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Cumulative economic impact of future trade agreements on EU agriculture

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Abstract
This report presents potential effects of twelve free trade agreements (FTAs) under the current EU FTA agenda. It sheds some light on relatively balanced cumulated impacts in terms of trade, production and price for the EU agricultural sector as a whole, while quantifying also the market development for specific agricultural sectors. Different from a forecast exercise, it compares a conservative and an ambitious FTA scenario with a business as usual (reference) scenario.

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Executive summary

As a result of Commissioner Hogan's commitment in the Agricultural Council meeting of 15 February 2016, the present study analyses the cumulative economic impact of potential ongoing and upcoming Free Trade Agreements between the EU and 12 trade partners (USA, Canada, Mercosur, Australia, New Zealand, Japan, Vietnam, Thailand, Turkey, Mexico, Philippines and Indonesia) on the EU agricultural sector.

These 12 agreements represent a significant sample - although not exhaustive - of the initiatives under the current EU FTA agenda, and a good mix of defensive and offensive negotiations for the EU agricultural sector as a whole.

The economic assessment is based on a two-tier modelling approach:

1. An overall analysis of the impacts of FTAs on EU agri-food trade flows, performed by means of simulations with the MAGNET model, a computable general equilibrium model (CGE).

2. A detailed analysis of the impacts on EU agriculture at product-specific level, run by means of the partial equilibrium model (PE) AGLINK-COSIMO.

The two simulations are interlinked, i.e. the PE model builds on the results of the CGE simulation and provides more details and higher product disaggregation, the consistency between the two different modelling approaches being maintained.

The study analyses two theoretical trade scenarios, defined in function of different levels of ambition in the negotiations:

1. An ambitious scenario, providing full tariff liberalisation for 98.5% of HS 6-digit lines, and a partial tariff cut of 50% for the other lines (sensitive products);
2. A conservative scenario, providing for full tariff liberalisation of 97% of HS 6-digit lines and a partial tariff cut of 25% for the other lines (sensitive products);

These assumptions have been applied identically for all considered trade agreements and symmetrically for both the EU and the relevant trade partners. Only for the EU trade agreements with Canada and with Vietnam, for which the negotiations are concluded, the outcome of the negotiations is implemented as such in both trade scenarios.

The selection of sensitive lines subject to partial tariff cut, rather than full liberalisation, was primarily based on the expert judgement of the relevant trade negotiators of the European Commission, and - when this was not possible (e.g. because the analysis of the sensitivities of trade has not been explored yet) - on the basis of objective statistical indicators, notably the tariff revenue associated to each tariff line.

Finally, the study provides a sensitivity analysis to evaluate the interaction of the Trans-Pacific Partnership (TPP) with the trade agreements negotiated by the EU.

Main outcome of the study

Overall, the results show relatively balanced cumulated impacts in terms of trade, production and producer prices, for the EU agricultural sector as a whole. However, significant differences exist at sectorial level, with some of them showing considerable potential for additional exports and others potentially coming under pressure.

For EU dairy products, particularly cheese and skimmed milk powder, and pigmeat, prospects look favourable, with significant growth rates for exports, production and producer prices.

For pigmeat in particular, the analysis also shows that the expected gains could be eroded by EU competitors in the TPP, therefore it appears crucial for the EU to obtain at least the same preferential treatment on Asian markets.

A number of other products benefit from trade opening, ranging from commodities like cereals, in particular wheat, to more high value/processed products of the agri-food industry, such as beverages, notably wine and spirits.

On the other hand, the study also shows the vulnerability of specific agricultural sectors towards growing imports following increased market access. This is in particular the case for beef, rice and to a lesser extent for poultry and sugar. This confirms the EU concerns regarding the sensitive character of these products in trade negotiations.

A successful conclusion of trade agreements will have to strike a balance between the achieved market access for offensive agricultural products and the protection of sensitive products. The overall result of trade negotiations should remain acceptable, both economically and socially for EU agriculture.

Caveats of the analysis

One of the main limitations of the study relates to the coverage and the disaggregation of the agricultural products in the economic models used.

The CGE model MAGNET has a comprehensive coverage of the economy, and thus of the agri-food sector. However, the level of product disaggregation is quite limited as well as its capacity to model sectorial interrelations and policy constraints.

The partial equilibrium model AGLINK-COSIMO, which is used to overcome these shortcomings of the CGE models, provides much more detailed and realistic results at agricultural commodity level, although it can't either provide results for specific dynamics relating to certain product segments. Furthermore, the product-coverage of AGLINK-COSIMO is not exhaustive, as it does not model some important agricultural products such as fruit and vegetables, wine, olive oil and processed agricultural products in general. Given the very high value of processed products, the AGLINK-COSIMO model does not represent a significant share of total EU agri-food export value (70%).

As regards the geographical disaggregation of the study, results are provided only for the EU as a whole. This simplification was necessary given the complexity of the analysis and the limited reliability of the modelling tools at sub-EU level.

Another limitation of the study lies in the theoretical character of the scenarios, where possible trade concessions for sensitive products are implemented as tariff cuts (of 50% or 25%) rather than under the form of TRQs – as it is commonly the case in trade.

Furthermore, the considered trade scenarios only investigate the effects of tariff liberalisation, but do not factor in in the analysis the possible reduction of non-tariff measures (NTMs). In fact, since there are currently no reliable estimates of NTMs for the agricultural sector at disaggregated level, and given the limited time to complete the exercise, it was decided to omit them from the study.

Finally, another issue that the study was unable to take into account, although it could certainly have huge implications on EU free trade negotiations, is the possible impact of future developments related to the UK.

1 Introduction

1.1 Context

Trade is important to the European economy. The European Union (EU) exports nearly as many goods as China and more than the United States of America (USA) or any other country. For agri-food trade in particular, the EU is also a key player on global markets. For many years, the EU has already been the leading importer of agri-food products, underpinned by large imports of raw materials for the EU meat and food sectors. Since 2013, the EU has even become the biggest global exporter of agri-food products to the expense of the USA. In 2010, the EU turned for the first time into a net exporter in agri-food, and since then has consistently run a trade surplus for this type of goods.

Wide-ranging reforms of the Common Agricultural Policy (CAP) have allowed the EU agri-food sector to gain competitiveness on international markets and to rebalance from subsidised commodity exports to non-subsidised exports of consumer-oriented goods with high value added. EU trade policy, through recently concluded Free Trade Agreements (FTAs) with several partners in Latin America, Asia, Europe and Africa, has further contributed to this performance. Apart from the setback in 2009, in the wake of the global economic and financial crisis, export value has been continuously increasing since 2005, at an average pace of 8% per year, and outpacing growth of EU non-agricultural exports.

In 2015, EU agri-food exports totalled 129 billion euros, with a growth of 6% compared to 2014, despite the significant export losses to one of its most important export markets, following the import ban imposed by the Russian authorities on a large number of EU products, notably meats, dairy products and fruit & vegetables. At the same time, EU agri-food imports in 2015 amounted to 113 billion euros, equally on a rising trend compared to the previous year (+9%). Hence, the trade balance showed a positive surplus of 16 billion euros. Agri-food trade represented about 7% of total EU trade value and even made up 25% of the EU positive trade balance.

A more detailed analysis of agri-food trade reveals that the EU export portfolio includes a balanced basket of products at various quality and value-added levels, ranging from agricultural commodities to high value-added processed food products, and alcoholic beverages. Wine and spirit drinks rank first within the basket of exported products. However, the next most sold export product is a basic agricultural commodity, namely wheat. The ranking of the most important export categories is completed by infant food, chocolate and sugar confectionary, and other food preparations.

EU agri-food imports are highly concentrated on a more limited number of product types. On the one hand, agricultural commodities for further processing, such as protein products for the animal feeding (soybeans or soycakes), vegetable oils (notably palm oil) and unroasted coffee; on the other hand, other primary products for direct human consumption, such as fruits and nuts (either of tropical origin or anyhow imported in counter season).

The USA and China (including Hong Kong) are currently the two most important export markets for EU agri-food products, whereas Brazil and the USA represent by far the leading origins for EU imports.

International markets are becoming more and more essential for the growth of EU agriculture and farmers' income as well as an important source for jobs creation.

On the one hand, expansion opportunities on the internal market appear to be limited in the context of slowed-down economic growth, ageing population, saturation of food consumption and changing diet preferences.

On the other hand, market projections indicate a favourable development for food export demand. Indeed while developed countries remain an important outlet, emerging

economies and a growing middle class in many developing countries in Asia and Sub-Saharan Africa are expected to open up promising opportunities for agricultural exporters, with growth rates in population and purchasing power outpacing the EU and other advanced economies, and with nutrition patterns shifting to more meat and dairy products-based diets. With that in mind, agricultural production in these countries is expected to increase at a slower pace than demand growth.

To make the most out of these opportunities, EU producers need more open markets and stable trade relations. This is not to be taken for granted, in a multi-polar world where Brazil, China, India, Indonesia and South-Africa have developed into new competitors to the USA and the EU – as suppliers or as buyers of agricultural goods – and where recent geo-political developments have shown the fragility of international trade relations.

In particular, the experience gained after the introduction of the Russian import ban on EU agricultural products has shown the importance of a diversification strategy for EU agriculture, in view of reducing its dependency from very few export markets.

Against this background, the European Commission is committed to further promote trade relationships that bring value to the European society, while safeguarding the European social and regulatory model, which notably includes appropriate protection of highly sensitive agricultural product. The Commission's strategy towards future trade and investment policy, "Trade for all", should ensure that trade can deliver jobs, growth and investments for consumers, workers and small companies while being highly transparent and effective.

Over the recent years, there has been a significant evolution in global trade policies: while WTO multilateral negotiations have been struggling to achieve concrete results as regards a possible deal to boost market access, most countries have engaged in a number of bilateral and regional Free Trade Agreements (FTAs) with various trade partners, in order to achieve a higher degree of reciprocal tariff liberalisation and thus improve market on third country markets. These trade agreements are now generally more ambitious and comprehensive in scope compared to only a decade ago.

The EU has followed this global trend in trade policy, with the number of preferential trade negotiations rapidly expanding over the last years. New trade agreements with important partners (e.g., South Korea, Peru, Colombia, Central America, Ukraine, and the South African Development Community (SADC)) have recently entered into effect – in some cases still on a provisional basis.

In addition, the EU has recently concluded trade negotiations with other partners, such as Vietnam and Canada, although these agreements are not into application yet. Several other prominent trade dossiers are currently under negotiation, including the Transatlantic Trade and Investment Partnership (TTIP), the agreements with Japan or the one with the Mercado Común del Sur (Mercosur), and just launched with Indonesia. Finally, some new negotiations are likely to be launched in the near future (e.g., Australia, New Zealand), and other agreements are going to be modernised (e.g., Mexico, Chile).

As regards the agricultural sector, the various FTAs – once implemented - will open up new opportunities for exporting EU agri-food products, but will also allow for more imports: while this would be an advantage for final consumers and for agricultural producers relying on large availability of raw materials, higher imports would also lead to increasing competition on domestic agri-food markets. In this respect, the EU has some sensitive products, particularly in negotiations with very competitive agricultural producers and exporters.

In order to build a coherent EU agricultural trade policy, EU policymakers and negotiators need to ensure consistency between different trade agreements, and in particular to limit their possible negative impacts on EU sensitive agricultural products. To this end, it is necessary to consider the joint effects of all bilateral concessions that

are granted by the EU to its trade partners and balance these against concessions obtained from them as regards EU agri-food exports and beyond.

The European Commission (EC) regularly runs, for each agreement separately, impact assessments before the launch of the negotiation, and sustainability impact assessments (SIAs) during their conduct, but a study taking account different trade negotiations simultaneously – at least for the agricultural sector - has never been carried out.

Hence, different Member States repeatedly stated further analysis was needed to assess the potential impact of different trade negotiations on EU agriculture. It was felt that the assessment of trade agreements in isolation did not provide insights in the combined, cumulative, impact of different agreement. Furthermore, Member States requested a more disaggregated analysis of the agricultural sector than is typically done in the Commission impact assessments.

In a response to this request, Commissioner Hogan, at the Agricultural Council meeting of 15 February 2016, announced that the Commission would carry out a study to analyse the economic cumulative effects of ongoing and upcoming trade negotiations on the EU agricultural sector.

The present study is the result of Commissioner Hogan's commitment vis-à-vis to the EU Council of Ministers.

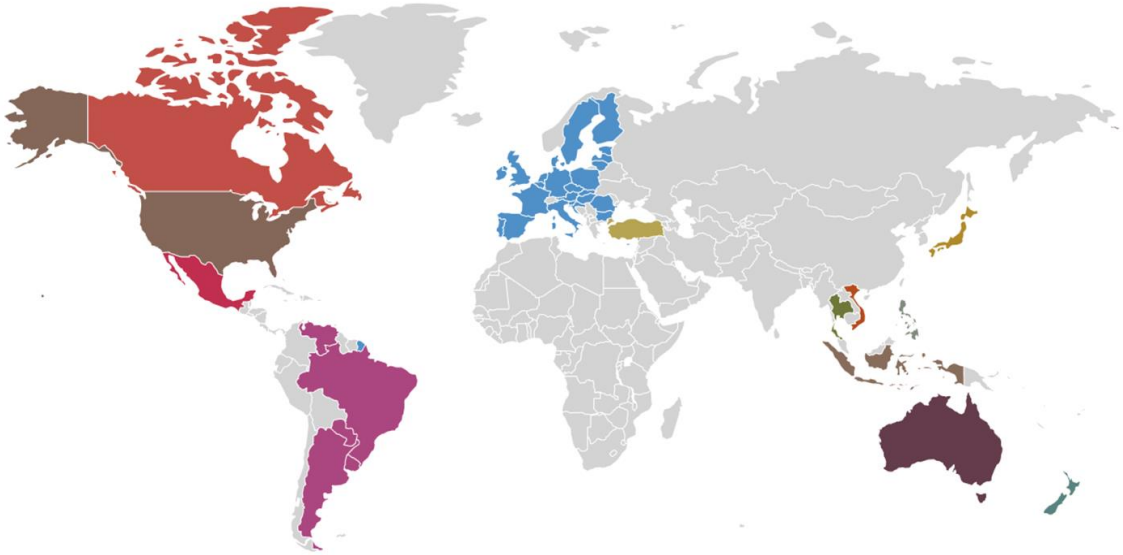
The analysis will solely focus on the market access arrangements of the trade agreements, i.e., on the effects produced by reciprocal liberalisation of import tariffs between the EU and the relevant trade partners. This means that other provisions in the trade agreements that could potentially also have an economic impact on the EU agricultural sector (e.g., the reduction of non-tariff measures (NTMs), in particular sanitary and phytosanitary measures (SPS), or the protection of geographical indications) are not taken into account into the present assessment.

1.2 Agreements

In a study covering all ongoing and upcoming FTAs that could be concluded by the EU and come into application over the next decade, the list of potential negotiations to be considered would be long. Hence, in this study only the agreements with the most significant expected impacts for EU agriculture are analysed. First, the study considers FTAs recently concluded but not yet implemented, i.e. those with Canada and Vietnam. A second category consists of major trade agreements under negotiation (USA, Mercosur, Japan, Thailand, the Philippines and Indonesia). Furthermore, the study includes negotiations likely to start in the near future, i.e., Australia and New Zealand. Finally, the modernisation of the older agreements with Turkey and Mexico are included to complete the picture. In total, 12 trade negotiations are covered. They represent a selection of the most important initiatives under the current EU FTA agenda (Figure 1).

On the other hand, agreements concluded in the past and already applied are not covered in the simulation scenarios, since their effects are already accounted for in the medium-term prospects for the EU agricultural sector and integrated into the reference scenario until 2025 (the "baseline").

Figure 1: FTAs of the study at a glance



Note: Despite Venezuela's accession to Mercosur in July 2012, it does not currently integrate EU-Mercosur FTA negotiations.

1.3 Brief review of previous studies

Recent studies have simulated a bilateral trade agreement between the EU and individual countries/blocks with similar modelling tools to those used in this study.

It is clear that, since the background circumstances have changed somewhat over the last years and the details of the assumed scenarios vary considerably, close comparisons of the quantitative results are not appropriate.

Nonetheless, these studies can help to form expectations about directions of change and orders of magnitude, and reveal the implications of various model features. Therefore, a selection of relevant previous work is briefly provided in this sub-section.

Of particular relevance are the Sustainability Impact Assessments (SIAs) which provide an in-depth analysis of the potential economic, social, environmental and, since 2012, human rights impacts, of ongoing trade negotiations. Completed SIAs [1] for countries/regions under scrutiny in the present cumulative study are available for the Comprehensive Economic and Trade Agreement (CETA) between the EU and Canada, and FTAs between the EU and Japan, between the EU and the Association of South-East Asian Nations (Asean) (relevant countries included are Indonesia, Philippines, Thailand and Vietnam) and between the EU and Mercosur[2]. A SIA for TTIP is ongoing. Impact assessments are also available for the TTIP, Japan, and Mexico negotiations[3], while the impact assessments in support of negotiations with Turkey, Australia and New Zealand, Mexico, and Turkey are on-going or being completed.

It should be highlighted that the European Parliament, international organisations and various national or private research services and institutions also produce research papers related to FTAs.

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[1] See the European Commission's dedicated webpage on SIAs: http://ec.europa.eu/trade/policy/policy-making/analysis/sustainability-impact-assessments/

[2] These SIAs being old and no longer providing an up-to-date picture of the potential impact of these agreements, new SIAs are soon to be launched in support of negotiations with Mercosur, Philippines and Indonesia

[3] See the European Commission dedicated webpage on IAs: http://ec.europa.eu/smart-regulation/impact/ia_carried_out/cia_2016_en.htm

The European Commission's assessments related to two major FTAs in terms of agri-food trade - which are those with the USA and Mercosur – shed some light on key outcomes. On a possible TTIP, the interim report (European Commission, 2016a) concludes with an overall yearly Gross Domestic Product (GDP) gain of 0.5% for the EU in the ambitious scenario. On EU-Mercosur, a JRC comprehensive study focussing on the agri-food sector (Burrell et al., 2011), in complement to a global impact assessment (Thelle and Sunesen 2011), analysed the impact of mainly on the agricultural sector.

Most of the referred assessments are carried out with Computable General Equilibrium (CGE) models. Indeed, in an ample review of models for the quantification of (mega-) regional trade agreements, the advantages of employing a CGE model type for multi-sector, multi-region trade analysis are featured in Narayanan et al. (2015). Yet, in order to analyse the specificities of the agri-food sector, e.g., through a higher product disaggregation or with physical quantities, Partial Equilibrium (PE) models are often used to complete a CGE analysis as was done in the EU-Japan Trade SIA (European Commission (2016b) which complements CGE results with the use of a PE modelling framework.

The use of the MAGNET (CGE) and AGLINK-COSIMO (PE) models in this report allows addressing the complexity of the cumulative FTAs while providing the needed details for the agri-food sector analysis. The EU-Mercosur report by JRC (Burrell et al., 2011) employed also two types of models.

2 Methodology

This section explains the choice of modelling tools for the impact analysis of the cumulative trade agreements and provides a short description of both models. Furthermore, this section clarifies how the models are interacting to capture complex global trade flows and EU agri-food sector specificities. Finally, it sheds some light on the caveats of the approach.

2.1 Economic models for agri-food trade analysis

Economic models are the main tools for the analysis of complex trade relations and have been applied in many occasions for the assessment of EU trade agreements with third countries. Based on studies commissioned by DG TRADE, the European Commission (2012) estimated that cumulative impact of all on-going and potential negotiations could increase EU GDP by 2% (more than 250 billion euros) in the long-run. Most studies focus on specific trade agreements independently while the analytical question at stake of this report is the cumulative impacts of multiple trade agreements on EU agriculture. This creates even more complexity and requires a specific approach to account for the multitude of agreements and focus on the peculiarity of the agri-food sector.

For a comprehensive picture, multi-region neoclassical Computable General Equilibrium (CGE) models have become the de facto tool of choice for conducting ex-ante assessment of multilateral trade agreements (e.g., potential Doha Round conclusion (Bouet and Laborde (2010)), bilateral trade agreement (Bureau et al. (2014)) or explicitly comparing several agreements (Disdier et al. (2016). The cumulative analysis of FTAs has been only rarely covered in agri-food related research. In European Commission (2006), one of the scenarios on a concluded EU-Asean FTA occurs in conjunction with the conclusion of an EU-Mercosur agreement, in addition to Asean FTAs with Japan and the USA.

An important strength of CGE models is their ability to represent all sectors of the economy in all the countries and regions modelled. Therefore, they take into account all the interactions among these sectors through domestic and international linkages. They provide highly relevant information about possible trade-offs between different (agri-food) sectors in the event of multiple bilateral trade liberalisation agreements. They enable a panoramic view across all those economies that are distinguished separately within the model and quantify *which sectors* might be affected and in *which way*.

Being global, the relatively aggregated commodity structure of CGE models and their somewhat standardised treatment of behavioural functions across commodities and countries can omit (or treat in a more stylised way) certain sectoral particularities or policy constraints, which are specific of a single industry or product. That is where partial equilibrium (PE) models provide complementary features, in particular through a more disaggregated commodity structure within agriculture, and the introduction of commodity specific interrelationships. The OECD (2016) adopted a similar methodology to assess the impacts of current agricultural policies and reform, using the OECD's CGE model METRO, together with the PE model AGLINK-COSIMO.

2.2 The CGE model MAGNET

The present study employs a state-of-the-art multi-sector, multi-region recursive dynamic CGE model named MAGNET (Modular Applied GeNeral Equilibrium Tool) (Woltjer and Kuiper, 2014). MAGNET has been widely employed to simulate the impacts of agricultural, trade, land and biofuel policies on the global economy, as well as for long-term projections.

The model has been developed at Wageningen Economic Research and is applied and further extended at Wageningen Economic Research, Thünen Institute and by European Commission's Joint Research Centre, being a core model of the integrated Modelling

Platform for Agro-economic Commodity and Policy Analysis (iMAP) (M'barek et al., 2012, 2015).

MAGNET is based on the Global Trade Analysis Project (GTAP) model, which accounts for the behaviour of households, firms, and the government in the global economy and how they interact in markets (Hertel, 1997). The model includes the food supply chain from farm, as represented by agricultural sectors - via food processing industries and food service sectors - to fork taking into account bilateral trade flows for major countries and regions in the world. It is a reference model in many European Commission's Framework Programmes and Horizon 2020 projects in which the JRC is involved (e.g., FoodSecure, Agricistrade, Sustain). The model has been employed for several trade studies (FTAs between the EU and North Africa in Boulanger and M'barek (2013), between the EU and neighbour countries in Rau (2014), between the EU and the USA in Berkum et al. (2014)).

A key strength of the MAGNET model is that it allows the user to choose *a la carte* those sub-modules of relevance to the study at hand. This incarnation of MAGNET captures the specificities of agricultural markets.

Box 1: The CGE model and its system of equations

This class of mathematical market simulation models consist of a system of three types of equations. Firstly, 'behavioural equations' employing 'convenient' mathematical functions represent, under conditions of constrained optimisation, the theoretical tenets of neoclassical economic demand and supply. Subject to a series of 'market clearing' (i.e., supply equals demand) and 'accounting' equations (i.e., income equals expenditure equals output; zero 'economic' profits) consistent with the underlying accounting conventions of the database, the model enforces 'equilibrium'. To solve the model, the number of equations and (endogenous) variables within the system must be the same (known as the model 'closure'). Additional variables under the direct control of the modeller (defined as 'exogenous'), which capture market imperfections (tax rates), factor endowments or technological change, can be manipulated or 'shocked', whereupon the model finds a new matrix of prices and quantities to arrive at a post-shock equilibrium subject to the aforementioned accounting and market clearing restrictions.

To characterise the peculiarities of agricultural markets, the model accounts for the heterogeneity of land usage by agricultural activity; a regional endogenous land supply function; the sluggish mobility of capital and labour transfer between agricultural and non-agricultural sectors with associated wage and rent differentials; the inclusion of explicit substitution possibilities between different feed inputs in the livestock sectors; and additional behavioural and accounting equations to characterise EU agricultural policy mechanisms (e.g., production quotas, single farm payment, coupled payments, rural development measures) (Boulanger and Philippidis, 2015).

Trade is modelled in a way that domestically produced goods can either be sold on the domestic market or to other regions in the world. Similarly, domestic intermediate, private household and government demand for goods can be satisfied by domestic production or by imports from other regions in the world (i.e. the 'Armington assumption'). The Armington assumption implies that an increase in the domestic price relative to imports leads to an increase in demand for imports relative to domestic goods. Similarly, if imports from one source country become more expensive, there will be substitution towards imports from another, cheaper, source country.

Other regions are accounted in with their own import and export taxes. Sourcing of imports happens at the border, after which - on the basis of the resulting composite import price - the optimal mix of import and domestic goods is derived.

Demand for and supply of commodities and endowments meet in markets, which are perfectly competitive and clear via price adjustments.

A Bilateral Tariff Rate Quota (BTRQ) module also allows the modelling of Tariff Rate Quotas (TRQs) on bilateral trade.

By construction in CGEs, quantities and values are equal at the base year. That is, basic prices in the model are normalized to one at the base year. CGE models are linearly homogenous in prices, in other words if all prices in the model is changed by *x*%, the quantities would not change hence values would also increase by *x*%. This implies that CGEs are real models where the money is assumed to be neutral, i.e., model does not allow financial inflation due to changes in financial markets such as money supply etc… Hence the focus of CGE models is generally upon movements in relative prices and absolute prices are not quantified by the model. Keeping this in mind, one can quantify CGE model results either as changes in quantities or in values. The former would ignore the effects of changes in relative prices due to changing demand and supply conditions. The latter, on the other hand, would reflect the changes in values and prices together.

This report presents CGE model results in value terms since the focus is on the gains and losses from FTAs at the EU level.

2.3 Sector and spatial aggregations

This study employs a fully consistent and academically recognised global database, based on contributions from members of the GTAP network and constructed by the GTAP team at Purdue University, USA (Aguiar et al., 2016). The GTAP database, in its version 9, contains a complete record of all economic activity (i.e., production, trade, primary factor usage, final and input demands, taxes and trade tariffs and transport margins) for 57 activities and 140 regions for the year 2011.

The following sectorial disaggregation of 26 commodities has been performed (see Table 24 in annex for a detailed sectorial list):

- **Primary agriculture (10 commodities):** wheat; paddy rice; other grains; oilseeds; sugar beet & cane; vegetables, fruits & nuts; other crops; cattle; other animal products; and raw milk;
- **Food and beverages (8 commodities):** cattle meat; other meat; dairy; sugar; vegetable oils & fats; processed rice; beverages & tobacco; and other food;
- **Other sectors (8 commodities not shown):** fish & forestry, crude oil, gas, coal, light manufacture, heavy manufacture, utilities and services.

