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Authors: David Abler, Martin Banse, Marijke Kuiper, Pim Roza and Federica Santuccio

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List of abbreviations

ASEAN	Association of South East Asian Nations
AVE	Ad-Valorem Equivalent
CECA	Comprehensive Economic Cooperation Agreement
CEPA	Comprehensive Economic Partnership Agreement
CES	Constant Elasticity of Substitution
CET	Constant Elasticity of Transformation
EAFTA	East Asia Free Trade Area
EPA	European Partnership Agreement
ERS	Economic Research Service
EU	European Union
FAOSTAT	Food and Agriculture Organization Statistical Database
FTA	Free Trade Agreement
GATT	General Agreement on Tariff and Trade
GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GSP	Generalized System of Preferences
GSTP	General System of Trade Preferences
JRC	Joint Research Centre
HS	Harmonized System
ICTSD	International Centre for Trade and Sustainable Development
IPR	Intellectual Property Rights
IPTS	Institute of Prospective and Technological Studies
LEITAP	LEI Trade Analysis Project
MFN	Most favourite Nation
PEATSIM	Partial Equilibrium Agricultural Trade Simulator
RTA	Regional Trade Agreement
ROW	Rest of the World
SAARC	South Asian Association for Regional Cooperation
SAFTA	South Asian Free Trade Area
TRAINS	Trade Analysis and Information System
TREATI	Trans Regional EU-ASEAN Trade Initiative
TRQ	Tariff Rate Quotas
WTO	World Trade Organization
UNCTAD	United Nations Conference on Trade and Development

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Executive Summary

This report was prepared by the European Commission's Joint Research Centre (JRC), Institute for Prospective Technological Studies (IPTS) to investigate the possible effects of a free trade area between the European Union and three main trading partners: India, South Korea and the Association of Southeast Asian Nations (ASEAN[1]) countries. Official negotiating mandates for new Free Trade Agreements (FTA)[2] for the European Commission were adopted in April 2007.

Agricultural trade with partners from Asian countries has become more and more important in recent years and is expected to further increase in the future. The EU is ASEAN's second largest trading partner, accounting for 11.7% of ASEAN trade (2006); 13% of ASEAN exports are destined for the EU. In 2007, EU exports to India accounted for 29.2 billion € which represents almost 2.4% of total EU exports with an average year increase of 16% from 2003. With respect to South Korea, the share of EU exports is around 2.8% in 2007.

Nevertheless, the impact of the FTA on the agricultural sector is uncertain. Empirical evidence suggests that benefits for EU agriculture and food industry are uneven and that some sectors might be more affected than others by a full liberalization process. There is a need to quantify these consequences on bilateral trade flows in agriculture on both sides, in the EU and Asian countries.

This report:

i) analyses existing bilateral agreements signed between the EU and ASEAN/India/South Korea;

ii) examines the agricultural trade flows and trade policies (import tariffs, quotas, export subsidies) established between the EU and the countries referred to above as well as other main partners (like the US, Australia, New Zealand, China); and

iii) assesses the likely outcome of a FTA between the above countries and the European Union.

Free trade agreements

In its communication 'Global Europe, Competing in the World' (2006) the European Commission (EC) has set out the rationale behind its future policy concerning Free Trade Agreements (FTAs). Based on the criteria of market potential, levels of protection and negotiations with EU competitors, ASEAN and South Korea have emerged as priority partners, while India is among the countries which are considered of direct interest to the EU.

The FTAs with Asian countries should go beyond the scope of a multilateral World Trade Organization (WTO) agreement, like the one currently negotiated under the Doha Development Agenda. Not only quantitative import restrictions and all forms of duties, taxes, charges and restrictions on exports should be eliminated – with however, some possible exceptions- but FTAs should also tackle non-tariff barriers and contain strong trade facilitation provisions. Stronger provisions for intellectual property rights (IPR)

1 ASEAN (Association of Southeast Asian Nations) has ten member countries: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam.

2 A Free Trade Agreement is a Regional Trade Agreement which refers to a group of two or more customs territories which has eliminated tariffs and other trade restrictions on almost all trade. In this report FTA or RTA are used as synonymous.

and competition should be included, for example along the lines of the EC Enforcement Directive for IPR. Another issue concerns the rules of origin, which should be simpler.

Next to FTAs the EU also pursues sustainable development in the partner countries. This might lead to the inclusion of provisions in areas like labour standards and environmental protection.

Following these rounds of consultation on 23 April 2007, the European Commission adopted an official negotiation mandate for new FTA negotiations with the ASEAN countries, India and South Korea.

Analysis of the comparative advantages

As a preparation for the quantitative analysis in the modeling framework an assessment of the comparative advantages has been made by using the Balassa index for those commodities included in the model simulation tool (PEATSim). This index shows the share of a product in total national exports relative to the share of all exports of this product in the sum of world exports. A level larger than unity indicates a relative specialization for that commodity and reveals a comparative advantage for this product in international markets.

The analysis of the comparative advantage for the initial situation reveals that most Asian countries are competitive in international markets (with a value of the Balassa index larger than 1.0) for rice and tropical products, e.g. tropical fresh fruits, palm oil and other tropical oils. The results for India show high Balassa index values for many primary agricultural and processed food products.

Apart from these 'classical products' (e.g. palm oil, rice), agri-food exports from Asian countries do not seem to be competitive in international markets. Only some countries show a Balassa index larger than one for eggs (Thailand), sugar (Thailand), cottonseed (Vietnam) and peanuts (Vietnam).

By combining the comparative advantage analysis results with the initial trade policies, mainly based on import tariffs applied prior to a FTA with the EU, the creation of a FTA between the EU and Asian countries might result in the following:

- agri-food products from most Asian countries are not competitive in international markets;
- food processing in Asian countries is shielded by high initial tariffs;
- under full liberalization and even partial liberalization of agri-food trade, imports of Asian countries strongly increase.

Quantitative analysis of FTA

A combined partial (PEATSim) and general equilibrium (LEITAP) modelling framework served as a tool to gain a deeper understanding of the consequences of different policy options in terms of bilateral market access along the FTA between the EU and Asian partners.

PEATSim is a multi-country, multi-commodity partial equilibrium model of global agricultural trade. It was developed by Pennsylvania State University (US) and the Economic Research Service (ERS) of the US Department of Agriculture. The main part of the quantitative analysis has been achieved by PEATSim which includes the analysis of a Regional Trade Agreement (RTA) between the EU and Asian countries on agri-food supply, demand and trade as well as price changes.

LEITAP is a global computable general equilibrium model that covers the whole economy including factor markets and is often used in WTO analyses (Francois *et al.*, 2005) and CAP analyses (Meijl and van Tongeren, 2002). More specifically, LEITAP is a modified

version of the global general equilibrium model GTAP (Global Trade Analysis Project). LEITAP is used in this study to analyse macro-economic effects, particularly on factor prices and income, generated in the EU and Asian countries. Those changes have been introduced in PEATSim on the supply and demand side.

Two **baselines** have been assessed. One, as the continuation of current policies including announced future changes to agricultural policy in the countries and regions covered by the model; a second one, with the implementation of the EU offer (October 2005) to the WTO. Both models' baselines are projected up to 2017.

The counterfactual **policy scenarios** can be grouped as follows:

i) partial liberalization (with a 25% tariff cut for all agri-food products and a 15 % tariff cut on sensitive products);

ii) partial liberalization (with a 50% tariff cut for all agri-food products and a 25% tariff cut on sensitive products);

iii) full liberalization (with a 50% tariff cut on sensitive products);

iv) full liberalization.

One more additional scenario has been run in order to give rise of the reduction of EU overall imports after the creation of the FTA: EU full bilateral liberalization. In this scenario, bilateral trade is fully liberalized in the EU and all other regions in the model.

Results show that the overall level of agri-food production in Asian countries is driven by income and population growth. Under the baseline scenario, which analyzes the development of agricultural and food markets between 2007 and 2017, all Asian countries show a decline in the degree of self-sufficiency. In the initial situation (2007), only the group of ASEAN countries is a net-exporter of agri-food commodities, while South Korea and India are net-importers of agri-food products[3]. Under the baseline the group of ASEAN countries, South Korea and India is projected to become a major net-importer of food products.

Different degrees of liberalization in bilateral agricultural and food trade do not significantly affect the total amount of agricultural production in Asian countries. Under full liberalization total agri-food production in 2017 is only 0.1% higher compared to the production level under the baseline in 2017. The strongest effects of creating a RTA with Asian countries, however, are related to trade creation and trade diversion effects. At global level the creation of a FTA without considering a WTO agreement leads to a slight decline of total agri-food trade of -0.2%. Third countries, outside the EU-Asian trade agreement, are negatively affected and their total agricultural exports are projected to decline by 1.8% relative to the baseline results in 2017.

EUROPEAN UNION

A FTA with Asian countries generates major changes between the initial situation and the baseline scenarios.

Changes in EU production are driven by an increase in livestock production, particularly beef and pork as a result of a demand increase for livestock products in Asian countries under the baseline scenario. Surprisingly oilseed and

3 These results rely on the database used in PEATSim. PEATSim uses USDA data on area, yield, production, consumption, stocks, and trade from the Production, Supply and distribution (PS&D) database as well as FAO data from FAOSTAT. Trade and trade policy data are from the CEPII BACI database, the USDA WTO agricultural trade policy commitments database, country tariff schedules, and TRAINS. According to this database the following products are included in the block of agro-food: rice, cereals, oilseeds, other crops, pork/poultry/eggs, beef, milk, other livestock, veg. oil, dairy, other processed food, tropical/citrus and vegetables.

vegetable oils are decreasing under the full liberalization scenario.

EU imports are almost stable in the baseline but declining in the full liberalization scenario. The composition of agri-food imports changes slightly with a decline in imports of vegetable oils, oilseed and an increase in imports of fruits and vegetables.

From the baseline to the full liberalization scenario, EU agri-food imports decline by almost 9%. This result may be attributable to several reasons. One and most important is the prevailing effect of trade diversion to third countries over the trade creation with the Asian countries. Basically, the magnitude of EU import reduction from the third countries is much higher than the increase of EU imports from the Asian countries. This difference generates an overall decline in total EU imports. Second, the presence of the Tariff Rate Quotas (TRQ) in EU also contributes to the reduction in imports from the EU side. The gradual removal of the TRQ determines an increase of EU imports by 1.3 billion €, especially under the full liberalization scenarios.

However, introducing one more simulation which assesses the bilateral liberalization scenario between EU and the Asian countries, EU imports increase again by almost 20% and EU exports by 58%.

Results indicate that the FTA with the EU creates a large trade redirection towards trade with the EU. Focusing at commodity level, exports for pork, dairy, fruit and vegetables increase most between 2007 and 2017.

ASEAN

Production in ASEAN countries remains almost stable among the different scenarios. The only exception between the initial situation and the baseline is a strong increase in rice production in 2017.

Overall agri-food imports in ASEAN countries increase significantly by 1.8 billion €. Imports are boosted by the livestock sector (that is better performing under the full liberalization scenarios). ASEAN exports decrease overall by 1.2 billion €, mostly pulled by the decrease in the vegetable oils sector. On the contrary the rice and livestock sectors significantly increase their exports to the world.

Bilateral trade with EU looks extremely interesting. ASEAN exports to the EU increase at each step of bilateral liberalization, particularly under the full liberalization scenarios for crops, fruit and vegetables and livestock. Similarly, ASEAN imports from the EU grow considerably under the liberalization scenarios determining a positive net trade of 22 billion € for the agri-food sector.

Trade creation appears to take place between the EU and ASEAN countries. Exports of ASEAN to third countries tend to diminish but exports are only slightly affected and mostly driven by the livestock sector.

INDIA

The total value of agricultural and food production increases by less than 4% between 2007 and 2017.

Relying on PEATSim data, in the initial situation (in 2007) as well as in the baseline (2017) India appears to be a net importer of agro-food products. India's imports remain almost stable in the different policy scenarios, whilst exports tend to slightly increase from the baseline to the full liberalization.

Rice is the most important contributor to the sector's production and increases its value relevantly, while cereals, milk, dairy and vegetables remain almost stable.

From the initial situation to the baseline India's imports increase by almost 500% mainly driven by dairy products.

Considering bilateral trade with the EU, India's imports under the full liberalization scenario register the strongest expansion from 1.4 billion € in the baseline up to 19 billion € under the liberalization scenario.

India's exports to EU almost triple its initial value reaching 6.3 billion €.

SOUTH KOREA

Also for South Korea the biggest change in production occurs under the baseline scenario. The FTA with the EU seems to maintain production values at a stable level among the different scenarios.

Under the baseline scenario exports remain almost constant at 2007 levels. Under the policy scenarios South Korean exports of agri-food products expand by 0.6 billion €, with the highest increases under the full liberalization scenarios. Imports increase to almost 7.5 billion € under the full liberalization scenarios.

It can be noticed that the distribution of effects amongst the group of countries forming a FTA depends on their ex-ante protection levels. In this respect, the analysis shows that for most agricultural and food products Asian countries reveal higher initial protection levels than the EU.

Overall, bilateral full liberalization expands EU's agri-food net-exports by more than 8.6 billion €, while net-imports of Asian countries, forming a FTA with the EU, increase by 2.7 billion €.

It should be mentioned that the increase in net-imports of Asian countries is also projected under all WTO scenarios. According to the quantitative results of this study, the creation of a FTA between Asian countries and the EU might create only little incentive for agri-food exports of Asian countries towards the EU. This is due to the relative low initial level of agri-food exports of Asian countries to the EU and the dynamic development of agri-food demand in Asian countries due to a strong increase in population and income.

1 Introduction

For more than 10 years, the European Union (EU) has been pursuing the liberalization of agricultural trade with many countries belonging to the Asiatic continent by opening a dialogue to encourage trade and investment deals at a bilateral, regional and multilateral level.

On April 23, 2007 the European Commission adopted an official negotiation mandate for new Free Trade Agreement (FTA) negotiations with the Association of Southeast Asian Nations (ASEAN)[4], India and South Korea.

At aggregated level Asian[5] countries are a most important trading partner for the EU. It accounts for 5.1% of total trade (imports and exports) and it occupies the fourth place in world ranking.

Beside this significant amount of bilateral trade flows, trade in agricultural products is still low or below its potential level. Most of trade, in fact, occurs in the manufacturing sector which captures between 80% and 90% of total bilateral trade. The agricultural sector is highly relevant in the Asian countries. It represents a relevant share on gross domestic production, in some cases it reaches 57% (Myanmar), and it is a high basin for employment.

Despite the relevance of this sector in most of the Asian countries several circumstances might be identified as responsible of the low trade performance in agriculture: i) low trade due to low production capacity; ii) lack of comparative advantages in producing agricultural products; iii) the presence of prohibitive trade policies preventing trade enhancement.

It is therefore clear the intention of this study which is to investigate the possible factors responsible for this "estimated" gap that might be improved and supported with appropriate policies.

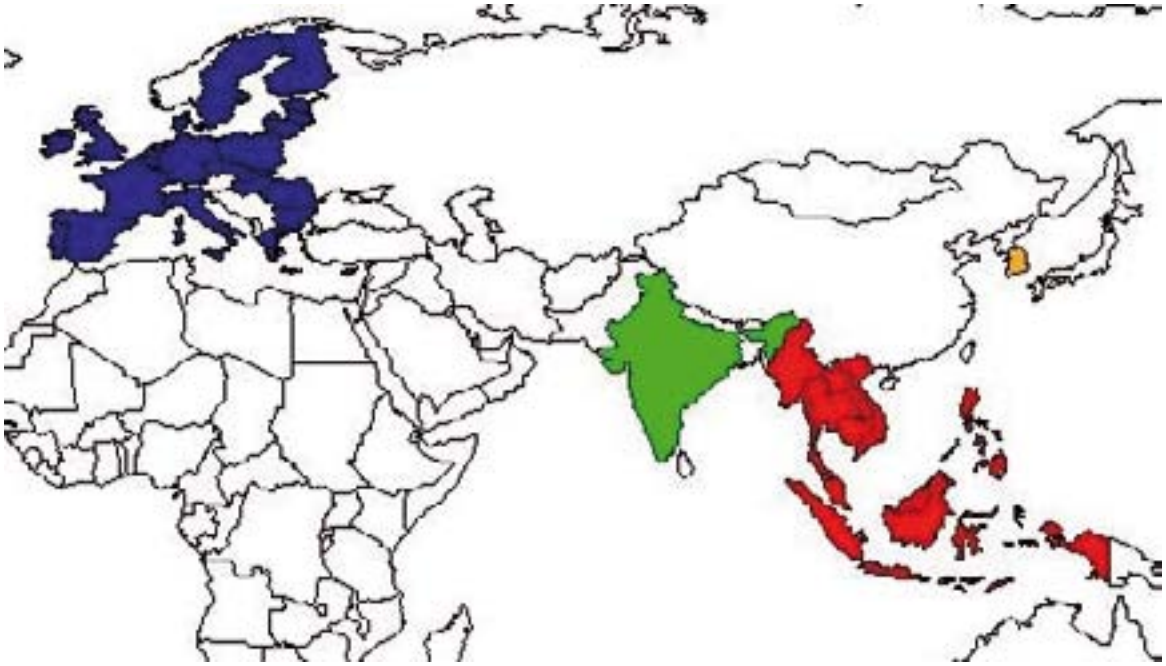
The aim is to assess the process of regional integration between the EU and ASEAN, India and South Korea. It is of particular interest to develop and/or to improve the knowledge on the current status of trade relations and the impact of trade liberalization on the agricultural sector. Although a detailed analysis of the impact of trade policies on trade is beyond the scope of this study, patterns of trade are judged in the light of existing trade policies (import tariffs, quota, export subsidies, etc.). It has to be considered that low bilateral trade flows may be due to a high level of protection, particularly for some agri-food products where average import protection, e.g. Korea, is almost twice as high compared to the level of import restriction in the EU.

In this context, 'sensitive' agricultural commodities particularly relevant for the international markets and EU trade have been selected and appropriate strategies of liberalization by product have been envisaged accordingly, while respecting current WTO agreements on sensitive products.

4 ASEAN (Association of Southeast Asian Nations) has ten member countries: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam.

5 The generic term Asian is used in this report to identify the group of the ten ASEAN countries together with India and South Korea.

Figure 1. Map of India, South Korea and the ASEAN countries



Source: Estimates taken from James (2008 & previous years); no estimates available before 2000.

To assess the likely outcome of a FTA between the above countries and the EU a combination of a partial equilibrium model, PEATSim (Partial Equilibrium Agricultural Trade Simulator), and general equilibrium model, LEITAP (LEI Trade Analysis Project), is used.

The quantitative analysis in this study is achieved by employing the PEATSim model. It provides an assessment of the RTA between the EU and the Asian countries on agri-food supply, demand and trade as well as price changes. PEATSim is used to explicitly analyze the impact of intensified trade relations between the EU and Asian countries in agri-food markets in both regions but also considers consequences on agri-food markets in third countries, e.g. Australia, New Zealand, the US and China.

In many Asian countries the agricultural sector significantly contributes to total employment, capital use and income generation. These aspects are not covered by a partial equilibrium analysis. Therefore, a general equilibrium approach where changes in factor prices and income are endogenous helps to identify the macro-economic consequences of trade policy reforms. For this report a combined modelling approach of PEATSim and LEITAP is used to capture macro-economic consequences of a FTA between Asian countries and the EU without losing track of the details at commodity level.

The French institutes CEPII-CIREM estimated in a general equilibrium context (the Mirage model) that a FTA between ASEAN and the EU would lead to an increase of 2% of

GDP in 2020 generating an enormous impact on trade, production and welfare[6]. This is due to the fact that the EU is a more significant partner for ASEAN than the reverse. A FTA with South Korea would increase the degree of trade liberalization including a future liberalization of services and investment.

Another study, published by Copenhagen Economics and J. Francois (2007), analyses the impact of a FTA between South Korea and the EU based on an extended GTAP model. It concludes that both economies may benefit from regional integration. In both cases there is an increase in real income, output and GDP. The effects are bigger, not only in relative, but also in absolute terms for the Korean Economy. This was expected, since Korea is ex-ante more protective than the EU.

According to the CEPII-CIREM study on the economic impact of a potential FTA between the EU and South Korea a partial liberalization scenario would yield a total gain of 26% of the real income[7] for the two economies. If liberalization in service includes a 50% reduction of barriers, the increase in total gains is projected to be up to 46%.

Similarly, a FTA between the EU and India would have a positive impact on European exports, increasing the exports to India between 17 and 18 $ billion. It would also have positive impacts on the EU economy (e.g. improving terms of trade as a consequence of a better allocation of resources); however (as for the ASEAN FTA) India's limited role as a trade partner for the EU implies that such gains remain relatively small for the European economy.[8] Overall EU exports to ASEAN would grow by 24.2%, to South Korea by 47.8%, and to India by 56.8%, according to the referred studies.

Although the aggregate impact of the FTAs on the EU is expected to be limited, implications for the agricultural sector are not straightforward. Empirical evidence suggests that benefits for the EU agriculture and food industry are uneven and some sectors are more affected than others by the liberalization process.

All the above studies are based on general equilibrium models where agricultural and food processing industries are presented at relatively aggregated level. The linkages between agricultural and food processing are modelled based on Leontief technologies assuming fixed input-output coefficients which are not responsive for relative price changes. In all three studies the facilitation of trade in agri-food products does not contribute significantly to the increase in overall economic welfare after the creation of FTAs.

This study mainly focuses on the impact of a FTA in agri-food products between Asian countries and the EU. The focus of this study provides more detailed insights into the trade effects of the Asian-EU FTA. But, given that non-agri-food sectors are excluded in this analysis, the expected effects might be rather small in terms of additional income growth after the creation of FTAs between Asian countries and the EU.

This report consists of six chapters. The first chapter is a general introduction to the problem. The developments of bilateral trade flows between EU and the Asian countries and the importance of the agricultural sector on bilateral trade are discussed in the following chapter. It identifies

6 CEPII - CIREM (2007), Economic Impact of a Potential Free Trade Agreement (FTA) between the European Union and ASEAN. (http://trade.ec.europa.eu/doclib/docs/2007/may/tradoc_134706.pdf).

7 The study is outsourced by the European Commission to the Copenhagen Economics and Prof. J. Francois (2007), Economic Impact of a Potential Free Trade Agreement (FTA) between the European Union and South Korea (available in http://trade.ec.europa.eu/doclib/docs/2007/march/tradoc_134017.pdf)

8 The study is done by CEPII - CIREM (2007), Economic Impact of a Potential Free Trade Agreement (FTA) between the European Union and India (http://trade.ec.europa.eu/doclib/docs/2007/may/tradoc_134682.pdf

the major issues and the general question which this report attempts to answer.

The third chapter presents detailed assessments of the existing as well as negotiated bilateral agreements of the Asian countries with other partners. It also examines the relevant issues of compatibility between the FTA and the WTO.

In chapter four a detailed analysis of competitiveness of the Asian agricultural products is presented. This analysis is combined with a further investigation of tariff policies on sides, EU and the Asian countries, in order to give rise to the potential effects of bilateral trade policies on the agricultural sector.

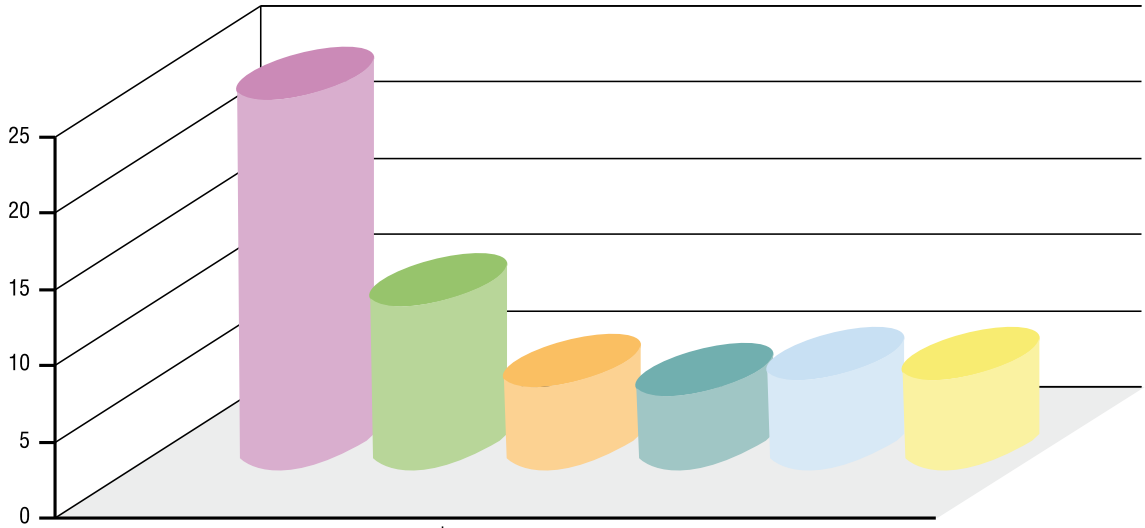
The fifth chapter presents a short description of the tools used to evaluate the potential effects of an RTA agreement on both EU and Asian countries and it also illustrates the adaptations of the models to be employed in this specific study.

The sixth chapter shows the main results by country and finally chapter seven summarizes the main conclusions which can be drown by a combined reading of the first part assessment and the model analysis.

2 Agricultural trade between EU and Asian countries

Within the last years agricultural trade with partners from Asian countries became more and more important. Agricultural imports from the ASEAN countries contribute to about 4.4% in total imports and exports (Eurostat data). Other regions such as the MERCOSUR or the NAFTA contribute more to the EU import and export in agricultural products (Figure 2). But due to the current high growth rates in GDP and population especially in Southeast Asia one can expect that agri-food trade with Asian trade partners increases in the future.

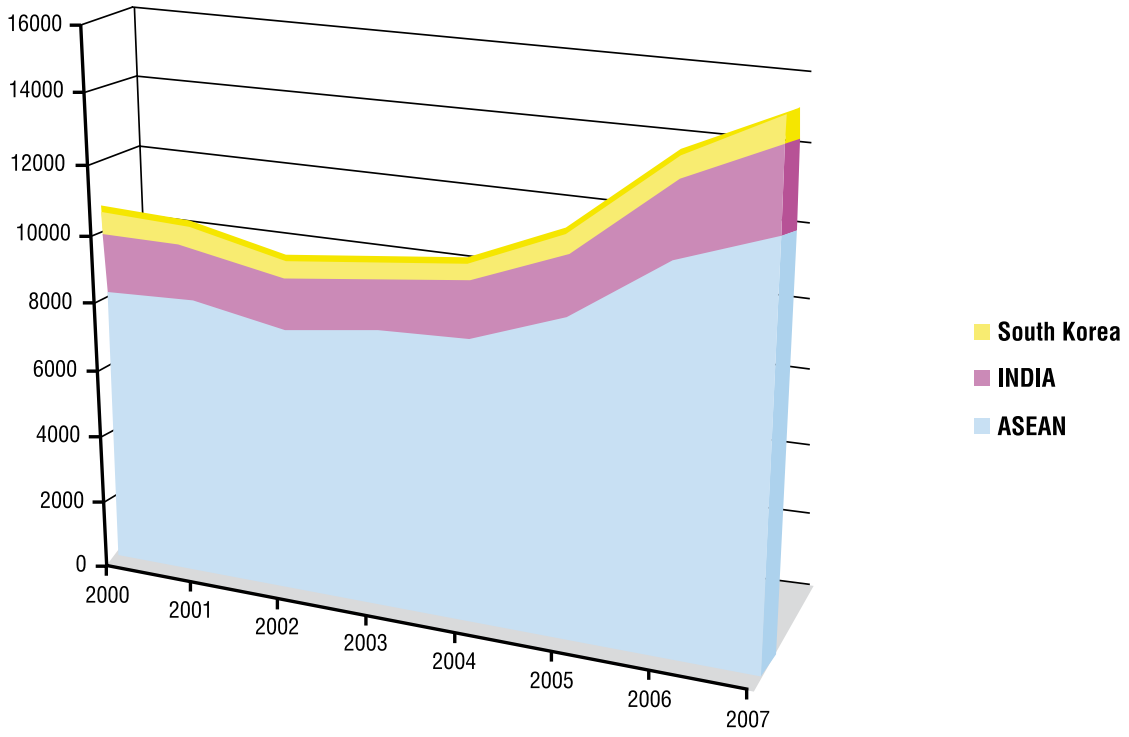
Figure 2. EU exports by main regions (2007)



	Exports
NAFTA	24.9
EFTA	11.3
Latin America	5.8
ASEAN	4.4
EU Candidates	5.5
Medit. Countries	5.4

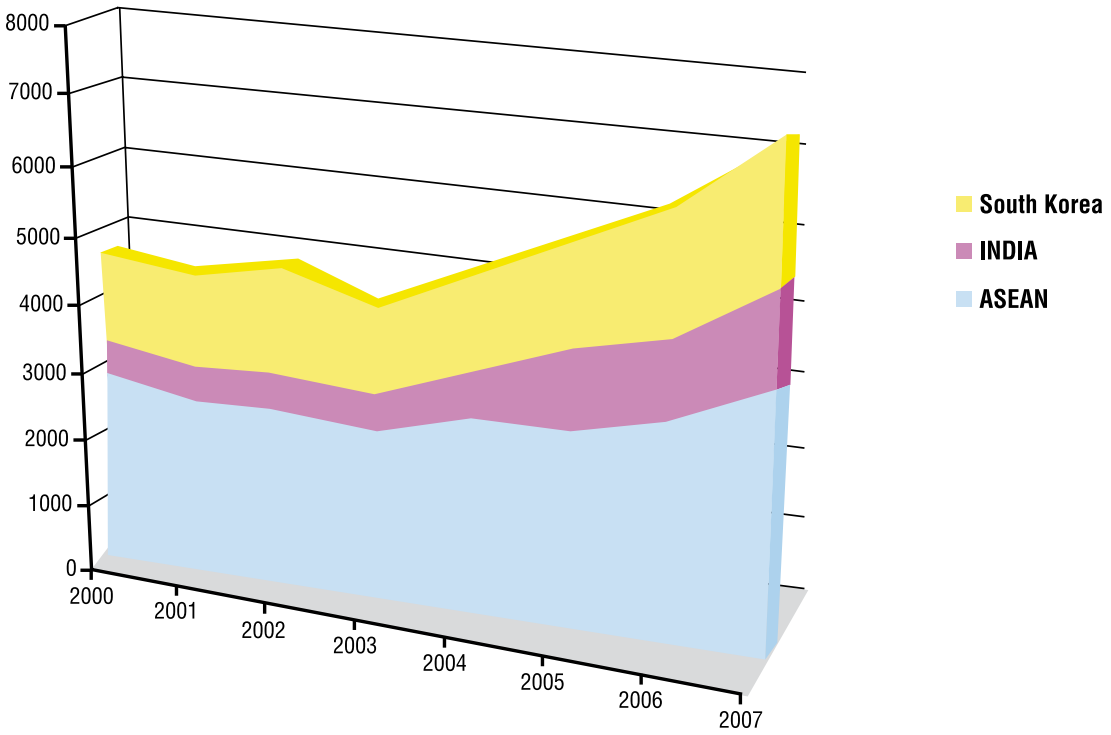
Source: Eurostat (2008), authors' computations

Figure 3. EU imports trend from 2000 to 2007 of agro-food commodities (million €)



Source: Eurostat (2008), authors' computations

Figure 4. EU exports trend from 2000 to 2007 of agro-food commodities (million €)



Source: Eurostat (2008), authors' computations

Bilateral trade with the Asian countries has grown rapidly in the last five years (Figure 3 and Figure 4). EU imports from this region has shown a more stable trend whilst exports have sharply expanded from 2003, particularly to South Korea.

A closer look at the traded commodities shows that trade in agricultural commodities is still very low compared with the other sectors. The manufacturing sector accounts for 68.08% of EU imports coming from ASEAN counties, and it reaches up to 70.4% of EU exports to the region (Table 1 and Table 2).

Table 3 presents more details on agri-food imports from the group of ASEAN countries to the EU for 2001 and 2006.

Between 2001 and 2006 agri-food imports from ASEAN countries increase by more than 25% from 4.4 billion € to 5.6 billion €. During this period agri-food imports grew more dynamically compared to total imports and the share of agri-food imports in total imports increased from 6.3% in 2001 to 7.1% in 2006.

Amongst the different groups of agricultural products animal and vegetable fats and oils (no. 15) is the most important, followed by coffee, tea and spices (no. 09) and prepared vegetables, fruits (no. 20). Imports of these three groups of commodities, which contributed almost 60 % to total imports in 2006, grew by more than 1.0 billion € between 2001 and 2006. Almost 95% of the growth in imports from ASEAN countries between 2001 and 2006 is based on just these three commodity groups.

The agri-food exports of the EU to the ASEAN countries for 2001 and 2006 are presented in Table 4. During this period the value of agri-food exports grew by 12% from 2.2 billion €

Table 1. EU imports from ASEAN (in million €)

SITC Rev.3 Product Groups	2004	%	2006	%	2008	%
ASEAN						
Total	**69,537**	**100.0**	**78,693**	**100.0**	**79,128**	**100.0**
Primary Products	**9,314**	*13.4*	*13,569*	*17.2*	**17,102**	*21.6*
of which:						
Agricultural prod.	7,561	*10.9*	9,665	*12.3*	12,434	*15.7*
Energy	961	*1.4*	2,034	*2.6*	3,238	*4.1*
Manuf. Products	**59,933**	**86.2**	**64,713**	**82.2**	**61,080**	**77.2**
INDIA						
Total	**16,369**	**100.0**	**22,612**	**100.0**	**29,380**	**100.0**
Primary Products	**2,241**	*13.7*	*3,673*	*16.2*	**5,258**	*17.9*
of which:						
Agricultural prod.	1,487	*9.1*	1,842	*8.1*	2,379	*8.1*
Energy	382	*2.3*	1,017	*4.5*	2,266	*7.7*
Manuf. Products	**14,065**	**85.9**	**18,769**	**83.0**	**23,655**	**80.5**
SOUTH KOREA						
Total	**30,671**	**100.0**	**40,768**	**100.0**	**39,383**	**100.0**
Primary Products	**498**	*1.6*	**1,017**	*2.5*	**2,341**	*5.9*
of which:						
Agricultural prod.	132	*0.4*	109	*0.3*	145	*0.4*
Energy	49	*0.2*	457	*1.1*	1,663	*4.2*
Manuf. Products	**30,081**	**98.1**	**39,584**	**97.1**	**36,821**	**93.5**

Source: Eurostat, 2009

Table 2. EU exports from ASEAN (in million €)

SITC Rev.3 Product Groups	2004	%	2006	%	2008	%
ASEAN						
Total	**43,063**	**100.0**	**48,791**	**100.0**	**55,555**	**100.0**
Primary Products	**3,831**	***8.9***	**4,822**	***9.9***	**5,756**	***10.4***
of which:						
Agricultural prod.	2,138	***5.0***	2,422	***5.0***	2,975	***5.4***
Energy	516	***1.2***	1,100	***2.3***	1,164	***2.1***
Manuf. Products	**38,338**	**89.0**	**42,458**	**87.0**	**47,665**	**85.8**
INDIA						
Total	**17,154**	**100.0**	**24,385**	**100.0**	**31,506**	**100.0**
Primary Products	**1,100**	***6.4***	**1,637**	***6.7***	**3,103**	***9.8***
of which:						
Agricultural prod.	180	***1.0***	363	***1.5***	279	***0.9***
Energy	83	***0.5***	167	***0.7***	198	***0.6***
Manuf. Products	**15,549**	**90.6**	**22,104**	**90.6**	**27,071**	**85.9**
SOUTH KOREA						
Total	**17,931**	**100.0**	**22,862**	**100.0**	**25,627**	**100.0**
Primary Products	**1,729**	***9.6***	**2,152**	***9.4***	**2,514**	***9.8***
of which:						
Agricultural prod.	970	***5.4***	1,165	***5.1***	1,103	***4.3***
Energy	82	***0.5***	21	***0.1***	492	***1.9***
Manuf. Products	**15,703**	**87.6**	**19,988**	**87.4**	**22,077**	**86.1**

Source: Eurostat, 2009

to 2.5 billion €. Among the different groups of commodities beverages and spirits (no. 22) and dairy products (no. 04) contributed to almost 30% and more than 10%, respectively. Together with the group Products of animal origin (no. 05) which grew by more than 800%, exports in sugar and sugar confectionery and beverages, spirits & vinegar were the most dynamic sectors in trade with the ASEAN countries.

When comparing the structure of relation in agri-food trade it becomes obvious that imports from ASEAN countries are more specific and concentrated compared to the structure of exports of the EU to ASEAN countries. However, the share of high value final products contributes to more than 2/3 of total EU exports to ASEAN countries while processed food products contribute only 42% to total imports to the EU. In relative terms the lower value intermediate products contribute most to total imports to the EU.

Whether this pattern is due to comparative advantages or to trade policy measures is analysed in the third chapter of this study.

It should be mentioned that EU trade relations with other Asian trade partners - who are not ASEAN member states such as China, Korea and India – also changed. However, for these countries the relative share of agri-food trade in total trade with the EU declined.

