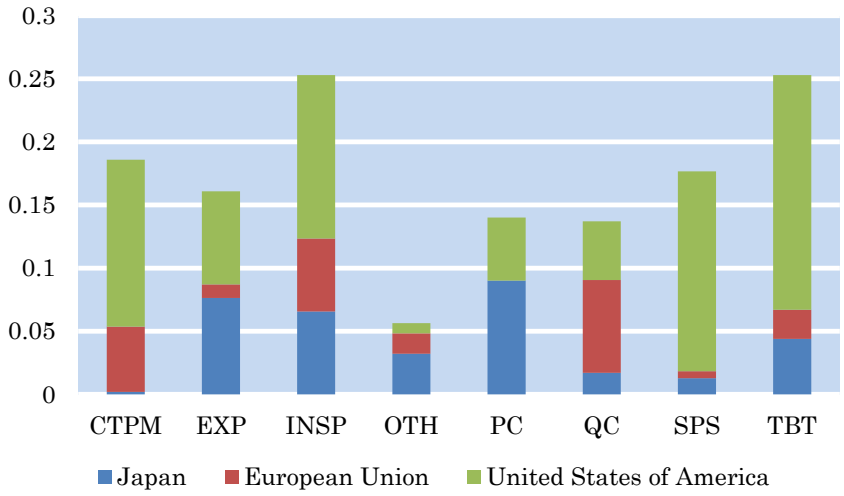
3.2 Agriculture in Japan

The main agricultural products produced in Japan are rice, fruit and vegetables. Rise, in particular, has been the main agricultural product for a long time and accounts for approximately 25 % of agricultural production. The total planted area is 1.64 million ha in 2012 and the per-area production is 533kg per 10 a in 2011. Many other agricultural products largely depend on imports in Japan. As shown in Figure 15, tariff rates on agricultural products are much higher than any other products. However, tariffs on agricultural products have a large variation. Over 25 % of products are duty free while a maximum tariff (ad valorem equivalent) is more than 300 %. A proportion, 17.4 %, of agricultural tariff lines is non-ad valorem. Importantly, the agriculture sector continues to receive substantial government support. For instance, the agricultural sector has a relatively higher average MFN tariff rates than other sectors. More than high tariff rates, many government policies try to support agricultural products such as quotas, income support and production controls. These kinds of government support result in higher market prices, protecting domestic producers. According to the OECD, the producer support estimate (PSE), which is the annual monetary value of gross transfers from consumers and tax payers to support agricultural producers, occupies 43.1% in the gross farm receipt in 2015, which is about twice as high as the OECD average. In agricultural trade, subsidies have experienced some changes. After the Uruguay Round, domestic agricultural subsidies were reduced several times, while there has been little change in trade policies such as tariffs, the special safeguard and tariff quotas. Agriculture in Japan is small scale, i.e. small fragmented areas worked by small families and aged farmers. High rates of tariffs lead toward making domestic prices much higher than world prices. One representative example for agricultural subsidies is the direct payment scheme. Since 2000 a direct payment scheme in mountainous villages of rural areas has been introduced to give incentives to farmers to continue production and prevent them abandoning their rice fields. This is related to environmental and ecological issues. Payment rates are determined by the slope of the land and the type of production from 21 000 Yen per 0.1 ha for paddy fields with high inclination to 1 500 Yen per 0.1 ha for pasture. In 2008, this scheme covered 665 000 ha and 640 000 farmers in 2008. Most other forms of market price regulation support have been removed while administered prices and controls still apply to very specific agricultural products. State trading products are applied to rice, wheat and barley and to designated dairy products. The gate price system is applied to pork. The gate price is set at 524 Yen per kg. Anyone who imports to Japan below the gate price is required to pay not only the 4.3 % pork duty but also the differential between the import price and the gate price. This system is designed to protect the high price of pork in Japan. Turning from imports to exports, export promotion is the current key policy. MAFF developed the Strategy to Promote Agriculture, Forestry, Fisheries Products and Foods in August 2013. The strategy involves the targeting the export of agricultural products worth 1 Yen trillion. In June 2014, this export promotion strategy was accepted by the Cabinet of Prime Minister Abe as the 'Japan Revitalization Strategy'.

3.3 Non-tariff barriers

In non-tariff measures, sanitary and phytosanitary (SPS) and technical barriers to trade (TBT) requirements in Japan are much stricter than international standards. The cost of satisfying its quality and safety standards can be substantially high. Using the UNCTAD data source on non-tariff measures (TRAINS), Figure 17 shows that the share of NTBs in Japan, the EU and the USA differs. NTBs are simply counted by the number, which does not take into account the quality and magnitude of NTBs. According to Figure 17, the USA exhibits a dominant share in contingent trade protective measures (CTPM), export-related measures (EXP), TBT and SPS. TBT and SPS in Japan are much lower than in the USA, but higher than the EU. Overall, except CTPM and quality control measures (QC), Japanese NTBs are higher than those in the EU. Worldwide, there is a total of 1 936 CTPMs, 2 604 EXPs, 502 border inspections (INSPs), 621 other measures (OTHs), 817 QCs, 17 885 SPSs and 14 015 TBTs.

Figure 16: Non-tariff measures: an overview



Source: UNCTAD.
CTPM: contingent trade protection measures, EXP: export related measures, INSP: border inspections, OTH: other measures, PC: price controls, QC: quality control measures, SPS: sanitary and phytosanitary measures, TBT: technical barriers to trade.
Note: The figure depicts the shares of different non-tariff measures for Japan, EU-28 and USA relative to the worldwide observed number of respective measures

There are some NTBs in Japan that affect the EU. SPS has been applied to plants sent from the EU since June 2015. This treatment originally stems from Ministerial Ordinance for Enforcement of the Plant Protection Act. Current revisions update the quarantine and non-quarantine pest lists and the table of combinations of pest, plant and area, which is subject to inspection at the place of growth in the exporting country, import prohibition and special phytosanitary measures in the exporting country. CTPM has been applied to Spain since September 2008. This is an anti-dumping measure on electrolytic manganese dioxide from Spain. QC has been applied to some import products from

Switzerland since March 2015. Tariff rate quotas apply to Switzerland on certain imported items. This treatment is based on a Cabinet Order on the tariff rate quota system based on the Economic Partnership Agreement.

The TBT enquiry points are: (i) the Standards Information Service in MOFA which handles enquiries into drugs, cosmetics, medical devices, foodstuffs, food additives, telecommunication facilities, motor vehicles, ships, aircraft and railway equipment, and (ii) the Standards Information Service in JETRO which handles enquiries in electrical equipment, gas appliances, measurement scales, foodstuffs and food additives.

To ensure compliance with the TBT Agreement, Japan has been aligning Japanese Industrial Standards (JIS) to international standards. The proportion of those JIS that are harmonised with international standards (ISO and IEC standards) was 97 % (2014). The Ministry of Agriculture, Forestry and Fisheries, the Ministry of Health, Labour and Welfare, and the Food Safety Commission are responsible for Japan's SPS measures. The laws governing the establishment of SPS measures include the Food Sanitation Law, the Quarantine Law, the Plant Protection Law, and the Act on Domestic Animal Infectious Diseases Control.

Japan currently imposes import prohibitions on beef and poultry from various countries to prevent the spread of some animal diseases such as BSE and avian flu inside Japan.

The import ban involves technical consultations and the implementation of risk assessment, and consultation with relevant domestic industries, consumers and exporting countries. However, since December 2005, Japan has partially allowed beef imports from the USA and Canada under the condition that specified risk material is removed from all cattle, and beef products are from cattle of 20 months of age or younger.

3.4 Barriers in services

The service sector holds the largest share of Japanese GDP and the labour market. The service sector accounted for nearly 73 % of GDP and 72 % of total employment in 2014. Labour productivity and its growth in the service sector tend to be lower than in manufacturing in most developed countries but Japan's labour productivity in the service sector is the lowest in OECD countries. Furthermore, the difference between manufacturing and services is much larger than in any other developed countries. The total factor productivity growth in most services sectors is also lower than manufacturing. One of the reasons for this comes from the fact that the service sector in Japan has been highly protected from foreign firms. This heavy protection was afforded by restrictive internal regulations by the Japanese government, which includes market entry, licensing, regulations on foreign ownership and high business costs. On the other hand, the Japanese government takes a positive attitude toward the liberalisation of trade in services. The basic stance is the achievement of the comprehensive liberalisation of trade in services, and Japan continues to insist on the importance

of transparency and clarity of its commitments. The service sectors in Japan have been subject to various market conditions and policies. Below, we look at some representative service sectors: bank, telecommunications, maritime transport and air transport. The financial sector in Japan is relatively open to foreign countries. Many government regulations on financial services in Japan have remained unchanged but the banking sector is tightly regulated by the Financial Services Agency (FSA) under the Banking Law. Under thee law, all banks need to be licensed to conduct business in Japan; foreign banks can provide banking services through branches and subsidiaries (incorporated in Japan). Under the Banking Law, deposit insurance does not apply to branches of foreign banks not incorporated in Japan. Nationally licensed subsidiaries of foreign banks are subject to the same prudential requirements as domestic banks. The telecommunication sector is dominated by a very limited number of companies such as NTT, which was originally a governmental company until the mid 1980s. Foreign ownership in NTT is limited to 33 %. There has been no big change to Japan's telecommunications regulations and legislation. The Ministry of Internal Affairs and Communications continues to be the regulatory authority responsible based on the Telecommunications Business Law. Japan is highly dependent on maritime transport, because Japanese trade is mainly shipped by sea. The sector is highly regulated by the Ports and Harbour Bureau of the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) and the Maritime Bureau. The sector is legally regulated by the Ship Law, the Marine Transportation Law, and the Coastal Shipping Law. Foreign investment in the maritime transport sector is subject to the prior notification requirement. The Japanese air transport sector (e.g. JAL and ANA) is legally regulated by the Civil Aeronautics Law and the many bilateral air agreements that Japan has signed. The administration of airline entry into the market, pricing, route allocations and safety regulations are controlled by the Civil Aviation Bureau of the MLIT. Foreign ownership is restricted to 33 % of voting rights under the Foreign Exchange and Foreign Trade Laws.

3.5 Public procurement

The public purchases of private goods and services as well as the government payroll account for around 20 % of Japanese GDP[4]. The major share of public purchases is made at the community-level and in the construction services. The openness for penetration from abroad into public tender procedures as defined by the WTO Government Procurement Agreement (GPA) only shows negligible differences between Japan and the EU. Construction services and architectural services represent the only exception as Japan has maintained higher thresholds. For example, while the EU market is open to Japanese railway providers, the EU cannot equally access the Japanese market. Only 2 % of the Japanese railway market is open to foreigners. However, careful assessment of these numbers is required. The issue derives from big differences in the legal and economic basis between Japan and

[4]Data taken from World Bank, World Development Index 2014

the EU. On the one hand, Japanese railway companies were privatised (e.g. JR East, JR Central, JR West) in 1987. On the other hand, EU railways are predominantly belonging to the public sector. Furthermore, Japanese railways are almost limited to carry passengers, while the EU has still large portions of freight. Overall, the import penetration rates in public procurement amounts to a quite low number in Japan of around 3.5 %, and to a marginally higher number of around 4.5 % for the EU[5]. However, given the voluntary agreement on railways, which is at present above GPA-standards, the FTA already displays high ambitions for this area. Nevertheless these actions have to be distinctly directed to evolve as a source of trade and welfare enhancement.

[5]Numbers are taken from Messerlin, Miroudot, *EU public procurement markets: How open are they?*, GEM Sciences-Po, 2012

4 The Ifo Trade Model

This chapter describes the Ifo Trade Model of Aichele et al. (2014). We also define likely scenarios for an EU-Japan FTA, especially those pertaining to the extent of the expected reductions of NTBs.

