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The UK after the Referendum: Renegotiating Tariffs and Beyond

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Negotiating market access in the wake of Brexit is a difficult matter. On the one hand, tariffs with the EU and the rest of the world have to be renegotiated. On the other hand, existing Tariff Rate Quotas (TRQs) of the EU and third countries have to be adjusted in order to deal with this new situation. According to some professionals TRQs are likely to become a contentious issue in Britain's re-establishment of its status as an independent WTO member. While the UK is highly interconnected with the EU in almost all sectors the interdependency becomes especially apparent in the agricultural sector. Britain's self-sufficiency rate of food products amounts to only 62 % which is also mirrored in a highly negative trade deficit in this sector. Accordingly, the agricultural markets in the UK and the exporting countries are expected to be particularly affected by a Brexit. The aim of this paper is twofold. First, comprehensive quantitative effects of a tariff scenario are analysed with a focus on the EU agricultural sector. Therefore, we assume that the UK trades under the rules of the WTO by adopting MFN tariffs. It turns out that the impact of a Brexit on agricultural sectors in Europe is mainly negative with the most pronounced effects in the meat and livestock sectors. Second, we plan to dig deeper into the question how renegotiation of an existing TRQ, i.e. the Hilton quota for beef, affects the stakeholders involved. Therefore, we combine several quantitative simulation models. The tariff scenarios are simulated with the MAGNET model a global computable general equilibrium model which is based on the GTAP model and database. In order to grasp the complex implications of a renegotiated beef quota for UK and the EU-27 across agri-food markets we also employ AGMEMOD a partial equilibrium model to focus on beef and related markets and to provide a detailed price vector for FARMIS a farm-type model which allows for assertions on farm incomes and its distribution across farms.

1. Motivation

On 29 March 2017 Theresa May officially invoked Article 50 of the Lisbon Treaty, a process initialised by the Brexit referendum of the UK citizens on 23 June 2016. This implies the first exit of a country from the European Union in history. The exit decision is not only politically and economically relevant for the UK but also affects its trading partners. As a consequence the UK is no longer a member of the EU internal market. Hence, it has to rebalance its trade relations with the EU countries. Several negotiation outcomes are possible and the exact realization is uncertain from a present point of view. Hence, we have to *assume* a specific "Brexit scenario" for our analysis. Here, we consider an extreme scenario where EU and UK reciprocally implement MFN applied tariffs. This implies that UK and EU would charge the same tariffs on each other's imports as it is the case for trade between e.g. USA and China. Besides tariff renegotiation with the EU there is also the contentious issue of renegotiating existing TRQs of the EU with third countries. For example the Hilton beef TRQ for EU imports from a couple of third countries[1] was negotiated under a condition where the UK was part of the EU. Now the EU, third countries and UK have to come again at the bargaining table and adjust the Quota to the new situation. To investigate the possible effect of newly adjusted TRQs on farm income in Germany we combine several optimization models with a different level of aggregation.

Since the UK is the third most important destination for German agricultural exports, negative production effects will be the consequence of a Brexit in all likelihood. German agricultural exports to the UK amounted 4.5 bn € in 2016. The imports from the UK were with 1.4 bn € considerably lower, leading to a German net export of 3.1 bn €. This means that the UK is the trading partner with the largest trade surplus in agricultural goods from a German perspective.

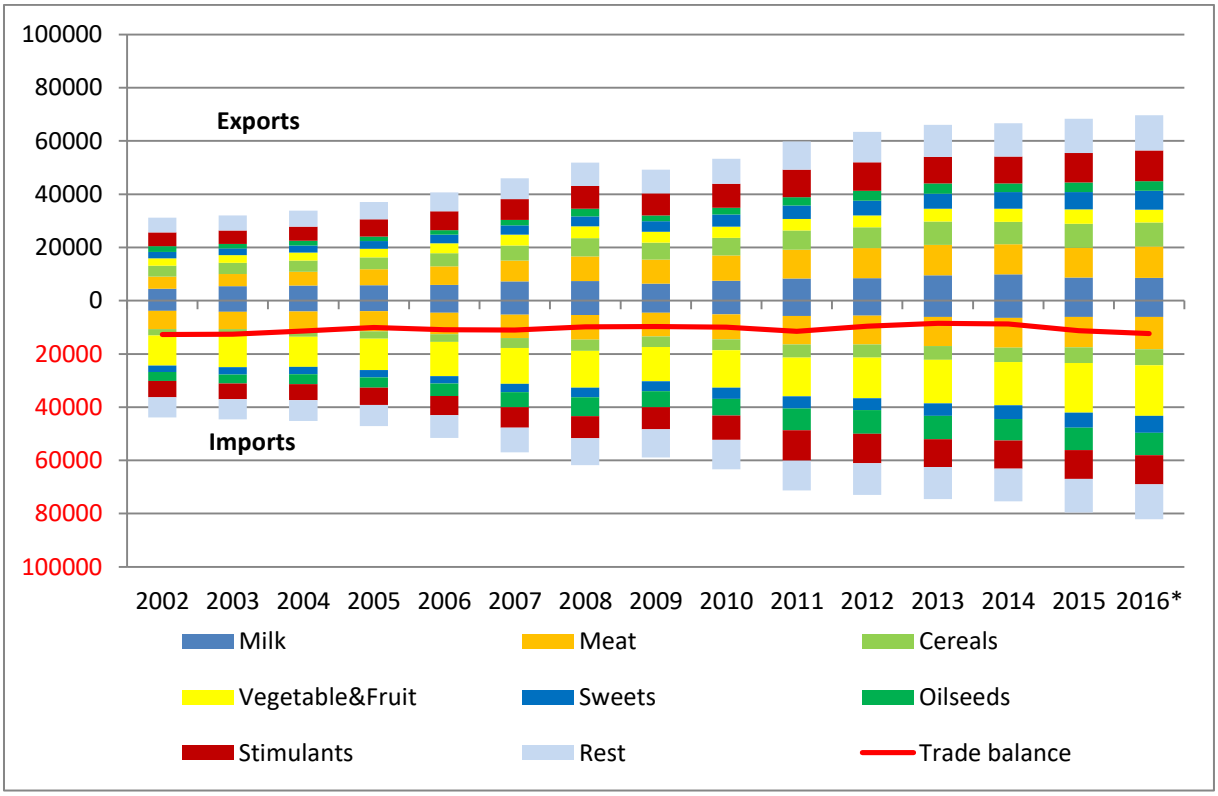
The paper is structured as follows: after a description of the British-German trade relations for agri-food products the likely consequences of a "hard" Brexit are analysed with a computable general equilibrium model in chapter 2. The effects of different negotiation outcomes concerning Tariff Rate Quotas with third countries is the content of chapter 3. The paper closes with a short discussion of results in chapter 4.

