Impact of Six EU Free Trade Agreements on the Dutch Economy

seo amsterdam economics

Amsterdam, 30 November 2016
Commissioned by the Ministry of Foreign Affairs, the Netherlands

Impact of Six EU Free Trade Agreements on the Dutch Economy

Final Report

Nienke Oomes (team leader)
Romy Appelman
Ward Rougoor
Tom Smits
Joost Witteman

The authors are grateful for the thorough review and valuable advise provided by prof. dr. Steven Brakman, Dr. Tristan Kohl (both University of Groningen) and prof. dr. Carl Koopmans (SEO)

seo amsterdam economics

Roetersstraat 29 - 1018 WB Amsterdam - T (+31) 20 525 1630 - F (+31) 020 525 1686 - www.seo.nl - secretariaat@seo.nl
ABN-AMRO IBAN: NL14ABNA0411744356 BIC: ABNANL2A - ING: IBAN: NL96INGB0004641100 BIC: INGBNL2A
KvK Amsterdam 41197444 - BTW NL 003023965 B

"Solid research, Sound advice"

SEO Amsterdam Economics carries out independent applied economic research on behalf of national and international clients – both public institutions and the private sector. Our research aims to make a major contribution to the decision-making processes of our clients. Originally founded by, and still affiliated with, the University of Amsterdam, SEO Amsterdam Economics is now an independent research group but retains a strong academic component. Operating on a nonprofit basis, SEO continually invests in the intellectual capital of its staff by granting them time to pursue continuing education, publish in academic journals, and participate in academic networks and conferences. As a result, our staff is fully up to date on the latest economic theories and econometric techniques.

SEO Report No. 2016-96

Executive Summary

The estimated impact of six envisaged bilateral EU Free Trade Agreements (FTAs) on the Dutch economy is small but generally positive. In five out of six cases, the FTAs would raise real GDP, lower import prices, and create additional employment. If all six envisaged FTAs were to take effect simultaneously, Dutch real GDP would grow by around half a percentage point (€3.3 billion). The impact on third countries is slightly negative on average, positive in some cases, but generally small.

The European Commission is currently negotiating, or considering to negotiate, new bilateral Free Trade Agreements (FTAs) between the EU and six of its trade partners: Australia, Chile, Indonesia, Mexico, New Zealand, and the Philippines. This partially concerns entirely new trade agreements and partly a deepening and broadening of existing trade agreements. On behalf of the Dutch Ministry of Foreign Affairs, SEO Amsterdam Economics has conducted an in-depth study on the impact such FTAs might have on trade, GDP, and employment in the Netherlands. In addition, it estimates the impact on trade and GDP for low- and middle-income countries.

We estimate this economic impact in two stages. First, we use a so-called 'gravity model' to assess the impact on bilateral trade, trade between third countries, and real GDP, taking into account indirect trade effects that could occur due to changes in relative prices and relative incomes. Second, we use an 'input-output' labour market model for the Netherlands to project the impact on Dutch production, value added, and employment by sector, taking into account input-output linkages between sectors.

Our key findings can be summarized as follows:

1. **All six envisaged FTAs would lead to a substantial increase in Dutch exports to these countries.** The largest impact on Dutch exports would occur in a case of the envisaged FTAs with Australia and Indonesia. We predict that exports to these countries would increase by around 175%, which would imply an increase in Dutch export revenues by €4 billion and €1.3 billion, respectively.

2. **The estimated overall impact on Dutch real GDP is positive in five out of six cases.** The largest increase in Dutch real GDP occurs again for the FTAs with Australia and Indonesia, amounting to 0.16% of GDP (around €1 billion) and 0.21% of GDP (around €1.3 billion), respectively. This is smaller than the impact on exports because imports increase as well and some trade patterns change as a result of changes in relative trade costs and prices. The estimated impact on Dutch real GDP is smaller for the other four envisaged FTAs. For the FTA with the Philippines, the real GDP effect is slightly negative but negligibly small (−0.004%). If all six FTAs were to take effect simultaneously, Dutch real GDP would grow by around half a percentage point, or €3.3 billion.

3. **The impact on low- and middle income countries is limited.** On average, low-income countries see a slight decrease in real GDP after each of the envisaged FTAs, but these effects are relatively small, ranging from an average decrease of 0.01% for the FTA with Chile to an

average decrease of 0.20% for the FTA with Australia. A small number of low-income countries will however see an increase in their GDP. One exception is the FTA with the Philippines which, on average, results in small gains for low-income countries.

4. **The FTAs that have a positive impact on real GDP also have a positive impact on employment and wages in the Netherlands.** This is because the increase in real incomes leads to higher domestic demand, hence more production, which implies a higher demand for labour and therefore an increase in wages. The total net impact on employment in the Netherlands is again largest for the envisaged FTAs with Australia and Indonesia. The effect is slightly larger when we take into account the comparative advantages of the Dutch economy relative to other EU countries. While the increase in employment is temporary, the increase in wages and the decrease in prices are permanent effects.

Table of Contents

1 Introduction

This report assesses the economic impact on trade, GDP, and employment resulting from potential new Free Trade Agreements (FTAs) between the EU and six of its trade partners: Australia, Chile, Indonesia, Mexico, New Zealand, and the Philippines. The European Commission is currently negotiating such FTAs, or is in some cases considering to enter such negotiations. In order to support the position of the Netherlands in these negotiations, the Dutch Ministry of Foreign Affairs has contracted SEO Amsterdam Economics to conduct an in-depth study on the impact such FTAs might have on the Dutch economy, as well as on low- and middle-income countries.

We estimate this economic impact in two stages. First, we use a so-called 'gravity model' to assess the impact on bilateral trade, trade between third countries, and real GDP, taking into account indirect trade effects that could occur due to changes in relative prices and relative incomes. Second, we use an 'input-output' labour market model for the Netherlands to project the impact on Dutch production, value added, and employment by sector, taking into account value chain linkages between sectors.

Section 2 begins with a brief non-technical overview of our methodology, describing the gravity model (2.1), the way we model FTAs (2.2), and the input-output model (2.3). The technical details are described in the appendices.

Section 3 describes the gravity model results and the estimated impact on bilateral trade, trade with third countries, and real GDP for all countries. We find that the impact of FTAs on bilateral trade is positive and significant, while the impact on GDP is generally positive but small. If all six FTAs were to take effect simultaneously, Dutch real GDP growth would increase by around half a percentage point (€3.3 billion). The impact on low-income and middle-income countries is limited.