4.1 The Ifo Trade Model: Methodology

The Ifo Trade Model, which is described in depth in Aichele et al. (2014), is a static, general equilibrium trade model.[6] It encompasses 44 countries and regions and 57 goods and services sectors. In the model, international trade flows are hampered by tariff and non-tariff barriers to trade. Sectors are connected nationally as well as internationally through input-output linkages. Thus, the Ifo Trade Model captures international value chains at a rich level of sectoral detail.

The model can be parameterised with simple econometric equations that result from the equilibrium conditions of the model. Two sector-specific parameters are of paramount importance: the elasticity that describes how tariff changes impact trade flows and the potential for reductions in NTBs. While there are established methods to estimate trade elasticities, there are substantial uncertainties surrounding the modelling and estimation of NTBs. In this report, the modelling philosophy consists of using the experience with existing FTAs to econometrically estimate their effect on sectoral trade flows using so called gravity models. Once, causal effects of FTAs on sectoral trade flows are known, estimated trade elasticities and observed tariffs can be used to back out how large the reduction in costs other than tariffs must have been. Below we show evidence obtained from a regression model in terms of ad valorem tariff equivalents. Generally, existing FTAs – both shallow and deep ones – have managed to reduce NTBs significantly in the manufacturing sectors; the evidence is mixed in agri-food. In services, there is robust evidence for cost reductions, but the effects are rather small in size.

These cost reductions are used as the basis of scenarios for a possible EU-Japan FTA. Note that this strategy yields potentials, not forecasts. Whether negotiators are able to realise what has been possible in existing agreements depends on political circumstances.

While the method highlights feasible reforms (feasible, because they have been achieved in other trade relationships), it is absolutely possible that specific agreements go beyond what existing deals have done. In the EU-Japan case it is conceivable that both sides' major interest in services trade leads them to achieve more than what other agreements have been able to do. In that sense, we might underestimate the potentials for certain areas.

In the analysis, we use data from Duer et al. (2014) to distinguish FTAs according to their depth,

[6] The basis for this model was laid down in Caliendo and Parro (2015). Their work extends the workhorse trade model of Eaton and Kortum (2002). The model is thus rooted in the 'New Quantitative Trade Theory'; see Costinot and Rodríguez-Clare (2014) for a description of this class of models.

i.e. how far-reaching the provisions on non-tariff aspects are. Because measuring the depth of FTAs is again complicated and fraught with measurement error, we simply categorise the universe of FTAs into deep ones (such as EU-Korea, NAFTA, etc.) and shallow ones (such as EU-Morocco, or many older FTAs amongst developing countries). This allows us to assess the trade and welfare effects of different depths of trade liberalisation. With this information to hand, we can simulate the different levels of NTM reductions of an EU-Japan FTA.

The trade policy scenarios—described in more detail in the next subsection—are based on the following thought experiment: in the world as we observe it in 2014, if the EU and Japan had an FTA, i.e. eliminated all bilateral tariffs and reduced NTMs, how would trade, sectoral production structures and real income look like in this alternative world? To create the scenarios, we assume that the extent of NTM reductions for the EU-Japan FTA would be similar to the ones observed in past (shallow or deep) FTAs.

The Ifo Trade Model is a general equilibrium model which simultaneously quantifies the effects of trade policy scenarios on sectoral trade flows, value added, employment, wages, tariff income, GDP, prices, and other variables for all countries involved. Thus, trade diversion effects are fully accounted for. For example, an EU-Japan FTA could lead to a redirection of European textile imports away from sources such as Bangladesh and towards Japan. Moreover, the agreement may divert Japanese imports away from countries where imports are still dutiable to the EU where duties are eliminated; this would affect tariff revenue. These diversion effects are the root cause for the fact that the welfare effects of FTAs are generally ambiguous for the parties engaged in negotiating them and negative for the countries remaining outside of the agreement. The model allows for a very rich pattern of domestic and international sourcing patterns. This means that an expansion of economic activity in one country (in the Japanese textiles sector, say) can lead to increased exports of third countries (of Egyptian cotton to Japan). This counteracts the trade diversion effects.

The model provides static level effects on real income and trade. Potential dynamic effects of trade liberalisation, e.g. on the innovation activities of firms, are not taken into account. In other words, we provide a lower bound for the potential effects of an EU-Japan FTA. However, this does not imply that the static effects would result instantaneously after the FTA has entered into force. This is particularly relevant for NTMs: the increased regulatory cooperation between the EU and Japan will be slowly phased in. Evidence from existing FTAs shows that this phasing-in process usually takes between 10 and 12 years (see for example Jung, 2012).

Another caveat worth mentioning is that the Ifo Trade Model, like almost all other CGE models, does not explicitly include rules of origin. This means that the model may generate too little trade diversion, since goods originating from third countries may enjoy preferential treatment when used as inputs in the parties' production systems. However, at the level of sectoral aggregation used in the model, the share of third-party value added in exports is beyond the critical thresholds of 50 % in almost all cases.

4.2 Scenario description

We present three main scenarios:

1. A tariffs-only agreement (with special focus on agriculture and food);
2. A deep and comprehensive agreement with complete tariff elimination in all sectors and a reduction of the costs of non-tariff measures modelled to the example of the EU-Korea agreement of 2011;
3. A deep and comprehensive agreement with complete tariff elimination in all sectors and a reduction of the costs of non-tariff measures modelled to the econometric effects estimated for the average free trade agreement (using the classification of Duer et al., 2014).

Additionally, we compute scenarios that account for the probable exit of the United Kingdom from the EU (Brexit). This requires a further step in constructing a hypothetical baseline, in which Brexit has already occurred, and to compare the results from an EU-Japan FTA (with and without a separate UK-Japan agreement) with this baseline. Since the terms of Brexit are still unknown, we assume that trade costs between Britain and the EU Member States go up by 26.5 % uniformly across all sectors. This is the trade cost change implied by the estimates reported in Head and Mayer (2014) in their meta analysis of trade policy effects.[7]

For each scenario, we provide general equilibrium consistent results on outcomes such as

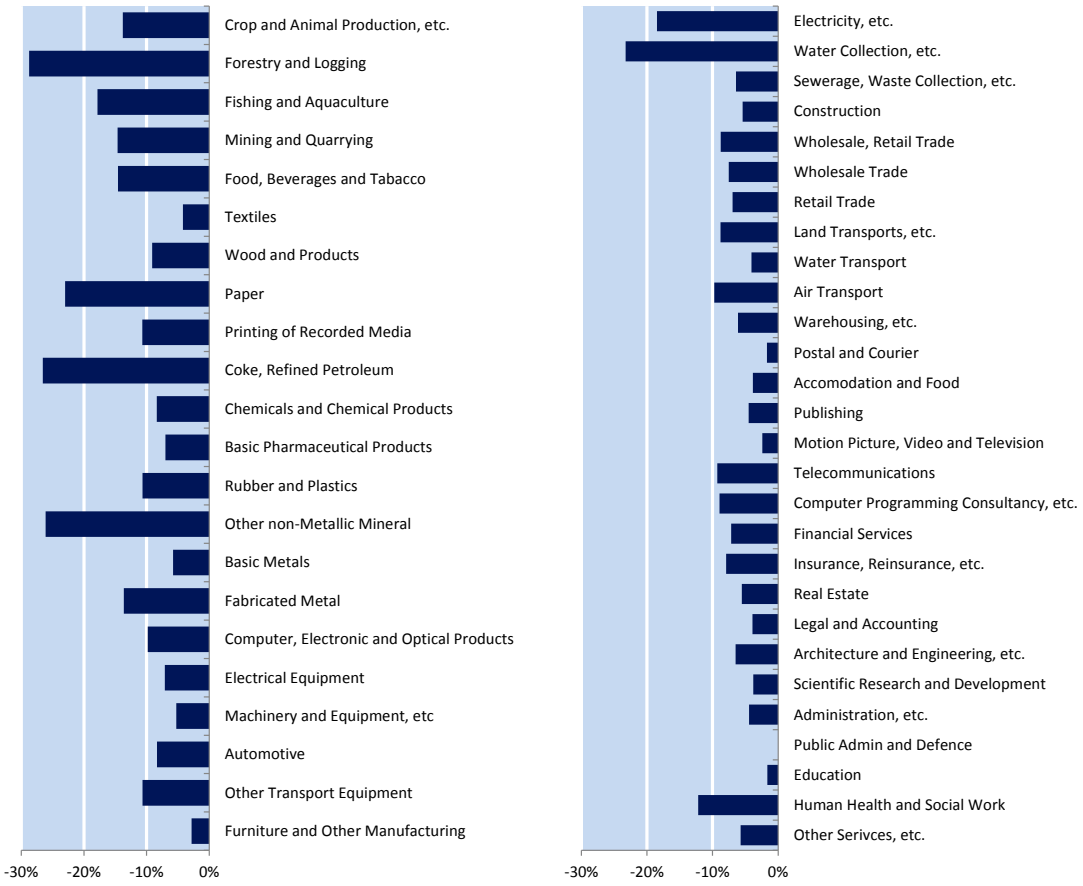
- Changes in bilateral and multilateral trade flows and openness variables (both % of baseline and bn euros);
- Changes in sectoral output and value added statistics (both % of baseline and bn euros);
- Changes in sectoral employment (both % of baseline and number of workers) and displacement index;
- Changes in real per capita income (both % of baseline and bn euros).

These variables are produced for all EU Member States, Japan, and selected third countries. Data is illustrated in the study and/or provided to the client in electronic form.

Note that the EU and Turkey have formed a customs union. This means that if the EU sets tariffs towards Japan to zero, Turkey has to follow and unilaterally set its tariffs towards Japan to zero as well, without receiving tariff reductions on the Japanese market. We have taken this into account in our simulations.

[7] More precisely, the estimate of EU membership obtained from structural gravity modeling is 0.19 on average across many studies. Applying the formula $[1 - \exp(0.19)]^{-1} - 1 = 0.265$ we find the required value.

Figure 17: Scenario definition: Assumed NTB reductions (in %)



Source: Results of sector-level gravity regressions of bilateral trade flows (including domestic flows) between 43 countries contained in the WIOD data set on tariff levels, indicator variables for various free trade agreements, exporter and year as well as importer and year fixed effects, and bilateral fixed effects. Method: Poisson Pseudo Maximum Likelihood. Gravity estimates have been transformed into *ad valorem* tariff equivalents using the trade elasticities estimated in the same equations.

The baseline data, to which our model is calibrated, refer to the year of 2014. The data needed for the model are quite considerable. Amongst other things, we need information on sectoral value added, production, and domestic and foreign input-output linkages for each of our 44 countries in a uniform and harmonised format. Unfortunately, the most recent collection of such data available refers to the year of 2014 and is not available for more countries (however, the countries included cover about 95 % of world GDP). We refrain from updating this data to 2016 or beyond using interpolation and forecasting methods, as this would inevitably result in additional uncertainty. Therefore, our comparative statics exercise compares the status quo of 2014 with a hypothetical situation, in which an EU-Japan FTA had existed in 2014. This approach does not preclude us from evaluating the effects with data from 2016 in order to account for the change in scale of the world economy. The underlying assumption is that the structure of the global economy (the description of technology and demand) has not significantly changed since 2014.

5 Expected effects of an EU-Japan FTA: Simulation results

We are now ready to turn to the results of our model simulations. We look at macroeconomic effects, such as the effects on per capita income, then turn to the analysis of sectoral value added and employment impacts, and finally end with a description of the simulated trade changes. We discuss the role of Brexit and the importance of third country effects. As our default, we will treat the EU-Japan agreement as being similar to the EU-Korea one. This strategy allows us to pinpoint the potentials of an agreement and to illustrate the structure of the mechanisms at play. We also present results for other scenarios, both to study the robustness of our findings and to assess alternative quantitative outcomes.