[1] In the case of Hilton quota third countries consist of MERCOSUR countries, Canada, USA, New Zealand and Australia.

2. Description of German agri-food trade

Before we employ our quantitative model to calculate our Brexit scenarios, it is instructive to start with a short description of the German and British-German agri-food trade. The structure of German trade with all trading partners is shown in figure 1. In the positive (negative) area the exports (imports) are displayed and the red line indicates the overall agri-food trade balance. First, we can detect that the German agricultural sector is increasingly interconnected with the rest of the world since both imports and exports are increasing over time - imports and exports have more than doubled in the last 14 years. Although, the exports form an important part of agricultural production, imports are even larger which results in a negative trade balance for the years covered by the analysis. A distinctive evolution can be identified in the meat sector. More meat was imported than exported until 2007 but in 2016 exports exceeded imports by 260 mn €. Nowadays about half of all meat produced in Germany is exported to foreign markets. The net exports for milk and milk products have also excelled in the past. They increased from 680 mn € in 2002 to 3.4 bn € in 2014. In 2016 the net exports decreased by 30 % to 2.6 bn €, as a consequence of the weak Chinese market and the Russian import ban.

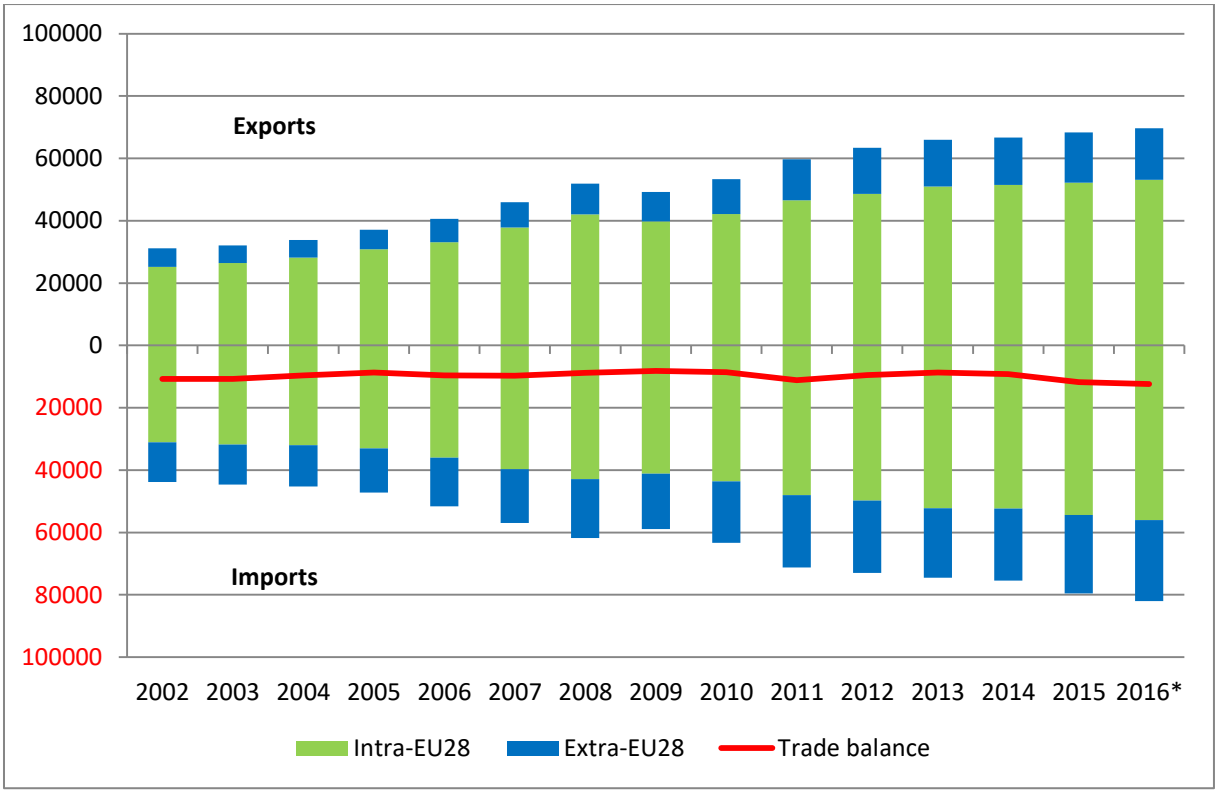
Figure 1: German agri-food trade, all countries, 2002-2016, in mn €



In figure 2 trade flows are distinguished between intra- and extra-Europe. It becomes clear that the bulk of trade appears in the intra-European form. The extra-European trade is generally less than one third of overall trade. But it is also visible that the share of extra-European trade is increasing over time. This is basically due to the proliferation of EU trade agreements in the last couple of years. The

UK is a very important trade partner for the German agribusiness sector: 7 % of all exports were destined for the UK and 2 % of all imports entering were of UK origin.