Section 4 present out input-output model of the Dutch economy (described in more details in Appendix D). We compute the sectoral employment effects of the six envisaged FTAs for the Netherlands. We consider two scenarios, one based on current bilateral trade patterns and the other based on the international competitiveness of each sector. Both scenarios yield similar results: the total increase in Dutch employment would be around 40,000 net full time equivalent (FTE) labour years over a ten year period. This is equivalent to roughly 4,000 FTE jobs with a total duration of ten years. Around 1,300-1,500 of these jobs would result from the FTA with Australia, and around 1,700 from the FTA with Indonesia. The sectoral distribution of these jobs is slightly different for the two scenarios considered.

We would like to caution the reader that, as always in economic research, our results are subject to some specific assumptions that we make along the way. In order to achieve full transparency, we make these assumptions explicit throughout the report as much as possible. Moreover, we test the robustness of our results by exploring the impact of using different assumptions. The most important robustness checks are reported in the appendices, and all others are available at request.

2 Methodology

This chapter gives a brief, mostly non-technical overview of our methodology. For technical details we refer the reader to the appendices.

In this report, we estimate the impact of six envisaged FTAs on Dutch exports, imports, real GDP and employment. To estimate these effects, we employ a two models, where each model involves various steps. We summarize these steps below. For details on the models, we refer the reader to Appendix A (Gravity model) and Appendix D (I-O model). For details on the estimation methodology, see Appendix B. For details on the data, see Appendix E.

2.1 Gravity Model

In order to assess the impact of the envisaged FTAs on trade flows and GDP, we employ the so-called 'gravity model' of international trade. The gravity model is one of the two main methods to analyse FTAs. Besides the Gravity model CGE models are also often used, see Brakman et al. (2015) for a critical discussion of both methods. The classic gravity model, going back to the Dutch econometrician Jan Tinbergen (1962), predicted that countries with a larger economic size (measured by GDP) would trade more, and that pairs of countries with a longer distance between them would trade less. This is similar to Newton's Law of Gravitation – hence the term 'gravity'.

The gravity model has proved to be empirically very successful for understanding and forecasting international trade patterns, and has even been called one of the most successful models in economics as a whole (Anderson, 2011). It is also widely used for projecting the impact of envisaged policies such as trade agreements or other reductions in trade costs (e.g. Head & Mayer, 2015). The gravity model we use is described in full detail in Appendix A.

We use the following steps for each FTA: [1]

1. We use a gravity model to estimate the average impact that existing FTAs have had on trade.
2. We estimate the implied trade costs between each country pair.
3. We impose a hypothetical new FTA.
4. We estimate the implied changes in trade costs between each country pair.
5. We estimate the direct and indirect impact on **trade** resulting from the changes in trade costs.
6. We estimate the resulting impact on **real GDP** for all countries in the sample.

Below we briefly discuss each of these steps. We refer to the appendices for more detail and our empirical strategy.

[1] See Larch and Yotov (2016), and Anderson, Larch, and Yotov (2015).

1. **Estimating the average effect of previous FTAs on trade**

A gravity model is built on the idea that international trade patterns are determined by the characteristics of both *country pairs* and *individual countries*. The presence of an FTA between two countries is a country-pair specific characteristic. To assess the impact of FTAs on bilateral trade flows, we need to control for other *country-pair* characteristics: distance, common border, shared language, and former colonial relation. In addition, we need to include *country-specific* characteristics that determine the likeliness of countries to engage in international trade, such as each country's GDP, its business environment, level of corruption, and other unobserved characteristics.

2. **Estimating the implied trade costs**

The output of step 1 are numbers that denote the impact that each country-pair characteristic (distance, common border, shared language, former colonial relation, and the FTA) has on trade flows between each country pair. Combining these estimated impacts, we get an aggregate measure of 'trade costs' between all country pairs.

3. **Imposing a hypothetical new trade agreement**

To model the impact of the newly envisaged (not yet existing) FTAs, we make assumptions on what each new FTA would look like. These assumptions are described below. Adding the hypothetical new FTAs to our database, we can then use the past experience of other countries with similar FTAs to 'predict' the effect of these new FTAs on trade between the partner countries. Since all six FTAs are negotiated at the EU level, we model them as implying a new bilateral FTA for all EU member countries.

4. **Estimating the implied changes in trade costs**

After adjusting the database for a new FTA, our estimate of trade costs will change for that specific country pair, because the effect of an FTA on trade is part of our measure of trade costs.

5. **Estimating the direct and indirect effects on trade resulting from change in trade costs**

Given the predicted change in trade costs resulting from an FTA, we can use the gravity model to predict the new level of trade. This would be the direct effect of the FTA. However, we also need to take into account that changing trade costs between two countries can also affect trade with third countries. Moreover, changes in trade can affect national income and expenditure. We include all these indirect effects, after which we obtain the general equilibrium changes in trade resulting from the newly envisaged FTA.

6. **Estimating the impact on prices and real GDP**

Based on the predicted change in trade costs, we can calculate the change in the price index for each country, and the subsequent change in real GDP. This change in real GDP (income effect) is what results after we take into account all direct and indirect effects that each FTA has on exports as well as imports, as a result of changes in trade costs and prices (price effect).

2.2 Modeling Free Trade Agreements

For modeling the impact of an FTA on trade, we use detailed information on 296 historical FTAs based on the dataset compiled by Kohl, Brakman and Garretsen (2016).[2] In most previous models that have attempted to estimate the effect of FTAs, an FTA is treated as a binary (0-1) variable: an FTA either exists or does not exist between two countries. This is too simplistic in our view, because FTAs can differ in terms of their coverage and enforceability. Following Kohl, Brakman and Garretsen (2016) we therefore model each FTA as consisting of a large set of provisions, each of which can be switched on or off. This is still a simplification in that some provisions can be switched off 'to an extent' (e.g., when import restrictions are concerned), but it is already a major improvement compared with the 0-1 approach.[3]

One complication is that we are aiming to assess the impact of six FTAs that do not yet exist and for which negotiations have not yet been concluded. In coordination with trade negotiation experts, we decided that the most realistic assumption is that the newly envisaged FTAs will be 'modeled' on two recent FTAs for which negotiations have already been concluded. The two 'model FTAs' we use for this purpose are (1) the EU-Canada Comprehensive Economic and Trade Agreement ('CETA'), and (2) The EU-Vietnam Free Trade Agreement ('EU-Vietnam'). Table 2.1 indicates which model FTA is used for each envisaged FTA.