Table 3. EU Agri-food Imports from ASEAN, in million € (2001, 2006)

Commodity	2001	2006	Evolution of trade (%)	Share in all agriculture (%)	
			2001/06	2001	2006
01 - Live Animals	7.1	8.7	22.5%	0.2	0.2
02 - Meat and edible meat offal	285.0	15.0	-94.7%	6.4	0.3
04 - Dairy products	1.8	1.8	0.0%	0.0	0.0
05 - Products of animal origin	3.2	1.0	-68.8%	0.1	0.0
06 - Live trees and other plants	40.0	48.0	20.0%	0.9	0.9
07 - Edible vegetables, roots and tubers	300.0	86.0	-71.3%	6.8	1.5
08 - Edible fruits and nuts	125.0	200.0	60.0%	2.8	3.6
09 - Coffee, tea, mate and spices	600.0	885.0	47.5%	13.5	15.9
10 – Cereals	131.0	122.0	-6.9%	3.0	2.2
11 - Products of the milling industry	12.0	11.0	-8.3%	0.3	0.2
12 - Oil seeds and oleaginous fruits	37.0	28.0	-24.3%	0.8	0.5
13 - Lacs, gums, resins and other veg. saps	63.0	55.0	-12.7%	1.4	1.0
14 - Vegetable products n.e.s.	14.0	15.0	7.1%	0.3	0.3
15 - Animal or vegetable fats & oils	1290.0	2024.0	56.9%	29.1	36.4
16 - Preparations of meat	194.0	391.0	101.5%	4.4	7.0
17 - Sugars & sugar confectionery	15.0	22.0	46.7%	0.3	0.4
18 - Cocoa & cocoa preparations	74.0	186.0	151.4%	1.7	3.3
19 - Preps. of cereals, flour, starch, etc.	80.0	116.0	45.0%	1.8	2.1
20 - Preps. of vegetables, fruits, nuts and plants	348.0	399.0	14.7%	7.8	7.2
21 – Miscellaneous edible preparations	82.0	104.0	26.8%	1.8	1.9
22 - Beverages, spirits and vinegar	27.0	40.0	48.1%	0.6	0.7
23 - Residues and waste from food industry	240.0	268.0	11.7%	5.4	4.8
24 - Tobacco and tobacco products	123.0	107.0	-13.0%	2.8	1.9
Total Agricultural Products	**4437.0**	**5566.0**	**25.4%**	**100.0**	**100.0**
Total All Products	**70791.0**	**78057.0**	**10.3%**		

Source: Eurostat (2008), authors' computations based on CN classification

Table 4. EU Agri-food Exports to ASEAN, in million € (2001, 2006)

Commodity	2001	2006	Evolution of trade (%)	Share in all agriculture (%)	
			2001/06	2001	2006
01 - Live Animals	31.0	17.0	-45.2%	1.4	0.7
02 - Meat and edible meat offal	57.0	70.0	22.8%	2.5	2.8
04 - Dairy products	410.0	260.0	-36.6%	18.3	10.3
05 - Products of animal origin	1.6	15.0	837.5%	0.1	0.6
06 - Live trees and other plants	7.6	8.6	13.2%	0.3	0.3
07 - Edible vegetables, roots and tubers	26.0	22.0	-15.4%	1.2	0.9
08 - Edible fruits and nuts	20.0	12.0	-40.0%	0.9	0.5
09 - Coffee, tea, mate and spices	6.1	10.0	63.9%	0.3	0.4
10 – Cereals	10.0	0.2	-98.0%	0.4	0.0
11 - Products of the milling industry	135.0	140.0	3.7%	6.0	5.5
12 - Oil seeds and oleaginous fruits	10.0	11.0	10.0%	0.4	0.4
13 - Lacs, gums, resins and other veg. saps	22.0	23.0	4.5%	1.0	0.9
14 - Vegetable products n.e.s.	0.2	0.1	-50.0%	0.0	0.0
15 - Animal or vegetable fats & oils	22.0	36.0	63.6%	1.0	1.4
16 - Preparations of meat	16.0	13.0	-18.8%	0.7	0.5
17 - Sugars & sugar confectionery	88.0	161.0	83.0%	3.9	6.4
18 - Cocoa & cocoa preparations	35.0	54.0	54.3%	1.6	2.1
19 - Preps. of cereals, flour, starch, etc.	222.0	197.0	-11.3%	9.9	7.8
20 - Preps. of vegetables, fruits, nuts and plants	33.0	57.0	72.7%	1.5	2.3
21 – Miscellaneous edible preparations	243.0	239.0	-1.6%	10.8	9.5
22 - Beverages, spirits and vinegar	425.0	737.0	73.4%	19.0	29.2
23 - Residues and waste from food industry	88.0	120.0	36.4%	3.9	4.8
24 - Tobacco and tobacco products	174.0	67.0	-61.5%	7.8	2.7
Total Agricultural Products	**2242.5**	**2524.9**	**12.6%**	**100.0**	**100.0**
Total All Products	**43842.0**	**48515.0**	**10.7%**		

Source: Eurostat (2008), authors' calculations based on CN classification

3 Bilateral trade agreements

3.1 Existing and negotiated bilateral agreements with other partners

In comparison to other regions such as Europe and the Americas, Asia only recently manifested nominal interest in regional economic integration. However, in the aftermath of the Asian financial crisis in 1997, Asian countries became aware of the need for closer regional economic cooperation. Observing the great economic benefits that a FTA may bring, many countries in Asia are in earnest pursuing FTAs. In this section existing and negotiated bilateral agreements between ASEAN, India and South Korea and their other main agricultural trading partners are identified, including the implications of these agreements for the trade relations with the EU.

3.1.1 ASEAN

ASEAN is actively pursuing its own bilateral FTA agenda. Recently, in November 2007, ASEAN concluded negotiations on a Comprehensive Economic Partnership Agreement (CEPA) with Japan. Import tariffs of about 90 % of trade between the two sides will be lifted within ten years[9]. Rice, beef and dairy products will, however, remain protected as sensitive products. ASEAN is also expected to conclude negotiations on a CEPA with South Korea this year. A FTA on goods has been concluded in 2007 and is now in force[10]. Only negotiations on investment rules will have to be finalized in 2008.

Furthermore, ASEAN is pursuing (comprehensive) FTAs with China and India. The China-ASEAN FTA on goods came into force already in 2005, but negotiations on an investment agreement still continue. Negotiations with India are largely determined by a few sensitive products (see next subsection). Negotiations concerning the establishment of an East Asia Free Trade Area (EAFTA) by ASEAN +3 (ASEAN and China, Japan and South Korea) have been underway since 1997.

3.1.2 India

India is involved in some preferential trading arrangements mainly with South Asian partners, particularly neighbouring countries.

At regional level India has concluded several limited FTAs, with Sri Lanka (1998, mainly benefitting the latter), Thailand (2003) and a Comprehensive Economic Cooperation Agreement with Singapore (2005). As a member of the South Asian Association for Regional Cooperation (SAARC), India concluded negotiations on the South Asian Free Trade Area (SAFTA) in 2004.[11] This agreement came into force in 2006 with the aim of achieving zero customs duty on the trade of practically all products in the region by the end of 2016.

Complementary to the regional option, India is currently exploring the scope for FTA arrangements with partners that represent a more substantial expansion of India's external markets. Currently India is most active in pursuing a trilateral FTA with Brazil and South Africa (two of its colleagues from the G-20 group). The focus changed since negotiations on a FTA with ASEAN slowed down.

9 Cambodia, Laos, Myanmar and Vietnam will eliminate tariffs within 15 to 18 years.

10 Thailand, being the world's largest rice exporter, did not sign this FTA, because South Korea refused to open its market for rice from Thailand.

11 SAARC consists of Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.

India is negotiating other FTAs and CECAs with Chile, the Gulf Cooperation Council (GCC), Japan, Mercosur, the Southern African Customs Union (SACU), South Korea and Thailand. Agreements with the following trading partners are under consideration: China, Egypt, Indonesia, Israel, Malaysia and Russia. Especially a possible trade deal with the other Asian giant China will lead to much criticism, since it is feared that a FTA will lead to massive imports of cheap goods from China.

In the negotiations on a FTA with ASEAN agriculture plays a very prominent role. Some sensitive agricultural products (palm oil, tea, coffee and pepper) have become the sticking point for India. India itself is a large producer of oilseeds and vegetable oils, but at the same time domestic production does not meet demand and, therefore, large quantities of palm oil are imported from Indonesia and Malaysia. The two countries are demanding that India reduces its import tariffs on crude palm oil from 45% to 40%, and on refined palm oil from 52.5% to 30%, but oilseed producers in India fear that this would lead to import surges and would harm Indian farmers. Moreover, an eventual agreement will be far less ambitious than India would like to, because services and foreign investment are not included and ASEAN has come up with a long list of 100 highly sensitive products (ICTSD, 2007). India's position as a large importer of vegetable oils has also raised the attention of olive oil producers in Spain, Italy and Greece, who push for a reduction of import tariffs on olive oil (Sharma, 2008).

3.1.3 South Korea

South Korea is actively pursuing bilateral FTAs. Four agreements are currently in force, with Chile (2004), Singapore (2006), EFTA (2006) and ASEAN (2007, on goods). In April 2007 negotiations with the US were concluded. Currently South Korea is negotiating FTAs with five trading partners: ASEAN (only services), Canada, India, Japan and Mexico. Feasibility studies are carried out on possible FTAs with China, Mercosur and the GCC. Agreements with Australia, New Zealand, Peru and Russia are under consideration (Chae, 2007).

South Korea's latest FTA with the US also included the liberalization of agriculture. Compared to the FTA with Chile and Singapore, South Korea made greater commitments on the liberalization of agricultural trade. With Chile and Singapore, South Korea made tariff concessions on 71% and 67% of all agricultural tariff lines respectively. In the FTA with the US it has been agreed that South Korea will liberalize 98% of its agricultural trade, of which 38% will be liberalized immediately. On the other hand, the US will completely open its market to agricultural products from South Korea.

Sticky points in the negotiations were the liberalization of the South Korean markets for rice and beef (and automobiles). Finally South Korea succeeded in excluding rice from the FTA, but agreed to eliminate its 40% tariff on US beef over the next 15 years. Non-tariff barriers on imports of US beef still remain, but will be reconsidered. Tariffs on US exports of wheat, cotton and orange juice have been lifted, while import quotas for milk powder, soybeans and cheese have been expanded (ICTSD, 2007).

South Korea's FTA with Chile gives a good example of trade diversion which impacted negatively on the EU. When the agreement came into force in 2004, South Korea increased imports of Chilean pig meat and wine, leading to a fall in European exports of pig meat and wine to South Korea. Between 2000 and 2005 the French market share on the South Korean wine market fell from 42% to 22% and it is expected that the FTA with the US will also lead to some losses in market shares of EU exports. In this case Californian wine might compete with European wine (CEPS/KIEP, 2007).

3.2 Agreements under negotiation

In its Communication 'Global Europe, Competing in the World' the European Commission has set out the rationale behind its future FTA policy. The EU is looking for a new kind of comprehensive trade and investment agreement. Potential new partners should be selected on the basis of market potential (economic size and growth) and the level of protection against EU export interests (tariffs and non-tariff barriers). Negotiations of potential partners with EU competitors should also be taken into account (e.g. the FTA between South Korea and the US, which was concluded in 2007). At the same time the EU wants to make sure that the new FTAs do not lead to preference erosion for neighbouring and developing countries.

Based on the criteria of market potential, levels of protection and negotiations with EU competitors, ASEAN and South Korea have emerged as priorities, while India is also among the countries which are considered of direct interest to the EU. Mercosur (Argentina, Brazil, Paraguay, Uruguay and Venezuela) is also seen as a priority FTA partner, but negotiations with this trading bloc are already under way. Agriculture is a major part of the negotiations, with Mercosur being on the offensive side.

The new 'competitiveness-driven' FTAs need to be comprehensive and ambitious in coverage, aiming at the highest possible degree of trade liberalization including far-reaching liberalization of services and investment. When a potential FTA partner has signed a FTA with an EU competitor, the EU should seek full parity at least. This is now shown in negotiations with South Korea, where the EU seeks equal liberalization of trade in all goods.

The FTAs should go beyond the scope of a multilateral WTO agreement, as the one currently negotiated under the Doha Development Agenda. Not only quantitative import restrictions and all forms of duties, taxes, charges and restrictions on exports should be eliminated (with however some possible exceptions). FTAs should also tackle non-tariff barriers and contain strong trade facilitation provisions. Stronger provisions for IPRs and competition should be included, for example, along the lines of the EC Enforcement Directive for IPRs. Another issue concerns the rules of origin, which should be simpler.

Negotiations with ASEAN may become problematic because of Myanmar's membership of ASEAN. The EU has taken some restrictive measures against Myanmar (including an investment ban on state-owned enterprises), because of the continuing human rights violations in the country, which is governed by a military junta. As the other nine ASEAN members refuse to take sanctions against the regime, negotiations on a FTA might be delayed. It is possible that the EU might turn towards bilateral agreements with individual ASEAN members to avoid the Myanmar issue.

In March 2007 EU-India consultations for negotiations run into difficulties over whether or not a FTA should include clauses relating to human rights and nuclear weapons. According to a European Council decision in 1995, any trade or political agreement of the EU should contain a commitment to human rights and democracy. But India does not want to insert this clause. Furthermore India has not signed the Non-Proliferation Treaty on the use of nuclear weapons, which also might create problems (Cronin, 2007). However the discussion on these clauses has ceased and the EU and India are fully participating in the negotiations.

3.2.1 EU-ASEAN

ASEAN is a group of ten South East Asian Countries: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam. The association was established on 8 August 1967 in Bangkok. In 1992 the ASEAN members signed a FTA (ASEAN Free Trade Area – AFTA), and in 2003 they

decided to achieve full liberalization of trade in goods, services and investment by 2020.

Indonesia, Malaysia and Thailand are the most important members of ASEAN in terms of agricultural trade. In 2006 EU-ASEAN trade represented 5% of total world trade. The EU is the second largest trading partner for ASEAN, after the US. Next to bilateral trade relations, there are also strong investment ties between the two trade blocs, and the EU is the largest investor in ASEAN countries.

EU-ASEAN relations had been established in 1977 followed by a Cooperation Agreement in 1980. In 2000 the EU and ASEAN started high-level discussions on trade and investment issues. The key challenge was to address non-tariff barriers in trade between the two blocs. For this purpose the Trans-Regional EU-ASEAN Trade Initiative (TREATI) was launched in July 2003 as a key component of the Commission's Communication on 'A New Partnership with South East Asia'. TREATI is a framework for dialogue and regulatory cooperation and includes negotiations on eight priority issues: trade facilitation, investment facilitation and promotion, sanitary and phytosanitary standards, industrial product standards and technical barriers to trade, intellectual property rights, and trade and the environment as well as tourism and forestry products. In September 2004, following the conclusion of the negotiations on AFTA, priority was given to cooperation on sanitary and phytosanitary standards in agro-food and fisheries products, on technical standards for electronics, and on wood-based industries, as well as cross-sectoral cooperation on trade facilitation and investment.

A main contribution of TREATI in the field of agricultural trade was the modification of EU food safety regulations in 2005. The EU took into account a number of issues raised by ASEAN exporters, when it reviewed its regulatory framework for residues. Under the new legislation the isolated detection of residues of a prohibited substance below the relevant "minimum required performance limit" no longer prevents the products concerned from entering the food chain. In practice this means an improvement of market access for ASEAN exporters.

In April 2005 EU Trade Commissioner Mandelson and the ASEAN Economic Minister set up a Vision Group in order to investigate the feasibility of new initiatives, including an EU-ASEAN FTA. In October 2006 ASEAN emerged as a priority FTA partner (EC, 2006), a view which was supported by an external feasibility study (CEPII-CIREM. 2007a). On 23 April 2007 the European Member States formally adopted the negotiation mandate for a FTA with ASEAN (as well as with India and South Korea).

The three smallest economies of ASEAN (Cambodia, Laos and Myanmar) are all Least Developed Countries (LDCs) and are, therefore, granted duty-free access to imports of all products without any quantitative restrictions (except to arms and munitions) under the Everything But Arms (EBA) Agreement.

EU relations with single ASEAN countries

This sector aims to identify possible overlaps between agreements established among each single member of the ten ASEAN countries with their closest partners as well as the ASEAN countries as a block with the same partner countries. Next to ASEAN's FTA agenda, several ASEAN members (including the largest and most quickly-growing economies) are pushing ahead with their own bilateral FTAs. The US announced the launch of an ASEAN Initiative in 2002 establishing bilateral Trade and Investment Framework Agreements with some ASEAN countries.

Singapore has signed comprehensive FTAs (including wide-ranging provisions on investment and intellectual property rights) with Japan and the US, which entered into force in 2002 and 2004 respectively. The country also concluded

deals with Australia, New Zealand, EFTA and South Korea. Vietnam has ratified a FTA with the US in 2001, an accord that attracted criticism for including IPR provisions more stringent than those required by the WTO.

The agricultural interests of the four largest economies of ASEAN (Indonesia, Malaysia, Philippines and Thailand) are rather different than those of smaller members like Cambodia, Laos or Myanmar. While the latter have more defensive interests in agriculture, the four largest economies of the ASEAN have offensive interests.

Malaysia has signed a FTA with Japan (2005) and Pakistan (2007), while negotiations are going on with the US, Australia, New Zealand and Chile. Thailand has concluded FTAs with Australia, New Zealand and a limited FTA with China. In January 2008 Thailand signed a FTA with South Korea, after it first refused to sign the ASEAN-South Korea FTA. The US and India are undergoing negotiations.

There is a risk that these bilateral initiatives might distract the attention from talks aimed at region-wide integration and liberalization and the negotiation capacity of some ASEAN members.

3.2.2 EU-India

The EU accounts for 20% of India's exports and imports, which makes it the largest trading partner for India. Just as for ASEAN it is the largest source of foreign direct investment for India. However, for the EU India is currently not a very large trading partner. The South Asian country represents 1.8% of total EU trade and attracts only 1.3% of the EU's world-wide investments.

Nevertheless, the EU regards India as an important trading partner, mostly because of its large domestic market. But unlike ASEAN and Korea (and Mercosur), India did not emerge as a priority out of the October 2006 Communication (EC, 2006). During a summit in September 2005, the EU and India adopted a Joint Action Plan and agreed to further increase bilateral trade and economic cooperation and to tackle barriers to trade and investment. The bilateral trade and investment relationship was further explored by a High Level Trade Group. In October 2006 this group recommended the negotiation of a broad-based trade and investment agreement (more or less comparable to the EU-ASEAN FTA). On 23 April 2007 the European Member States formally adopted the negotiation mandate for a FTA with India. Feasibility studies show that trade liberalization with India can create large benefits for both sides (CARIS / CUTS International, 2007; CEPII – CIREM, 2007b).

Currently the EU has one agriculture-related bilateral agreement with India, namely the Agreement on Sugar Cane (1975). According to this agreement the EU imports an annual amount of 25,000 tons of raw sugar (white sugar equivalent) at guaranteed prices. This agreement is comparable to the ACP Sugar Protocol and was concluded after the UK joined the EU in 1973 and the EU took over the UK's commitments to its former colonies.

3.2.3 EU-South Korea

The EU and South Korea are important trading partners. South Korea is the EU's eight largest trading partner, while the EU is South Korea's fourth largest trading partner and its second largest exports destination. The trade balance is strongly in favour of South Korea, with European exports to South Korea being some € 13.7 billion behind South Korean exports to the EU in 2008. This trade deficit can partly be attributed to the difficulties that EU companies have in accessing South Korean markets due to existing trade barriers. Furthermore, in 2006 with 5 billion € the EU was the largest foreign investor in South Korea, representing 45% of total foreign investment.

In 2001 the Framework Agreement on Trade and Cooperation entered into force. This very broad agreement is the basis for negotiations

on further cooperation, not only in trade and investment, but also in other policy areas, such as science and technology, industry and environment. In 2006 South Korea emerged as a priority FTA partner and in April 2007 the negotiation mandate was given to the European Commission (EC, 2006). A FTA has large potential benefits for both sides (Copenhagen Economics and Francois, 2007).

Being a net food importer, South Korea takes a defensive stand on agriculture and it insists on its status as a developing country in the field of agriculture, with rice being of particular concern. In this respect the EU and South Korea share concerns on the treatment of sensitive products and therefore it is expected that not many concessions are made on agriculture. South Korea also has defensive interests in fisheries and forests, but the EU will probably not demand large concessions in these areas.

3.3 Compatibility with WTO rules

This section gives a preliminary assessment of possible implications of a FTA between the EU and ASEAN, India and South Korea with respect to the implications for the multilateral trade liberalization process. The main question is whether the agreements should be regarded as 'stepping stones' or as 'stumbling blocks' for multilateral trade liberalization.

According to the European Commission 'FTAs […] can build on WTO and other international rules by going further and faster in promoting openness and integration, by tackling issues which are not ready for multilateral discussion and by preparing the ground for the next level of multilateral liberalization' (EC, 2006). It is true that FTAs enable trade partners to address certain issues, such as non-tariff barriers (SPS measures), investment, business services, public procurement, competition, other regulatory issues and IPR enforcement.

But at the same time bilateral and regional trade FTAs can also become stumbling blocks by complicating trade, eroding the principle of non-discrimination and excluding the weakest economies. Therefore the FTAs must be comprehensive in scope, provide for liberalization of almost all trade and go beyond WTO disciplines (EC, 2006).

In principle FTAs between two or more WTO members violate the WTO's principle of equal treatment for all trading partners (Most-Favoured-Nation). The Most-Favoured-Nation (MFN) principle prescribes that a WTO member country should not discriminate between its trading partners. However, the WTO agreements recognize that regional trade agreements and closer economic integration can benefit member countries.

Therefore General Agreement on Tariff and Trade (GATT) Article XXIV allows regional trading agreements to be set up as a special exception. FTAs should complement the multilateral system and not threaten it (WTO, 2007).

GATT Article XXIV establishes that if a FTA or a customs union is created, duties and other trade barriers should be reduced or removed on almost all sectors of trade in the group. Non-members should not find trade with the group any more restrictive than before the group was set up. For developing countries there are some other provisions that enable them to enter regional or global agreements that include the reduction or elimination of tariffs and non-tariff barriers on trade among themselves (WTO, 2007).

As for the EPA, it is presumable that the FTA between EU and the Asian countries will first come in the form of interim agreements and the length of the transition period permissible under Article XXIV will be important.

The law relating to Custom Unions (CUs) plays a role in the process because, as argued earlier, ACP

subregions can conclude EPAs (as sub-regions) with the EU only if they constitute themselves as CUs in the first place. The substantive requirements of both FTAs as well as CUs are found in paragraphs 5 and 8 of Article XXI.

To examine whether FTAs or Customs Unions are consistent with WTO rules, the WTO General Council has created the Regional Trade Agreements Committee in 1996. Up to July 2007 about 380 RTAs have been notified to the GATT/WTO.[12]

3.4 Relevant features for deeper integration

This section addresses relevant issues to favour deeper integration (rules of origin, property rights, labour mobility, standards, competition rules, SPS, etc.). Within the negotiations with the three partners, sanitary and phytosanitary measures will particularly play a considerable role.

Interests and drivers of the current generation of FTAs largely lie outside the agri-food sector. Rather, these are defined by the opening up of opportunities for trade in services and industrial goods and for investment. However, agriculture is an important part of the FTA negotiations. A study on regional trade agreements in all areas outside agriculture (OECD, 2005) identified the following areas as key areas:

- Market access for merchandise trade,
- Rules of origin,
- Trade defence instruments,
- Services and
- Trade facilitation.

The typical provisions regarding market access are primarily aimed at an expansion of trade between RTA partners, which is regarded as a basic or 'shallow' degree of integration. In a process of economic integration, the expansion of trade relations increases the incentives for further cooperation. A 'deep' integration aims to develop 'a common marketplace across countries, which permits enterprises to operate easily across national borders and to integrate production in regional value chains' (Evans, Kaplinsky and Robinson, 2006). In addition to lowering tariffs, deep integration involves harmonizing market institutions, standards and legal norms such as commercial practices, administrative and contract law, regulation of labour markets and anti-trust behaviour, financial investment, and government procurement. A key characteristic of deep integration is a potential synergy between increased trade, increases in productivity, and growth (Evans, Kaplinsky and Robinson, 2006).

The coverage of agriculture under RTAs typically reflects the situation at a multilateral level: in many sub-sectors, border protection and subsidies are exempted from the full discipline of liberalisation. The possible elements of RTA negotiations with relevance to agriculture are listed in Table 5.

In its bilateral FTAs with other developing countries (Chile, Mexico and South Africa), the EU applied the following instruments:

- Tariffs: duty free access or reduction of tariffs with a timeframe for liberalization;
- Tariff rate quotas (TRQs) for all three countries, with annual growth rates for Chile and South Africa;
- Agricultural-specific safeguard clauses for South Africa and Chile.

12 http://www.wto.org/english/tratop_e/region_e/region_e.htm#links

Table 5. Relevance of RTA negotiations to agriculture

Label	Scope
Market access (tariffs)	Concessions beyond MFN or general preferential schemes covering "almost all trade" Product-based exemptions from the (deepest) cuts: sensitive products and special products
Rules of origin	Serve to control potential spillovers of trade preferences on Third Countries. Substantial administrative transaction costs may prevent utilization of trade preferences.
Trade defence instruments	Issues under negotiation include anti-dumping action, countervailing duties, safeguard measures, etc.
Trade facilitation	Reductions of trading costs by facilitating procedures such as automated customs administration
Non-tariff barriers	Technical barriers including sanitary and phytosanitary (SPS) measures. Issues under negotiation include the equivalence of technical and safety standards, import certificates, procedures for conformity assessment.
Non-trade concerns	Standards arising from non trade concerns including those related to environmental protection, labour standards, animal welfare. Aim for consistent policies in terms of trade and agricultural development.
Investment and intellectual property rights	Liberalization of direct investment; reform of economic institutions including intellectual property rights

4 Analysis of trade policy and competitiveness

4.1 Comparative advantages

As a first step to identify those commodities which might strongly benefit from a FTA the Balassa Index values for the commodities included in the PEATSim model have been calculated based on actual trade flows. This index shows the share of a product in total national exports relative to the share of all exports of this product in the sum of world exports. A level larger than unity indicates a relative specialisation for that commodity and reveals a comparative advantage for this product on international markets.

This analysis focuses only on those regions which are directly affected by a FTA with the EU, i.e. all member states of the ASEAN treaty, South Korea, India and the EU. The values of the Balassa Index under the base situation (2004) are listed in full detail in the annex tables A-7 and A-8. Table 6 highlights the most important findings.

Out of the 38 trade commodities covered in the extended version of the PEATSim model there is an indication of comparative advantage for 17 commodities, including India with 12 and Malaysia with four commodities. For Indonesia, the Philippines, Thailand and Vietnam three products covered by PEATSim show a Balassa index larger than one. South Korea and the aggregated rest of ASEAN countries have one or no products with a Balassa Index exceeding one.

Table 6 lists those Asian countries and agri-food commodities covered in this report with a Balassa Index of larger than one. For cereals only India, Thailand and Vietnam show a comparative advantage for rice. The analysis indicates a comparative advantage of 'other tropical fresh fruits' for the Philippines. Apart from eggs for Malaysia and India, beef and veal livestock products from Asian countries included in the table do not appear competitive in international markets.[13]

Palm oil and other tropical oils are found to be competitive for Indonesia, Malaysia, the Philippines and Thailand. Most oilseed meals from India also appear competitive. For dairy products shipments of whole dry milk from Indonesia, Malaysia and the Philippines appear to be internationally competitive.

This analysis is based on the aggregated products level of the PEATSim model. The aggregated number, however, is also mirrored at more detailed level. At more detailed HS6 level some products appear to be competitive with the Balassa Index values larger than one. This is the case for Vietnam with pork (frozen, 020321), Philippines for cane sugar (170111) and Thailand and Vietnam for some vegetables (onions, 070310). However, due to the relatively small share of these products in the aggregated product category, the Balassa Index value of the respective aggregated commodity is smaller than one.

4.2 Trade regime and tariff analysis

In this subsection, the existing trade policies in both the EU and its Asian partners (ASEAN, India and South Korea) are presented,

13 This includes poultry meat from countries Thailand which is often discussed in the EU. Thailand's Balassa index for poultry meat is 0.2. Only for 020733 (ducks, geese or guinea fowls:- Not cut in pieces, frozen) Thailand has a Balassa Index value of larger than one.

Table 6. Agri-food commodities with a comparative advantage from selected Asian countries (2004)

Products	India	Indonesia	Malaysia	Philippines	Thailand	Viet Nam	Rest of ASEAN
Rice	☺				☺	☺	
Peanuts	☺					☺	
Eggs	☺		☺				
Beef and Veal	☺						
Cotton	☺						
Cottonseed Meal	☺						
Nonfat Dry Milk	☺						
Peanut Meal	☺						
Peanut Oil	☺						
Rapeseed Meal	☺						
Soybean Meal	☺						
Sunflower seed Meal	☺						
Other Tropical Fresh Fruits				☺			
Cottonseed						☺	
Peanuts						☺	
Sugar					☺		
Other Tropical Oils		☺	☺	☺	☺		
Palm Oil		☺	☺				☺

Source: own elaborations

not forgetting the EU's main competitors in the region: USA, Australia, New Zealand and China.

This is followed by a general description of the tariff data used in this analysis which are taken from the TRAINS database, looking at the number of tariff lines included, preferential trade regimes and changes in average tariffs.

The remainder of this section looks in more detail at tariffs, again as above with the commodity classification of PEATSim in mind and focussing on tariffs between the EU and the selected Asian countries. The tariffs are assessed from two different angles, analyzing the change in tariffs between 2001 and 2006 and assessing the relative tariffs at product level with a focus on the position of the EU in the Asian market. The analysis of trade policies starts with data on tariffs taken from the TRAINS database. Table 7 summarizes the number of tariff lines on which our analysis is based. The analysis is based on tariff information in 2001 and 2006 (where available). A first comparison of the number of tariff lines indicates for most countries a steep increase. The only exceptions to this pattern are Thailand (a 1% decrease) and most notably New Zealand (a 54% decrease) even though 2002 data are used in the absence of 2001 data. The EU stands apart in terms of the increase in number of tariffs lines (855%) which far exceeds the increases of the other countries. For the Philippines only MFN data are available for 2001, prohibiting a comparison.

Table 7. Number of tariff lines in 2001 and 2006 by country (all sectors)

Areas	Countries	2001	2006	% change	Preferential agreements (2006)
EU	EU	33,887	323,505	855	36
Asia	India[b]	7,387	32,962	346	13
	Indonesia	9,940	19,114	92	3
	Malaysia	13,857	18,001	30	2
	Philippines[b]	5,639	20,839	270	2
	South Korea[b]	11,408	20,898	83	6
	Thailand	15,861	15,735	-1	3
	Vietnam	6,299	19,671	212	6
Competitors	Australia	8,902	32,868	269	14
	China	14,330	44,814	213	19
	New Zealand[b]	59,109	27,257	-54	9
	United States	60,201	91,465	52	20

[a] 2005 is most recent year with tariff data. [b] for 2001 only MFN tariffs available. [c] No 2001 data, 2002 data used instead
Source: TRAINS, authors' calculations

The number of tariff lines can increase because new tariff lines or products are distinguished or because of an increase in the number of preferential trade agreements which necessitate the recording of several tariffs for a single product. The last column in Table 7 indicates the number of preferential agreements registered in TRAINS. The EU by far has the largest number of agreements (36); almost double that of the USA (20) which has the second largest number of agreements. The combination of the largest increase in the number of tariff lines and the largest number of preferential agreements suggests that market protection is increasingly becoming more complex because of preferential trade agreements.

In order to compare the tariff structure of the different countries there is a need to assess which tariff regime applies to each of the bilateral trade flows. Table 8 presents the relevant trade regime for each country pair, indicating whether a change in trade regime occurred between 2001 and 2006. The countries in the rows are the ones levying the tariffs, for example, the EU is applying the GSP tariffs on imports from India both in 2001 and 2006, while Indonesia received a preferential trade agreement with the EU on some products in 2006. India in turn applies MFN tariffs on imports from the EU.

Although Table 8 indicates a strong increase in preferential agreements for the EU, these agreements apparently do not apply to the countries included in this study. Apart from the appearance of a preferential trade agreement with Indonesia in 2006, the EU has not introduced preferential treatments for any of the countries. It does receive preferential treatment in 2006 from Vietnam, while in all other cases the EU continuously faces MFN tariffs.

Table 8 provides an indication of the countries most actively engaged in preferential agreements in the period 2001-2006. China, India and South Korea are most active in providing preferential access to their markets for other countries, each of them engaging in seven preferential agreements in between 2001 and 2006. Runners up are the Philippines and Vietnam with four agreements each. Although the countries providing preferences also receive them, the two countries experiencing the strongest increase in preferential treatment in

Table 8. Changes in trade agreement by country pair between 2001 and 2006 (rows are the partner levying tariffs on countries in columns)

	Australia	China	EU	India	Indonesia	Malaysia	New Zealand	Philippines	South Korea	Thailand	United States	Vietnam
Australia		MFN	MFN	MFN	MFN	MAL	NZL	MFN	MFN	MFN > THA	MFN > USA	MFN
China	MFN		MFN	MFN > BA	MFN > IND	MFN > MAL	MFN	MFN > PHI	MFN > BA	MFN > THA	MFN	MFN > VIE
EU	MFN	GSP		GSP	GSP > IND_GSP	MFN	MFN	GSP	MFN	GSP	MFN	GSP
India [a]	MFN	MFN > GSTP	MFN		MFN > GSTP	MFN > GSTP	MFN	MFN > GSTP	MFN > BA_GSTP	MFN > THA_GSTP	MFN	MFN > GSTP
Indonesia	MFN	MFN > CHI	MFN	MFN		ASEAN	MFN	ASEAN	MFN	ASEAN	MFN	ASEAN
Malaysia	MFN	MFN	MFN	MFN	ASEAN		MFN	ASEAN	MFN	ASEAN	MFN	ASEAN
New Zealand [b]	AUS	GSP	MFN	GSP	GSP	MFN		GSP	MFN	MFN > THA	MFN	GSP
Philippines	MFN	MFN	MFN	MFN	MFN > ASEAN	MFN > ASEAN	MFN		MFN	MFN > ASEAN	MFN	MFN > ASEAN
South Korea [b]	MFN	MFN > BA	MFN	MFN > BA_GSTP	MFN > GSTP	MFN > GSTP	MFN	MFN > GSTP		MFN > GSTP	MFN	MFN > GSTP
Thailand	MFN	MFN	MFN	MFN	ASEAN	ASEAN	MFN	ASEAN	MFN		MFN	ASEAN
United States	MFN > AUS	GSP	MFN	GSP	GSP	MFN	MFN	GSP	MFN	GSP		GSP
Vietnam [b]	MFN > AUS	MFN > CHI	MFN > EU	MFN	ASEAN	ASEAN	MFN	ASEAN	MFN	ASEAN	MFN > USA	

Source: TRAINS (2005)

[a] 2005 is most recent year with tariff data; [b] 2001 data not available, 2002 data used instead. Note if there is only one trade regime mentioned this one applies in both 2001 and 2006, a ">" indicates a shift in trade regime between 2001 and 2006.

MFN= Most Favoured Nation; GSP= General System of Preferences; IND_GSP= preferential rates for some products of Indonesia, for others GSP applies; GSTP = General System of Trade Preferences; BA_GSTP = for some products the Bangkok agreements applies, for others the GSTP; THA_GTSP: preferential rates for some products from Thailand, GTSP applies to others; ASEAN = Association of Southeast Asian Nations; BA= Bangkok agreement; EU= preferential rates for some products from EU; AUS = preferential rates for some products from Australia; CHI = preferential rates for some products from China; USA = preferential rates for some products from United States; MAL = preferential rates for some products from Malaysia; THA = preferential rates for some products from Thailand; NZL = preferential rates for some products from New Zealand; IND = preferential rates for some products from Indonesia; PHI = preferential rates for some products from Philippines; VIE = preferential rates for some products from Vietnam.

2006 (Thailand six and Indonesia four) are not among those giving most preference.

In fact Thailand does not engage in any additional preferential treatment between 2001 and 2006 while Indonesia only does so for China. In terms of the number of preferential agreements we, thus, find limited reciprocity in trade preferences and most agreements initiated by the wealthier Asian economies.

The number of agreements does not give any indication of the depth of the preferences. In case of very limited coverage a preferential trade agreement can be meaningless in terms of providing market access[14].

In determining the relevant tariffs the exceptions that are applied in some cases have not been taken into account. For example, in the case of EU imports from China, the GSP system applies with a list of exceptions specific for China (which mainly deal with manufactured goods and textiles). Accounting for these exceptions would imply a detailed study of each agreement to assess which tariff lines are (partially) excluded from the general tariff scheme. Such an effort is beyond the scope of this study.

When establishing the relevant tariff the situation of multiple regimes applying to a single trade flow has to be considered. For example, in the case of Indian imports from South Korea both the Bangkok Agreement and the General System of Trade Preferences (GSTP) applies. When assigning the appropriate regime at tariff line level then the agreement with the lowest tariffs is analysed, assuming that this agreement would be used for imports when possible. In this example, first it is checked if at tariff line level the Bangkok agreement applies. If so this tariff is assigned, if not it is checked whether the GTSP applies. If so the GTSP tariff is assigned to this tariff line. If neither the Bangkok Agreement nor the GTSP regime apply at tariff line level then the MFN tariff is applied.

The data indicate that apart from the MFN tariffs, most trade regimes cover only (a small) part of the tariff lines. This implies that imports from one country enter under a variety of tariff regimes, depending on the product being imported.

For a first idea of the impact of these different tariff regimes on the applied tariffs, tables 9 and 10 present the average agricultural tariffs between countries in 2001 and 2006. This average tariff is the unweighted average total tariff between country pairs for agricultural products (HS chapters 1 through 24), i.e. the sum of the ad-valorem and ad-valorem equivalent (AVE) of specific tariffs. For the latter we use the AVEs from the TRAINS database computed according to the UNCTAD method[15].

Comparing Table 9 and Table 10 is found a decline in tariffs in about all cases, reflected by a decrease in the average agricultural tariff from 19.6% to 15.5%. The overall tariff (computed over all HS chapters) declined from 11.0% to 7.6%. The decrease in agricultural tariffs in nominal terms is, thus, stronger than for all sectors. However, starting from a higher initial tariff, the relative increase in the agricultural market access lags behind the overall trend in declining tariffs.

There are two countries in our study where tariffs have increased, South Korea and Vietnam. In the case of Vietnam tariffs increase with a 1% point mainly for the high income countries (Australia, EU, New Zealand and the USA) and for India and South Korea. In the case of South

14 Given the focus on the agricultural sector therefore it is computed the average tariffs of HS chapter 1 through 24 in 2001 and 2006.

15 A three-step method for estimating unit values: (1) from tariff line import statistics of the market country available in TRAINS; then (if (1) is not available) (2) from the HS 6-digit import statistics of the market country from COMTRADE; then (if (1) and (2) are not available) (3) from the HS 6-digit import statistics of all OECD countries. Once a unit value is estimated, then it is used for all types of rates (MFN, preferential rates, etc.).

