

Potential Effects from an EU–US Free Trade Agreement

– Sweden in Focus





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Executive summary

The EU and the US economies together represent about half of the world's GDP and contribute to almost a third of the global trade flows. Although the two economic areas are highly integrated, there is still significant potential for further economic co-operation. The possibility of initiating negotiations for a Free Trade Agreement (FTA) between the EU and the US has become a recent topic for discussion. In November 2011, the EU and the US established a High-Level Working Group on Jobs and Growth with the task of identifying policies and measures to increase EU–US trade and investment. A possible recommendation from the working group, which will be presented by the end of 2012, could be to start negotiations for an FTA between the EU and the US. Because of the sizes of the two economies, there is great interest in the potential economic consequences of such an agreement.

Based on an initiative from the Swedish Ministry of Foreign Affairs, the National Board of Trade has conducted a simulation of a potential FTA. The analysis is based on a commonly used economic model describing the world economy. Effects on trade and national income are estimated for the EU and the US, but the main focus of this study is the effect of such an agreement on the Swedish economy. Because the model used in this study is based on several assumptions and restrictions, the focus when analysing the results should primarily be on directions and mechanisms rather than absolute numbers.

The average import tariff between the EU and the US is low, so it is non-tariff barriers (NTBs) in particular that can impede transatlantic trade.

These types of barriers exist in most sectors and arise partly because of differences in regulatory systems and standards. Although these rules are in place for good reasons, such as protecting consumers' health, the environment, or national security, they can create unnecessary barriers to trade. Reducing these barriers by harmonization, simplification, and mutual recognition can lead to gains for both economic areas while retaining the primary objectives of the rules.

Two different FTA scenarios are modeled in the study, and both FTA scenarios include a complete removal of bilateral import tariffs. The reduction of NTBs between the EU and the US differ between the scenarios with one being more ambitious and the other less so. The NTB part of the simulation is based on a comprehensive study of transatlantic NTBs in which the costs of different NTBs between the EU and the US have been quantified.¹

The results of the simulation with the limited scenario indicate that trade with the US from Sweden as well as the rest of the EU countries (EU26) would increase substantially. The simulation suggests that Swedish exports to the US would increase 17% and imports would increase 15%. The EU26 would see a 20% increase in trade in both directions. In the more ambitious scenario these increases are approximately doubled.

The results of the simulation also indicate that an FTA between the EU and the US would lead to positive national income effects in both parties of the agreement. For Sweden the increase in national GDP increases by 0.2% in the more ambitious of the two simulations. This number is somewhat lower than the rest of the EU and lower than the effect for the US.

A general conclusion from the simulation is that the US appears to gain the most from the liberalisation scenarios. This can be explained in two ways. A larger share of the total US trade is directed towards the EU than in the other direction. Thus an increase in bilateral trade with the EU can be expected to have larger relative effects on US foreign trade and on its economy. Furthermore, in the model used for the simulation, consumers and businesses are assumed to distinguish between *foreign* and *domestic* goods and services (i.e. Swedish consumers and firms prefer Swedish goods and services). When US firms obtain increased market access to the EU countries, EU firms that export to other EU markets (i.e. those that are considered foreign firms in the economic model) will experience increased competition and lose some of their previous preferences to the benefit of US firms. In contrast, US firms will not lose their advantages on the US market to the same extent because domestic firms have an advantage over foreign firms.

¹ ECORYS (2009) "Non-tariff Measures in EU-US Trade and Investment – An Economic Analysis."

The results from the simulation are based on both the elimination of tariffs and the reduction of NTBs. Tariff liberalisation only results in marginal effects overall, but for specific product categories tariff liberalization may be crucial. The largest gains from the simulated FTA scenarios stem from harmonization and simplifications of rules and regulations, i.e. reductions of NTBs. Another finding is that the positive effects on national income primarily stem from a nation's liberalization of its own barriers.

In many cases the simulation results are fairly intuitive as the sectors with the largest reductions of NTBs and import tariffs also experience the largest effects on trade and production. However, in some cases indirect effects can play a dominant role, such as in sectors that depend on different imported inputs or sectors that are important inputs in other sectors.

The economic effects of the FTA simulation on Sweden vary over different sectors. Production and trade in sectors that had high initial barriers, such as "food and beverages" and "motor vehicles" increase as a consequence of the simulated FTA. Another sector that is important for the effects on Sweden is the "business services" sector. This is the largest US import sector for Sweden and the largest services export sector to the US. Even though the production in this sector declines marginally in the simulation, it is the largest contributor to Sweden's welfare gains and contributes to a third of Sweden's total national income gain. This is due to the importance of this sector as an input to other sectors in the Swedish economy, such as the insurance and financial services sectors, that expand as a consequence of the simulated FTA.

To gain a more complete understanding of the simulated economic effects on the sector level, a more in-depth analysis of both the trade flows and the relevant rules and regulations in these specific sectors would be required.

Because the economic model used in this study does not include direct foreign investments or consider any dynamic effects, the results from the simulated FTA can be expected to be underestimated.

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1. Introduction

The EU and the US together account for over half of world's production and contribute to almost a third of global trade flows. Though the two economies are in many ways integrated, there is still significant potential in further economic co-operation within the framework of a Free Trade Agreement (FTA).

The US is one of Sweden's most important trading partners. About 7% of all Swedish goods are exported to the US and 3% of the goods imported into Sweden originate in the US. The US is of even greater importance for trade in services as trade with the US represents approximately 8% of Swedish service exports and 13% of Swedish service imports.²

1.1 Purpose of the study

Based on an initiative from the Ministry of Foreign Affairs, The National Board of Trade has made a model simulation of the economic implications of a potential FTA between the EU and the US. The study addresses how the US and the EU as a whole could be affected by an FTA, but focuses particularly on the effects on Sweden. Results of the simulation include effects on national income, production, and trade flows.