Table 2.1 Model FTA used for each envisaged FTA.

Envisaged FTA	Model FTA
EU-Australia	EU-Canada (CETA)
EU-Chile	EU-Canada (CETA)
EU-Mexico	EU-Canada (CETA)
EU-New Zealand	EU-Canada (CETA)
EU-Indonesia	EU-Vietnam
EU-Philippines	EU-Vietnam

Source: SEO Amsterdam Economics.

In two of our countries, Mexico and Chile, an existing FTA is already in place and the newly envisaged FTA is therefore an improvement in terms of coverage of the existing FTA. Appendix E summarizes the differences between the existing FTAs with Mexico and Chile and the envisaged new FTAs with these countries, based on CETA.

Table 2.2 below summarizes these model FTAs in terms of the coverage of provisions. Kohl, Brakman and Garretsen (2016) and Brakman, Kohl and Van Marrewijk (2015) provide more information on the coverage of these provisions in the Kohl, Brakman and Garretsen (2016) dataset of FTAs.

While CETA is not yet in force or provisionally applied, negotiations for it were concluded in August 2014. It covers all provisions and makes all but one legally enforceable, the exception being

2 This dataset was also employed by Kohl, Brakman, and Van Marrewijk (2015) in their study of the effects of TTIP on the Dutch economy, commissioned by the Dutch Ministry of Foreign Affairs.

3 For additional discussion on this topic see Kohl, Brakman and Van Marrewijk (2015).

the provision on Competition.[4] If enacted, CETA is said to eliminate 98% of tariff lines between Canada and the EU. The EU-Vietnam FTA also covers all provisions, but three of them (Competition, Environment, and Labour) are not considered legally enforceable.

Based on the coverage and enforceability of provisions, we construct a Trade Agreement Index (TAI) for each FTA. This TAI is equal to the fraction of legally enforceable provisions that are covered in an FTA. For instance, CETA has 25 legally enforceable provisions out of 26, i.e., $TAI = \frac{25}{26}$. We have also considered alternative definitions of the TAI, for example, only counting the number of provisions that are covered (ignoring legal enforceability) or accounting separately for both the fraction of provisions covered and the fraction of provisions that are legally enforceable. also consider several alternative specifications. Our results do not change much when these alternative definitions of TAI are used. For a discussion on this, see Appendix C.

[4] While the provisions for Environment and Labour are also not legally enforceable in CETA, this enforceability is an important part of the ongoing negotiations on CETA-type FTAs. We therefore assume in our baseline scenario that these provisions will be legally enforceable for these FTAs. As a robustness check, we estimate what would happen in case they will not be enforceable. The results are reported in Appendix C.

Table 2.2 Model FTA characteristics.

	CETA		EU-Vietnam	
	Covered	**Legally enforceable**	**Covered**	**Legally enforceable**
Anti-Dumping & Counterveiling Measures	✓	✓	✓	✓
Agriculture	✓	✓	✓	✓
Customs Administration	✓	✓	✓	✓
Export Restrictions	✓	✓	✓	✓
Services	✓	✓	✓	✓
Import Restrictions	✓	✓	✓	✓
Public Procurement	✓	✓	✓	✓
Sanitary & Phytosanitary Measures	✓	✓	✓	✓
State Aid	✓	✓	✓	✓
State Trading Enterprises	✓	✓	✓	✓
Technical Barriers to Trade	✓	✓	✓	✓
Investment	✓	✓	✓	✓
Intellectual Property Rights	✓	✓	✓	✓
Capital Mobility	✓	✓	✓	✓
Competition	✓	x	✓	x
Environment	✓	✓	✓	x
Labour	✓	✓	✓	x
Consultations	✓	✓	✓	✓
Definitions	✓	✓	✓	✓
Dispute Settlement	✓	✓	✓	✓
Duration & Termination	✓	✓	✓	✓
Evolutionary Clause	✓	✓	✓	✓
Institutional Framework	✓	✓	✓	✓
Objectives	✓	✓	✓	✓
Plan & Schedule	✓	✓	✓	✓
Transparency	✓	✓	✓	✓

Source: SEO Amsterdam Economics.

2.3 Input-Output Model

As we have seen in the previous section, the output of the gravity model is the estimated impact that each FTA will have on exports, imports, and real GDP. In principle, we obtain these predictions for all countries and country pairs. However, since the gravity model does not yield labour market predictions, we use an input-output model to augment the results of the gravity model. In particular, we take the gravity model's predictions for the Netherlands and then calculate the subsequent impact on value added and (net) employment per sector during the subsequent 10 years, using the input-output labour market model developed by SEO for the Netherlands.[5]

[5] This model is described in Koopmans and Volkerink (2012). It has been used in previous SEO-research (Bisschop et al., 2012; Volkerink et al., 2012). The approach of the model has become part of the official guidelines of the Netherlands government for social cost-benefit analysis (Koopmans et al., 2016).

We perform this part of our analysis using the following steps:

1. We first distribute the overall impact on Dutch economic growth resulting from each envisaged FTA over all sectors of the economy, using two different scenarios:
   - Scenario 1: We assume that the gains per sector are proportional to their importance in trade with the envisaged FTA counterparty, as measured by each sector's *share in bilateral trade*;
   - Scenario 2: We assume that the gains per sector are proportional to their relative international competitiveness, as measured by the *Normalized Revealed Comparative Advantage* compared to an EU peer group;
2. We use our input-output model to calculate the implied labour market effects per sector.

Below, we briefly discuss these steps separately.

1. **Estimating the real GDP impact per sector**

The gravity model yields an estimate of the total increase in Dutch exports, imports, and corresponding real GDP growth for each envisaged FTA. In order to compute the subsequent impact on employment, we need to make assumptions on the distribution of this total real GDP effect over sectors, for which we consider two scenarios.

- **Scenario 1. The gains per sector are proportional to each sector's current share in bilateral trade with the FTA counterparty**

  In this scenario, we assume that a Dutch sector will gain more if it presently accounts for a larger share in total bilateral trade with the FTA counterparty. Conversely, we assume that a sector will gain less if it accounts for a smaller share. The reasoning behind this assumption is as follows: the fact that a certain sector currently has a large share in trade with the FTA partner reveals that there is strong demand for the products of this sector in the FTA counterparty economy. The Law of Demand would then predict that, given lower prices of these traded goods (due to lower trade costs), demand for products of this sector would increase further. Therefore, these sectors stand to gain the most.