Table 9. Average agricultural tariffs by country pair (rows are the partner levying tariffs on countries in columns)

	Australia	China	EU	India	Indonesia	Malaysia	New Zealand	Philippines	South Korea	Thailand	United States	Vietnam
Australia		1.2	1.2	1.2	1.2	1.2	1.1	1.2	1.2	1.2	1.2	1.2
China	24.8		24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8	24.8
EU	29.5	27.3		27.3	27.3	29.5	29.5	27.3	29.5	27.3	29.5	27.3
India	41.7	41.7	41.7		41.7	41.7	41.7	41.7	41.7	41.7	41.7	41.7
Indonesia	8.2	8.2	8.2	8.2		7.7	8.2	7.7	8.2	7.7	8.2	7.7
Malaysia [a]	3.8	3.8	3.8	3.8	1.5		3.8	1.5	3.8	1.5	3.8	1.5
New Zealand [b]	15.8	15.9	16.9	15.9	15.9	16.9		15.9	16.9	16.9	16.9	15.9
Philippines	11.1	11.1	11.1	11.1	11.1	11.1	11.1		11.1	11.1	11.1	11.1
South Korea [c]	46.9	46.9	46.9	46.9	46.9	46.9	46.9	46.9		46.9	46.9	46.9
Thailand	28.5	28.5	28.5	28.5	6.2	6.2	28.5	6.2	28.5		28.5	6.2
United States	8.6	6.5	8.6	6.5	6.5	8.6	8.6	6.5	8.6	6.5		6.5
Vietnam [d]	26.5	26.5	26.5	26.5	17.2	17.2	26.5	17.2	26.5	17.2	26.5	

Source: TRAINS (2001). [a] only 1996 data on AVEs available; [b] 2001 data not available, 2002 data used instead; [c] 2002 data for ad valorem tariffs, 1999 data for AVE; [d] 2002 data used.

Table 10. Average agricultural tariffs by country pair (rows are the partner levying tariffs on countries in columns)

	Australia	China	EU	India	Indonesia	Malaysia	New Zealand	Philippines	South Korea	Thailand	United States	Vietnam
Australia		1.1	1.1	1.1	1.1	1.1	0.2	1.1	1.1	0.2	0.2	1.1
China	15.0		15.0	14.7	7.7	7.6	15.0	10.5	14.7	6.8	15.0	8.9
EU	14.0	9.3		9.3	9.3	14.0	14.0	9.3	14.0	9.3	14.0	9.3
India	38.0	37.9	38.0		37.9	37.9	38.0	37.9	34.3	37.4	38.0	37.9
Indonesia	8.0	5.6	8.0	8.0		3.7	8.0	3.7	8.0	3.7	8.0	3.7
Malaysia [a]	2.4	2.4	2.4	2.4	1.5		2.4	1.5	2.4	1.5	2.4	1.5
New Zealand	11.8	13.0	13.1	13.0	13.0	13.1		13.0	13.1	11.5	13.1	13.0
Philippines	10.0	10.0	10.0	10.0	3.3	3.3	10.0		10.0	3.3	10.0	3.3
South Korea [b]	48.9	48.5	48.9	48.5	48.9	48.9	48.9	48.9		48.9	48.9	48.9
Thailand	25.1	25.1	25.1	25.1	6.0	6.0	25.1	6.0	25.1		25.1	6.0
United States	4.2	5.4	8.1	5.4	5.4	8.1	8.1	5.4	8.1	5.4		5.4
Vietnam	27.4	20.4	27.4	27.4	7.5	7.5	27.4	7.5	27.4	7.5	27.4	

Source: TRAINS (2005). [a] only 1996 data on AVEs available; [b] 2004 AVE data.

Korea there is an average increase in tariffs of between 1.7% and 2% affecting all its trade partners showing in Table 10. Since South Korea applies specific tariffs (which Vietnam does not) this increase could be caused by a decrease in the reference prices used to compute the AVE of specific tariffs. Closer examination of the data reveals that this is not the case. In the majority of cases (three out of four) the increase in total tariff is due to an increase in ad valorem rates. South Korea, thus, seems to deviate from the overall trend of declining tariffs between 2001 and 2006.

The change in average tariffs combined with the change in trade regime provides information on the extent to which preferential trade agreements reduce tariffs further than the overall decrease already occurring. One can observe an average decrease in tariffs of 5.2% points for bilateral pairs with a change in regime, and an average decrease of 3.2% for pairs with no regime change. Preferential trade agreements, thus, lower the average agricultural tariff with an additional 2%. Compared to an initial average tariff of 19.6% in 2001 this difference is significant.

Comparing 2001 and 2006, the average tariff rate decreases on overall tariffs, i.e. for all HS chapters including non-agricultural sectors. A decrease of 5.9% points with regime changes and 2.4% with no regime change is observed. This indicates that with preferential trade regimes tariffs decline more in manufacturing than in agriculture (5.4 for only agriculture, 5.9 for all sectors) but the difference is limited. In case of no preferential regimes it is found that tariffs decline more in agriculture than in manufacturing (3.6 for only agriculture, 2.4 for all sectors). This indicates that (i) multilateral tariffs on agriculture have decreased more between 2001 and 2006 than for manufacturing and (ii) that a preferential trade agreement leads to a stronger preference margin for manufacturing than for agriculture.

The average tariffs in Table 10 obscure the variation in tariffs between products. It may well be that tariffs are increased only for some specific products, indicating sensitivity of some Korean and Vietnamese domestics producers to imports. This is assessed by analyzing for which (PEATSim) products Vietnam and South Korea have increased tariffs between 2001 and 2006.

For Korea, 135 6-digit HS codes show that tariffs are increased. The majority of these tariff lines (91), however, are in manufacturing (HS chapters 25 and up) and involves only a minor average increase in tariffs (4.6%). This average increase in manufacturing tariffs is, however, from a low initial average tariff (2.4%) and obscures some peaks in tariff increases (in % points): medicaments (8), electronic equipment (8), engine parts (8), transport vehicles (10) from a zero tariff in 2001.

The remaining 44 6-digit HS codes with an increase in tariffs in 2006 are in agriculture (HS chapter 1 through 24). The annex contains a list of products and their tariffs. Analyzing the agricultural tariffs there are no differences between trade regimes in terms of tariff increases. Although South Korea has engaged in several preferential agreements between 2001 and 2006 (see Table 8) apparently sensitive agricultural products were not covered by these agreements. On average the tariffs on the sensitive agricultural products increased by 53% from 66% to 119%. Table 9 and Table 10 indicate average tariffs of 47% and 49% for 2001 and 2006, respectively. The products experiencing a tariff increase thus already had an above average tariff. The averages get smooth very high peaks in tariff increases (in % points): soya beans (476), sweet potatoes (378), ginger (369), barley (304), fresh onions (133) and dried onions (132). In all these cases there is a very small decline in the (high) ad valorem tariffs between 2001 and 2006. The dramatic increase is entirely due to an apparent introduction of specific tariffs which amount to a similar protection in AVE as the ad valorem tariffs (the AVE database for Korea for 1999 indicates AVEs only for manufacturing products in HS chapter 37). For the other agricultural products

where tariffs increase less dramatically only ad valorem tariffs apply in 2001 and 2006.

Turning to Vietnam again the majority of products have increased tariffs between 2001 and 2006 in manufacturing. Again the average increase in manufacturing tariffs is modest (3.6% points) from an initially low average tariff (8.3%). Several clear tariff peaks can be observed in the data (increase in % points): motor cycles (40), engines (32), chemical products (30), steel (22), and refrigerators (21). In the case of steel and refrigerators the initial tariffs is very low (1% and 3%) making the relative increase in tariffs even higher. Compared with South Korea, Vietnam appears to use more targeted and higher increases to protect certain domestic producers.

In the case of Vietnam, Table 9 and Table 10 already indicate that for Vietnam, tariff increases are linked to specific trade regimes. In the case of China (preferential agreement) and ASEAN members (Indonesia, Malaysia, Philippines and Thailand) tariffs decrease between 2001 and 2006. Australia, the EU and the USA have preferential agreements but their average agricultural tariff is identical to the average MFN tariff of India, New Zealand and South Korea. This indicates that their preferential agreements do not cover agricultural products (at least not to such an extent that it shows in the average tariff).

ASEAN countries enjoy the most preferential treatment. Of the 57 products with a tariff increase 29 have a decrease for ASEAN countries. For these products the preference margin for ASEAN countries, thus, increases even further than suggested by the bilateral decrease in tariffs on trade flows with ASEAN members. China also enjoys a lowering of tariffs for four of these 29 products favouring ASEAN. For Vietnam the largest price increases for non-ASEAN countries are (in % points): husked rice (33), sausages (25), maize (23), cereal flakes (20) and bread (20). Although appearing rather modest compared with the tariff increases in South Korea, these increases are significant with an average agricultural tariff of 26.5% in 2001.

4.3 Relative tariffs

Vietnam provides an indication of the importance of relative tariffs to assess market access. This section focuses on assessing the tariffs faced by the EU in the Asian markets to the other Asian countries as well as relative to its main competitors. The focus is on the relative tariffs in 2006 which are also used as the starting point of the PEATSim analysis. Whereas so far simple average tariffs have been considered, in this section weighted average tariffs have been using the values of trade flows in 2005[16] as weights for PEATsim products. Similar data are used in the PEATSim model.

Existing trade barriers affect trade flows and may bias an assessment based on weighted tariffs. Similarly an analysis based on simple averages may give too much weight to high tariffs on economically insignificant products. Table 11 presents the trade-weighted tariffs computed over tariff lines linked to PEATSim products with in brackets the difference with a simple average over the same tariff lines[17]. South Korea is known for its high agricultural tariffs which can be expected to reduce trade flows. This is the case for most countries reflected by the trade weighted tariffs being significantly lower than simple average tariffs. Exceptions are China and the United States. Their exports to South Korea appear to be mostly for products with high tariff barriers, resulting in a trade weighted tariff which is much higher than the simple average tariff (329 % points for China, 210 for the United States).

16 We use values of trade flows from the BACI dataset for 2005 to aggregate. For more information on the BACI dataset see www.cepii.org.

17 Tariffs in this section are computed from tariff lines linked to PEATSim products and may, therefore, differ tariffs in the previous section computed over all tariffs in HS chapters 1hrough to chapter 24.

Table 11. Average trade-weighted tariffs on PEATSim products by country pair (rows are the partner levying tariffs on countries in columns) in brackets the difference with unweighted tariffs

	Australia	China	EU27	India	Indonesia	Malaysia	New Zealand	Philippines	South Korea	Thailand	United States	Vietnam
Australia	0 (0)	2.7 (1.3)	5.4 (4)	0.4 (-1.1)	1.6 (0.2)	0.8 (-0.7)	12.9 (12)	1 (-0.4)	1.7 (0.2)	0 (-0.9)	0.1 (-0.8)	1.2 (-0.2)
China	35.1 (17.8)	0 (0)	19.9 (2.7)	30.4 (13.2)	6.5 (-0.4)	8.3 (1.4)	10.4 (-6.9)	0.1 (-12.9)	48.1 (30.9)	52.4 (45.7)	16.5 (-0.7)	49.7 (41.4)
EU27	11.9 (-0.3)	2.8 (-8.4)	0 (0)	10.3 (-0.9)	1.4 (-9.8)	5.4 (-6.8)	11.4 (-0.8)	2 (-9.2)	5.7 (-6.5)	23.7 (12.5)	7.7 (-4.5)	16.5 (5.3)
India	45.3 (1.6)	93.9 (50.2)	39.8 (-3.9)	0 (0)	99.9 (56.2)	99.7 (56)	30 (-13.7)	97 (53.3)	72 (28.6)	77.3 (34.8)	22.6 (-21.2)	10 (-33.7)
Indonesia	2.4 (-1.7)	0.2 (-0.5)	3.1 (-1)	1.3 (-2.8)	0 (0)	0 (0)	4.9 (0.8)	0 (0)	0.2 (-3.9)	0 (0)	0.6 (-3.5)	0 (0)
Malaysia [a)]	0.3 (-2.1)	0.8 (-1.5)	0.6 (-1.7)	1.1 (-1.3)	0.2 (-1.6)	0 (0)	0.8 (-1.6)	0.1 (-1.7)	0.6 (-1.8)	20.8 (19)	0.4 (-1.9)	36.4 (34.6)
New Zealand	10.1 (7.9)	36.9 (33.7)	6.8 (3.4)	0 (-3.2)	3.7 (0.5)	0.7 (-2.7)	0 (0)	0.1 (-3.1)	174.9 (171.5)	0.1 (-2.2)	1.5 (-1.9)	0 (-3.2)
Philippines	6.1 (-9.2)	14.6 (-0.8)	7.5 (-7.9)	7.7 (-7.7)	6.8 (-0.5)	5.2 (-2.1)	2.1 (-13.2)	0 (0)	33.6 (18.3)	22.1 (14.8)	5.1 (-10.3)	49.8 (42.5)
South Korea	31.2 (-27.2)	387.7 (329.2)	22 (-36.4)	4 (-54.4)	6 (-52.5)	2.4 (-56)	41.6 (-16.8)	24.2 (-34.2)	0 (0)	9.4 (-49)	268.5 (210.1)	14.6 (-43.8)
Thailand	4 (-24.5)	33.7 (5.1)	9 (-19.6)	5.6 (-23)	2.8 (-4.5)	10.2 (2.9)	8 (-20.6)	0.6 (-6.8)	33.4 (4.8)	0 (0)	6.5 (-22.1)	23.6 (16.3)
United States	3 (-4.2)	2.1 (-7.4)	16 (2.6)	3.6 (-6)	0.9 (-8.7)	0 (-13.3)	16.5 (3.1)	5.4 (-4.2)	45.7 (32.4)	3.5 (-6)	0 (0)	16.3 (6.7)
Vietnam	9 (-13.4)	14.2 (0.1)	18.8 (-3.6)	1.6 (-20.8)	6 (-2.6)	9 (0.4)	17.3 (-5.1)	10.8 (2.3)	10 (-12.4)	16.3 (7.8)	10.7 (-11.6)	0 (0)

Note: the difference with unweighed average tariffs is computed as weighed – unweighed. A negative difference implies less trade in more protected products, a positive number implies relatively more trade in products with high tariffs.

Vietnam has a preferential treatment with ASEAN trade partners. Focussing on PEATSIm products and using weighted tariffs these differences are not so clear anymore. For example, the weighted tariff of Thailand (16.3%) is higher than for Australia (9.0%). This is at least partly caused by Thailand exporting more products with higher tariffs (its weighted tariffs are higher than the unweighted ones), while Australia exports products with higher tariffs. These results indicate that care should be taken when interpreting results from models using trade weighted tariffs: the relative differences in tariffs used in the model may be less than suggested by the tariff data at more detailed level. As a result the impact of a liberalization scenario may also be underestimated.

The remainder of this section focuses on the tariffs for groups of PEATSim products similar to the discussion of simulation results for PEATSim (i.e. for crops, fruit and vegetables, livestock and processed products). The annex contains an overview of the bilateral tariffs by PEATSim product.

Table 12 presents the trade weighted tariffs imposed on crops (an aggregation of tariffs on barley, cottonseed, maize, other coarse grains, peanuts, rapeseed, rice, soybeans, sunflower seed and wheat). As before the countries in the rows impose the tariffs on products originating from the countries in the columns. Moving along the row of the EU a wide variety in tariffs which is mostly due to differences in traded products is noticed. According to Table 8 the EU imposes GSP tariffs on all Asian countries, with the exception of a MFN regime applying to Malaysia. The trade weighted tariff on imports originating in Malaysia is 0.1%, while crop imports from Thailand (with a GSP regime) have an average tariff of 30.4% (the highest tariff on crops imposed by the EU in Table 12). Apparently Thailand exports rather competitive products to the EU despite considerable tariffs. The effective tariffs by PEATSim product (see Annex of Tables, Table I to Table P) indicate these high relative tariffs originate from exports of several types of grains (barley, maize, rice and wheat).

Table 12 indicates also a potential benefit for the EU under a RTA with ASEAN countries. For crops the EU faces considerable tariffs in the Philippines (20.7%) and Thailand (22.2%), which is higher than the weighted tariffs for Australia (14.5 and 2.3%) and United States (6.6 and 12.0%). Since both the Philippines and Thailand apply MFN tariffs to EU, Australia and the United States, the EU is apparently exporting rather competitive crops despite relatively high trade barriers. Lowering the barriers can then be expected to yield significant benefits, which is reflected by a considerable increase in exports of crops from EU to ASEAN countries under a RTA regime. Looking again at tariffs by product in the Annex of Tables (Table I to Table P) the high tariffs for export to Thailand appear in barley, sunflower seed and peanuts. For the Philippines high tariffs for peanuts and rice are applied. These two crops are generally not considered crops in which the EU would specialize. Their contribution to the high tariff for the EU in the Philippines is due to very limited exports of EU giving undue weight to peanuts and rice in the trade weighted tariff.

Analysing trade in crops between South Korea and the EU (Table N in the Annex of Tables) shows much higher tariffs faced by Korea (21.6%) than by European exports to Korea (2.5%). Assessing again tariffs by product, there are very high tariffs on most imports from the EU to South Korea, except for wheat (2%). Exports of wheat thus dominate the trade weighted average for crops as a group and hide potential gains of a RTA with South Korea. These gains do however appear in the PEATSim simulations where exports of the EU increase more than those of Korea.

For fruit and vegetables (Table B in the Annex of Tables) there are considerable tariffs both ways for trade between the EU and several ASEAN countries (the Philippines, Thailand and Vietnam) and more moderate tariffs on trade

Table 12. Trade-weighted tariff on crops by country pair (rows are the partner levying tariffs on countries in columns)

	Australia	China	EU27	India	Indonesia	Malaysia	New Zealand	Philippines	South Korea	Thailand	United States	Vietnam
Australia		3.9	0.6	0.1	4.8	2.6	0.0	4.9	0.2	0.0	0.0	0.3
China	34.1		32.4	21.0	13.6	65.0	19.4	20.0	16.7	65.0	5.1	65.0
EU27	14.3	1.1		12.9	8.9	0.1	12.0	10.2	21.6	30.4	8.6	13.8
India	11.4	30.0	69.2			43.9			30.0	58.5	53.1	
Indonesia	2.5	5.0	2.5	4.4		0.0		0.0	0.7	0.0	0.2	0.0
Malaysia	0.0	0.9	0.4	13.2	1.0		0.0	25.7	0.0	37.3	0.1	38.5
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Philippines	14.5	7.8	20.7	7.1	13.8	49.0			16.9	39.8	6.6	49.8
South Korea	39.5	414.6	2.5	120.2	7.0	316.1	46.5	11.7		5.1	440.1	3.0
Thailand	2.3	21.9	22.2	6.9	7.6	28.2	29.1	15.8			12.0	23.9
United States	0.9	1.4	3.6	2.8	4.4	26.0	2.9	5.1	5.6	2.9		5.3
Vietnam	2.5	18.6	2.9	5.4	6.3	0.9		3.0		2.6	4.5	

Note: empty cells indicate the absence of trade between the country pair.

with Indonesia and Malaysia (see Table B). The origins of high tariffs vary and appear to reflect the competitive advantage of countries: the EU imposes them on tropical fruits and the ASEAN countries on fresh vegetables.

The EU and India seem more unbalanced with bilateral trade barriers on fruit and vegetable trade: the EU levies 4.1% on imports from India while India levies 30.0% on imports from the EU. This high tariff on imports from the EU to India does not result in a strong expansion of vegetables and fruit in the PEATSim simulation since the relative gains to be had from crops, livestock and processed products are similar or even higher. A similar pattern holds for South Korea: tariffs imposed by Korea (52.6%) significantly exceed those levied by the EU (8.7%) but relative gains in other sectors from a RTA with South Korea are similar or even higher limiting the expansion of fruit and vegetable exports from the EU to South Korea in the PEATSim simulations.

In the case of trade in livestock with ASEAN countries the tariffs imposed by the EU are between 3.4% and 9.9%, whereas those faced by the EU are considerably higher for Philippines (31.6%), Thailand (32.1%) and Vietnam (21.5%), (see Annex of Tables, Table C). These high tariffs are imposed on all grouped livestock products: beef and veal, eggs, poultry meat, sheep and goat meat. This suggests potential for the EU to enlarge its exports of livestock products to ASEAN countries which is indeed found in the PEATSim simulation results. Trade in livestock products with India and South Korea shows a similar pattern: higher tariffs faced by the EU than it imposes on imports from these countries. Most notable is the tariff of 92.1% levied by India on imports of poultry meat from the EU (contrasting with a 3.4% tariff levied by the EU).

The final group of processed goods (Table D in the Annex of Tables) covers a wide variety of PEATSim products: butter, cheese, cotton, cottonseed meal, cottonseed oil, fluid milk, non-fat dry milk, olive oil, other dairy products, other tropical oils, palm oil, peanut meal, peanut oil, rapeseed meal, rapeseed oil, soybean meal, soybean oil, sugar, sunflowerseed meal, sunflowerseed oil, and whole dry milk. Within this rather heterogeneous group of products several patterns emerge from a close examination of tariffs by PEATSim product.

In the case of oil meal products (originating from cottonseed, peanut, rapeseed, soybean, or sunflower seed) there is limited international trade (i.e. many effective tariffs are zero due to absence of trade in 2005) and tariffs are generally low (less than 10%). Exceptions to this general pattern are tariffs levied by India on imports of rapeseed meal and soybean meal (30%) and by Thailand on soybean meal (40%). Trade in the different vegetable oil products is somewhat more frequent and higher tariffs are levied. India especially has high tariffs (100%) on vegetable oils. This is thus a clear case of tariff escalation with higher tariffs imposed on the more processed products. These high tariffs on oils are causing the high average tariffs in processed goods levied by India.

The group of processed products also contains several dairy products. Trade in these products is much more frequent than in vegetable oils and meals. Protection varies by country but in general especially India and South Korean levy significant tariffs on dairy products. In the case of South Korea the low tariffs on the vegetable meals and oils result in a relatively low tariff for processed good as a whole. The relatively high tariffs on dairy products do show the high tariffs in processed goods from New Zealand (45.7%). New Zealand also has a very high tariff on processed goods from China, the Philippines and South Korea caused by the exceptionally high tariff on other dairy products (up to 333.9%).

The general pattern for the EU is that it faces higher tariffs in the Asian markets for processed products than it levies on imports from these countries. The exception is for the three different dairy products (fluid, non-fat and whole dry milk)

for which the EU applies considerable import tariffs. Due to the relatively low tariffs on meals and oils average tariffs on processed products are rather low for the EU.

4.4 Analysis of sensitive commodities

For the analysis of sensitive products the focus is again on the EU, ASEAN countries, India and Korea. For each of these countries the 45 products with the highest aggregated tariff (ad valorem and AVE) have been selected and provided bilateral trade flows. Pairs with high tariffs and low trade flows could point to potentially sensitive products. However, there may also be other reasons for low trade flows, like a lack in competitiveness. An example seems to be Wine lees (HS code 230700) which ranks fourth in terms of tariffs (109%) and has zero imports from the Asian countries. At a first glance this seems to indicate a highly sensitive product (high tariff and no trade); while in fact it is due to the absence of a wine producing sector in the Asian countries.

Tables I to P (in the Annex) present products likely to be sensitive for each of the countries. In the case of the EU there are limited imports for highly protected products; some Asian countries still seem to be able to compete. A case in point is the import of vegetable waste used for feed (HS 230890) from Malaysia despite a tariff of 430%. In the case of India, Indonesia, Thailand and Vietnam (in tables J, K, O and P) top ranks are taken by alcoholic beverages (and cigarettes in the case of Vietnam). In India protection is also high for prepared food (HS 210690, 160%) and dried grapes (HS 080620, 105%). There are still considerable imports of prepared food, especially from the EU. Probably the high added value of these products keeps them competitive. Also in Indonesia prepared foods (HS 210690, 20%) are the only product with a high tariff apart from alcoholic beverages. For Vietnam (Table L in the annex) alcoholic beverages are followed by a set of processed meat products (HS chapter 16, 50% tariff). There are limited imports from the EU on these lines but none from the other Asian countries (except for poultry products from Thailand, 160239). These products thus appear to be sensitive from a Vietnamese perspective.

For Malaysia (Table L) rice products are at the top of the ranking, with relatively modest tariffs (40 % at maximum) compared to other countries. There are no imports of rice in the husk (HS 100610, 40%) despite Thailand exporting on this line to the EU, which seems to signal sensitiveness. A similar pattern of relatively low tariffs on rice products have been found also for the Philippines. Following rice products there are some processed products (pineapple juice and cocoa paste) where limited or no imports occur. Sugar (37%) follows rice with significant imports among others from the EU and meat (HS 02) with limited imports.

South Korea (Table N) stands out in terms of very high tariffs (ranging from 974% to 226% for the top 45 products). Top ranking are soybeans (HS 120100, 974%), cereals (HS 100890, 800%) and inulin (HS 110820, 800%). As could be expected with such tariffs there is limited trade in most products. Some exceptions are manioc (HS 071410, 747%) imports from Indonesia, Thailand and Vietnam and sesame seeds (HS 120740, 630%) from India. These exceptions are not due to preferential treatment, tariffs on these flows are as high as for the other countries.

Thailand (Table O) has an exceptionally high tariff on ethyl alcohol (220710, 239%). There are limited imports on most products in the top ranks but given the relatively low tariffs this seems due to the focus on Asian countries and the EU. For example for Maize (100590, 47%) there are only limited imports from India. Imports from the United States, however, are considerable (1075 million US$). Apart from alcohol there are no products standing out in terms of sensitivity for Thailand.

5 Quantitative approach

5.1 Structure of the quantitative models applied

5.1.1 Short outline of PEATSim model

The PEATSim model[18] is a multi-country, multi-commodity partial equilibrium model of global agricultural trade. It was developed through a collaborative project involving the Pennsylvania State University (US) and the Economic Research Service (ERS) of the US Department of Agriculture. The PEATSim model has previously been used to analyze a number of agricultural trade and policy reform scenarios, including the EU, US and G20 proposals at the WTO negotiations, global agricultural trade liberalization in all commodities, trade liberalization in global dairy markets, trade liberalization in coarse grain markets, agricultural policy reform in the EU, and agricultural policy reform in Japan.

The basic version of the PEATSim model covers twelve countries/regions: Argentina, Australia, Brazil, Canada, China, the European Union (EU25), Japan, Mexico, New Zealand, South Korea, the United States and an aggregate for the Rest Of the World (ROW). The model is structured such that altering the countries and regions in the model is very straightforward. For this study, the EU25 is replaced with the EU27 and the following additional countries are broken out of the ROW aggregate: India, Vietnam, the Philippines, Thailand, Malaysia and Indonesia.

The basic version of the model includes 35 commodities: 13 crops (rice, wheat, maize, other coarse grains, soybeans, sunflower seed, rapeseed, peanuts, cotton [fibre and oilseed], other oilseeds, tropical oils, and sugar); 12 oilseed products (soybean oil and meals, sunflower seed oil and meal, rapeseed oil and meal, cottonseed oil and meal, peanut oil and meal, other oilseed oil and meal); 3 meats (beef and veal, pork, and poultry); raw milk and 6 processed dairy products (fluid milk, butter, cheese, nonfat dry milk, whole dry milk, and other dairy products. The 'other coarse grains' aggregate is primarily barley, sorghum, millet and oats. The 'other oilseeds' aggregate includes canola, flaxseed and others. 'Tropical oils' include olive oil, palm oil, coconut oil, and others. The 'other dairy products' aggregate includes ice cream, yogurt, whey, and other miscellaneous dairy products. For this study PEATSim has been extended for fruits and vegetables (as two aggregates).

PEATSim is a gross trade model that accounts for total exports and total imports of each commodity in every region. For this study Armington[19] equations are added to the model to capture bilateral trade between the EU and the seven Asian countries (India, South Korea, Vietnam, Philippines, Thailand, Malaysia and Indonesia).

A wide range of policies is incorporated into the model. The core set of policies for all countries includes both specific and ad valorem import tariffs, tariff-rate quotas (TRQs), and producer and consumer subsidies. Export subsidies are implicit in the model in that products having intervention or other support prices requiring government purchases must have some mechanism for disposal of government stocks through subsidized sales

18 The model can be downloaded from the PEATSim website (http://trade.aers.psu.edu/).

19 The main problem in the Armington specification is due to the difficulties in detecting changes in trade flows when the initial situation has small or close to zero trade shares. In general the small shares of trade between two areas tends to stay small and do not change when the initial value is zero trade.

abroad. The model uses applied tariff rates rather than WTO bound rates, recognizing that bound rates significantly exceed applied rates in many cases.

The model also includes the specification of additional policies that constitute important aspects of agricultural policy in particular countries. Policy coverage for the EU is particularly extensive. The model includes intervention prices, variable import levies, compensatory payments, acreage set-asides, base area bounds, and production quotas for raw milk and sugar. In the case of the US, the model includes loan rates with marketing loan benefits for crops, counter-cyclical payments, and also marketing orders and export subsidies for dairy products. For Japan, the model includes both tariffs and "mark-ups" such as for rice, wheat, and sugar. For Japan and South Korea, the model includes schemes which partially compensate producers for declines in producer prices relative to a reference price.

The model is a reduced-form economic model in which the behaviour of producers, consumers, and other economic agents is represented by elasticities and other model parameters. The behavioural equations in the model are largely constant-elasticity in nature. Constant-elasticity functions were selected because of their ease of interpretation and well-behaved properties (provided the elasticities are chosen appropriately). The structure of the behavioural equations is the same for all countries in the model. The parameters of the equations and the values of variables in these equations vary from one country to another.

A number of restrictions were imposed on the model's elasticities to ensure that requirements of economic theory are satisfied at the baseline values for the data. These requirements include symmetry and homogeneity in output supply equations, land demand equations (crop production), feed demand equations (livestock production), and consumer food demand equations.

The model includes five types of consumption activities: food/consumer demand, feed demand, crush demand, dairy processing demand, and other use demand (which includes biofuels, seed use, and waste).

5.1.2 Short outline of LEITAP model

For this study, the PE model PEATSim and the multi-regional general equilibrium model LEITAP have been combined. This approach combines the individual strengths of the two types of models, i.e. the scope for a very detailed analysis of agricultural policy instruments in a multi-country, multi-commodity PE framework, and interaction of the agricultural sector with the economy as a whole and the strong path dependency of economic equilibria in transition economies modelled in a GE model. A similar approach has been applied in the Scenar 2020 project (Nowicki et al., 2007) and the study 'Agriculture in the Overall Economy' (Banse and Grethe, 2007).

LEITAP is a global computable general equilibrium model that covers the whole economy including factor markets and is often used in WTO analyses (Francois et al., 2005) and CAP analyses (Meijl and van Tongeren, 2002). More specifically, LEITAP is a modified version of the global general equilibrium model GTAP (Global Trade Analysis Project). The model, and its underlying database, describes production, use and international trade flows of commodities, services and inputs between regions of the world. Assumptions about population growth, technological progress, and policy framework are the main drivers of the model's results. Based on such assumptions, the model determines production, use and trade flows as a result of market clearing on all commodity and input markets in all countries/regions of the world. Agricultural policies are treated explicitly (e.g. production quotas, intervention prices, tariff rate quotas, (de)coupled payments). Information is used from the OECD's Policy Evaluation Model (PEM) to improve the production structure

(Keeney and Hertel, 2005). Furthermore, a new land allocation method that takes into account the variation of substitutability between different types of land (Huang et al., 2004), as well as a new land supply curve, are introduced (Meijl et al., 2006; Eickhout et al., 2006).

5.1.3 Description of model linkages

The supply equations in the model include shifters to account for changes in input costs. Results from the LEITAP model on changes in factor prices (capital, labor and intermediate inputs) in the EU and Asian countries are incorporated as supply shifters in the PEATSim model scenarios. The food demand equations in the model include shifters to account for changes in national income. Results from the LEITAP model on changes in national income in the EU and Asian countries are incorporated as food demand shifters in PEATSim .

Adjustment lags are reflected in the model through a Nerlovian-type partial adjustment specification of supply functions. Phased changes in trade policy can be introduced and their impact tracked out to whatever year is desired. Known changes in future policy, such as those required by the Midterm Review in the EU, are incorporated into the model's baseline.

5.2 Model Specification

5.2.1 Assumptions and limitations of the approach

Both models have been applied independently from each other. No close formal link between both models has been implemented. This allows making full use of the strengths of both model types. The drawback of this approach, however, is that model results differ between PEATSim and LEITAP, even applying similar policy shocks. This non-convergence can be explained by fundamental differences in terms of coverage of markets, functional forms of behavioural functions. The adjustment of some elasticities, e.g. the CES trade elasticities and CET elasticities of factor allocation could bring LEITAP results closer to PEATSim results.

Full convergence of model results could only be achieved by running both models iteratively and mapping the vector of relative price changes from one model to the other and the vector of relative supply quantity changes in the opposite direction.[20]

The relevance of the macro-economic impact of RTAs cannot be answered in advance and depend on the factor re-allocation as a consequence of changes in production pattern after implementation of full (or limited) market access to trading partners. The meaningfulness of the elaborate model linking is discussed at the end of the next section.

5.2.2 Driving factors behind the Baseline

The PEATSim model baseline incorporates growth over time in crop and livestock productivity, population and per capita income in each region, changes in real exchange rates, and growth in demand for certain products due to biofuels policies. Trade and domestic agricultural policies are generally assumed to be fixed with the exception of policy reforms already announced, as discussed below. This baseline does not include assumptions about a possible agreement in the framework of the Doha Development Round.

Projections of future growth in crop and livestock productivity are derived from FAOSTAT global data on crop and livestock yields for 1980-2006. The model projections assume that future growth rates in yields for all regions in the model are the same and are constant across years. The

20 A full integrated approach of a PE model for dairy products and a GE model is presented in Grant et al. (2006). Jansson et al. (2008) present a full integration of the partial equilibrium model CAPRI with a GE model.

product with the highest growth rate is peanuts (2.4%/year), followed by palm oil (2.2%/year) and rapeseed (1.8%/year). The products with the lowest growth rate (no growth at all in yields) are other coarse grains and sunflower seed. In general productivity growth rates are greater for crops than for livestock.

Projections of future growth by region in population and per capita income are taken from the US Department of Agriculture's baseline projections model. Population growth rates in all regions decline over time. The population growth rate in the EU is assumed to be 0.1% in 2007, declining to -0.03% in 2017. Per capita income growth rates vary by region and year but all are positive. In the EU the per capita income growth rate ranges from 2.2% (in 2010, 2011 and 2012) to 2.6% (in 2007), with a value of 2.24% in 2017. In China and India, per capita income growth rates are projected to slow over time, in the case of China from about 10% in 2007 to 7.6% in 2017 and in the case of India from 7.2% in 2007 to 6.0% in 2017. Per capita income in the US is projected to rise from 1.1% in 2007 to slightly more than 2%/year during 2010-17.

Projections of future changes by region in real exchange rates are also taken from the US Department of Agriculture's baseline projections model. The Euro-US Dollar exchange rate is assumed to exhibit a U-shaped pattern over time, starting at 0.77 €/USD in 2007, declining to 0.74 €/USD in 2008, and then rising gradually to 0.85 €/USD in 2017. The currencies of other regions generally strengthen over time relative to both the Euro and the US Dollar. The exceptions are South Korea and the Rest of ASEAN region. The South Korean won shows only small movement over time relative to either the Euro or the US Dollar, and the currency index for the Rest of ASEAN declines relative to both the Euro and the US Dollar.

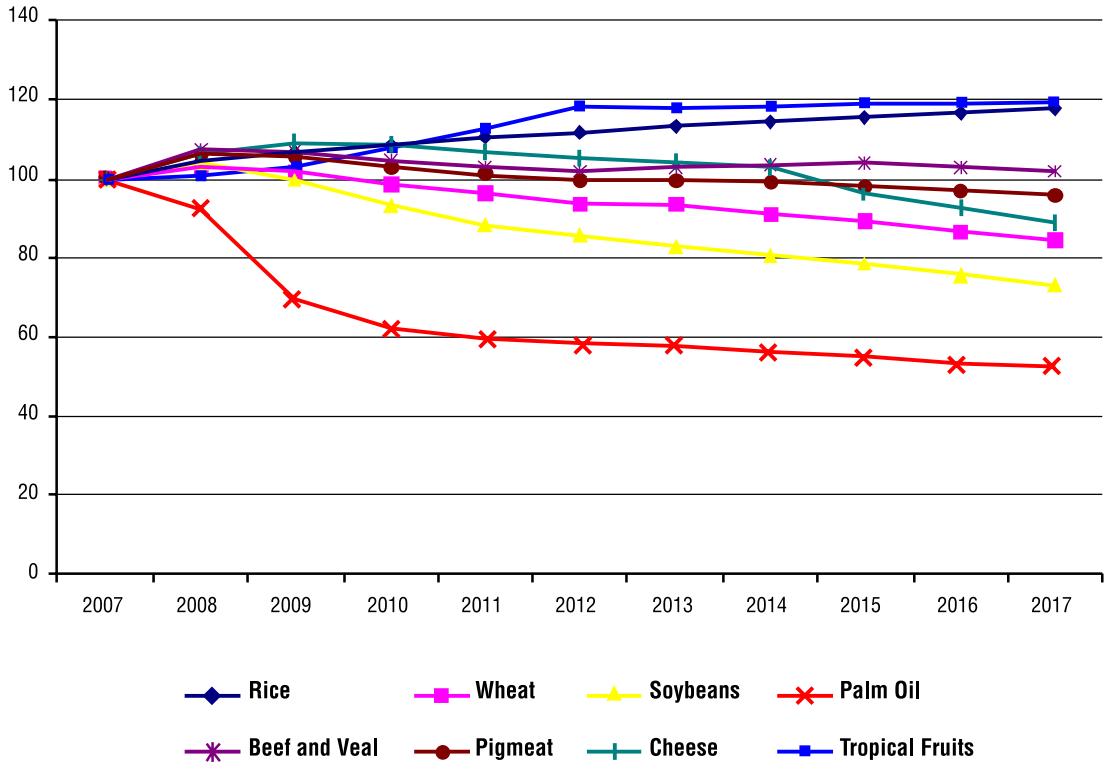
Food, seed and industrial demand in the model includes a term that reflects exogenous growth in demand due to biofuels policies such as subsidies and blending requirements. This exogenous growth term is applied to wheat and rapeseed in the EU, maize and soybeans in the US and sugar in the Rest Of the World (ROW). The growth rates are based on growth in demand for these commodities as biofuels feedstock during 2003-2007.