An agreement between the EU and Japan would lower trade costs: tariffs would be reduced or eliminated, and the costs of NTMs decreased. Lower trade costs allow countries to specialise more strongly in those sectors in which they have a comparative advantage. These specialisation gains come in the form of higher real incomes and allow consumers to reach higher levels of utility. Consumers also benefit from lower prices on imports, but governments lose tariff income, and this effect has to be taken into account. In particular, if tariffs are already low, eliminating them leads to a redistribution of income from governments to consumers. However, aggregate welfare gains are small. Tariff income is relatively unimportant for both the EU and Japan; however, tariff elimination does have substantial budgetary consequences. If the agreement brings trade cost savings from reforming non-tariff trade barriers, there are no direct budgetary consequences. Moreover, welfare effects are more substantial, because lower costs of NTMs mean that fewer resources are wasted.

This implies that when two regions lower trade barriers in a multilateral world, effects on aggregate welfare are not clear ex ante. The reason is that lower tariffs may incite a country to shift imports away from the country where they are produced most efficiently to a less efficient partner, whose efficiency disadvantage is overturned by the preferential elimination of the tariff. These trade diversion effects have to be contrasted to the benefits of trade creation effects with the preferential partner. This ambiguity makes model simulations necessary.

5.1 Effects on incomes and aggregate openness

We start by showing the simulated effects of the EU-Japan FTA on real GDP in 43 countries in alphabetical order in Table 4 (results for rest of the world are not reported). Figure 18 shows the same data but concentrating on Europe. Note that the reported figures can be interpreted as changes in real per capita GDP, since the modelling assumption is to hold the size of the population

constant.[8]

Table 4: Change in real GDP, in % and m EUR

	Tariffs only			Tariffs plus NTB		
	In %	in EUR per capita	In mn EUR	In %	in EUR per capita	In mn EUR
AUS	0.00	0.2	6	0.00	0.5	11
AUT	0.01	2.5	22	0.05	21.7	185
BEL	0.00	1.2	14	0.11	38.9	435
BGR	0.00	-0.1	-1	0.02	1.5	11
BRA	0.00	0.2	32	0.00	0.2	31
CAN	0.00	-1.2	-43	0.00	0.0	1
CHE	0.00	-1.6	-13	-0.02	-11.5	-93
CHN	0.00	-0.1	-113	-0.01	-0.9	-1220
CYP	0.00	-0.9	-1	0.08	16.7	14
CZE	0.01	1.2	13	0.05	8.3	87
DEU	0.01	4.3	351	0.11	42.6	3438
DNK	0.00	1.6	9	0.07	34.8	196
ESP	0.01	1.3	59	0.04	10.3	479
EST	0.01	1.0	1	0.09	14.1	19
FIN	0.01	3.5	19	0.06	24.0	131
FRA	0.01	2.3	148	0.06	18.3	1209
GBR	0.00	-0.1	-9	0.06	25.2	1619
GRC	0.00	-0.8	-8	0.02	3.2	35
HRV	0.00	-0.1	-1	0.01	1.2	5
HUN	0.01	1.4	14	0.11	11.7	115
IDN	0.00	0.0	-11	0.00	-0.1	-34
IND	0.00	0.0	25	0.00	0.0	14
IRL	0.02	10.2	47	0.19	107.0	493
ITA	0.01	1.7	105	0.04	11.7	711
JPN	-0.02	-6.5	-831	0.23	67.9	8636
KOR	-0.01	-1.3	-65	-0.02	-4.5	-226
LTU	0.00	0.2	1	0.01	1.4	4
LUX	0.00	4.4	2	0.13	120.8	66
LVA	0.00	-0.1	0	0.02	2.9	6
MEX	0.01	0.5	62	0.00	0.0	6
MLT	0.01	2.6	1	0.11	22.1	9
NLD	0.01	3.2	54	0.14	55.3	930
NOR	0.00	0.2	1	0.00	-2.7	-14
POL	0.01	0.8	30	0.05	6.0	226
PRT	0.00	0.6	6	0.02	2.8	29
ROU	0.00	0.3	5	0.02	1.4	28
RUS	0.00	0.1	9	0.00	0.2	32
SVK	0.01	1.0	5	0.02	3.0	16
SVN	0.00	0.8	2	0.02	3.5	7
SWE	0.01	2.5	24	0.06	25.9	250
TUR	0.00	-0.1	-8	0.00	-0.2	-19
TWN	0.00	-0.4	-10	-0.03	-5.8	-135
USA	0.00	1.4	448	0.00	1.9	607
All	**0.00**	**0.1**	**402**	**0.03**	**4.0**	**18351**

Source: Own simulations based on Ifo Trade Model.

The left half of Table 4 reports the results of a tariffs-only liberalisation (Scenario I); the right-half

[8] This does not mean that we assume the population to remain constant over the implementation phase of the FTA, but simply that we do not think that fertility and mortality rates or net migration are causally affected by the FTA so that the FTA has no effect on population.

refers to the more comprehensive Scenario II, where sectoral non-tariff barriers are reduced in line with the measured reductions for the EU-Korea trade agreement. Looking at Scenario I first, it is obvious that a tariffs-only liberalisation has negligible welfare gains for all countries in our sample. In a number of EU countries (Bulgaria, Cyprus, UK, Greece, Croatia, and Latvia) and in Japan the welfare gains would even be slightly negative. The reason is that eliminating tariffs can deteriorate the terms-of-trade (i.e. increase the average price of imports compared to the average price of exports), and this can harm countries. This is the converse of the optimal tariff argument; see Felbermayr et al. (2013b) for a modern treatment. For the opposite reason, outsiders can actually gain from tariff liberalisation between the EU and Japan. Moreover, it is important to remember that the elimination of tariffs always involves a loss of tariff revenue for governments (here, we assume that all tariff income remains with the EU Member States; in reality, 75 % goes to the central EU budget but is rebated back to members). Most trade partners, with the only noticeable exception of the USA, lose slightly from the tariff elimination. Globally, gains outweigh losses, though, by about EUR 400 m.

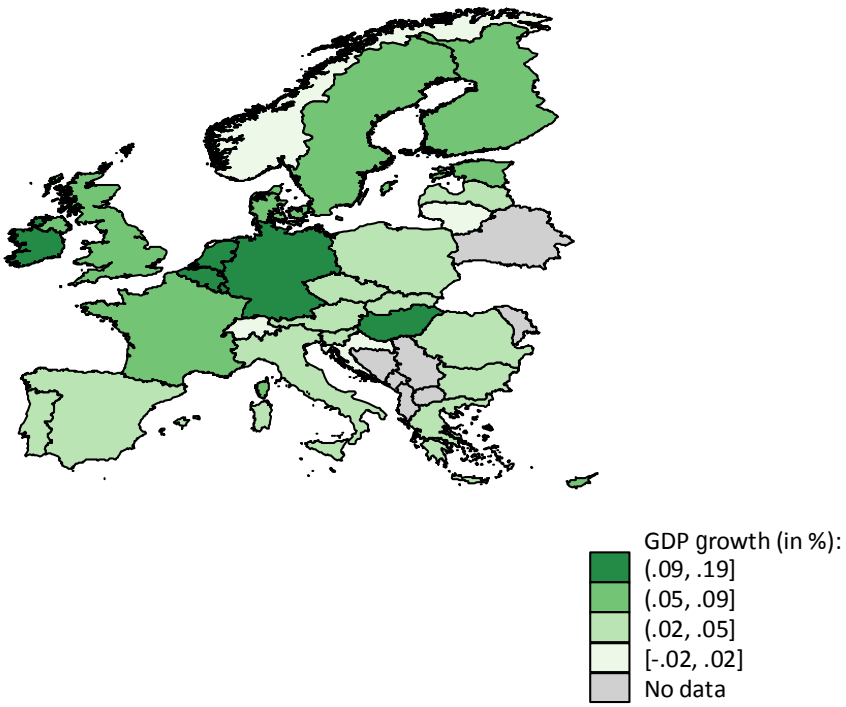
Moving to the more ambitious Scenario II, in percentage terms, the countries that are most positively affected by the FTA would be Japan (0.23 %), Ireland (0.19 %), Netherlands (0.14 %), Luxembourg (0.13 %) and Germany, Belgium, Hungary and Malta (0.11 % each). In terms of per capita income gains this would be equivalent to EUR 68, 107, 55, 121, 43, 39, 12 and 22, respectively. The five countries with the largest absolute welfare gains are Japan (EUR 8.6 bn), Germany (EUR 3.4 bn), United Kingdom (EUR 1.6 bn), France (EUR 1.6 bn) and Netherlands (EUR 0.9 bn). The average change in real GDP for the EU-28 as an aggregate equals 0.06 %.

Encouragingly, overall gains from the Japan-EU agreement would all be positive. This is not an automatic model outcome; it is perfectly possible that the agreement would change relative world prices such that, even after the elimination of trade barriers, a country could end up worse off than before. However, in the present context, this does not happen. Less encouragingly, the gains from the EU-Japan agreement are strongly concentrated on Germany. Out of the EUR 10.7 bn total gains accruing to the EU in total, Germany would appropriate 32 %; this exceeds by far Germany's share in the EU's GDP (which is about 20 %). The country with the second largest absolute gains, the United Kingdom, would take 15 % of the total; this is already lower by more than 2 percentage points than the country's share in EU GDP; for France and Italy the situation looks even less rosy. As a matter of fact, Germany is better positioned to benefit from the EU-Japan free trade agreement. This is simply due to the fact that Germany would be able to increase exports in high value added industries; see below. Note that the model does not allow Germany to expand its trade surplus. It is in fact frozen at the 2014 level.

Overall, the income gains from the agreement look relatively minor, both in percentage terms and in absolute values. There are three mainly EU-Japan-specific and one more general reasons for this:

1. The trade share between the EU-28 and Japan could still increase when one regards the relative

Figure 18: Change in real GDP across Europe, in % (Scenario II)



Source: Own simulations based on Ifo Trade Model, own illustration.Scenario II assumes a full elimination of tariffs plus a reduction of non-tariff barriers as implied by the trade cost reduction effects found in the EU-Korea agreement.

size of the European and Japanese economies; see Felbermayr et al. (2013a).

2. As discussed above, Japan has a very different way of serving foreign markets compared to most EU countries. Rather than producing at home and exporting, its firms serve foreign markets via local production. Through this strategy, Japanese firms have insulated themselves from trade costs; however, as a consequence, lowering trade costs is of relatively little advantage to them. So, Japanese exports do not rise too much in absolute and in percentage terms. Imports, bound by the model to exports in order to keep trade surpluses constant at their 2014 level, cannot increase very strongly, either. This keeps welfare gains down.

3. Both the EU and Japan are fairly advanced economies with similar patterns of comparative advantage; in particular, they are manufacturing hot spots. However, this has direct implications for the gains from trade integration: countries with similar technological structures would have similar domestic prices in the presence of trade barriers so that their removal incites only relatively small trade flows and the corresponding welfare gains.

4. The more general reason for the relatively low welfare gains lies in the calibration used in this project. Due to a very conservative parameterisation, welfare gains are low. Moreover, the model features only static gains; the dynamic gains from trade are not modelled but can be very substantial; see Felbermayr and Gröschl (2013) for empirical evidence.

5.2 Upper bound estimates

We based our analysis on the assumption that, in the EU-Japan trade agreement, reductions of non-tariff trade barriers should be similar to those observed in gravity analysis for the EU-Korea agreement, which has been in force since 2011. This is a very conservative assumption, because the EU-Korea agreement has probably not had time yet to fully develop its effects. Moreover, since Korea is substantially smaller than Japan, it is conceivable that the EU was less willing to make concessions in the case of Korea. Similarly, to the extent that trade negotiations involve a tit-for-tat logic, Japan, too, could be more willing to grant preferential advantages to the EU. If this is true, our estimates would be too small.