Figure 2: German agri-food trade, Extra-/Intra-EU trade, 2002-2016, in mn €



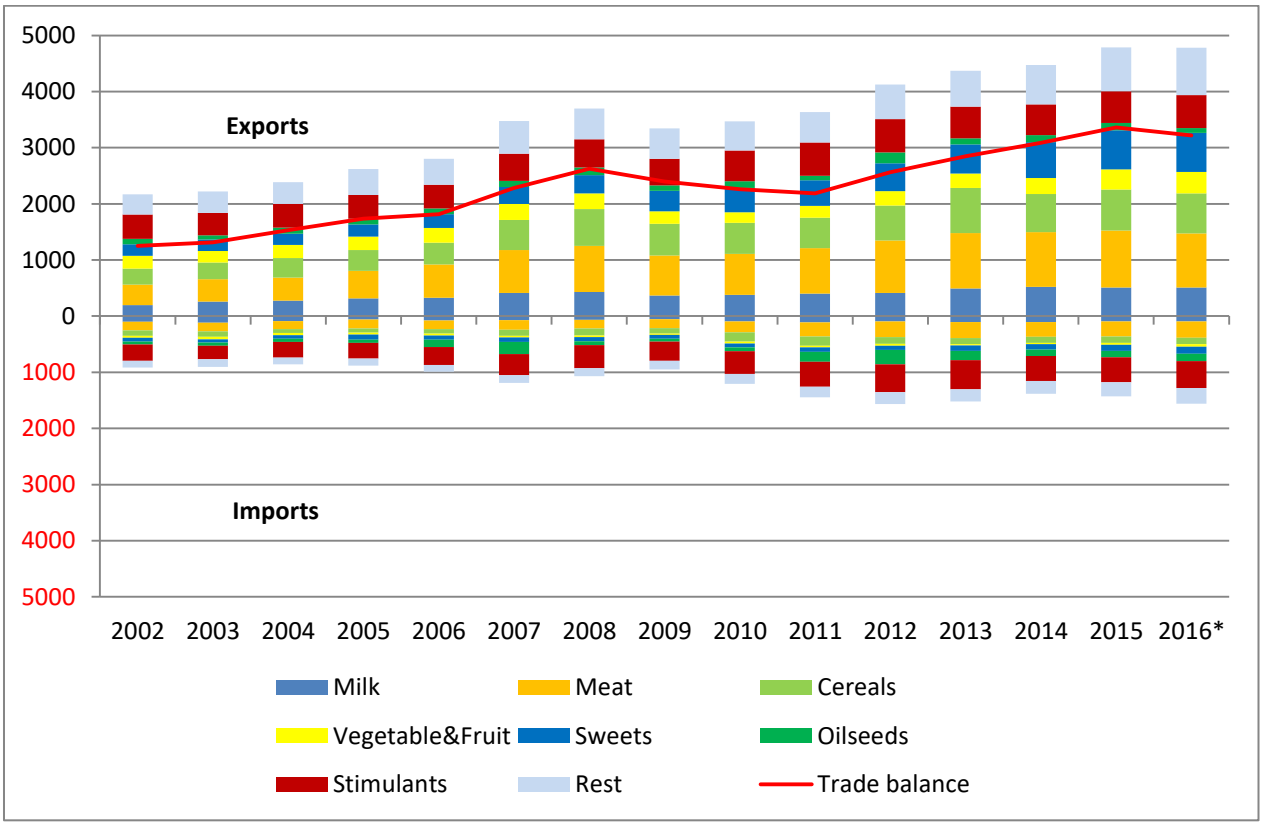
The German agri-food exports and imports with selected partners are displayed in Table 1. Traditionally the most important destination and source countries are the Netherlands, France and Italy. But also the UK is a very important trading partner for Germany as already mentioned. These figures may be a first indicator of how strongly both regions may be affected by reciprocal imposition of MFN tariffs.

Table 1: German agri-food imports and exports, top-15 trade partners, mn €, 2015

	Imports			Exports		
Rank	Country	Value	Share	Country	Value	Share
1	Netherlands	13558.5	18.20	Netherlands	8577.2	13.12
2	France	5877.9	7.89	France	5726.3	8.76
3	Italy	5645.8	7.58	Italy	5192.8	7.94
4	Spain	4557.6	6.12	**United Kingdom**	4537.8	6.94
5	Poland	4449.7	5.97	Austria	4162.0	6.37
6	Belgium	3475.9	4.66	Poland	3821.1	5.84
7	Brasil	3357.8	4.51	Belgium	3254.4	4.98
8	Austria	2828.5	3.80	Denmark	2516.0	3.85
9	Denmark	2733.9	3.67	Spain	2356.1	3.60
10	USA	2705.3	3.63	Switzerland	1839.1	2.81
11	Turkey	1693.5	2.27	USA	1730.5	2.65
12	China	1546.8	2.08	Czech Republic	1567.3	2.40
13	Switzerland	1433.3	1.92	Saudi Arabia	1373.1	2.10
14	**United Kingdom**	1294.3	1.74	China	1364.2	2.09
15	Czech Republic	1269.9	1.70	Sweden	1338.5	2.05

A detailed picture of the German agri-food trade with the UK is illustrated in figure 3. The exports exceed imports considerably throughout the displayed time span which translates into a relatively large trade surplus. The dynamic evolution of the trade balance should also be mentioned: The net exports have more than doubled in the last 14 years. This is driven in large part by the evolution of trade in meat products. Meat exports have increased by more than 150 % which implies a yearly growth rate of 7 %, whereas meat imports have increased by 90 % in the same time. The largest export growth was realized in the sweets sector with more than 230 %. Also in the cereal and milk sector exports have more than doubled. The imports have also increased in all sectors but milk products, however, the import trade values ware considerably lower compared to the exports. The trade surplus is largest for cereals and meat products with about 600 mn € respectively. The smallest trade surplus is in the stimulants. The reason could be seen in the fact that the UK is an important provider of liquor like, e.g. whiskey to Germany.