Trade and domestic agricultural policies are generally assumed to be fixed over time, with some exceptions. EU market aids are assumed to be cut by 10% per year during the model's projection period, with the savings spent on higher decoupled support. In this way spending on market aids is gradually reduced over time while total spending (market aids plus decoupled support) remains constant. The EU decoupled sugar payment is assumed to rise 20% annually during 2007-2009 and then remain constant thereafter. It currently appears that the EU's raw milk quota will be gradually increased over time and then eliminated entirely in 2015. In the model the raw milk quota is held constant for 2007, increased by 2% in 2008, and by 2.5% annually from 2009 to 2014 and then abolished in 2015.

In the case of Vietnam, a recently acceded (2007) WTO member, the model's baseline incorporates reductions in its MFN bound tariffs over time according to its accession schedule. Some cuts in bound tariffs became effective immediately while others are on timelines ranging to 2014. For the US the policy parameters established in the 2002 US Farm Bill are assumed to remain in effect during the model's entire projection period, as no agreement on a new farm bill had been reached at the time the model runs were carried out.

World prices for palm oil, peanuts, rapeseed, soybeans and sunflower seeds decline significantly during the 2007-17 period, (see Figure 5). Except for sunflower seeds, which is due to relatively rapid productivity growth for those commodities that outstrip growth in demand. In the case of

Figure 5. Development of selected world prices of agri-food products under the baseline scenario



Source: PEATsim results (2007-17, 2007 = 100, real prices)

sunflower seed, even though it has no productivity growth its price is pulled down by the prices of rapeseed and soybeans, two substitutes oilseed oil and meal demand. Even with these price declines, it is worth bearing in mind that world prices of these commodities in 2017 would still lay well within recent values. For example, the world price of palm oil in 2017 would still exceed its price in 2000 and 2001, and the world price of soybeans in 2017 would be greater than its price during most of the 1997-2006 decade.

World prices of many products –including barley, butter, cheese, cotton, cottonseed, eggs, maize, other coarse grains, pork, poultry meat, skimmed milk powder, wheat and whole milk powder– initially rise during the 2007-17 period but then decline below their 2007 values. The explanation for these results lies in the fact that productivity growth is constant across the years whereas growth in demand due to population and per capita income growth varies from one year to another. Initially, growth in demand outruns productivity growth. However, population growth rates in all regions slow down over time and per capita income growth rates in China and India are projected to decline over time. As this happens, productivity growth outstrips demand growth and world prices decline.

Figure 5 illustrates the relative development of world prices under the baseline scenario which assumes a continuation of current policies in all regions presented in PEATSim[21]. World prices of some products such as rice, fresh vegetables, citrus (fresh) and other tropical fresh fruits generally rise during the 2007-17 period. Fresh vegetables, citrus and other tropical fresh fruits are products with relatively low rates of productivity growth and relatively high income

21 Due to the fact that policies remain constant the relative development of prices at national or regional level are similar.

elasticities of demand. The greatest growth in prices for these products occurs during 2007-12, with smaller growth during 2013-17. This reflects the slowing population growth rates over time and declining per capita income growth rates in China and India.

For rice, the rate of productivity growth is higher than for fresh vegetables, citrus (fresh) and other tropical fresh fruits and income elasticities of demand are lower. Nonetheless, the price of rice is pushed up by demand growth in China and India. This demand growth is smaller in percentage terms than demand growth for some other products but is quite significant in absolute terms given that China and India are the two largest markets in the world for rice.

5.3 Trade liberalization scenarios

This section explores the scope of a trade agreement between the EU and Asian countries. It provides some first detailed ideas for FTA scenarios to be run with the partial equilibrium model PEATSIM (shallow or deep integration, degree of liberalization of agriculture) in the third part of the study.

A potential EU-ASEAN FTA will probably include a list of sensitive products, in case agricultural trade is liberalized. Some lower-income members of ASEAN benefit from a FTA if sensitive products are exempted (CEPII – CIREM, 2007a). Agricultural exporters such as Indonesia, Malaysia and Thailand may have offensive interests in certain products (e.g. rice and palm oil), while the EU have offensive interests with respect to processed products.

In the case of the EU-India a FTA does not provide much leverage for agricultural trade liberalization since agriculture plays a marginal role in India's bilateral and regional agreements and is invariably excluded in most cases. The Doha negotiations on agriculture therefore present the primary platform for India to pursue its agricultural liberalization objectives. As far as agriculture is concerned, India has strong defensive interests in an arrangement with the EU. The offensive interests relate to improving the access for export products to the EU market, reducing input costs for export industries in parallel with improved access to high-quality input. This transfer of technology is intertwined with an agenda for direct investment into India. According to CARIS/CUTS International (2007) 'agricultural liberalization is unlikely to be a major demand from either party […] and that exclusion of sensitive products on either side is likely to be manageable within the almost all trade criterion of the WTO'.

In the EU-South Korea FTA agriculture does not play a very prominent role, but at the same time it is not regarded as one of the most sensitive sectors (as it is for ASEAN and India). The main reason is that the EU is not a major rice exporter and is therefore not concerned about South Korea's high protection of rice. South Korea's most important defensive interest is in rice, while the EU's offensive interests are in dairy, pig meat, wine, beer, tobacco and processed food. Because of these specific interests the main priority for the EU would be to target specific tariffs and non-tariff barriers instead of focusing on full liberalization in agriculture (CEPS/KIEP, 2007).

Table 13 shows current ad-valorem import tariffs applied by the EU on imports from selected regions. Overall, import tariffs on products from ASEAN are low compared to those levied on India and South Korea. Trade barriers in the EU are particularly high for rice, sugar and vegetable oils from India and for cereals, vegetables and fruits and dairy from South Korea.

The applied tariffs of ASEAN countries on agri-food are higher compared to those applied by the EU, compare Table 13 and Table 14. Tariffs on agri-food imports from the EU to ASEAN countries are 36% on average. Tariffs are particularly high on imports of rice and vegetable oils. Table 14 also shows that the

Table 13. Ad Valorem Import Tariffs levied by EU on Agri-food Imports from Selected Regions, (2004, in %)

	NAFTA	EU	India	Korea	China	ASEAN	Japan	Australia
Rice	5	0	57	0	0	13	123	0
Cereal grains	0	1	6	62	0	3	18	0
Oil seeds	4	0	26	25	9	8	1	1
Vegetables, fruits	3	0	44	58	5	15	24	1
Crops nec	7	0	22	17	3	14	2	1
Meat	1	0	15	14	6	16	84	0
Pork, poultry	2	1	9	23	7	8	59	2
Dairy products	34	0	36	42	7	6	47	6
Sugar	19	1	49	34	0	10	71	1
Vegetable oils	2	0	70	9	9	7	1	1

Source: GTAP Data base Version 7.0.

Table 14. Ad Valorem Import Tariffs levied by ASEAN countries on Agri-food Imports from Selected Regions, (2004, in %)

	NAFTA	EU	India	Korea	China	ASEAN	Japan	Australia
Rice	2	108	34	950	1	32	613	0
Cereal grains	1	17	22	297	0	3	27	0
Oil seeds	15	0	35	106	5	7	20	1
Vegetables, fruits	3	6	35	69	11	10	23	1
Crops nec	3	3	15	14	8	6	28	0
Meat	3	15	22	21	4	4	37	1
Pork, poultry	42	50	34	61	2	5	19	4
Dairy products	73	46	69	17	23	28	223	0
Sugar	4	7	65	22	12	5	4	2
Vegetable oils	2	108	34	950	1	32	613	0

Source: GTAP Data base Version 7.0.

internal liberalization of agri-food trade amongst ASEAN member countries is not finalised.

Based on the large differentiation in tariffs and the specific offensive and defensive interests of the EU, ASEAN, India and South Korea, scenarios with different degrees of agricultural liberalization have been run with the PEATSIM model. The focus is on agricultural trade liberalization, so scenarios with different degrees of services or investment liberalization is not the first priority of this report.

For this study the following 10 scenarios have been calculated:

1. Baseline Scenario as a continuation of current policies projected in 2017 and different from the initial situation based on the year 2007.

The model's baseline, running out to 2017, includes future changes to agricultural policy in the countries in the model already announced as of the release date for the latest version of the model, particularly reforms to the CAP. Policies for the EU in the model

include production quotas for sugar and raw milk, market aid for various products, decoupled support through the SPS (Single Payment Scheme) and SAPS (Single Area Payment Scheme) and the separate decoupled sugar payment. EU market aids are assumed to be cut by 10% per year during the model's projection period, with savings spent on higher decoupled support. In this way spending on market aids is gradually reduced over time while total spending (market aids plus decoupled support) remains constant. Decoupled sugar payment is assumed to rise 20% annually during 2007/08-2009/10 and then remain constant thereafter.

It currently appears that the EU's raw milk quota will be gradually increased over time and then eliminated entirely in 2015. In the model the raw milk quota is held constant for 2007, increased by 2% in 2008, by 2.5% annually during 2009-2014 and then abolished in 2015.

Policies for the US in the model include loan rates, target prices, direct payments and countercyclical payments. Policy parameters established in the 2002 US Farm Bill are assumed to remain in effect during the model's entire projection period of 2007-2017, as the 2008 Farm Bill had not been finalized at the time the model runs were carried out. Policies for South Korea include area and deficiency payments for rice, which are partially decoupled and are assumed to continue at current levels during 2007-2017. No other country-specific agricultural policies are included in the model.

Food, seed and industrial (FSI) demand in the model includes a term that reflects exogenous annual growth in demand due to biofuels policies such as subsidies and blending requirements. This exogenous growth term is applied to wheat and rapeseed in the EU, maize and soybeans in the US and sugar in ROW. The growth rates are based on growth in demand for these commodities as biofuels feedstock during 2003-2007.

2. Baseline Scenario with an implementation of the EU offer to the WTO (October, 2005).

Under this scenario, however, tariff cuts according to the WTO offer of the European Union are implemented to all WTO members covered by the current version of the model. Table 15 provides an overview of the tariff cutting formulas of the EU proposals and Table A17 (in

Table 15. Tariff cutting formulas in EU proposal

Band	Developed Countries		Developing Countries	
	AVE tariff within band	%age cut in AVE	AVE tariff within band	%age cut in AVE
1	0-30	35%	0-30	25%
2	30-60	45%	30-80	30%
3	60-90	50%	80-130	35%
4	90+	60%	130+	40%
Tariff cap (%)	100%		150%	
Sensitive products (% of tariff lines)	8%		8%	

AVE = ad valorem equivalent

the annex) describes the tariff cuts applied for the WTO scenarios of the commodities presented in PEATSim. However, the results of the different scenarios presented from Figure 7 are those calculated against baseline 1, without the EU offer to the WTO.

3. Partial liberalization of bilateral trade measures between EU/ASEAN, EU/India and EU/South Korea with a tariff cut of 25% for all agri-food products - including a reduced tariff cut for sensitive products by only 12.5%.

4. Partial liberalization of bilateral trade measures between EU/ASEAN, EU/India and EU/South Korea with a tariff cut of 25% for all agri-food products - including a reduced tariff cut for sensitive products by only 12.5% - including the adoption of the EU offer to the WTO.

5. Partial liberalization of bilateral trade measures between EU/ASEAN, EU/India and EU/South Korea with a tariff cut of 50% for all agri-food products - including a reduced tariff cut for sensitive products by only 25%.

6. Partial liberalization of bilateral trade measures between EU/ASEAN, EU/India and EU/South Korea with a tariff cut of 50% for all agri-food products - including a reduced tariff cut for sensitive products by 25% only- including the adoption of the EU offer to the WTO.

7. Full liberalization of bilateral trade measures between EU/ASEAN, EU/India and EU/South Korea for all agri-food products.

8. Full liberalization of bilateral trade measures between EU/ASEAN, EU/India and EU/South Korea for all agri-food products - including the adoption of the EU offer to the WTO.

9. Full liberalization of bilateral trade measures between EU/ASEAN, EU/India and EU/South Korea for all agri-food products- including a reduced tariff cut for sensitive products by only 50%.

10. Full liberalization of bilateral trade measures between EU/ASEAN, EU/India and EU/South Korea for all agri-food products - including a reduced tariff cut for sensitive products by only 50% - including the adoption of the EU offer to the WTO (October 2005).

In two additional scenarios the impact of the FTA on the overall economy has been analysed with a combined modelling approach. The full liberalization and the partial liberalization (50% tariff cut) scenarios have been calculated with the LEITAP model. The resulting changes on factor prices and prices of non-agricultural products from LEITAP have been used for additional runs of PEATSim.

The following pages present the outcome of a selection of the calculated scenarios. Starting with the initial base situation in 2007, the outcome of the baseline scenario for 2017 is shown (scenario no. 1). Next, two partial liberalization scenarios (no. 3, 5) and three full liberalization scenarios (no. 9, 7 and 8 resp.) are presented. This sequence provides an overview of scenarios with an increasing degree of trade liberalization between the EU and Asian countries. It also implies that the impact of the adoption of the EU offer to the WTO is presented only for the full liberalization scenario (no. 8).

6 Model Results

The main focus of the study is on the trade impact of a RTA between the EU and ASEAN member countries, India and South Korea. For a better understanding of ongoing changes in national and international markets of agri-foods, the development of production results for 2007 and 2017 are presented, first for the baseline scenario and followed by the policy scenario described above.

Results are presented for ASEAN member states (aggregated as a single region), for India, for South Korea, for the EU and for countries outside the FTA between the EU and Asian countries (aggregated as Third Countries). The impact of an EU Asian FTA is presented in aggregated figures for total trade and in more detail for aggregated groups of agri-food products. All results presented here are in value terms calculated in million Euro (assuming constant 2007 exchange rates between Euro and national currencies) and production is valued at domestic prices. Trade figures, however, are valued at world market prices.

6.1 Macro-economic impact of the regional trade agreements

For the baseline[22], the 'Partial Lib 50%' and the 'Full Lib' scenarios have been calculated for both the general and the partial equilibrium models. Basic assumptions on economic growth and annual increase in population are the same in both models. Changes in factor prices and world market prices are transferred from the general to the partial equilibrium model. Therefore, both models are based on similar assumptions with regard to policy changes. However, both models have been applied independently from each other without a formal link between the two models. While the general direction of the supply response is similar, some differences remain in the results of both models.

For all products, the direction of the supply response is the same in both models. However, the relative changes differ:

- for agricultural products the aggregated response is similar.
- for processed foods the changes in supply are significantly different between PEATSim and LEITAP which is due to the way intermediate input demand in modelled in both models. In LEITAP Leontief function is assumed with fixed input-output coefficients while in PEATSim input demand is dependent on changes in relative prices.

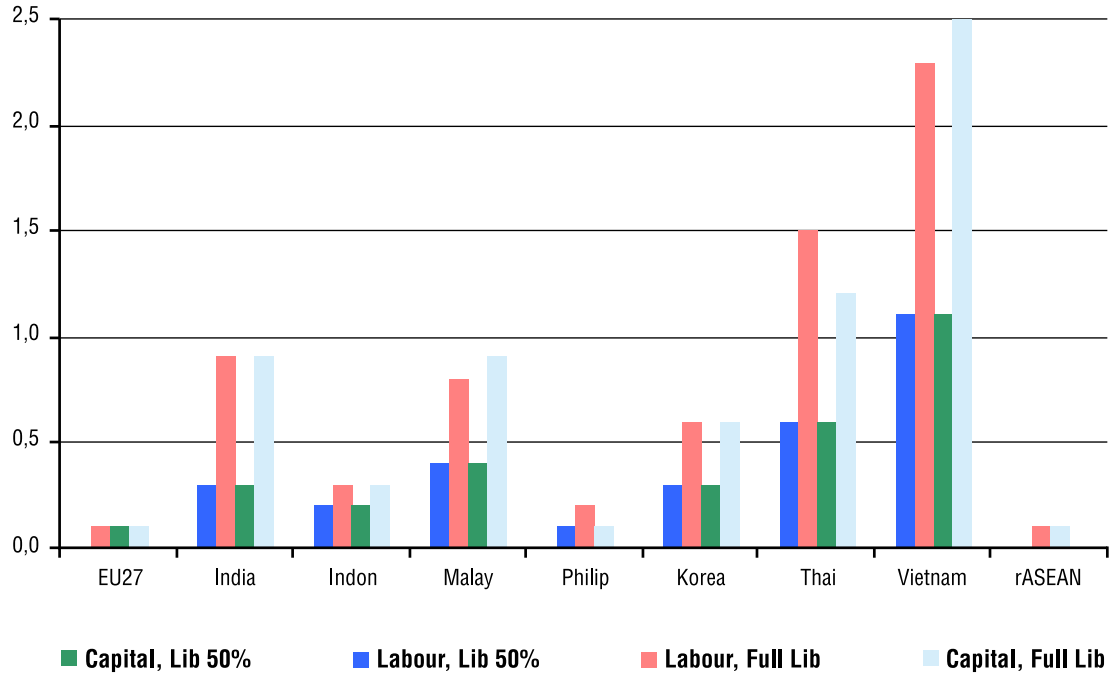
The following results show that in the EU the impact of a EU-Asian FTA is only small and also factor price changes are only minor for most of the Asian countries. Only in Vietnam, where the agricultural contribution to total income and employment is large, the FTA agreement indicates an increase in factor prices.

Figure 6 describes the changes in factor prices of different liberalization scenarios calculated in LEITAP. Depending on the initial trade relations between the Asian countries and the EU and the importance of the agricultural sector in the overall economy, factor prices change after the creation of a RTA with the EU.

Results show that in the EU the impact of an EU-Asian FTA is only small and also factor price changes are only minor for most of the Asian countries. Only in Vietnam, where the agricultural

22 Baseline is meant the one without WTO offer.

Figure 6. Changes in factor prices under different RTA scenarios



Source: LEITAP results, 2017, relative to baseline, (in %)

contribution to total income and employment is large, the FTA agreement indicates an increase in factor prices.

The results achieved from LEITAP indicate that a detailed analysis of different policy options at the level of individual agri-food markets and the impact of those options on the overall economy requires a combined modelling approach. Especially in economies where agriculture significantly contributes to the overall economy in terms of income and employment this approach is even more needed. This is the case for most Asian countries, e.g. Vietnam, Malaysia and India, where agriculture plays an important role. In these countries general equilibrium effects of agricultural liberalization, e.g. changes in factor prices needs to be transferred to the partial equilibrium model.

6.2 Results by region

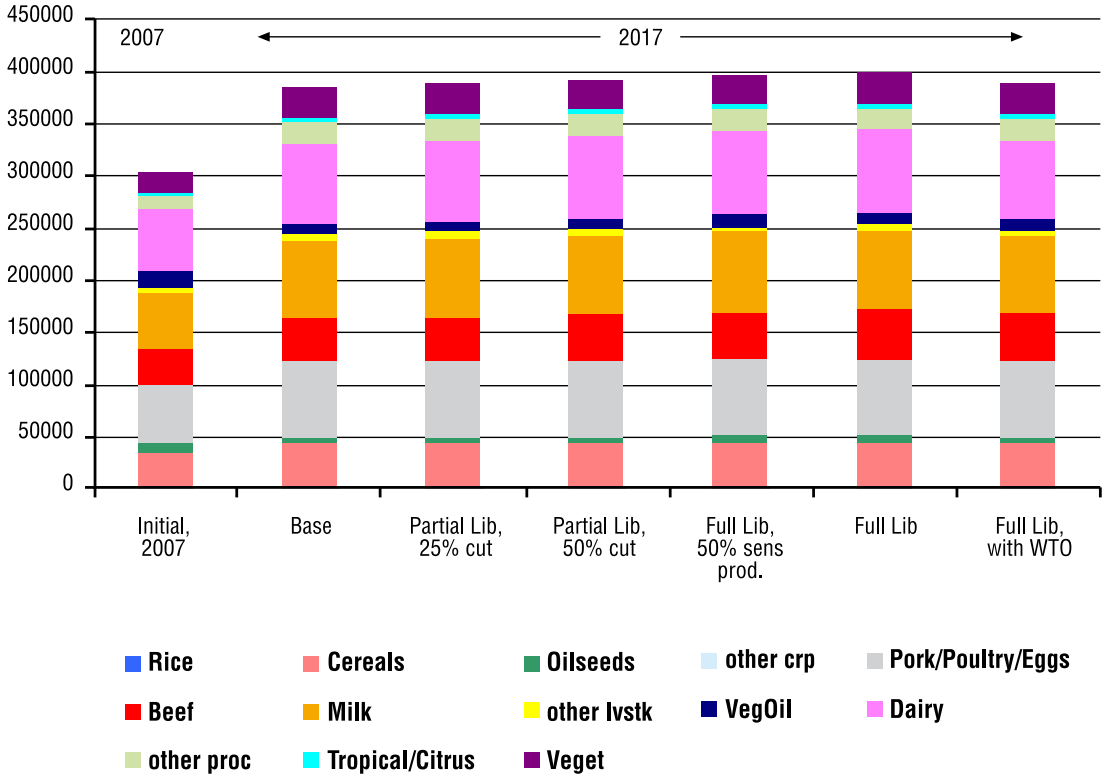
The results shown in Figures 7 to 14 include the initial situation (as the database update up to 2007), the baseline (as benchmark is used the base without WTO offer) and the policy scenarios.

The following figures present the production change of agri-food products in values at current prices for the group of ASEAN countries, India, South Korea, the EU and Third Countries for the initial value in 2007 and the projected values in 2017 under different scenarios.[23]

For all regions presented in this analysis the changes in production between 2007 and 2013 are much larger compared to the impact of different options in creating a FTA between

23 Further details are presented in the Annex of Tables, Table A1

Figure 7. Production of agri-food products in the EU, 2007 and 2017, in million €



Source: PEATsim results.

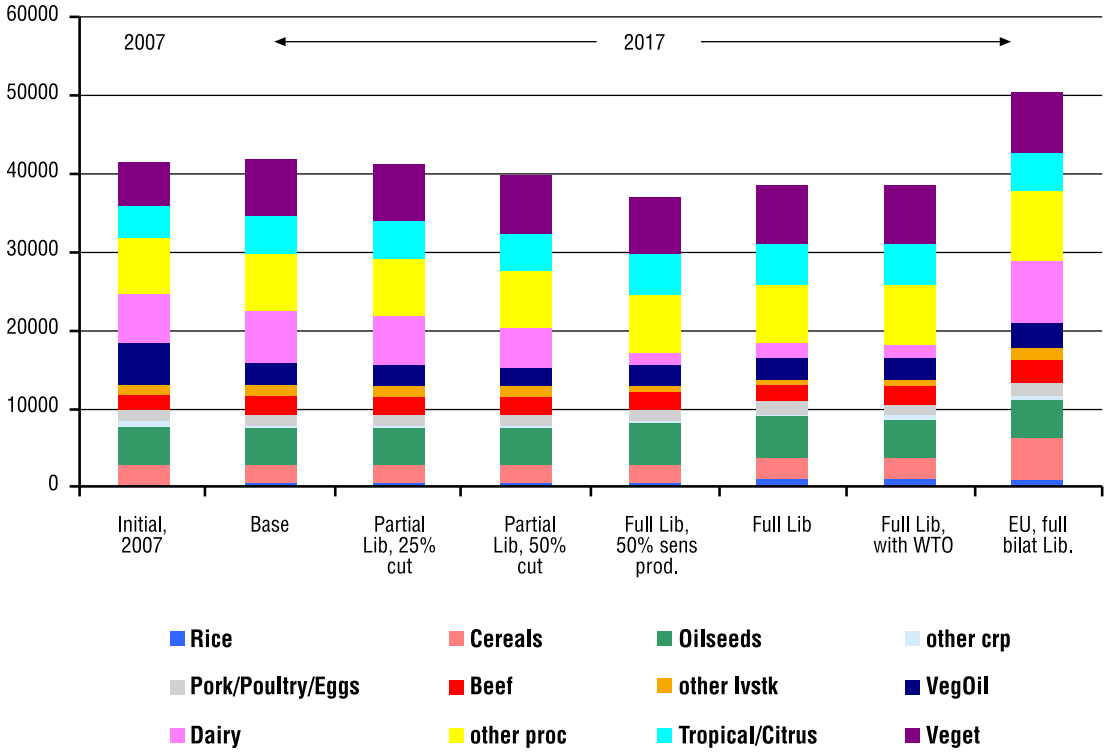
the EU and Asian countries. For total agricultural and food production at aggregated level the different scenarios show only little impact at total aggregated production level. The main reason for this – at first sight – unexpected result is the small trade incidence of agriculture and food compared to the total supply and demand in these countries. Most bulky products, e.g. rice, are sold on domestic markets and the importance of imports and/or exports is relatively low.

6.2.1 European Union

Changes in the EU production are driven by the increase in demand for livestock products in Asian countries under the baseline scenario. The strong increase in livestock demand in Asian countries – which contributed also partly to the current spike in world grain prices – is explained by high income elasticities in Asian countries. With the strong income growth in Asian countries, which is expected to continue over the next decade, the changing diets in Asian countries lead to an increase in livestock imports in Asia.

As already described for the Asian countries, the impact of the RTA on aggregated EU agri-food production is rather limited. Comparing the baseline results with the policy scenarios in 2017, livestock production expands significantly while crop production and also the production of processed food are less affected. Oilseeds and vegetable oils are even decreasing significantly. Under the full multilateral liberalization with the WTO the production value of the major livestock products (pork and milk/dairy) and of cereals are decreasing compared to other policy scenarios, which is due to an increase in market access for third countries to EU food markets.

Figure 8. Imports of agri-food products into the EU, 2007 and 2017, in million €



Source: PEATsim results.

The baseline scenario results for the aggregated EU imports in agri-food products differ significantly from the development of imports obtained for the Asian countries (from Figure 11 to 28). Imports in 2017 (Figure 8) remain almost constant at the initial 2007 level. The composition of agri-food imports changes slightly with a decline in imports of vegetable oils, oilseed and an increase in imports of fruits and vegetables.

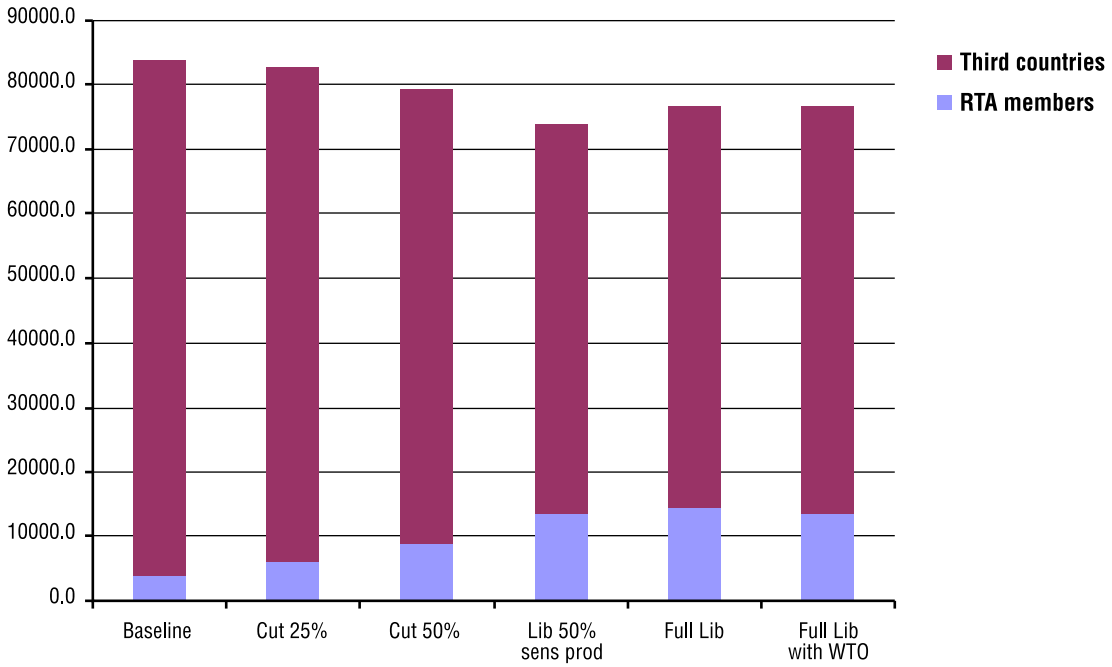
A 25% cut in EU import tariffs under the RTA with Asian countries has only a little effect on total agri-food imports of the EU. Under full liberalization (without considering a possible WTO agreement), EU agri-food imports in 2017 decline by almost 12%, relative to the result under the baseline (Figure 8). This – at first sight an unexpected result – is due to the abolition of TRQ under the liberalization scenarios (see Table S in the annex for more details). TRQ are kept in place under the partial liberalization scenarios. TRQ are important for livestock and dairy products. For these commodities imports are projected to decline by more than 55% (Lib relative to Base). For the other commodities which are not affected by TRQ regulations, aggregated import increases by 6% under the liberalization scenario, especially for imports of oilseeds, other processed products and rice.

In order to give more emphasis to the above results an additional simulation has been run: EU full bilateral liberalization. In this scenario, bilateral trade is fully liberalized the EU and all other regions in the model: the EU eliminates all of its import tariffs, and all other regions eliminate their tariffs on imports from the EU. Other tariffs (for example, tariffs on US-made products imported by India) remain in place. EU imports grow overall by 20% from the baseline.

Despite the increase of bilateral trade flows between the EU and the Asian countries[24], total

24 See Figures 12-13.

Figure 9. EU Imports from the members of the RTA and the Third countries (in euro, 2017)



Source: PEATsim results.

EU imports decline after the different simulations. The main explanation of this phenomenon can be retrieved in a dominant effect of trade diversion toward the third countries over the trade creation between the EU and Asian countries (Figure 9). The strong decline in EU imports from the third countries is higher than the increase of imports from the Asian countries generated by the creation of a Free Trade Agreement. The latter results in an overall EU imports decline.

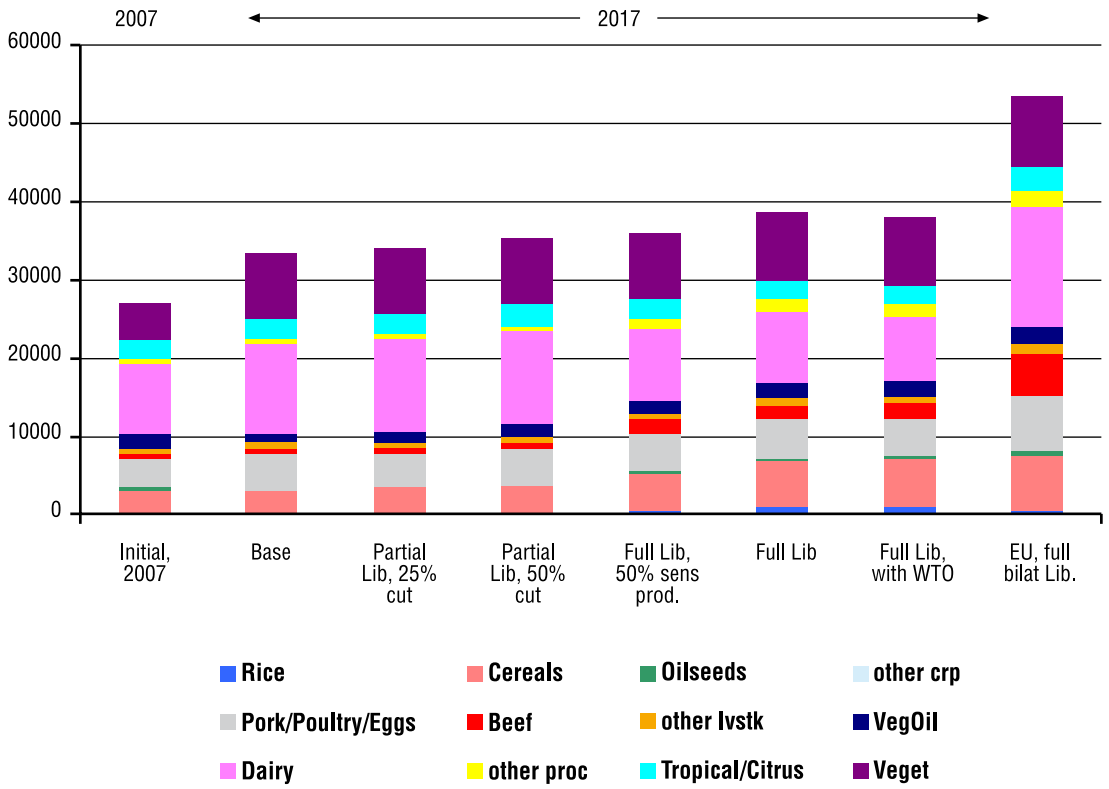
Under the baseline scenario the value of EU exports increase by more than 25% between 2007 and 2017. When looking at commodity level exports for pork, dairy, fruit and vegetables increases most between 2007 and 2017. Under the different policy scenarios European agri-food expands between 2% under the Partial Lib (25%) and 15% under full liberalization. If the full liberalization scenario is implemented together with tariff cuts as proposed in the EU offer to the WTO, the expansion of exports in agricultural production is 13%.

Exports in dairy products are negatively affected under the liberalization scenarios, and decline by around 9% comparing the liberalization scenario with and without the WTO policy option.

The expansion of EU exports under the full bilateral liberalization scenario is considerable (almost 58%). This is again due to the elimination of all imports tariffs on both sides (EU and the Asian countries as well).

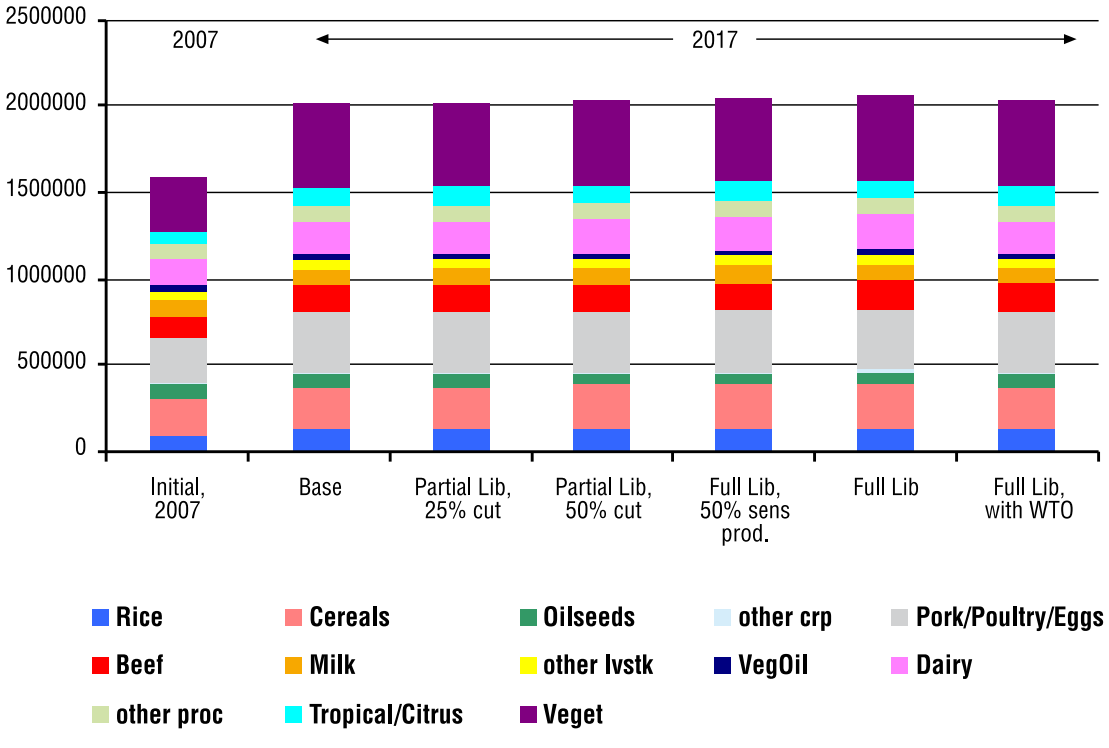
For third countries (Figure 11) which are not included in the EU-Asian RTA agreements, the baseline and scenario results show similar development in agri-food production compared to the developments in Asian and/or European agri-food markets. The results as presented in Figure 6, however, indicate a strong increase in fruit and vegetable supply which can be explained by high income elasticities for these products.

Figure 10. Exports of agri-food products from the EU, 2007 and 2017, in million €



Source: PEATsim results.

Figure 11. Production of agri-food products in third countries, 2007 and 2017, in million €



Source: PEATsim results.

6.2.2 *ASEAN countries*

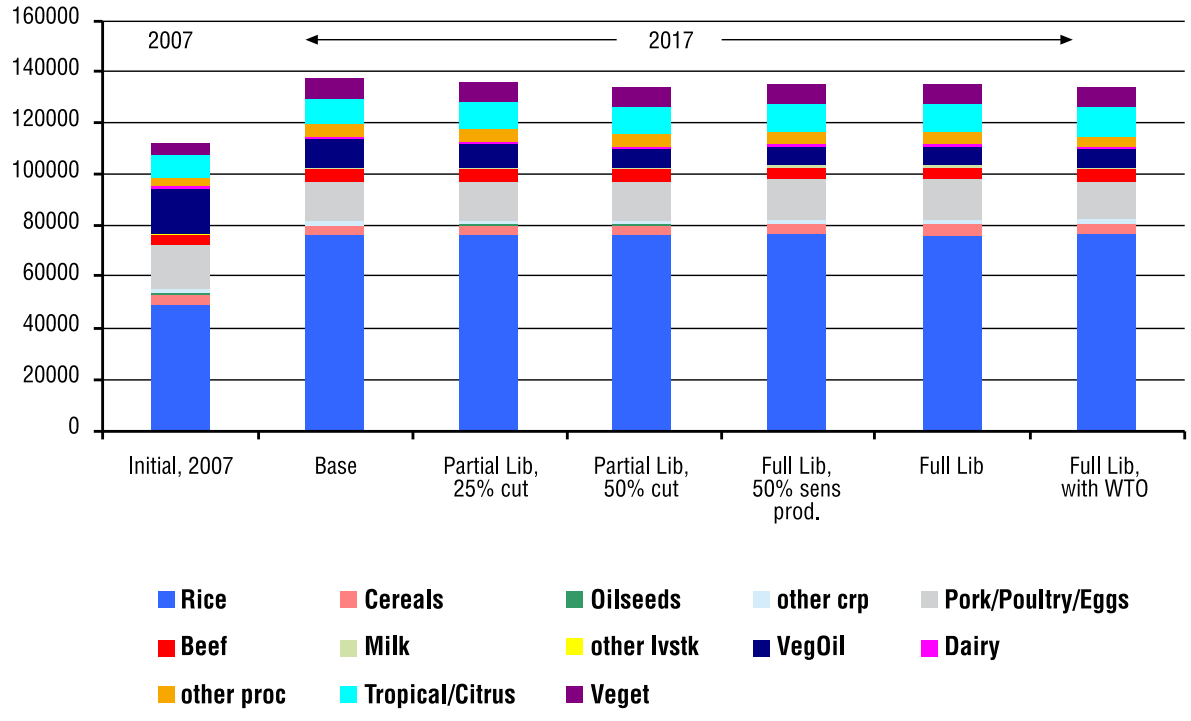
The change in production between 2007 and 2017 is driven by the assumptions on technical changes and shifts in demand (Figure 12). In 2007 rice contributes to more than 40% of total production value in the agri-food sector in ASEAN countries followed by oils, pork and fruit and vegetables. Total agricultural production value increases by about 15% in the period 2007-2017. In 2017 rice contributes with more than 50% of total production value in the agri-food sector in these countries. Pork is number two in line followed by oils and fruit and vegetables. Yet, the more trade is liberalized, the smaller the contribution of pork and vegetable oils, while the share of fruit and vegetables in the sector's production value increases.