1.2 The FTA scenario in this study

The representation of the FTA in the model includes the removal of all bilateral import tariffs on goods between the US and the EU. In addition to tariffs, however, various rules and regulations including standards, technical requirements, and restrictions can impede transatlantic trade and function as non-tariff barriers (NTBs) to both goods and services. These types of barriers often exist for legitimate reasons such as protection of the environment or for safety reasons, and in many cases can be more restrictive to trade than traditional import tariffs. Previous studies in this area indicate that the trade disruption from these rules and regulations can often be reduced through international harmonization, mutual recognition, or simplifications. In this study we use estimates for the additional costs caused by NTBs in the bilateral trade between EU and the US.³

To represent the simplification and harmonization of rules and regulations in the EU and the US as a part of a potential FTA, trade costs associated with the NTBs are partially reduced in the simulation. Two different levels of trade-cost reductions are assumed in the FTA simulation. One is limited and one is a more comprehensive NTB scenario. The analysis focuses mainly on the results from the limited scenario, but the outcome from the comprehensive scenario is used in some places as a benchmark.

² Eurostat. Trade in goods refers to the year 2011 and services trade to 2010.

³ These estimates are taken from a study by ECORYS (2009) for the EU Commission.

1.3 Model and data

The FTA scenario is simulated with a computable general equilibrium (CGE) model. This type of model can be a useful tool when analysing economy-wide effects from trade liberalization or other trade policy reforms. It differs considerably from a prognostic model as it does not consider any other economic developments. Instead, the model captures some of the mechanisms that are initiated by a trade reform and assumes that all other things are equal. The results from the model may, therefore, serve as a good basis for discussing potential effects of trade policy reform and be a valuable complement to other analytical tools. The modelling framework used for this study is the Global Trade Analysis Project (GTAP), which provides both a standard CGE model as well as an extensive database of the world economy for a specific base year.⁴

In a CGE model, supply and demand are connected for companies, households, and the government in a particular economy. All sectors of the economy are interlinked and the output of one sector becomes the input of another sector. The model also connects different economies with each other. Thus such a model could, for example, estimate the potential effect of that a trade policy change in the US may have on Swedish exports.

Because of the model's structure, it is possible not only to predict the direct effects but also the indirect effects from a policy change. For example, when an import tariff on wheat is reduced it may not only affect the demand for wheat, but also the demand for products using wheat (such as bread), products that could be used as substitutes (such as barley or oats), and inputs used to produce wheat (such as land and pesticides).

In the GTAP database used for this study, the data represents the world economy in 2007.⁵ For the purpose of this study, the world economy in the GTAP database is divided into four country groups: Sweden, the EU26 (i.e. the EU economies excluding Sweden), the US, and the rest of the world (RoW). The different economic sectors for the study are found in Table A1 in the appendix. In the model it is possible to simulate the effects that reduced trade barriers could have on the economy over a time period of approximately 10 years.

Because NTBs are not included in the GTAP database, we use a complementary data source from a study by ECORYS for the NTB estimates and introduce these into the model.⁶ Because specific cost estimates for individual EU member states such as Sweden are not available, we use estimates for the EU as a whole as proxies for the EU26 and for Sweden. This may be a reasonable assumption for most goods sectors and some of the services sectors, but there are still services sectors in the EU that are highly fragmented and to a large extent governed by the rules of individual nations. Hence, this assumption could

⁴ For more information about this project, database, and model, see www.gtap.org.

⁵ Version 8. The global economy is divided into 57 sectors and 128 regions.

⁶ "Non-Tariff Measures in EU-US Trade and Investment – An Economic Analysis" ECORYS, 2009.

potentially lead to somewhat divergent results for Sweden in specific services sectors.

1.4 Limitations

All economic models are simplified descriptions of the real world, and results should always be interpreted with caution. The focus when analysing results from these models should, therefore, be on mechanisms, directions (positive or negative), and comparisons between different measures and not on absolute numbers. The standard GTAP model used in this study does not consider the positive growth dynamics between changes in income, savings, and capital accumulation, nor does it consider knowledge spillovers and general productivity growth in the long run. Instead, the model is *comparative static*, focusing only on economy-wide gains from allocation of resources, import efficiency (i.e. cost-reducing effects), and terms-of-trade effects.⁷

Another limitation is that there is no representation of foreign direct investments in the model. Considering that bilateral investments between the EU and the US are central to the transatlantic economic relationship, this is an area with great potential. Thus, a more open investment climate could be expected to have a significant economic impact on the economic growth of the two economic areas. Perhaps the most important limitation is the fact that most services trade in the world, approximately 60%, is channelled via commercial presence, i.e., firms investing in another country to offer their services directly to the consumers of that country, but this phenomenon is not accounted for in the model used in this study.

Because of these limitations, the results from this type of model simulation can be expected to be underestimated.

1.5 Outline of the study

In chapter 2 some main features of the economic structure and the bilateral trade patterns between the EU/Sweden and the US are described based on GTAP data of the world economy in 2007. In chapter 3 the FTA scenarios, which include tariff liberalization and reductions of NTBs, are outlined. Results from the scenarios are presented and discussed in chapter 4, and the conclusions drawn from the study are discussed in chapter 5.

⁷ For more information on the standard GTAP model and its limitations, see Hertel (1997).

2 The EU and US Economic Structures and Trade Patterns in the Database

In this chapter the different sectors' contributions in terms of production, trade patterns, and trade barriers are presented to facilitate the interpretation of the simulated FTA. The data is derived from the GTAP database and represents the world economy in the year 2007 without an EU–US FTA. Estimates for the additional costs of NTBs are taken from the study by ECORYS.

2.1 Sector contributions to production value in the EU and the US

Table 1 shows the different sectors' percentage of the total value of production in Sweden, the EU26, and the US before simulating the FTA scenario.⁸ The services sector contributes with the largest share of overall value in all three economies, and accounts for approximately 75–80% of the economy. This share is highest in the US, and the industrial sector is significantly smaller in the US than in the EU26. Compared to the EU26, Sweden has a slightly larger share of services and a slightly smaller share of agriculture.

Table 1: Sectors' share in initial value as a per cent of total production.

	Sweden	EU26	US
Food and beverages	3	5	3
<i>Agricultural subtotal</i>	3	5	3
Medicine and chemicals	3	3	2
Electronic equipment	0.4	1	0.5
Motor vehicles	3	2	1
Aerospace	1	1	1
Other machinery	4	4	4
Metals	3	4	2
Wood products	5	2	3
Other manufactures	1	3	2
<i>Industrial subtotal</i>	20	20	15
Transport services	6	3	3
Financial services	3	3	7
Insurance services	1	1	2
Business services	32	23	11
Communications services	2	2	2
Recreational, public, and other services	28	34	50
Construction services	5	8	7
<i>Services subtotal</i>	77	75	82
Total	100	100	100

Source: GTAP version 8, base year 2007

⁸ Value of production is measured as the value added in the different sectors, i.e. compensation for labor, capital, natural resources, and land (including taxes). This can be compared with GDP at the expense side, which also includes capital depreciation.