Figure 3: German agri-food trade, UK, 2002-2016, in mn €



3. Quantitative Approach

3.1. The MAGNET model

The MAGNET system (Modular Applied GeNeral Equilibrium Tool) is a derivative of the well known GTAP model, Woltjer et al. (2014) and Hertel (1997). In addition to the GTAP core it has some nice

features relevant for agricultural modelling. This includes various imperfectly substitutable types of land, the land use allocation structure, land supply function and substitution between various animal feed components. On the policy side, common agricultural policies (CAP) like production quotas and different land related payments are included as well as biofuel policy issues like capital-energy substitution and fossil fuel - biofuel substitution. On the consumption side, dynamic CDE expenditure function was implemented which allows for changes in income elasticities when purchasing power parity (PPP)-corrected real GDP per capita changes. The segmentation and imperfect mobility between agriculture and non-agriculture labour and capital is also considered. Additionally, the modular set-up allows researchers to switch on/off various modules as needed.

The core data is based on version 8 of the GTAP data, Walmsley et al (2012). The GTAP database contains detailed bilateral trade, transport and protection data characterizing economic linkages among regions, linked together with individual country input-output databases which account for inter-sectoral linkages. All monetary values of the data are in millions $-US and the base year is 2007 which is updated in a baseline process with starting year 2015. All model results are shown for the year 2020.

The initial GTAP data base was adjusted to implement some new sectors. Ethanol and biodiesel were included to represent biofuel policies in the model. These new sectors produce two products each; the main product and byproduct. The ethanol byproduct is dried distillers drains with dolubles (ddgs) and biodiesel byproduct - oilseed meals (bdbp). Additionally, the sectors corn, soybeans and rapeseeds were split out of the original GTAP sectors.

In the end, we distinguish 21 regions and 37 sectors. The sectoral aggregation includes, among others, agricultural sectors that use land (e.g. rice, grains, wheat, oilseed, sugar, horticulture, other crops, cattle, pork and poultry, and milk), the petrol sector that demands fossil (crude oil, gas and coal), bioenergy inputs (ethanol and biodiesel) and biofuel production byproducts, see table 3 in the appendix. The regional aggregation includes, amongst others, the single countries Germany, France, UK, USA, Australia, New Zealand, Brazil and other aggregates for the EU, Asia, Latin America, etc., see table 2 in the appendix.

3.2.The AGMEMOD model

The partial equilibrium model AGMEMOD (Agricultural Member States Modelling) focuses on a detailed representation of the agri-food markets described by quantities and prices while the other economic sectors are not covered. It is a modelling tool designed to analyze agri-food markets and related policies, originally, covering all EU Member States with the exception of Malta, Cyprus and Luxembourg which are integrated in other countries. Candidates and potential candidates to EU accession are represented, like the Former Yugoslav Republic of Macedonia or Turkey (Erjavec et al., 2007; Van Leeuwen et al., 2007a; Van Leeuwen et al., 2007b; Salputra et al., 2008; Chantreuil et al. 2011, AGMEMOD partnership, 2010) and neighbouring countries like Russia (AGMEMOD partnership, 2012) and Ukraine (AGMEMOD partnership, 2012) as well.

In AGMEMOD, a flexible, modular bottom up approach is used. Econometric based, recursive-dynamic country specific modules have been developed to reflect details of agriculture at country level and at the same time allow for combining these individual country models into an overall aggregate model. Such an approach is to capture the inherent heterogeneity of the different

agricultural systems existing while the analytical consistency across the country models will be obtained via a close adherence to templates. Various domestic commodity markets are linked by substitution or complementary conditions in supply and demand, covering differentiated types like demand for food, feed, energy use or further processing. All supply and utilization of a distinct commodity are balanced via a closure variable. These sub-models also include a detailed set of agricultural, trade policy or other policy instruments in each MS.

Equilibrium for each commodity market at the MS, the EU and the global levels are described by equation for market clearing implying that on each market production plus beginning stocks plus imports will be equal to domestic use plus ending stocks plus exports. Given that the countries integrated do not represent a closed economy, the Rest of the World has important impacts on the price formation of all countries so a module for the Rest of the World (RoW) capture this relation in stylized form as neither detailed policies are implemented nor model parameters are econometrically estimated. but derived from the literature. Supply and demand in the RoW sub-model allow closing of markets for each tradable by forming the respective world market price. To account for the impacts between the world market price level and the regional respectively the EU price level, price linkage equations are used.

For each commodity market and for each country, the functional representation can vary and should capture distinct market features at country level. Where data limitations exist, the final functional forms are adjusted in response to the statistical and economic validation of the models. For country details see e.g. Chantreuil et al. (2005), Esposti and Bianco (2005), Leeuwen and Tabeau (2005). In the validation process multidisciplinary teams and a network of market experts in the countries considered are involved to build and to verify the country models. Based on this concept, projections for each commodity, in each year out to a ten year horizon, for each country, and for aggregate regions are produced which, in turn. also serve as a counterfactual baseline for the impact analyses of policy changes.

AGMEMOD covers a wide range of products. either primary or processed. Hence, due to the modular structure specific products may not be captured in all countries due to their limited importance or unavailability of data. In principle, cereals (soft wheat, durum wheat, barley, maize, rye, oat, triticale and other grain), rice, oilseeds (rape seed. sunflower seed and soybeans including their respective oils and meals), protein crops, potatoes, industrial crops (cotton, tobacco) are represented in the crop sector as well as milk and dairy products (drinking milk, other fresh products, cream. butter, cheese, skimmed milk powder, whole milk powder and other products), cattle and beef, pigs and pork, poultry, sheep and goat and meat hereof in the animal sectors. Also bio-fuels are implemented driven by targets based on required feedstuffs. Production, supply and use items are driven by exogenous variables like productivity, technical coefficients, prices, macro-economic variables, policy variables and further endogenous variables.

Within the Thünen model platform AGMEMOD uses a set of macro-economic and policy variables harmonized across all other models of the platform. AGMEMOD provides a price vector of agricultural products especially to the farm and regional models which themselves deliver a production volumes. In an iterative process production within AGMEMOD is adjusted to the outcomes of the farm and regional models while adapting prices used as input for the other models.