For the sake of consistency between the two models, the CGE results will be presented aggregating some of the sectors: cattle and cattle meet (*beef & sheep*), other animal products and other meat (*pig & poultry*), paddy and processed rice (*rice*), sugar beet and cane and raw sugar (*sugar*).

Finally, it should be mentioned that the analysis cannot provide impacts for a large number of processed agricultural products that fall under the *other food* category. This is a very large category containing, for example, a variety of food preparations, prepared and preserved fruit & vegetables, fruit juices, starches, coffee, cocoa, but also a very significant share of non-agricultural products (about 50% for EU imports), mainly fishery products (Annex 2). Given that the database for this category doesn't allow for a separation between agricultural and fishery products, simulations on this very heterogeneous category provide misleading results, so they are not included in the analysis.

The **regional disaggregation comprises 19 regions** (see Table 25 in annex for a detailed countries/regions list):

- The EU (aggregation of all 28 Member States)
- The 12 **trade partners involved in bilateral trade agreements:**
    - United States of America (USA)

- Canada (CAN)
- Mercosur (MERC)
- Japan (JPN)
- Australia (AUS)
- New Zealand (NZ)
- Vietnam (VNM)
- Thailand (THA)
- Turkey (TUR)
- Mexico (MEX)
- Philippines (PHN)
- Indonesia (INDO)

- The **other regions**, with following aggregates:
  - Rest of Europe (RoEUR)
  - Rest of America (RoAme)
  - Rest of Asia (ROAs)
  - Middle East and North Africa (MENA)
  - Sub-Saharan Africa (SSA)
  - Rest of the World (ROW)

2.4 The PE model AGLINK-COSIMO

AGLINK-COSIMO is an economic model that analyses supply and demand of world agriculture. It is managed by the Secretariats of the OECD and FAO, and used to generate the OECD-FAO Agricultural Outlook and policy scenario analysis.

AGLINK-COSIMO is a recursive-dynamic, partial equilibrium (PE) model used to simulate developments of annual market balances and prices for the main agricultural commodities produced, consumed and traded worldwide. The AGLINK-COSIMO country and regional modules covering the whole world are developed and maintained by the OECD and FAO Secretariats in conjunction with country experts and national administrations. Other parties, such as the European Commission, use the model under their sole responsibility, as is the case for the construction of the EU Agricultural outlook[4] and in this study[5].

The AGLINK-COSIMO model has several key factors or assumptions.

World markets for agricultural commodities are competitive, with buyers and sellers acting as price takers. Market prices are determined through a global or regional equilibrium in supply and demand.

Domestically produced and traded commodities are viewed to be homogeneous and thus perfect substitutes by buyers and sellers. In particular, importers do not distinguish commodities by country of origin as AGLINK-COSIMO is not a spatial model. However, in this exercise, imports and exports are exogenous parameters deriving from the results of the MAGNET simulation. This assumption will affect the results of analysis in which trade is a major driver.

AGLINK-COSIMO is recursive-dynamic. Thus, each year is modelled over the projection period and depends on the outcome of previous years. AGLINK-COSIMO models ten years into the future.

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[4] Prospects for Agricultural Markets and Income in the EU, 2015-2025, DG AGRI

[5] The results of any analysis based on the use of the AGLINK-COSIMO model by parties outside the OECD are outside the responsibility of the OECD Secretariat. Conclusions derived by third-party users of AGLINK-COSIMO should not be attributed to the OECD or its member governments.

It is a "partial equilibrium" model for the main agricultural commodities. Non-agricultural markets are not modelled and are treated exogenously to the model. As non-agricultural markets are exogenous, hypotheses concerning the paths of key macroeconomic variables are predetermined with no accounting of feedback from developments in agricultural markets to the economy as a whole.

AGLINK-COSIMO represents agricultural commodity markets worldwide in detail. Moreover, the model accounts for specific linkages between the different agricultural commodities: A sophisticated feed module links arable crop production to the livestock sector, the production of dairy products makes sure the fat and protein balance in the product mix is assured and the development of the milk sector is accounted for in the beef meat production.

A detailed description of the specific representation of the different agricultural markets and the AGLINK-COSIMO model as whole is available at www.agri-outlook.org.

2.5 MAGNET AGLINK-COSIMO model linkage

The two models are combined in a way that they capture the complexity of analysing multiple trade agreements at the same time and the details needed to explore the impacts on the agricultural sector in the EU.

Both models are soft-linked through a sequential chain implementation. The MAGNET model provides the cumulative trade flow changes for all bilateral trade agreements considered. These trade data are fed into AGLINK-COSIMO which translates this new trade reality to the impact on EU agricultural market balances and prices.

The models are harmonised in a way that MAGNET represents as close as possible the assumptions and market projections of the Medium-term prospects for EU agricultural markets and income 2015-2025 (European Commission, 2015). This market outlook is based on information available at the end of October 2015 for agricultural production and the EU version of the OECD-FAO AGLINK-COSIMO model, used by the European Commission.

As described in the previous sub-sections, the models have different sectorial aggregations. The table below shows that AGLINK-COSIMO provides more details on the agricultural commodities However, it does not include the fruit & vegetables (fruit & vegetable) sector nor the beverages & tobacco sector, important high value sectors for EU imports and exports.

The split of aggregated MAGNET sectors (cattle & sheep; pig & poultry; dairy) into disaggregated AGLINK-COSIMO sectors is presented in Table 1.

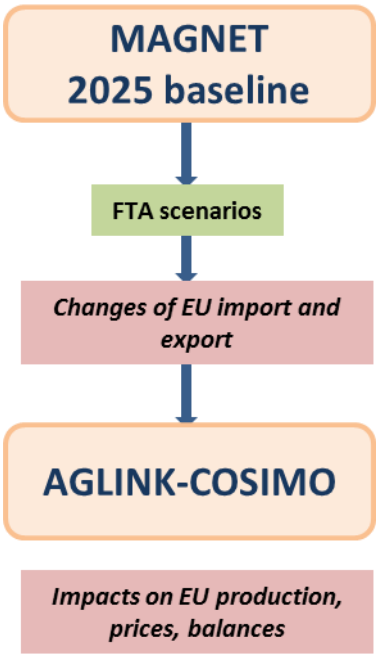
Table 1: MAGNET and AGLINK-COSIMO sectors' mapping

MAGNET	AGLINK
Wheat	Soft wheat
	Durum wheat
Grains	Barley
	Maize
	Oats
	Rye
	Other cereals
Paddy rice	Rice
Processed rice	
Oilseeds	Soybean
	Rapeseed
Vegetable oils	Rapeseed meal
	Soybean meal
	Sunflower meal
	Rapeseed oil
	Sunflower oil
	Palm oil
Sugar beet	*Not modelled at trade level*
Sugar	White sugar
	Raw Sugar
Horticulture	*Not modelled*
Other crops	*Not modelled*
Livestock	Cattle
	Sheep
Beef & sheep meat	Beef & Veal
	Sheep and goat meat
Other animal products	Pork
	Poultry
Pig & poultry meat	Pig meat
	Poultry meat
Raw milk	*Not modelled at trade level*
Dairy products	Butter
	Cheese
	Skimmed milk powder
	Whole milk powder
	Wye powder
Beverages	*Not modelled*

Source: Authors' elaboration

The basic features of the linkage between MAGNET and AGLINK-COSIMO are depicted in Figure 2. The trade scenarios (section 3) are implemented in MAGNET and result in changes of EU imports and exports.

Figure 2: Overview of model linkage



Source: Authors' elaboration

The trade impacts, representing the cumulative effects, are translated as an exogenous shock in the disaggregated changes of EU import and export quantities in AGLINK-COSIMO. The AGLINK-COSIMO model is then run with the new trade patterns provisions, presenting the impact of the trade scenarios on EU commodity balances and prices. In other words, the AGLINK-COSIMO is transformed to an EU standalone model which takes trade flows as given.

Due to the different structural characteristics of the model some assumptions are needed to assure a meaningful exchange of results between the two models.

At first the percentage quantity changes in the trade flow from MAGNET are transposed to the disaggregated AGLINK-COSIMO sectors constituting this sector. Behind this model linkage lies the assumption that the observed baseline trade flows reflect the relative competitiveness of the disaggregated commodities within the complex. However, for some sectors the baseline trade flows do not depict relative competitiveness, but specific trade relationships such as TRQs or production/consumption preferences in FTA partners (e.g. sheep imports restricted to Australia and New Zealand). In such cases the model link has been altered based on earlier studies or on expert opinions about the most likely trade developments.

The dairy aggregate has been handled with extra care as it is crucial to the general model results. Besides some adjustments to assure the correct representation of offensive sectors such as cheese and SMP (Skimmed Milk Powder) and less competitive sectors such as butter and WMP (Whole Milk Powder), the trade flows were allowed to slightly changes from the MAGNET output to assure a closing fat and protein balance in the final production output mix.

While MAGNET is a recursive dynamic model run on five year period, AGLINK-COSIMO is a recursive dynamic model with an annual solution period. To reconcile the two time horizons, the different FTAs are stepwise introduced in MAGNET and the impact of these steps are evenly distributed over the different annual solution periods in AGLINK-COSIMO. This allows for a stable solution to develop respecting the information received from MAGNET.

2.6 Caveats of the approach

2.6.1 General caveats of all modelling exercises

Economic models provide a conceptual framework that allows representing the economy in an structured but schematic and simplified manner. By definition, they cannot reproduce the reality in its full complexity and thus have shortcomings and limitations, which should be appreciated and which affect the results of the studies based on such models.

The two models employed here are designed as tools for conducting policy experiments, in which a reference scenario or baseline is first simulated over a future period and then, after changing one or more underlying assumptions (e.g. about policy settings, or about exogenous macroeconomic developments, weather trends etc.), a new scenario incorporating these changes is run, also over the same time period.

Comparison of the new scenario with the reference scenario at a given point in the simulation period, usually in terms of percentage differences, establishes the direction and relative magnitude of the impacts on all the endogenous variables of the change that is depicted in the hypothetical scenario at that point in time. In other words, these models are intended to allow comparisons for the same moment in time (i.e. holding time constant) between the outcomes prevailing in two or more different hypothetical 'states of the world' that might prevail at that point in time. In this study, the year of interest is 2025, and the alternative states of the world correspond to different, hypothetical rules for bilateral trade between the EU and third countries.

Although these models can be used to project individual values of particular variables, it must be stressed that they are not forecasting models and users should be aware that the particular values projected for, say, 2025 may be unreliable as to what will happen in that year. However, the simulated impact of a particular policy change in 2025, relative to the 'no change' situation, is more likely to be reliable since the influences of any imperfections in the model and of unforeseen exogenous shocks may be cancelled out across the two scenarios being compared, leaving a deviation between the two that has a lower component of error.

Although this type of model is calibrated so as to fit a given year closely, its solutions become less reliable the further into the future it is used to simulate outcomes. Given the very large number of assumptions, estimated or calibrated parameters, and stylised specification features that these models assemble, each of which is 'correct' only up to an (unknown) probability, it is impossible to establish confidence intervals or margins of error around individual projected numbers.

2.6.2 Market access and tariff aggregation

This study focuses on market access through cuts in import tariffs and does not take into account non-tariff measures or further regulatory issues included in comprehensive FTAs (Box 2).

A further caveat deals with the aggregation at which tariffs are modelled. MAGNET specifies product categories at an aggregation (usually 6-digit level or higher) that is higher than that used for designating tariff cuts (8-digit tariff lines). This means that MAGNET works with 'aggregated tariffs' for aggregate commodities.

This tariff is calculated by using the trade weighted-average of the tariffs for 8-digit tariff lines belonging to each 6-digit group. The 'aggregated tariff' is then subjected to the respective cut (depending on which tariff band the aggregated tariff falls into).

This implies that the cut is too high for some 8-digit tariff lines and too low for the others. For example, in the pork sector, the *ad valorem* equivalent for 8-digit tariff lines ranges from 11.5% to 65.5% (ignoring zero tariff lines); therefore, the aggregate tariff of the 6-digit product group lies somewhere within this range. It follows that the tariff

cut applied to the aggregated tariff is too high for some 8-digit tariff lines and too low for the others. Thus it is impossible to check if the effect is systematically over- or under-estimated the effect since it depends on the country's specific current level of bound tariff lines (at HS8) and the number of HS8 lines within each HS6 cell.

For the treatment of tariffs under a TRQ regime, the MAcMap-HS6 methodology (Guimbard et al., 2012) was followed. The level of protection is equal to the in-quota tariff rate if the quota is not binding or to the out-of-quota tariff rate if the quota is binding Fill rates are used to assess whether the quota is binding or not. When the fill rate is below 90% the applied tariff is the in-quota one, when the fill rate is higher than 98% the out-of-quota is the applied tariff while when the fill rate is between 90 and 98% a simple average between the in-quota and out-of-quota tariff rate is calculated and applied.

One important other thing to stress is that the 2011 trade situation is the one used to calculate applied tariffs. The selected year might not be always fully representative for some commodities; therefore some tariffs (e.g. wheat EU import tariffs which are currently at zero while some tariffs were still present in the original database) have been adjusted following expert knowledge.

Finally, for some sectors the baseline trade flows, which are a decisive factor in shaping modelled trade flows, do not depict relative competitiveness, but specific trade relationships such as WTO TRQs provided to certain FTA partners.

2.6.3 Specific caveats of this analysis

One of the main limitations relates to the coverage and the disaggregation of the agricultural products in the models used: the CGE model MAGNET has a comprehensive coverage of the economy, and thus of the agri-food sector and beyond. However, as explained under paragraph 2.3, some of the most important processed agricultural products falling under the other food category cannot be included in this analysis for technical reasons. These products, which include e.g. sugar confectionery, cocoa preparations, preparations of cereals, bakers' wares and preparations of fruit and vegetables, are typical flagship exports products, representing EU key offensive interest in bilateral trade negotiations, and for which the EU normally expects to derive large benefits. This limitation leads to underestimating the trade gains for the EU agri-food sector in a broad sense.

Furthermore, the level of product disaggregation is quite limited as well as its capacity to model detailed sectorial linkages and policy constraints.

On the other hand, the partial equilibrium model AGLINK-COSIMO, which is used to overcome these shortcomings of the CGE models, provides much more detailed and realistic results at agricultural commodity level, although it cannot provide results for specific dynamics relating to certain product segments (e.g. specialty cheeses vs. industrial cheeses). However, the product-coverage of the AGLINK-COSIMO is lower than CGE models: although it includes all major agricultural commodities, it does not model some important agricultural products such as fruit and vegetables, wine, olive oil, as well as processed agricultural products in general. Given the very high value of processed products, the Aglink-Cosimo model does not represent a significant share of total EU agri-food export value (70%).

As regards the geographical disaggregation of the study, results are provided only for the EU as a whole. This simplification was necessary given the complexity of the analysis and the limited reliability of the modelling tools at sub-EU level. This means that this exercise is not able to provide indications on the impact of trade agreements at Member State or at regional level, and thus even less for outermost regions, which are generally explicitly covered in the standard Commission impact assessments.

Another limitation of the study lies in the theoretical character of the scenarios, where possible trade concessions for sensitive products are not implemented under the form of

TRQs – as it is usually the case in trade negotiations - but rather in terms of partial tariff liberalisation (the exception being represented by the two concluded FTAs with Canada and Vietnam). The reason for this choice was explained in the section on the scope of the study.

Furthermore, the considered trade scenarios only investigate the effects of tariff liberalisation, but do not factor in in the analysis the possible reduction of NTMs. In fact, since there are currently no reliable estimates of NTMs for the agricultural sector at disaggregated level, and given the limited time to complete the exercise, it was decided to omit them from the study. The non-quantification of gains ahead in the NTMs area may hide important benefits for the EU exporters, as several trade partners impose cumbersome and unjustified procedures that are usually streamlined in an FTA. On the other hand, regarding the EU imports, past experience shows that the EU does not compromise its standards of consumer protection in any FTA chapter, for example on authorising so-called growth promoters, or modifying its science-based Genetically Modified Organism (GMO) approval process. These barriers to EU imports stay in place (e.g. the Comprehensive Economic and Trade Agreement (CETA)), even when tariffs are removed or reduced.

Finally, another issue that the study was unable to take into account, although it could certainly have implications on EU free trade negotiations, is the possible impact of future developments related to the UK.

Box 2: Non-Tariff Measures (NTMs)

Non-Tariff Measures (NTMs) can be considered as any policy measure that affects trade other than ordinary customs tariffs. NTMs are classified according to their scope and/or design and include a wide range of instruments such as sanitary and phytosanitary (SPS) measures, technical barriers to trade (TBTs), pre-shipment inspection and other formalities, contingent trade-protective measures, intellectual property rights, rule of origin, etc. (UNCTAD, 2015). By contrast to transparent and measurable tariffs, there is no common agreement on aim, collection, quantification and modelling of NTMs. Agri-food sectors are among those which undergo many different NTMs measure. Among them meat, dairy, fruits and vegetables (and cereals to a lower extent) are the commodities where the highest number of NTMs can be found.

With the scarcity of global and consistent cross-country database on NTMs, quantifying NTMs is not trivial. Prior to their integration within a CGE framework, NTMs are usually converted into ad-valorem equivalent (AVE) tariff rates that would have a similar trade-restricting effect as the NTMs. Gravity models are commonly used to calculate AVEs, but the model design (functional forms, price gap/quantity gap approaches, etc.) has significant impact on estimation results and gravity equations have obvious drawbacks (Beghin et al., 2015). Furthermore, an aggregation problem of NTMs results from establishing the right match between product-based NTMs and economic sectors of the CGE models. Finally, the literature is not conclusive on the correct representation of NTMs within a CGE framework, and provides several options including NTM's representation as efficiency loss/gain, as rent for domestic/foreign producers, as additional trade cost, etc.

Importantly, liberalizing trade does not mean eliminating all NTMs. Many NTMs are not of protectionist nature but serve legitimate purposes, such as food safety, or address market failures (e.g. asymmetry of information between producers and consumers, externalities) or enhance consumer demand for goods by increasing quality attributes (e.g. production process requirements or standards). Eliminating those NTMs is not the objective of any trade negotiations. Therefore quantifying the size of the reduction in NTMs due to trade agreements remains difficult. For instance, in Bureau et al (2014) NTMs are cut between 15% and 30% in the context of the TTIP while in Francois et al. (2013) they are reduced by 10-25%.

Finally, non-members of a trade agreement (third countries) can also benefit from any NTM harmonisation (reduction) if it decreases the cost associated to export to both markets. Quantifying this secondary (spill-over) effect is difficult, and often neglected, although further bilateral AVEs in the CGE models should be assessed and reduced for respective third country exporters.

For the above reasons NTMs are not modelled explicitly and no assumptions are made on possible NTMs' quantification, modelling and reduction due to the FTAs. The trade restrictive impact of NTMs is implicitly considered in the underlying trade database of MAGNET as long as it concerns the current (observed) pattern of international trade. Therefore and overall, the modelling results underestimate potential effects of the current EU FTA agenda from a NTM perspective.

OECD (2016) does not model either NTMs when considering effects of possible multilateral trade reforms, acknowledging they can influence trading patterns and therefore production and prices. There is a room for research improvement in this domain.

3 Trade policy scenarios

Among the FTAs covered by this study, only the agreements with Canada and Vietnam negotiations have actually been concluded. For all other agreements, trade talks are either under progress or have not yet been launched. For most of the ongoing negotiations, market access offers between the EU and the relevant trade partner have not been exchanged, or at least they have not gone so far in defining the treatment for sensitive products, for which reciprocal concessions are usually granted under the form of TRQs.

This implies that the actual outcome of the majority of EU free trade negotiations considered in the study is largely unknown at this stage. In particular, it would be extremely challenging to speculate about possible realistic volumes of reciprocal TRQ concessions for a large number of sensitive products.

Given the large degree of uncertainty about most trade talks under the EU bilateral trade agenda, it is not possible to model in the study a precise negotiation outcome. Instead, it is preferable to consider theoretical scenarios that can provide a range for possible cumulated impacts of the EU trade policy.

In substance, the study considers two alternative trade scenarios defined in based in two different levels of ambition in the negotiations: a conservative and an ambitious scenario.

3.1 Definition of the scenarios

For the trade agreements with Canada and Vietnam, the conservative and the ambitious scenario are based on the actual outcome of the respective trade negotiations as regards tariff liberalisation. This includes the modelling of reciprocal bilateral TRQs granted under the two agreements.

For the remaining ten trade negotiations, the two scenarios are based on a full tariff liberalisation for a large majority of tariff lines and on a partial tariff cut for the few remaining lines, which represent the sensitive products.

The conservative and the ambitious scenarios differ in terms of the assumptions as regards the percentage of tariff lines that will be fully liberalised under the agreements and the size of the tariff cut for the sensitive products.

3.1.1 Conservative scenario

Besides the implementation of the agreements with Canada and Vietnam according to the actual negotiation outcome, the conservative scenario for the other ten FTAs is defined as follows:

- full tariff liberalisation for 97% of HS 6-digit lines
- partial tariff cut of 25% for the remaining 3% of lines (sensitive products);

These assumptions are applied identically for all considered trade agreements and symmetrically for the EU and the relevant trade partners.

The percentage of liberalised lines must be dealt with at HS6 rather than at CN8 level, since all global trade models work with HS6, which is the most disaggregated level for the harmonised world trade nomenclature. The margin of manoeuvre to shield agricultural sensitive products is not identical when working at HS6 or CN8 level, since the share of agricultural lines on the total tariff lines is different in the two product nomenclatures. A 97% liberalisation at HS6 level leaves room for up to 21% of agricultural codes potentially sensitive to be excluded from full liberalisation and is thus roughly equivalent to 95.4% liberalisation at CN8 level for the EU.

3.1.2 Ambitious scenario

The ambitious scenario is defined based on the same structure of the conservative one, but with the following key parameters:

- full tariff liberalisation for 98.5% of HS 6-digit lines
- partial tariff cut of 50% for the remaining 1.5% of lines (sensitive products);

98.5% liberalisation at HS6 level leaves room for up to 10.5% of agricultural codes potentially sensitive to be excluded from full liberalisation and thus roughly corresponds to 97.7% liberalisation at CN8 level for the EU.

3.1.3 Sensitivity analysis

Twelve countries in the Pacific Rim (USA, Australia, Brunei Darussalam, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore and Vietnam) recently concluded an important trade and investment agreement known as Trans-Pacific Partnership (TPP). The finalised proposal was signed on 4 February 2016 and is currently awaiting ratification to enter into force.

The TPP is considered as a game changer on the global trade arena. TPP parties represent together approximately 40% of global GDP based on 2013 data (20.9 trillion euros), around 32% of global exports and 37% of imports of all products. For agricultural products, their share in world exports and imports is 36% and 34% respectively.

Given the economic importance of the TPP agreement, this study includes some elements of the TPP deal as quasi-sensitivity analysis to the main scenarios. However, given the complexity the TPP agreement, this sensitivity analysis is dealt with in a simplified way, i.e., by considering only some flagship products for the most important trade partners. More specifically, the analysis include trade concessions from Japan to the most competitive TPP exporters in the beef (tariff cut to imports from the USA, Canada, Australia and New Zealand), pork (90% tariff cut on imports from the USA and Canada) and dairy (BTRQs open to imports from the USA, Australia and New Zealand); the USA liberalization of imports of beef & sheep from Australia and New Zealand; Vietnam liberalization of imports of beef & sheep (from the USA, Canada, Australia and New Zealand), pig & poultry meat (from the USA and Canada) and dairy (from the USA Australia and New Zealand).

Along the same lines, some elements of another recent trade agreement potentially bearing significant impacts for the agricultural sector, have also been included, namely the China – Australia FTA (ChAFTA). In this case full liberalization of China imports of beef & sheep and dairy from Australia was implemented.

3.2 Treatment of sensitive products

For the ten considered trade agreements, whose negotiations are not concluded yet, trade scenarios described under the previous sub-section provide for a number sensitive tariff lines exempted from full tariff liberalisation, and for which a partial tariff cut is applied instead. The number of sensitive relevant tariff lines and the magnitude of the partial tariff cut differ between the conservative and the ambitious scenarios, but these two parameters are applied consistently within the same scenario, for any of the ten trade agreements, and for the EU and third countries. However, the list of sensitive products exempted from full tariff cut can greatly vary in function of the agreement considered and can of course be different for the EU and for the relevant trade partners.

Sensitive products do not necessarily have to be agricultural or agri-food products, but can refer, in theory, to any line of the HS6 nomenclature, notably industrial goods. For instance, in the negotiations with Japan, the EU does not have agricultural sensitivities: therefore, the EU lines selected to be eligible to a partial tariff cut are exclusively selected among non-agricultural products. However, for most of the trade agreements

covered by the study, agricultural lines represent the main share in the list of sensitive products, for the EU and the relevant trade partner.

The list of sensitive products for each agreement and trade partner has been established based on two criteria applying in the following priority order:

- expert judgement of the relevant trade negotiators of the European Commission, based on the evidence of ongoing negotiations with trade partners or on the analysis of the respective sensitivities, carried out prior to the launch of the trade talks;
- objective statistical indicators, notably the tariff revenue associated to each tariff line (Box 3).

The list of sensitive products on the EU side are dominated by agricultural and agri-food products. The most recurrent categories of EU sensitive products are the following: cattle meat, other meat, rice, wheat, other cereals, sugar and dairy products. In addition, for some negotiations, some individual tariff lines within a broader product category are selected, e.g. garlic, sweet maize within the fruit & vegetables category, ethanol (beverages and tobacco products), olive oil (vegetable oils), eggs (other animal products) starches, canned mushrooms, some preserved fruits, processed tomatoes, fruit juices, some sugar confectionary (other food).

However, not all these products can be selected in all negotiations given the constraints in terms of maximum number of sensitive products. Of course, this constraint is more stringent in the case of the ambitious scenario.

As far as EU trade partners is concerned, beyond well-known sensitivities emerged from trade negotiations or preliminary talks, the degree of knowledge about products potentially eligible for exemption from full tariff cut is somewhat more limited; therefore, the use of statistical indicators for the compilation of the sensitive products' list is more extensive in the case of third countries than for the EU.