Indeed, the results in Table 5 indicate that our baseline scenario might be a very conservative one. If we assume that trade costs fall in a similar quantity as in the average trade agreement observed in the analysis by Head and Mayer (2014), we get substantially larger welfare effects. Note, however, that the scenario does not involve sector-level detail, but instead assumes a uniform reduction in NTBs (as in the literature). In this case, welfare gains in Germany would be close to 0.7 %; this is larger by a factor of seven than in our baseline. Welfare gains in Japan would be boosted in a similar fashion. As a downside, losses in third countries such as China or Taiwan would be magnified too.

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. Gains increase more than proportionately; see Felbermayr et al. (2013a) for formal proofs of this assertion. Encouragingly, while the size of effects depends on the exact definition of the scenario, the qualitative patterns predicted (such as signs) are very robust. Hence, it is wise not to over-interpret the exact numbers obtained from the simulation exercise but to focus on the underlying mechanics and the qualitative picture.

In the following parts of the paper, we return to our more cautious lower bound estimates defined by the experience of the EU-Korea agreement.

Table 5: Change in real GDP across Europe, in % (Scenario III)

	Scenario III: Uniform NTB Reduction	Scenario II		Scenario III: Uniform NTB Reduction	Scenario II
EU28	0.42	0.04	AUS	0.02	0.00
AUT	0.34	0.05	BRA	0.00	0.00
BEL	0.69	0.11	CAN	-0.01	0.00
BGR	0.16	0.02	CHE	-0.11	-0.02
CYP	0.46	0.08	CHN	-0.08	-0.01
CZE	0.31	0.05	IDN	-0.02	0.00
DEU	0.68	0.11	IND	-0.01	0.00
DNK	0.53	0.07	JPN	1.63	0.23
ESP	0.24	0.04	KOR	-0.12	-0.02
EST	0.49	0.09	MEX	-0.01	0.00
FIN	0.42	0.06	NOR	-0.05	0.00
FRA	0.36	0.06	RUS	0.02	0.00
GBR	0.45	0.06	ROW	-0.01	0.00
GRC	0.12	0.02	TUR	-0.04	0.00
HRV	0.06	0.01	TWN	-0.18	-0.03
HUN	0.57	0.11	USA	0.01	0.00
IRL	1.44	0.19			
ITA	0.24	0.04			
LTU	0.07	0.01			
LUX	1.23	0.13			
LVA	0.12	0.02			
MLT	0.58	0.11			
NLD	0.98	0.14			
POL	0.32	0.05			
PRT	0.11	0.02			
ROU	0.08	0.02			
SVK	0.11	0.02			
SVN	0.07	0.02			
SWE	0.38	0.06			

Source: Own simulations based on Ifo Trade Model, own illustration. Scenario III assumes a full elimination of tariffs plus a reduction of non-tariff barriers as implied by the estimates presented in Head and Mayer (2014).

5.3 The Role of Brexit

The United Kingdom is bound to leave the European Union following the negative referendum on 23 June 2016. After triggering Article 50 of the Treaty on the European Union, which defines the modality of exiting the Union, the UK and the remaining European countries (EU-27) have two years to negotiate both the separation of the two entities from each other and a new free trade agreement. In a White Paper, the British prime minister, Theresa May, has made it very clear that

the UK is set to leave the European customs union and the single market.[9] The UK wants to pursue its own external trade policy, it wants to free itself from the jurisdiction of the European Court of Justice, and it wants to regain control on the flow of immigrants from the EU. These objectives mean that the future relationship of the EU with the UK will be very different to the present one. For example, the trade agreements negotiated by the EU with third countries cannot apply to the UK anymore if the UK is no longer in the customs union. Also, withdrawing from the Single Market means that new trade barriers will emerge, for instance, as the mutual recognition of market access permits of financial products expires.

A model often cited is the EU-Canada Deep and Comprehensive Free Trade Agreement, CETA, or an older agreement the EU has with South Korea (EU-Korea). At this stage, it is unclear what shape the future relationship between the UK and the EU-27 will take, but the probability that, two years after triggering Article 50, only a transitory arrangement can be agreed upon, is high. In this section, we model a tough Brexit; i.e. the EU and the UK reintroduce tariff barriers, and non-tariff barriers reemerge to the level observed with other WTO members. Brexit would also imply that a future agreement between the EU and Japan would not apply to the UK.

Table 6 shows how real GDP would change due to an EU-Japan FTA if the UK were not part of the EU. This is what the second column in the table shows. The third to fifth columns compare the EU-27 case (with the UK outside of the EU) to the EU-28 one (with the UK as a member of the EU). The simulation exercise suggests that, for the EU as a whole, concluding an agreement with Japan with or without the UK makes little difference. Across Member States, however, there is some heterogeneity. For Spain, France or Italy, the EU-Japan agreement would be marginally more valuable with the UK on board, while for Germany or the Netherlands the opposite is true. The reason for this pattern lies in the different degrees of complementarity between Member States' structures of comparative advantage with the UK's. For Germany, Brexit would be positive for the welfare effects of EU-Japan, mostly because the UK car industry would be denied preferential access to the Japanese market, and this slightly benefits German car-makers. Other countries, in contrast, export to Japan through the UK (e.g. because they provide crucial inputs), and the maintenance of trade barriers between the UK and Japan harms them. Across the EU-27 Member States, the agreement with Japan actually becomes more valuable by some EUR 124 mn.

For Japan, Brexit makes the agreement with the EU less valuable. As shown in Table 6, the welfare gains would fall by more than EUR 1 bn. This is a reduction of 14 % relative to the case where the UK remained in the EU. The share of the UK in total EU GDP is 18 %, so one could have expected a more sizeable reduction in the total gains to Japan. The reason for this is simple: with the UK outside of the EU, and new trade barriers between the EU-27 countries and the UK, competition on the EU-27 market is smaller, the aggregate price level is higher and Japanese firms find it easier to

[9] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/589191/\newlineThe_United_Kingdoms_exit_from_and_partnership_with_the_EU_Web.pdf

Table 6: Outcomes of Brexit on real GDP effects of EU-JPN agreement

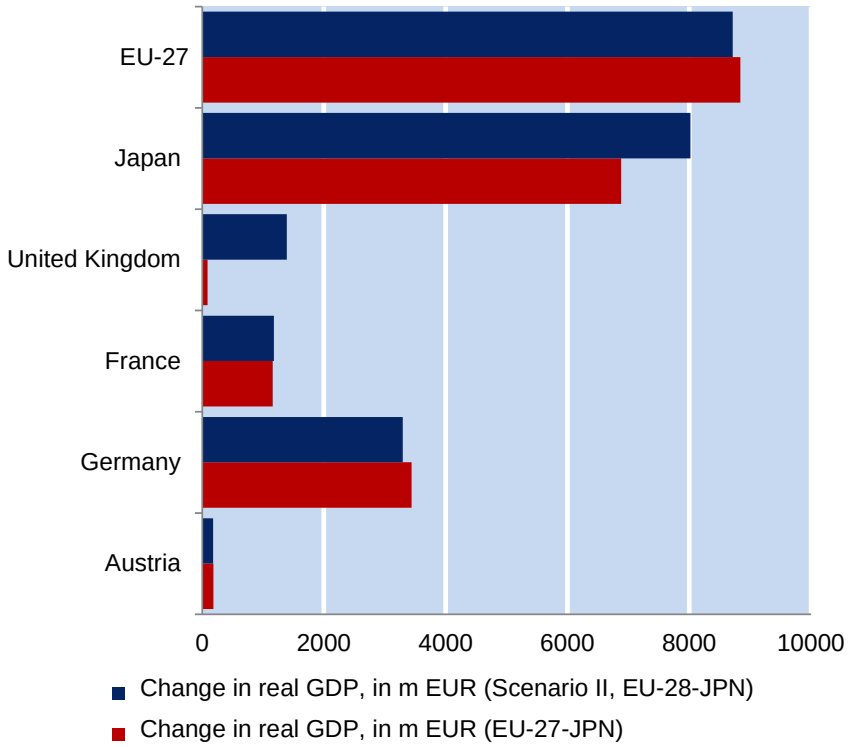
	EU-27-JPN,	Comparison to EU-28-JPN FTA		
		Δ GDP gain, %-points	Δ GDP gain, m EUR	Δ, in %
AUT	0.06	0.00	6.7	4%
BEL	0.11	0.00	17.6	4%
BGR	0.02	0.00	-0.9	-9%
CYP	0.08	0.00	0.0	0%
CZE	0.06	0.01	12.1	15%
DEU	0.12	0.00	144.8	4%
DNK	0.07	0.00	-0.1	0%
ESP	0.04	-0.01	-56.3	-12%
EST	0.09	0.00	0.0	0%
FIN	0.06	0.00	-2.7	-2%
FRA	0.05	0.00	-19.0	-2%
GBR	0.00	-0.06	-1301.1	-94%
GRC	0.01	-0.01	-11.0	-31%
HRV	0.01	0.00	-0.7	-14%
HUN	0.11	0.00	2.8	3%
IRL	0.20	0.01	18.6	5%
ITA	0.04	0.00	-48.8	-7%
JPN	**0.20**	**-0.03**	**-1136.9**	**-14%**
LTU	0.01	0.00	0.3	6%
LUX	0.14	0.01	6.0	10%
LVA	0.02	0.00	0.0	-1%
MLT	0.10	-0.01	-0.4	-5%
NLD	0.14	0.01	34.6	4%
POL	0.06	0.00	9.9	5%
PRT	0.01	0.00	-5.4	-20%
ROU	0.02	0.00	1.3	5%
SVK	0.02	0.00	-0.1	0%
SVN	0.02	0.00	0.1	1%
SWE	0.06	0.00	14.2	6%
EU-27		**0.00**	**123.7**	

Source: Own simulations based on Ifo Trade Model, own illustration.

sell their goods and services. This effect, however, is a second-order effect. The withdrawal of the UK from the EU does make the deal substantially less attractive for Japan.

Figure 19 provides a graphical illustration for selected countries.

Figure 19: Comparison of changes in real GDP of Scenario II (EU-28-JPN) and Scenario III (EU-27-JPN), in m EUR



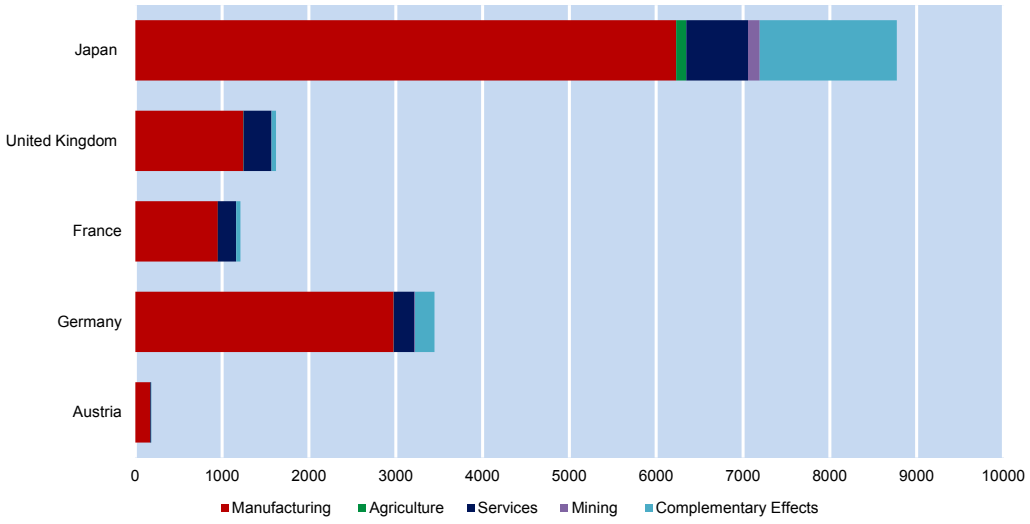
Source: Own simulations based on Ifo Trade Model, own illustration.