The largest sector in the Swedish economy is “business services”, which accounts for a third of total value added, followed by “recreational, public, and other services”, which accounts for 28%. These two sectors also represent the largest sectors in the EU26, though the order is reversed. In the US, “recreational, public, and other services” is by far the most dominant sector and accounts for half of the economy’s value of production. This is, to a great extent, due to the large health care and defence subsectors in the US.

2.2 International trade in goods and services

Although services contribute more than goods to the value of production in the EU and the US, the economies still *trade* more with goods than with services. Thus, although services contribute to more than three quarters of EU and US production, they represent less than a quarter of their total trade. One explanation for this is that a substantial share of the services sector consists of less tradable services, such as services linked to government institutions or the defence industry. Another reason is that all modes of delivery (as defined in the General Agreement on Trade in Services) are not fully represented in the GTAP.⁹ In particular, the “commercial presence” mode of providing services to foreign markets is excluded.

There is also a general problem with collecting data on trade in services because definitions and data methods are still not properly developed, and because of the inherent difficulties in measuring trade in services. Furthermore, services are often embedded in goods and are, therefore, indirectly traded. If trade in services was measured by looking at how much they contribute to *value-added trade*, services would have a much larger share in overall trade, especially in more developed economies.

The smallest sector of all three economies, in terms of value of production, is the agricultural sector and it only constitutes a few per cent of the total trade. In contrast, the lion’s share, approximately 70–80%, of all trade takes place in the industrial sector.

⁹ In the WTO’s General Agreement on Trade in Services there are four modes of delivering services: 1) cross-border trade, 2) consumption abroad, 3) commercial presence, and 4) presence of natural persons.

Table 2 shows the transatlantic trade between Sweden and the US and the EU26 and the US. This provides a closer look at the different goods and services sectors of this study, and it should be noted that bilateral trade with the US differs quite substantially between Sweden and the EU26. Swedish exports to the US have an emphasis on industrial goods and imports have an emphasis on services, whereas almost two thirds of the EU26's trade in both directions consists of industrial goods. In Sweden more than half, 55%, of the imports from the US consist of services compared to 34% in the EU26. The dominant import sector from the US to Sweden is by far the "business sector", which account for 41% of the total import from the US. A large part of this is import of research and development services from US firms by firms in Sweden.¹⁰ This can be compared with the EU26's import in this sector, which represents only 10% of their total import from the US. Instead the EU26 has a larger share of US imports in sectors such as "medicines and chemicals", "aerospace", and "recreational, public, and other services".

Table 2: Swedish and EU26 imports from, and exports to, the US (sectors' per cent share of total imports and exports)

	Sweden		EU26	
	Imports	Exports	Imports	Exports
Food and beverages	1	3	3	4
Agricultural subtotal	1	3	3	4
Medicine and chemicals	6	16	16	15
Electronic equipment	5	3	5	3
Motor vehicles	3	17	4	9
Aerospace	4	2	10	4
Other machinery	17	22	14	17
Metals	4	10	5	6
Wood products	1	3	2	2
Other manufactures	3	3	7	9
Industrial subtotal	44	75	63	65
Transport services	2	3	7	7
Financial services	2	1	6	5
Insurance services	0	2	1	5
Business services	41	13	10	7
Communications services	1	1	1	1
Recreational, public and other services	7	2	8	5
Construction services	1	0	1	0
Services subtotal	55	21	34	31
Total	100	100	100	100

Source: GTAP version 8. Base year 2007.

¹⁰ Source: Eurostat. To get a more complete picture of what this actually means, the actual content of the R&D services would have to be further analysed. Part of this trade could, for example, be royalties for patents, etc.

Another important import sector for both Sweden and the EU26 is “other machinery”, a composite sector that besides machinery and equipment includes e.g. fuels, minerals, and textiles. This is also an important sector on the export side, representing the largest export sector for both Sweden and the EU26. The “medicine and chemicals” sector also constitutes a significant export sector for both Sweden and the EU26. Other large Swedish export sectors to the US are “motor vehicles”, “business services”, and “metals”. However, since the year 2007, from which the data for this study was compiled, Swedish export of motor vehicles to the US has declined by approximately 55%.

2.3 Bilateral import tariffs on goods

Tariff duties on the transatlantic trade in goods are generally low. Compared to EU levels, the US tariffs are in general lower for the sectors of this study, but there are a few exceptions. The sectors in the EU subjected to the highest tariff rates are “food and beverages” and “motor vehicles”. Note that the estimates in Table 3 are *trade-weighted*, meaning that although Sweden and the EU26 have the same tariffs in a given sector, the estimates of the overall level of the tariffs as a percentage of total trade will differ because individual countries’ trade compositions differ among the various sectors. These estimates also downweight prohibitively high tariff levels, i.e. if a tariff line for a specific product is too high there will be no trade in that sector and it will have no impact on the trade-weighted average.

Table 3: Applied trade-weighted tariffs in per cent of total import value, 2007

	Swedish tariffs on imports from the US	EU26 tariffs on imports from the US	US tariffs on imports from Sweden	US tariffs on imports from the EU26
Food and beverages	9.1	8.4	1.0	3.4
Medicine and chemicals	1.8	2.3	0.6	1.2
Electronic equipment	0.7	0.6	0.2	0.3
Motor vehicles	6.3	8.1	1.2	1.2
Aerospace	1.5	1.3	0.1	0.1
Other machinery	1.0	1.3	0.7	0.8
Metals	2.3	1.8	1.3	2.1
Wood products	0.4	0.5	0.5	0.2
Other manufactures	1.9	1.9	1.8	2.7

Source: GTAP version 8.

2.4 Bilateral Non-tariff barriers

The greatest obstacles to transatlantic trade are not tariffs, but NTBs on both sides of the Atlantic that hinder trade in goods and services. Unlike tariffs, NTBs cannot simply be removed because they often have a purpose, such as safeguarding human health, security, etc. However,

NTBs between countries, and the costs that they create, can in most cases be reduced by harmonization, simplification, mutual recognition, and different types of trade facilitating measures while still achieving their primary objectives.