Box 3: Selection of sensitive products

Most trade negotiations allow for defining politically sensitive products that are subject to reduced tariff cuts. Even a small share of sensitive products is likely to have a significant impact on the economic outcome of trade negotiations, and can dramatically reduce the cuts in average agricultural tariffs (Jean et al., 2010). Therefore special care has been taken to select possible sensitive products for the FTAs covered. A large part of the list of sensitive products has been selected by market experts, reflecting traditional offensive and defensive positions in trade negotiations. In those cases where experts identified less potentially sensitive tariff lines than possible, or only identified broader sectors (and not tariff lines) as potentially sensitive, the list of sensitive products has been completed by an ad-hoc selection procedure.

The selection procedure for sensitive products is based on a political economy model following (Grossman and Helpman, 1994) where the selection of sensitive products is assumed to be optimal in terms of maximizing a government objective function. Under specific assumptions the optimal choice can be well approximated with a tariff revenue loss criterion, which greatly reduces the computational burden associated with solving the government optimization model (Jean et al., 2005). The tariff revenue loss criterion applied orders the tariff lines in terms of the expected tariff revenue losses due to trade liberalization, assuming observed (current) traded quantities. Unlike the original approach of Jean et al. (2005), which was applied to multilateral trade negotiations, here the bilateral context has been added: tariff revenues are calculated for bilateral trade flows between the FTA partner countries for all FTAs considered.

The tariff revenue loss calculation is based on current tariffs as reported in the MacMap database (Guimbard et al., 2012) as ad valorem equivalents at the HS 6 digit and on current trade statistics from BACI-COMTRADE (Gaulier and Zignano, 2010; average of years 2012-2014). In the scenarios tariff lines declared as sensitive are subject to partial tariff cuts (50% cut in the ambitious and 25% cut in the conservative scenario) compared to current levels. Tariff cuts are effective always on the applied rates, not having an estimate on the binding overhang at the necessary level of detail. The number of tariff lines that can be declared as sensitive is smaller in the ambitious scenario (1.5% of all lines) than in the conservative one (3% of the lines).

There are good reasons why this selection procedure should not be applied to select all sensitive products, but should only complement the selection of market experts. The tariff revenue loss criterion does not consider explicitly several important issues.

The most important flaw is due to the endogeneity problem. High tariff rates might restrict imports to a great extent yielding relatively small tariff revenues (and therefore small expected tariff revenue losses) for highly protected tariff lines. These highly protected tariff lines would not be picked by our selection criterion, although they are clearly politically sensitive in trade negotiations.

In addition, the modelling of the entry price system in this exercise has some shortcomings. Tariff lines subject to the EU entry price system might be subject to both an ad valorem tariff component and to a specific tariff component that depends on the import price relative to pre-defined entry prices. Liberalizing trade but keeping the entry price system operational in an FTA, for example, would only imply tariff cuts on the ad-valorem component, and not on the specific component. The database used for calculation, however, only contained ad valorem equivalents for the applied tariff rates that are already a combination of the ad-valorem and the specific components. Cutting the combined tariff might overestimate the achieved tariff cuts in the FTA.

Overall, the share of sensitive products identified by the tariff revenue loss criterion in our analysis was 22% in the ambitious scenario and 37% in the conservative one.

3.3 Implementation of scenarios

The scenarios were implemented in MAGNET following a time step approach. The model ran over three time steps from the base year (2011) to 2016 then to 2020 and finally to 2025.

The tariff cut and TRQs associated with negotiations which are already concluded but not yet in application (Canada and Vietnam) are supposed to enter into force in 2016 and have all of their effects in place by 2020. The tariff cuts associated with the remaining ten FTAs are supposed to enter into force in 2020 and show their impacts on the global economy by 2025.

The tariff shocks are implemented via the TASTE (Tariff Analytical and Simulation Tool for Economists) program (Horridge and Laborde, 2008). This program reads the MAcMapHS6 database and transform scenarios about formula-based changes into files of percent change shocks to applied rate. All the calculations take place at the HS6 level and are then aggregated to the appropriate model level. In this report, all tariff shocks are implemented as linear cut of applied tariff.

The trade weighted tariffs faced by EU exporters and trade weighted EU import tariffs for all partners and FTA partner countries are presented in Table 2 and Table 3 respectively. The export columns in the table are calculated by multiplying the tariff rate imposed on EU exports by each country with their share in total EU exports for that commodity, and then summing over all countries. Import columns are calculated in the same way on the basis of the tariff rate imposed by the EU on each country and the countries' import shares. The difference between the scenarios shows the impact of the two simulated scenarios in reducing the tariff barriers to trade by 2025. EU import tariffs for FTA partners (Table 3) show that when tariffs are already low, as in the case of other cereals, fruit & vegetables, oils & meals and beverages, the EU liberalization towards FTA partners is almost complete. Most of the sensitive products are then selected among sectors as rice, sugar, beef & sheep and pig & poultry meat, which have higher initial tariffs.

On the export side the pattern is similar (Table 3), where tariffs where already low are almost completely liberalized (oilseeds, fruit & vegetables). Partner countries are supposed to consider as sensitive commodities as wheat and cereals, sugar, pig & poultry meat and dairy.

Table 2: Tariffs faced by EU exports and EU import tariffs for all partners worldwide (2025, %)

	Exports			Imports		
	BASE	CONS	AMBI	BASE	CONS	AMBI
Wheat[6]	12.1	12.5	12.7	0.0	0.0	0.0
Other Cereals	30.1	29.5	28.5	2.7	2.2	0.6
Rice	13.7	7.4	8.0	11.1	9.2	7.6
Oilseeds	8.3	2.3	2.3	0.0	0.0	0.0
Oils & Meals	9.1	7.3	7.5	2.0	1.7	1.2
Sugar	13.2	12.8	12.5	20.8	16.2	12.8
Fruit & vegetables	11.8	10.2	10.1	3.4	2.4	2.2
Other Crops	8.8	7.8	7.5	0.8	0.1	0.1
Beef&Sheep	25.8	21.8	15.8	24.7	22.4	18.3
Pig&Poultry Meat	18.2	16.9	15.7	10.4	9.2	7.5
Dairy	19.5	18.9	16.6	22.0	14.0	13.1
Beverages & Tobacco	14.4	12.9	12.9	6.0	4.4	3.5

Source: Authors' calculation from MAGNET results

Table 3: Tariffs faced by EU exports and EU import tariffs for the 12 selected FTA partners (2025, %)

	Exports			Imports		
	BASE	CONS	AMBI	BASE	CONS	AMBI
Wheat	45.3	37.3	28.7	0.0	0.0	0.0
Other Cereals	49.6	40.6	29.5	4.0	3.0	0.0
Rice	20.3	6.3	7.3	14.0	10.5	7.7
Oilseeds	16.7	0.3	0.3	0.0	0.0	0.0
Oils & Meals	3.5	0.7	1.0	1.1	0.7	0.0
Sugar	22.1	17.4	14.8	29.9	18.9	13.1
Fruit & vegetables	9.1	1.0	0.3	3.4	0.8	0.4
Other Crops	3.7	1.0	0.3	1.7	0.0	0.0
Beef&Sheep	35.6	24.9	12.6	28.6	24.6	19.5
Pig&Poultry Meat	10.0	7.9	6.3	15.4	12.0	8.7
Dairy	30.6	26.8	20.5	40.6	15.6	13.9
Beverages & Tobacco	3.3	0.9	0.9	5.5	2.4	0.7

Source: Authors' calculation from MAGNET results

[6] The trade weighted tariff rate faced by EU wheat exports increases under trade liberalization. This paradox is due to the effect of the trade-weighted averaging, and notably to the increase in EU exports towards countries with a high level of protection and that cut their tariff under their trade agreement with the EU.

4 Baseline towards 2025

4.1 Baseline assumptions and key values

The MAGNET baseline is calibrated from the EU agricultural outlook 2015-2025 published by the Directorate-General for Agriculture and Rural Development (DG AGRI) in December 2015 (European Commission, 2015). The macroeconomic developments (GDP, population growth rate, world crude oil price) are exogenously imposed in the model following the forecasts adopted in DG AGRI outlook (Table 4).

While population remain exogenous in the scenarios, GDP and world oil price become then endogenous in the scenarios while productivity parameters employed to calibrate GDP and world oil price become exogenous.

Table 4: Macroeconomic baseline assumptions (2011-2025, US dollars, %)

	Population growth (%) (EU)	Real GDP growth (%) (EU)	Crude oil price (USD per barrel Brent)
2012	0.2	-0.5	112
2013	0.2	0.2	109
2014	0.2	1.4	99
2015	0.4	1.9	53
2016	0.4	2	50
2017	0.3	2.1	61
2018	0.3	1.9	69
2019	0.2	1.8	76
2020	0.2	1.8	77
2021	0.1	1.9	81
2022	0.1	1.8	87
2023	0.1	1.8	95
2024	0.1	1.7	102
2025	0.1	1.7	107

Sources: DG AGRI estimates based on the European Commission macroeconomic forecasts and IHS Global Insight.

The EU agricultural outlook reflects agricultural and trade policies currently implemented or already been agreed upon (e.g., expiry of sugar quotas).

To replicate the agricultural outlook trends (production, imports and exports) for the different commodities in MAGNET, three parameters need to be adjusted. To calibrate agricultural production changes, a sectorial productivity parameter is endogenized. To replicate net balance position of the EU by calibrating imports and exports, two preference parameters are modified: a taste change in favour of the consumption of a given commodity in a given region and a technical change parameter augmenting import of given commodities from given regions in selected regions. Given that EU outlook only produce total extra EU imports and exports, the bilateral trade flows of main commodities in the baseline are adjusted following expert knowledge.

Consistent with DG AGRI outlook, Figure 3 shows the shares in production, imports and exports by commodities in 2025. These shares represent the weight of each commodity on the sum of the product categories considered in the analysis, as explained in Section 2.3.

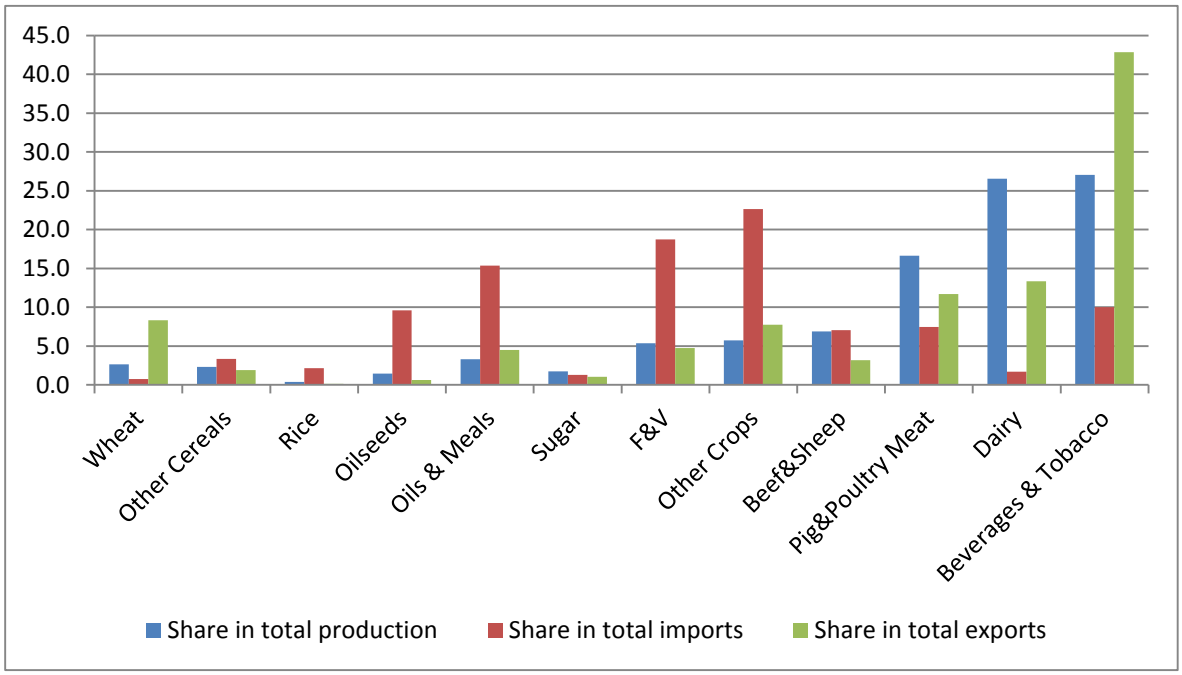
These numbers constitute the reference values for the scenarios. Pig & poultry meat, beverages & tobacco, and dairy products contribute to more than two third of the considered agri-food production in value terms. They also represent a large share of the

EU exports. Other sectors contributing significantly to the EU agri-food production are fruit & vegetables (5.3%) and beef & sheep (6.9%).

Dairy, pig & poultry meat and wheat sectors show a significant export orientation, whereas oilseeds, vegetable oils and fruit & vegetables depict high shares of imports.

Compared to 2016, production shares in 2025 remain stable with slight decreases in the meat production and increases in dairy and beverages. Imports are relatively stable too with a decrease of sugar imports, while on the export side, there is an increase in dairy and beverages (Table 26 in the annex).

Figure 3: Importance of single commodities on total agri-food categories (2025, %)

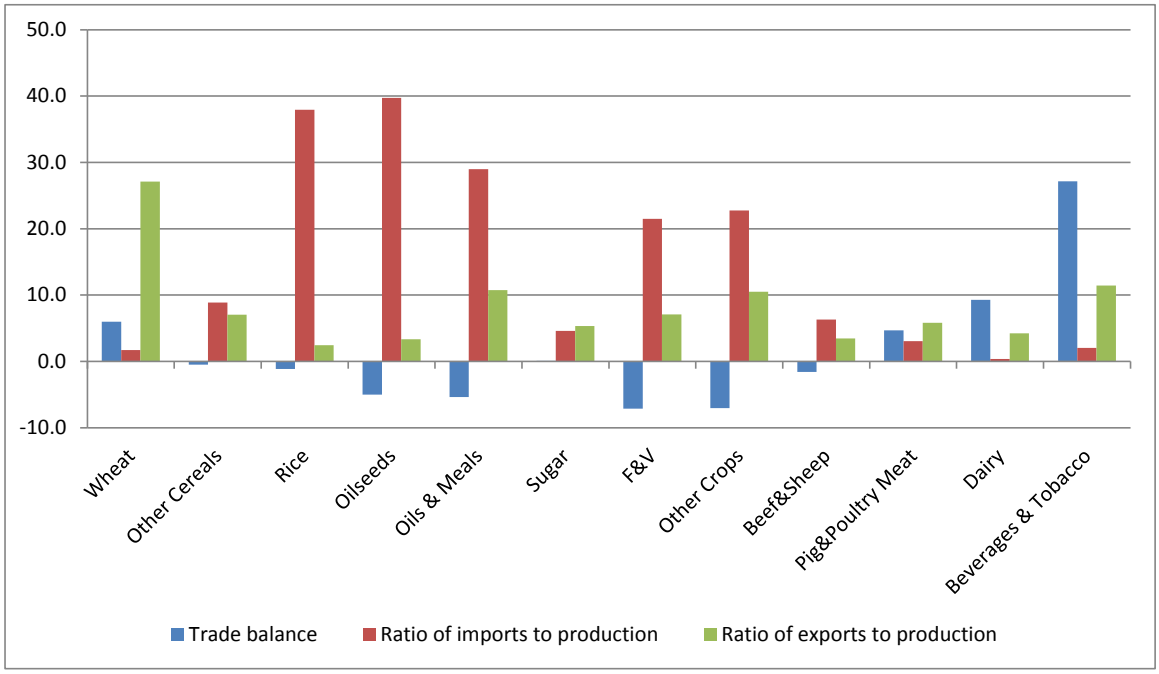


Source: Authors' calculation from MAGNET results

The trade balances for the EU are shown in Figure 4 (excluding sugar beet and raw milk sectors which are small or can be considered as non-traded commodities). Wheat and beverages present a significant positive balance, while a strong import dependency is observed for oilseeds, vegetable oils, fruit & vegetables and other crops.

Figure 34 in the annex provides the absolute values of EU imports, exports and balance in 2025.

Figure 4: Trade balance, ratio of import and export to production (2025, %)

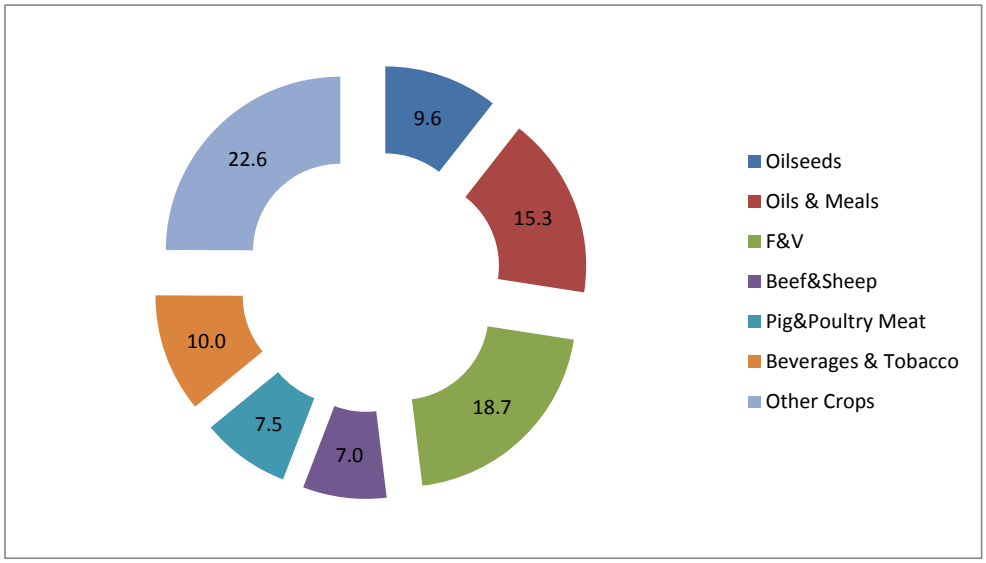


Source: Authors' calculation from MAGNET results

4.2 Main imports and trading partners

Imports are spread mainly among oilseeds and oil & meals are the main import categories which together contribute to 24% of imports. Fruits & vegetables and beverages & tobacco (Figure 5) are other main imported products.

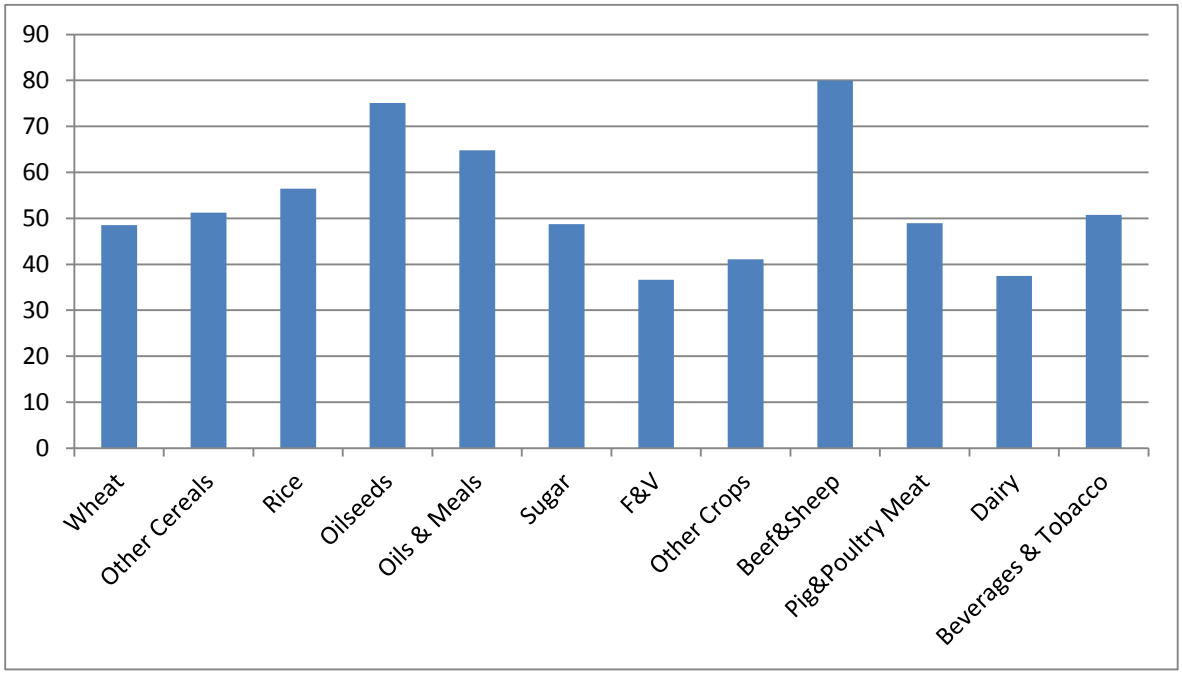
Figure 5: Breakdown of EU agri-food import by sector (2025, %)



Source: Authors' calculation from MAGNET results
Note: The shares do not add up to 100% as some smaller categories are not included.

EU imports from the 12 FTA partners show high percentage for beef & sheep (almost 80%) and oil seeds and oils & meals (about 60-70%). The latter represent also a very high import share compared to production. Other products have also a high share of imports coming from FTA partners; however, they do not present critical dependencies (at least with the highly aggregated categories adopted in this modelling exercise) (Figure 6).

Figure 6: Contribution of all FTA partners in imports by commodities (2025, %)



Source: Authors' calculation from MAGNET results

Disaggregating cumulative FTAs by partners, Mercosur contributes to 24.5% of EU agri-food imports, followed by the USA (8.4%), Turkey (3.1%), and Thailand (2.3%). As a whole, FTA partners supply 52.2% of EU imports in 2025 (Table 5).

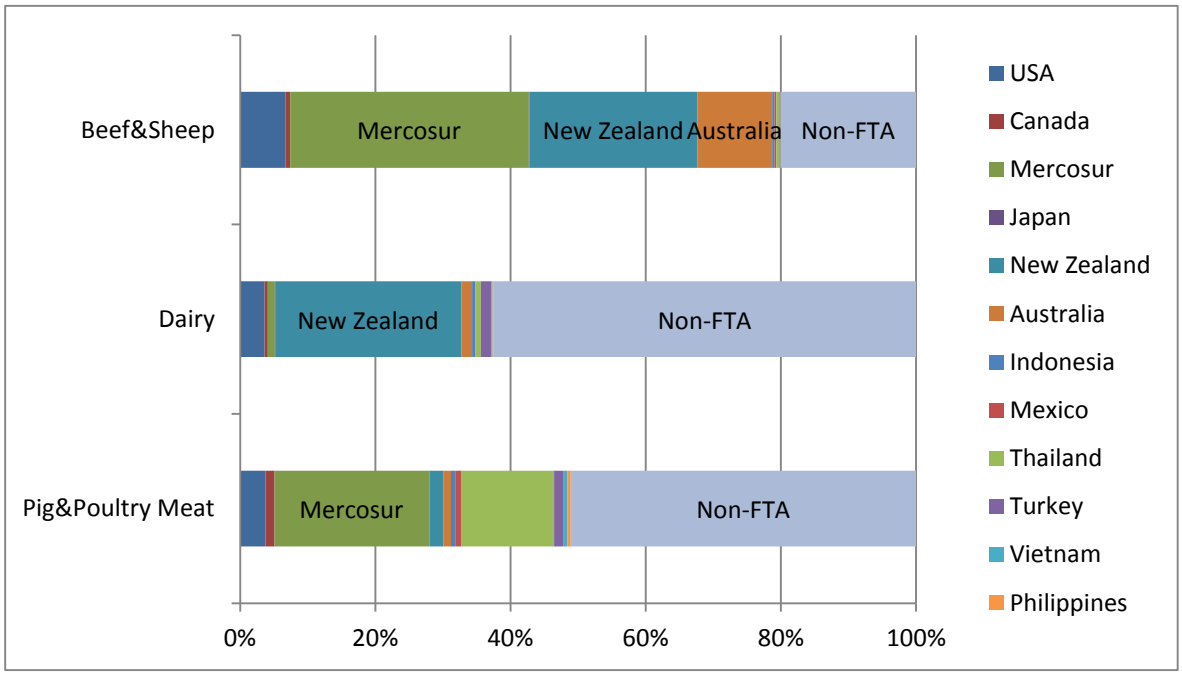
Table 5: EU imports by FTA partners (2025, billion euros, %)

	Base (billion euros)	Base (%)
USA	4.8	8.4
Canada	1.0	1.8
Mercosur	14.0	24.5
Japan	0.1	0.1
New Zealand	1.8	3.1
Australia	1.5	2.6
Indonesia	1.7	2.9
Mexico	0.5	0.9
Thailand	1.3	2.3
Turkey	1.8	3.1
Vietnam	1.2	2.2
Philippines	0.1	0.3
all FTAs	29.9	52.2

Source: Authors' calculation from MAGNET results

Focusing on meat and dairy sectors only (Figure 7), a few partners contribute to most of the EU imports, namely Mercosur, New-Zealand, Australia and Thailand. For instance, more than one third of EU beef & sheep imports come from Mercosur (beef), and a quarter from New-Zealand (sheep). For pig & poultry, Mercosur and Thailand provide 23% and 13.7% of EU imports respectively. In the dairy sector, the bulk of the EU imports come from countries others than the 12 FTA partners, while the main FTA provider is New Zealand, which provides almost 30% of the EU dairy imports.