For this group of commodities trade relations are the main driver and here – other than the bulk commodities – policy options in the formation of a FTA becomes relevant.

The baseline results show a strong increase in imports in ASEAN countries in all categories of agri-food products, especially for those products with high income elasticities, such as pork and beef, processed food and fruit/vegetables (Figure 13). Domestic agri-food production in Asian countries seems not to be able to keep up with the strong increase in demand for agricultural and food products.

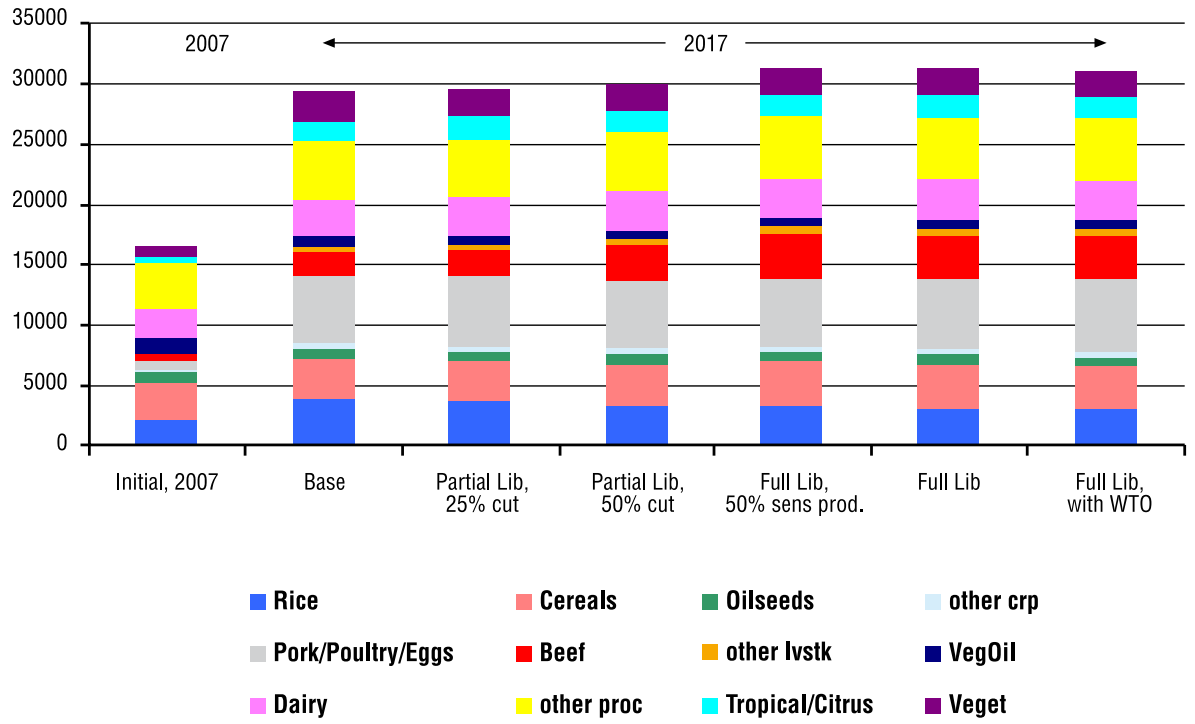
At aggregated level, the impact of a FTA with the EU is rather limited. Livestock imports, however, increase significantly under the FTA scenarios. Relative to the baseline projection, beef imports of ASEAN member states strongly increase by 1.6 bln € in 2017 under the liberalization scenario.

Figure 12. Production of agri-food products in the aggregated group of ASEAN countries, in million €



Source: PEATsim results (2007 and 2017).

Figure 13. Imports of agri-food products to the ASEAN countries, in million €



Source: PEATsim results (2007 and 2017)

Under the baseline aggregated agri-food exports decline due to an increased domestic demand for almost all agricultural commodities (Figure 14). This development is reflected by the fact that – apart from some oilseed and processed oilseeds – the self-sufficiency ratios for all agri-food commodities in the ASEAN countries decline under the baseline scenario.[25] Next to the increase in domestic demand which reduced the amount available for exports, the decline of ASEAN agri-food export values under the baseline scenario, is also due to a decline in international prices. The value of vegetable oil exports decline while the value of rice exports increase between 2007 and 2017. The projected further decline in ASEAN exports in vegetable oil under the FTA scenarios is due to a deterioration of vegetable oil prices under liberalization scenarios (compare also Table N in the annex).

In quantitative terms baseline exports in some commodities strongly increase between 2007 and 2017, sugar by 28% (5%), palm oil by 22% (48%), other tropical oils 10% (13%) and rice 5.4% (25%)[26].

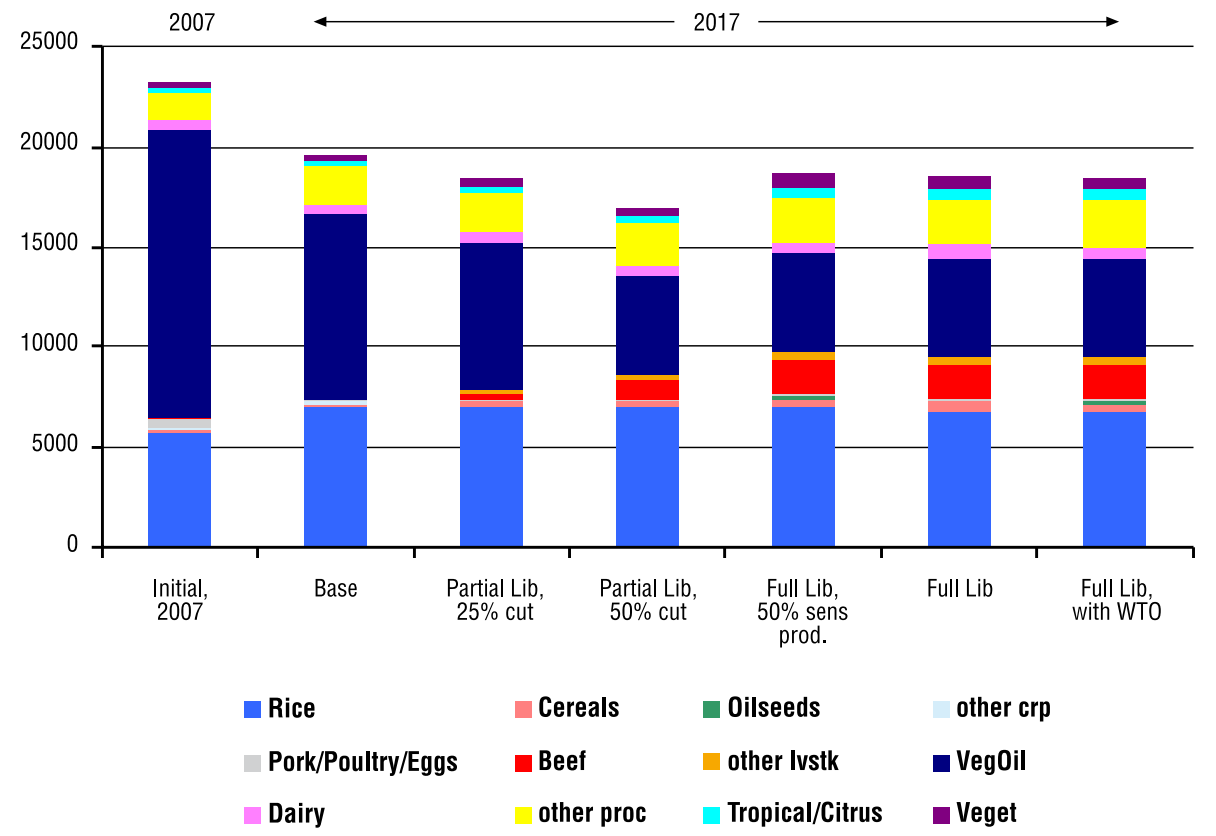
Under the RTA scenarios exports in livestock (beef) and fruit and vegetable exports under RTA scenarios increases with full liberalization. Beef exports increase from almost zero to 1.6 billion € under the full liberalization policy options.

The following tables present the results for the bilateral trade between the aggregated group of ASEAN countries with the EU for the aggregated group of crops, livestock, processed

25 The self-sufficiency ratio divides total production by total demand. A decline of that value indicates a growing excess demand or a decline in excess supply.

26 Numbers in brackets indicate the commodity value shares in 2007.

Figure 14. Exports of agri-food products of ASEAN countries, in million €



Source: PEATsim results (2007 and 2017)

food products and fruits and vegetables, for further details see Tables P to U in the annex.

Table 16 and Table 17 show a deterioration of the ASEAN agri-food trade balance with the EU under the baseline scenario. This deterioration is due to a decline in exports of processed foods under this scenario. The decline can be explained by the growing domestic demand in the Asian countries due to income growth. Exports in the other categories slightly increase under the baseline scenario.

ASEAN exports of processed products to the EU decline strongly under the baseline scenario, resulting in a significantly lower level of exports in 2017 (Table 16). Under the liberalization scenarios exports of crops, fruit and vegetables and livestock from the ASEAN countries strongly expand towards the EU. This results in a more diverse export pattern than under the baseline where processed products dominate ASEAN countries' exports to the EU.

The same as in ASEAN exports, processed products dominate the imports of ASEAN countries from the EU. Under the baseline scenario these imports slightly increased. The EU benefits in terms of improved market access under the RTA scenarios for crops, livestock and processed products. As with respect to ASEAN exports to the EU, trade liberalization results into more diversified EU export flows to ASEAN countries.

Under the baseline scenario exports to third countries decline, due to increasing domestic consumption as income and population grow in ASEAN countries. Under the RTA scenarios there is a strong re-direction of ASEAN exports: total exports to third countries decline (compared to baseline) while those to the EU increase (Table 18).

Table 16. Bilateral Exports of different agri-food products from the ASEAN countries towards the EU under different scenarios, in million €

	Crops	Fruit/Veg.	Livestock	Processed	Total
Initial, 2007	122.9	21.8	8.6	1939.8	2093.0
Base	142.2	27.0	8.7	1150.6	1328.5
Partial Lib, 25% cut	248.5	143.3	427.7	1257.2	2076.7
Partial Lib, 50% cut	369.3	273.3	1141.0	1291.3	3074.9
Full Lib, 50% sens prod.	647.2	566.3	2057.4	1579.5	4850.4
Lib 50% sens prod with WTO	560.2	426.5	1992.7	1379.7	4359.1
Full Lib	908.0	632.2	2092.7	1638.8	5271.7
Full Lib, with WTO	809.6	491.9	2068.7	1639.2	5009.4

Table 17. Bilateral Imports of different agri-food products to the ASEAN countries from the EU under different scenarios, in million €

	Crops	Fruit/Veg.	Livestock	Processed	Total
Initial, 2007	12.5	20.0	42.6	524.4	599.6
Base	13.6	32.9	56.6	663.3	766.3
Partial Lib, 25% cut	53.5	38.4	77.6	695.4	864.8
Partial Lib, 50% cut	136.8	48.4	128.0	753.8	1067.0
Full Lib, 50% sens prod.	662.3	84.5	314.8	904.6	1966.1
Lib 50% sens prod with WTO	528.0	84.1	291.5	872.6	1776.2
Full Lib	1307.1	84.6	317.5	1286.3	2995.5
Full Lib, with WTO	1156.5	84.1	296.2	1240.8	2777.6

ASEAN imports from third countries double under the baseline scenario (Table 19). The increase is largely due to increased imports of livestock products. Under RTA scenarios imports to ASEAN countries from third countries are little affected.

Under the baseline scenario the value of total agri-food imports of ASEAN countries from the EU changes only slightly from 0.6 billion € in 2007 to 0.67 billion € in 2017 (Figure 15).

However, under liberalization scenarios imports from the EU gain an increasing market access and imports from the EU expand strongly. The expansion of agri-food imports into ASEAN countries, however, heavily depends on the degree of tariff cuts negotiated under the RTA, with the highest imports from the EU in the scenario of full liberalization of bilateral trade measures between the EU/ASEAN countries for all agri-food products. After full implementation of the negotiated tariff cuts assumed for 2013, imports from the EU increase between 1 – 3 billion €, depending on the scenario.

Compared to a fully liberalized bilateral trade agreement a WTO agreement has a small negative impact on ASEAN countries' agri-food imports from the EU.

The decline of exports in agri-food products of ASEAN countries towards the EU under the baseline is mirrored by the development of the total agri-food exports of ASEAN countries as discussed earlier. The strong increase in domestic demand leads to a decline in excess supply (Figure 16).

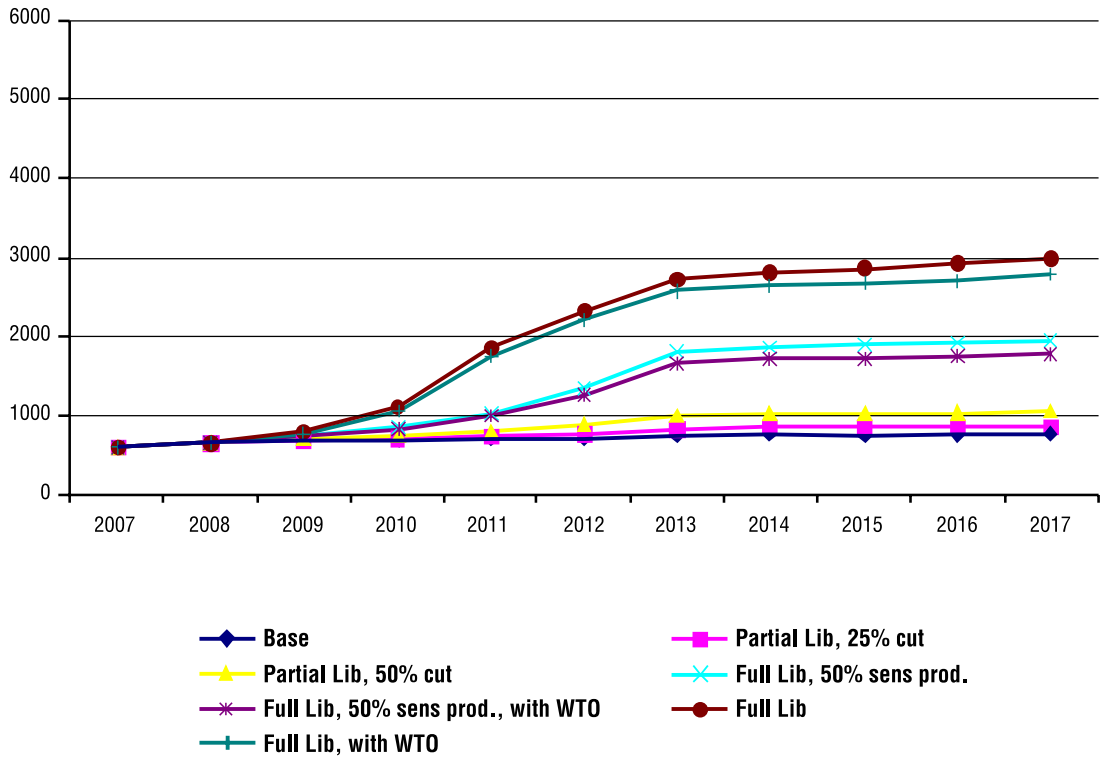
Table 18. Bilateral Exports of different agri-food products of the ASEAN countries towards Third Countries under different scenarios, in million €

	Crops	Fruit/Veg.	Livestock	Processed	Total
Initial, 2007	3935.0	236.8	369.3	11036.1	15577.2
Base	4379.0	266.0	28.7	7535.0	12208.7
Partial Lib, 25% cut	4353.2	264.0	31.3	6461.6	11110.1
Partial Lib, 50% cut	4342.0	263.0	36.7	5079.6	9721.2
Full Lib, 50% sens prod.	4663.6	245.2	50.1	5119.1	10078.0
Lib 50% sens prod with WTO	4638.0	246.6	73.5	5022.9	9981.0
Full Lib	5248.8	247.8	46.7	5113.1	10656.4
Full Lib, with WTO	5286.0	247.5	74.6	5106.1	10714.1

Table 19. Bilateral Imports of different agri-food products to the ASEAN countries from Third Countries under different scenarios, in million €

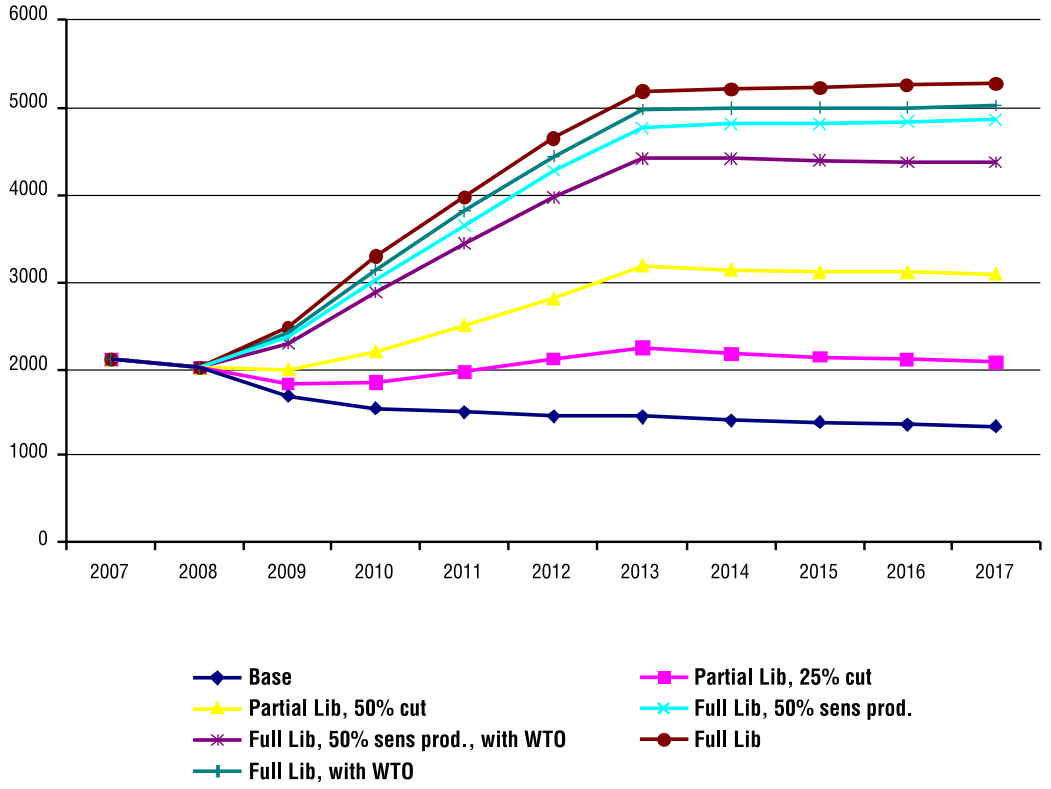
	Crops	Fruit/Veg.	Livestock	Processed	Total
Initial, 2007	4323.4	1103.4	980.8	5313.1	11720.7
Base	5629.8	3814.8	7484.9	6399.0	23328.4
Partial Lib, 25% cut	5461.8	3752.3	7898.1	6547.1	23659.3
Partial Lib, 50% cut	5156.9	3617.4	8594.4	6689.8	24058.5
Full Lib, 50% sens prod.	5245.0	3762.4	9320.6	6794.9	25122.9
Lib 50% sens prod with WTO	4990.9	3622.7	9566.8	6588.7	24769.2
Full Lib	5546.8	3746.2	9365.0	6530.9	25188.9
Full Lib, with WTO	5488.6	3598.5	9579.9	6478.9	25145.9

Figure 15. Development of Bilateral Imports of agri-food products to the ASEAN countries from the EU under different scenarios, in million €



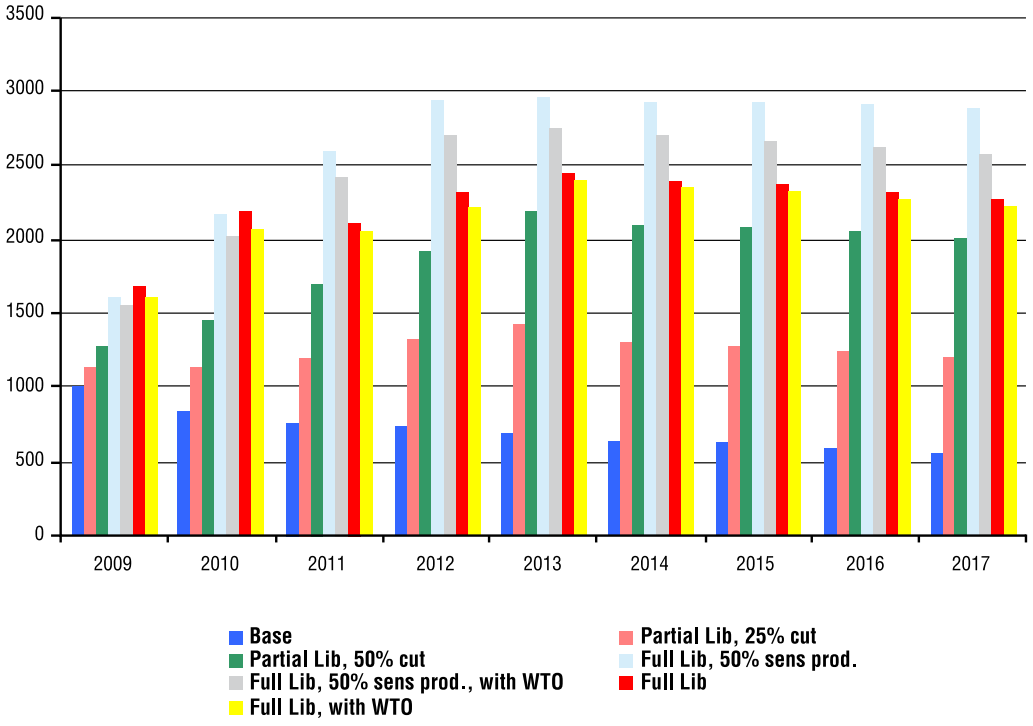
Source: PEATsim results. (2007-17).

Figure 16. Development of Bilateral Exports of agri-food products from the ASEAN countries towards the EU under different scenarios, in million €



Source: PEATsim results (2007-17)

Figure 17. Development of Bilateral Trade Balance in agri-food products of the ASEAN countries with the EU under different scenarios, in million €



Source: PEATsim results (2009-17)

This negative trend changes, if ASEAN countries gain improved market access to the EU. A 25% cut in import tariffs keeps the total sum of ASEAN agri-food exports to the EU at its initial 2007 level, after a slight decline between 2007 and 2010. Under further liberalization, however, agri-food exports from ASEAN towards the EU increase up to than 5 billion € compared to the initial level.

Both developments are reflected in the change of the balance in agri-food trade between the EU and the group of ASEAN countries covered under the RTA. Under full liberalization the EU expands its agri-food exports to ASEAN countries, but ASEAN countries' exports to the EU increase even more, resulting in a significant improvement in ASEAN trade surplus.

Under full liberalization the agri-food trade surplus of ASEAN countries increases to 2 – 2.9 billion €. An interesting result shows the scenario analysing full liberalization scenario with 50% sensitive products. Under this policy option ASEAN countries achieve the highest trade surplus of more than 2.8 billion € in 2017.

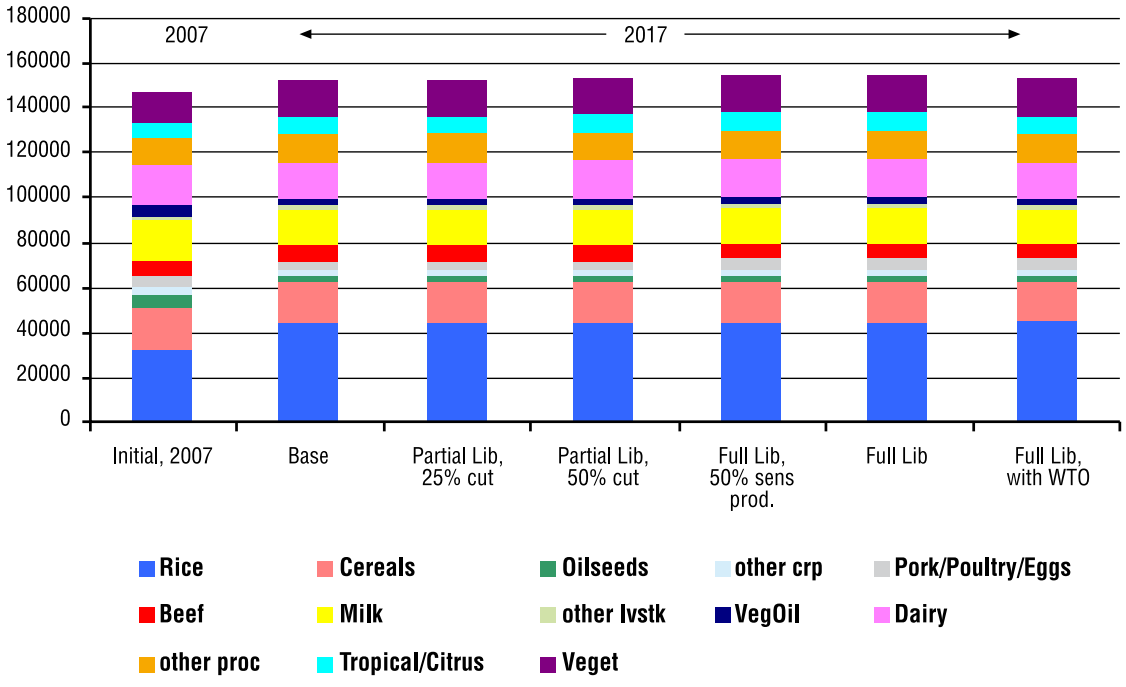
These results indicate that in total at aggregated level ASEAN countries benefit more from improved market access to EU agri-food markets than EU exporters gain in improved market access to ASEAN countries' food markets.

6.2.3 India

Compared to the structure of agri-food production in ASEAN countries agricultural and food production in India is more diverse. The technical change in the Indian agricultural sector is much smaller compared to ASEAN countries and the total value of agricultural and food production increases by less than 4% between 2007 and 2017 (Figure 18).

Rice is again the most important contributor to the sector's production value. Cereals, milk,

Figure 18. Production of agri-food products in India, in million €



Source: PEATsim results (2007 and 2017).

dairy and vegetables are following and more or less equally important. Comparing the initial situation with the baseline scenario for 2017, the weight of rice in the production value has increased from 24% to 29%.

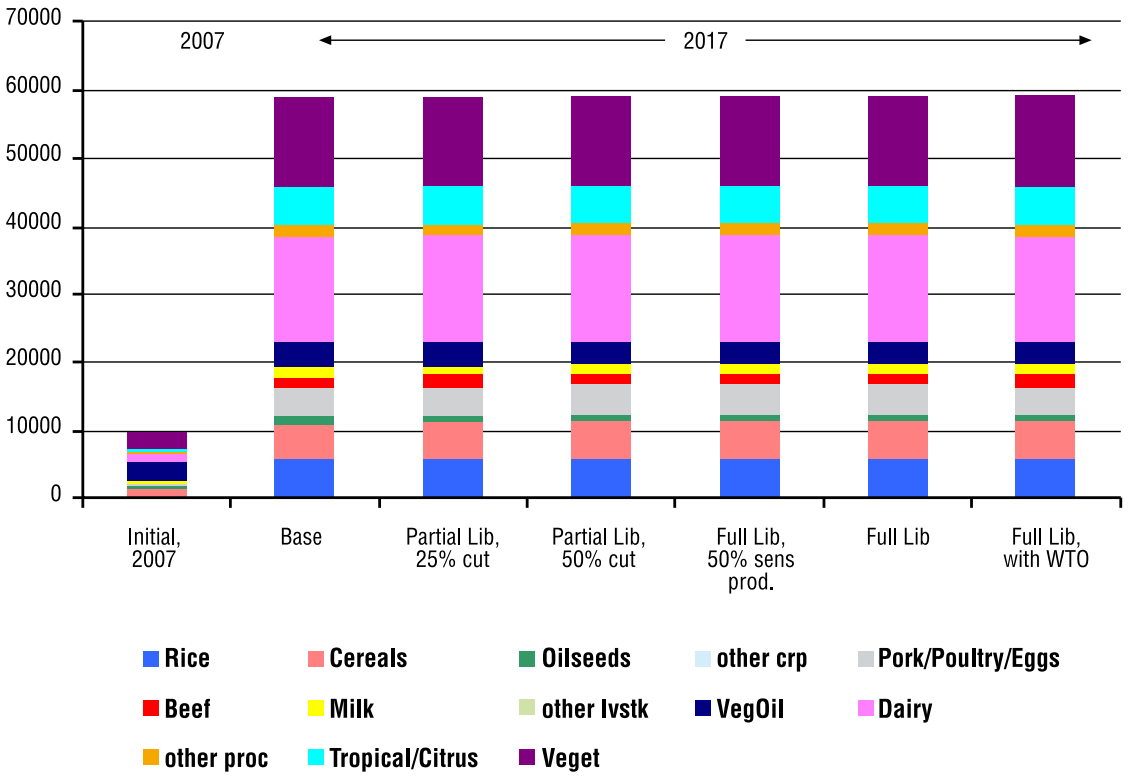
The different policy options show little impact on the contribution of the other major product categories to the total production value. The milk and dairy sector appears to be a little more affected than other categories, losing a bit of share in the full liberalization scenarios.

Also for aggregated imports different options of a creation in RTA scenarios have only a little impact. Results indicate, however that the RTA with the EU creates a large trade redirection towards trade with the EU. Apart from dairy import, imports of vegetables are by far India's most important import products. Both commodity groups have a share of almost 50% of total Indian import in 2017.

Imports of food and agricultural commodities in India increase by almost 500%. Like in the group of ASEAN countries, domestic agri-food production seems to be unable to satisfy the growing demand due to growth in income and population. The strongest increase in absolute terms is projected for imports of dairy products. Here imports increases from about 1 to 15.4 billion € under the baseline scenario (Figure 19).

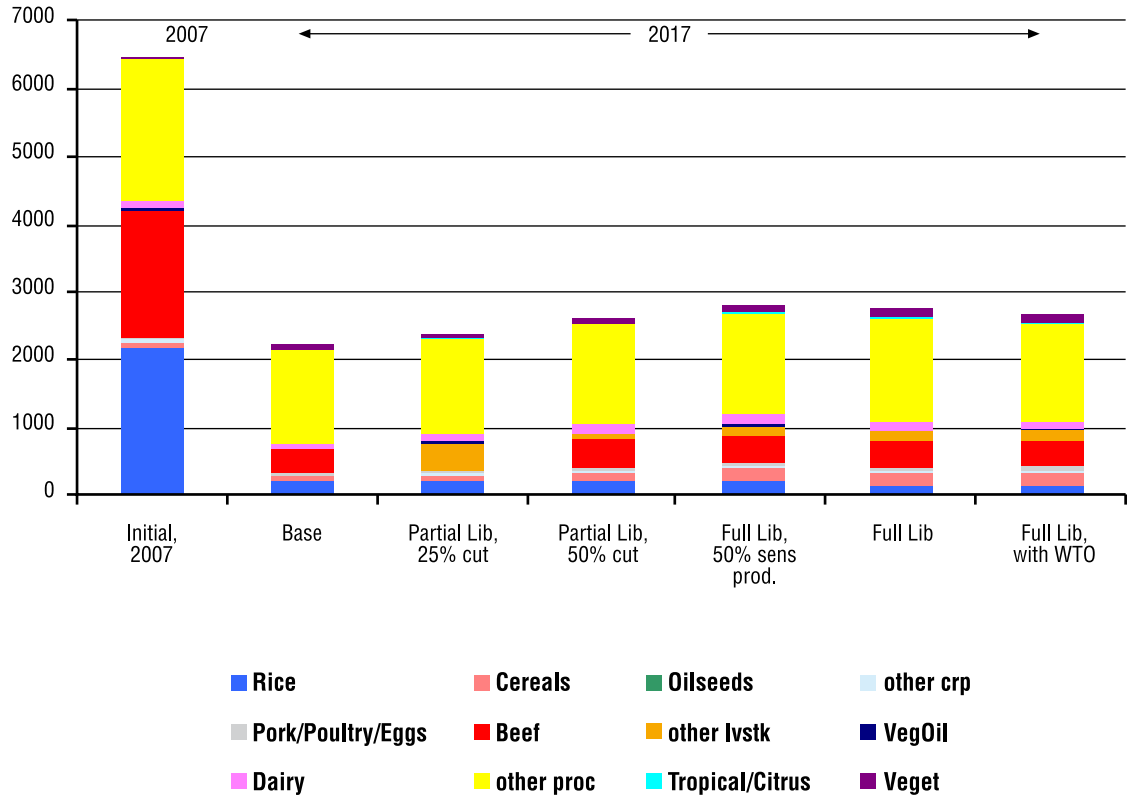
The development of Indian agri-food exports can be explained by similar drivers as described already for ASEAN countries (Figure 20). Under the baseline Indian agri-food (rice and beef) exports are projected to decline strongly, especially exports of rice and beef. Also for India the degree of self-sufficiency is projected to strongly decline under the baseline scenario and also for the policy scenarios. Apart from exports of other processed products (cotton) which increase strongly under policy scenarios also beef exports are also growing.

Figure 19. Imports of agri-food products into India, in million €



Source: PEATsim results (2007 and 2017).

Figure 20. Exports of agri-food products of India, in million €



Source: PEATsim results (2007 and 2017)

Table 20. Bilateral Exports of different agri-food products from India towards the EU under different scenarios, in million €

	Crops	Fruit/Veg.	Livestock	Processed	Total
Initial, 2007	117.7	11.3	31.0	28.7	188.8
Base	137.0	14.4	30.9	24.7	207.0
Partial Lib, 25% cut	162.4	32.0	97.1	101.8	393.3
Partial Lib, 50% cut	201.1	50.8	197.8	160.3	610.0
Full Lib, 50% sens prod.	275.0	97.4	283.5	180.9	836.7
Lib 50% sens prod with WTO	287.4	73.4	278.9	163.8	803.5
Full Lib	198.3	102.3	288.5	155.3	744.3
Full Lib, with WTO	226.4	78.2	287.0	144.8	736.4

Indian exports to the EU – mainly cereals – change little under the baseline scenario and remain particularly low under all policy scenarios.

Having a closer look at the bilateral trade between the aggregated group of ASEAN countries, India and South Korea with the EU and the other ('outside') countries for the aggregated group of commodities, the following tables (Table 20 - Table 23) show that under the policy scenarios Indian exports to the EU rise only modestly. Exports of livestock and processed products become relatively more important.

Under the baseline scenario, India's imports of (only) crops and processed products from the EU increase but remain very low.