5.4 Effects on sectoral value added

Next, we look at broad sectoral impacts. For this purpose, we concentrate on Scenario II (tariffs plus NTB-reductions, EU-28). Figure 20 starts with a decomposition of aggregate income gains for some selected countries. We separately quantify the gains from trade liberalisation in the manufacturing, agricultural, services and mining sectors. Due to complementarities between the sectors, a scenario where all sectors are liberalised yields larger gains than when each of the broad sectors is liberalised one at a time. This additional gain is called a complementary effect.

For all countries, the manufacturing sector largely dominates the picture. This is because tariff cuts are limited to that sector and estimated NTB-reductions are most sizeable. For Japan, 72 % of overall gains are attributable to manufacturing; in all other countries displayed, the share of manufacturing is even larger. It is highest in Austria (93 %); in Germany it is 87 %; in the UK it is somewhat lower at 77 %. Agriculture contributes almost nothing to the overall gains; only in Japan are we able to quantify anything worth mentioning. However, even there, the contribution to the overall gains is only 1.4 %. Similarly, the mining sector does not play any major role, either. Japan, which relies heavily on imports of raw materials, could see a minor share of the aggregate gains coming from this sector; for the European countries, mining is totally irrelevant.

Figure 20: Sectoral distribution of change in real GDP, in m EUR



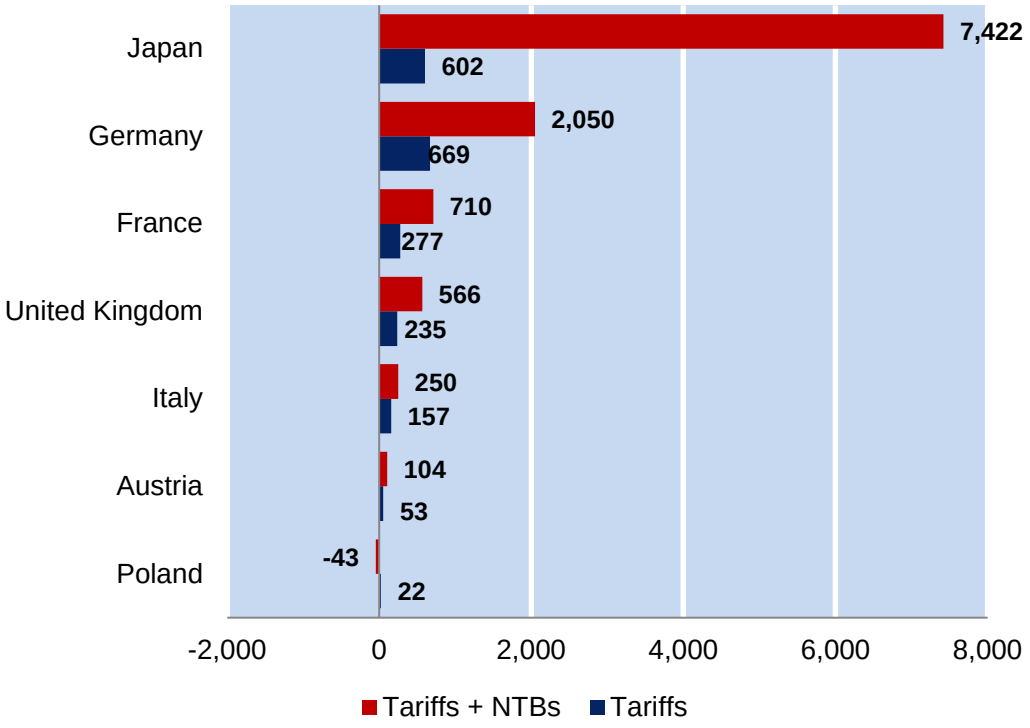
Source: Own simulations based on Ifo Trade Model, own illustration.

The services sector contributes 20 % to the overall gains in the UK; in France, the share is 17 %. In the former case, the financial sector is key for this result; in the latter, the dominant services sector is tourism. Quite interestingly, complementarity effects by a combined liberalisation of all sectors are quite important for Japan. Liberalising all sectors together, most notably services and manufacturing, generates an additional gain of almost EUR 2 bn on top of the sum of the sectoral effects. This is expected: in modern production networks, there are multiple linkages between sectors: better access to services imports improves the competitiveness of manufacturing exports and so on.

The next figures (Figures 21 to 23) shed closer light on the manufacturing, services and agricultural sectors. Starting with the manufacturing sector, Figure 21 highlights that tariffs still matter, at least when looking at sectoral outcomes. For the European countries, tariff elimination in Japan would account for about at least one third of the total increase in manufacturing sectoral value added. In Germany, for example, tariffs unlock additional value of about EUR 670 mn. In contrast, for Japan, tariffs matter less for manufacturing value added effects. The reason for this asymmetry simply lies in the fact that tariffs tend to be higher in Japan than in Europe. Interestingly, Figure 21 makes clear that negative sectoral value added changes can occur, in this case to Poland.

Figure 22 looks at the services sector. This sector, of course, is not subject to tariffs. So, in the tariffs-only scenario, all changes in value added must arise from general equilibrium effects. In Japan, tariff liberalisation adds about EUR 650 m to sectoral value added. This is because increased goods exports lead to additional demand for inputs from the services sector. In most EU countries, tariff liberalisation alone would reduce value added in the services sector. Here, another effect dominates: as manufacturing exports grow, resources are drawn out of the services sector and this leaves overall

Figure 21: Change in sectoral value added, manufacturing sector, in m USD

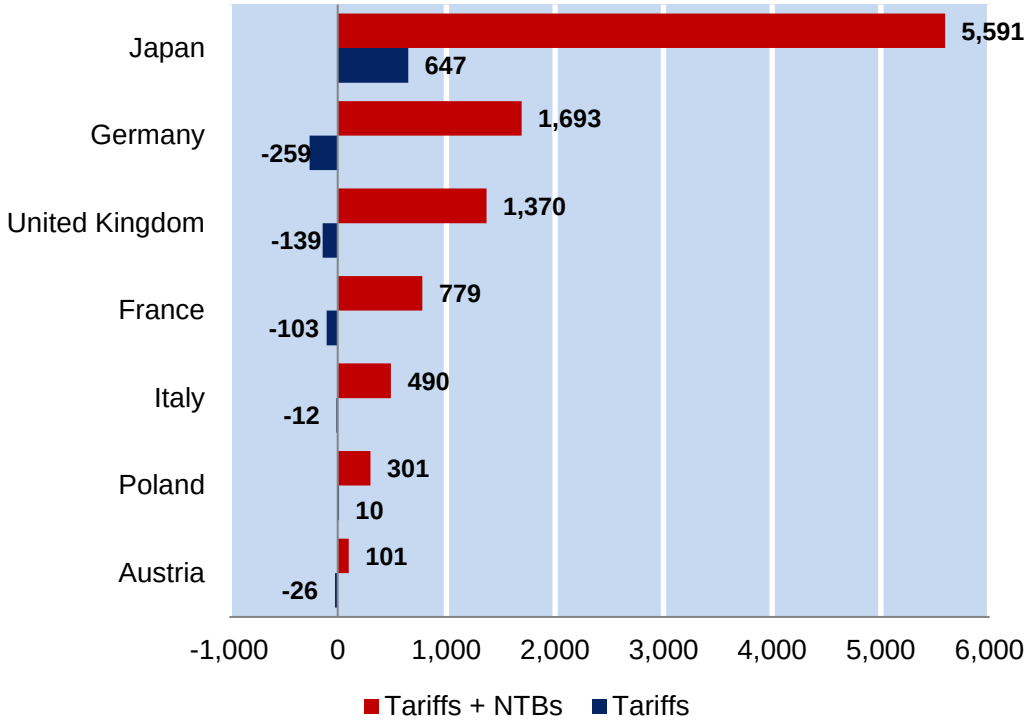


Source: Own simulations based on Ifo Trade Model, own illustration.

sectoral value added lower than in the baseline situation.

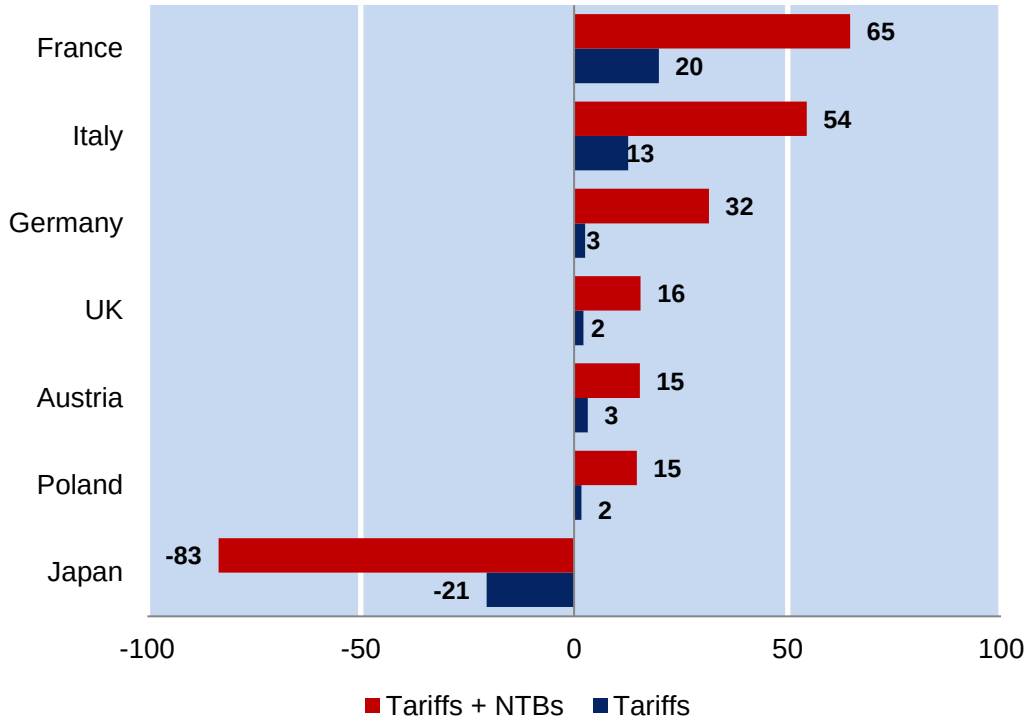
Finally, agricultural value added is expected to fall in Japan as shown in Figure 23. The effects are minor in both scenarios, but they are clearly negative. European countries, in contrast, would benefit from higher agrifood exports to Japan and this shows in value added gains. Not surprisingly, Europe's farming super power France would benefit most; Italy follows very closely. Interestingly, small Austria would see its agricultural value added go up by almost as much as the United Kingdom's.

Figure 22: Change in sectoral value added, services sector, in m USD



Source: Own simulations based on Ifo Trade Model, own illustration.