Figure 7: EU imports of meat and dairy by FTA partners (baseline in 2025, %)



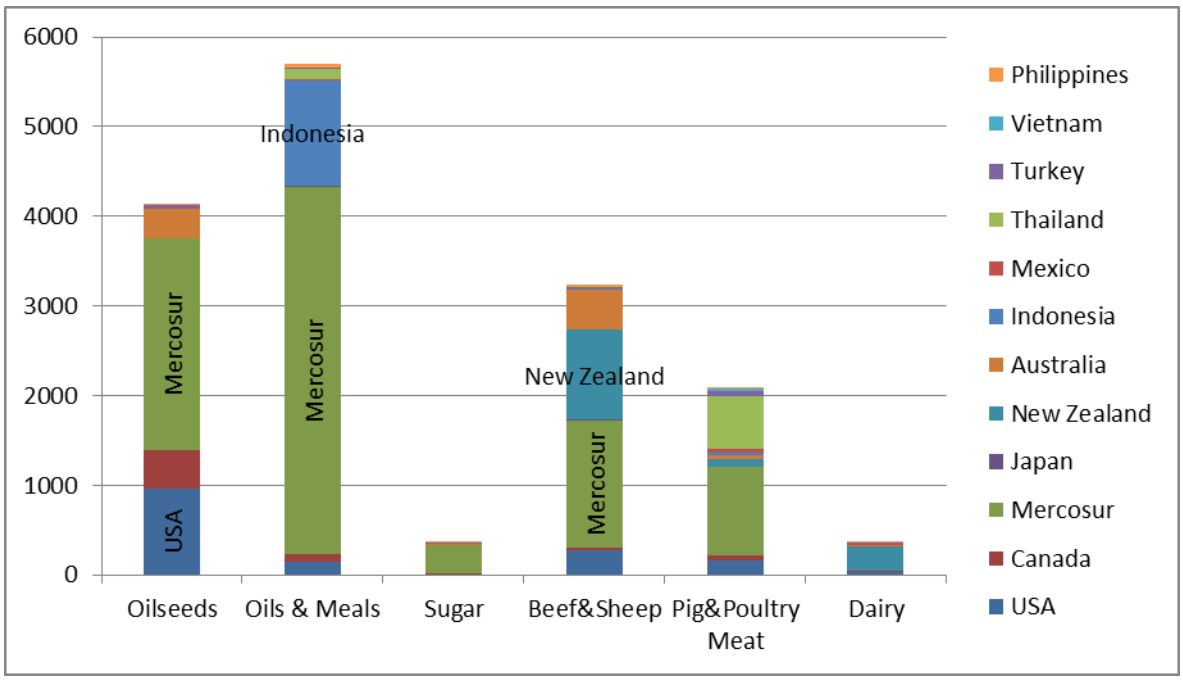
Source: Authors' calculation from MAGNET results

Analysing values of trade flows (Figure 8) sheds some light on the outstanding position of Mercosur (among other FTA partners) within EU market suppliers in many

commodities as oilseeds, oils & meals, beef & sheep, sugar and pig & poultry meat. For beef & sheep, pig & poultry meat and sugar, this prominence is strongly linked to preferential access granted under country-specific WTO TRQs under the Uruguay Round, successive EU enlargements, and TRQs opened under Article XXVIII negotiations.

Other countries hold significant share in the EU market as the USA for oilseeds, Indonesia for oils & meals, New Zealand for beef & sheep and dairy.

Figure 8: EU imports by products and FTAs (2025, million euros)

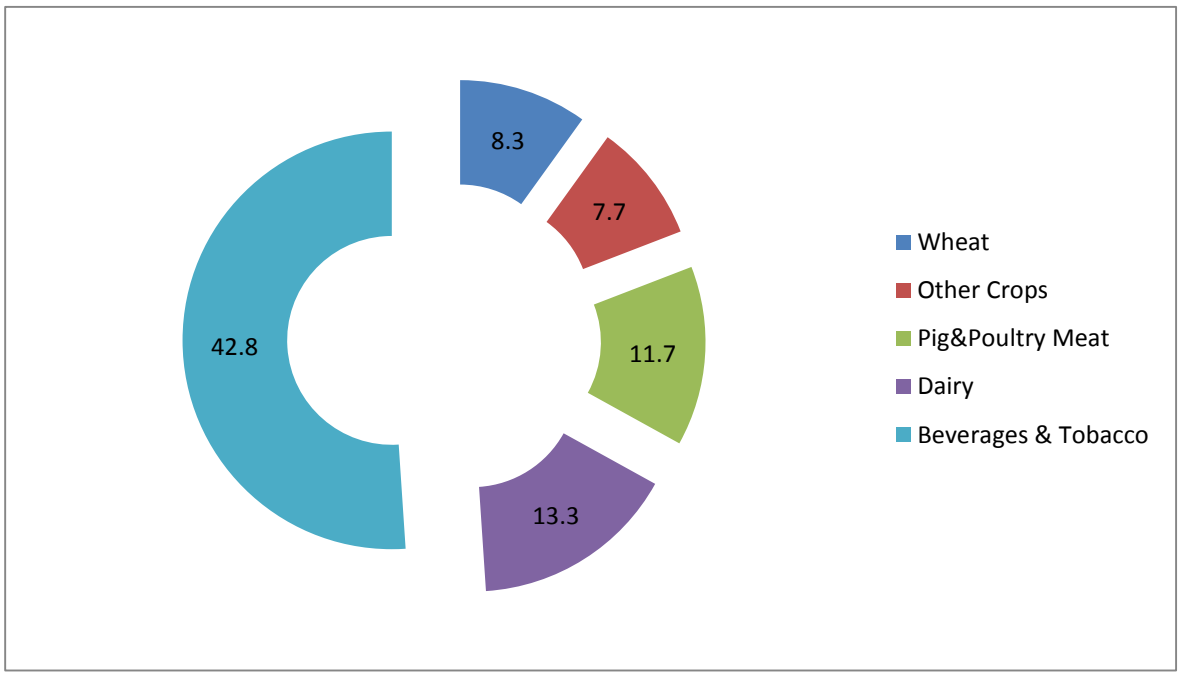


Source: Authors' calculation from MAGNET results

4.3 Main exports and trading partners

European exports are led by the beverages and tobacco sector with a share of 42.8% on the sum of all product categories considered in the analysis. Further significant commodities are dairy (13.3%), pig & poultry meat (11.7%) other crops and wheat (Figure 9).

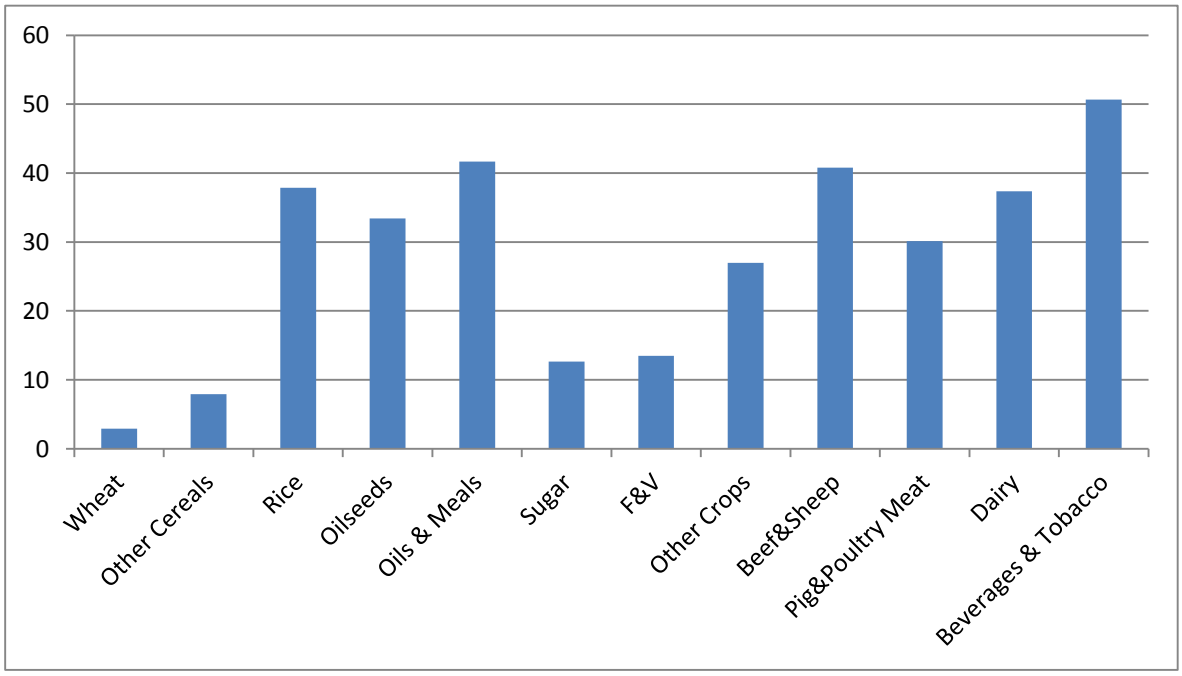
Figure 9: Breakdown of EU agri-food export by sector (2025, %)



Source: Authors' calculation from MAGNET results
Note: the numbers do not add up to 100% as some smaller categories are not included.

More than 50% of beverages are exported to the 12 FTA partners, a range of other products export between 30 and 40% of exports to FTA, namely oilseeds, dairy and pig & poultry meat, rice, beef & sheep and oils & meals. Although wheat has a relatively important share in exports, the 12 FTA partners are not a major destination (Figure 10).

Figure 10: Share of all FTA partners in exports by commodities (2025, %)



Source: Authors' calculation from MAGNET results

The USA (18.9%) is clearly the main destination of EU agri-food exports among the 12 FTA partners, followed by Japan (4.9%) and Canada (2.9%). Exports to FTA partners (36.9%) have a smaller share compared with imports from FTA partners (Table 6).

Table 6: EU exports by FTA partners (2025, billion euros, %)

	Base (billion euros)	Base (%)
USA	14.5	18.9
Canada	2.2	2.9
Mercosur	1.5	2.0
Japan	3.8	4.9
New Zealand	0.2	0.3
Australia	1.4	1.8
Indonesia	0.4	0.6
Mexico	0.8	1.0
Thailand	0.4	0.5
Turkey	2.2	2.9
Vietnam	0.4	0.5
Philippines	0.4	0.5
all FTAs	28.3	36.9

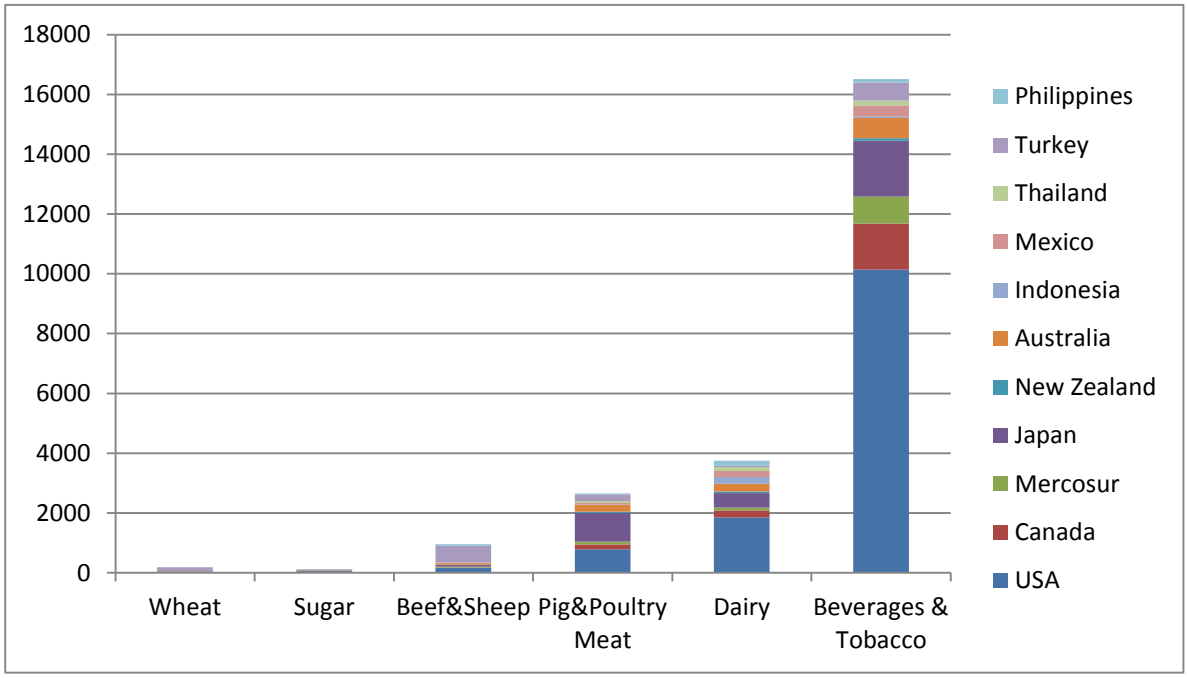
Source: Authors' calculation from MAGNET results

Focussing on the key export commodities, among the FTA regions beverages and dairy products mainly go to the USA while pig & poultry meat main export destinations are Japan and the USA. Wheat is mainly exported to North and Sub-Saharan Africa, which are not included in the set of the 12 FTA partners.

The importance of beverages in absolute values is visualised in Figure 11.

Figure 36 in the annex provides the details on EU export shares for all commodities and products, to all destinations.

Figure 11: EU exports by product and trading partners (2025, million euros)



Source: Authors' calculation from MAGNET results

5 Modelling results

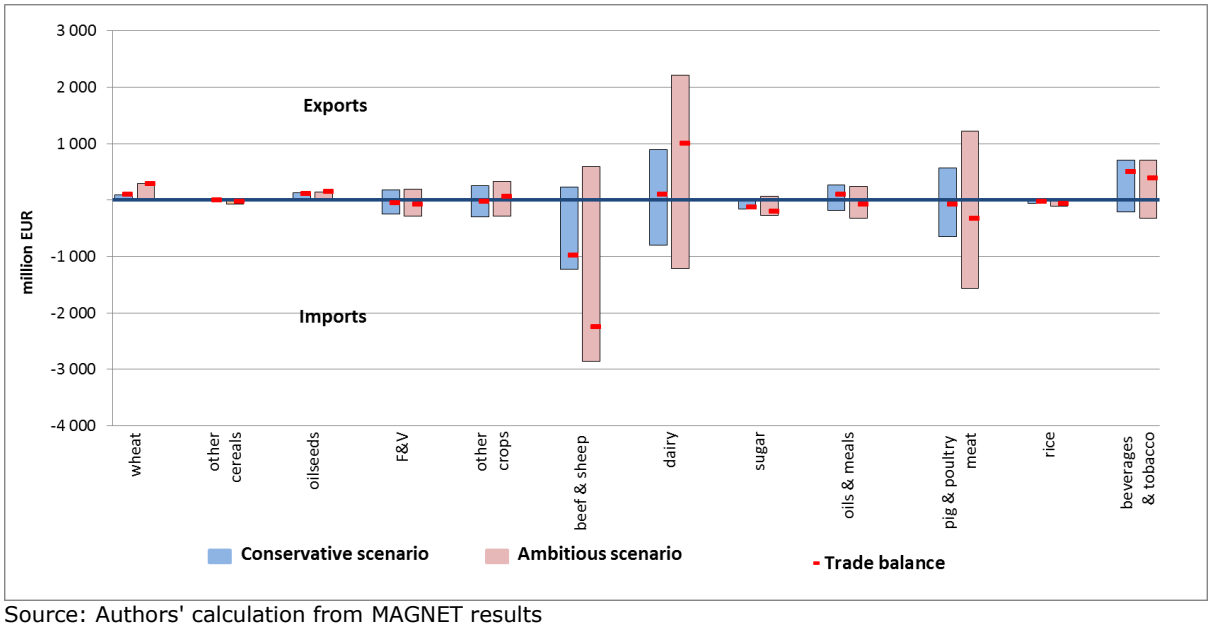
5.1 Overview

Unless otherwise stated, all results of this analysis refer to the year 2025 and the impacts are mainly expressed as changes compared to the baseline.

FTAs increase the access of the signing parts to each other's' markets by decreasing the cost of traded goods. This implies a change in the relative prices of these goods in the import and export markets eventually lowering the domestic prices of traded goods. Lower prices imply higher demand for those commodities and hence the FTA partners import more of that good. This effect is known as trade creation. On the other hand, while imports from and exports to the FTA partners increases, trade with third countries is likely to reduce since their commodities are relatively more expensive. This second effect is known as trade diversion. The results show that these two effects are not identical across the sectors. Dairy products, beef & sheep and pig & poultry meat are the sectors where that trade creation effect is quite significant. In contrast, trade diversion is not observed significantly for most sectors.

Trade impacts for beef & sheep are characterised by a significant increase in imports and a much more modest growth in exports, with an overall negative impact on the net trade position (Figure 12). On the contrary, the dairy sector displays net trade gains, particularly sizeable in the ambitious scenario. In the pig & poultry meat category, mixed impacts are registered: as will be discussed later, this corresponds to a situation of net trade gains for pork and losses for poultry. Further, significant net trade gains are registered for beverages and tobacco whereas overall changes are quite limited for the fruit & vegetable sector as a whole (Figure 12). The latter two sectors are not covered by the partial equilibrium model.

Figure 12: Change in EU trade value of agri-food products by commodities and scenarios (2025, million euros)

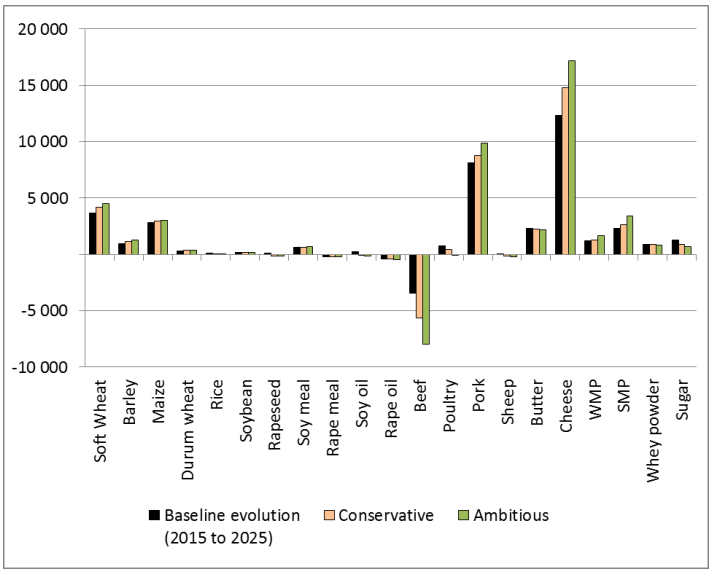


Source: Authors' calculation from MAGNET results

The altered trade relationships have a direct effect on the EU different agricultural markets. Sectorial impacts reflect the competitiveness of the sector in 2025 and are detailed further in this chapter. In this overview the situation in 2025 (after the implementation of all considered agreements) is compared with the current situation

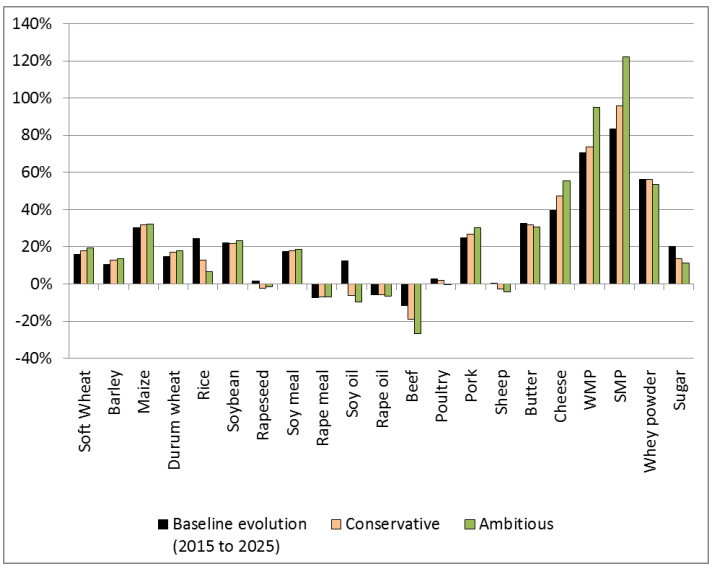
(2015). The black bar in Figure 13 and Figure 14 shows the projected change in the EU production value for the main agricultural commodities between 2015 and 2025 based on the DG AGRI outlook. The coloured bars present the situation in 2025 under the ambitious and conservative scenarios. For the large majority of sectors, the expected evolution over the ten years baseline period is strongly positive and more significant than the incremental effect of the trade scenarios. For most dairy products, the expansion under the status quo is enhanced by positive trade opening, while for sugar and rice the positive market outlook is slightly reduced due to additional imports under both trade scenarios. Only for beef the effect of the trade scenarios comes on top the projected decline in production and price.

Figure 13: Change in EU production value by commodities and scenarios compared to 2015 (2025, million euros)



Source: Authors' calculation from AGLINK-COSIMO results

Figure 14: Change in EU production value by commodities and scenarios compared to 2015 (2025, %)



Source: Authors' calculation from AGLINK-COSIMO results

5.1.1 Changes in imports

The results show an increase in imports in almost all agri-food commodities from the 12 FTA partners, accompanied by a (lower) decrease of imports from non-FTA. As a consequence, the market share of FTA partners in the EU increases considerably particularly in the two meat sectors. As a general pattern, imports from FTA partners under the ambitious scenarios grow more than under the conservative one.

The imports from the 12 FTA partners increase from 29.9 in the baseline to 34.1 billion euros (+14% CONS) and 37.8 billion euros (+26% AMBI) (Table 7). Additional imports mainly come from Mercosur and the USA. Looking at the relative figures, the share of agri-food imports from FTA partners in AMBI scenario rises by more than 6 percentage points compared to the BASE (Table 7), contributing to more than 58% of all imports. Countries other than 12 FTA partners face a decrease in their market share in favour of the regions negotiating an agreement with the EU (or having signed as Canada or Vietnam). The final effect on the total EU imports is an increase between 6% (CONS) and 13% (AMBI) of agri-food imports.

Table 7: EU imports by trade partners and scenarios (2025, million euros, %)

	BASE		CONS		AMBI	
	Imports	%	Imports	%	Imports	%
USA	4,840.3	8.4	5,691.0	9.3	5,790.9	9.0
CAN	1,020.8	1.8	1,134.4	1.9	1,129.3	1.7
MER	14,026.9	24.5	16,237.0	26.5	18,413.8	28.5
JPN	59.1	0.1	114.1	0.2	113.2	0.2
NZZ	1,771.5	3.1	2,001.6	3.3	2,340.1	3.6
AUS	1,516.7	2.6	1,774.9	2.9	2,258.1	3.5
IND	1,673.4	2.9	1,785.7	2.9	2,010.7	3.1
MEX	531.4	0.9	541.1	0.9	546.5	0.8
THA	1,322.0	2.3	1,602.2	2.6	1,838.3	2.8
TUR	1,799.7	3.1	1,852.2	3.0	1,925.5	3.0
VTN	1,233.5	2.2	1,276.6	2.1	1,270.6	2.0
PHI	149.0	0.3	159.1	0.3	166.7	0.3
FTA	**29,944.4**	**52.2**	**34,169.8**	**55.8**	**37,803.7**	**58.4**
RoE	4,807.6	8.4	4,797.0	7.8	4,763.2	7.4
RoAm	4,351.0	7.6	4,297.2	7.0	4,221.4	6.5
RoAs	7,439.5	13.0	7,353.8	12.0	7,318.5	11.3
MENA	2,965.4	5.2	2,924.5	4.8	2,897.1	4.5
SSA	7,086.7	12.4	6,970.6	11.4	6,934.0	10.7
RoW	769.7	1.3	763.9	1.2	756.6	1.2
TOTAL	**57,364.3**	**100.0**	**61,276.8**	**100.0**	**64,694.5**	**100.0**

Source: Authors' calculation from MAGNET results

The trade creation effect is higher for sugar, dairy products, beef & sheep, pig & poultry meat sectors. For other sectors it is either insignificant or even negative such as oilseeds under ambitious scenario (Table 8). The trade diversion effect, on the other hand is not observed significantly except for fruit & vegetable and other crops sectors. For some

sectors such as wheat and oilseeds, imports from non-FTA partners increase. For these sectors substitution effects as a result of trade creation and diversion, as well as income changes are the prime cause of changes in trade.

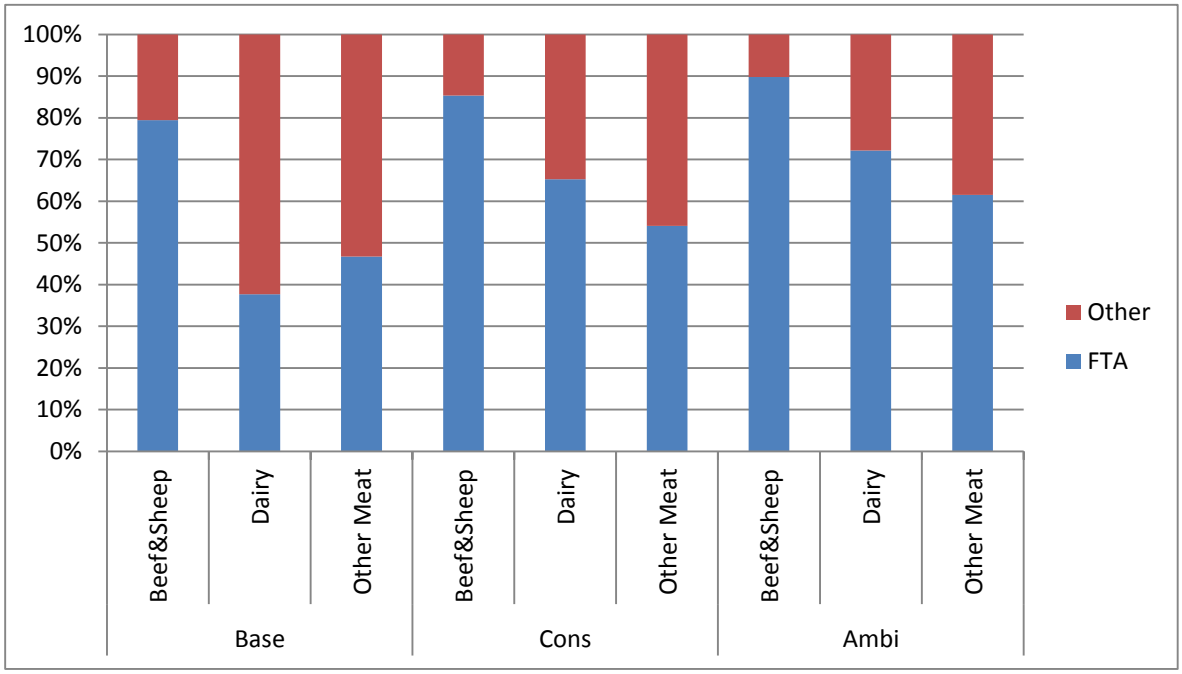
Table 8: Change in EU imports by commodities, origins and scenarios (2025, million euros)

	12 FTA partners				Other				Total			
	CONS		AMBI		CONS		AMBI		CONS		AMBI	
	%	mil. euros	%	mil. euros	%	mil. euros	%	mil. euros	%	mil. euros	%	mil. euros
Wheat	1.1	2.2	2.5	5.2	2.0	4.4	4.4	9.6	1.6	6.6	3.5	14.7
Other Cereals	1.9	19.0	8.7	86.1	-0.4	-4.0	-1.6	-15.2	0.8	15.1	3.7	70.8
Rice	13.1	90.6	24.0	165.4	-4.3	-22.7	-10.1	-53.9	5.5	67.8	9.1	111.5
Oilseeds	0.3	11.4	-0.6	-23.0	1.0	14.2	0.8	11.1	0.5	25.6	-0.2	-11.9
Oils & Meals	3.4	191.7	6.5	370.4	-0.3	-8.7	-1.5	-45.5	2.1	183.0	3.7	324.9
Sugar	52.3	185.5	89.1	316.2	-6.6	-24.7	-11.3	-42.4	22.1	160.8	37.6	273.7
Fruit & Vegetable	8.2	323.3	9.8	384.4	-1.2	-82.7	-1.6	-106.8	2.2	240.6	2.6	277.7
Other Crops	7.7	410.0	7.3	388.2	-1.6	-118.6	-1.4	-108.3	2.2	291.4	2.2	279.9
Beef&Sheep	39.4	1271.4	92.1	2973.6	-6.3	-50.9	-14.3	-115.9	30.2	1220.5	70.8	2857.8
Pig&Poultry Meat	33.5	700.8	78.7	1648.1	-0.6	-14.0	-2.2	-47.9	16.0	686.8	37.4	1600.2
Dairy	223.0	810.5	336.5	1222.9	-1.2	-7.2	-2.0	-12.1	82.8	803.4	124.8	1210.8
Beverages & Tobacco	7.2	208.9	11.0	321.8	0.1	2.0	-0.1	-1.6	3.7	210.9	5.6	320.2

Source: Authors' calculation from MAGNET results

The 12 FTA partners are increasing their share in particular for beef & sheep, pig & poultry meat and dairy (Figure 15). For beef & sheep, non-FTA partners with already a limited share of the EU imports are left with a marginal market share (less than 5%).