- **Scenario 2. The gains per sector are proportional to their relative international competitiveness**

  In this scenario, we assume that a Dutch sector will gain more if it presently is internationally more competitive. Conversely, we assume that a sector will gain less if it is less competitive. We reason as follows: given that the envisaged FTA is a multilateral FTA (e.g., EU-Australia), the counterparty economy 'opens up' to all EU countries simultaneously. This causes EU countries to 'compete' for more trade at the same time. Given this competition, the likely winners per sector are those sectors that are *internationally competitive*. We assess the international competitiveness of sectors by calculating the *Normalized Revealed Comparative Advantage* (NRCA) of all sectors, and comparing these NRCAs to a peer group consisting of all other EU countries.

Both scenarios yield a predicted change in value added for each key sector of the Dutch economy. By construction, the sum of these changes is identical to the total real GDP effect predicted by the gravity model.

2. Estimating the implied labour market effects by sector

The previous step generates the predicted change in value added for all key sectors of the Dutch economy, using two different scenarios. We subsequently employ an input-output model of the Dutch economy to calculate the direct and indirect labour market impact of each scenario.

There are two reasons why it is important to use an input-output model:

- First, this allows us to distinguish between the *direct* and *indirect* impact on production, value added, and employment per sector. The idea is as follows. Suppose that, due to the increase in trade resulting from an FTA, some Dutch sectors (e.g., agriculture) will need to produce more goods, for which they need to hire more workers. This is the direct impact. Suppose further that this first sector (e.g., agriculture) uses inputs produced by a second Dutch sector (e.g., electricity). This increases the demand for goods produced by this second sector, and a corresponding increase in demand for labour, even if that sector does not benefit directly from an increase in trade. This is the indirect impact.

- Second, it allows us to distinguish between *short-term* and *long-term* effects. In the short run, it is possible for a positive 'impulse' such as an FTA to create jobs and lower the unemployment rate temporarily below its 'natural' rate. A certain share of the people who find new jobs leave a current job, which creates new vacancies that will also partly be filled by people who leave a current job, etc. In the long run, however, the lower unemployment rate makes it more difficult for employers to find adequate employees. This would cause wages to rise, which eventually would lower labour demand. [6] This implies that employment can be increased only temporarily, but the impact on wages will be permanent.

More technical details on the input-output model are given in Box 4.1 and in Appendix D.

[6] This is a standard assumption in economic general equilibrium models, and is also the standard assumption used by the CPB Netherland Bureau for Applied Policy Analysis (see e.g. CPB, 2009).

3 Impact of FTAs on Trade and GDP

Based on our gravity model, we find that the impact of FTAs on bilateral trade is positive and significant, while the impact on GDP is generally positive but small. If all six FTAs were to take effect simultaneously, Dutch real GDP growth would increase by around half a percentage point (€3.3 billion). The impact on low-income and middle-income countries is limited.

3.1 Regression Estimates

As explained in section 2.1, we use a gravity model to predict the amount of trade (export and import) between countries as a function of country-specific variables and country-pair specific variables. The latter include distance, common border, shared language, colonial links, and of course, the presence of an FTA between the two countries.

The impact of FTAs on trade is estimated by converting the information on each of the 296 FTAs in our database into a 'Trade Agreement Index' (TAI). The value of this index is between 0 and 1, and is determined by the share of *legally enforceable* provisions included in the trade agreement out of 26 commonly present provisions in trade agreements. As explained in Appendix C, we cannot estimate the impact of each provision separately, due to the high correlation between provisions.

When we estimate the structural gravity model, we find that FTAs are significantly positively associated with trade, and their impact on trade is larger when FTAs have more legally enforceable provisions (i.e., the TAI is higher). Trade is furthermore increasing with common borders, colonial links, and a shared language. Trade is estimated to be decreasing with bilateral distance. These coefficients are as expected, as is the overall model fit R^2, which is high. Table 3.1 presents the resulting parameter estimates.

Table 3.1 Based on data for 296 FTAs, the average impact of an FTA on trade is estimated to be positive and significant, even after controlling for other country-pair specific factors.

	Point estimate	Standard error	P-value
Parameters			
Trade Agreement Index (TAI)	0.660	0.071	0.000
Common border	0.451	0.083	0.000
Former colonial link	0.352	0.091	0.000
Shared language	0.213	0.080	0.008
Ln (distance)	-0.660	0.071	0.000
Model Fit			
R^2	0.87		
Pseudo log-likelihood	-9484.931		

Source: SEO Amsterdam Economics; fixed effects PPML estimation of gravity equation. Dependent variable is bilateral exports. Trade agreement index is the simple average of legally enforceable provisions in the trade agreement dataset Kohl, Brakman & Garretsen (2016). Country fixed effects are not reported. Number of parameters: 362; number of observations: 31,862; number of countries: 179; year: 2011. For additional details, see Appendix B.

The regression estimates reveal that the maximum value of the trade agreement index (TAI = 1, so all provisions are in the agreement) is associated with almost a doubling in trade.[7] A common border is associated with a 50% increase in trade, a former colonial link with roughly 40%, and a shared language with an increase in trade of around 24%.

We verified the robustness of these estimates with respect to changes in modelling of the FTA variable. We find that our results are robust to some changes in our FTA variable. We defer a more extensive discussion to Appendix C.

3.2 Impact of FTAs on Dutch Trade and GDP

Given the regression estimates above, we apply the methodology laid out in Chapter 2 to estimate the effect of the six FTAs on Dutch trade and GDP. We estimate the bilateral change in Dutch exports and imports to and from the FTA counter party, the total change in Dutch exports and imports, and the change in Dutch real GDP. We present all trade changes in percentages and in millions of dollars.

Table 3.2 summarizes the estimated effects of the six FTAs. Each column corresponds to an envisaged FTA with the partner country listed in the column header. The last column corresponds to the situation where all six FTAs come into effect. The top part of the table gives the baseline situation as of 2015 (the latest year available) in terms of the real GDP of each country and the 2015 value of Dutch trade with these countries. The bottom part of the table shows the estimated effects for the Netherlands. The effects labelled 'bilateral' refer to changes in Dutch trade with each FTA partner country.

In general, we estimate the envisaged FTAs to have substantial bilateral trade effects between the Netherlands and the various FTA counterparties. The estimated effects differ substantially between FTAs. The estimated increase in bilateral exports ranges from 19% for Chile to 175% for Indonesia, and the estimated increase in bilateral imports ranges from 17% for Chile to 121% for New Zealand.