In the study of transatlantic NTBs by ECORYS (2009), the economic impacts of different NTBs were quantified for the EU and the US.¹¹ As previously mentioned, the current FTA study uses EU estimates as proxies for both Sweden and the EU26. Thus Sweden is assumed to have the same level of restrictiveness as the EU as a whole on a sector level.

As seen in Table 4, the NTB levels vary over different sectors. The highest estimated costs are in the “food and beverages” sector and the lowest in the “transport services” sector. Cost estimates for the sector “other machinery” were not found to be significant and are, therefore, excluded from the analyses. In contrast to the import tariffs, the estimated costs of NTBs towards the EU tend to be higher in the US than within the EU, in particular in the “food and beverages” sector.

Table 4. Trade Cost Estimates for NTBs as a percentage of import value.

	EU	USA
Food and beverages	57	73
Medicines and chemicals	21	16
Electronics equipment	14	20
Motor vehicles	26	27
Aerospace	19	19
Other machinery	NA	NA
Metals	12	17
Wood products	11	8
Other manufactures	5	17
Transport services	1	1
Financial services	11	32
Insurance services	11	19
Business services	15*	4*
Communications services	12	2
Construction services	5	3
Recreational, public and other services	4	3

Source: Estimates based on data from ECORYS 2009

To represent a reduction of NTBs as part of the FTA scenario, it is necessary to make assumptions about how much these barriers could potentially be reduced within an agreement. The ECORYS study

¹¹ Cost estimates for the NTBs in the different sectors of this study can be found in Table A2 of the Appendix.

assessed the potential reduction in each sector considering a 10-year implementation period. These reductions are referred to in the ECORYS study as the “actionability” of the NTBs.¹² On average the study found that the estimated costs from NTBs in each sector could be reduced by approximately 50% within the framework of an FTA during the relevant time period.

¹² These levels can be found in Table A2 of the Appendix.

3. The Free Trade Agreement Scenarios

This chapter discusses the model representation of the FTA between the EU and the US. The FTA liberalization is simulated in two steps starting with the liberalization of tariffs (scenario 1) and continuing with the liberalization of NTBs (scenario 2). Splitting the FTA scenario into two steps is done mainly for technical modelling reasons, but could also be justified because tariffs can, in most cases, be argued to be easier and faster to liberalise.

3.1 The tariff liberalisation scenario

In the first scenario a simple elimination of the import tariffs on all goods, including both manufactured and agricultural goods, is simulated. Considering the sensitivity of agricultural goods in the EU and the US – even within the European Economic Area there still exist barriers on agricultural goods – this assumption may not be an entirely realistic one. However, because this study focuses on the potential for a more liberalized transatlantic economy, modelling the removal of tariffs can be justified. Also, to avoid any discussion as to what sectors are more or less sensitive (and therefore may be excluded from liberalization), general, across-the-board import tariff liberalization is assumed. In the model this is done by removing the levels representing import tariffs.

3.2 The NTB Scenario

As previously mentioned, the NTB component of the simulation scenario is based on trade cost estimates and possible reduction rates described in the ECORYS study titled “Non-tariff Measures in the EU-US Trade and Investment – An Economic Analysis”.

3.2.1 Representing NTBs in CGE models

NTBs can have different types of impacts on trade and can, therefore, be modelled in different ways. In the ECORYS study the additional costs from these barriers are divided into two different categories. One of these includes regulations that are not in themselves discriminating but cause de facto costs for foreign firms. One can say that these barriers create “sand in the wheels” for firms, and the costs from this type of barrier do not benefit anyone but are simply considered as losses in efficiency. Removal of this type of barrier is often modelled as an increase in efficiency in importing goods and services and can, therefore, be expected to have a large, positive effect on measures such as national income. These NTBs are referred to as “cost-creating” barriers.

The other type of NTB includes rules that discriminate against foreign firms and create additional import barriers. These barriers create a rent, either for domestic firms or for the regulator (the state), and are referred to as “rent-creating” measures. These barriers are modelled as additional tariffs on imports. On an un-weighted average, approximately half (40-45%) of these measures are rent-creating and the rest relate to cost-creating effects.¹³ Below two sectors are described, one services sector and one goods sector, to exemplify barriers that can lead to cost and rent effects, respectively.

Example 1. Business services

ECORYS lists over fifty regulations that hinder the cross-border sale of “business services” both from the EU to the US and from the US to the EU. They differ widely in character and the following are two examples:

There is a lack of recognition of professional qualifications for European architects and engineers when they want to offer services to parties in the US. This, of course, makes it harder for them to offer their services to customers in the US. This type of border issue reduces the competition of foreign firms that domestic firms are subjected to. Hence, the domestic firms can charge higher prices to their customers. In this situation, economists say that a “rent” has been created for the domestic firms.

Another type of hindrance is that firms must be run as a partnership, which means that limited companies are not allowed. This, of course, is a problem for foreign firms, but it is also a problem for domestic firms. Instead of a rent being captured by the domestic firms, a “cost” is created for all firms. This cost hits foreign firms especially hard because domestic firms are already established and do not need to change their internal structures.

Example 2. Motor vehicles and parts

The most important NTB for the “motor vehicle and parts” sector (in both directions) is the difference in product standards between the two economic areas. In the EU there is a directive that is partially harmonized with the international UNECE (United Nations Economic Commission for Europe) standards, while the US automotive sector is regulated by the Federal Motor Vehicle Safety Standards. The differences in these two systems mean that a vehicle from one economy cannot be sold in the other without additional checks and adjustments. This leads to restrictions that will benefit domestic car manufacturers (or producers that have the same product standards) who will obtain the additional “rent” created by the different standards.

According to the ECORYS study, another measure that US firms have indicated as an important restriction to exporting cars to the EU is the REACH regulation.¹⁴ REACH requires that any chemical substance on the dangerous substances list should be traced back to where it originated. Considering the globalized structure of the production process for motor vehicles, this can

¹³ For a more comprehensive discussion on the different ways of representing NTBs in CGE models, see Fugazza et al. (2008) and Andriamananjara et al. (2003).