3.3. The FARMIS Modelling System

FARMIS is a comparative-static programming model for farm groups (Bertelsmeier, 2005; Offermann et al., 2005; Deppermann et al., 2014). It provides sector-consistent modelling of policy impacts taking into account farm characteristics as well as ownership and prices of quotas and land for income assessments. The model specification is based on information from the German Farm Accountancy Data Network (FADN). supplemented by data from farm management manuals. Data from three consecutive accounting years is averaged to reduce the influence of yearly variations common in agriculture (e.g., due to weather conditions) on model specification and income levels. Production is differentiated for 27 crop and 15 livestock activities. The matrix restrictions cover the areas of feeding (energy and nutrient requirements, calibrated feed rations), intermediate use of young livestock, fertilizer use (organic and mineral), labour (seasonally differentiated), crop rotations and political instruments (e.g., set-aside and quotas). The model is calibrated to observed production decisions and elasticities using a positive mathematical programming approach. For this study, the model specification is based on data from the accounting years 2009/10. 2010/11 and 2011/12. The farm sample was stratified by region, type, system and size, resulting in 646 farm group models. Results are aggregated to the sector using farm group specific weighting factors. Competition of farms on important factor markets (e. g., land) is modelled endogenously.

4. Simulation Results

-scope

-description of models

4.1. "hard" Brexit: Reciprocal adoption of MFN-tariffs

In order to assess the possible implications of a Brexit on trade and production effects in the agricultural sector we employ the MAGNET model. Since future trade policy of the UK and the EU is unknown from a present perspective we have to form assumptions. In this study we assume the reciprocal implementation of MFN-tariffs which is consistent with WTO rules. Further readjustments of current regional trade agreements or TRQs negotiated under the aegis of the EU are not considered in this chapter. While there are various price and quantity reactions that can be represented in the context of a CGE model, the focus of this study is exclusively on production and trade value effects in the German agricultural sectors.

The tariff scenario is implemented with the program TASTE (Tariff Analytical and Simulation Tool for Economists) which is a software developed by Horridge and Laborde (2008). The database is updated to the year 2011 by Pelikan (2014). Data were taken from the MAcMap Database [Pichot et al. (2014)] and were aggregated from the detailed HS6 tariff line level to the model level. To receive a proxy for the trade weighted MFN tariff of the EU and the UK respectively, tariffs of all countries that trade with the EU and the UK on MFN-basis are aggregated, see Table 1. Note that the aggregated tariffs differ in the EU and UK due to differing trade values.

For the agricultural sector high tariffs will be implemented on sugar with more than 100% tariff rate in the EU as well as in the UK. For meat products the import tariffs will be more than 20% in both countries. Also milk products will face high tariff rates: The EU will impose tariff rates of 38% while the UK will impose 36% on EU imports. All external tariffs outside the EU are unchanged in this

scenario. Also it could be possible that the UK or its trading partners do not adapt all trade agreements negotiated with the EU.

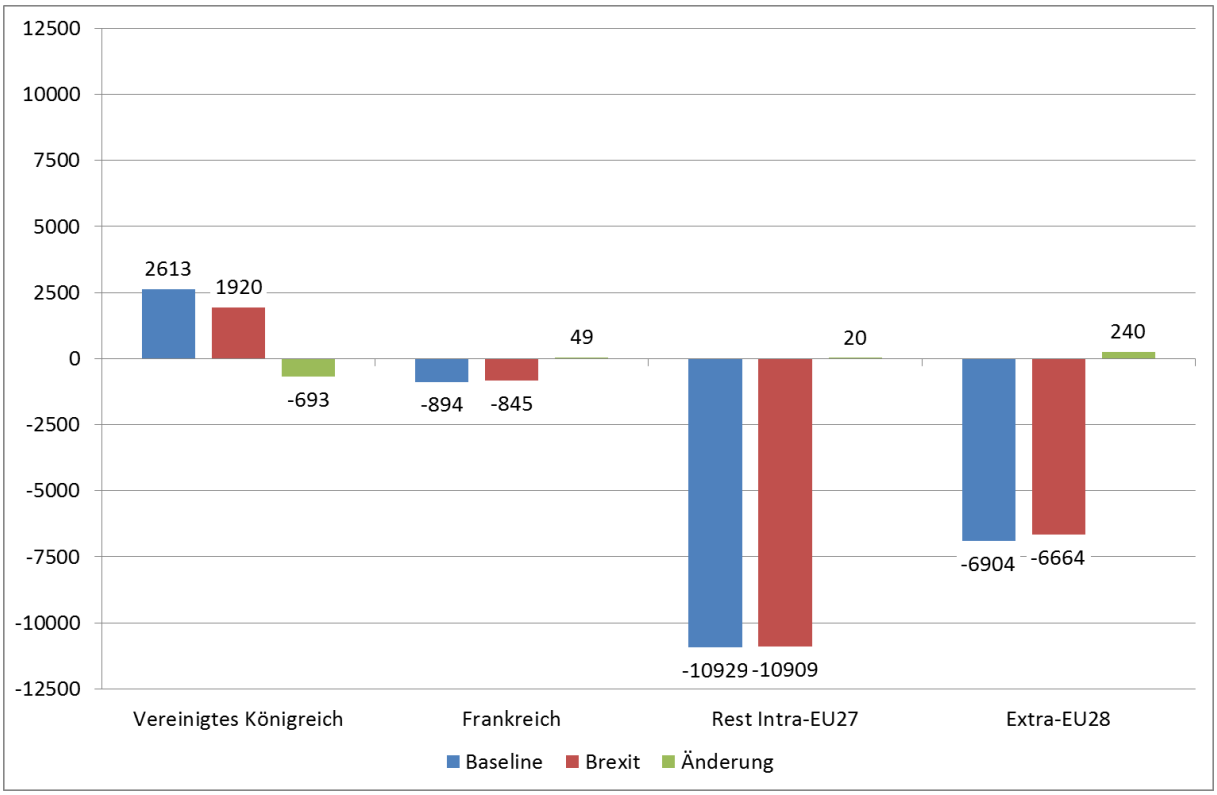
Table 1: Bilateral trade weighted MFN-tariffs between the EU and the UK in %

Import tariffs (AVE)	EU	UK
Wheat	4.97	8.51
Other Cereals	2.32	7.23
Vegetables&Fruits	8.55	8.24
Oilseeds	0	0
Other crops	3.33	3.34
Cattle Husbandry	1.02	3.42
Pig&Poultry Husbandry	1.08	4.99
Cattle Meat	54.31	28.07
Pig&Poultry Meat	22.85	26.12
Vegetable oils	3.38	2.49
Dairy	37.81	35.61
Processed Rice	24.76	24.37
Sugar	105.80	127.20
Processed Food	11.17	7.02
Feed	35.29	36.88
Other Primaries	1.08	1.00
Manufactures	2.90	2.63

Source: Own calculations.