The estimated overall impact on Dutch real GDP is positive in 5 out of 6 cases, and largest for Australia and Indonesia. The largest increase in Dutch real GDP occurs for the FTAs with Australia and Indonesia, amounting to 0.16% (around €1 billion) and 0.21% of GDP (around €1.3 billion) respectively. The estimated impact on Dutch real GDP is smaller in the other four envisaged FTAs. For the FTA with the Philippines, the real GDP effect is slightly negative but negligibly small (−0.004%).

If all six FTAs were to take effect simultaneously, Dutch real GDP would grow by around half a percentage point (€3.3 billion). The main reason for this positive impact on real GDP is that the FTAs lower trade costs, which lowers the prices of traded goods, which in turn increases real income. Note that the overall impact on GDP and prices exceeds the aggregate effect of the six separate FTAs, which means that there are synergies between the FTAs.

[7] This is because $\exp(0.66) = 1.935$. Note that we in fact predict more than a doubling in trade for four of the six cases. This is possible because of the 'multilateral resistance' terms described in Appendix B.

Table 3.2 Each FTA leads to an increase in Dutch exports and Dutch imports. The six FTAs would jointly increase Dutch real GDP by €3.3 billion and reduce prices by 1 percent.

	FTA Australia	FTA Chile	FTA Indonesia	FTA Mexico	FTA New Zealand	FTA Philippines	ALL
			Baseline situation (2015)				
Real GDP (€, billions)	1102	216	776	1029	157	263	
NL exports to partner country (€, millions) [a]	2325	527	745	2444	374	461	
NL imports from partner country (€, millions) [a]	1546	1475	3105	1655	514	1598	
			Estimated effects for the Netherlands resulting from each FTA				
Change in bilateral exports							
(%)	174.38%	18.58%	175.10%	24.88%	162.63%	139.21%	
(€, millions)	4054	98	1304	608	609	642	
Change in bilateral imports							
(%)	117.43%	16.67%	104.89%	29.80%	121.04%	112.79%	
(€, millions)[a]	1816	1475	3256	493	622	1803	
Change in real GDP							
(%)	0.16%	0.01%	0.21%	0.02%	0.01%	−0.00%	0.51%
(€, millions)[b]	1040	42	1353	110	91	−25	3287
Change in domestic price level (%)	−0.52%	−0.02%	−0.30%	−0.07%	−0.03%	0.06%	−1.08%

Source: SEO Amsterdam Economics; UN Comtrade; IMF International Financial Statistics.
[a] Based on the official average 2015 exchange rate of 0.902 euros per U.S. dollar (IMF, 2016).
[b] Based on the official Dutch real GDP estimate of €651 billion in 2015 (IMF, 2016).

Despite the differences, several general propositions still hold. First, the estimated GDP and price effect is larger for larger counterparties: for example, an FTA with Australia has a larger impact than an FTA with New Zealand. Second, the estimated effect is smaller for FTAs that imply fewer changes in the present situation. For example, since Chili and Mexico already have a trade agreement with the EU, it is natural that the impact of these new FTAs is smaller.

While we do not predict the impact of trade agreements on foreign direct investment (FDI), our gravity model implicitly takes into account the average impact that previous FTAs have had on

increasing FDI-related trade flows, which are embedded in our trade data. That is, part of the increase in trade will be related to the export of components used in the production of goods abroad, or import of components used in the domestic production of goods. Reducing trade costs may therefore also increase FDI and contribute to the formation of global value chains. FDI flows, however, are determined by many other factors as well, which could be studied in further research.

3.3 Impact on Third Countries

Concerns have often been expressed that FTAs may have adverse effects on third countries that are not part of the FTA. For example, Felbermayr and Larch (2013) argue that an FTA might limit competitiveness of specific sectors in third countries when the FTA causes prices in those sectors to fall (in countries that are party to the FTA). Another argument is that FTAs between an industrialised and a developing economy could be harmful for the developing country, because an FTA restricts the ability of a developing country to protect its 'infant industries'. As a result, FTAs might lead to premature de-industrialisation in developing countries (Chang 2005).

Kepaptsoglou et al (2010) provide a useful overview of the empirical literature on this subject. Some studies find that the effect of an FTA between two industrialised economies (e.g. TTIP between the EU and the USA) are harmful for less developed third countries. For example, Felbermayr et al (2013) find that with TTIP, the EU and the US would trade substantially less with EU neighbouring states in North-Africa and Eastern Europe, as well as with BRIC countries. Carrere (2006) concludes that regional trade agreements increase trade between members, often at the expense of the rest of the world. Tang (2005) finds that the FTA between Australia and New Zealand (ANZCER) has resulted in trade diversion away from non-members, while ASEAN (Association of Southeast Asian Nations) has led to an increase in trade with non-members. Soloaga and Winters (2001) find only limited evidence of trade diversion because of the European Free Trade Association. In a study using data from six regional trade agreements (RTAs), Freund (2010) finds no evidence that implementation of RTAs is associated with less trade from third countries to RTA members.

Third countries can also positively benefit from an FTA, due to lower import prices. Felbermayr and Larch (2013) find, for the case of TTIP, that third countries that already have a trade agreement with (one of) the two FTA counterparties will benefit from an FTA, since they will start trading more with their counterparty and get access to the new FTA member.

Based on our gravity model, we can compute the predicted effects of each of the six envisaged FTAs on all other countries. We report these effects by income level of countries (low income, low-to-middle income, and middle income). We follow the World Bank classification of countries by income per capita, as also used by Brakman, Kohl, and Van Marrewijk (2015).

Table 3.3 The impact of the six envisaged FTAs on the real GDP of third countries is generally negative but small.

	FTA Australia	FTA Chile	FTA Indonesia	FTA Mexico	FTA New Zealand	FTA Philip-pines	ALL
Low income countries							
Average change in GDP	−0.20%	−0.01%	−0.08%	−0.04%	−0.02%	0.01%	−0.32%
Range [min; max]	[−1.22%; −0.05%]	[−0.05%; −0.00%]	[−0.19%; −0.02%]	[−0.26%; −0.01%]	[−0.06%; −0.00%]	[−0.00%; 0.01%]	[−1.48%; −0.02%]
Low−middle income countries							
Average change in GDP	−0.22%	−0.01%	−0.07%	−0.07%	−0.02%	0.00%	−0.40%
Range [min; max]	[−0.94%; −0.02%]	[−0.07%; 0.00%]	[−0.14%; 0.02%]	[−0.52%; −0.01%]	[−0.14%; −0.01%]	[−0.25%; 0.09%]	[−1.21%; 0.09%]
Middle income countries							
Average change in GDP	−0.16%	−0.01%	−0.08%	−0.05%	−0.02%	0.00%	−0.36%
Range [min; max]	[−0.27%; −0.02%]	[−0.05%; −0.00%]	[−0.14%; −0.02%]	[−0.20%; −0.01%]	[−0.03%; −0.00%]	[−0.01%; 0.01%]	[−0.55%; −0.06%]

Source: SEO Amsterdam Economics.