Figure 15: Share of FTAs in imports by commodities, origins and scenarios (2025, %)



Source: Authors' calculation from MAGNET results

5.1.2 Changes in exports

Results show an increase in exports of all agri-food commodities to all FTA partners and a decrease of exports to non-FTA. The net impact on the EU exports is positive for all commodities. Exports to FTA partners under the ambitious scenarios grow more than under the conservative one. More specifically, dairy and pig & poultry meat show the most positive impact.

The exports to FTA partners increase from 28.3 to 32 billion euros (13.1% CONS) and 34.7 billion euros (22.7% AMBI) (Table 9). Additional exports are mainly directed to Japan, Turkey, Mercosur and the USA (Table 9).

As in the case of imports, a reverse effect is observed in the relationships with non FTA partners; the EU exports to them decrease, with a higher reduction under the ambitious scenario. The final effect on the EU agri-food exports is an increase between 4.5% (3.5 billion euros, CONS) and 8% (6.1 billion euros, AMBI).

As a consequence, the share of EU exports into the FTA partners increases by 3 and 5 percentage points from the BASE (36.9%) to CONS (39.9%) and AMBI (41.9%) scenarios, respectively (Table 9).

Table 9: EU Exports by scenarios (2025, million euros, %)

	BASE		CONS		AMBI	
	Exports	%	Exports	%	Exports	%
USA	14,513.5	18.9	14,985.5	18.7	15,407.3	18.6
CAN	2,211.3	2.9	2,318.0	2.9	2,316.9	2.8
MER	1,533.1	2.0	2,322.7	2.9	2,478.3	3.0
JPN	3,778.1	4.9	4,703.8	5.9	5,790.7	7.0
NZZ	217.0	0.3	226.6	0.3	235.4	0.3
AUS	1,396.7	1.8	1,435.2	1.8	1,476.9	1.8
IND	448.5	0.6	568.7	0.7	584.5	0.7
MEX	801.7	1.0	931.4	1.2	1,107.3	1.3
THA	411.1	0.5	543.6	0.7	664.1	0.8
TUR	2,216.5	2.9	2,996.3	3.7	3,635.4	4.4
VTN	364.8	0.5	510.4	0.6	510.8	0.6
PHI	412.6	0.5	469.6	0.6	519.7	0.6
FTA	**28,304.8**	**36.9**	**32,011.8**	**39.9**	**34,727.3**	**41.9**
RoE	14,504.7	18.9	14,448.7	18.0	14,449.6	17.4
RoAm	10,437.4	13.6	10,402.4	13.0	10,414.1	12.6
RoAs	1,980.8	2.6	1,965.6	2.4	1,961.6	2.4
MENA	12,404.3	16.2	12,330.8	15.4	12,301.7	14.8
SSA	8,281.4	10.8	8,231.0	10.3	8,214.9	9.9
RoW	864.2	1.1	859.8	1.1	859.9	1.0
TOTAL	**76,777.6**	**100.0**	**80,250.3**	**100.0**	**82,929.2**	**100.0**

Source: Authors' calculation from MAGNET results

Whereas exports grow for all products, only a limited number of them show an important share in exports to the FTA partners and a considerable increase in exports values (Table 9).

Dairy exports grow by almost 60% in the AMBI scenario, increasing by around 2 billion euros. Similarly, pig & poultry meat exports increase strongly, contributing 1.2 additional billion euros to the export gains. Important gains in absolute terms are also observed for the categories beverages & tobacco (Table 10).

The trade creation effect is higher for rice, oilseeds, dairy products, beef & sheep and pig & poultry meat sectors. The trade diversion effect, on the other hand is not observed significantly. Furthermore EU exports to non-FTA partners slightly increase in some cases, such as other cereals and beef.

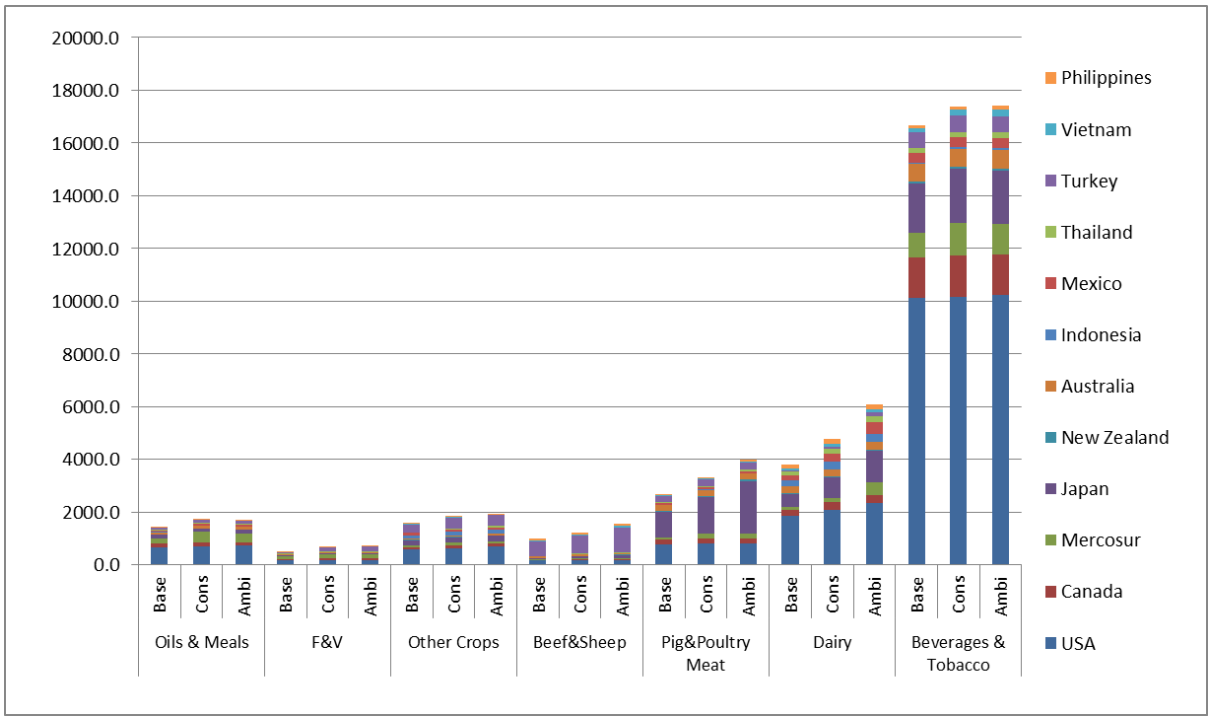
Bilateral flows (Figure 16) show many export opportunities for EU products into FTA countries and the USA remains one of the most important markets for the EU agri-food products.

Table 10: Change in EU exports by commodities, destinations and scenarios (2025, million euros)

	12 FTA partners				Other				Total			
	CONS		AMBI		CONS		AMBI		CONS		AMBI	
	%	mil. euro	%	mil. euro	%	mil. euro	%	mil. euro	%	mil. euro	%	mil. euro
Wheat	86.6	162	225.3	422	-1.0	-63	-2.0	-126	1.5	99	4.6	295
Other Cereals	12.9	15	30.1	35	-0.1	-1	0.1	1	1.0	14	2.5	36
Rice	252.8	87	256.5	88	-1.9	-1	-1.2	-1	94.5	86	96.3	87
Oilseeds	79.9	130	79.6	130	-1.0	-3	-0.6	-2	26.0	127	26.2	128
Oils & Meals	20.9	299	18.8	270	-1.3	-27	-1.2	-24	7.9	272	7.1	246
Sugar	34.3	35	72.8	74	-1.0	-7	-0.6	-5	3.4	28	8.6	70
FRUIT & VEGETABLE	37.7	185	42.0	206	-0.2	-7	-0.4	-11	4.9	178	5.3	195
Other Crops	16.0	256	21.0	336	0.0	-2	-0.1	-3	4.3	254	5.6	333
Beef& Sheep	22.6	224	57.2	568	0.4	6	2.0	29	9.4	230	24.5	597
Pig&Poul -try Meat	23.2	628	47.7	1289	-0.7	-44	-0.6	-40	6.5	584	13.9	1249
Dairy	24.8	949	59.1	2259	-0.8	-50	-0.8	-49	8.8	899	21.6	2209
Bev. & Tobacco	4.4	737	4.5	746	-0.2	-35	-0.2	-39	2.1	702	2.1	707

Source: Authors' calculation from MAGNET results

Figure 16: EU exports by commodities, FTA partners and scenarios (2025, million euros)



Source: Authors' calculation from MAGNET results

5.1.3 Changes in trade balance

As a consequence of the changes in imports and exports, the positive EU agri-food trade balance shows a slight deterioration, even if the pattern is differentiated by commodity and trade partner.

The EU agri-food balance with the FTAs partners deteriorates from the BASE (-1.6 billion euros), via the CONS (-2.1 billion euros) to the AMBI scenario (-3 billion euros) resulting in an increase of the trade deficit with FTA partners (Table 11).

As a consequence, the impact on the agri-food trade balance is negative even if the agri-food balance for the EU remains positive and moves from 19.4 billion euros under BASE to 18.9 billion euros and 18.2 billion euros under the conservative and ambitious scenarios (Table 11).

Table 11: Overview – EU trade balance for the considered agri-food categories (2025, billion euros)

	FTA			Non-FTA		
	Exports	**Imports**	**Balance**	**Exports**	**Imports**	**Balance**
BASE	28,305	29,944	-1,640	76,778	57,364	19,413
CONS	32,012	34,170	-2,158	80,250	61,277	18,974
AMBI	34,727	37,804	-3,076	82,929	64,695	18,235

Source: Authors' calculation from model results

Looking at the single commodities (specific results in sub-sections below), under the AMBI scenario, the EU observes a positive development in commodities where its competitiveness is still high, such as wheat (+400 million euros) and commodities with a relative high value added such as dairy (+1 billion euros) and beverages & tobacco (+400 million euros) (Table 12). On the other hand, a deterioration can be observed in the balances of beef & sheep (-2.4 billion euros) (Table 12). The pig & poultry meat balance remains positive, but is reduced by more than 350 million euros. Most of the trade balance change in all sectors is due to the change with the FTA partners.

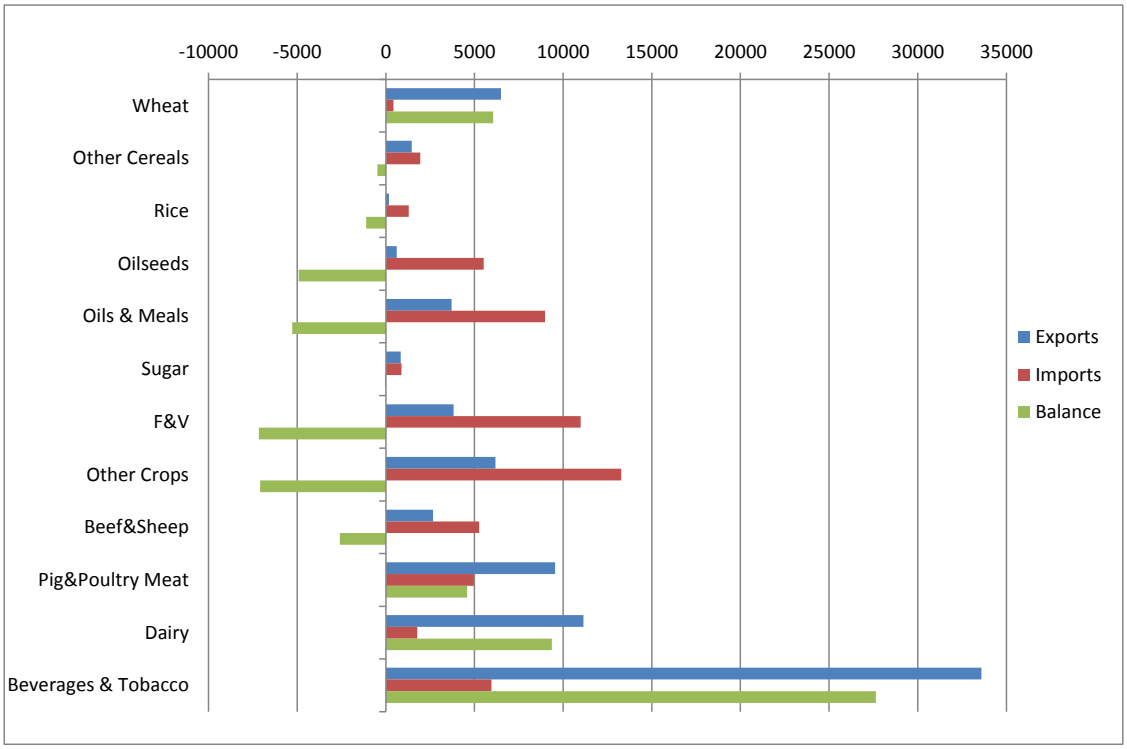
Table 12: EU trade balance with FTA partners by commodities and scenarios (2025, million euros)

Balance	Absolute values				
	BASE	CONS	AMBI	CONS-BASE	AMBI-BASE
Wheat	-18	142	399	160	417
Other Cereals	-873	-878	-925	-4	-52
Rice	-656	-660	-734	-4	-78
Oilseeds	-3965	-3846	-3812	119	153
Oils & Meals	-4274	-4167	-4375	107	-101
Sugar	-252	-403	-494	-150	-242
Fruit & Vegetable	-3447	-3586	-3626	-138	-178
Other Crops	-3734	-3888	-3786	-154	-52
Beef&Sheep	-2234	-3281	-4640	-1047	-2406
Pig&Poultry Meat	607	534	248	-73	-359
Dairy	3461	3599	4497	138	1036
Beverages & Tobacco	13748	14276	14172	528	424
Total	-1640	-2158	-3076	-518	-1437

Source: Authors' calculation from MAGNET results

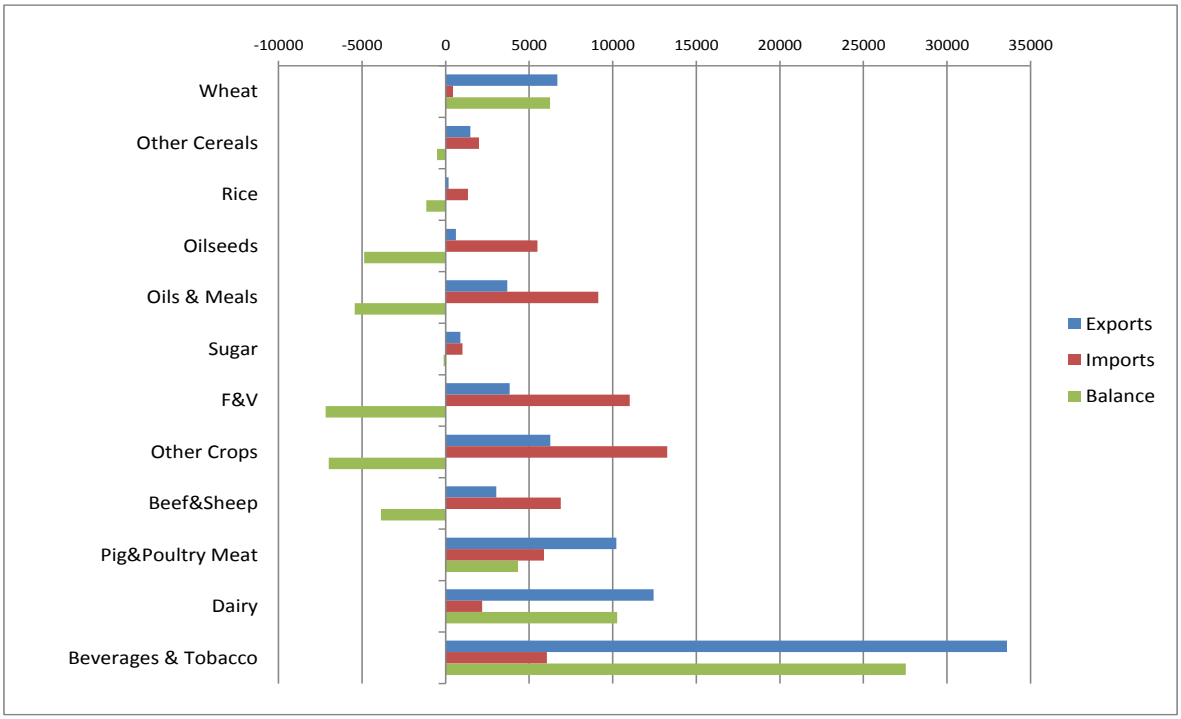
Figure 17 and Figure 18 provide details on exports, imports and trade balance under the CONS and AMBI scenarios. Despite the relatively balanced impacts for the EU agriculture as a whole, significant differences in the overall joint impact of the considered trade agreements exist between specific commodities, which are analysed by combining the results of MAGNET and AGLINK-COSIMO in specific sector sub-sections.

Figure 17: Total EU exports, imports and balance by commodities, CONS scenario (2025 million euros)



Source: Authors' calculation from MAGNET results

Figure 18: Total EU exports, imports and balance by commodities, AMBI scenario (2025, million euros)



Source: Authors' calculation from MAGNET results

Box 4: Canada and Vietnam FTAs in 2020

As described above, the already concluded FTAs with Canada and Vietnam are implemented in the model as if they would enter into place in 2016 and produce their full effects already in 2020.

These effects for the EU have some significance. In its relationship with Canada in 2020 the balance of dairy products increases some 47 million euros and the effects on the agri-food balance between the EU and Canada slightly improve after the FTA implementation.

As regards the effects of the EU-Vietnam agreement, the EU is increasing its imports of rice (and dairy), but has an increase in its balance of beef & sheep and beverages and an overall improvement close to 90 million euros.

EU trade balance with:	Canada		Vietnam	
	BASE million euros	**Delta** million euros	**BASE** million euros	**Delta** million euros
Wheat	-139.9	-0.2	0.9	0.1
Other Cereals	-137.3	-2.1	9.6	0.1
Rice	1.9	-0.2	-55.4	-15.1
Oilseeds	-461.2	-0.3	-0.8	0.0
Sugar	-2.9	-1.2	-0.3	-0.3
Fruit & Vegetable	-87.8	0.2	-118.4	2.2
Other Crops	60.1	7.6	-998.1	4.4
Beef&Sheep	-25.9	-10.5	26.5	17.3
Pig&Poultry Meat	85.7	-2.5	34.7	6.3
Dairy	204.7	47.1	77.9	-15.7
Oils & Meals	17.8	-22.8	4.2	6.3
Beverages & Tobacco	1434.9	9.6	103.9	85.2
Total	950	24.8	-915	90.9

Source: Authors' calculation from MAGNET results

5.2 Focus on specific sectors

5.2.1 Dairy

The dairy aggregate is composed of a broad range of products, among those: cheese, WMP, SMP, butter etc. Table 13 shows the share of sub-categories of the dairy products aggregate in the EU exports and imports. Cheese is the main component of the aggregate. For exports, SMP and other milk products such as yoghurt, whey, etc. follow cheese. On the imports side butter and casein are the other main components.

Table 13: Composition of dairy product aggregate trade (2015, %)

	Export	Import
Butter	7.49	23.24
Cheese	39.76	40.53
Casein	3.75	21.33
Lactose	2.04	2.08
Milk or Cream	8.11	0.75
SMP	14.73	0.71
WMP	9.94	3.24
Milk products	11.49	5.62
Ice Cream	2.70	2.51

Source: Eurostat Comext

Dairy imports are expected to increase significantly from low levels. Nevertheless exports to the 12 FTA partners have a significant positive development. Liberalising trade with the FTA partners improves the EU dairy balance by almost 1 billion euros.

The USA and New Zealand are the FTA partners that increase their exports to the EU the most. Although New Zealand (the main supplier of butter to the EU) is already the main EU trading partner, the USA becomes the second largest source of imports after the liberalization (Table 14).

EU exports to Japan, Mercosur, Mexico, Turkey, Indonesia, Canada and USA increase significantly (Table 14). This allows the EU to overcome the increasing imports from New Zealand and USA and significantly improve the dairy trade balance.

Table 14: EU dairy imports, exports and balance, by FTA partners and scenarios (2025, million euros)

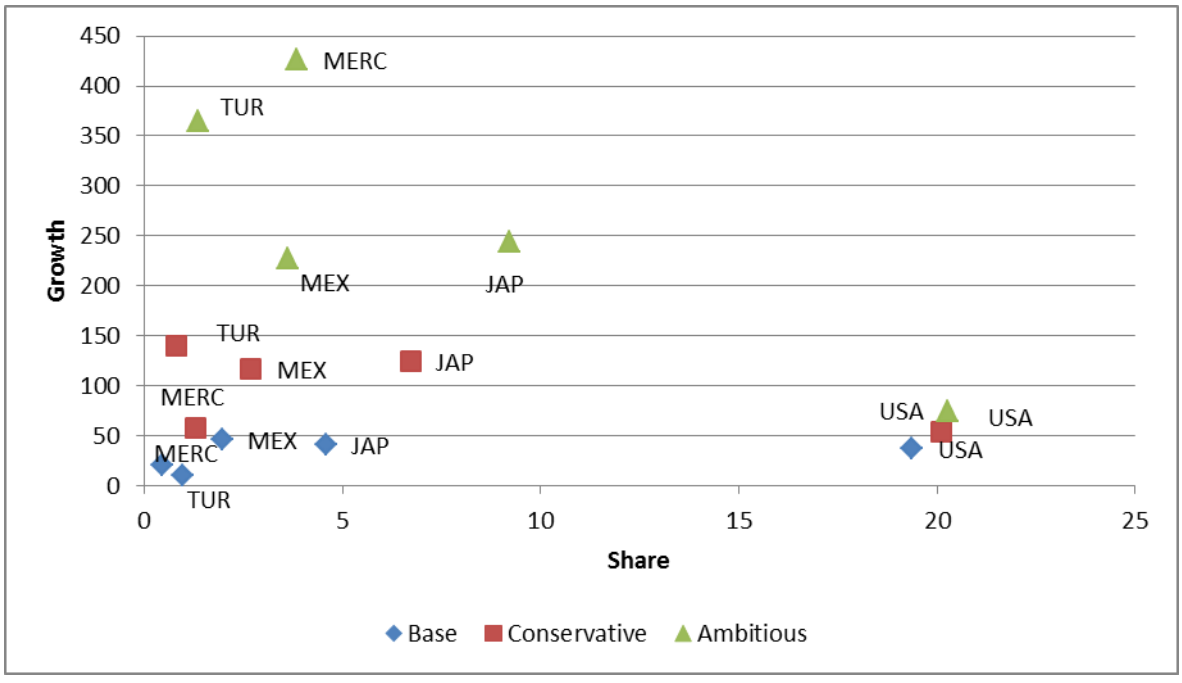
	Imports			Exports			Balance		
	BASE	**CONS**	**AMBI**	**BASE**	**CONS**	**AMBI**	**BASE**	**CONS**	**AMBI**
USA	35	448	446	1854	2097	2365	1819	1649	1919
CAN	5	47	46	231	287	287	227	240	240
MER	10	13	24	97	141	470	87	128	447
JPN	1	43	43	489	782	1199	489	739	1156
NZZ	268	457	804	54	58	61	-213	-399	-743
AUS	15	32	72	253	274	299	238	242	227
IND	4	18	18	228	299	300	224	281	282
MEX	1	1	3	199	298	450	199	297	446
THA	8	38	38	131	162	193	123	124	155
TUR	15	20	34	43	86	167	28	66	133

VTM	2	54	54	77	103	104	75	49	50
PHI	1	4	4	167	188	189	166	184	185
FTA total	363	1174	1586	3824	4773	6083	3461	3599	4497
ROW	606	599	594	6418	6368	6368	5811	5769	5774
Total	970	1773	2181	10242	11141	12452	9272	9368	10271

Source: Authors' calculation from MAGNET results

To quantify and qualify the perspectives of EU exports from selected[7] FTA partners, Figure 19 shows their growth over time and the share according to the scenario. As expected, there is a correlation between both variables, however expressed differently according to the country and scenario. Mercosur and Turkey show the highest growth of the EU exports even if their shares remain low if compared to the importance of the USA in the EU exports. Japan on the other hand increases the share in EU exports with high growth in exports.

Figure 19: Growth of the EU exports from selected FTA partners (2016-2025) and their share in the EU market (2025) for dairy products (%)



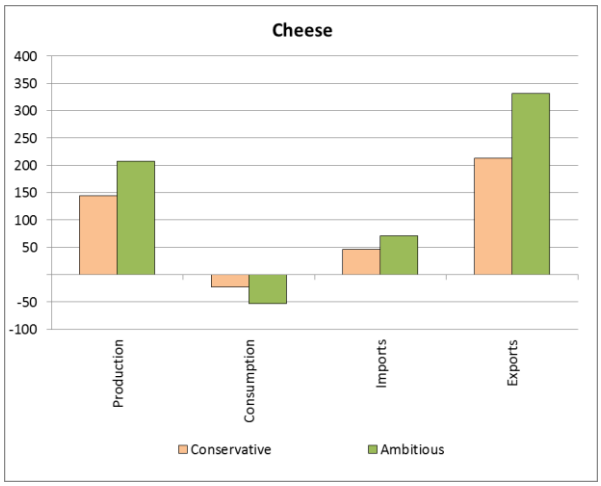
Source: Authors' calculation from MAGNET results

Although dairy imports are expected to increase significantly from low levels, they are dominated by export opportunities following easier access to the FTA partners. Within the dairy output mix, cheeses and skimmed milk powder (SMP) are the major source of export growth. The extra demand on international markets leads to increases in both price (+9% and +16% respectively in the ambitious scenario) and in production (+2% and +4% respectively). While the price for whole milk powder (WMP) also increases, the

[7] FTA countries that have a relatively higher share in EU exports are presented to keep the figure readable. We follow the same approach in the subsequent share-growth figures.