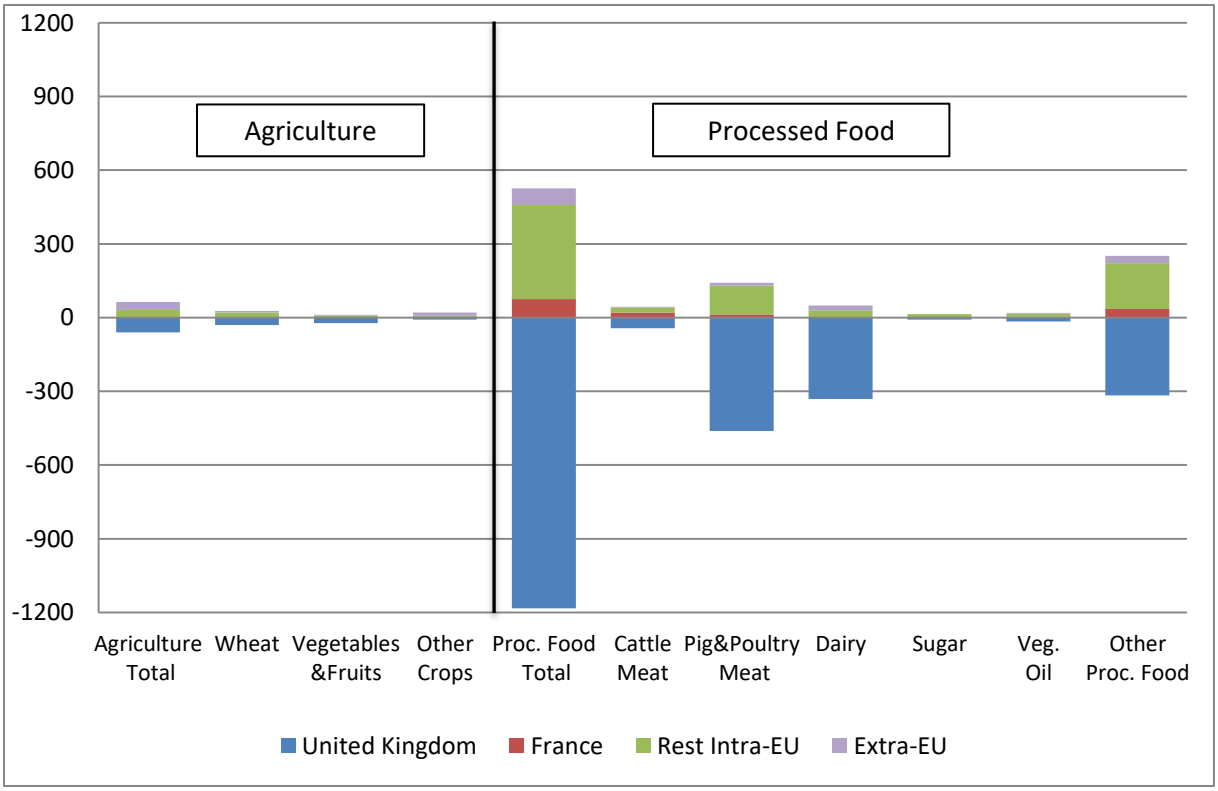
The effect of a Brexit on the agricultural trade balances are displayed in figure 4. As a reflex of the imposition of MFN tariffs overall trade (imports + exports) across all sectors between UK and Germany decreases by 16.3 bn €, whereas 1.8 bn € accrue in the agri-business sector. Figure 4 also emphasizes the specific role of the UK in German agri-food trade. Whereas Germany has a trade deficit with all other trading partners it has a positive trade balance with the UK. As a consequence of the Brexit this surplus decreases, however, by roughly 700 mn €. This decrease is partly offset by slightly increasing trade balances with other intra and extra EU countries.

Figure 4: Agricultural Trade Balance, Germany, in mn €, 2020



The changes in German agricultural exports in the wake of Brexit are displayed in Figure 5. As a consequence of the reciprocal imposition of tariffs the German exports to the UK are declining in all products. This decline is at least partly compensated with increasing exports to other countries, especially to the remaining EU27 countries. Whereas the effect is negligible in primary agricultural products, processed foods are particularly badly affected. Especially remarkable is the decline in exports in pig and poultry meat as well as in dairy products. For both products the UK is an important destination: 8.5 % of German meat exports and 5.5 % of dairy exports was delivered to the UK in 2015. In total, that is including non-agricultural products, German exports to the UK were declining by more than 10.8 bn €. When increasing exports to third countries are taken into account an overall net decrease of about 2.5 bn € can be recorded.