As Table 3.3 shows, the impact on low- and middle income countries is limited. On average,[8] low-income countries see a slight decrease in real GDP after each of the envisaged FTAs, ranging from an average decrease of 0.01% for the FTA with Chile to an average decrease of 0.20% for the FTA with Australia. This occurs because of trade diversion effects: the EU and the six trade partners will trade more with each other, and slightly less with the rest of the world. Note, however, that this is an average effect and for individual countries the effects may be more or less pronounced.

The impact on a third country typically depends on the relations between this third country and the parties to the FTA. Consider, for instance, the impact of an EU-Australia FTA on Papua New Guinea. Papua New Guinea stands to lose 1.22% of real GDP due to this FTA (see Appendix F) Given that for Papua New Guinea, Australia is its most important trading partner by quite a margin, relatively small changes to this trade relation may have substantial effects. Specifically, an EU-Australia FTA causes Australia to export more to the EU and less to Papua New Guinea (trade diversion) and it causes the prices of certain Australian export goods to rise. This in turn increases prices for Australian goods in Papua New Guinea, depressing real income in that country.

Since an average effect does not tell us whether some countries experience large positive or negative effects, we also report the *range*, i.e., the most positive and the most negative effect that is observed within this set of countries. While this range is usually negative, there are no cases of large losses or large gains. In exceptional cases, such as for the FTA with the Philippines, some third countries do gain as a result, even on average. The full list of real GDP effects per country is given in Appendix F.

8 By 'average', we mean a simple arithmetic average; unweighted by GDP.

4 Impact of FTAs on Employment

Using an input-output model of the Dutch economy, we compute the sectoral employment effects of the six envisaged FTAs for the Netherlands. We consider two scenarios, one based on current bilateral trade patterns and the other based on the international competitiveness of each sector. Both scenarios yield similar results.

Based on our gravity model (section 3), we projected the increase in Dutch real GDP that would result after each of the six envisaged FTAs. This chapter assesses the subsequent impact of this additional Dutch economic growth on production, value added, and employment in the Netherlands. To calculate the direct and indirect employment effects per sector, we use an input-output model of the Dutch economy. This model is described in more detail in Appendix D.

As explained in section 2, the impact on the Dutch economy is calculated in two steps:

1. We first distribute the overall GDP growth impact resulting from each envisaged FTA over all sectors of the Dutch economy, using two different scenarios:
   a. **Scenario 1**: We assume that the gains per sector are proportional to their importance in trade with the envisaged FTA counterparty, as measured by each sector's *share in bilateral exports*; . Sectors that are already exporting to the trade agreement counterparty are best positioned to profit from the lower trade costs and are thus more likely to experience an increase in demand which ultimately causes GDP to grow.
   b. **Scenario 2**: We assume that the gains per sector are proportional to their relative international competitiveness, as measured by their *Normalized Revealed Comparative Advantage* compared to an EU peer group A sector with a large comparative advantage is assumed to be more competitive in international trade and therefore more likely to benefit from the FTA.
2. We use our input-output model to calculate the implied net employment effects per sector.

4.1 Scenario 1: Current Bilateral Trade Patterns

This section uses the current sectoral distribution of exports to the FTA counterparty countries to determine the extent to which sectors benefit from the trade agreement. These demand increases are then 'fed' into the input-output model to calculate indirect production effects and employment for each sector.

Current export patterns provide the best available information about the type of products the Netherlands is expected to export to each of the six trade agreement counterparties. The underlying assumption in this scenario is that the sectors that are already exporting to the FTA counterparty are most likely to benefit from the lower trade costs.

Note that the GDP estimate obtained from the gravity model already takes into account (a) the fact that a newly envisaged FTA has a positive impact on imports, due to lower trade costs and lower import prices; (b) the fact that increased imports to some extent replace domestic production, i.e., they have a negative impact on GDP.

4.1.1 Translating GDP into Sectoral Employment Effects

To analyse current trade flows between the Netherlands and the six trade agreement countries, we use the Trade in Value Added (TiVA) database. TiVA is a joint OECD-WTO initiative and is aimed at solving one of the shortcomings of traditional (gross) trade statistics. Gross exports and imports are measured by customs officials as they cross national borders. However, as a result of global value chains and international fragmentation of production, goods that are exported by a specific country are not necessarily also produced there. The country exporting the final product (which carries most value) may have simply assembled the components, provided quality control or packaged the product. Registering the finished product as an export of this country would mean overestimating the actual contribution of this country to global value chains. The TiVA database provides a remedy by only measuring the amount of domestically value added contents in exports. For example, a car exported contains thousands of parts made in many different countries. Rather than attributing all this value to the single country exporting the final product, TiVA only counts each country's share of value added to the finished product. The database distinguishes 34 different sectors.

The Netherlands exports a total of over 4.4 billion USD in goods and services to the six trade agreement countries. Appendix G includes an detailed overview of value added trade flows between the Netherlands and the six trade agreement countries. The most important export sectors are Transport & Storage, Finance & Insurance, followed by Wholesale Trade, Food and Petrochemicals. Australia is the most important export partner and is responsible for almost 40 percent of total value added content exported to the six countries combined.

Current value added trade flows give an indication of demand of Dutch products that already exists in the six countries with which an EU-wide trade agreement is foreseen. This scenario assumes that the formation of a new FTA will mainly impact sectors in which trade already takes place. In that scenario, trade costs will drop after the trade agreement goes into effect, resulting in more trade in those sectors. Proportionally dividing the total increase in GDP by current (value added) exports for each sector yields the baseline scenario. For example, if 15 percent of current trade with the six trade agreement countries is comprised of food products, we assume that 15 percent of the total (direct) increase in GDP can be attributed to the food sector.[9]

4.1.2 Input-Output Model

Given the distribution of the total effect over sectors, we calculate the employment effects per sector using an input-output model. Input-output tables are models of economic activity that account for the flows between sectors. They take into account that the output of one sector can serve as an input for another sector or constitute the final demand of consumers. SEO has extended this input-output concept into a model which translates the estimated change in real GDP predicted by the gravity model (section 3.2) into changes in production, value added, and employment per sector.