Table 21. Bilateral Imports of different agri-food products into India from the EU under different scenarios, in million €

	Crops	Fruit/Veg.	Livestock	Processed	Total
Initial, 2007	6.2	0.0	0.0	13.2	19.4
Base	7.9	0.0	0.0	21.8	29.7
Partial Lib, 25% cut	36.9	0.0	0.0	177.9	214.8
Partial Lib, 50% cut	101.1	0.0	0.0	374.3	475.4
Full Lib, 50% sens prod.	483.6	2.4	0.9	1145.6	1632.5
Lib 50% sens prod with WTO	528.2	2.4	0.9	665.1	1196.6
Full Lib	1529.6	2.4	0.9	1471.4	3004.3
Full Lib, with WTO	1590.3	2.4	0.9	1460.6	3054.3

Table 22. Bilateral Exports of different agri-food products of India towards Third Countries under different scenarios, in million €

	Crops	Fruit/Veg.	Livestock	Processed	Total
Initial, 2007	2092.8	1.0	1604.2	1723.9	5421.9
Base	84.7	1.2	3.7	971.9	1061.5
Partial Lib, 25% cut	84.6	1.2	3.7	974.7	1064.2
Partial Lib, 50% cut	84.3	1.2	3.7	980.4	1069.6
Full Lib, 50% sens prod.	84.8	1.2	3.7	1037.9	1127.5
Lib 50% sens prod with WTO	82.1	0.0	4.6	921.5	1008.2
Full Lib	84.8	1.2	3.7	1088.6	1178.3
Full Lib, with WTO	82.2	0.0	4.6	1008.9	1095.8

Table 23. Bilateral Imports of different agri-food products into India from Third Countries under different scenarios, in million €

	Crops	Fruit/Veg.	Livestock	Processed	Total
Initial, 2007	1872.3	3018.9	591.6	2562.4	8045.3
Base	12132.4	18565.4	7163.0	19368.7	57229.5
Partial Lib, 25% cut	12208.4	18640.4	7253.7	19760.4	57862.9
Partial Lib, 50% cut	12342.3	18741.6	7381.1	20146.3	58611.2
Full Lib, 50% sens prod.	11976.0	18712.7	7345.7	19435.9	57470.3
Lib 50% sens prod with WTO	11845.4	18928.3	7387.2	19703.3	57864.2
Full Lib	10864.9	18720.6	7327.6	19119.5	56032.7
Full Lib, with WTO	10745.9	18860.0	7305.9	18996.2	55908.1

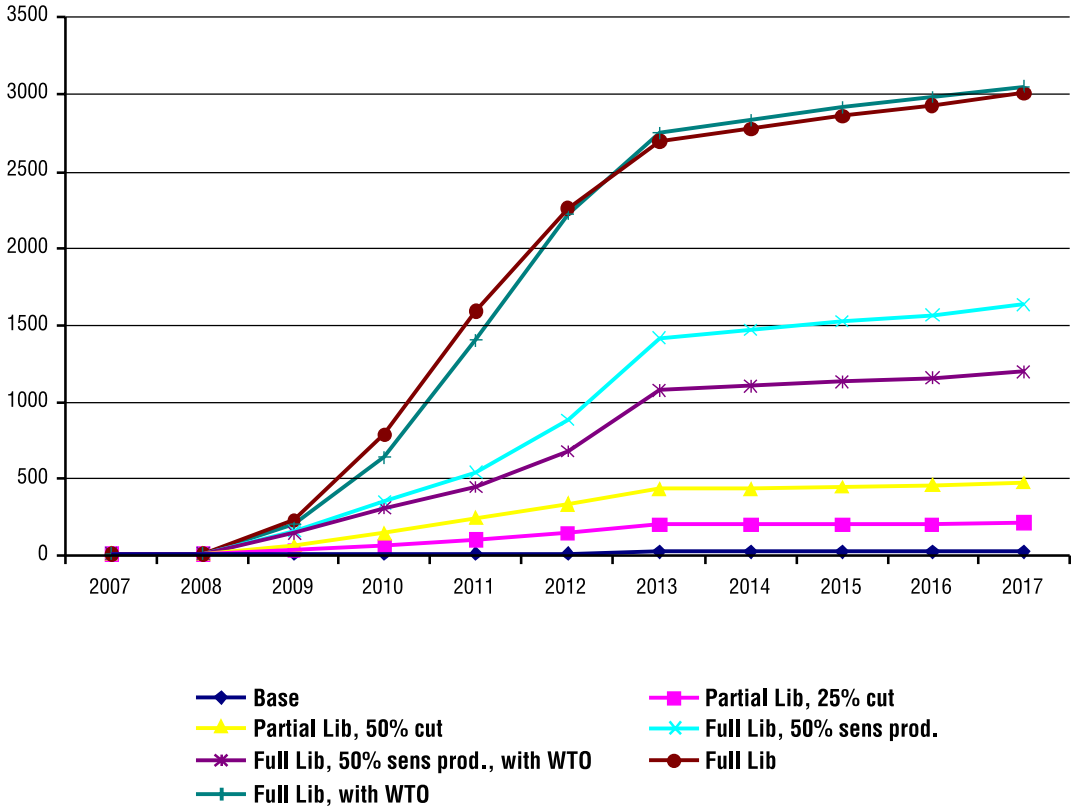
The EU benefits in terms of improved market access under the RTA scenarios for crops and processed products. There is a big difference in the opening of the Indian market between the full liberalization scenario with and without conditions on sensitive products.

Under the baseline scenario, export from India towards Third Countries declines strongly: the exports of crops and livestock reduce to close to zero. Under the RTA scenarios there is little impact of the different policy options on India's export flows to Third Countries.

Imports from Third Countries increase significantly under the baseline. Under the RTA scenarios there is little impact of the different policy options on India's import flows from Third Countries.

Under the baseline total agri-food imports of India from the EU are very low at around 20 million € in 2007 and remain almost constant

Figure 21. Development of Bilateral Imports of agri-food products into India from the EU under different scenarios, in million €



Source: PEATsim results (2007-17)

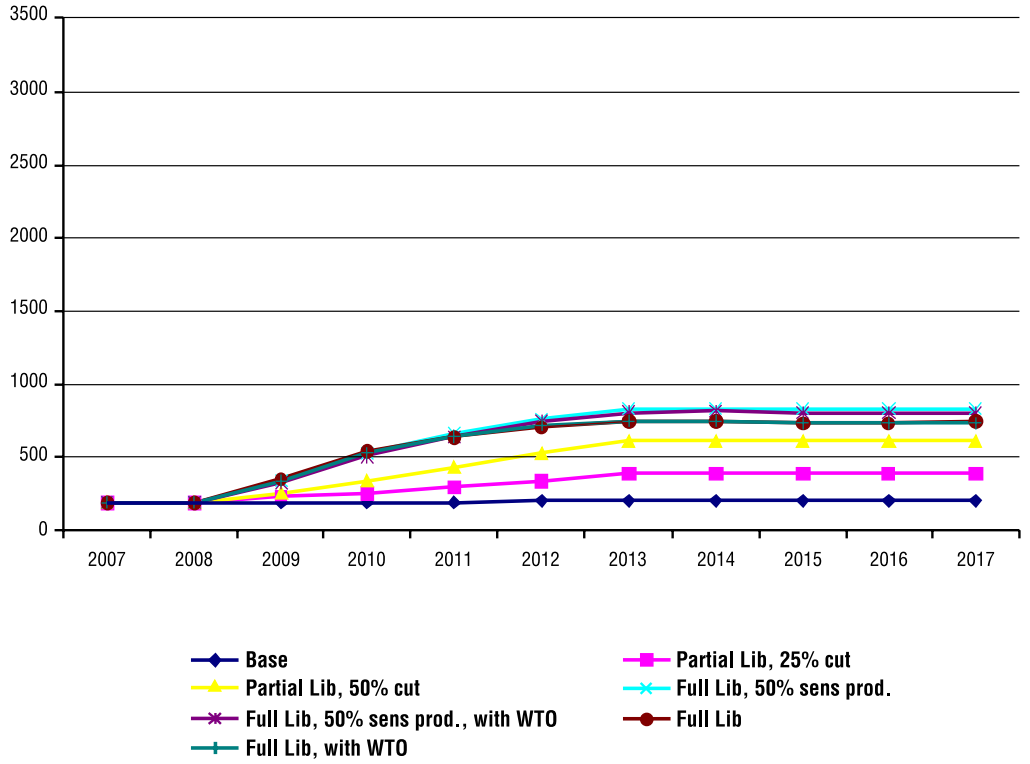
throughout the projection period. In 2013 India buys aggregated agri-food at around 30 million € only (Figure 21).

Under different policy scenarios India's food imports from the EU heavily expands. Under a 25% cut in import tariffs food imports increase up to 215 million € while under full liberalization food imports from the EU are projected to reach more than 3 billion €. Combining WTO and FTA agreements has only a small impact on the level of aggregated agri-food imports from the EU and agri-food becomes only 50 million € higher compared to the bilateral liberalization under the 'Full Lib' scenario.

The development of India's food exports towards the EU is dominated by the strong increase in domestic demand for agri-food products and the decline in the degree of self-sufficiency (Figure 22). Under the baseline scenario total agri-food exports remain at a very low level of 190 million € in 2007 and 207 million € in 2017. All policy scenarios have only a small impact on Indian agri-food exports to the EU and even under full liberalization India's food exports to the EU are less than 0.8 billion €. With this relatively small increase in exports to the EU livestock and dairy products show the strongest increase.

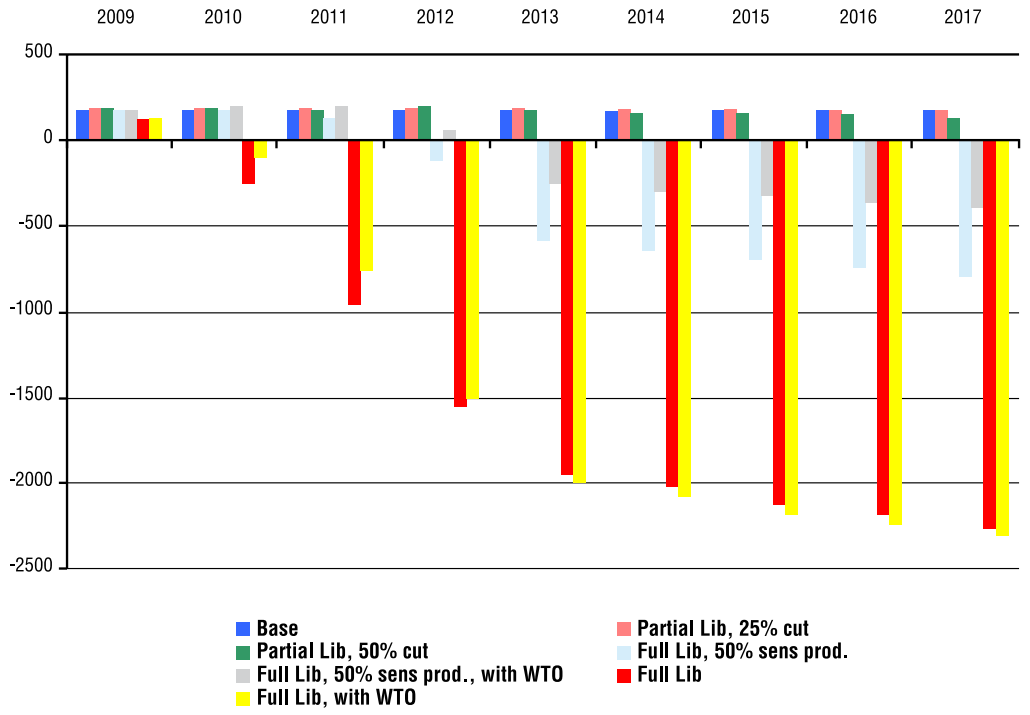
Both developments – on the import and the export side – are reflected in the change of the balance in agri-food trade between the EU and India under the RTA (Figure 23). If agricultural trade remains relatively restricted and tariffs are cut only by 25% or 50%, respectively, the agri-food trade deficit vis-à-vis the EU remains small. Only under full liberalization the EU expands its agri-food exports and India trade balance deteriorates strongly. Under full liberalization the agri-food trade deficits of India increases to more than 2 billion €.

Figure 22. Development of Bilateral Exports of agri-food products from India to the EU under different scenarios, in million €



Source: PEATsim results (2007-17)

Figure 23. Development of Bilateral Trade Balance in agri-food products of India with the EU under different scenarios, in million €



Source: PEATsim results (2009-17)

6.2.4 South Korea

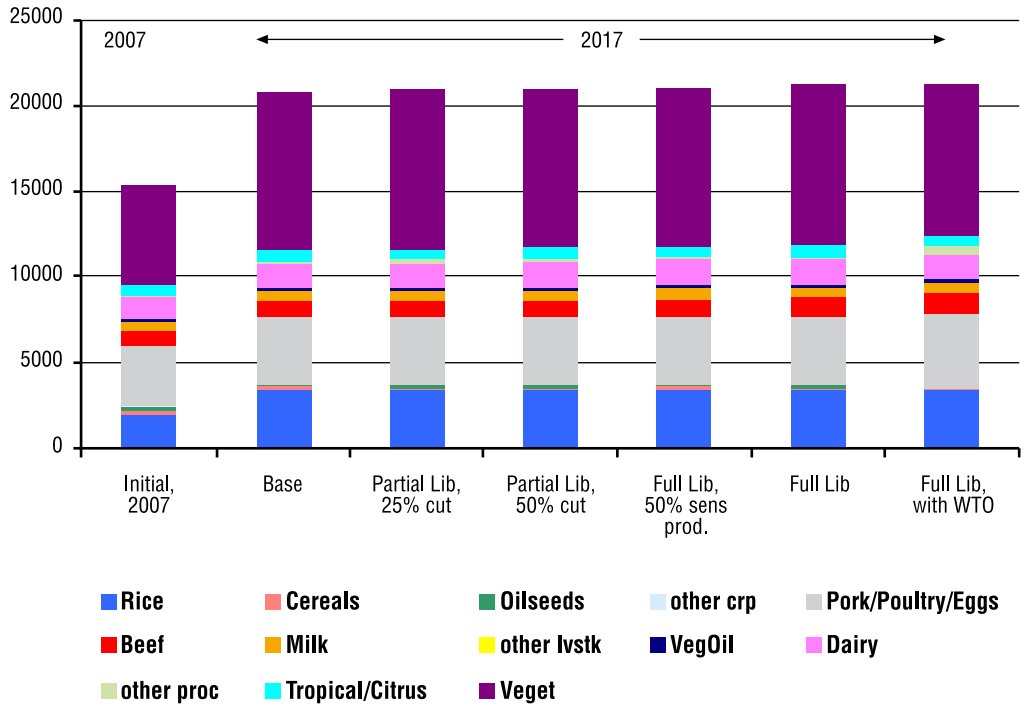
The total value of South Korean agri-food production is around 10% of the value of corresponding production in ASEAN countries (Figure 24). Vegetable, rice and the production of pork, poultry and eggs contribute to more than 75% of total agri-food output value.

The value of Korean agri-food production increases by more than 40% under the baseline scenario over the period 2007-2017. The production value of rice and vegetables increases more than the average 40%, implying that their contribution to the total production value of the sector increases.

Trade liberalization scenarios have little impact on the product values. Only under full liberalization with the WTO, significant changes occur compared to the baseline scenario, with the output value of vegetables decreasing and that of pork increasing. In the smaller product categories the production values of milk, dairy, cereals and oilseeds are declining almost.

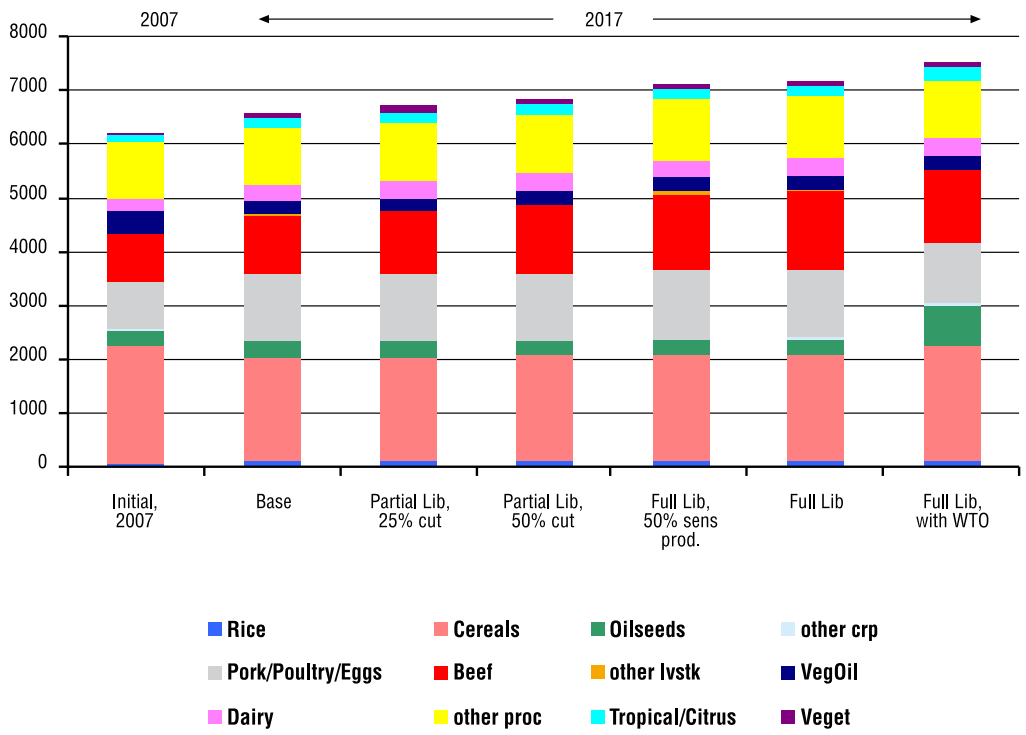
Unlike the development of agri-food imports in the ASEAN countries and in India, Korean agri-food imports grow only at a moderate rate under the baseline scenario (Figure 25). Between 2007 and 2017 Korean agri-food imports grow by around 6% under the baseline. The composition of agri-food imports, however, shows a shift from staple crops (rice, cereals, oilseeds) towards meat and livestock products. Under the baseline, the import share of rice, cereals and oilseeds declines from 41% in 2007 to 35% in 2017, while the shares in total agri-food imports of livestock and dairy products increase from 32% in 2007 to 40% in 2017. Regardless of the relative decline in the import share, cereal imports remain the most important item of South Korea under all policy scenarios.

Figure 24. Production of agri-food products in South Korea, in million €



Source: PEATsim results (2007 and 2017)

Figure 25. Imports of agri-food products into South Korea, in million €



Source: PEATsim results (2007 and 2017)

Full liberalization leads to an increase in Korean agri-food imports of more than 14%. This increase is reflected by the high initial import tariffs which leads under liberalization to an improved market access. Under the liberalization, imports of livestock products (especially pork and beef) as well as imports of oilseeds increase strongly.

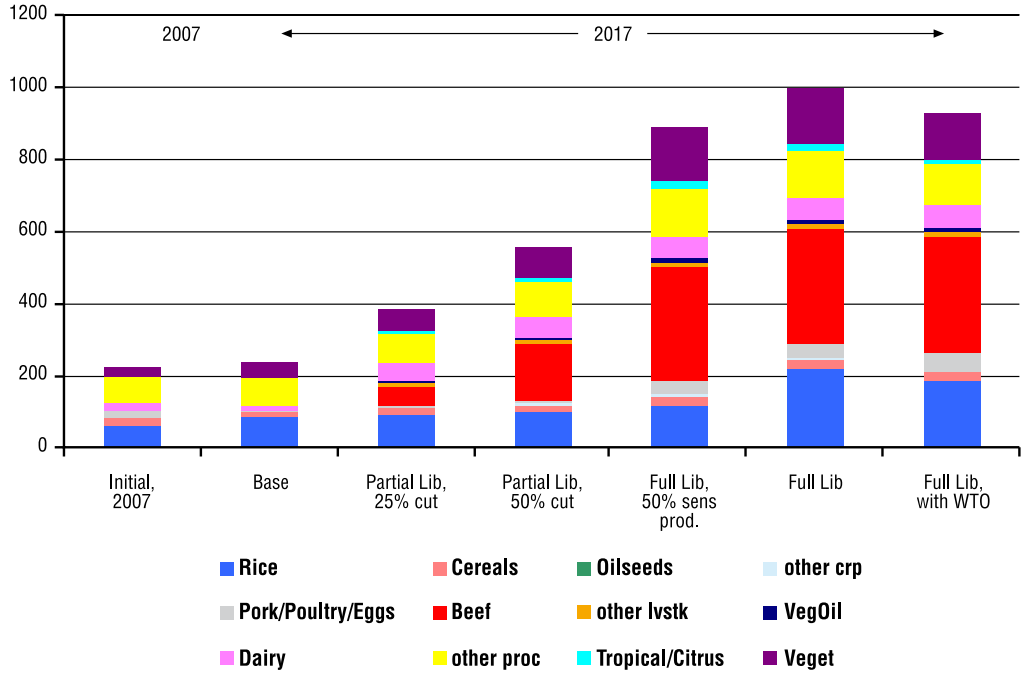
Korean agri-food exports remain almost constant under the baseline scenario (Figure 26). The composition of Korean exports changes slightly. While rice and vegetable exports increase the exports of cereals and dairy, as well as of pork, poultry meat and eggs, strongly decline.

Even under partial liberalization Korean exports are projected to increase strongly. Exports in beef, vegetables and dairy products rise from 55 million € under the baseline scenario (in 2017) to 526 million € under the full liberalization scenario (without the WTO). Despite strong growth of export levels, however, it is important to emphasise that South Korea remains a net-importer of all agricultural products except for rice and vegetables. Under the baseline net-imports of agri-food commodities increased from 6 billion € in 2007 to 6.35 billion € in 2017. Under the full liberalization scenario the Korean net-imports of agricultural and food products is projected to be 6.18 billion €.

Observing bilateral trade (Table 24 - Table 27), under the baseline scenario exports remain almost similar to 2007 levels. Under the policy scenarios South Korean exports towards the EU of fruit and vegetables and livestock strongly expand, with the highest increases under the full liberalization scenarios.

Under the baseline scenario imports to South Korea from the EU change little. Under the RTA scenarios there is quite an impact of the different policy options on South Korean import flows from the EU. Imports increase tenfold to almost 4 billion € under the full liberalization scenarios.

Figure 26. Exports of agri-food products of South Korea, in million €



Source: PEATsim results (2007 and 2017)

Table 24. Bilateral Exports of different agri-food products from South Korea towards the EU under different scenarios, in million €

	Crops	Fruit/Veg.	Livestock	Processed	Total
Initial, 2007	0.0	2.1	0.0	1.9	4.1
Base	0.0	2.6	0.0	1.7	4.2
Partial Lib, 25% cut	17.9	26.0	66.3	67.7	177.9
Partial Lib, 50% cut	32.1	54.1	174.9	104.7	365.9
Full Lib, 50% sens prod.	59.2	130.6	329.2	169.9	688.9
Lib 50% sens prod with WTO	36.1	97.5	323.4	132.2	589.2
Full Lib	158.3	130.8	336.0	172.5	797.7
Full Lib, with WTO	120.0	97.6	335.5	145.9	699.0

Table 25. Bilateral Imports of different agri-food products into South Korea from the EU under different scenarios, in million €

	Crops	Fruit/Veg.	Livestock	Processed	Total
Initial, 2007	2.8	0.3	275.6	108.0	386.8
Base	2.6	0.4	310.3	89.5	402.7
Partial Lib, 25% cut	72.4	5.5	368.0	117.1	563.0
Partial Lib, 50% cut	368.2	20.7	495.9	180.5	1065.3
Full Lib, 50% sens prod.	1453.8	125.3	1211.1	503.7	3293.9
Lib 50% sens prod with WTO	24.4	75.0	549.7	499.5	1148.6
Full Lib	1660.7	125.8	1578.7	501.5	3866.6
Full Lib, with WTO	1856.0	75.2	1536.1	499.4	3966.7

Table 26. Bilateral Exports of different agri-food products of South Korea towards Third Countries under different scenarios, in million €

	Crops	Fruit/Veg.	Livestock	Processed	Total
Initial, 2007	78.6	24.9	23.6	77.4	204.5
Base	100.2	37.3	0.0	74.6	212.1
Partial Lib, 25% cut	93.7	37.4	0.0	57.4	188.4
Partial Lib, 50% cut	90.2	37.3	0.0	46.9	174.5
Full Lib, 50% sens prod.	88.9	37.5	28.1	33.9	188.3
Lib 50% sens prod with WTO	93.0	40.5	47.8	46.3	227.6
Full Lib	88.9	37.6	28.2	32.4	187.0
Full Lib, with WTO	93.0	40.5	48.7	36.6	218.7

Table 27. Bilateral Imports of different agri-food products into South Korea from Third Countries under different scenarios, in million €

	Crops	Fruit/Veg.	Livestock	Processed	Total
Initial, 2007	2567.5	124.2	1457.5	1352.1	5501.4
Base	2308.5	187.4	2028.2	1338.3	5862.4
Partial Lib, 25% cut	2238.8	188.4	2035.7	1364.4	5827.2
Partial Lib, 50% cut	1953.1	178.7	2026.5	1324.1	5482.4
Full Lib, 50% sens prod.	910.5	100.8	1505.2	1088.0	3604.5
Lib 50% sens prod with WTO	2870.2	185.4	1925.4	986.8	5967.8
Full Lib	716.8	101.2	1161.1	1095.6	3074.8
Full Lib, with WTO	1138.1	185.3	985.1	1016.5	3324.9

South Korean export flows to Third Countries are low and remain modest under the baseline scenario. Under the RTA scenarios there is little impact of the different policy options on South Korean's export flows to Third Countries.

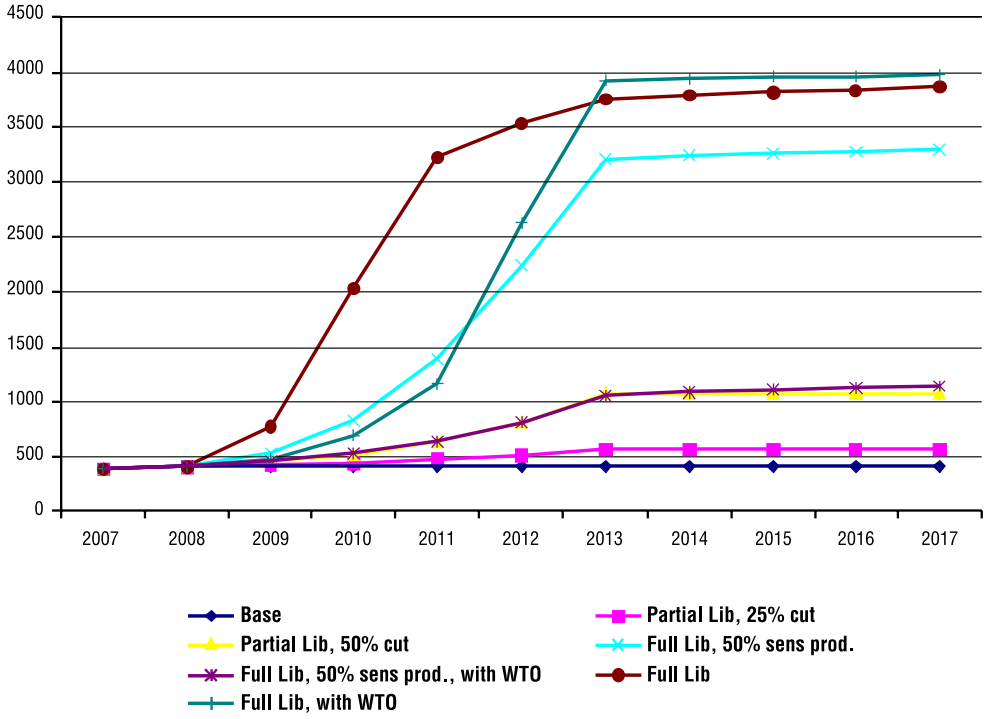
Total aggregate imports from Third Countries increase under the baseline scenario, especially due to the increase of livestock exports. Under the full liberalization scenarios, South Korean imports from Third Countries decline.

Under the baseline total agri-food imports of South Korea from the EU remain almost constant at around 400 million € (Figure 27). Under different policy options EU agri-food imports to South Korea heavily expand. The degree of tariff cuts negotiated under the RTA, however, lead to different increases in imports of around 0.5 billion € under a cut in tariffs of 25% or 4 billion € under the full liberalization in trade relations with the EU.

If a possible WTO agreement is included under the 'Full Lib' scenario imports from the EU increase only marginally relative to the 'Full Lib' scenario without a WTO agreement.

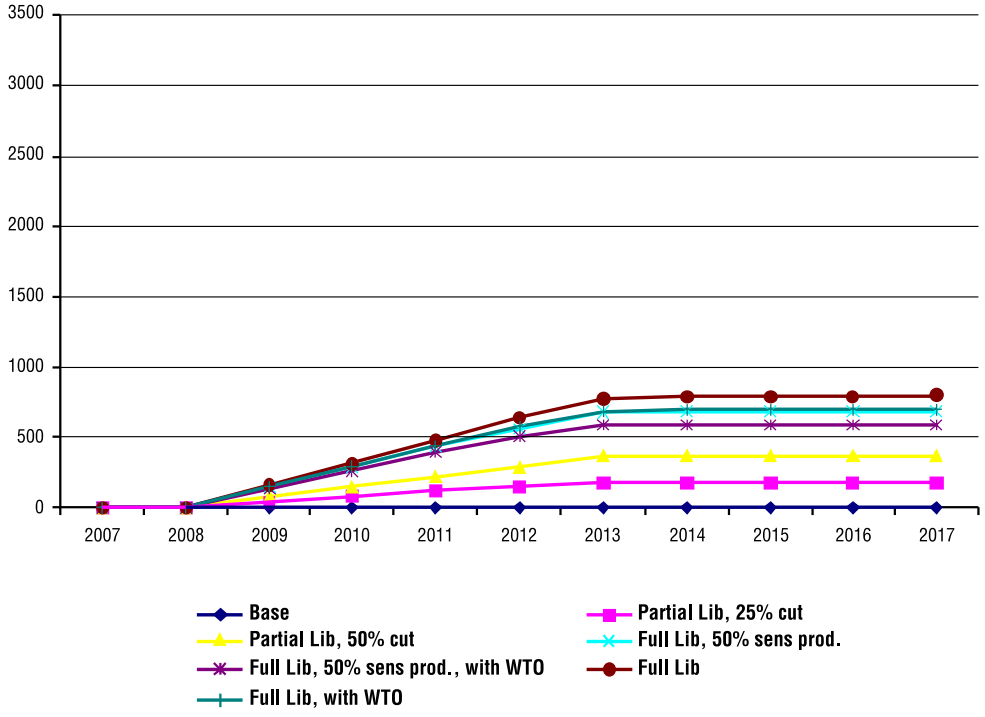
With a total sum of only 4 million € there are almost no exports in agri-food products of South Korea towards the EU under the baseline scenario (Figure 28). The improved market access to European agri-food markets shows only little incentive for Korean exporters to ship more commodities to Europe. Also under full liberalization the value of South Korean agri-food exports to the EU is equal to around 700 million €.

Figure 27. Development of Bilateral Imports of agri-food products into South Korea from the EU under different scenarios, in million €



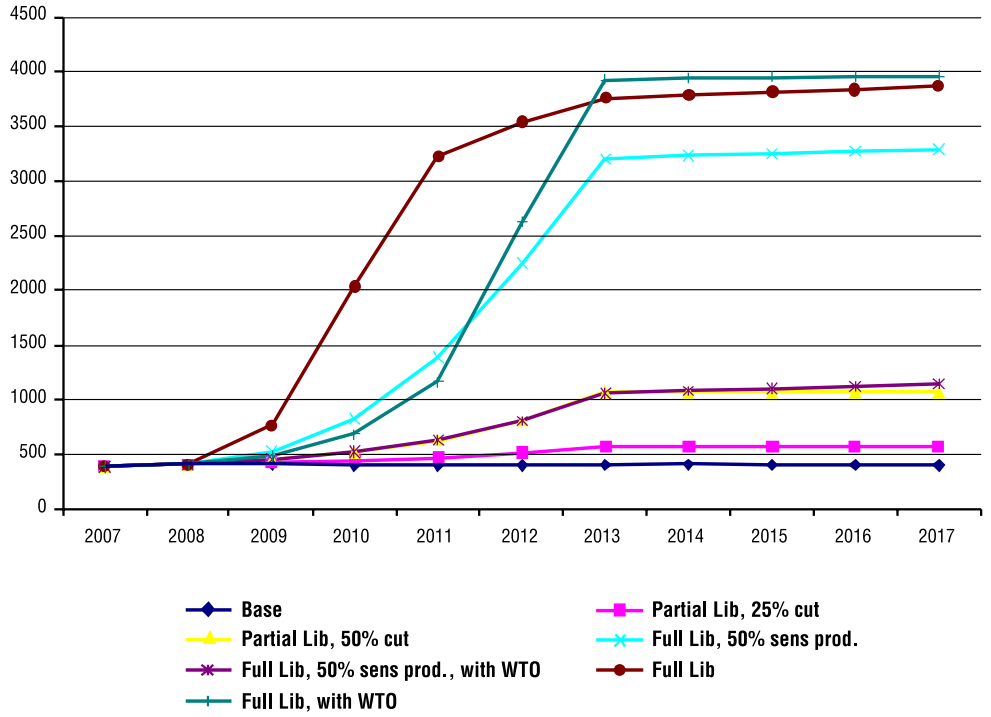
Source: PEATsim results (2007-17)

Figure 28. Development of Bilateral Exports of agri-food products from South Korea to the EU under different scenarios, in million €



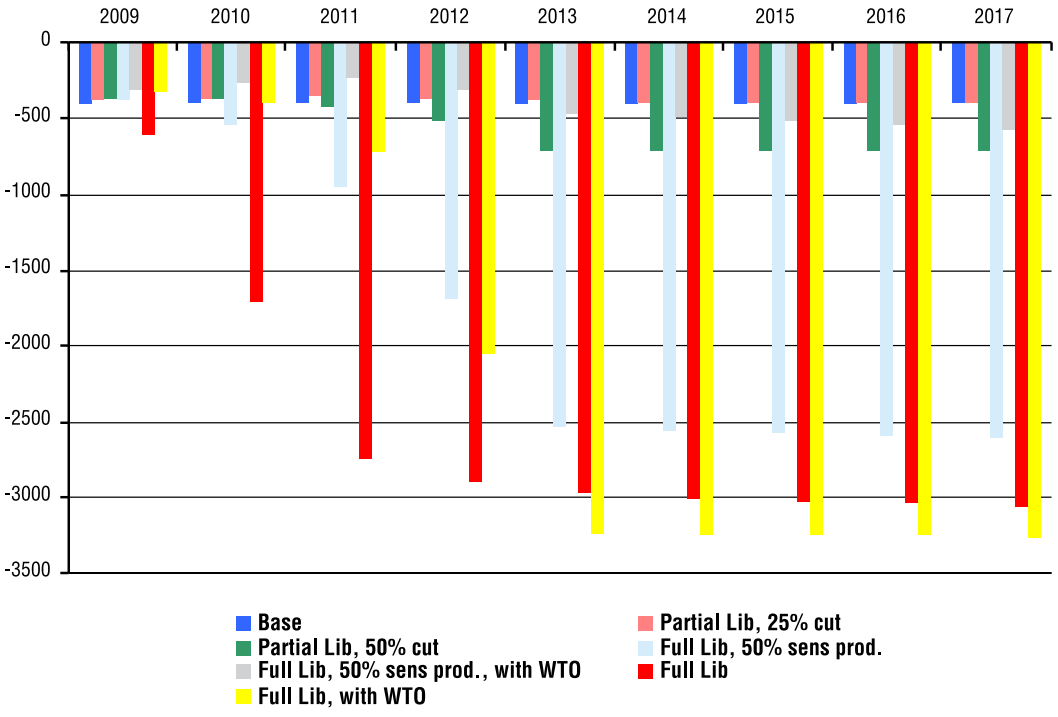
Source: PEATsim results (2007-17)

Figure 29. Development of Bilateral Imports of agri-food products to South Korea from the EU under different scenarios, in million €



Source: PEATsim results (2007-17)

Figure 30. Development of Bilateral Trade Balance in agri-food products of South Korea with the EU under different scenarios, in million €



Source: PEATsim results (2009-17)

The reason for this small expansion (in absolute terms but large increase in relative terms) is due to the applied Armington functions to model bilateral trade relations. Under this approach changes in trade are driven by the elasticity of substitution in the CES import functions and the initial trade shares. Even, if relative prices change strongly after a full liberalization and CES elasticities are set at a high level, a low initial share in trade keeps the total amount of trade induced by bilateral tariff cuts relatively small.

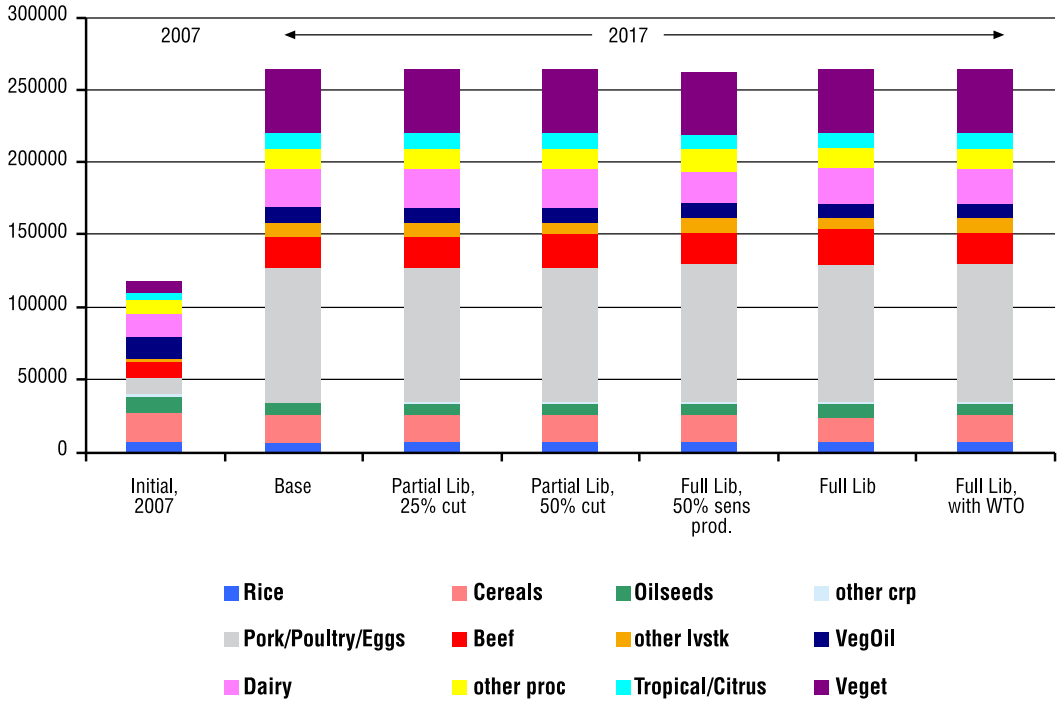
Both developments – on the import and the export side – are reflected in the change of the balance in agri-food trade between the EU and South Korea under the RTA. Under full liberalization scenarios the EU expands its agri-food exports and South Korea's trade balance deteriorates strongly. Under partial liberalization, however, with tariff cuts of 25% and 50%, respectively, the trade deficit remains relatively small. Only under full liberalization the agri-food trade deficit of South Korea increases to more than 3 billion €.

6.2.5 Impact on third countries

In Third Countries not covered under the regulation of a RTA agreement between the EU and Asian countries imports in pork, poultry meat, eggs, as well as in vegetables, strongly increase between 2007 and 2017 (Figure 31). Total imports more than double during the projection period under all scenarios and the level of aggregated imports under policy scenarios remains rather stable.

Compared to partial liberalization scenarios (in trade between the EU and Asian countries), under full liberalization policy options imports of oilseeds, beef and other livestock products increase, while other product categories are hardly affected by any of the policy options.