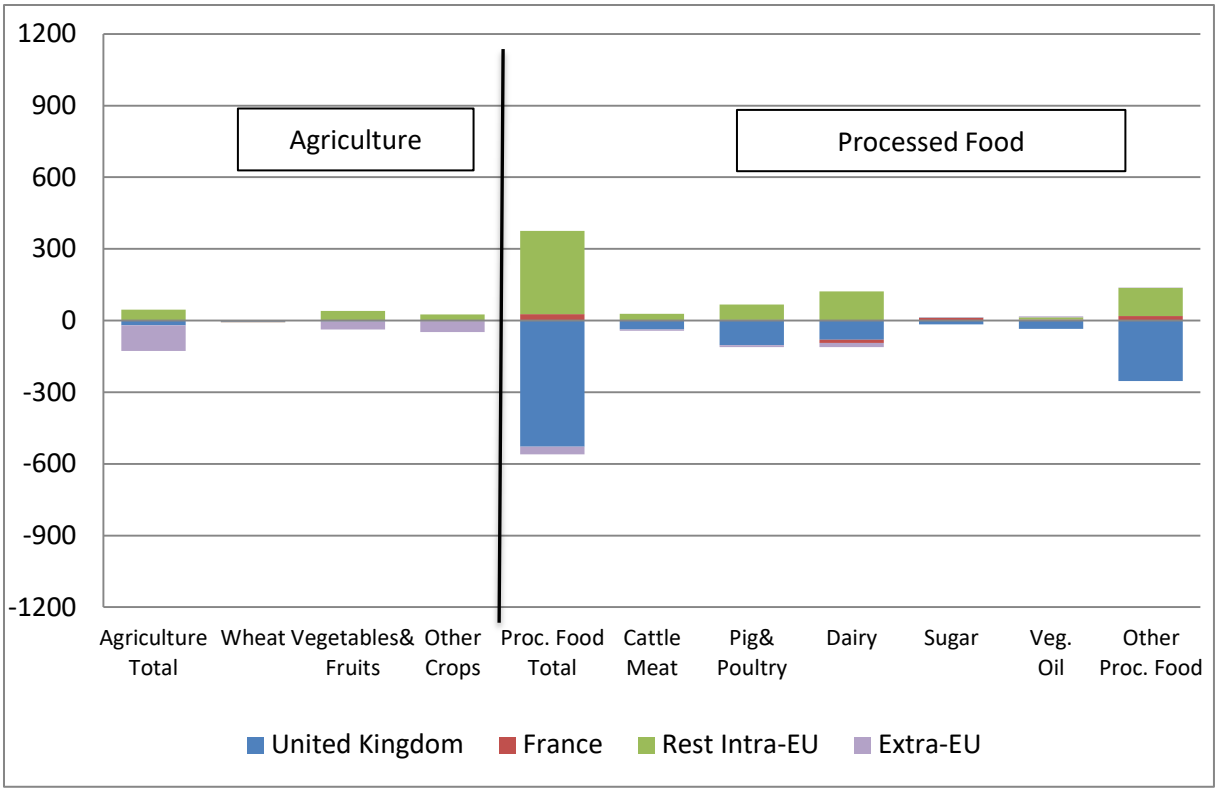
Figure 5: Change in German Agricultural Exports, rel. to Baseline, in mn €, 2020



The changes in German imports are displayed in Figure 6. Imports of all products are decreasing as a consequence of Brexit. The most pronounced decrease is in imports of processed foods. Products that ware originally sourced from the UK are afterwards imported from other EU countries. It is interesting to note that whereas imports of primary agricultural goods from the UK are decreasing the decrease of third countries imports is even larger. A possible cause for this phenomenon can be seen in the strong interconnection of the world economy. where goods on different value-added steps are traded. If production of processed foods requires lots of agricultural import of non-EU countries then decreasing exports to the UK would also induce lower imports of primary products in the respective non-EU countries[2]. Considering all product categories (including non-food) imports are from the UK are decreasing by about 5.5 bn €. This decrease is partly offset by diverting imports to other nations. leading to a total decrease of more than 3 bn €.

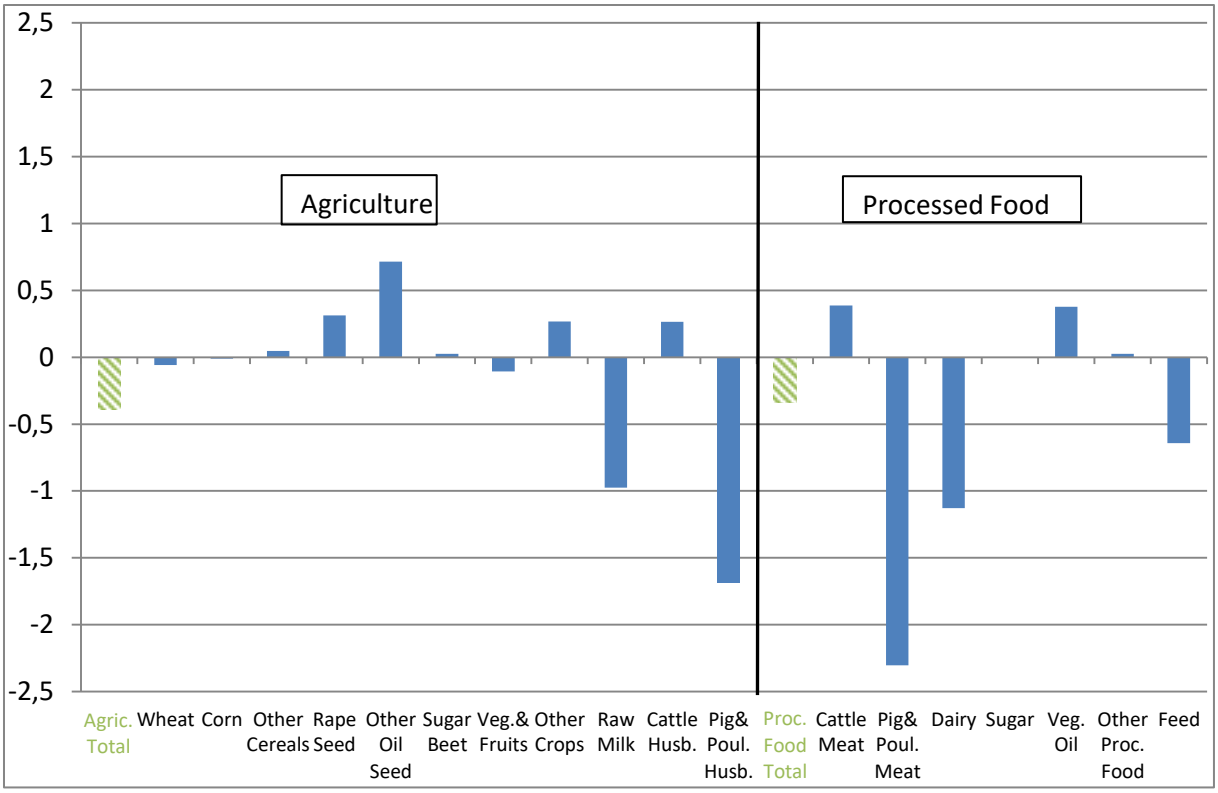
[2] As an example one may think of imported untreated coffee beans from South America and exports of processed coffee powder tot he UK.