The input-output model distinguishes between the *direct* and *indirect* impact on production, value added, and employment per sector. Suppose that, due to the increase in trade resulting from an

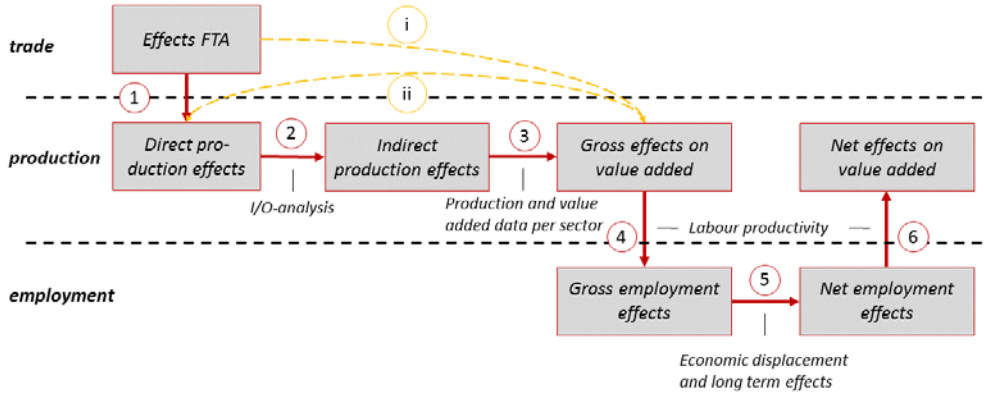
[9] While the direct impact may be largest in the food sector other sectors will still benefit indirectly. For example, more demand for (processed) food will also increase demand for the products of the agricultural sector. Similarly there will likely also be more demand for temporal workers though employment agencies.

FTA, some Dutch sectors (e.g., agriculture) will need to produce more goods, for which they need to hire more workers. This is the direct impact. Suppose further that this first sector (e.g., agriculture) uses inputs produced by a second Dutch sector (e.g., electricity). This increases the demand for goods produced by this second sector, and a corresponding increase in demand for labour, even if that sector does not benefit directly from an increase in trade. This is the indirect impact.

Our input-output model makes several assumptions that are common in labour market models:

- The first assumption is that vacancies may be filled not only by unemployed workers, but also by people that currently have a job. That is, additional jobs created by a new FTA may be filled in part by people who previously worked somewhere else. This drives a wedge between the *gross employment effect* (all new jobs) and the *net employment effect* (only jobs filled by unemployed).
- The second assumption is that, in the long run, the rate of unemployment will tend towards its 'natural rate'. This implies that policies such as FTAs can create jobs temporarily, but not in the long run, when wages and prices adjust. This is a typical assumption of 'general equilibrium' macroeconomic models and is also a typical assumption made by the CPB Netherlands Bureau for Applied Policy Analysis. [10]
- The third and last assumption is that labour productivity may differ by sector. This causes different employment effects by sector, even if their change in production is equal.

Figure 4.1 The input-output model translates the real GDP effect of FTAs into employment effects.



Source: SEO Amsterdam Economics.

Figure 4.1 illustrates our use of the input-output model both conceptually and practically. The bold red arrows indicate the conceptual causal links; practical changes in this conceptual chain are shown in dotted orange arrows (i and ii).[11] Box 4.1 outlines the steps to be taken in the input-output model.

[10] For instance, CPB (2009) Werkgelegenheidseffecten deelname JSF-programma. See also Koopmans & Volkerink (2014) 'Zorgen overheidsbestedingen voor extra banen?', and Koopmans et al. (2016) 'Werkwijzer voor kosten-batenanalyse in het sociale domein'.

[11] These two steps are necessary because we do not directly observe the production effects of the introduction of a not yet existing FTA. We do observe, however, the change in total real GDP that an envisaged FTA generates. Practically then, we calculate the increase in gross production by sector given the total GDP effect estimated by the gravity model and the distribution of this effect over sectors as estimated above. Using data from Statistics Netherlands (CBS) on the ratio of value added and production within each sector, we can express the estimated GDP effect by sector in terms of production.

Box 4.1 Steps used in the input-output model.

Step 1.
Conceptually, the introduction of an FTA directly causes the domestic production of goods and services to change (1) in Figure 4.1. Due to the introduction of an FTA, the import and export of the Netherlands changes, which leads to a change in production.[12]

Step 2
To account for the *indirect effect on production*, we recalculate the change in sectoral production in which an increase in production in one sector leads to an increase in production in another sector for all sectors. This is done using the input-output model. For details on this procedure, see Appendix D.

Step 3
The next step uses data from Statistics Netherlands (CBS) on the ratio of value added to production in each sector. The sum of all value added across all sectors is equal to the GDP effect estimated by the gravity.

Step 4
To obtain an estimate of the change in gross employment, we note that value added per unit time per sector is a function of labour productivity and employment. Given that we know labour productivity per sector and have estimated the change in value added due to the change in trade, we can estimate the effects of a change in trade on gross employment. Data on labour productivity per sector are obtained from Statistics Netherlands.

Step 5
As mentioned above, the gross increase in employment due to increased production is *not* equal to the net employment effect, for two reasons:

1. In the short run, a certain share of the people who find new jobs due to this increased production, leave a current job. This creates new vacancies, which will also partly be filled by people who leave a current job, etc. The net employment effect is the total number of jobs, summed over all 'rounds' of vacancies created, that are filled by people who were previously unemployed. We estimate this using data from Statistics Netherlands (May 2016) on vacancies and unemployment per sector.
2. In the long run, the lower unemployment rate makes it more difficult for employers to find adequate employees. The excess demand for labour eventually leads to wage increases and thereby to a decrease in employment elsewhere in the economy. In line with general equilibrium theory, this implies that, in the long run, the increase in employment is temporary and will gradually reduce to zero, which is a constraint that we impose in our model (as in Koopmans et al 2016). The increase in wages, however, is permanent.

Step 6
Once we have obtained net employment effects, we calculate the effect of each FTA on net production by multiplying the net employment effects with sector-specific labour productivity data.