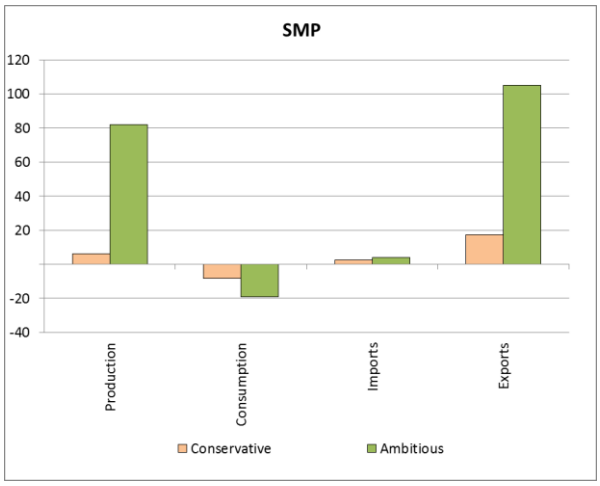
price for butter and whey powder is expected to drop slightly following the increase in availabilities, due to the relation of production complementarity with SMP and cheese respectively. The combined trade effects of all dairy products lead to an increase in EU milk production by 0.7% in the ambitious scenario and 0.2% in the conservative scenario at a significantly increased milk price level by 7% and 2% respectively. This leads to an annual increase of around 5.6 billion euros in market receipts for dairy farmers in the ambitious scenario.

Figure 20: Change in EU cheese balance sheet by scenarios (2025, thousand tonnes)



Source: Authors' calculation from AGLINK-COSIMO results

Figure 21: Change in EU SMP balance sheet by scenarios (2025, thousand tonnes)



Source: Authors' calculation from AGLINK-COSIMO results

5.2.2 Beef and sheep

Beef & sheep sector is the most affected sector in terms of trade flows, imports in particular. The underlying GTAP database does not provide a differentiation between beef & sheep. However, looking at the bilateral trade statistics, Mercosur for beef and New Zealand for sheep turn out to be the main EU trading partners while Australia is the only trade partner where beef & sheep imports are close to each other (Table 15).

Table 15: Composition of beef & sheep imports by FTA partners (2015, million euros)

	USA	CAN	MER	JPN	NZZ	AUS	MEX	THA	TUR	PHI	ROW	Total
Beef	236	4	1,175	8	86	214		0		0	1,830	3,553
Sheep	0	1	11		962	105			0		1,110	2,190
Horse	6	19	51		0	2	2				80	160
Fat		0									8	8
Offals	242	24	1,237	8	1,048	322	2	0	0	0	3,028	5,911
Total	484	47	2,474	16	2,096	644	4	0	0	0	6,056	11,821

Source: Eurostat comext database

A significant part of imports (88%) and exports (36%) of the EU is with the FTA partners. Beef imports from Mercosur countries strongly increases under both scenarios. More than 80% of the increase in imports comes from Mercosur. On the other hand, the EU exports to Mercosur do not change significantly; hence trade balance deteriorates sharply (Table 16). Australia too is improving its trade balance toward the EU under both scenarios, between 200 and 500 million euros.

EU exports to Turkey increase significantly and the one with Turkey is the only beef & sheep trade balance which improves considerably under both scenarios (between 100 and almost 400 million euros).

The (slight) reduction of imports from New Zealand in AMBI looks at first sight surprising. This is likely to be the result of a decline in sheep meat, due to an effect of preference erosion vis-à-vis to Australia (given the fact that New Zealand already exports sheep mainly at zero duty), combined with a slight increase in beef.

The changes in the trade flows from and to other FTA partners are quite limited under both scenarios.

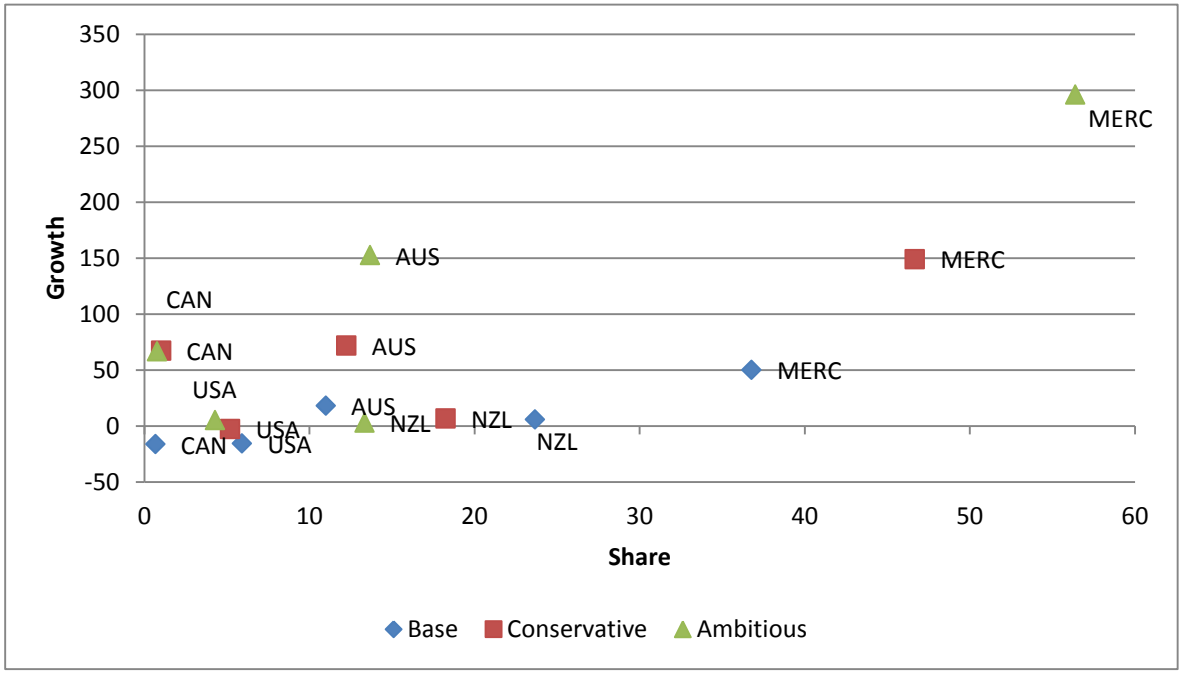
Table 16: Beef & sheep EU imports, exports and balance by FTA partners and scenarios (2025, million euros)

	Imports			Exports			Balance		
	BASE	**CONS**	**AMBI**	**BASE**	**CONS**	**AMBI**	**BASE**	**CONS**	**AMBI**
USA	270	312	337	166	195	197	-104	-117	-140
CAN	30	60	60	13	32	32	-16	-28	-27
MER	1424	2372	3789	23	32	34	-1400	-2340	-3755
JPN	5	6	5	62	78	119	56	72	114
NZZ	1003	1014	976	7	7	7	-997	-1007	-969
AUS	447	650	954	53	54	55	-394	-596	-899
IND	12	19	17	2	3	3	-10	-17	-14
MEX	12	11	10	13	13	14	1	2	4
THA	15	41	36	5	15	18	-10	-27	-17
TUR	4	4	10	564	676	945	561	671	935
VTM	4	8	7	29	49	49	25	41	42
PHI	2	2	2	56	65	88	54	63	86
FTA total	3228	4499	6201	993	1218	1561	-2234	-3281	-4640
ROW	810	759	694	1442	1448	1471	632	689	777
Total	4037	5258	6895	2435	2665	3032	-1602	-2592	-3863

Source: Authors' calculation from MAGNET results

Figure 22 visualises the development of EU imports from main trade partners showing the development of growth over the period 2016-2025 and the share in the EU import market. Mercosur region is extending its position in the EU market; Australia and the USA are growing but without increasing significantly their market shares.

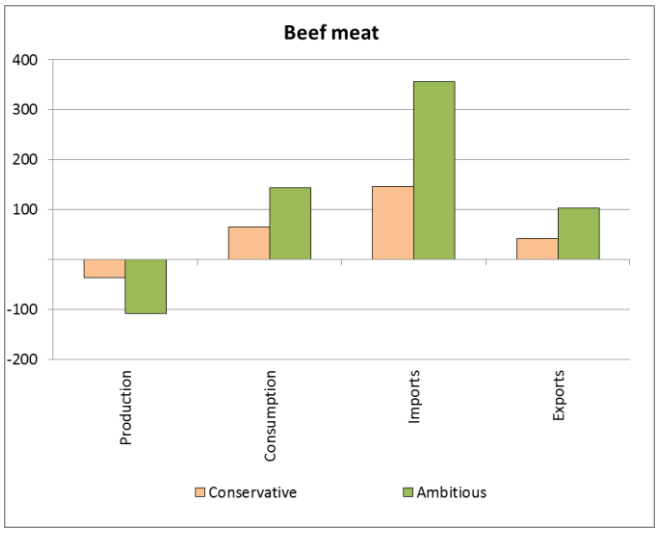
Figure 22: Growth of the EU imports from selected FTA partners (2016-2025) and their share in the EU market (2025) for beef & sheep (%)



Source: Authors' calculation from MAGNET results

Under the specific settings of the scenarios designed for this study, the EU beef imports could increase by about 146 and 356 thousand tonnes in the conservative and ambitious scenario respectively. The additional volume of EU beef imports creates a direct downward pressure on the EU producer prices. Moreover, the beef market is under additional pressure from the positive developments in dairy market induced by growing EU exports upon opening up the FTA partners' markets. In the EU, about two thirds of beef production stems from the dairy herd. The positive price and production effect of the trade scenario on the EU dairy market indirectly leads to a higher availability of meat from the dairy herd at lower prices. The combined pressures on the EU market lead to a steep drop in beef meat prices, -8% in conservative scenario and -16% in the ambitious scenario. The lower beef price shifts EU meat consumption from other meats towards beef. Increased consumption, combined with additional exports, relieves the effect on EU beef production which only declines by 1.4% in the most ambitious scenario and 0.5% in the conservative one. Although not explicitly considered in the modelling framework it is reasonable to assume that most of this production decrease will be even stronger in specialized beef production, while partly offset by an increase in production of meat originating from the expanding dairy herd.

Figure 23: Change in EU beef balance sheet by scenarios (2025, thousand tonnes)



Source: Authors' calculation from AGLINK-COSIMO results

Figure 24: Change in EU sheep balance sheet by scenarios (2025, thousand tonnes)

Source: Authors' calculation from AGLINK-COSIMO results

EU sheep imports are dominated by New Zealand and Australia. The impact of both scenarios for New Zealand is limited if not negative given the fact they already import at zero duty below the TRQ quantity in the baseline. Most of the impact is expected to come instead from Australia, which will improve its competitive position vis-à-vis New Zealand. The combined impact is estimated to be a 10% increase in sheep meat imports in the ambitious scenario and a 6% increase in the conservative scenario. EU sheep prices drop by -3% and -2% respectively, leading to a production contraction of about -1% in both scenarios.

5.2.3 Pig and poultry

The trade impact from the trade model shows a diverse impact on this aggregate commodity group which contains both strong export potential and sensitivities towards increased imports. It should be recalled that within the GTAP database aggregates the pig and poultry sectors are treated as a single commodity. Bilateral trade statistics

nevertheless show clear patterns with the EU exporting pig meat to Japan, the USA, Canada, Mercosur and Australia, while importing poultry meat from Mercosur and Thailand. The EU imports are mostly from the 12 FTA partners (more than 60%) while exports are more oriented to the rest of the world (around 65%).

While in the conservative scenario the net effect on the trade balance is almost neutral, the impact becomes slightly more negative when the tariff cut on sensitive EU tariff lines is more important under the ambitious trade scenario. Liberalising markets for pig & poultry meat clearly opens an important export potential, mainly to Japan. On the other side, imports from poultry meat exporting partners, mainly Mercosur and Thailand, increase significantly (Table 17).

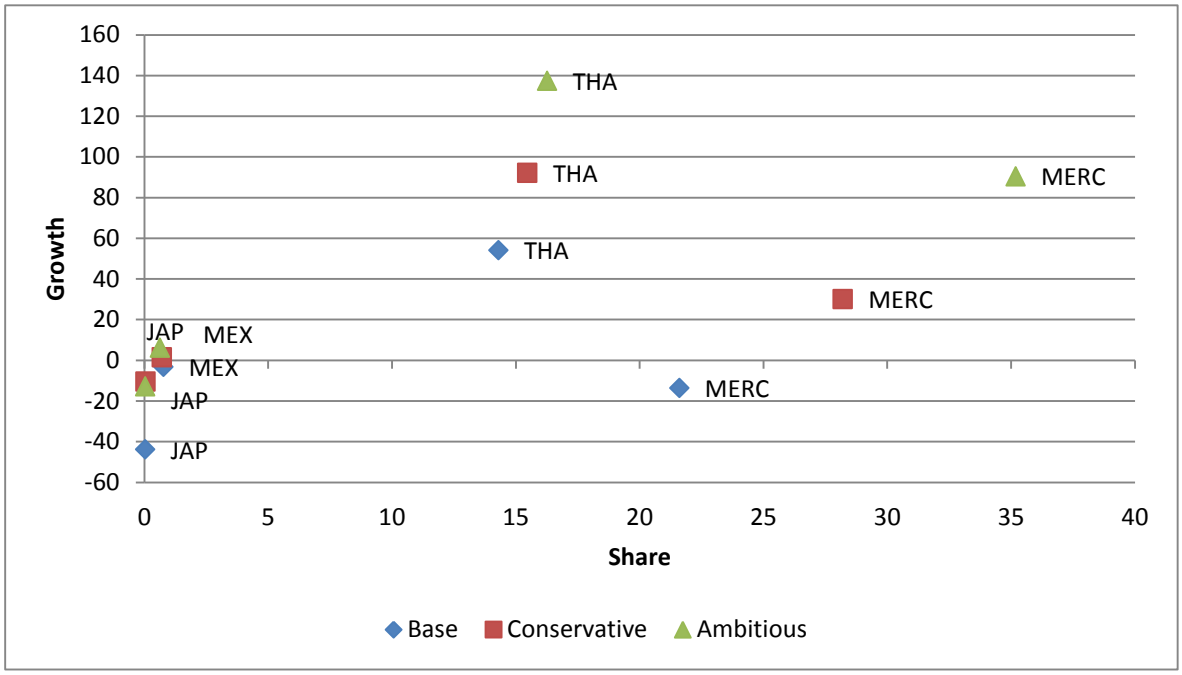
Table 17: Pig & poultry meat EU imports, exports and balance by FTA partners and scenarios (2025, million euros)

	Imports			Exports			Balance		
	BASE	CONS	AMBI	BASE	CONS	AMBI	BASE	CONS	AMBI
USA	161	174	192	785	828	827	624	654	635
CAN	56	63	62	164	169	168	108	106	106
MER	981	1477	2168	100	195	196	-882	-1283	-1972
JPN	2	3	3	949	1381	1991	947	1378	1988
NZZ	88	101	110	44	48	52	-44	-53	-59
AUS	47	55	94	223	223	223	177	168	129
IND	31	34	45	17	18	23	-14	-16	-22
MEX	36	38	40	56	68	84	20	30	44
THA	586	734	910	61	71	73	-525	-662	-837
TUR	58	61	62	219	230	241	162	169	179
VTM	27	34	34	46	54	54	19	19	20
PHI	22	23	23	37	46	59	15	23	36
FTA total	2095	2796	3743	2702	3330	3991	607	534	248
ROW	2188	2173	2140	6264	6221	6224	4077	4047	4084
Total	4282	4969	5882	8966	9550	10215	4684	4581	4333

Source: Authors' calculation from MAGNET results

Comparison of share of FTA partners in the EU market and the growth of their exports shows that Mercosur is the only region with a high growth rate that increases its share. There is also high growth in imports from Thailand but the share of Thailand in EU imports does not change much under both scenarios. On the other hand, imports from Japan and Mexico, which decline overtime in the baseline, reduce their drop when FTAs are introduced (Figure 25).

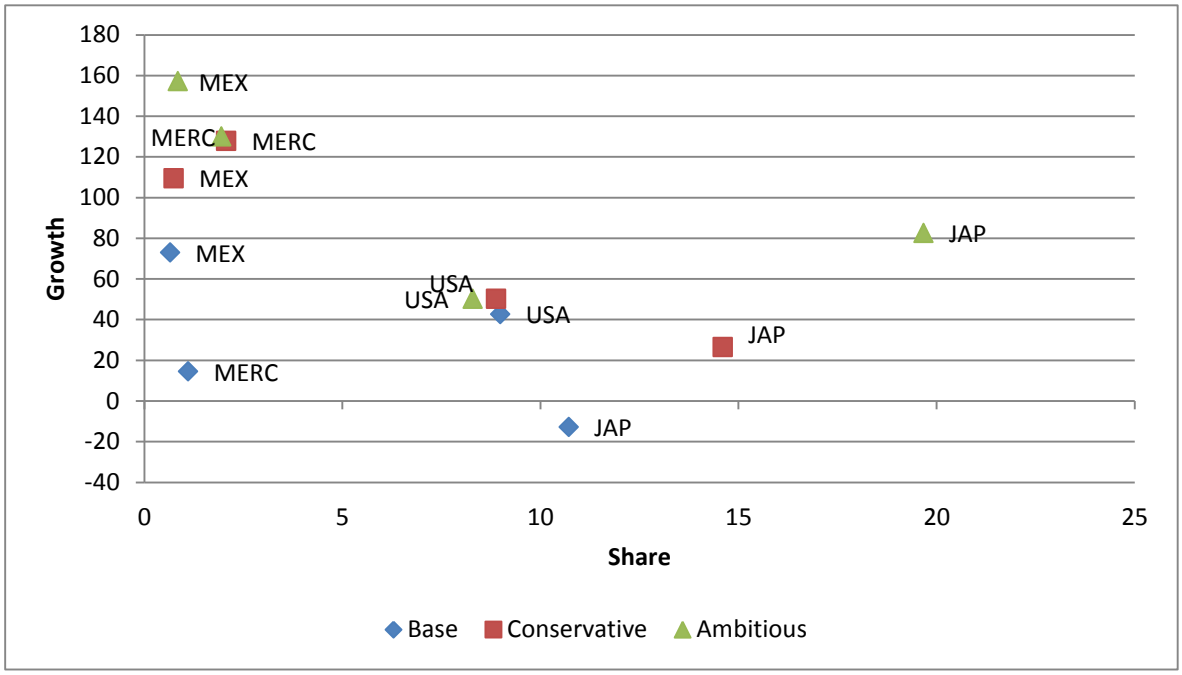
Figure 25: Growth of the EU imports from selected FTA partners (2016-2025) and their share in the EU market (2025) for pig & poultry meat (%)



Source: Authors' calculation from MAGNET results

EU increases her exports to Japan, USA, Mexico and Mercosur significantly. However, share of these trading partners in the EU exports do not change much except for Japan whose share increases 20% under the ambitious scenarios and 15% under the conservative (Figure 26). Nevertheless, the overall structure of EU exports in terms of trading partners is not affected much from the liberalization.

Figure 26: Growth of the EU Exports to selected FTA partners (2016-2025) and their share in the EU market (2025) for pig & poultry meat (%)

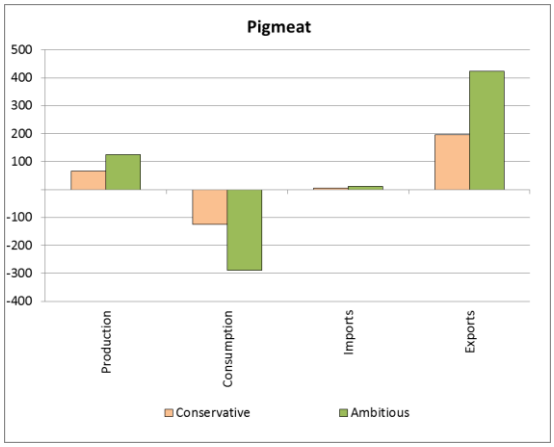


Source: Authors' calculation from MAGNET results

The EU pigmeat balance is dominated by the additional exports. Production increases, but not to the same extent. Indeed, the reduced beef price combined with a price increase for pigmeat of 4% in the ambitious scenario and 1% in the conservative scenario leads to replacement in consumption of pork through beef, and thus to a decrease in EU total pigmeat consumption. Under the ambitious scenario, the 3% price increase combined with a 1% production increase leads to an increase in the EU pork production value of 1.8 billion euros annually.

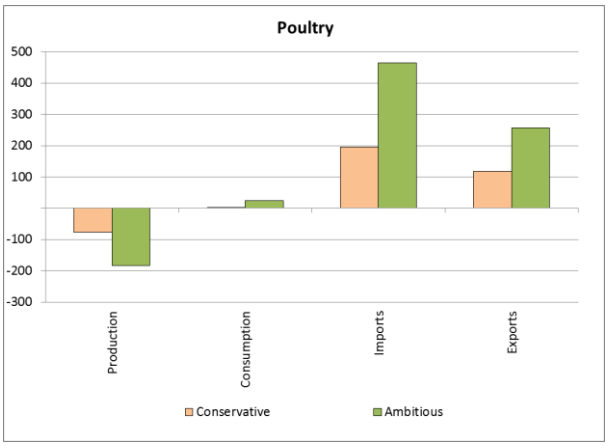
Additional imports are the driving factor in the EU poultry balance. Imports increase by 48% and 20% in the ambitious and conservative scenario compared to the baseline in 2025. However, the effect on production is limited to -1.3% and -0.5% respectively. Firstly, the additional imports are limited to about 3% of the EU domestic consumption. Secondly, EU exports also increase, notably to nearby markets in the Middle East and Africa, thus further alleviating the effect on the EU domestic market.

Figure 27: Change in EU pigmeat balance sheet by scenarios (2025, thousand tonnes)



Source: Authors' calculation from AGLINK-COSIMO results

Figure 28: Change in EU poultry balance sheet by scenarios (2025, thousand tonnes)



Source: Authors' calculation from AGLINK-COSIMO results

5.2.4 Arable crops

Arable crops include wheat, other cereals and oilseeds.

Trade impacts in these sectors are limited given the low level of initial tariffs. In terms of bilateral flows, the only relevant change is shown in exports to Turkey which increase between 280 and 550 million euros under CONS and AMBI.

Table 18: Rice EU imports, exports and balance by FTA partners and scenarios (2025, million euros)

	Imports			Exports			Balance		
	BASE	CONS	AMBI	BASE	CONS	AMBI	BASE	CONS	AMBI
USA	1411	1416	1422	54	58	58	-1357	-1358	-1364
CAN	643	647	646	3	3	3	-639	-644	-642
MER	2812	2831	2856	4	6	6	-2808	-2825	-2850
JPN	1	1	1	34	37	42	33	37	42
NZZ	14	14	14	1	1	1	-13	-13	-13
AUS	350	352	358	3	3	3	-347	-349	-355
IND	6	6	5	17	25	25	11	20	20
MEX	18	19	19	4	4	7	-14	-14	-12
THA	1	2	1	1	10	10	0	8	8
TUR	64	65	67	332	612	883	268	547	817
VTM	1	1	1	11	12	12	11	11	11
PHI	1	1	1	1	1	1	0	0	0
FTA total	5322	5354	5390	465	772	1051	-4856	-4582	-4339
ROW	2529	2543	2534	7865	7798	7738	5336	5254	5204
Total	7850	7898	7924	8330	8570	8789	480	672	865

Source: Authors' calculation from MAGNET results

The impact on arable crops is to be brought back to two main events on the EU market. Wheat exports, durum and soft wheat, have the potential to increase by 957 thousand tonnes in the ambitious scenario and by 307 thousand tonnes in the conservative scenario, mainly to Turkey. Also EU barley exports increase in both scenarios. This additional demand leads to increased EU domestic prices of 3% in the ambitious scenario and +1% in the conservative scenario for wheat. The other driver of the cereal and oilseed market is the internal demand for feed. The changes in the animal sector towards pork and milk, and away from beef and poultry, modify the demand composition. The resulting effect is a shift from wheat and barley towards maize and protein meals. This results in an increase in soymeal imports by 3% in the ambitious scenario and 1% in the conservative scenario. The increased imports of soybean (meal) lead to a reduced rapeseed price for EU farmers.

Overall the impact is positive for the EU arable crops sector. Only the rapeseed production value declines.

5.2.5 Rice

Rice imports increase under the ambitious and conservative scenario. The additional imports are dominated by Thailand, but also the USA, Vietnam and Mercosur would slightly increase exports to the EU. The additional trade from the 12 trade agreements amounts to 165 million euros in the ambitious scenario. However, total imports only increase by 111 million euros (+9%), as about one third of the imports replace current imports. (Table 19).