Figure 31. Imports of agri-food products into Third Countries, in million €



Source: PEATsim results (2007 and 2017)

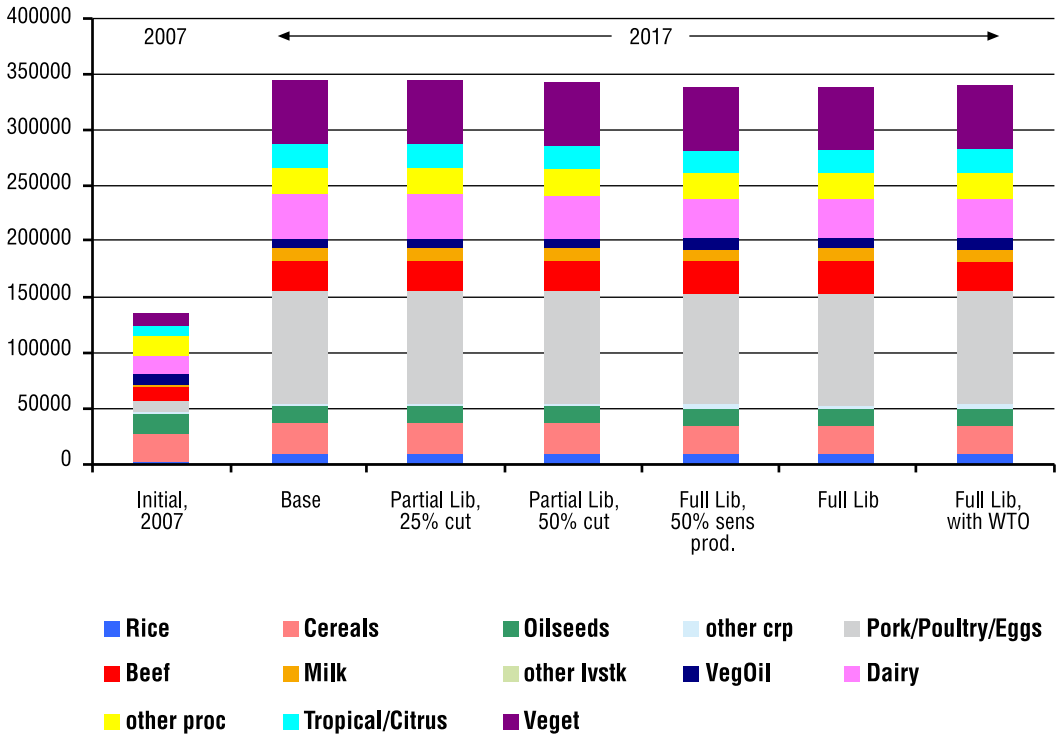
These changes are induced by relative changes in world market prices which are presented in Table N in the annex.

Exports of fruit and vegetables that expand by more than 80% under the baseline scenario between 2007 and 2017 are hardly affected by different policy options for the EU-Asian RTA (Figure 32).

Exports from Third Countries increase significantly under the baseline scenario, especially livestock products (pork, beef, dairy) and fruit and vegetables. Here the growing demand of Asian countries fuels the exports of countries outside EU Asian trade relations.

On the other hand, the different policy options for a RTA between the EU and Asian countries show no significant impact on the total of agri-food exports in countries outside the RTA.

Figure 32. Exports of agri-food products from Third Countries, in million €



Source: PEATsim results (2007 and 2017)

7 Summary and conclusions

This report highlights the importance of the Free Trade Agreements (FTA) envisaged or currently negotiated between the EU and Asian countries on trade facilitation improvements to enhance welfare and GDP growth prospects in Asian countries. A combined partial and general equilibrium modelling framework served as a methodological tool to gain a deeper understanding of the consequences of different policy options in terms of bilateral market access along the FTA between the EU and Asian partners. The two models applied are: the partial equilibrium model PEATSim (Partial Equilibrium Agricultural Trade Simulator) and the general equilibrium model LEITAP. The main part of the quantitative analysis has been achieved by PEATSim, which includes the analysis of a FTA between the EU and the Asian countries on agri-food supply, demand and trade, as well as price changes. PEATSim explicitly analyzes the impact of intensified trade relations between the EU and Asian countries in agri-food markets in both regions but also considers the consequences on agri-food markets in third countries, e.g. Australia, New Zealand, the US and China, outside the group of countries involved in a EU-Asian FTA. The analysis focuses on liberalization in agricultural and food commodities' tariffs.

In a first step the trade flows and applied trade policy measures have been analysed:

- The analysis of the comparative advantage for the initial situation reveals that most Asian countries are competitive on international markets (with a Balassa index value larger than 1.0) for rice and tropical products, e.g. tropical fresh fruits and palm oil and other tropical oils. The results for India show high Balassa index values for many primary agricultural and processed food products.
- Apart from 'classical products' such as tropical fruits and palm oil, agri-food exports from Asian countries do not seem to be competitive on international markets. Only some countries show a Balassa index larger than one for dry milk (Indonesia, Malaysia, Philippines), eggs (Thailand), sugar (Thailand), cottonseed (Vietnam) and peanuts (Vietnam).
- The applied EU tariff rates on imports from Asian countries are relatively small compared to tariff rates applied by Asian countries on imports from the EU and other countries.
- Comparing the results of the comparative advantage analysis with the initial trade policies applied prior to a FTA with the EU, one can expect that the creation of a FTA between the EU and Asian countries would have the following effects:
  - agri-food products from most Asian countries are not competitive on international markets;
  - food processing in Asian countries is currently shielded by high initial tariffs;
  - under full and even partial liberalization agri-food imports of Asian countries strongly increase.

The creation of a FTA between Asian countries and the EU creates only limited incentives for agri-food exports of the Asian countries towards the EU:

- *Asian region not part of increase in EU's preferential agreements between 2001 and 2006.* In chapter 4, trade policies reflected by ad-valorem and specific tariffs have been analysed. Data for 2001 and 2006 indicate a

strong increase in preferential tariff regimes especially for the EU and the United States. This increase in preferential regimes seems to have resulted in a preferential agreement only for Indonesia.

- *Asymmetric reciprocity of preferential agreements by the most Asian countries.* Within the Asian region most preferential treatments are granted especially by China, India and South Korea while these countries do not experience the same increase in preferential treatment by other Asian countries.
- *Preferential agreements lead to additional tariff reductions on top of an overall global trend of decreasing tariffs between 2001 and 2006.* Multilateral tariffs on agriculture have decreased more than for manufacturing products, but a preferential trade agreement leads to a stronger preference margin for manufacturing than for agriculture due to stronger reductions in tariffs for manufactured goods.
- *Vietnam and South Korea defy the global trend of decreasing tariffs.* A key difference between these two countries is that for products where South Korea has increased tariffs no exceptions are made for partners with a preferential trade agreement. Apparently these products are so sensitive that they do not qualify for preferential access. Vietnam in contrast lowers tariffs for its ASEAN partners (and occasionally for China) on some products where it increases tariffs for other countries. This, thus, increases the preference margin for its ASEAN partners.
- *Using trade weighted aggregated tariffs suggests that preferential treatment does not always occur.* Aggregated tariffs for PEATSim products have been calculated to provide a background for interpreting model results. A comparison with simple average tariffs clearly showed that trade weighting provides a good measure of the effective aggregate tariff in the base year, but may result in a tariff below preferential tariffs. Trade weighting may hide the presence of preferential agreements in the base year data.
- *Patterns in tariffs are highly product and trade flow specific.* Assessing relative tariffs across products and countries we find a huge variety in tariffs across products and across bilateral pairs. One clear pattern that we found is the tariff escalation on vegetable oils by India and Korea. A FTA with these countries may, thus, be beneficial for European producers of vegetable oils, if these products were covered by such an agreement.

Results based on the modelling tools show that the overall level of agri-food production in Asian countries is driven by growth in income and population. Under the baseline scenario, which analyses the development of agricultural and food markets between 2007 and 2017, all Asian countries show a decline in the degree of self-sufficiency. In the initial situation (2007), only the group of ASEAN countries is a net-exporter of agri-food commodities; while South Korea and India are net-importers of agri-food products. Under the baseline, without policy changes the group of ASEAN countries, South Korea and India are projected to become major net-importers of food products.

The results show that different degrees of liberalization in bilateral agricultural and food trade do not significantly affect the total amount of agricultural production in Asian countries. Under full liberalization total agri-food production in 2017 is only 0.1% higher compared to the production level under the baseline in 2017. The strongest effects of creating a FTA with Asian countries, however, are related to trade creation and trade diversion effects. At global level the creation of a FTA without considering a WTO agreement leads to a slight decline in total agri-food trade of 0.2%. Third Countries outside the EU-Asian trade agreement are negatively affected and their total agricultural exports are projected to decline by 1.8% relative to the baseline results in 2017.

The distribution of effects amongst the group of countries forming a FTA depends on their ex-ante protection levels. Here, our analysis shows that for most agricultural and food products Asian countries show higher initial protection levels than the EU. Therefore, we can expect that under full market access the EU gains more from bilateral liberalization than Asian economies. Our results show that under a bilateral full liberalization the EU's agri-food net-exports expand by more than 8.6 billion € while net-imports of Asian countries forming a FTA with the EU increase their net-imports of agri-food imports by 2.7 billion €. It should be mentioned that an increase in net-imports of Asian countries is also projected under all WTO scenarios.

Key findings of our study are in line with results from other studies, e.g. Francois at al. (2007) for Korea, Decreux and Mitaritonna (2007) for India and Boumellassa, Decreux and Fontagné (2006) for ASEAN countries. All three studies are based on analyses with general equilibrium models where agricultural activities are highly aggregated. Potential gains in creating a FTA with the EU are projected for industrial goods and services while agricultural production is less affected.

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Annex of tables

Table A. Trade-weighted tariff on crops by country pair (rows are the partner levying tariffs on countries in columns)

	Australia	China	EU	India	Indonesia	Malaysia	New Zealand	Philippines	South Korea	Thailand	United States	Vietnam
Australia		3.9	0.6	0.1	4.8	2.6	0.0	4.9	0.2	0.0	0.0	0.3
China	34.1		32.4	21.0	13.6	65.0	19.4	20.0	16.7	65.0	5.1	65.0
EU	14.3	1.1		12.9	8.9	0.1	12.0	10.2	21.6	30.4	8.6	13.8
India	11.4	30.0	69.2			43.9			30.0	58.5	53.1	
Indonesia	2.5	5.0	2.5	4.4		0.0		0.0	0.7	0.0	0.2	0.0
Malaysia	0.0	0.9	0.4	13.2	1.0		0.0	25.7	0.0	37.3	0.1	38.5
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Philippines	14.5	7.8	20.7	7.1	13.8	49.0			16.9	39.8	6.6	49.8
South Korea	39.5	414.6	2.5	120.2	7.0	316.1	46.5	11.7		5.1	440.1	3.0
Thailand	2.3	21.9	22.2	6.9	7.6	28.2	29.1	15.8			12.0	23.9
United States	0.9	1.4	3.6	2.8	4.4	26.0	2.9	5.1	5.6	2.9		5.3
Vietnam	2.5	18.6	2.9	5.4	6.3	0.9		3.0		2.6	4.5	

Note: empty cells indicate the absence of trade between the country pair.

Table B. Trade-weighted tariff on fruit and vegetables by country pair (rows are the partner levying tariffs on countries in columns)

	Australia	China	EU	India	Indonesia	Malaysia	New Zealand	Philippines	South Korea	Thailand	United States	Vietnam
Australia		0.3	0.8	0.0	0.0	0.0	0.0	0.0	4.6	0.0	0.0	0.0
China	12.0		12.5	10.6	0.0	0.0	11.2	0.1	13.0	0.0	11.1	0.0
EU	10.5	9.7		4.1	10.5	3.1	9.6	27.7	8.7	6.1	5.3	30.6
India	39.4	95.6	30.0		30.0	30.2				19.2	37.0	
Indonesia	5.0	0.0	5.0	5.0		0.0	5.0	0.0	5.0	0.0	5.0	0.0
Malaysia)	1.5	0.6	0.2	0.0	0.1		0.1	0.0	3.1	0.2	2.4	0.0
New Zealand	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0
Philippines	14.1	23.9	37.3	39.7	5.0	5.0	38.8		10.0	5.0	10.7	0.0
South Korea	46.4	168.8	52.6	29.8	62.2	79.4	30.5	30.0		55.3	50.6	216.0
Thailand	43.0	46.3	49.0	58.5	5.0	5.0	40.0	0.0	56.8		32.9	5.0
United States	2.0	1.9	2.4	16.9	23.3	4.0	7.1	7.5	21.5	4.1		0.8
Vietnam	40.0	12.6	35.2	40.0	5.0			5.0	30.1	5.0	31.4	

Note: empty cells indicate the absence of trade between the country pair.

Table C. Trade-weighted tariff on livestock by country pair (rows are the partner levying tariffs on countries in columns)

	Australia	China	EU	India	Indonesia	Malaysia	New Zealand	Philippines	South Korea	Thailand	United States	Vietnam
Australia		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
China	12.3		11.8	12.0		0.0	12.2		6.7	0.0	3.3	
EU	12.3	4.5		7.8	6.1	9.9	13.3		4.0	4.7	6.1	3.4
India	30.0		35.0		30.0	30.0	30.0		30.0	62.8	30.0	
Indonesia	5.0	0.0	4.3	4.7		0.0	5.0		5.0	0.0	5.0	
Malaysia	0.0	2.1	0.0	0.0	0.2		0.0	0.5	0.0	0.4	0.1	0.0
New Zealand	0.0	0.0	4.7			0.0			0.0	0.0	4.1	
Philippines	17.8	28.1	31.6	10.0	30.0	10.2	12.3		34.4	28.2	32.3	
South Korea	39.6	27.1	24.4	39.1	25.0	39.9	39.7	21.6		24.2	24.4	
Thailand	43.8	28.0	31.2	30.4	5.0	5.0	41.4	5.0	30.0		33.3	
United States	1.2	2.1	0.4	3.8	4.7	1.2	9.6	5.6	4.5	4.8		0.2
Vietnam	20.1	10.0	21.5	20.0		5.0	20.0	20.0	20.0	16.6	20.2	

Note: empty cells indicate the absence of trade between the country pair.

Table D. Trade-weighted tariff on processed products by country pair (rows are the partner levying tariffs on countries in columns)

	Australia	China	EU	India	Indonesia	Malaysia	New Zealand	Philippines	South Korea	Thailand	United States	Vietnam
Australia		3.5	8.1	1.5	0.2	0.8	16.3	2.4	1.6	0.0	0.2	1.8
China	37.9		15.0	30.5	6.5	8.3	10.1	0.7	48.2	43.6	38.9	9.0
EU	9.5	2.4		4.2	1.4	5.6	5.7	1.8	5.1	3.0	3.2	3.1
India	76.9	96.6	40.3		99.9	99.7	30.0	97.0	72.4	96.7	22.1	10.0
Indonesia	2.1	0.0	3.1	0.3		0.0	4.9	0.0	0.1	0.0	0.8	
Malaysi[a)]	0.5	1.9	0.8	0.1	0.2		1.0	0.1	0.1	0.4	0.2	0.4
New Zealand	27.8	235.0	7.7	0.0	3.8	0.7		258.5	202.3	2.2	0.9	0.0
Philippines	2.1	5.7	2.9	0.5	4.7	5.2	1.9		34.0	9.1	0.5	0.0
South Korea	14.3	4.6	18.8	1.7	4.3	2.4	45.7	3.0		11.2	10.5	12.7
Thailand	3.9	8.7	8.3	5.3	2.6	10.8	7.3	0.3			1.5	0.0
United States	16.5	5.4	20.2	3.8	0.5	0.0	26.7	5.2	48.4	22.4		34.4
Vietnam	18.2	3.4	19.0	0.1	6.0	9.0	17.2	10.0	9.8	24.2	10.1	

Note: empty cells indicate the absence of trade between the country pair.

Table E. Average trade-weighted tariffs on PEATSim products by country pair (in brackets the difference with unweighted tariffs)

	Australia	China	EU27	India	Indonesia	Malaysia	New Zealand	Philippines	South Korea	Thailand	United States	Vietnam
Australia	0 (0)	2.7 (1.3)	5.4 (4)	0.4 (-1.1)	1.6 (0.2)	0.8 (-0.7)	12.9 (12)	1 (-0.4)	1.7 (0.2)	0 (-0.9)	0.1 (-0.8)	1.2 (-0.2)
China	35.1 (17.8)	0 (0)	19.9 (2.7)	30.4 (13.2)	6.5 (-0.4)	8.3 (1.4)	10.4 (-6.9)	0.1 (-12.9)	48.1 (30.9)	52.4 (45.7)	16.5 (-0.7)	49.7 (41.4)
EU27	11.9 (-0.3)	2.8 (-8.4)	0 (0)	10.3 (-0.9)	1.4 (-9.8)	5.4 (-6.8)	11.4 (-0.8)	2 (-9.2)	5.7 (-6.5)	23.7 (12.5)	7.7 (-4.5)	16.5 (5.3)
India	45.3 (1.6)	93.9 (50.2)	39.8 (-3.9)	0 (0)	99.9 (56.2)	99.7 (56)	30 (-13.7)	97 (53.3)	72 (28.6)	77.3 (34.8)	22.6 (-21.2)	10 (-33.7)
Indonesia	2.4 (-1.7)	0.2 (-0.5)	3.1 (-1)	1.3 (-2.8)	0 (0)	0 (0)	4.9 (0.8)	0 (0)	0.2 (-3.9)	0 (0)	0.6 (-3.5)	0 (0)
Malaysia a)	0.3 (-2.1)	0.8 (-1.5)	0.6 (-1.7)	1.1 (-1.3)	0.2 (-1.6)	0 (0)	0.8 (-1.6)	0.1 (-1.7)	0.6 (-1.8)	20.8 (19)	0.4 (-1.9)	36.4 (34.6)
New Zealand	10.1 (7.9)	36.9 (33.7)	6.8 (3.4)	0 (-3.2)	3.7 (0.5)	0.7 (-2.7)	0 (0)	0.1 (-3.1)	174.9 (171.5)	0.1 (-2.2)	1.5 (-1.9)	0 (-3.2)
Philippines	6.1 (-9.2)	14.6 (-0.8)	7.5 (-7.9)	7.7 (-7.7)	6.8 (-0.5)	5.2 (-2.1)	2.1 (-13.2)	0 (0)	33.6 (18.3)	22.1 (14.8)	5.1 (-10.3)	49.8 (42.5)
South Korea	31.2 (-27.2)	387.7 (329.2)	22 (-36.4)	4 (-54.4)	6 (-52.5)	2.4 (-56)	41.6 (-16.8)	24.2 (-34.2)	0 (0)	9.4 (-49)	268.5 (210.1)	14.6 (-43.8)
Thailand	4 (-24.5)	33.7 (5.1)	9 (-19.6)	5.6 (-23)	2.8 (-4.5)	10.2 (2.9)	8 (-20.6)	0.6 (-6.8)	33.4 (4.8)	0 (0)	6.5 (-22.1)	23.6 (16.3)
United States	3 (-4.2)	2.1 (-7.4)	16 (2.6)	3.6 (-6)	0.9 (-8.7)	0 (-13.3)	16.5 (3.1)	5.4 (-4.2)	45.7 (32.4)	3.5 (-6)	0 (0)	16.3 (6.7)
Vietnam	9 (-13.4)	14.2 (0.1)	18.8 (-3.6)	1.6 (-20.8)	6 (-2.6)	9 (0.4)	17.3 (-5.1)	10.8 (2.3)	10 (-12.4)	16.3 (7.8)	10.7 (-11.6)	0 (0)

Note: empty cells indicate the absence of trade between the country pair.

Table F. Trade-weighted tariff on crops by country pair (rows are the partner levying tariffs on countries in columns)

	Australia	China	EU27	India	Indonesia	Malaysia	New Zealand	Philippines	South Korea	Thailand	United States	Vietnam
Australia		3.9	0.6	0.1	4.8	2.6	0.0	4.9	0.2	0.0	0.0	0.3
China	34.1		32.4	21.0	13.6	65.0	19.4	20.0	16.7	65.0	5.1	65.0
EU27	14.3	1.1		12.9	8.9	0.1	12.0	10.2	21.6	30.4	8.6	13.8
India	11.4	30.0	69.2			43.9			30.0	58.5	53.1	
Indonesia	2.5	5.0	2.5	4.4		0.0		0.0	0.7	0.0	0.2	0.0
Malaysia	0.0	0.9	0.4	13.2	1.0		0.0	25.7	0.0	37.3	0.1	38.5
New Zealand	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Philippines	14.5	7.8	20.7	7.1	13.8	49.0			16.9	39.8	6.6	49.8
South Korea	39.5	414.6	2.5	120.2	7.0	316.1	46.5	11.7		5.1	440.1	3.0
Thailand	2.3	21.9	22.2	6.9	7.6	28.2	29.1	15.8			12.0	23.9
United States	0.9	1.4	3.6	2.8	4.4	26.0	2.9	5.1	5.6	2.9		5.3
Vietnam	2.5	18.6	2.9	5.4	6.3	0.9		3.0		2.6	4.5	

Note: empty cells indicate the absence of trade between the country pair.

Table G. Balassa Index Arable Crops and Livestock Products, PEATSIM aggregation, 2004

	EU27	India	Indonesia	Malaysia	Philippines	Rest of ASEAN	South Korea	Thailand	Viet Nam
Arable Crops									
Barley	1.5	0.0	0.0	0.0	-	0.0	0.0	0.0	-
Cottonseed	0.7	0.1	0.1	0.0	0.1	0.0		0.1	2.0
Maize	0.6	0.6	0.1	0.0	0.0	0.2	0.0	0.2	0.0
Other Coarse Grains	0.6	0.9	0.0	0.0	0.0	0.0	0.0	0.0	
Peanuts	0.5	4.2	0.5	0.2	0.1	0.2	0.0	0.2	4.5
Rapeseed	1.1	0.0	0.0	-	-	0.0	-	0.0	-
Rice	0.3	14.7	0.2	0.0	0.0	0.3	0.0	21.4	33.3
Soybeans	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Sugar	0.8	0.4	0.0	0.3	0.9	0.1	0.2	4.0	0.0
Sunflowerseed	1.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wheat	0.8	0.8	0.0	0.0		0.0	0.0	0.0	
Livestock									
Beef and Veal	1.1	2.6	0.0	0.0	0.0	0.0	0.0	0.0	
Butter	1.8	0.3	0.0	0.1	0.0	0.1	0.0	0.0	0.0
Cheese	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
Eggs	1.9	3.0	0.0	1.7	0.0	0.0	0.0	0.4	0.3
Nonfat Dry Milk	1.2	2.0	0.2	0.4	0.0	0.5	0.0	0.1	0.0
Other Dairy Products	1.9	0.8	0.1	0.1	0.0	0.1	0.1	0.4	0.0
Pork	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
Poultry Meat	1.3	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0
Sheep and Goat Meat	0.7	0.8	0.0	0.0	-	0.0	-	0.0	0.0
Whole Dry Milk	1.1	0.7	1.3	1.0	2.0	1.0	0.0	0.2	0.0

Table H. Balassa Index Vegetable and Fruit Products and Processed Products

	EU27	India	Indonesia	Malaysia	Philippines	Rest of ASEAN	South Korea	Thailand	Viet Nam
Vegetable and fruits									
Citrus (Fresh)	1.4	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Fresh Vegetables	1.6	0.9	0.1	0.2	0.2	0.1	0.2	0.4	0.1
Other Tropical Fresh									
Fruits	0.3	0.7	0.1	0.2	13.9	0.0	0.0	0.7	0.1
Processed products									
Cotton	0.2	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cottonseed Meal	0.1	1.2	0.2			0.0		0.0	
Cottonseed Oil	0.4	0.2	0.0	0.8	0.1	0.8	0.0	0.0	
Olive Oil	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Tropical Oils	0.3	0.4	35.8	14.5	36.6	0.6	0.0	1.1	0.2
Palm Oil	0.2	0.1	35.2	30.2	0.0	1.4	0.0	0.4	0.0
Peanut Meal	0.2	61.5		0.0		0.0			
Peanut Oil	0.4	7.8	0.3	0.3		0.4	0.0	0.0	0.8
Rapeseed Meal	1.5	11.2	0.0	0.0		0.0		0.0	
Rapeseed Oil	1.7	0.1	0.0	0.6	0.0	0.2	0.0	0.0	0.0
Soybean Meal	0.4	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Soybean Oil	0.5	0.3	0.0	0.8	0.1	0.1	0.0	0.2	0.0
Sunflowerseed Meal	0.9	1.3	0.0	0.0		0.0			
Sunflowerseed Oil	0.9	0.1	0.0	0.6	0.0	0.2	0.0	0.0	0.0

Table I. Potential sensitive products of the EU (total average tariffs in %, trade flow in million US $, 2006)

Code	Description[27]	Tariff (%)	India	Indonesia	Malaysia	Philippines	South Korea	Thailand	Vietnam
230890	Maize stalks, maize leave	430	32	0	4207	14	50	190	0
200960	Grape juice, incl. grape	137	0	0	5	0	1	5	0
080300	Bananas, incl. plantains	122	52	56	1	632	0	282	230
230700	Wine lees; argol	109	0	0	0	0	0	0	0
040229	Milk and cream (solid)	101	620	0	0	5	0	6	0
230230	Bran, sharps etc.	96	10	0	0	0	0	0	0
100610	Rice in the husk, 'paddy'	83	128	15	0	0	1	3424	8
200830	Citrus fruit (prepared)	77	179	2	0	253	107	772	0
100400	Oats	68	16	0	0	2	0	0	0
040299	Milk and cream	67	4	3	0	0	0	13	0
100300	Barley	67	15	0	16	0	1	3	0
110329	Cereal pellets	63	0	0	0	0	0	0	0
230310	Residues of starch	62	1	0	0	0	0	0	0
152200	Degras; residues	62	46	2	1255	0	0	0	0
110422	Hulled/pearled/sliced oats	61	0	0	0	0	0	0	0
240310	Smoking tobacco	59	293	230	316	0	22	0	241
220510	Vermouth and other wine	58	0	0	1	0	0	63	0
200310	Mushrooms (prepared)	57	744	917	2	0	1	75	254
220890	Ethyl alcohol	56	5	776	60	0	353	247	69
230990	Animal fodder	54	2451	542	6019	97	190	1275	0
110814	Manioc starch	54	0	175	0	0	0	6135	322
220710	Undenatured ethyl alcohol	52	204	0	0	0	0	0	0
100640	Broken rice	50	453	1	7	0	1	19769	27
040410	Whey and modified whey	49	0	18	0	0	121	151	0
200840	Pears (prepared)	49	0	0	0	0	0	20	0
200870	Peaches (prepared)	49	0	14	0	7	31	1021	0
040110	Milk and cream of a fat	49	0	0	0	0	12	13	0
110319	Groats and meal of cereal	49	6	0	3	0	15	0	0
110311	Groats and meal of wheat	46	10	0	0	4	0	6	0
240290	Cigars, cheroots	45	15	0	3202	0	0	0	0
200860	Cherries (prepared)	44	44	1	0	14	22	87	0
200850	Apricots (prepared)	44	18	0	0	0	0	81	0
200880	Strawberries (prepared)	44	269	0	0	3	0	550	0
200799	Jams, jellies, marmalades	43	1235	63	176	434	6	100	17
110710	Malt (excl. roasted)	41	0	0	0	0	0	0	0
230220	Bran, sharps etc.	40	106	1	0	0	0	0	0
200820	Pineapples (prepared)	40	271	61513	1574	23321	0	125695	1313
110313	Groats and meal of maize	39	12	3	0	0	0	3	0
020220	Frozen bovine cuts	39	486	0	0	0	0	0	0
081110	Frozen strawberries	38	17	22	0	0	0	7	0
100190	Wheat and meslin	37	120	0	0	0	0	0	0
200791	Citrus fruit jams, jellies	37	9	0	0	0	31	0	1
110811	Wheat starch	35	2	0	0	0	0	11	0
100700	Grain sorghum	35	82	0	0	0	0	0	0
100590	Maize (excl. seed)	34	47	0	3	0	0	1261	3

27 Descriptions are abbreviated. Full detailed descriptions are available on request using the code reference.

Table J. Potential sensitive products of India (total average tariffs in %, trade flow in million US $, 2006)

Code	Description[28]	Tariff (%)	EU	Indonesia	Malaysia	Philippines	South Korea	Thailand	Vietnam
220710	Undenatured ethyl alcohol	182	301	0	0	0	0	1536	0
220820	Spirits (distilled)	182	2027	0	305	0	0	0	0
220830	Whiskies	182	32893	0	480	0	0	0	0
220840	Rum and taffia	182	397	0	2	0	0	0	0
220850	Gin and geneva	182	509	0	1	0	0	0	0
220860	Vodka	182	1094	0	28	0	0	0	0
220870	Liqueurs and cordials	182	844	0	2	0	0	0	0
220890	Ethyl alcohol	182	4244	0	31	0	0	1	0
210690	Food preparations n.e.s.	160	2942	9	969	94	106	1061	3
080620	Dried grapes	105	85	0	0	0	0	0	0
020713	Fresh or chilled cuts/offal	100	7	0	0	0	0	0	0
020714	Frozen cuts/offal	100	122	0	0	0	0	34	0
070320	Garlic (fresh/chilled)	100	0	0	0	0	0	0	0
080290	Nuts (fresh/dried)	100	7	12592	542	0	0	1615	0
090111	Coffee (excl. roasted)	100	55	17084	0	0	112	204	18049
090112	Decaffeinated coffee	100	0	0	0	0	0	0	0
090121	Roasted coffee	100	133	0	0	0	0	0	0
090122	Roasted, decaff. coffee	100	25	0	0	0	0	0	0
090190	Coffee husks and skins	100	24	0	0	0	4	18	0
090210	Green tea	100	95	10	0	0	1	0	0
090220	Green tea	100	124	0	0	0	0	1	0
090230	Black fermented tea	100	207	304	0	0	0	0	0
090240	Black fermented tea	100	466	2184	291	0	0	5	3337
150810	Crude ground-nut oil	100	0	0	0	0	0	0	0
150890	Ground-nut oil	100	3	0	0	0	0	0	0
151110	Crude palm oil	100	29	650553	106756	0	0	538	0
151190	Palm oil	100	15	184192	49400	0	0	0	0
151211	Crude sunflower-seed	100	0	0	0	0	0	0	0
151219	Sunflower-seed	100	46	0	1217	0	0	0	0
151221	Crude cotton-seed oil	100	0	0	0	0	0	0	0
151229	Cotton-seed oil	100	0	0	18	0	0	0	0
151311	Crude coconut oil	100	0	950	433	0	0	0	0
151321	Crude palm kernel	100	0	65399	996	0	0	0	0
151329	Palm kernel	100	0	202	817	0	0	0	0
151511	Crude linseed oil	100	13	0	0	0	0	0	0
151519	Linseed oil and fractions	100	1	0	0	0	0	0	0
151521	Crude maize oil	100	0	0	0	0	0	0	0
151529	Maize oil and fractions	100	0	0	82	0	0	0	0
151530	Castor oil and fractions	100	11	0	0	0	0	0	0
151540	Tung oil and its fraction	100	0	0	0	0	0	6	0
151550	Sesame oil and fractions	100	64	0	0	0	0	46	0
160100	Sausages	100	239	0	0	0	0	4	0
160232	Prepared/preserved meat	100	58	0	0	0	0	0	0
170111	Raw cane sugar	100	51	0	0	0	0	0	0
170112	Raw beet sugar	100	82	0	0	0	0	0	0

28 Descriptions are abbreviated. Full detailed descriptions are available on request using the code reference.

Table K. Potential sensitive products of Indonesia (total average tariffs in %, trade flow in million US $, 2006)

Code	Description[29]	Tariff (%)	EU	India	Malaysia	Philippines	South Korea	Thailand	Vietnam
220410	Sparkling wine	170	225	0	6	0	0	0	0
220430	Grape must	170	0	0	211	0	0	0	0
220510	Vermouth and other wine	170	0	0	2	0	0	0	0
220590	Vermouth and other wine	170	0	0	0	0	0	0	0
220820	Spirits (distilled)	170	87	205	5183	0	0	0	0
220830	Whiskies	170	112	0	4440	14	176	0	0
220840	Rum and taffia	170	0	0	75	0	0	0	0
220850	Gin and geneva	170	0	0	46	24	0	0	0
220860	Vodka	170	0	0	44	0	0	0	0
220870	Liqueurs and cordials	170	5	0	266	0	0	43	0
220890	Ethyl alcohol	170	32	0	217	0	233	0	0
220600	Cider, perry, mead	143	172	0	31	0	10	0	0
220421	Wine of fresh grapes	130	1078	0	842	0	0	12	0
220429	Wine of fresh grapes	130	27	0	78	0	0	0	0
220300	Beer made from malt	40	58	0	3176	0	11	54	0
210690	Food preparations n.e.s.	20	47774	116	14848	491	17109	6456	0
220710	Undenatured ethyl alcohol	16	207	0	0	0	0	0	0
220720	Denatured ethyl alcohol	16	0	0	33	57	0	0	0
240220	Cigarettes	9	76	16	617	1826	1884	3	0
240290	Cigars, cheroots	9	3	0	102	0	0	0	0
240310	Smoking tobacco	9	1340	32	34925	0	2	15	0
060310	Fresh cut flowers	9	280	7	3	0	0	16	25
060390	Dried, dyed flowers	9	1	0	1	0	0	8	0
060410	Mosses and lichens	9	0	0	0	0	0	0	0
060491	Foliage, branches etc.	9	0	0	0	0	0	32	0
060499	Foliage, branches etc.	9	7	0	2	0	0	8	0
240399	Chewing tobacco, snuff	8	31	0	6	3	0	0	0
240210	Cigars, cheroots	6	3	0	227	111	0	0	0
240391	Tobacco ('homogenized')	6	334	0	4	0	0	0	0
071040	Sweetcorn	5	15	0	16	0	0	0	0
090700	Cloves, whole fruit	5	0	0	254	0	0	0	0
110329	Cereal pellets	5	0	0	0	0	0	0	0
120300	Copra	5	0	0	0	0	0	0	0
121220	Seaweeds and other algae	5	20	48	0	35	197	0	0
150410	Fish-liver oils	5	30	0	16	0	149	1	0
150430	Fats and oils	5	16	0	0	0	0	0	0
151710	Margarine (excl. liquid)	5	177	0	38	0	34	0	0
152000	Glycerol 'glycerine'	5	9	0	17	0	0	0	0
160241	Hams and cuts thereof	5	7	0	0	0	7	0	0
160242	Prepared shoulders/cuts	5	0	0	0	0	0	0	0
160249	Prepared/preserved meat	5	105	0	13	0	5	0	0
160290	Prepared/preserved meat	5	0	0	2	0	3	0	0
160300	Extracts/juices of meat	5	39	0	106	0	87	0	0
160416	Prepared anchovies	5	0	0	0	0	3	182	0
160419	Prepared/preserved fish	5	0	0	147	0	59	0	0

29 *Descriptions are abbreviated. Full detailed descriptions are available on request using the code reference.*

Table L. Potential sensitive products of Malaysia (total average tariffs in %, trade flow in million US $, 2006)

Code	Description[30]	Tariff (%)	EU	India	Indonesia	Philippines	South Korea	Thailand	Vietnam
100610	Rice in the husk, 'paddy'	40	0	4	0	0	0	0	0
100620	Husked or brown rice	40	0	9	0	0	0	2127	523
100630	Wholly/semi-milled rice	40	8	4420	3	65	0	105658	67015
100640	Broken rice	40	0	11	0	0	0	3859	249
200940	Pineapple juice	16	45	0	36	0	0	69	3
180310	Cocoa paste	14	0	0	0	0	0	0	0
210210	Active yeasts	14	1490	3	14	0	0	0	2422
220290	Non-alcoholic beverages	12	406	3	202	8	64	3927	6
080111	Desiccated coconuts	11	0	0	246	39	0	15	22
160300	Extracts/juices of meat	11	591	0	1	0	33	0	0
210310	Soya sauce	11	3	38	606	1	4	50	0
210320	Tomato ketchup	11	261	0	59	1	0	30	0
210610	Protein concentrates	11	237	39	0	1	12	252	5
220110	Mineral waters	11	1518	0	4	0	14	84	0
220210	Waters	11	113	0	101	1636	22	149	0
180320	Cocoa paste	11	0	0	0	0	0	0	0
180610	Cocoa powder, sweetened	11	73	0	31	5	0	4	0
160100	Sausages	10	3455	0	8	0	0	17	0
081050	Fresh kiwifruit	9	220	0	0	0	0	0	0
170410	Chewing gum	9	118	0	786	1848	73	1704	97
170490	Sugar confectionery	9	1029	18	8106	15	45	4491	821
180620	Chocolate and other food	9	176	10	227	0	0	78	0
180631	Chocolate	9	1388	0	133	3	21	141	0
180632	Chocolate	9	1079	0	363	23	1	3	0
180690	Chocolate	9	2945	295	311	1	15	1349	12
040310	Yogurt	9	52	0	56	0	0	566	0
030751	Live/fresh molluscs	9	0	0	3	0	0	0	0
160412	Prepared herrings	9	15	15	0	0	0	0	0
200819	Nuts and other seeds	8	10	292	60	53	0	90	22
210112	Essence preparations	8	416	2791	2342	119	21	26	0
210120	Extracts, essences	8	1465	376	33	15	40	130	5
040390	Buttermilk, curdled milk	8	1366	0	0	0	0	469	0
160414	Prepared/preserved tuna	8	5	0	71	17	0	3240	3
210390	Preparations for sauces	8	2212	267	415	477	42	3245	6
210690	Food preparations n.e.s.	8	54144	856	4010	263	807	16189	552
090230	Black fermented tea	8	128	178	1131	0	0	2	7
090240	Black fermented tea	8	728	115	8800	0	51	23	643
081350	Mixed nuts/dried fruit	7	0	0	0	0	0	30	2
040630	Processed cheese	7	208	0	0	8	0	0	0
080590	Fresh/dried citrus fruit	7	2	2	3	0	0	66	0
081400	Peel of citrus fruit	7	0	1	19	0	0	0	0
150410	Fish-liver oils	7	251	1	0	0	173	0	0
151710	Margarine (excl. liquid)	7	1122	20	94	0	0	0	0
160416	Prepared anchovies	7	37	0	0	0	0	123	0
180500	Cocoa powder	7	193	0	235	1	3	1140	0