¹⁴ REACH is the EC Regulation on chemicals and their safe use (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32006R1907:EN:NOT>). It deals with the Registration, Evaluation, Authorisation and Restriction of Chemical substances. The law entered into force on 1 June 2007.

function as a serious burden to car producers. This regulation applies to US and EU firms alike and is, therefore, non-discriminatory, but can be argued to be a larger problem for US firms as they have not adjusted their business systems to this regulation. This regulation adds additional “costs” to production that can reduce efficiency.

Source: ECORYS (2009)

3.2.3 Reductions of NTBs

In this study we focus on two different NTB scenarios. One scenario is comprehensive and the other is more limited, and both derive from the study by ECORYS (2009). The comprehensive scenario is equivalent to what would be possible to achieve in the different sectors during a medium-run perspective of approximately 10 years. As mentioned in chapter 3, this means on average a 50% reduction. The limited scenario assumes that only half of the possible reductions could be achieved during the same time period, which on average means approximately a 25% reduction of the initial NTB levels. According to ECORYS, further reductions in the bilateral NTBs may be possible in a long-run perspective.

Reduction levels will vary substantially for different sectors because regulations in some sectors will have a greater potential for reduction than NTBs in other sectors. Even though results from the comprehensive scenario are included as benchmarks in some cases, the focus of this study is the set of results stemming from the limited scenario simulation.

4. Results from the FTA-scenario simulation

This chapter presents the results and analysis of the FTA scenarios by comparing the world economy before and after the scenario simulation, assuming an adjustment period of 10 years. All results in this chapter stem from the limited liberalization scenario if not otherwise indicated. The results should be interpreted as indications of different effects and mechanisms, and not as absolute numbers.

4.1 Overall economic results

4.1.1 National income effects

As a consequence of removing tariffs and reducing NTBs between the EU and the US in the model, the costs on imports go down and the demand for imports increases. This will influence trade flows and production structures not only in the liberalizing economies but also in the rest of the world. For the parties of the FTA, lower costs for both firms and end consumers lead to increased trade and production. This has a positive effect on consumers and producers compared to the pre-liberalization state. From the simulation results it is possible to obtain what is referred to as a “national income effect”, which is the summation of all of the different sources of gains and losses. These effects are shown in Table 5.¹⁵

One source of gain is that resources can be used more efficiently due to liberalization. This is because the true economic costs for production of different goods and services are revealed where they previously were hidden under tariffs and different regulations. Another source of gain is that imports cost less when firms are subject to less costly NTBs. The simulation results also indicate that the liberalizing countries would primarily gain from their own reforms because they result in lower costs for imports and lead to a better use of domestic and imported resources.

Table 5: Effects on national income as a per cent change of the initial GDP.

Country/country group	Tariff liberalization %	NTB scenarios (incl. tariffs)	
		Limited %	Comprehensive %
SWE	0.01	0.09	0.18
EU26	0.02	0.12	0.22
USA	0.02	0.24	0.51
RoW	-0.01	-0.07	-0.15
Total	0.01	0.06	0.13

Source: Simulation results based on GTAP version 8.

¹⁵ Calculations of these effects are provided by the GTAP model. In CGE terms this is referred to as the “welfare effect” and is measured as Equivalent Variation (EV).

The national income effects from the FTA scenarios are presented in Table 5 based on tariff liberalization alone and together with limited or comprehensive NTB reductions. The results indicate that tariff liberalization alone would only affect Sweden marginally (a 0.01% increase in GDP), but when NTB reductions are included this effect increases to 0.1% and 0.2% for the limited and the comprehensive NTB scenarios, respectively. The total results for the EU26 are slightly higher than for Sweden, in particular from tariff liberalization alone. The results indicate that the US would have the highest increase in national income, above a half per cent in the more comprehensive scenario. The relative gains for the US from tariff liberalization alone are about the same as for the EU26.

Even though national income effects from tariff liberalization alone are low in the simulation results, there may be efficiency gains to be had from removing administrative procedures that are not taken into account here. Also, liberalization of tariffs may be very important for specific product categories.

Because the RoW is not part of the agreement, the simulated FTA creates a negative trade diversion for this country group, and this group becomes less competitive relative to the EU and the US. Thus welfare in the RoW decreases. However, in reality this might not be the case for two reasons:

- Often a liberalization of NTBs means that countries begin to follow international standards. This means that all other countries already following these international regulations and standards will benefit from harmonization with international standards in the EU and the US.
- Even if the EU and the US were not to adopt international standards, transatlantic harmonization of rules and regulations could lead to common EU–US standards. The rest of the world could then benefit from only having to consider one common EU–US standard instead of two, or could choose to adopt the same standard.

4.1.2 Overall production and trade effects

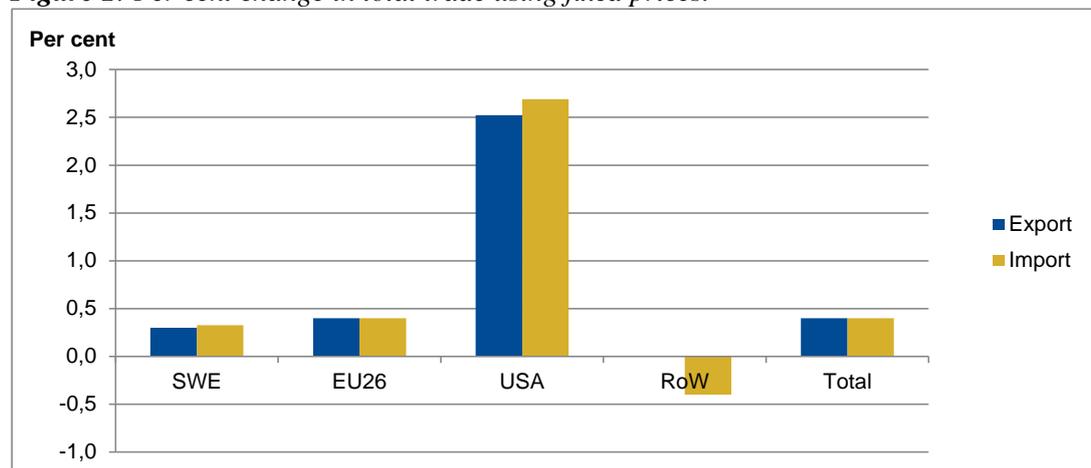
As seen in Table 6, the effects on value added in production in the countries of the simulated FTA are only marginal. Sweden accounts for almost one per cent of world production prior to liberalization, and has an increase in production of approximately 0.03% in the simulation. The EU26 contributes to over a fourth of world production and has an increase twice that of the increase in Sweden. The US also represents more than a fourth of world production (though slightly less than the EU26), but has a substantially larger increase in value added, approximately 0.6%. The rest of the world experiences a decrease in value added in production. In total, the simulated FTA results in a minor positive effect in the world as a whole.