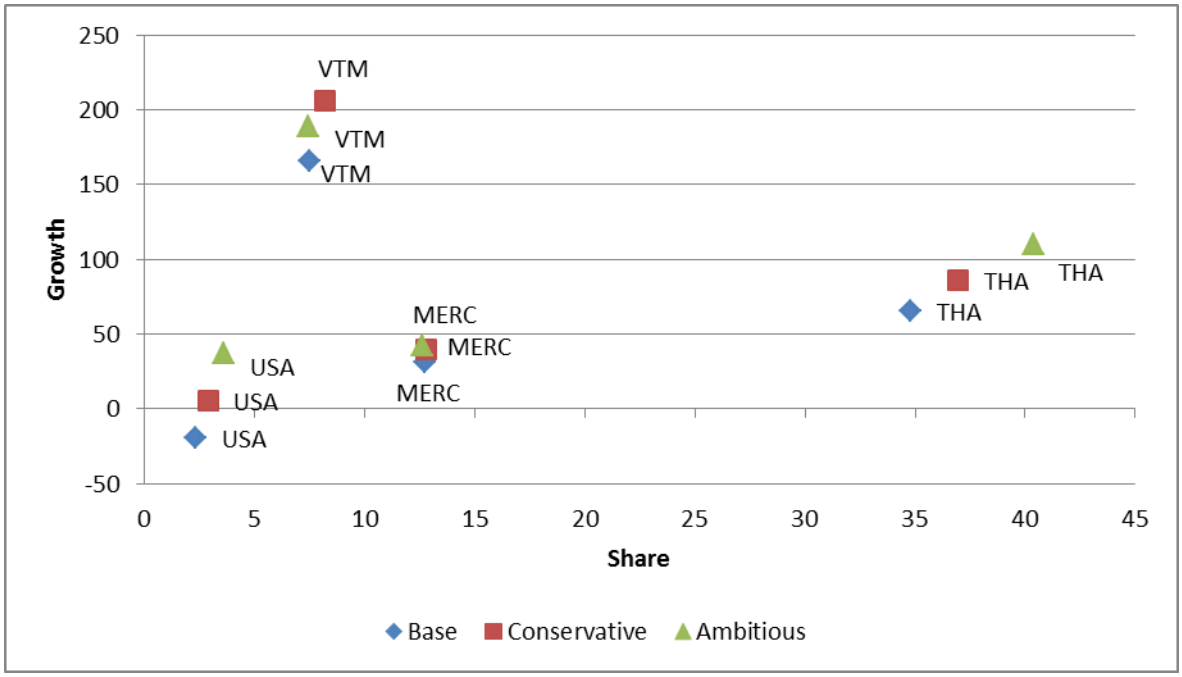
Table 19: Rice EU imports, exports and balance by FTA partners and scenarios (2025, million euros)

	Imports			Exports			Balance		
	BASE	CONS	AMBI	BASE	CONS	AMBI	BASE	CONS	AMBI
USA	35	45	58	11	13	14	-24	-31	-44
CAN	0	0	0	1	1	1	1	1	1
MER	162	173	176	3	4	4	-159	-168	-172
JPN	1	3	3	0	3	4	-1	0	1
NZZ	0	0	0	1	1	1	1	0	0
AUS	1	1	1	2	2	2	1	1	1
IND	1	1	1	0	0	0	-1	-1	-1
MEX	0	0	0	0	0	0	0	0	0
THA	398	449	508	0	0	0	-398	-448	-508
TUR	2	5	5	16	95	95	14	90	90
VTM	77	88	83	0	0	0	-77	-88	-83
PHI	14	17	20	0	0	0	-14	-17	-20
FTA total	691	781	856	34	121	122	-656	-660	-734
ROW	532	510	478	56	55	56	-476	-454	-423
Total	1223	1291	1334	91	176	178	-1132	-1115	-1157

Source: Authors' calculation from MAGNET results

Among FTA partners, Thailand has the highest market share into the EU; under the trade scenarios; Thailand expands its market share from 36 to up to 40% (Figure 29).

Figure 29: Growth of the EU imports from FTA partners (2016-2025) and their share in the EU market (2025) for rice (%)



Source: Authors' calculation from MAGNET results

Despite the partial offsetting through the increase in rice exports, mainly to Turkey, the impact on the EU rice market is sizeable. Rice production is a very specialized production system that cannot be easily transformed towards production of other crops due to a variety of reasons e.g. specialized machinery and in some cases salinity of the soil. This leads to an inelastic response to price changes. Under the ambitious scenario EU rice production decreases by -2% while the EU rice price reduces by -13%. Under the conservative scenario reduction is less pronounced but still amounts to -1% and -8% respectively.

5.2.6 Sugar

The expiry of the sugar quota in 2017 is expected to increase the competitiveness of European sugar production on the world market, potentially switching the sector from being a net importer to a net exporter by 2025. This modifies the impact of trade agreements significantly compared to earlier studies assuming a quota market environment.

The bilateral trade flows of sugar are not very much affected from FTAs except for Mercosur which increase its exports to EU under conservative and ambitious scenarios. Additional EU sugar imports are dominated by imports from Brazil, world's biggest sugar exporter. Sugar imports from other destinations decreases slightly indicating the trade diversion effect is limited (Table 20).

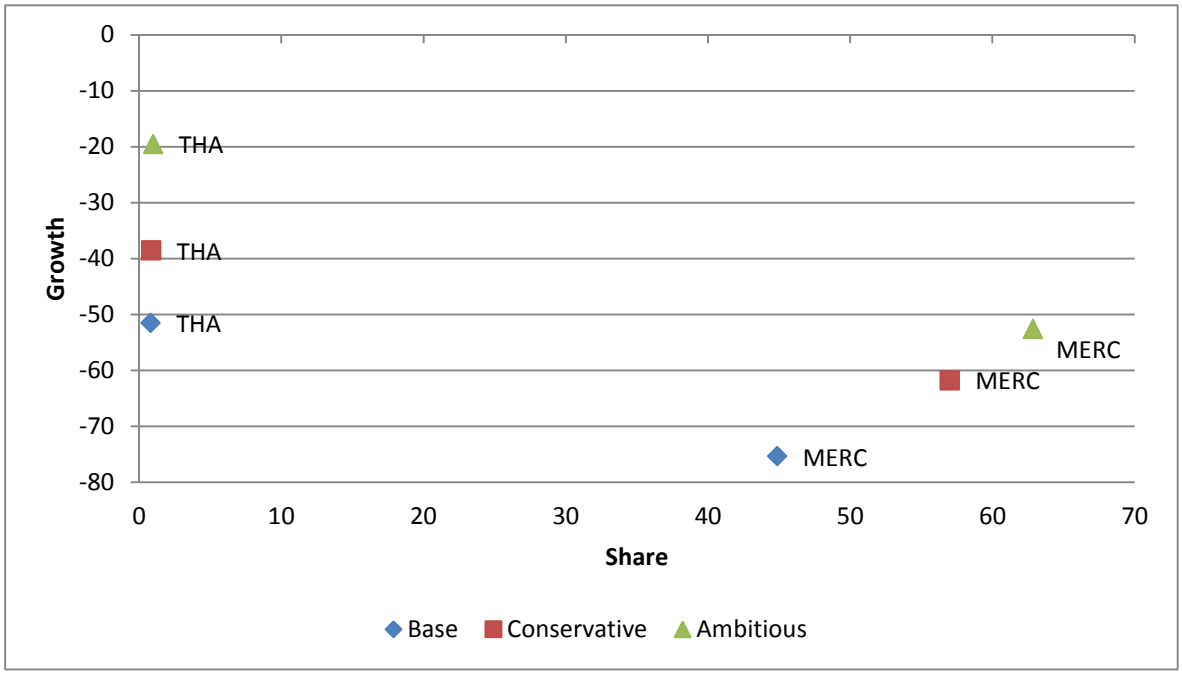
Table 20: Sugar EU imports, exports and balance by FTA partners and scenarios (2025, million euros)

	Imports			Exports			Balance		
	BASE	CONS	AMBI	BASE	CONS	AMBI	BASE	CONS	AMBI
USA	4	4	7	56	66	77	53	61	71
CAN	7	8	8	6	6	6	-2	-2	-1
MER	325	505	628	8	19	20	-317	-485	-608
JPN	0	0	0	8	14	24	8	14	23
NZZ	0	0	0	1	1	1	1	1	1
AUS	4	6	7	6	6	6	2	1	-1
IND	4	4	3	7	8	9	3	4	6
MEX	2	2	1	2	3	10	1	2	8
THA	6	8	10	1	3	3	-6	-5	-8
TUR	1	1	2	4	9	18	3	7	15
VTM	2	2	2	1	1	1	0	-1	-1
PHI	1	1	2	1	2	3	0	1	1
FTA total	355	540	671	102	137	177	-252	-403	-494
ROW	374	349	331	708	700	703	334	351	372
Total	728	889	1002	810	838	880	81	-52	-122

Source: Authors' calculation from MAGNET results

Mercosur increases its share in EU imports, although there is a decline in the value of imports (Figure 30). This is mostly due to decreasing imports sugar in the baseline. Imports from Mercosur decrease less when compared to those of other partners. For example, imports from Thailand and Mexico declines between 40% and 80% although they keep their share in the EU imports constant.

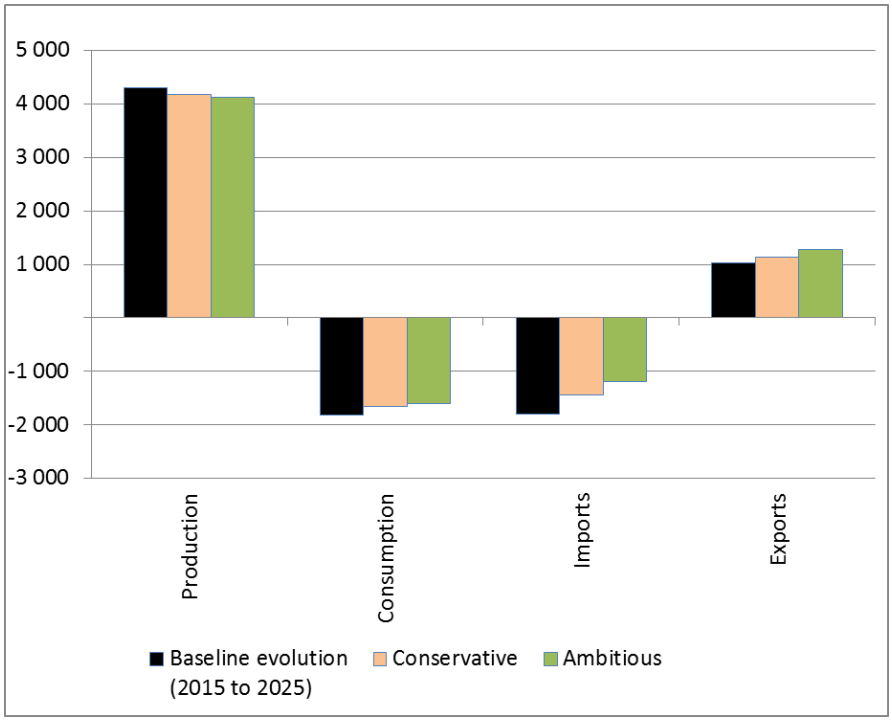
Figure 30: Growth of the EU imports from FTA partners (2016-2025) and their share in the EU market (2025) for sugar (%)



Source: Authors' calculation from MAGNET results

Overall, the effect on the EU white sugar production is limited to -1% in both scenarios compared to the baseline in 2025. The impact on the EU white sugar price is differentiated, decreasing by -7% in the ambitious scenario and -5% in the conservative. However, taking into account the strong development in sugar production value expected over the next decade, notably due to the abolition of sugar quota, the net effect on sugar production compared to the current situation (2015) would remain largely positive (+14% and +11% in the conservative and ambitious scenario respectively), despite the effects of trade agreements. The impact of both trade scenarios is indeed small when compared to the expected changes in the market in the baseline as indicated in Figure 31.

Figure 31: Change in EU sugar balance sheet by scenarios (trade scenarios compared to 2015, thousand tonnes)



Source: Authors' calculation from AGLINK-COSIMO results

5.2.7 Fruits and vegetables

The fruit & vegetable sector is composed mostly of fresh fruits and vegetables. The EU production and trade is not affected too much from the FTAs under neither of the scenarios. Production declines slightly while import and exports increase. Overall, the trade balance with FTA partners deteriorates by less than 200 million euros, Mercosur being the partner which improves the most its trade balance toward the EU (Table 21).

Table 21: EU imports, exports and balance for fruit & vegetable by FTA partners and scenarios (2025, million euros)

	Imports			Exports			Balance		
	BASE	CONS	AMBI	BASE	CONS	AMBI	BASE	CONS	AMBI
USA	1193	1291	1298	175	189	189	-1018	-1102	-1109
CAN	137	139	139	58	62	62	-79	-77	-77
MER	663	822	820	103	143	144	-560	-679	-676
JPN	2	2	2	41	51	51	40	49	49
NZZ	152	162	174	2	2	2	-150	-160	-172
AUS	59	62	66	22	24	24	-37	-38	-42
IND	43	42	42	11	15	15	-32	-27	-27
MEX	140	148	149	6	6	6	-134	-142	-143
THA	84	98	97	14	22	42	-70	-76	-55
TUR	1307	1342	1384	52	150	150	-1254	-1192	-1234
VTM	117	110	110	3	5	5	-114	-105	-105

PHI	42	42	42	3	6	6	-39	-36	-36
FTA total	3938	4262	4323	491	676	697	-3447	-3586	-3626
ROW	6804	6721	6697	3153	3145	3141	-3651	-3576	-3556
Total	10742	10983	11020	3644	3821	3838	-7099	-7162	-7182

Source: Authors' calculation from MAGNET results

The reason for this small impact on the EU fruit & vegetable is two-fold. On the imports side, the tariff rates imposed on imports from the FTA partners are already quite low. Hence trade liberalization does not have any significant direct impact. Thus, changes observed in the results are mostly indirect changes due to more significant impacts in other agri-food sectors.

On the exports side, the trade between EU and the FTA partners is characterized with low tariffs and low volume. The main destination for the EU exports is rest of the Europe and MENA countries while the share of FTA partners adds up to merely 10%. Hence, trade liberalization among the EU and FTA partners also does not have an impact on the overall pattern of trade.

5.2.8 Beverages and tobacco

The competitive advantage of the EU in the beverages sector is reflected in the results. Although small in percentage terms, the EU increases its production under both scenarios. The production growth under the AMBI scenario is more than 1%. The trade balance of the EU in beverages improves by 1.8% under conservative and 1.4% under ambitious scenario. The balance towards FTA partners improves more sharply by 3.8% and 3%, which mean an improvement between 500 and 400 million euros (Table 22).

The highest increase in imports is observed from the USA and Mercosur which are already the main sources of the EU imports. On the other hand, Mercosur, Japan and Vietnam show the highest export opportunities the EU exports. The trade balance of the EU deteriorates slightly only with the USA, while the highest increase is shown by the EU trade balance with Mercosur under the CONS scenario. The exports of the EU to the rest of the world also decline slightly.

Table 22: EU imports, exports and balance for beverages by FTA partners and scenarios (2025, million euros)

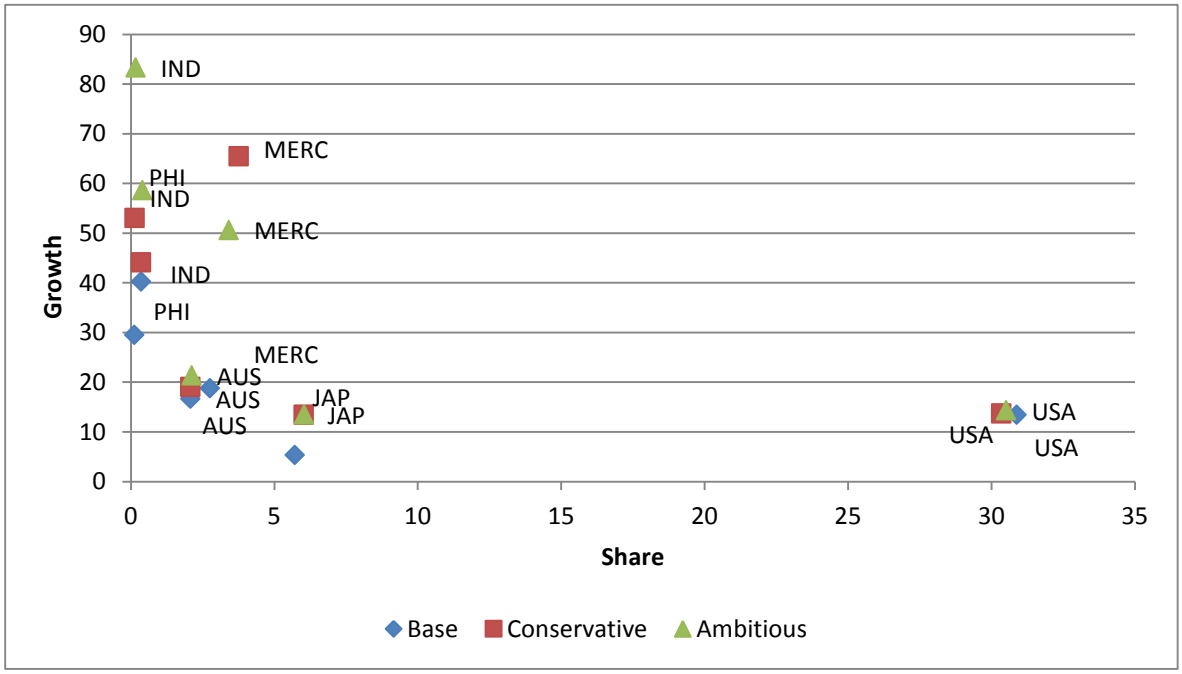
	Imports			Exports			Balance		
	BASE	**CONS**	**AMBI**	**BASE**	**CONS**	**AMBI**	**BASE**	**CONS**	**AMBI**
USA	1241	1352	1383	10145	10184	10243	8904	8832	8860
CAN	44	46	46	1529	1539	1538	1486	1493	1492
MER	355	403	417	904	1262	1149	549	859	732
JPN	20	22	22	1877	2024	2026	1857	2003	2005
NZZ	219	225	231	79	81	82	-140	-144	-149
AUS	572	592	649	682	697	710	109	105	61
IND	48	59	54	39	46	55	-10	-13	1
MEX	189	191	192	382	396	396	193	205	204
THA	78	82	88	162	184	211	84	101	123
TUR	116	117	118	598	617	616	482	500	498

VTM	22	23	23	147	248	248	125	225	225
PHI	10	12	13	118	121	133	107	109	121
FTA total	2913	3122	3235	16660	17398	17407	13748	14276	14172
ROW	2830	2832	2829	16229	16195	16190	13399	13362	13361
Total	5743	5954	6063	32890	33592	33597	27147	27638	27533

Source: Authors' calculation from MAGNET results

The growth of EU exports to FTA partners that have lower shares in the EU beverages exports such as Indonesia and Philippines is higher. However the share of USA, Australia and Japan are in total EU exports do not change much and remain relatively high (Figure 32). Further although there is a significant growth in exports to Mercosur, the share is not affected significantly.

Figure 32: Growth of the EU exports from selected FTA partners (2016-2025) and their share in the EU market (2025) for beverages (%)



Source: Authors' calculation from MAGNET results

5.3 Impacts of the Trans-Pacific Partnership (TPP)

The TPP potentially affects the impact of EU trade negotiations with partners taking part in this regional agreement. This is in particular the case for EU exports markets such as Japan where competitive pig and dairy producing countries such as the USA, New Zealand and Australia also gain preferential market access besides the concession to the EU.

The results show that a TPP scenario without any FTA in place would undermine the EU export opportunities of pig & poultry meat and partially of dairy. A TPP scenario in combination with the FTA scenarios mainly affects the EU pig & poultry meat exports (Table 23). Exports opportunity is reduced by more than 900 million Euros under CONS and more than 1.2 billion euros under AMBI.

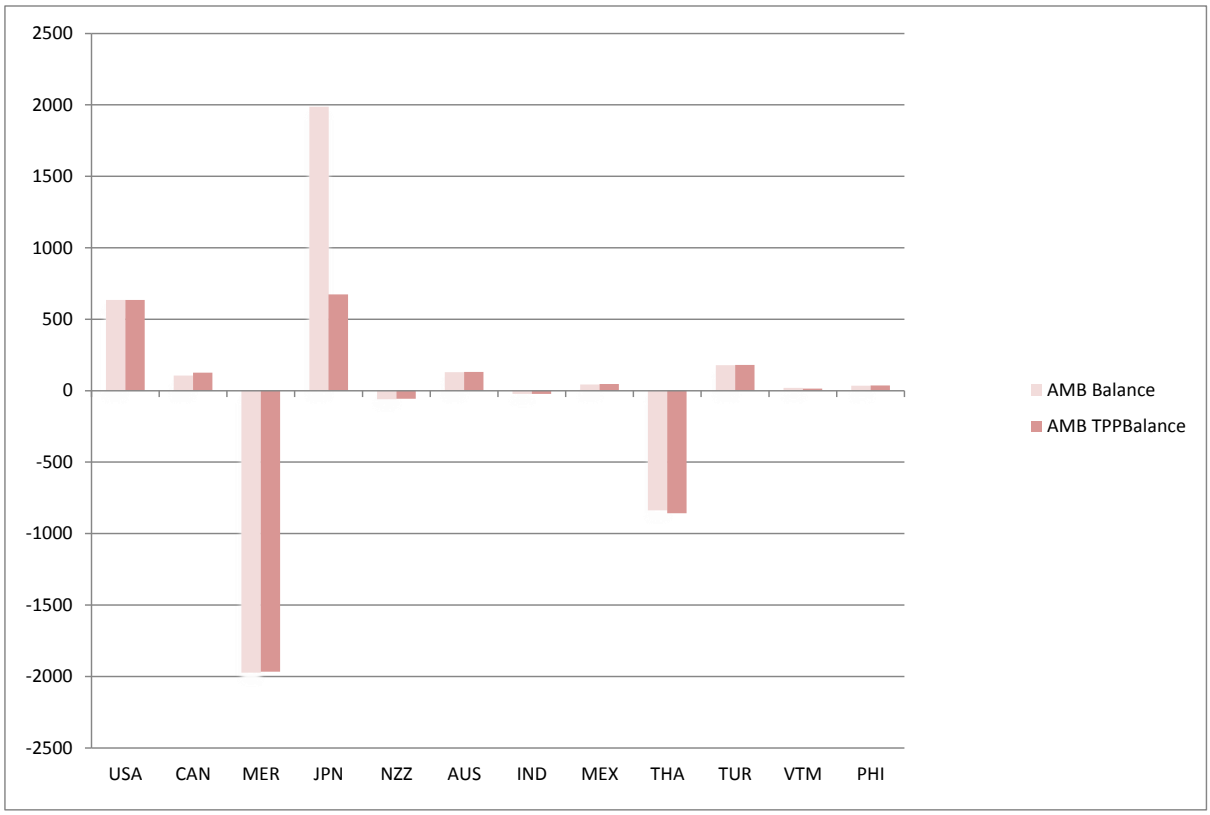
The preference erosion in Asian markets in particular Japan (Figure 33), due to the concessions obtained by the USA and Canada, even leads to a decrease in EU pork exports compared to the baseline, despite the increased market access for the EU. Indeed the preferential treatment accorded by Japan to these two important exporters under TPP is larger than the 25% and 50% for the EU, as modelled in the two trade scenarios. However, for dairy the impact of TPP on the scenario, results are limited. This sensitivity analysis therefore shows the importance of EU trade agreements to get market access conditions at least similar to the partners within the TPP, in order to ensure a level playing field for EU products on the Pacific markets.

Table 23: EU imports, exports and balance with FTA partners by commodities and scenarios (2025, million euros)

	Imports			Exports			Balance		
	AMBI	AMBI TPP	DIFF	AMBI	AMBI TPP	DIFF	AMBI	AMBI TPP	DIFF
Wheat	210	204	-7	609	617	8	399	413	15
Other Cereals	1,074	1,069	-5	149	150	1	-925	-919	6
Rice	856	859	3	122	122	0	-734	-737	-3
Oilseeds	4,105	4,087	-19	293	294	1	-3,812	-3,792	20
Oils & Meals	6,077	6,080	3	1,702	1,710	8	-4,375	-4,370	5
Sugar	671	670	0	177	177	1	-494	-493	1
F&V	4,323	4,309	-14	697	702	5	-3,626	-3,607	19
Other Crops	5,722	5,716	-6	1,936	1,956	20	-3,786	-3,761	26
Beef&Sheep	6,201	6,095	-106	1,561	1,523	-38	-4,640	-4,572	68
Pig&Poultry Meat	3,743	3,751	8	3,991	2,700	-1,291	248	-1,051	-1,300
Dairy	1,586	1,557	-29	6,083	5,859	-224	4,497	4,302	-195
Beverages & Tobacco	**3,235**	**3,231**	**-3**	**17,407**	**17,418**	**12**	**14,172**	**14,187**	**15**

Source: Authors' calculation from MAGNET results

Figure 33: Pig & poultry meat balance by FTA partners and AMBI/TPP scenarios (2025, million euros)



Source: Authors' calculation from MAGNET results

6 Conclusions

This report presents the simulations made with two different models of two alternative hypothetical versions of cumulative free trade agreement between the EU and third countries/regions. The CGE model, MAGNET, simulates the economy-wide impacts of the trade policy changes involving all sectors of the regional blocks. The partial equilibrium model, AGLINK-COSIMO, simulates only the impacts generated by changes in agricultural trade policy and incurred by the agricultural sectors. It considers individual agricultural products in more detail.

Two hypothetical scenarios have been simulated, and have been compared with the reference (status quo) scenario for the year 2025. The EU comprises the current 28 Member States and 12 FTAs include those recently concluded but not yet implemented, i.e. those with Canada and Vietnam, those under negotiation (with the USA, Mercosur, Japan, Thailand, the Philippines and Indonesia) and for which negotiations are likely to start in the near future (Australia and New Zealand). Finally, the modernisation of the older agreements with Turkey and Mexico are included to complete the current EU FTA agenda.

This study fills a knowledge gap, highlighted by the EU Member States, with regard to the state of the agri-food sectors in the light of further EU trade negotiations and agreements. It does provide insights for policy makers and negotiators, as a contribution to finding a good balance in further trade liberalisation. However, the model-based approach does not reflect all subtleties within agricultural trade (including environmental, sanitary or social regulations). More importantly, this study is not a forecast of the likely outcome of the successful conclusion of the 12 trade negotiations covered in the study. It is an exercise that takes a particular set of scenarios which may or may not be reflected in some or all of those negotiations, some or all of which may be concluded.

The study clearly illustrates the potential for European agricultural products on the world market. The potential gains for the dairy and the pigmeat sector are particularly sizeable, but a number of other products benefit from trade opening, ranging from commodities like wheat to more high value/processed products of the agri-food industry, such as alcoholic beverages (notably wine and spirits). The additional export demand enhanced by trade agreements could translate into an important source of growth, jobs creation and value added for the European agricultural and food sectors.

On the other hand, the study shows the vulnerability of specific agricultural sectors towards growing imports following increased market access. This is, in particular, the case for beef, rice and to a lesser extent for poultry and sugar. This confirms the EU concerns regarding the sensitive character of these products in a number of trade negotiations. The results for these sectors represent the impact of theoretical scenarios (tariff cuts of 50% and 25%) rather than the introduction of TRQs, which are commonly included in trade agreements for these sectors. The difference between the two approaches is clear in the case of Mercosur, which dominates the additional imports for beef, sugar and poultry as the tariff reduction simulated is very substantial compared to a TRQ approach. The study should therefore be interpreted as a reminder that these sectors need specific attention during the ongoing and future negotiation process.