Figure 23: Change in sectoral value added, agricultural sector, in m USD

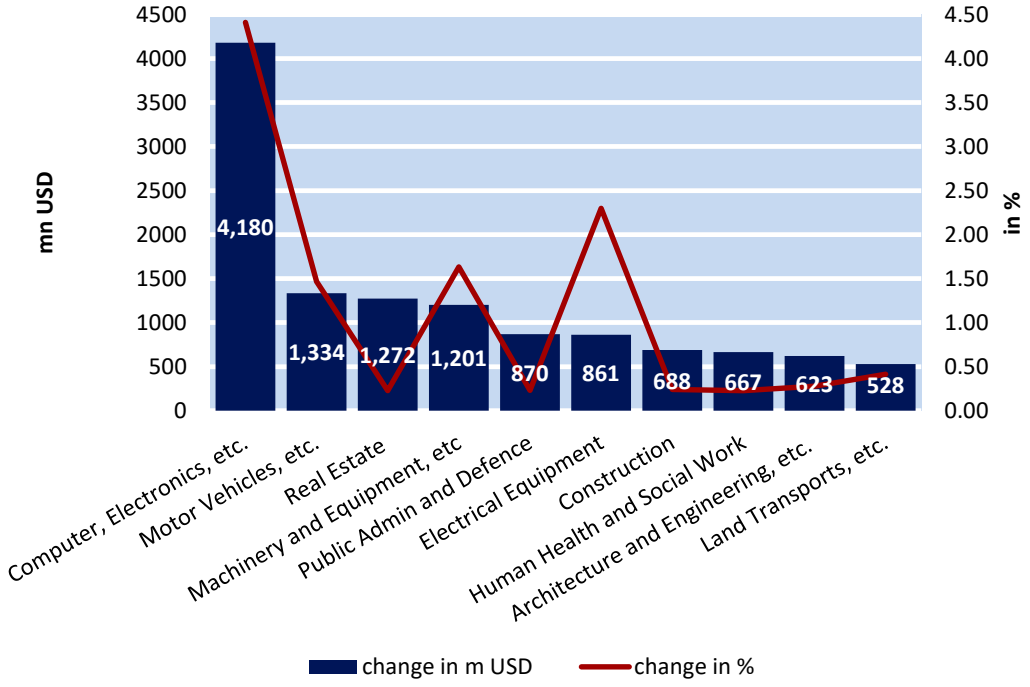


Source: Own simulations based on Ifo Trade Model, own illustration.

5.5 Detailed sectoral value added impacts in Japan

Here we show the 10 sectors (out of the 57 sectors in our data) in Japan that are most strongly positively and negatively affected by a trade agreement with the EU. We focus on Scenario II and briefly compare it to the Scenario II. Figure 25 shows that the gains from the agreement would be very strongly concentrated in the Japanese computer and electronics sector. That sector alone would reap about half of the aggregate welfare gains generated by the EU-Japan deal in Japan, namely about EUR 4.1 bn. This amounts to an increase in sectoral value added of about 4.5 % relative to the status quo. The motor vehicle sector comes second, with value added gains of about EUR 1.3 bn or 1.5 % relative to baseline. The third sector is the real estate industry; this is an area almost entirely unaffected directly by the agreement. However, as incomes grow, that sector is also lifted up. Value added is expected to increase by about 1.3 %, or, in growth rates, about 0.2 %. Not surprisingly, this sector grows at about the rate of the total Japanese economy; other services sectors – with the big exception of construction – behave similarly. Two more manufacturing sectors are noteworthy: the machinery and equipment sector, which could reap gains of about EUR 1.2 bn and the electrical equipment sector, which stands out with a comparable large rate of change (2.5 %) in value added due to the agreement.

Figure 24: Change in sectoral value added of Japan's 10 fastest growing sectors (due to FTA), in % and m USD, Scenario II

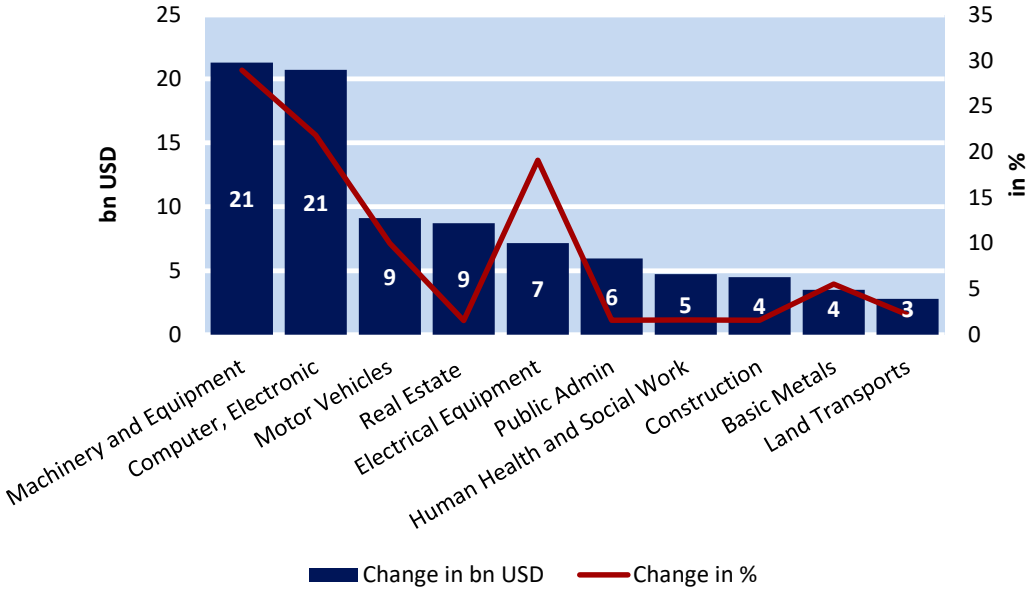


Source: Own simulations based on Ifo Trade Model, own illustration.

In general, the sectors profiting the most from a potential EU Japan scenario remain similar in the third scenario when, compared to the second one. While Scenario III predicts increases of sectoral

value added of 29 % in the machinery, computer and electronic equipment sector, the remaining sectors such as motor vehicles and real estate increase the sectoral value added by USD 9 bn, which is substantially larger than the conservative scenario predicted.

Figure 25: Change in sectoral value added of Japan's 10 fastest growing sectors (due to FTA), in % and bn USD, Scenario III

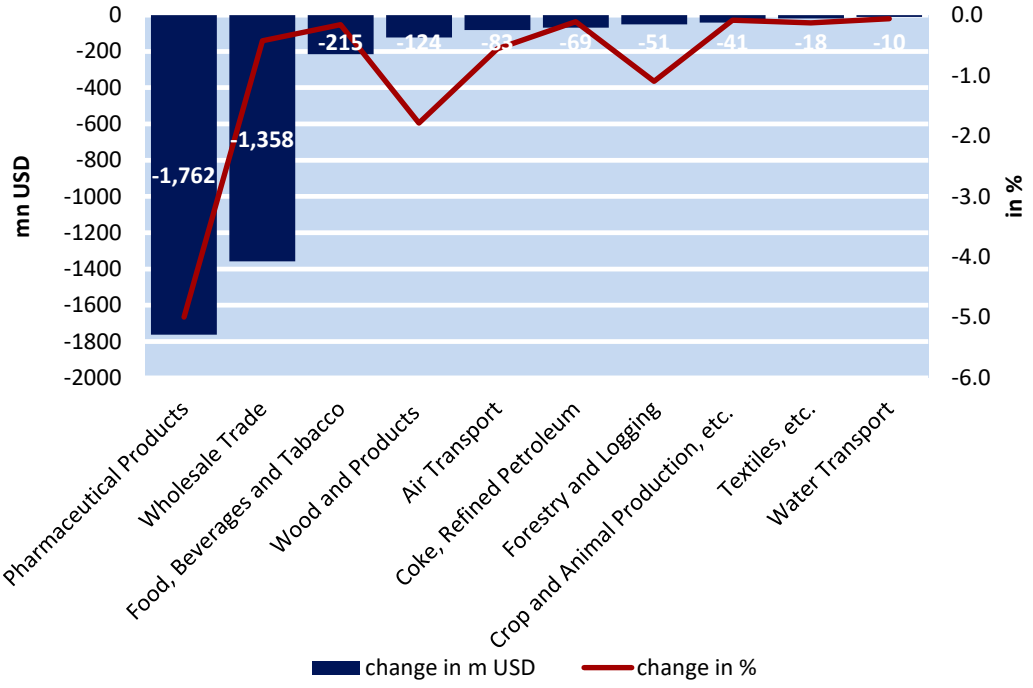


Source: Own simulations based on Ifo Trade Model, own illustration.

Turning to the 10 most strongly negatively affected sectors, shown in Figure 27, interestingly, it is not the agricultural or foods industries which stand out as the largest losers. Instead, the pharmaceutical industry registers the largest negative effects, reaching about EUR 1.7 bn (5 % of baseline value added). This is due to the fact that the Japanese pharmaceuticals sector is still relatively strongly protected and EU competitors are strong. The second losing sector is wholesale trade. This sector could lose about EUR 1.4 bn in value added. The reason for this effect lies in the labour-intensive production mode of this sector. As wages increase (even slightly), due to the agreement, that sector is squeezed by strong EU competitors. However, in growth rates, the effect is very minor. The agricultural sectors come only later, in positions 3, 4, 7 and 8. The wood and wood products sector would be the most strongly affected sector, both in terms of absolute losses and in growth rates. The cereals sector – including rice – is not amongst the top 10 losers.

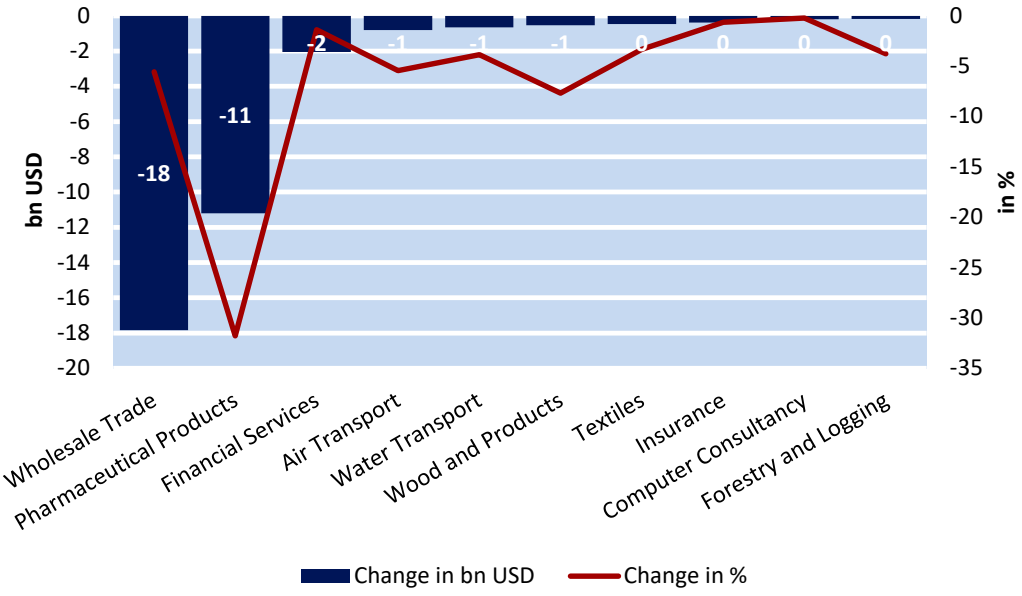
The reason is that Europe has only a very minor rice production, so that competitive pressure in Japan would not go up due to the FTA. The negative sectoral value added effects exacerbate in Scenario III. Wholesale trade would lose the most (USD 18 bn), followed by pharmaceutical products (USD 11 bn). The remaining sectors lose in the range of Scenario II.

Figure 26: Change in sectoral value added of Japan's 10 largest losing sectors, (Sc. II)



Source: Own simulations based on Ifo Trade Model, own illustration.