Table 6: Initial production and change in production, fixed prices

	Share of value of production (%)	Change in value of production (%)
Sweden	0.8	0.03
EU26	28	0.06
USA	26	0.65
Rest of World	45	-0.40
World	100	0.012

Source: GTAP version 8. Initial shares derive from the base data and the change in value of production from simulation of the limited scenario.

Figure 1 shows the changes in exports and imports in the four country groups and in the world as a whole. The total trade effects for the world translate into an increase of world trade of 0.4%. Sweden has the smallest increase in total trade, which relies heavily on its dependency on the EU26 as a trading partner. The EU26 accounts for 57% of Swedish exports and 67% of Swedish imports while the US only accounts for 7% and 3%, respectively.¹⁶ The EU sees a slightly increased level of trade compared to Sweden in relative terms.

Figure 1: Per cent change in total trade using fixed prices.

Source: GTAP version 8. Simulation results from the limited scenario.

The US sees a relatively large increase in total trade that is reflective of the country's relatively large amount of trade with the EU. 20 % of the US total trade is towards the EU while only 8% of the EU's total trade is with the US. This is because the EU has a very large intra-EU trade that contributes to a larger overall level of trade. When only looking at the extra-EU trade (i.e. excluding the intra-EU trade), the US represents 16% of the EU trade.

Another reason for the large positive effects on US trade is linked to how demand for foreign and domestic goods and services is represented in the GTAP model. In the model, consumers and firms distinguish between foreign and domestic goods and services. This implies that foreign producers primarily compete with other foreign producers in a "nested"

¹⁶ Source: Eurostat (2010).

production structure.¹⁷ As a consequence, EU firms *primarily* compete with other non-US firms on the US market, while the US firms compete *directly* with other non-domestic EU firms (i.e. firms from other EU countries) in the different EU member states. When the EU countries obtain increased access to the US market, as a consequence of the simulated FTA, it is primarily at the cost of other non-domestic firms (such as the countries of the North American Free Trade Agreement, NAFTA) that previously had more exclusive access. When the US gains increased access to the EU countries, however, it is at the cost of firms from other EU countries. Hence, this effect is a consequence of the US being represented in the model as a single country and the EU as 27 countries all with a preference towards domestic goods and services.¹⁸

The RoW has largely unchanged levels of exports in the simulation and experiences a decrease in imports. This is partly due to falling export prices in relation to import prices, i.e. the RoW can import less for the same amount of exports.

Results from the more comprehensive scenario show almost two-fold greater increases in trade, e.g. Swedish export increases to 0.7% and total world trade to 0.9%.

4.1.3 Changes in aggregate trade flows

As seen in the previous section, total trade for the liberalizing countries rises while trade for the non-liberalizing country group remains largely unchanged. Table 7 shows changes in trade flows between the different countries/country groups. It should be noted that for the EU26 and the RoW, there is intra-regional trade, representing the trade between the countries within these two groups.

Table 7: Per cent change in trade according to country/country groups using fixed prices.

Exporter \ Importer	Sweden	EU26	USA	RoW	World
Sweden	-	-1.1	16.6	-0.9	0.3
EU26	-0.8	-1.4	19.5	-0.8	0.4
USA	14.6	19.8	-	-2.9	2.5
RoW	0.6	0.4	-1.5	0.4	0.0
World	0.3	0.4	2.7	-0.4	0.4

Source: GTAP version 8. Simulation results from the limited scenario.

¹⁷ This specification is known as a nested Armington structure. In this structure consumers and firms differentiate between goods and services based on their country of origin. The demand structure can be divided into two steps. The first is choosing between domestic or foreign goods or services, and the second is choosing from which foreign country.

¹⁸ Even though 26 of the EU countries in this study have been grouped together (into EU26) they are still treated as individual countries, e.g. trade still exists between these countries

As a consequence of the simulated FTA, Sweden diverts some of its export from the countries of the EU26 and the RoW towards the US. This mechanism of re-directing trade towards parties within the simulated FTA can also be seen when looking at the exports from the EU26 and the US. Exports in both directions increase at approximately the same rate, while exports from the EU26 and the US to the RoW decrease. In real value the increase in the transatlantic trade means more for the EU26 because the EU26 exports larger quantities than the US.

In the simulation, the RoW exports slightly more to Sweden and the EU26 and to its own member nations, but decreases its exports to the US by 1.5% and its imports from the US by 3%. One reason for this comparatively large decline is that the other NAFTA countries are part of the RoW country group. Before the simulated liberalization, these countries had more exclusive access to the US market, but as the US import barriers towards the EU are reduced this previous advantage is diminished. Because of the increased competition for the US market, the RoW will divert some of its exports to other countries (in the EU and the RoW). Also, as imports from non-US countries become relatively less expensive, demand from these countries will increase.

Looking at the results from the more comprehensive scenario, Swedish exports to the US increase by approximately 35% and imports by about 29%.

4.2 More detailed results for Sweden

4.2.1 Effects on total production and trade

Table 8 shows production and trade effects for Sweden after the simulation of the main FTA scenario that includes tariff liberalization and the limited NTB liberalization.

Of the three aggregate sectors, the largest relative changes are seen in the agricultural sector as trade in both directions, as well as production, increases. The relatively large changes in this sector are a consequence of the currently high tariffs and NTBs in both the EU and the US prior to the simulated FTA. However, because this sector contributes only to a small share of the total value of Swedish production and trade, the overall impact from liberalization in this sector is limited.

The value created in industrial production increases by 0.05%, and trade in both directions increases by approximately 0.3%. Services production and exports decline somewhat and imports increase slightly.

The largest sectorial increase is in the “motor vehicles” sector. This sector displays an increase in both exports and imports, and the export increase in relative terms is three times as large. As discussed in section 2.2, however, the Swedish motor vehicle sector has experienced a sharp decrease in production and trade since 2007.