Furthermore, the prominence of Mercosur exports, in particular in the beef sector, raises the issue related to the capacity of the region to fulfil the increasing export quantity estimated by the model. Bottlenecks in Mercosur supply and export infrastructures, as well as environmental constraints, could reduce their actual export capacity.

In any event, the successful conclusion of trade agreements, for both parties, will have to strike a balance between the protection of sensitive products and the achieved market access for offensive agricultural products. The overall result of trade negotiations should remain acceptable, economically and socially for EU agriculture.

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List of acronyms

ASEAN	Association of South-East Asian Nations
AVE	Ad Valorem Equivalent
BTRQ	Bilateral Tariff Rate Quota
CAP	Common Agricultural Policy
ChAFTA	China-Australia Free Trade Agreement
CETA	Comprehensive Economic and Trade Agreement
CGE	Computable General Equilibrium
DDA	Doha Development Agenda
DG AGRI	Directorate-General for Agriculture and Rural Development
DG TRADE	Directorate-General for Trade
EC	European Commission
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FTA	Free Trade Agreement
F&V	Fruits and Vegetables
GDP	Gross Domestic Product
GTAP	Global Trade Analysis Project
HS	Harmonised System (tariff nomenclature)
iMAP	integrated Modelling Platform for Agro-economic Commodity and Policy Analysis
JRC	Joint Research Centre
MAGNET	Modular Applied GeNeral Equilibrium Tool
MERCOSUR	Mercado Común del Sur
NTM	Non-Tariff Measure
OECD	Organisation for Economic Co-operation and Development
TBT	Technical Barriers to Trade
PE	Partial Equilibrium
SADC	South African Development Community
SIA	Sustainability Impact Assessment
SMP	Skimmed Milk Powder
SPS	Sanitary and Phytosanitary Measures
TASTE	Tariff Analytical and Simulation Tool for Economists
TPP	Trans-Pacific Partnership
TRQ	Tariff Rate Quota
TTIP	Transatlantic Trade and Investment Partnership
USA	United States of America
WMP	Whole Milk Powder
WTO	World Trade Organisation

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Annex 1: Tables and Figures

Table 24: Detailed sectoral list

Number	GTAP code	Description
1	pdr	Paddy rice: rice, husked and unhusked
2	wht	Wheat: wheat and meslin
3	gro	Other grains: maize (corn), barley, rye, oats, other cereals
4	v_f	Veg & fruits: vegetables, fruits, nuts, potatoes, cassava, truffles,
5	osd	Oilseeds: oil seeds and oleaginous fruit; soy beans, copra
6	c_b	Cane and beet: sugar cane and sugar beet
7	ocr	Other Crops: live plants; cut flowers and flower buds; flower seeds and fruit seeds; vegetable seeds, beverage and spice crops, unmanufactured tobacco, cereal straw and husks, unprepared, whether or not chopped, ground, pressed or in the form of pellets; swedes, mangolds, fodder roots, hay, lucerne (alfalfa), clover, sainfoin, forage kale, lupines, vetches and similar forage products, whether or not in the form of pellets, plants and parts of plants used primarily in perfumery, in pharmacy, or for insecticidal, fungicidal or similar purposes, sugar beet seed and seeds of forage plants, other raw vegetable materials
8	ctl	Cattle (in this study: *approximation for cattle and sheep live animals*): cattle, sheep, goats, horses, asses, mules, and hinnies; and semen thereof
9	oap	Other Animal Products (in this study: *approximation for pig and poultry live animals*): swine, poultry and other live animals; eggs, in shell (fresh or cooked), natural honey, snails (fresh or preserved) except sea snails; frogs' legs, edible products of animal origin n.e.c., hides, skins and furskins, raw , insect waxes and spermaceti, whether or not refined or coloured
10	rmk	Raw milk
11	cmt	Cattle meat (in this study: *approximation for beef and sheep meat*): fresh or chilled meat and edible offal of cattle, sheep, goats, horses, asses, mules, and hinnies. raw fats or grease from any animal or bird.
12	omt	Other meat (in this study: *approximation for pig and poultry meat*): pig meat and offal. preserves and preparations of meat, meat offal or blood, flours, meals and pellets of meat or inedible meat offal; greaves
13	vol	Vegetable oils and fats: crude and refined oils of soya-bean, maize (corn),olive, sesame, ground-nut, olive, sunflower-seed, safflower, cotton-seed, rape, colza and canola, mustard, coconut palm, palm kernel, castor, tung jojoba, babassu and linseed, perhaps partly or wholly hydrogenated, inter-esterified, re-esterified or elaidinised. Also margarine and similar preparations, animal or vegetable waxes, fats and oils and their fractions, cotton linters, oil-cake and other solid residues resulting from the extraction of vegetable fats or oils; flours and meals of oil seeds or oleaginous fruits, except those of mustard; degras and other residues resulting from the treatment of fatty substances or animal or vegetable waxes.

14	mil	Milk: dairy products
15	pcr	Processed rice: rice, semi- or wholly milled
16	sgr	Sugar
17	b_t	Beverages and tobacco products

Source: Adapted from Aguiar et al. (2016).
https://www.gtap.agecon.purdue.edu/databases/contribute/detailedsector.asp
https://www.gtap.agecon.purdue.edu/databases/contribute/concordinfo.asp

Table 25: Detailed countries/regions list

Number	GTAP code	Name	Description
1	EU	EU (28 Member States)	Austria, Belgium, Bulgaria, , Croatia Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom
2	AUS	Australia	Australia
3	CAN	Canada	Canada
4	IDN	Indonesia	Indonesia
5	JPN	Japan	Japan
6	MERC	Mercosur	Argentina, Brazil, Paraguay, Uruguay, Venezuela
7	MEX	Mexico	Mexico
8	NZL	New Zealand	New Zealand
9	PHL	Philippines	Philippines
10	THA	Thailand	Thailand
11	TUR	Turkey	Turkey
12	USA	United States of America	United States of America
13	VNM	Vietnam	Vietnam
14	RoE	Rest of Europe	Switzerland, Norway, Rest of EFTA, Albania, Belarus, Russian Federation, Ukraine, Rest of Eastern Europe, Rest of Europe
15	RoAm	Rest of Americas	Rest of North America, Bolivia, Chile, Colombia, Ecuador, Peru, Rest of South America, Costa Rica, Guatemala, Honduras, Nicaragua, Panama, El Salvador, Rest of Central

			America, Dominican Republic, Jamaica, Puerto Rico, Trinidad and Tobago, Caribbean
16	RoAs	Rest of Asia	China, Hong Kong, Republic of Korea, Mongolia, Taiwan, Rest of East Asia, Brunei Darussalam, Cambodia, Lao People's Democratic Republic, Malaysia, Singapore, Rest of Southeast Asia, Bangladesh, India, Nepal, Pakistan, Sri Lanka, Rest of South Asia
17	MENA	Middle East and North Africa	Islamic Republic of Iran, Israel, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates, Rest of Western Asia, Egypt, Morocco, Tunisia, Rest of North Africa
18	SSA	Sub-Saharan Africa	Benin, Burkina Faso, Cameroon, Cote d'Ivoire, Ghana, Guinea, Nigeria, Senegal, Togo, Rest of Western Africa, Central Africa, South Central Africa, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Rwanda, Tanzania United Republic of, Uganda, Zambia, Zimbabwe, Rest of Eastern Africa, Botswana, Namibia, South Africa, Rest of South African Customs Union
19	RoW	Rest of the World	Rest of Oceania, Kazakhstan, Kyrgyzstan, Rest of Former Soviet Union, Armenia, Azerbaijan, Georgia, Rest of the World

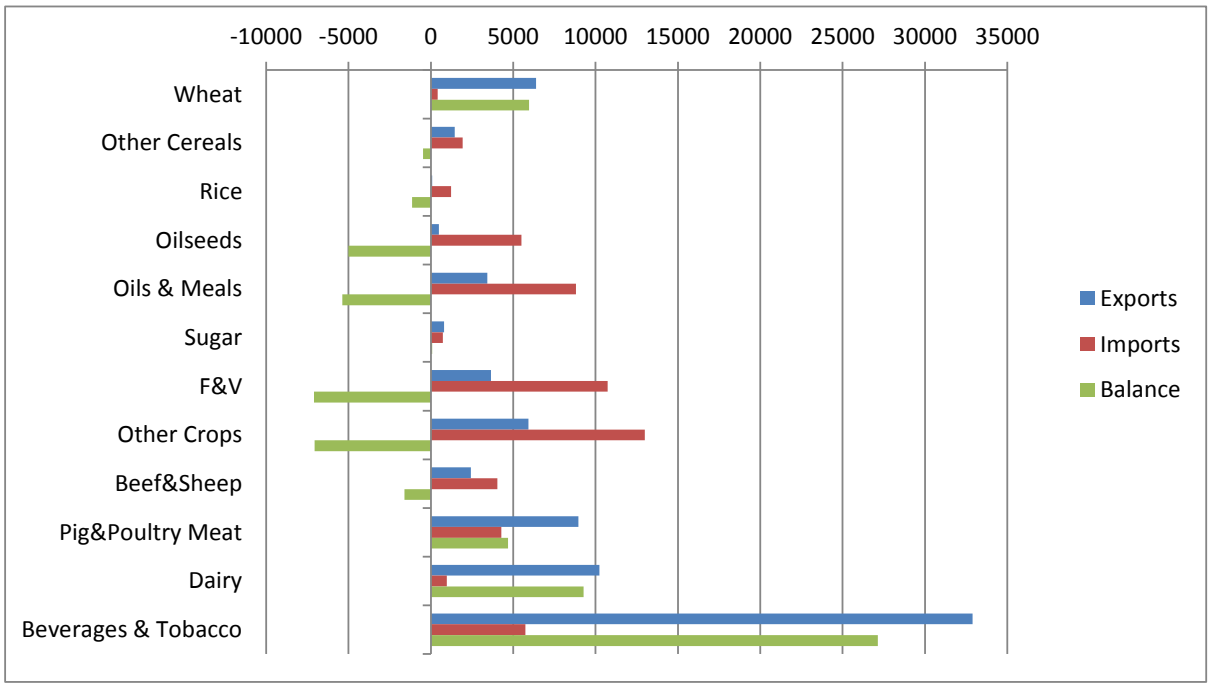
Source: Adapted from Aguiar et al. (2016).
https://www.gtap.agecon.purdue.edu/databases/regions.asp?Version=9.211

Table 26: EU production, imports and exports by commodities, baseline (2025, %)

	Share in total production	Share in total imports	Share in total exports
Wheat	2.6	0.7	8.3
Other Cereals	2.3	3.4	1.9
Rice	0.4	2.1	0.1
Oilseeds	1.5	9.6	0.6
Oils & Meals	3.3	15.3	4.5
Sugar	1.7	1.3	1.1
F&V	5.3	18.7	4.7
Other Crops	5.7	22.6	7.7
Beef&Sheep	6.9	7.0	3.2
Pig&Poultry Meat	16.6	7.5	11.7
Dairy	26.6	1.7	13.3
Beverages & Tobacco	27.0	10.0	42.8

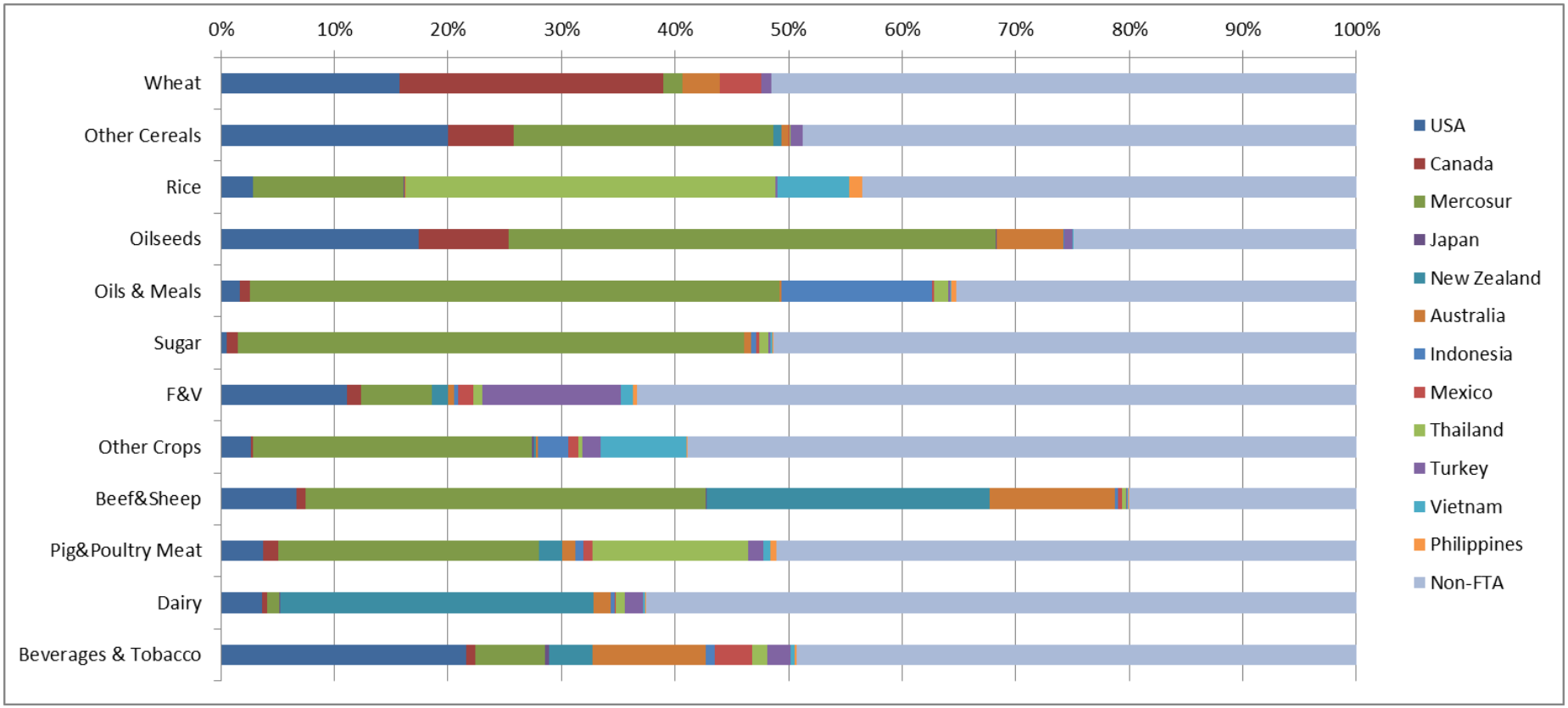
Source: Authors' calculation from MAGNET results

Figure 34: EU export, import and balance by commodities, baseline (2025, million euros)



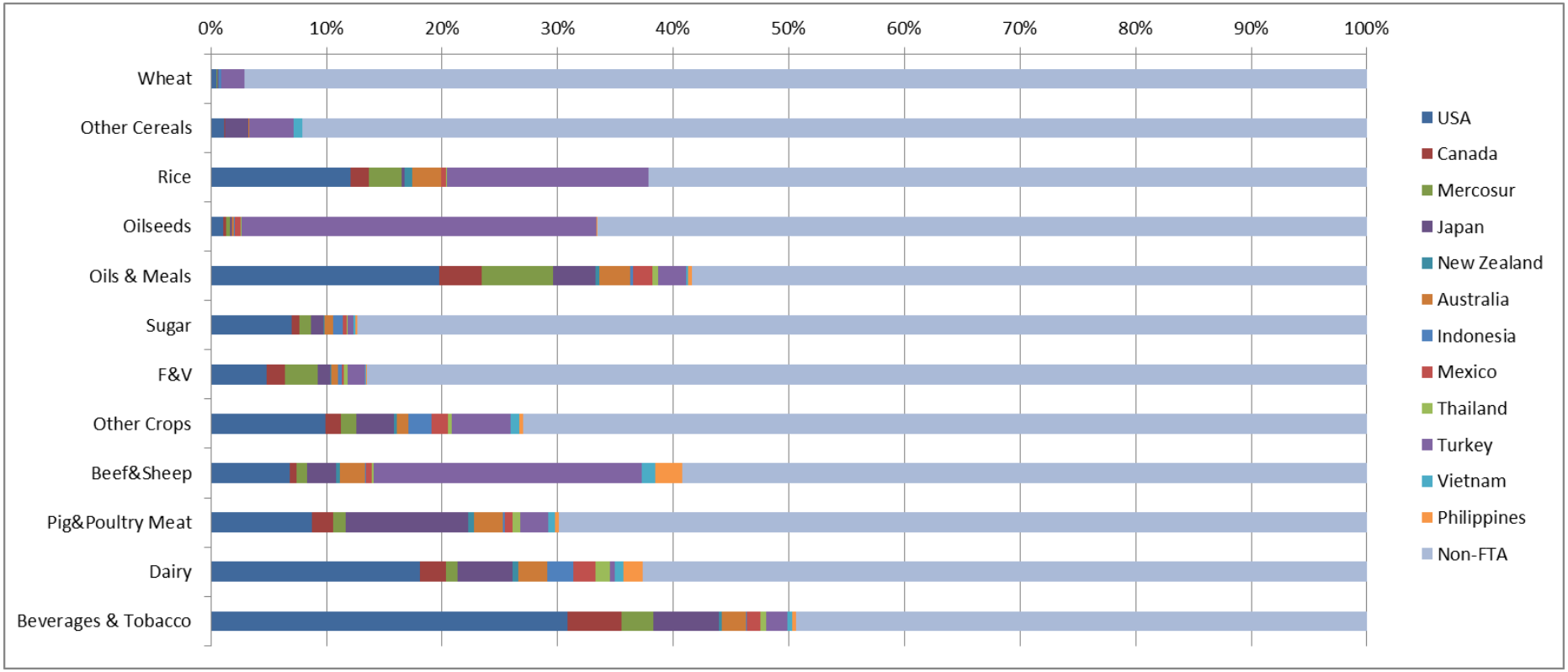
Source: Authors' calculation from MAGNET results

Figure 35: EU import shares by FTA partners and commodities, baseline (2025, %)



Source: Authors' calculation from MAGNET results

Figure 36: EU export shares by FTA partners and commodities, baseline (2025, %)



Source: Authors' calculation from MAGNET results

Table 27: Change in EU total trade value for agri-food product categories by commodities and scenarios compared to the baseline (2025, million euros)

	Cons			Ambi		
	Imports	Exports	Balance	Imports	Exports	Balance
Wheat	7	99	92	15	295	281
Other Cereals	15	14	-1	71	36	-35
Rice	68	86	18	111	87	-24
Oilseeds	26	127	101	-12	128	140
Oils & Meals	183	272	89	325	246	-79
Sugar	161	28	-133	274	70	-204
F&V	241	178	-63	278	195	-83
Other Crops	291	254	-37	280	333	53
Beef&Sheep	1221	230	-991	2858	597	-2261
Pig&Poultry Meat	687	584	-102	1600	1249	-351
Dairy	803	899	96	1211	2209	999
Beverages & Tobacco	211	702	492	320	707	387

Source: Authors' calculation from MAGNET results

Table 28: Detailed results of the conservative and ambitious scenario compared to the baseline (2025, thousand tonnes, euros, %)

Conservative Scenario												
	Absolute change (1000 tonnes)						% change					
	Imports	Production	Consumption	Exports	Producer price (EUR)	Output (Million EUR)	Imports	Production	Consumption	Exports	Producer price
Soft Wheat	212	-527	-415	289	4	524	14.7%	-0.4%	-0.3%	1.1%	2.3%
Barley	6	3	-188	247	3	210	2.8%	0.0%	-0.4%	2.9%	2.1%
Maize	382	-131	272	97	2	167	2.9%	-0.2%	0.3%	2.7%	1.5%
Durum wheat	26	-13	-2	18	6	48	1.2%	-0.2%	0.0%	1.1%	1.9%
Rice	70	-24	28	19	-26	-51	4.9%	-1.4%	1.0%	7.8%	-8.0%
Soybean	43	8	36	14	-3	-4	0.3%	0.3%	0.2%	20.0%	-0.8%
Rapeseed	8	192	109	58	-16	-285	0.3%	0.9%	0.5%	20.0%	-4.2%
Soy meal	7	61	50	18	0	12	1.4%	0.5%	0.4%	6.3%	0.0%
Rape meal	301	22	292	33	-1	8	1.4%	0.2%	0.9%	6.3%	-0.3%
Soy oil	4	46	28	10	-37	-333	1.4%	0.5%	0.3%	6.4%	-5.3%
Rape oil	3	5	-49	56	-2	3	1.4%	0.2%	-2.3%	6.3%	-0.3%
Beef	146	-37	65	42	-272	-2208	44.7%	-0.5%	0.8%	16.5%	-7.9%
Poultry	196	-77	1	118	-12	-278	20.1%	-0.5%	0.0%	7.5%	-0.6%
Pork	5	67	-124	196	23	668	20.2%	0.3%	-0.6%	7.5%	1.3%
Sheep	14	-9	0	5	-101	-133	6.3%	-1.0%	0.0%	7.7%	-2.0%
Butter	14	-18	-4	0	-13	-63	68.0%	-0.7%	-0.2%	0.1%	-0.4%
Cheese	46	144	-22	213	157	2435	67.8%	1.3%	-0.2%	21.5%	4.1%
WMP	1	-19	-1	-18	100	57	68.0%	-2.0%	-0.2%	-3.4%	3.3%
SMP	3	6	-8	17	152	344	68.0%	0.3%	-0.9%	2.0%	5.7%
Whey powder	71	30	1	100	-16	3	68.1%	1.3%	0.1%	14.1%	-1.6%
Sugar	364	-110	154	102	-20	-410	18.2%	-0.6%	0.8%	3.9%	-4.9%
Milk		298			12	2304		0.2%			3.2%

Ambitious Scenario												
	Absolute change (1000 tonnes)						% change					
	Imports	Production	Consumption	Exports	Producer price (EUR)	Output (Million EUR)		Imports	Production	Consumption	Exports	Producer price
Soft Wheat	313	-267	-672	901	6	819		21.7%	-0.2%	-0.6%	3.4%	3.3%
Barley	10	13	-289	362	5	290		5.1%	0.0%	-0.6%	4.2%	2.8%
Maize	673	-158	486	145	3	202		5.2%	-0.2%	0.6%	4.1%	1.8%
Durum wheat	62	-11	-2	56	8	66		2.8%	-0.1%	0.0%	3.4%	2.6%
Rice	113	-38	45	32	-41	-79		7.9%	-2.3%	1.6%	12.7%	-12.5%
Soybean	-46	11	-51	14	2	9		-0.3%	0.4%	-0.3%	20.2%	0.5%
Rapeseed	-9	180	79	58	-14	-248		-0.3%	0.9%	0.3%	20.2%	-3.7%
Soy meal	13	44	41	16	3	42		2.7%	0.4%	0.3%	5.7%	1.3%
Rape meal	572	-37	506	29	1	16		2.7%	-0.3%	1.6%	5.7%	0.4%
Soy oil	7	33	19	9	-43	-397		2.6%	0.4%	0.2%	5.8%	-6.2%
Rape oil	6	-9	-55	50	-13	-37		2.7%	-0.3%	-2.5%	5.7%	-1.9%
Beef	356	-109	143	103	-550	-4507		108.9%	-1.4%	1.9%	40.3%	-16.0%
Poultry	465	-184	24	257	-33	-767		47.8%	-1.3%	0.2%	16.3%	-1.8%
Pork	11	125	-289	425	64	1766		47.7%	0.5%	-1.4%	16.3%	3.8%
Sheep	23	-11	-1	13	-158	-194		10.1%	-1.2%	-0.1%	20.3%	-3.1%
Butter	21	-5	1	15	-57	-132		104.2%	-0.2%	0.0%	7.0%	-1.6%
Cheese	71	208	-53	332	350	4873		104.0%	1.9%	-0.5%	33.4%	9.2%
WMP	2	27	-3	32	336	434		104.3%	2.8%	-0.7%	6.1%	11.1%
SMP	4	82	-19	105	422	1077		104.2%	4.5%	-2.0%	12.0%	15.8%
Whey powder	108	43	3	148	-41	-42		104.3%	1.9%	0.2%	21.0%	-4.0%
Sugar	609	-164	209	239	-27	-562		30.5%	-0.9%	1.1%	9.2%	-6.6%
Milk		1249		1417	29	5646			0.7%			7.9%

Source: Authors' calculation from AGLINK-COSIMO results

Annex 2: Other food

Other food aggregate in GTAP 9 database consists of various commodities which are quite different in terms of production, trade and consumption patterns and constitutes almost 30% of the EU agri-food production, imports and exports. Table 29 shows the share of sub-categories of commodities in other food sector trade flows. On the exports side food preparations of cereals, fruits and vegetables, meat, cocoa, etc. are the main components of other foods constituting 66% of sector exports. On the imports side, fish products and preparations are the leading categories (both together representing almost 50% of the total), with fruit & vegetable following with considerably lower shares. These three sub-categories add up to 64% of the sector exports. FTA partners account for more than 40% of EU imports and more than 50% of the EU exports.

Table 29: Composition of EU trade flows of other food aggregate (2012, %)

HS2	HS2Name	Export	Import
3	Fish and crustaceans, molluscs and other aquatic invertebrates	7.9%	36.3%
4	Dairy produce; birds eggs; natural honey;	0.1%	0.1%
5	Products of animal origin, not elsewhere specified	0.1%	0.2%
7	Edible vegetables and certain roots and tubers	0.0%	2.1%
8	Edible fruit and nuts; peel of citrus fruit or melons	0.0%	2.5%
9	Coffee, tea, mate and spices	0.0%	4.6%
11	Products of the milling industry; malt; starches; inulin	2.8%	0.5%
13	Lac; gums, resins and other vegetable saps and extracts	0.0%	2.4%
16	Preparations of meat, of fish or of crustaceans	0.0%	12.8%
17	Sugars and sugar confectionery	3.4%	1.3%
18	Cocoa and cocoa preparations	14.1%	5.8%
19	Preparations of cereals, flour, starch or milk; bakers' wares	25.4%	3.8%
20	Preparations of vegetables, fruit or nuts	13.4%	14.7%
21	Miscellaneous edible preparations	20.7%	8.2%
23	Residues and waste from the food industries	10.0%	4.3%
22	Beverages, spirits and vinegar	0.5%	0.0%
35	Albuminoidal substances; modified starches; glues; enzymes	1.7%	0.3%

Source: UN Comtrade

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