Figure 6: Change in German Agricultural Imports, rel. to Baseline, in mn €, 2020



Changing trade flows also induce changes in production values as shown in Figure 7. In total the reduction in production in the agricultural and in the processed food sector is only small in percentage terms. In both segments the decrease in production amounts to less than 0.5 %. In absolute values this would imply a reduction of about 900 mn €. But single product groups are highly affected by a Brexit. In particular the pig and poultry meat sector feels the effect of Britain's EU exit with a reduction in production value of more than 2 %. This would also imply negative effects for the pig and poultry husbandry. Also in the dairy sector there is a decrease in production value of more than 1 %.

Figure 7: Change in Production Values. Germany, rel. to Baseline, in %, 2020



4.2.Adjusting TRQs for beef between UK and EU

Following Brexit, one of the most contentious issues is the renegotiation of existing TRQs. TRQs were created in the Uruguay Round in 1994 in order to allow for a minimum market access for otherwise highly protected goods. Quantities within the quota are ether tariff free or charged a low tariff, whereas duties outside the quota can be prohibitively high. The EU is currently operating 87 TRQs in agricultural goods, including meat, cereals, dairy products and fruits and vegetables. The largest number of quotas is observed in the meat sector (about 1/3 of all TRQs). In 2016 there were 10 different quotas on beef, totalling 263 thousand tons, some country specific (like the Hilton quota) and some country unspecific.

With the UK divorce from the EU all European TRQs have to be renegotiated. Possible regions that are involved in the bargain are UK, EU and the respective third countries as the receiver of the TRQs. Here, we will assume that the absolute levels of TRQs (w.r.t. third countries) are unchanged. Consequently, only the UK-EU bargaining about the shares needs to be considered. Although this is a likely scenario it is not necessarily the case since third countries may not agree with this negotiation outcome. For example New Zealand and Argentina might not agree with a specific distribution since New Zealand might be more interested in the UK market, while Argentina might be more interested in Germany and the rest of the EU, in the case of the "Hilton quota", see Ungphakorn (2016).

The question is what the respective negotiation outcome might be. A likely case is a distribution according to historical shares. This is also the starting point for our scenario analysis. An empirical problem that arises here is that data on the use of TRQs by individual Member States is not publicly

available and hence, the importance of the various quotas to the UK is not entirely clear. Instead we employ the share of overall beef trade as a proxy. Additionally, we employ the GDP and population share as well as some ad hoc distributions.

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Appendix

Table 2: Regional Aggregation

Region	GTAP-Code
Germany	deu
France	fra
United Kingdom	uk
Rest EU	aut, bel, bgr, cyp, cze, dnk, esp, est, fin, grc, hun, irl, ita, ltu, lux, lva, mlt, nld, pol, prt, rou, svk, svn, swe
Russia	rus
Rest CIS	arm, aze, blr, kaz, kgz, xee,
Canada	can
USA	usa
Australia	aus
New Zealand	nzl
Brazil	bra
Argentina	arg
Rest Latin America	bol, chl, col, cri, ecu, gtm, hnd, mex, nic, pan, per, pry, slv, ury, ven, xca, xcb, xsm,
India	ind
South Korea	kor
Japan	jap
China	chn
Rest of Asia	bgd, hkg, idn, khm, lao, lka, mng, mys, npl, pak, phl, sgp, tha, twn, vnm, xea, xsa,
Middle East & North Africa	are, bhr, egy, irn, isr, kwt, mar, omn, qat, sau, tun, xnf, xws,
Sub-Saharan Africa	ben, bfa, bwa, civ, cmr, eth, gha, gin, ken, mdg, moz, mus, mwi, nam, nga, rwa, sen, tgo, tza, uga, xac, xcf, xec, xsc, xwf, zaf, zmb, zwe,
Rest Of World	alb, che, geo, hrv, nor, tur, xef, xer, xoc, xtw,

For a description of the GTAP country code consult:
https://www.gtap.agecon.purdue.edu/databases/regions.asp?Version=8.211

Sector	GTAP/MAGNET-Code
Wheat	wht
Cereal grains nec	gro
Oil seeds	osd
Sugar cane, sugar beet	c_b
Vegetables, fruit, nuts	v_f
Rest of crops	ocr, pfb
Cattle	ctl, wol
Animal products nec	oap
Raw milk	rmk
Meat: cattle,sheep,goats,horse	cmt
Meat products nec	omt
Dairy products	mil
Sugar	mola*, sgr
Crude vegetable oil	cvol
Oil cake**	oilcake
Vegetable oils and fats	vol
Processed food	b_t, ofd
Animal feed	feed
Oil	oil
Petroleum, coal products	p_c
Biodiesel	biod
Biogasoline	biog
Dried distillers grains with solubles	ddgs
Gas	gas
Coal	coa
Electricity	ely
Chemical,rubber,plastic prods	crp
Other industry	cns, ele, fmp, i_s, lea, lum, mvh, nfm, nmm, ome,omf, omn, otn, ppp, tex, wap
Services	atp, cmn, dwe, gdt, isr, obs, ofi, osg, otp, ros, trd, wtp, wtr
Paddy rice	pdr
Processed rice	pcr
Forestry	frs
Fishing	fsh
Corn	cor
Soybeans	soy
Agriculture crop protection	acp
Rapeseed	rap

For a description of the GTAP sector code consult: https://www.gtap.agecon.purdue.edu/databases/v8/v8_sectors.asp

*Molasse **byproduct of cvol used as animal feed.