The largest relative decrease in production in this study is seen for the “aerospace” sector. Swedish imports increase substantially in this sector (2.2%) while exports decrease slightly.

Table 8: Value of production and trade for Sweden (% change in fixed prices)

	Production		Export		Import	
	Share	Change	Share	Change	Share	Change
Food and beverages	3	0.83	3	4.9	6	0.7
Agriculture subtotal	3	0.83	3	4.9	6	0.7
Medicines/chemicals	3	-0.55	11	-0.6	11	0.1
Electronic equipment	0	-0.26	6	-0.1	7	0.1
Motor vehicles	3	1.11	12	1.8	9	0.6
Aerospace	1	-1.72	1	-0.5	2	2.2
Other machinery	4	-0.17	18	-0.3	15	0.0
Metals	3	0.61	10	1.3	10	0.5
Wood products	5	-0.17	11	-0.3	4	0.1
Other manufactures	1	0.22	5	0.7	13	0.2
Industry subtotal	20	0.05	75	0.3	70	0.3
Transport services	6	0.03	4	-1.5	5	0.2
Financial services	3	0.03	1	-0.4	1	0.5
Insurance services	1	0.28	1	3.1	0	0.5
Business services	32	-0.08	11	0.3	12	0.6
Communication services	2	-0.03	1	-1.4	1	0.2
Recreational, public and other services	28	0.05	5	-1.8	4	0.2
Construction services	5	0.01	0.4	-3.5	1	0.2
Services subtotal	77	-0.01	22	-0.6	24	0.4
Total	100	0.03	100	0.3	100	0.3

Source: GTAP version 8. Simulation results from the limited scenario.

On the import side, trade increases in all sectors. The import of services increases slightly more than industrial imports, but slightly less than agricultural imports. Most Swedish services sectors experience a decrease in exports. The exceptions are “business services”, which increases slightly, and “insurance services” where exports increase by over 2%.

4.2.2 Changes in bilateral trade between Sweden and the US

The relative changes in bilateral trade flows between Sweden and the US in the different sectors are quite substantial. On the export side, the largest increase is in the “food and beverages” sector and export in this sector is almost doubled. Of the industrial sectors, the “electronic equipment” sector experiences an increase of about half its initial export value. Other export sectors that experience large increases are “other manufactures”, “metals”, “aerospace”, and “motor vehicles”. The effect in the largest industrial export sector, “other machinery”, is close to zero.

However, this sector was, according to the reference data, already rather liberalized as no additional costs of NTBs could be confirmed. This was, therefore, the only sector where no reduction in NTBs was simulated. The largest increase of exports in the services sector is in “financial services”, and the “insurance services” sector increases somewhat.

Table 9. Bilateral trade between Sweden, EU26 and the US (% change in fixed prices)

	Swedish exports to US		Swedish imports from US		EU 26 export to US	EU 26 import from US
	Initial share of total (%)	Change (%)	Initial share of total (%)	Change (%)	Change (%)	Change (%)
Food and beverages	2.8	86	1.3	168	109	109
<i>Agricultural subtotal</i>	<i>2.8</i>	<i>86</i>	<i>1.3</i>	<i>168</i>	<i>109</i>	<i>109</i>
Medicines/chemicals	15.7	14	6.1	37	15	36
Electronic equipment	2.5	47	4.9	33	48	31
Motor vehicles	16.4	27	3.1	41	27	43
Aerospace	1.9	32	4.0	57	35	45
Other machinery	22.7	0	17.8	-4	0	-4
Metals	9.6	35	3.6	44	42	38
Wood products	3.6	16	1.5	19	14	20
Other manufactures	3.3	33	3.6	12	44	12
<i>Industry subtotal</i>	<i>75.5</i>	<i>18</i>	<i>44.4</i>	<i>20</i>	<i>22</i>	<i>25</i>
Transport services	3.5	1	1.9	-1	1	-1
Financial services	0.5	17	2.2	6	18	6
Insurance services	1.6	9	0.4	8	9	6
Business services	13.1	3	40.3	8	3	9
Communication services	0.6	2	1.1	4	2	3
Recreational, public and other services	2.5	2	7.5	0	2	1
Construction svcs	0.0	0	0.9	5	2	5
<i>Services subtotal</i>	<i>21.6</i>	<i>3</i>	<i>54.3</i>	<i>6</i>	<i>5</i>	<i>4</i>
Total	100	17	100	15	20	20

Source: GTAP version 8. Own calculations based on limited NTB reductions (25%).

The largest increase in imports is in the “food and beverages” sector, which is more than doubled. In industrial sectors, “aerospace”, “metals”, “motor vehicles”, “medicines and chemicals”, and “electronic equipment” increase the most. Only in one sector, “other machinery”, where no liberalization was simulated, does the imports from the US decrease somewhat. In the service sector the largest increases are in “business services”, “insurance services”, and “financial services”. “Business services” represent over 40% of all Swedish imports from the US before liberalization so the increase in this sector is important for the overall results for Sweden. The only services sector where imports from the US do not increase is the “transport services” sector, which experiences a decrease of one per cent.

The section below focuses on three sectors that are strongly affected by the simulated FTA.

Food and beverages

The “food and beverages” sector is the sector with the highest increases in production and trade in the simulated FTA. This is not surprising considering the extensive regulations in this area and generally high tariffs in both the EU and the US. However, for many countries this is a sensitive sector and a sector that historically has been difficult to liberalise. Hence, the assumption of a complete removal of tariffs and a reduction of NTBs by 25% may be difficult to achieve in reality.

Motor vehicles and parts

The “motor vehicles” sector accounts for a large part of the gains in the Swedish economy, but this must be seen in relation to the decline in sales of motor vehicles recent years. However, NTB liberalisations may still contribute to better conditions for the sector and can be expected to have a positive impact on at least some segments of this sector.

Business services

As previously mentioned, liberalization of the “business services” sector is the largest contributor to Sweden’s overall gains from the simulated FTA. In the base data (i.e. pre-liberalization), Sweden had a substantial share of imports in this sector. The simulation results indicate that reduced costs for imports in this sector could have a very positive effect on overall Swedish production and income. The business services sector is used to a large extent as input to other sectors in the economy, and represents a third of all inputs used in total production. Two sectors that are highly dependent on “business services” are the “financial” and “insurance” sectors. Approximately half of the imported and domestic inputs in these two sectors consist of business services. Even though the “business services” sector itself declines slightly in production, it is one of the contributors to growth of the “financial” and “insurance” sectors. Besides being an important input in other sectors, this is also a sector that could include services with a high intensity of human capital and may, therefore, serve as a channel for the transfer of technology. However, this is dependent on the actual content of this sector, and a more in-depth analysis would be required to draw any final conclusions regarding the potential importance of this sector.