30 *Descriptions are abbreviated. Full detailed descriptions are available on request using the code reference.*

Table M. Potential sensitive products of Philippines (total average tariffs in %, trade flow in million US $, 2006)

Code	Description[31]	Tariff (%)	EU	India	Indonesia	Malaysia	South Korea	Thailand	Vietnam
100620	Husked or brown rice	50	0	0	0	0	0	0	0
100630	Wholly/semi-milled rice	50	8	926	0	13	0	16580	482706
100640	Broken rice	50	0	0	0	103	0	698	131
170111	Raw cane sugar	46	0	0	0	0	0	0	0
170112	Raw beet sugar	43	0	0	0	0	0	0	0
170199	Cane or beet sugar	37	1137	0	1	1327	5662	5355	0
020711	Fresh or chilled fowls	34	0	0	0	0	0	0	0
020712	Frozen fowls	34	54	0	0	6	0	0	0
020713	Fresh or chilled cuts/offal	34	0	0	0	1	0	0	0
020714	Frozen cuts/offal	34	310	0	0	7	10	0	0
020735	Fresh/chilled poultry cuts	34	0	0	0	0	0	0	0
071410	Fresh or dried manioc	34	0	0	6	2	0	0	0
071420	Sweet potatoes	34	0	0	0	0	0	0	0
020727	Frozen poultry cuts	33	209	0	0	0	0	0	0
020732	Fresh or chilled ducks	33	0	0	0	0	0	0	0
020311	Fresh or chilled carcases	32	0	0	0	0	0	0	0
020312	Fresh or chilled hams	32	23	0	0	0	0	0	0
020319	Fresh or chilled meat	32	116	0	0	0	0	0	0
020321	Frozen carcases	32	46	0	40	0	0	0	0
020322	Frozen hams, shoulders	32	727	0	0	0	0	0	0
020329	Frozen meat of swine	32	6384	71	0	0	868	42	0
010391	Live pure-bred swine	31	0	0	0	0	0	0	0
100590	Maize (excl. seed)	26	0	0	3447	0	23	85	0
010392	Live pure-bred swine	25	0	0	0	0	0	0	0
100610	Rice in the husk, 'paddy'	25	0	778	0	0	1	166	0
020736	Frozen poultry cuts	25	61	0	0	9	0	0	0
160210	Homogenized preparations	22	0	0	0	6	0	0	0
010511	Live fowls	22	2368	0	0	0	0	0	0
020724	Fresh or chilled turkeys	20	0	0	0	0	0	0	0
020726	Fresh/chilled poultry cuts	20	0	0	0	0	0	0	0
020733	Frozen ducks, geese	20	1	0	0	0	7	0	0
020734	Fresh/chilled fatty livers	20	0	0	0	0	0	0	0
021011	Unboned hams, shoulders	20	11	0	0	0	0	0	0
021012	Bellies and cuts thereof	20	8	0	0	0	0	0	0
021019	Meat of swine (salted)	20	147	0	0	0	0	1	0
070190	Fresh or chilled potatoes	20	1601	0	0	0	0	0	0
070310	Fresh or chilled onions	20	1192	100	0	68	0	18	0
070320	Garlic (fresh or chilled)	20	0	9	0	291	0	26	0
090112	Decaffeinated coffee	20	9	0	18	1	0	0	0
090121	Roasted coffee	20	157	0	0	14	0	0	0
090122	Roasted, decaff. coffee	20	37	0	0	2	0	0	0
090190	Coffee husks and skins	20	11	0	4	3	0	1	0
110313	Groats and meal of maize	20	105	0	0	0	0	0	0
110423	Hulled/pearled maize	20	0	0	0	0	0	0	0
160100	Sausages	20	185	0	0	0	0	0	0

31 Descriptions are abbreviated. Full detailed descriptions are available on request using the code reference.

Table N. Potential sensitive products of South Korea (total average tariffs in %, trade flow in million US $, 2006)

Code	Description[32]	Tariff (%)	EU	India	Indonesia	Malaysia	Philippines	Thailand	Vietnam
120100	Soya beans	974	0	4	4	0	0	0	0
100890	Cereals (excl. wheat)	800	0	0	0	0	0	0	0
110820	Inulin	800	122	0	0	0	0	0	0
091010	Ginger	754	0	1	1	0	0	13	0
071410	Fresh or dried manioc	747	0	0	5453	0	0	9495	17172
071420	Sweet potatoes	702	0	0	154	0	4	0	0
100300	Barley	671	0	0	0	0	0	0	0
120740	Sesamum seeds	630	0	9804	0	0	0	0	0
151550	Sesame oil	630	12	2	0	0	0	0	0
071331	Dried, shelled beans	608	0	0	0	0	0	0	0
110429	Grains of cereals, hulled	576	0	0	36	0	0	0	0
110412	Rolled or flaked grains	555	12	0	0	0	0	0	0
110422	Hulle/pearled/sliced oats	555	1	0	0	0	0	0	0
110290	Cereal flours	530	196	1	0	0	0	2	0
110819	Starch (excl. wheat/maize)	521	0	5	0	0	0	0	0
090210	Green tea	514	22	1	67	0	0	0	0
090220	Green tea	514	5	1	0	0	0	0	0
121120	Ginseng roots	483	0	0	0	0	0	0	0
110813	Potato starch	455	13860	0	67	0	0	166	0
110814	Manioc starch	455	0	0	0	0	0	2912	179
100590	Maize (excl. seed)	429	1	0	0	0	2	0	0
071332	Dried adzuki beans	421	0	0	0	0	0	0	0
110319	Groats and meal of cereal	405	0	0	0	0	0	0	0
100700	Grain sorghum	391	0	0	0	0	0	0	0
070320	Garlic (fresh or chilled)	360	0	0	0	0	0	0	0
110419	Rolled or flaked grains	346	0	0	0	0	0	0	0
110329	Cereal pellets	338	0	0	0	0	0	0	0
100510	Maize seed	328	0	29	0	8	0	1	0
070110	Seed potatoes	304	3	0	0	0	0	0	0
070190	Fresh or chilled potatoes	304	0	0	0	0	0	0	0
110510	Potato flour and meal	304	136	0	0	3	0	0	0
110520	Flakes, granules	304	126	0	0	0	0	0	0
110311	Groats and meal of wheat	288	0	1	0	0	0	0	0
100400	Oats	279	0	0	0	0	0	0	0
080290	Nuts, fresh or dried	277	0	37	7	1	0	0	0
070960	Fresh or chilled fruits	270	5	0	1	0	3	0	0
071220	Dried onions, whole, cut	270	0	3	0	0	0	0	0
090420	Capsicum fruit/pepper	270	593	21	103	0	0	20	4
110710	Malt (excl. roasted)	269	5259	0	0	0	0	0	0
100810	Buckwheat	256	0	0	0	0	0	0	0
040900	Natural honey	243	61	0	2	0	0	0	163
081340	Dried peaches, pears	236	90	87	2	0	40	45	0
120210	Ground-nuts in shell	231	0	0	1	0	0	0	0
120220	Shelled ground-nuts	231	0	0	0	0	0	0	0
110812	Maize starch	226	152	0	0	0	0	1	0

32 *Descriptions are abbreviated. Full detailed descriptions are available on request using the code reference.*

Table O. Potential sensitive products of Thailand (total average tariffs in %, trade flow in million US $, 2006)

Code	Description[33]	Tariff (%)	EU	India	Indonesia	Malaysia	Philippines	South Korea	Vietnam
220710	Undenatured ethyl alcohol	239	644	0	0	137	0	0	783
100200	Rye	50	0	0	0	0	0	0	0
100400	Oats	49	0	0	0	0	0	0	0
100590	Maize (excl. seed)	47	0	48	0	1	0	0	0
100700	Grain sorghum	46	0	100	0	0	0	0	0
070110	Seed potatoes	43	1859	0	0	0	0	0	0
070190	Fresh or chilled potatoes	43	916	0	9	70	0	0	0
100300	Barley	43	0	0	0	20	0	0	0
170390	Beet molasses	42	1	0	0	0	118	0	0
060310	Fresh cut flowers	40	55	6	43	486	0	0	0
090111	Coffee (excl. roasted)	40	0	0	3	0	0	0	0
090112	Decaffeinated coffee	40	7	0	0	10	0	0	0
090190	Coffee husks and skins	40	10	0	13	1	3	0	0
120740	Sesamum seeds	35	0	142	0	0	0	0	0
170310	Cane molasses	32	0	0	0	0	0	0	0
151800	Animal or vegetable fats	31	143	0	0	185	0	1014	0
170191	Refined cane/beet sugar	31	3	0	0	0	0	0	0
120600	Sunflower seeds	30	18	20	0	0	0	0	0
100610	Rice in the husk, 'paddy'	29	0	0	0	0	0	0	0
170111	Raw cane sugar	29	0	10	0	0	0	0	0
070310	Fresh or chilled onions	29	146	34	422	1804	0	0	0
070320	Garlic (fresh or chilled)	29	0	0	0	709	0	28	0
071220	Dried onions, whole, cut	29	0	0	0	0	0	0	0
090210	Green tea	29	72	0	34	28	0	0	0
090220	Green tea	29	18	15	0	48	0	0	0
090230	Black fermented tea	29	239	106	0	2	0	0	0
090240	Black fermented tea	29	108	615	335	4	0	0	0
210111	Extracts, essences	29	1985	0	1122	19	0	0	1
210112	Essence preparations	29	298	0	463	6641	74	17	1
220290	Non-alcoholic beverages	29	149	0	51	22	0	3	44
220300	Beer made from malt	29	1655	3	3221	745	27	2	244
220421	Wine of fresh grapes	29	8633	0	0	4726	0	0	0
220429	Wine of fresh grapes	29	670	0	0	127	0	0	6
220430	Grape must	29	1	0	0	36	0	0	0
220510	Vermouth and other wine	29	140	0	0	5	0	0	0
220590	Vermouth and other wine	29	1	10	0	0	0	0	0
220600	Cider, perry, mead	29	132	0	0	7	0	15	421
220820	Spirits (distilled)	29	6597	0	0	6288	2726	0	0
220830	Whiskies	29	93926	42	31	3499	8160	126	0
220840	Rum and taffia	29	326	470	0	93	118	0	0
220860	Vodka	29	1958	63	0	83	81	0	25
220870	Liqueurs and cordials	29	3174	341	0	567	11068	81	33
220890	Ethyl alcohol	29	770	0	0	83	264	177	2
220900	Vinegar and substitutes	29	192	0	0	1	0	0	0
240110	Tobacco, not stemmed	29	0	787	147	0	0	0	0

33 Descriptions are abbreviated. Full detailed descriptions are available on request using the code reference.

Table P. Potential sensitive products of Vietnam (total average tariffs in %, trade flow in million US $, 2006

Code	Description[34]	Tariff (%)	EU	India	Indonesia	Malaysia	Philippines	South Korea	Thailand
240210	Cigars, cheroots	100	5	0	3	18	17	0	56
240220	Cigarettes	100	902	1454	2438	6921	15209	248	91
240290	Cigars, cheroots	100	0	250	0	11632	0	0	0
220820	Spirits (distilled)	54	2535	0	0	1178	0	0	18
220830	Whiskies	54	835	17	0	913	103	114	0
220840	Rum and taffia	54	24	0	0	16	0	0	8
220850	Gin and geneva	54	27	0	0	2	12	0	0
220860	Vodka	54	62	0	0	42	0	0	0
220870	Liqueurs and cordials	54	392	0	0	71	0	8	10
220890	Ethyl alcohol	54	192	0	0	60	245	323	59
160100	Sausages	50	152	0	0	0	1	7	0
160210	Homogenized preparations	50	2	0	0	8	0	0	1
160220	Preparations of liver	50	101	0	0	0	0	0	0
160231	Prepared/preserved meat	50	0	0	0	0	0	0	0
160232	Prepared/preserved meat	50	0	0	0	0	0	0	0
160239	Prepared/preserved meat	50	3	0	0	0	0	0	102
160241	Hams and cuts thereof	50	25	0	0	0	0	0	0
160242	Prepared shoulder	50	22	0	0	0	0	0	0
160249	Prepared/preserved meat	50	509	0	0	0	0	0	5
160250	Prepared/preserved meat	50	38	0	0	0	0	0	0
160290	Prepared/preserved meat	50	1	0	0	0	0	0	0
220300	Beer made from malt	49	365	0	80	1758	0	0	80
220410	Sparkling wine	49	1246	0	0	0	0	0	45
220421	Wine of fresh grapes	49	6518	0	0	1930	0	0	43
220429	Wine of fresh grapes	49	1305	0	0	0	103	0	62
220430	Grape must	49	0	0	0	0	0	0	0
220510	Vermouth and other wine	49	6	0	0	17	0	0	0
220590	Vermouth and other wine	49	0	0	0	0	0	0	0
220600	Cider, perry, mead	49	521	0	0	0	0	16	257
080530	Fresh or dried lemons	40	1	0	0	0	0	0	0
080540	Fresh or dried grapefruit	40	1	0	0	0	0	0	0
080590	Fresh/dried citrus fruit	40	13	0	0	0	0	0	0
100620	Husked or brown rice	40	0	0	0	0	0	0	0
170191	Refined cane/beet sugar	40	0	492	0	0	0	0	0
170199	Cane or beet sugar	40	1326	86	0	0	0	343	687
170111	Raw cane sugar	30	0	0	0	0	0	0	14878
240110	Tobacco, not stemmed	30	93	845	323	398	83	0	300
240120	Tobacco	30	2806	12521	0	197	732	0	398
240310	Smoking tobacco	30	286	82	375	3830	0	0	0
240391	Tobacco ('homogenized')	30	55	0	0	0	0	0	0
240399	Chewing tobacco, snuff	30	0	0	0	658	0	0	0
151620	Vegetable fats and oils	27	204	144	33	7131	0	1	168
160411	Prepared salmon	27	0	0	0	0	0	0	1
160412	Prepared herring	27	6	0	0	0	0	0	0
160413	Prepared sardines	27	11	0	0	0	9	0	609

34 *Descriptions are abbreviated. Full detailed descriptions are available on request using the code reference.*

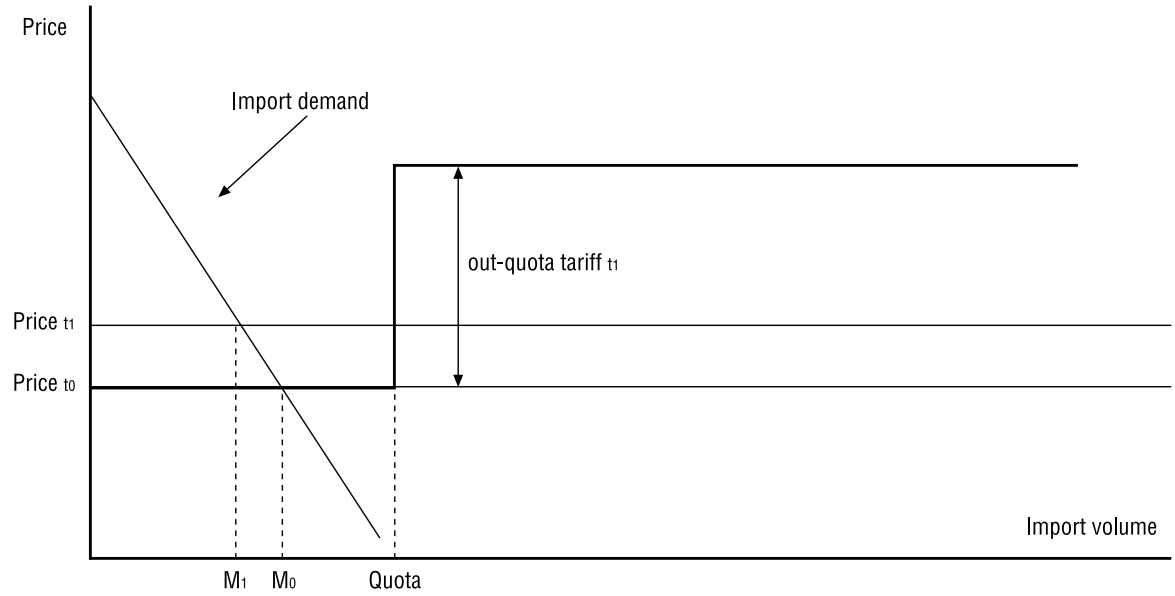
Table Q. EU tariff cuts under EU proposal

Product	Is there a TRQ?	Do base-period imports exceed TRQ?	Percent cuts in AVE tariffs		
			Products without TRQ	Products with TRQ	
				In quota	Over quota
Rice	Yes	Yes	—	0.0	22.5
Wheat	Yes	Yes	—	0.0	0.0
Maize	Yes	Yes	—	0.0	0.0
Barley	Yes	No	—	0.0	50.0
Other Coarse Grains	Yes	Yes	—	35.0	0.0
Soybeans	No	—	0.0	—	0.0
Sunflower seed	No	—	0.0	—	0.0
Rapeseed	No	—	0.0	—	0.0
Peanuts	No	—	35.0	—	0.0
Cotton	No	—	0.0	—	0.0
Cottonseed	No	—	0.0	—	0.0
Palm Oil	No	—	16.5	—	0.0
Olive Oil	No	—	0.0	—	0.0
Other Tropical Oils	No	—	26.3	—	0.0
Sugar	Yes	Yes	—	0.0	22.5
Soybean Oil	No	—	35.0	—	0.0
Soybean Meal	No	—	35.0	—	0.0
Sunflower seed Oil	No	—	35.0	—	0.0
Sunflower seed Meal	No	—	0.0	—	0.0
Rapeseed Oil	No	—	35.0	—	0.0
Rapeseed Meal	No	—	0.0	—	0.0
Cottonseed Oil	No	—	35.0	—	0.0
Cottonseed Meal	No	—	0.0	—	0.0
Peanut Oil	No	—	13.8	—	0.0
Peanut Meal	No	—	0.0	—	0.0
Beef and Veal	Yes	Yes	—	5.7	0.0
Pigmeat	Yes	Yes	—	0.0	0.0
Chicken Meat	Yes	Yes	—	0.0	0.0
Eggs	No	—		0.0	0.0
Sheep and Goat Meat	No	—		0.0	0.0
Butter	Yes	Yes	—	0.0	0.0
Cheese	Yes	Yes	—	0.0	0.0
SMP	No	—	0.0	—	0.0
Drinking Milk	No	—	27.2	—	0.0
WMP	No	—	34.2	—	0.0
Other Dairy Products	No	—	0.0	—	0.0
Citrus (Fresh)	No	—	0.0	—	0.0
Other Tropical Fresh Fruits	No	—	0.0	—	0.0
Fresh Vegetables	No	—	25.9	—	0.0

Table R. Impact of Different Policy Scenario on world prices, 2017, relative to Baseline scenario (in %)

	Partial Lib, 25% cut	Partial Lib, 50% cut	Full Lib, 50% sens prod.	Full Lib	Full Lib, with WTO
Rice	-0.2	-0.5	-0.2	-0.2	0.3
Wheat	0.0	0.5	1.5	1.0	0.5
Maize	0.0	0.5	1.5	2.0	0.5
Barley	0.0	0.6	1.8	2.3	1.2
Other Coarse Grains	0.4	0.8	1.9	2.3	1.6
Soybeans	0.0	0.0	5.8	8.3	4.1
Sunflowerseed	2.5	5.7	13.6	14.3	10.9
Rapeseed	-0.4	-0.9	1.3	2.2	0.9
Peanuts	-0.6	-1.8	0.3	0.6	-0.3
Cotton	0.3	0.7	1.1	1.5	1.9
Cottonseed	-0.6	-1.9	1.3	2.5	-1.3
Palm Oil	-16.9	-39.8	-39.2	-39.2	-39.5
Olive Oil	-1.5	-4.0	0.0	0.5	-1.5
Other Tropical Oils	-10.3	-25.5	-23.8	-23.6	-25.0
Sugar	0.6	1.6	1.2	0.3	2.5
Soybean Oil	-1.2	-2.4	22.2	29.8	19.3
Soybean Meal	0.4	1.1	-0.4	1.5	-1.8
Sunflower seed Oil	3.4	8.3	21.1	21.8	17.0
Sunflower seed Meal	-0.6	-1.2	-3.6	-3.0	-2.4
Rapeseed Oil	-1.4	-3.3	1.4	1.9	1.6
Rapeseed Meal	1.0	2.4	1.9	2.4	1.0
Cottonseed Oil	-1.9	-5.1	0.2	1.4	-1.8
Cottonseed Meal	0.8	1.7	1.7	2.5	-0.8
Peanut Oil	-1.5	-4.0	-0.7	-0.2	-1.3
Peanut Meal	0.8	2.4	2.4	2.4	0.8
Beef and Veal	0.0	0.7	4.5	6.2	5.1
Pigmeat	0.2	0.4	0.9	1.3	0.0
Chicken Meat	0.1	0.3	1.0	1.3	0.3
Eggs	0.2	0.4	0.7	1.0	0.0
Sheep and Goat Meat	-0.7	-1.6	-3.5	-3.3	-3.3
Butter	0.7	1.8	1.3	1.1	-1.9
Cheese	0.9	2.4	2.3	2.2	-1.3
SMP	1.3	3.7	4.9	5.1	2.1
Drinking Milk	0.9	2.6	2.6	2.6	-0.9
WMP	1.1	2.7	2.7	2.7	0.3
Other Dairy Products	2.1	5.5	4.9	4.9	-0.7
Citrus (Fresh)	0.0	-0.2	-0.7	-0.6	0.2
Other Tropical Fresh Fruits	-0.2	-0.9	-0.7	0.7	1.7
Fresh Vegetables	0.1	0.0	0.4	0.6	1.6

Table S. TRQ modelling



The decline in imports under the liberalization scenarios is related to the abolition of the TRQs which occur only under the liberalization scenarios.

For dairy products the results indicate a decline of imports under full liberalization. This effect can be explained by an underfilling of the TRQs in the initial situation (with zero for the in-quota tariff), i.e. the TRQ is not binding and total imports is at M0. An abolition of the TRQ and a reduction of the out-off-quota tariff would have no impact on the volume of trade. But an increase of world prices due to the liberalization (in other regions) which may lead to an increase in world prices, would lower import demand in the respective region.

It should be mentioned that for non TRQ products import expands under the calculated liberalization scenarios.

Table T. Bilateral exports of agri-food products from ASEAN countries under different scenarios, 2007 and 2017, in million €

	Rice	Cereals	Oilseeds	other crp	Pork/ Poultry/ Eggs	Beef	Milk	other lvstk	VegOil	Dairy	other proc	Tropical/ Citrus	Veget.
Towards EU													
Initial, 2007	114.7	1.6	4.1	2.5	8.6	0.0	0.0	0.0	1923.4	13.7	2.7	3.4	18.4
Base	136.2	1.6	3.0	1.4	8.7	0.0	0.0	0.0	1137.6	11.4	1.6	4.1	22.9
Partial Lib, 25% cut	155.0	86.4	3.0	4.1	17.8	321.6	0.0	88.4	1037.0	139.4	80.8	33.8	109.6
Partial Lib, 50% cut	180.5	176.4	3.0	9.4	35.6	874.7	0.0	230.7	885.4	186.4	219.4	66.3	207.0
Full Lib, 50% sens prod.	264.4	359.9	3.2	19.7	59.0	1626.3	0.0	372.1	928.2	192.8	458.5	139.4	426.9
Full Lib	524.2	360.9	3.3	19.7	73.3	1646.4	0.0	373.0	932.6	192.7	513.5	204.6	427.7
Full Lib, with WTO	438.3	356.4	3.1	11.8	72.5	1623.0	0.0	373.2	901.6	204.2	533.4	206.7	285.2
Towards Third Countries													
Initial, 2007	3800.5	88.9	0.7	45.0	363.5	5.8	0.0	0.0	9824.9	370.6	840.5	183.8	53.0
Base	4326.5	52.0	0.1	0.5	28.7	0.0	0.0	0.0	6028.8	297.4	1208.7	179.4	86.6
Partial Lib, 25% cut	4319.7	33.0	0.1	0.5	31.3	0.0	0.0	0.0	5016.9	242.0	1202.7	177.4	86.6
Partial Lib, 50% cut	4320.5	20.9	0.1	0.5	36.7	0.0	0.0	0.0	3653.8	231.5	1194.3	176.4	86.6
Full Lib, 50% sens prod.	4646.9	16.1	0.1	0.5	50.1	0.0	0.0	0.0	3723.0	228.8	1167.4	176.2	69.0
Full Lib	5232.1	16.1	0.1	0.5	46.7	0.0	0.0	0.0	3730.6	228.8	1153.7	178.7	69.1
Full Lib, with WTO	5267.1	16.1	0.1	2.7	55.9	18.8	0.0	0.0	3693.0	217.4	1195.7	170.8	76.7

Table U. Bilateral exports of agri-food products from India under different scenarios, 2007 and 2017, in million €

	Rice	Cereals	Oilseeds	other crp	Pork/ Poultry/ Eggs	Beef	Milk	other lvstk	VegOil	Dairy	other proc	Tropical/ Citrus	Veget.
Towards EU													
Initial, 2007	112.7	0.7	1.0	3.3	25.2	5.8	0.0	0.0	6.9	15.2	6.6	2.9	8.5
Base	133.8	0.7	0.6	1.8	25.0	6.0	0.0	0.0	4.2	15.6	4.9	3.4	11.0
Partial Lib, 25% cut	135.0	24.0	0.7	2.7	25.9	50.6	0.0	20.6	6.3	80.2	15.3	8.2	23.8
Partial Lib, 50% cut	133.2	64.1	0.7	3.1	28.6	107.8	0.0	61.3	9.2	121.1	30.0	12.6	38.2
Full Lib, 50% sens prod.	118.3	151.4	0.7	4.6	31.4	112.0	0.0	140.2	18.7	125.1	37.1	24.1	73.3
Full Lib	41.4	151.5	0.7	4.6	34.1	113.8	0.0	140.6	19.0	125.1	11.3	28.9	73.4
Full Lib, with WTO	72.0	150.0	0.7	3.6	33.8	112.6	0.0	140.7	7.5	119.0	18.3	29.1	49.1
Towards Third Countries													
Initial, 2007	2066.3	18.5	0.5	7.5	2.1	1602.1	0.0	0.0	4.7	111.7	1607.6	0.3	0.7
Base	74.6	4.3	0.3	5.5	3.7	0.0	0.0	0.0	0.0	14.7	957.2	0.3	0.9
Partial Lib, 25% cut	74.5	4.3	0.3	5.4	3.7	0.0	0.0	0.0	0.0	14.9	959.8	0.3	0.9
Partial Lib, 50% cut	74.3	4.4	0.3	5.4	3.7	0.0	0.0	0.0	0.0	13.8	966.6	0.3	0.9
Full Lib, 50% sens prod.	74.5	4.4	0.4	5.5	3.7	0.0	0.0	0.0	0.0	13.9	1024.0	0.3	0.9
Full Lib	74.5	4.4	0.4	5.5	3.7	0.0	0.0	0.0	0.0	13.9	1074.7	0.3	0.9
Full Lib, with WTO	72.0	4.4	0.4	5.5	4.6	0.0	0.0	0.0	1.7	13.8	993.5	0.0	0.0

Table V. Bilateral exports of agri-food products from South Korea under different scenarios, 2007 and 2017, in million €

	Rice	Cereals	Oilseeds	other crp	Pork/ Poultry/ Eggs	Beef	Milk	other lvstk	VegOil	Dairy	other proc	Tropical/ Citrus	Veget.
Towards EU													
Initial, 2007	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.4	0.0	2.1
Base	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.2	0.0	2.6
Partial Lib, 25% cut	3.7	13.3	0.0	0.9	0.9	53.6	0.0	11.8	2.0	46.8	18.9	3.9	22.1
Partial Lib, 50% cut	9.8	20.1	0.0	2.2	4.5	158.8	0.0	11.7	4.4	56.5	43.9	7.4	46.7
Full Lib, 50% sens prod.	33.5	22.0	0.0	3.7	9.9	307.9	0.0	11.5	15.7	61.0	93.3	16.4	114.2
Full Lib	132.7	22.0	0.0	3.7	11.7	312.9	0.0	11.5	16.2	61.0	95.3	16.5	114.4
Full Lib, with WTO	96.8	20.0	0.0	3.2	11.6	309.6	0.0	14.4	7.8	66.8	71.4	16.6	81.0
Towards Third Countries													
Initial, 2007	63.1	15.5	0.0	0.0	23.6	0.0	0.0	0.0	2.1	17.4	57.9	1.6	23.3
Base	87.2	13.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	13.1	60.0	0.0	37.3
Partial Lib, 25% cut	87.1	6.6	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.7	54.2	0.0	37.4
Partial Lib, 50% cut	86.8	3.5	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.3	45.2	0.0	37.3
Full Lib, 50% sens prod.	87.1	1.8	0.0	0.0	28.1	0.0	0.0	0.0	0.0	0.3	33.6	0.0	37.5
Full Lib	87.1	1.8	0.0	0.0	28.2	0.0	0.0	0.0	0.0	0.3	32.1	0.0	37.6
Full Lib, with WTO	90.7	1.8	0.0	0.5	33.1	15.6	0.0	0.0	1.8	3.0	31.8	0.0	40.5

Table W. Bilateral imports of agri-food products to ASEAN countries under different scenarios, 2007 and 2017, in million €

	Rice	Cereals	Oilseeds	other crp	Pork/ Poultry/ Eggs	Beef	Milk	other lvstk	VegOil	Dairy	other proc	Tropical/ Citrus	Veget.
From EU													
Initial, 2007	0.0	12.5	0.0	0.0	42.6	0.0	0.0	0.0	37.1	419.4	67.9	0.9	19.1
Base	0.0	13.6	0.0	0.0	56.6	0.0	0.0	0.0	22.6	548.6	92.1	1.5	31.4
Partial Lib, 25% cut	30.7	19.9	2.0	0.9	71.7	6.0	0.0	0.0	17.5	570.2	107.7	2.7	35.7
Partial Lib, 50% cut	101.2	29.0	5.3	1.3	98.2	24.0	0.0	5.8	21.4	599.4	133.1	6.0	42.4
Full Lib, 50% sens prod.	571.2	64.0	22.0	5.0	173.0	127.5	0.0	14.3	37.9	630.5	236.2	15.4	69.0
Full Lib	1117.3	64.0	120.7	5.1	173.6	129.6	0.0	14.4	38.1	630.5	617.7	15.5	69.1
Full Lib, with WTO	1037.0	61.3	53.7	4.6	159.3	128.2	0.0	8.6	36.1	606.0	598.7	15.2	68.9
From Third Countries													
Initial, 2007	363.1	2863.5	875.0	221.8	569.7	315.2	0.0	96.0	412.3	1765.5	3135.3	298.5	804.9
Base	1273.4	3158.0	857.8	340.7	5619.7	1615.9	0.0	249.2	349.2	2456.0	3593.8	1837.0	1977.8
Partial Lib, 25% cut	1070.7	3196.6	853.3	341.2	5615.2	1938.3	0.0	344.6	338.4	2560.3	3648.4	1799.1	1953.2
Partial Lib, 50% cut	708.6	3262.7	846.0	339.6	5617.3	2489.4	0.0	487.7	318.0	2620.3	3751.5	1725.3	1892.1
Full Lib, 50% sens prod.	622.4	3393.6	879.5	349.5	5559.1	3137.6	0.0	623.9	351.1	2599.6	3844.2	1742.0	2020.4
Full Lib	1008.3	3386.5	803.2	348.8	5588.9	3150.6	0.0	625.5	353.5	2600.5	3577.0	1719.7	2026.4
Full Lib, with WTO	998.6	3331.1	811.2	347.8	5773.5	3183.5	0.0	622.9	347.5	2547.7	3583.7	1685.7	1912.8

Table X. Bilateral imports of agri-food products to India under different scenarios, 2007 and 2017, in million €

	Rice	Cereals	Oilseeds	other crp	Pork/ Poultry/ Eggs	Beef	Milk	other lvstk	VegOil	Dairy	other proc	Tropical/ Citrus	Veget.
From EU													
Initial, 2007	0.0	6.2	0.0	0.0	0.0	0.0	0.0	0.0	3.6	9.2	0.4	0.0	0.0
Base	0.0	7.9	0.0	0.0	0.0	0.0	0.0	0.0	3.8	17.3	0.7	0.0	0.0
Partial Lib, 25% cut	0.0	36.7	0.2	0.0	0.0	0.0	0.0	0.0	105.7	65.1	7.2	0.0	0.0
Partial Lib, 50% cut	0.5	100.1	0.5	0.0	0.0	0.0	0.0	0.0	209.3	136.5	28.6	0.0	0.0
Full Lib, 50% sens prod.	1.9	477.9	3.8	0.0	0.9	0.0	0.0	0.0	649.5	343.8	152.3	0.7	1.7
Full Lib	1.4	1524.3	3.9	0.0	0.9	0.0	0.0	0.0	927.4	343.4	200.6	0.7	1.7
Full Lib, with WTO	66.9	1519.8	3.6	0.0	0.9	0.0	0.0	0.0	888.2	334.4	238.0	0.7	1.7
From Third Countries													
Initial, 2007	1.2	1348.5	522.6	0.0	477.0	0.0	0.0	114.6	1267.6	1077.6	217.3	590.0	2428.9
Base	5720.1	5413.8	998.5	0.0	4271.3	1565.3	0.0	1326.3	2321.1	15346.8	1700.8	5514.0	13051.4
Partial Lib, 25% cut	5795.0	5421.7	991.8	0.0	4285.2	1607.8	0.0	1360.7	2611.3	15445.1	1704.0	5540.4	13100.0
Partial Lib, 50% cut	5921.1	5438.8	982.4	0.0	4311.1	1653.6	0.0	1416.4	2839.9	15608.0	1698.3	5584.2	13157.4
Full Lib, 50% sens prod.	5810.8	5127.7	1037.6	0.0	4311.2	1520.6	0.0	1513.9	2581.3	15286.1	1568.5	5561.7	13151.0
Full Lib	5746.1	4063.9	1055.0	0.0	4321.4	1488.4	0.0	1517.8	2338.7	15265.9	1515.0	5548.8	13171.9
Full Lib, with WTO	5677.7	4104.6	963.5	0.0	4306.9	1494.8	0.0	1504.2	2337.7	15130.5	1528.0	5597.7	13262.3

Table Y. Bilateral imports of agri-food products to South Korea under different scenarios, 2007 and 2017, in million €

	Rice	Cereals	Oilseeds	other crp	Pork/ Poultry/ Eggs	Beef	Milk	other lvstk	VegOil	Dairy	other proc	Tropical/ Citrus	Veget.
From EU													
Initial, 2007	0.0	2.8	0.0	0.0	275.6	0.0	0.0	0.0	56.7	41.8	9.5	0.3	0.0
Base	0.0	2.6	0.0	0.0	310.3	0.0	0.0	0.0	35.6	46.9	6.9	0.4	0.0
Partial Lib, 25% cut	0.5	41.0	26.9	4.1	341.2	26.8	0.0	0.0	35.3	61.8	20.0	2.9	2.6
Partial Lib, 50% cut	0.9	188.9	172.0	6.3	376.2	116.8	0.0	2.9	36.4	79.2	65.0	9.7	11.0
Full Lib, 50% sens prod.	2.8	1189.7	257.2	4.1	456.2	746.3	0.0	8.6	48.2	104.2	351.3	53.8	71.6
Full Lib	1.4	1423.8	231.4	4.1	457.7	1112.3	0.0	8.6	49.0	104.2	348.3	54.1	71.7
Full Lib, with WTO	0.9	1567.8	283.2	4.1	423.6	1103.9	0.0	8.6	48.0	95.0	356.5	35.6	39.6
From Third Countries													
Initial, 2007	77.0	2128.4	324.6	37.5	579.9	869.6	0.0	8.0	253.3	192.2	906.6	56.3	67.8
Base	98.4	1925.2	261.2	23.7	921.2	1098.1	0.0	8.9	161.3	236.7	940.2	92.4	95.0
Partial Lib, 25% cut	97.8	1887.2	233.5	20.4	889.6	1125.4	0.0	20.6	157.5	262.6	944.2	95.0	93.4
Partial Lib, 50% cut	97.0	1748.8	88.5	18.8	858.7	1150.3	0.0	17.5	148.2	251.3	924.6	94.7	84.0
Full Lib, 50% sens prod.	96.4	767.6	23.2	23.3	797.2	696.6	0.0	11.5	171.2	223.1	693.8	76.1	24.7
Full Lib	96.4	538.6	58.5	23.4	805.2	344.5	0.0	11.5	176.3	223.0	696.3	76.5	24.8
Full Lib, with WTO	97.8	552.7	464.4	23.2	723.5	250.2	0.0	11.5	161.2	214.0	641.3	120.6	64.6

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Abstract

This report investigates the possible effects of a Free Trade Area between the European Union and its three main trading partners: India, South Korea and the Association of South East Asian Nations (ASEAN) countries, focusing on the agricultural sector.

The report includes an analysis of the ongoing bilateral negotiations and bilateral trade flows based on trade policy (at tariff line level), comparative advantages assessment and a modeling analysis of the implications of preferential liberalization in both, a general equilibrium model (CGE) (LEITAP, modified version of the GTAP model) and a partial equilibrium context (PEATSim model).

Results show that the overall level of agri-food production in Asian countries is driven by income and population growth, main determinants of increase in demand particularly in India. Different degrees of liberalization in bilateral agricultural and food trade do not significantly affect the total amount of agricultural production in Asian countries and the EU, however, it leads to trade creation and trade diversion effects. Bilateral trade between EU and the Asian countries tend to increase (trade creation) whilst Asian exports to third countries tend to diminish (trade diversion). The implementation of the different policy options (partial and full liberalization) determines a decline in EU overall imports due to the prevailing effect of trade diversion over trade creation.

ASEAN imports and export from/to the EU grow considerably under the liberalization scenarios determining a positive net trade of 22 billion € euro for the agri-food sector.

Under full liberalization scenario Indian agri-food exports to the EU grow by 4 billion € reaching almost 6.3 billion €. Indian agri-food imports grow even faster from 0.2 up to 19 billion €.

The value of South Korean agri-food exports to the EU grows from 46 million € in the baseline to 4.9 billion € under the full liberalization.

Total European agri-food exports expand by almost 11% from partial to the full liberalisation scenario.

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