Figure 27: Change in sectoral value added of Japan's 10 largest losing sectors, (Sc. III)

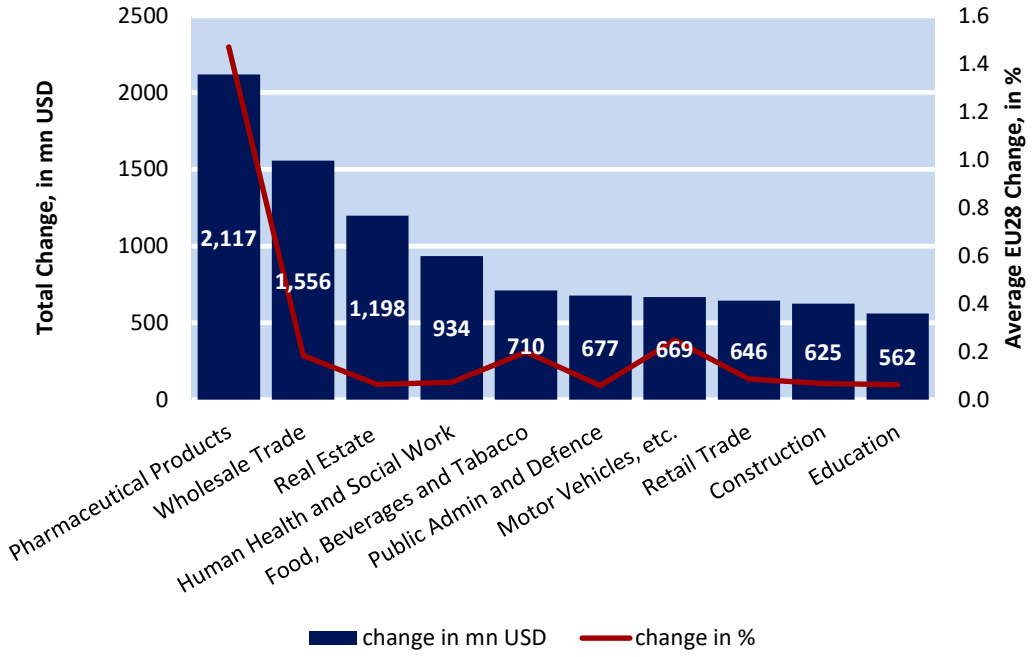


Source: Own simulations based on Ifo Trade Model, own illustration.

5.6 Detailed sectoral value added impacts in EU 28

Next, we turn to the detailed sectoral analysis for Europe (including the United Kingdom). Again, focusing on Scenario II, we find that pharmaceutical products top the list in terms of both absolute and relative losses. That sector could increase its value added by about EUR 2.1 bn or approximately 1.5 %. This is just the mirror image of what Figure 27 reported for Japan. A similar observation is in place regarding the wholesale trade sector. Interestingly, however, amongst the top 10 winning sectors in the EU-28, we find only three manufacturing sectors. This is due to the relatively high degree of competitiveness of Japan in manufacturing. The food industry and motor vehicles reach value added gains of EUR 0.7 bn each; this is a value added gain of about 0.25 % in each sector.

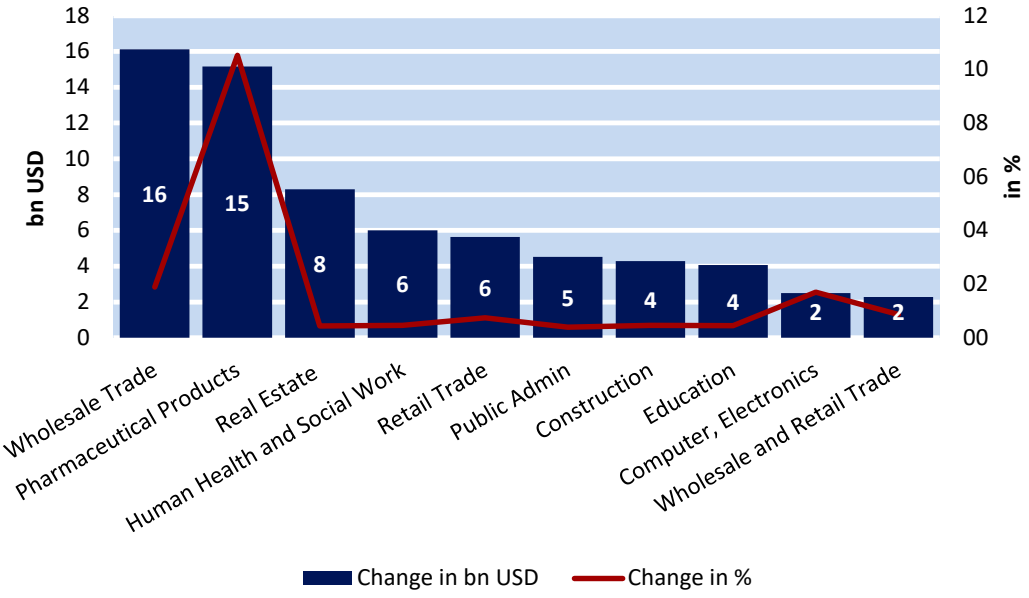
Figure 28: Change in sectoral value added of EU's 10 largest sectors, in % and m USD, Scenario II



Source: Own simulations based on Ifo Trade Model, own illustration.

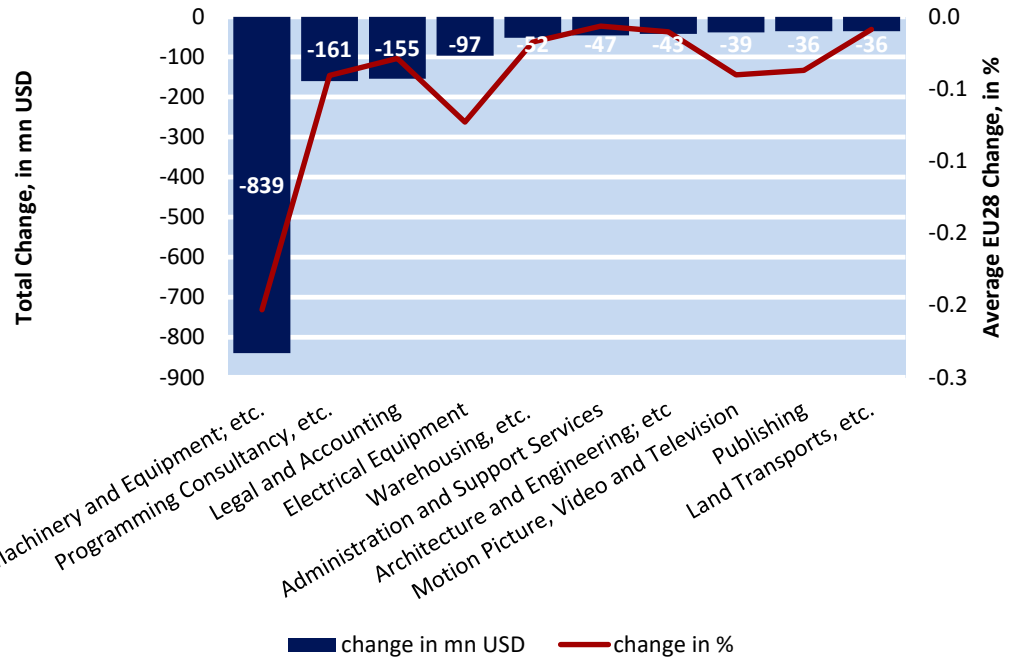
Figure 31 looks at the 10 largest losing sectors in EU-28. Overall, losses are small, even if we focus on the most affected sectors. The one with the largest effects would be the machinery and equipment sector, where Japan has very competitive firms. Total losses in the EU would ramp up to EUR 0.8 bn, or 0.2 % of sectoral baseline value added. Among the manufacturing sectors, electrical equipment also could register a loss; however, in terms of absolute and relative magnitudes, the loss would be minor. Small losses could also appear in the computer programming consultancy and in the legal and accounting sectors.

Figure 29: Change in sectoral value added of EU's 10 largest sectors, in % and m USD, Scenario III



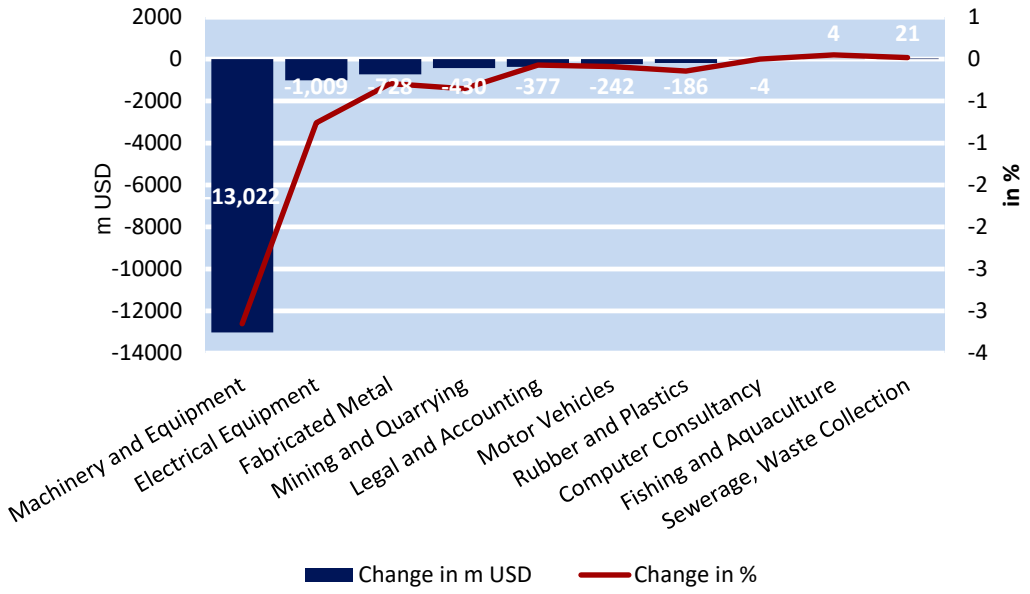
Source: Own simulations based on Ifo Trade Model, own illustration.

Figure 30: Change in sectoral value added of EU's 10 largest losing sectors, (Sc.-II)



Source: Own simulations based on Ifo Trade Model, own illustration.

Figure 31: Change in sectoral value added of EU's 10 largest losing sectors, (Sc.-III)



Source: Own simulations based on Ifo Trade Model, own illustration.

5.7 Trade effects of an EU-Japan FTA

Finally, we present some information on the trade effects of an EU-Japan FTA. We start with the exports of goods and services of the EU to Japan. Table 7 shows that most EU countries would experience very substantial gains in export volumes to Japan, even if one looks at the tariffs-only scenario. Germany's exports would go up by 17 %; increases in exports of Slovakia and Bulgaria would be even more substantial, albeit from a very low level. However, countries with a smaller comparative advantage in manufacturing benefit less from tariff elimination. The UK's exports would grow only by some 10 %; exports of Luxembourg would grow by a paltry 1 %. Because the level of exports with Japan is relatively minor, and due to the existence of trade diversion effects, the increase in total exports over GDP (a measure of openness which is related to the increase in income attributable to the agreement) is relatively low, too.

Table 7: Change in exports to Japan, in %

	Sc. I	Sc. II	Sc. III		Sc. I	Sc. II	Sc. III
EU28	12.5	61.0	146	HUN	17.5	69.0	142
AUT	14.5	59.1	139	IRL	7.3	49.5	153
BEL	11.4	75.1	152	ITA	16.1	59.6	154
BGR	20.6	73.9	145	LTU	13.3	36.9	102
CYP	0.0	67.3	214	LUX	1.1	55.9	187
CZE	14.7	62.9	149	LVA	15.1	48.5	116
DEU	16.6	72.4	167	MLT	5.1	52.6	111
DNK	6.3	42.3	152	NLD	11.8	59.4	141
ESP	12.8	88.2	139	POL	11.3	56.8	132
EST	13.3	55.4	131	PRT	17.1	54.8	123
FIN	9.5	47.9	140	ROU	15.8	52.2	128
FRA	13.2	62.5	156	SVK	22.7	76.1	163
GBR	9.5	64.5	176	SVN	16.0	64.7	167
GRC	4.4	79.9	169	SWE	15.2	66.7	164
HRV	16.8	45.4	87				

Note: The first two scenarios represent direct and indirect expected bilateral trade flow changes, after the FTA; Scenario III also shows directly induced expected trade flow changes after trade liberalisation.
Source: Own simulations based on Ifo Trade Model.