4.2.3 Chapter conclusion

To conclude, the simulation indicates that an FTA would have a positive effect on both trade and production in the parties of the agreement. It would also lead to a positive national income effect, both for the liberalizing regions and on a global level. Reducing NTBs is central for the outcome and the larger the reductions the greater the effects on trade and welfare. When reducing NTBs from 25 to 50%, the effects on both welfare and trade are approximately doubled for Sweden.

In many cases the results are fairly intuitive, i.e. the sectors where high barriers exist are also the sectors where we see the largest effects on trade and production. In other cases the results indicate that indirect effects are also important for the outcome. For example, even though the value in production decreases in the business services sector, this is still the sector where Sweden has the most to gain in terms of national income effects. This is due to the fact that business services are often used as inputs in other sectors that become more competitive and expand as a consequence of the simulated scenario.

To get a better understanding of the simulation effects for specific sectors, as well as a more complete picture of the NTBs in Sweden, a more in-depth analysis on a sector level would be required.

5. Concluding remarks

In the previous chapter some of the results from the FTA simulation were presented and discussed. In this final chapter some of the main findings from the analysis are summarised.

5.1 Conclusions

- The simulation results suggest that an FTA between the EU and the US would lead to positive national income effects in both parties of the agreement. Due to modelling reasons, the effects from the FTA are small. However, the simulation results indicate that increased economic integration may have a positive influence on the EU and US economies.
- For Sweden, the simulated FTA leads to yearly gains of 0.09% of the GDP with a limited NTB scenario and 0.18% with more comprehensive agreement on NTBs.
- The largest gains from the simulated FTA scenario stem from reduction of NTBs in terms of harmonization and simplifications of rules and regulations. The largest effect comes from non-discriminating regulations that increase costs for firms trading across borders.
- Tariff liberalization leads to positive albeit marginal effects. However, there may be efficiency gains from removing administrative procedures that are not taken into account here. Also, liberalization of tariffs may be very important for certain product categories.
- World production increases by 0.01% measured as value added to production. Swedish production increases by 0.03% with the highest relative increase in Sweden (though a small change in absolute numbers) being in agricultural production followed by industrial production. Swedish services production shows a slight decrease in added value.
- For Sweden the largest relative increases in total exports are in the “food and beverages”, “insurance”, “motor vehicles”, and “metals” sectors. However, considering the structural changes in the motor vehicles sector in Sweden over the last few years, the result concerning this sector should be interpreted with caution.
- Bilateral trade between Sweden and the US would increase substantially. In total the simulation of the limited scenario shows an increase in exports of 17% and in imports of 15%. These increases are approximately doubled in the comprehensive scenario. Trade increases in most sectors of this study with the largest relative increase in exports being in the “food and beverages” and “electronic equipment” sectors.

- A sector of great relevance to the Sweden–US relationship is the “business services” sector. This is the largest US import sector for Sweden and also the largest services export sector to the US. According to the simulation results, exports to the US in this sector would increase slightly and imports somewhat more if the NTBs in both EU and the US were to be reduced.
- The largest gains from liberalisation for Sweden derive from liberalisation in the business services sector and account for approximately a third of the gains. Because of the sector’s importance as an input in other sectors as well as its intensive use of human capital, liberalisation in this sector could have important *dynamic* effects for Sweden. However, a deeper analysis of this sector would be needed to fully understand the content of the bilateral trade flows as well as what actual barriers could be removed within a potential agreement.

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Appendix 1.

Table A1. Sectors of the study				
Sectors of the study	Sectors in GTAP database	Sectors of the study continued	Sectors in GTAP database continued	
Food and Beverages (FB)	Paddy rice	Other manufactures (OMAN)	Coal	
	Wheat		Oil	
	Cereal grains nec		Gas	
	Vegetables, fruit, nuts		Minerals nec	
	Oil seeds		Textiles	
	Sugar cane, sugar beet		Wearing apparel	
	Plant-based fibers		Leather products	
	Crops nec		Petroleum, coal products	
	Cattle, sheep, goats, horse		Machinery and equipment nec	
	Animal products nec		Manufactures nec	
	Raw milk			
	Fishing		Transport services (TRANS)	Transport nec
	Meat: cattle, sheep, horse, goat			Sea transport
	Meat products nec			Air transport
	Vegetable oils and fats			
	Dairy products			
Processed rice	Financial services (FIN)	Financial services nec		
Sugar				
Food products nec				
Beverages and tobacco products	Business services (BUSIN)	Business services nec		
Medicine and chemicals (MEDCHE)	Chemical, rubber, plastic prods			
		Insurance services (INS)	Insurance services	
Electronic equipment (ELEC)	Electrical machinery			
		Communications services (COM)	Communication	
Motor Vehicles (MVH)	Motor vehicles			
Other transport equipment (OTEQ)	Other transport equipment (aerospace)	Construction services (CONSTR)	Construction services	
Other machinery (OMAC)	Machinery and equipment nec			
Metals (MET)	Mineral products nec	Recreational, public & other services (REC)	Recreation and other services	
	Ferrous metals		Electricity	
	Metals nec		Gas, manufacture, distribution	
	Metal products		Water	
			Public admin/Defence/Health/Education	
Wood products (WP)	Forestry		Dwellings	
	Wood products		Trade	
	Paper products, publishing			

Table A2. Possible reduction rates (in per cent) of initial NTBs within a potential FTA, (the "actionability")

	EU	USA
Food and beverages	53	51
Medicines and chemicals	54	52
Electronics equipment	48	49
Motor Vehicles	48	42
Other transport equipment	59	51
Other machinery	NA	NA
Metals	62	50
Wood products	60	61
Other manufactures	49	55
Transport services	40	48
Financial services	49	55
Insurance services	52	48
Business services	47*	46*
Communications services	70	66
Construction services	38	57
Recreational, public and other services	37	47

Source: Estimates based on data from ECORYS 2007

* un-weighted average