Things look different when we consider the more ambitious scenario, in which non-tariff barriers are reduced alongside tariffs. Here, bilateral trade of EU Member States with Japan grows much more, in each case by more than 45 %. The variance across countries is again large. According to our estimates, the gains would be most spectacular for Spain (+88 %). Accordingly, openness goes up by more, too. However, the increase is at most as large as 1 percentage point (in the case of Germany). In many countries, particularly in those in the EU periphery, openness barely goes up at all. This picture fits the earlier finding where welfare gains from the EU-Japan agreement were concentrated in central EU countries.

Table 8: Change in imports from Japan, in %

	Sc. I	Sc. II	Sc. III		Sc. I	Sc. II	Sc. III
EU28	4.0	55.0	162	HUN	2.1	52.9	161
AUT	3.6	55.0	158	IRL	1.1	55.8	185
BEL	3.9	56.2	161	ITA	6.6	59.7	167
BGR	4.3	60.9	174	LTU	5.2	50.0	136
CYP	7.4	55.4	158	LUX	2.5	50.1	191
CZE	3.3	54.6	160	LVA	4.1	42.7	129
DEU	2.8	59.7	169	MLT	3.1	48.2	141
DNK	2.8	51.2	168	NLD	3.0	57.6	178
ESP	3.1	54.4	159	POL	1.7	53.3	159
EST	2.5	47.8	145	PRT	5.3	51.9	150
FIN	2.4	57.5	165	ROU	5.8	58.6	160
FRA	4.1	57.2	164	SVK	3.4	64.6	172
GBR	2.3	60.4	166	SVN	3.3	51.9	154
GRC	6.4	66.1	168	SWE	2.0	52.6	157
HRV	6.4	59.3	169				

Note: The first two scenarios represent direct and indirect expected bilateral trade flow changes, after the FTA; Scenario III also shows directly induced expected trade flow changes after trade liberalisation.
Source: Own simulations based on Ifo Trade Model.

The most ambitious FTA scenario results in an increase of imports in the EU by an average of 146 %; at the same time there is a very low variation across EU-28 Member States. Expected exports differ among the large economies. While Germany can potentially increase exports by 167 %, for the UK export increase will be around 176 %. The smallest export increases are expected in small countries such as Lithuania (102 %) and Malta (111 %). Not surprisingly, the last scenario predicts the highest export increases across all countries, given the large decrease in trade barriers.
Finally, we turn to imports. Overall, effects are smaller than when looking at EU exports. However, it is still true that the trade gains are an order of magnitude larger in Scenario II than in Scenario I (tariffs only). In Scenario III, average imports from Japan are predicted to reach 162 %. At the same time and in contrast to the previous export patterns, there is no big variation in expected import increases across EU Member States.

6 The political economy of trade policy in Japan

One important aspect in Japan is the political relevance of interest groups in the agricultural sector, which may play a crucial role in the ongoing FTA negotiations. This section gives a short overview of relevant political economy aspects with a focus on specific policy groups. The Liberal Democratic Party of Japan (LDP) has kept long government party positions since 1955 except for a few years. The LDP has two big supporters, Japan Agricultural Cooperatives (JA) and Keidanren (Japan Business Federation). Agricultural farmers outside of urban areas have been a strong supporter of the LDP for the last several decades in Japan. One of the biggest factors for the LDP keeping the position of government parties for most of the period since 1955 is in their votes to the LDP in the Diet elections. In other words, the LDP has used agricultural policies and farm organisations, like JA, to extend control over voting behaviours in the rural electorate.

The LDP can stay in political power in the Diet using the variation in the district magnitude of electoral districts. Rural districts have more elected legislators per voter. Thus politicians are keen to be more interested in agricultural protection through their political power. These politicians are called norin zoku and they can put huge pressure on MAFF and make a large influence on agricultural policies. JA is a route for them to gain more votes.

However, recent decades have seen some changes in JA and farmers' voting behaviours, together with electoral reforms. The political pressure of farmers and JA has gradually weakened. In the 2003 election, Prime Minister Koizumi Junichiro proposed structural reforms, which are represented as the privatisation of post offices. In response, many agricultural voters were reluctant to vote for the LDP in the 2003 election. In the 2007 Upper House election and the 2009 Lower House election, the Democratic Party of Japan (DPJ) proposed a direct compensation programme for agricultural farmers. Thus many farmers rejected JA recommendations linked with the LDP and voted for DPJ candidates. As a result of the elections, the DPJ successfully got the government party position in 2009, but the DPJ lost its position in 2012. The LDP came back to the government party position and Prime Minister Abe is currently in charge. It can therefore be said that JA is not simply a 'vote-getting machine' anymore. Furthermore, the LDP has reduced the cooperative relationship gradually. In the 2013 Upper House election, for example, Prime Minister Abe proposed that Japan join the TPP in spite of strong objection by JA and finally achieved a big victory. JA strongly opposes TPP, because trade liberalisation resulted in the collapse of Japanese agriculture through a large amount of cheap imports in agricultural products. Tariff rates in Japanese agricultural products are still very high with a large variance across products. In particular, rice, which is the main agricultural product in Japan, has very high tariff rates. Thus trade liberalisation would largely do damage to rice farmers.

Keidanren is another big supporter of the LDP. Keidanren is the pressure group representing Japanese manufacturing and business interests and has a long history of providing substantial political dona-

tions to the LDP, with some temporary breaks. In terms of the TPP, Keidanren takes a positive attitude and promotes Abe's trade policies. Manufacturing sectors already have low tariff rates these days and maintain substantially high and advanced technology, involving a large comparative advantage to foreign countries. Compared with Japan, other TPP member countries impose higher tariff rates. Thus Keidanren suggests that trade liberalisation leads to lower tariff rates in TPP member countries and would promote Japanese manufacturing exports, which will benefit the Japanese economy. The growing influence of Keidanren counteracts JA's objection, but Keidanren has considered the TPP to be beneficial.

The TPP and EU-Japan FTA involve many similar and different aspects. Unlike TPP member countries, EU Member States have a smaller rice production and many manufacturing sectors. As shown in Figure 10, the tariff rates have similar patterns. The EU and Japan's tariff rates on manufacturing are already low, so we suggest that Japan might see much less drastic change in industrial structure and international trade than the TPP. This would cause less political conflicts for the agreement across political interest groups in Japan. In addition to trade, investment agreements and NTBs might be more influential. Unlike TPP members, Japan and the EU already have a large number of horizontal FDI in manufacturing and services, which will be promoted by an EU-Japan FTA.

7 Conclusion

The ongoing negotiations between Japan and the EU over a free trade agreement are taking place during a time in which global economic integration is increasingly questioned or even reversed. With TTIP on hold and TTP no longer pursued by the USA, a successful trade deal between two leading economic powers such as Japan and the EU would be a strong political message: economic integration between countries is still achievable and it does come with welfare benefits for the participating parties. This report has employed advanced quantitative methods to shed light on the economic effects that can be expected from a bilateral trade accord between the EU and Japan. While a less ambitious trade liberalisation based only on tariff elimination is predicted to yield very low welfare benefits, economic gains turn out to be substantial if the negotiating parties pursue a comprehensive free trade agreement that would reduce non-tariff barriers across various sectors which are, to a large extent, still protected by these sorts of trade barriers.

A conservative estimate modelled on the experience of the EU-Korea trade agreement puts the welfare effects for Japan at about EUR 9 bn, which is equivalent to 0.23 % of GDP in 2014. At the same time, the EU Member States can expect total income gains worth about EUR 11 bn per year. The countries with the largest gains in absolute numbers are Germany (EUR 3.4 bn), the United Kingdom (EUR 1.6 bn), France (EUR 1.2 bn), and the Netherlands (EUR 0.9 bn). In terms of relative gains, the countries with the largest gains are Ireland (0.19 %), the Netherlands (0.14 %), Luxembourg (0.13 %), and Germany (0.11 %). Derived income gains are expected to materialise every year after a ramp-up period of about 10 years after the FTA comes into force. Applying a different scenario, informed by the average trade effects of a large set of existing trade agreements, welfare gains are several times larger than our lowest bound estimates.

It is important to emphasise that aggregate gains are expected to be heterogeneously distributed across different industries within the EU and Japan and also across the two countries. One major reason for differences in expected output across the considered industries can be found in the strong asymmetries between existing trade barriers in Japan and the EU. Applied tariffs, e.g. in the Japanese pharmaceutical industry, are on average almost four times larger compared to European ones. Hence, an elimination of tariff increases competition significantly stronger in some Japanese industries than in the respective European industries. Secondly, Japan has developed a foreign market business model that also differs from the EU and other western countries. Since 2006, Japanese enterprises have increasingly created affiliate companies in the EU and used these plants to serve foreign markets. Hence, a reduction in trade costs will not necessarily lead to a strong rise in Japanese exports, particularly if an industry exhibits high FDI positions in the EU, indicating that Japanese production plants serve EU countries from within the Union.

Our simulations predict that in Europe, the agreement would have positive value added effects in the pharmaceutical industry, in the area of food, beverages and tobacco, and in the motor vehicle

sector. Amongst the services sectors, wholesale trade would benefit most. At the same time, some losses can be expected in the machinery industry. In the area of services, minor losses are likely to appear in computer programming or the entertainment industry. For Japan, substantial gains are expected in the computer and electronics sector. Also the motor vehicle and machinery industries would benefit, albeit on a much smaller scale. Losses are very likely to arise in the pharmaceutical sector and in wholesale trade. Additionally, the agrifood industry can also lose some market shares, albeit to a very moderate degree.

Besides the sectoral analysis, the simulations also illustrate that all EU countries are expected to benefit from a trade liberalisation, even if some Member States are almost unaffected. This is the case of several peripheral countries such as Greece, Portugal and Romania, which would register gains below the most conservative (baseline) scenario of 0.02 %; modelling the EU-Japan deal to the average existing agreement, those countries would benefit more handsomely, with gains of around 0.1 %.

While both the EU and Japan can expect aggregate welfare gains, at the same time the increasing trade relations between the two regions have negative trade diversion effects with respect to other third parties. Our analysis illustrates that China, Korea and Taiwan are expected to suffer from the EU-Japan trade agreement; however, the reduction in income is relatively small. Across these three countries, it is less than EUR 1.5 bn in the most conservative scenario. Other third countries, such as Mexico or the USA, would gain from the bilateral agreement. Again, expected income effects turn out to be small. In total, world income is expected to increase by about EUR 18 bn.

Given the recent developments within the EU, in which the United Kingdom has decided to leave the Union, the study additionally accounts for possible effects with a Brexit scenario. Accordingly, an agreement between the EU and Japan would be worth substantially less for Japan without the UK being part. Brexit is likely to reduce the economic gains from the agreement for Japan by about 14%. This lies below UK's share of 18 % in EU GDP, because Brexit would allow Japan to gain market shares in the EU at the expense of the UK.

Hence, despite the fact that the EU and Japan pursue very different models of foreign market access, and notwithstanding the reality of relatively low tariffs, even in a very conservative scenario, there are substantial welfare gains to be reached from the agreement. What is more important, however, is the systemic role of a successfully concluded agreement between two of the largest world trading powers: it would send a strong signal supporting an open, global trade order based on rules and cooperation.

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