4.1.3 Impact on Employment by Sector

Using the calculation steps described in the section above, we have estimated the effects of the FTAs on employment. The changes in production causes the net employment to increase, which

[12] This could theoretically be either an increase as well as a decrease of production. Suppose, for instance, that, due to the introduction of an FTA, certain domestically produced goods become more expensive than certain foreign produced goods. Due to competitive pressure, this could reduce domestic production.

implies a temporary decrease of unemployment. This positive employment effect is largest in the first year and is assumed to gradually diminish over time, due to gradually increasing wages, until the labour market reaches a new equilibrium. In this new equilibrium, unemployment is at the same level as before introduction of the FTAs, but wages are on average higher. Table 4.1 shows the net employment effects over a 10 year period expressed in FTE labour years.[13]

Total employment effects for all six FTAs add up to just short of 40 thousand net FTE labour years over a ten year period.[14] In other words, in this period there are on average 4.000 more full time jobs. The FTAs with Australia and Indonesia are expected to have the largest labour market effects. For Chile and Mexico the employment effects are expected to be smaller because of the existing trade agreements already in effect limiting the impact of the new trade agreement. For New Zealand and the Philippines these effects are smaller mainly because of the size of their respective economies.

The sectors that are likely the attribute most to the GDP increase are *Transport and storage*, *R&D and other Business activities* (which includes employment agencies), *Wholesale and retail trade* and *Agriculture, hunting, forestry and fishing*. Smaller but still sizable effects are expected in *Finance and Insurance* and *Food products, beverages and tobacco* (see also Table 4.2 for value added by sector)

Trade agreements with different countries result in different employment effects. For the FTAs with Australia, Indonesia and New Zealand, the largest effects (about 30 percent of the total employment effect) are expected in the *Transportation and storage* sector. For the FTA with Chile, *R&D and other business activities* is expected to benefit most (30 percent) while the trade agreement with Mexico results in bigger gains in employment in *Wholesale and retail trade* (15 percent), A*griculture, hunting, forestry and fishing* (10 percent), and *Fabricated metal products* (9 percent). This is in line with current export patterns to these countries (Appendix G). However, the use of the IO-model ensures that indirect effects are also taken into account as well as differences in labour productivity and capital intensity.[15] It is because of the linkages between *R&D and other business activities* (employment agencies, consultancy, security and cleaning) and virtually every other sector in the Dutch economy that this sector is expected to experience significant employment effects, not because the sector itself is such a big exporter.

The overall effect of five out of six FTAs are expected to be positive. By construction this means that all sectors benefit at least a little. However, the FTAs will likely lead to a certain extent of sectoral reallocation of labour and capital from less competitive to more competitive sectors. This necessarily involves job displacements. These adjustment costs will likely be unevenly distributed among groups. In other words, there will always be parts of sectors that lose, which will affect firms and employees in those sectors. (Raza et al, 2014).

13 One FTE labour year is equivalent to one full time job during one year time. Similarly, six FTW labour years would be equivalent to a full time job that lasts six years.

14 Equivalent to four thousand FTE jobs with a total duration of ten years.

15 Some sectors like the petrochemical industry and the energy sector are capital intensive and employ relatively few people per unit production. An increase in production will thus also have a limited effect on employment. The same holds for highly productive sectors such as Financial Institutions where the average employee produces relatively more value than the average employee in the Construction sector.

Table 4.1 Based on scenario 1, the six envisaged FTAs would jointly increase Dutch employment by 39,245 labour years over a 10-year period. This is equivalent to roughly 4,000 FTE jobs with a total duration of ten years.

Net employment in FTE labour years summed over 10 years	**AUS**	**CHL**	**IDN**	**MEX**	**NZL**	**PHL**	**ALL**
Agriculture, hunting, forestry and fishing	972	20	425	98	78	-15	2434
Mining and quarrying	4	0	4	2	0	0	21
Food products, beverages and tobacco	399	11	298	19	48	-11	1015
Textiles, textile products, leather and footwear	23	1	22	3	3	-1	79
Wood and products of wood and cork	19	0	14	2	1	0	49
Pulp, paper, paper products, printing and publishing	147	6	342	10	15	-4	513
Coke, refined petroleum products and nuclear fuel	9	0	8	17	1	0	133
Chemicals and chemical products	205	7	205	33	13	-4	664
Rubber and plastics products	159	4	81	13	21	-1	391
Other non-metallic mineral products	58	1	33	4	3	0	131
Basic metals	74	4	158	30	4	-1	401
Fabricated metal products	203	7	236	93	20	-3	1084
Computer, electronic and optical products	92	3	126	7	6	-3	279
Electrical machinery and apparatus n.e.c	77	2	81	8	6	-1	221
Machinery and equipment n.e.c	228	10	314	29	21	-4	749
Motor vehicles, trailers and semi-trailers	22	2	21	2	9	0	73
Other transport equipment	95	2	144	3	6	-1	234
Manufacturing n.e.c; recycling	249	6	229	16	16	-4	622
Electricity, gas and water supply	33	1	30	3	2	-1	90
Other community, social and personal services	772	7	359	21	33	-9	1455
Construction	621	6	273	21	18	-5	1162
Wholesale and retail trade; repairs	888	30	2095	149	78	-21	3617
Transport and storage	4348	6	5138	36	349	-30	9052
Post and telecommunications	96	7	124	6	10	-3	303
Hotels and restaurants	492	5	399	11	33	-12	1082
Computer and related activities	931	13	374	27	23	-6	1681
Finance and insurance	158	82	1117	76	59	-40	2141
Real estate activities	45	1	45	3	3	-1	114
R&D and other business activities	2715	108	3501	222	218	-55	7977
Renting of machinery and equipment	120	2	132	6	9	-2	291
Public admin. and defence; social security	225	4	183	8	12	-3	487
Education	174	4	131	10	8	-2	400
Health and social work	134	3	71	4	4	-5	300
Private households with employed persons	0	0	0	0	0	0	0
Total	**14786**	**365**	**16712**	**992**	**1132**	**-247**	**39245**

Source: SEO Amsterdam Economics. n.e.c. = not elsewhere classified.

Table 4.2 Based on scenario 1, the sectoral distribution of value added differs per country and is based on historical trade patterns.

Value added in millions of euros	AUS	CHL	IDN	MEX	NZL	PHL	ALL
Agriculture, hunting, forestry and fishing	40	1	17	4	3	-1	100
Mining and quarrying	19	1	18	8	1	0	96
Food products, beverages and tobacco	63	2	47	3	8	-2	161
Textiles, textile products, leather and footwear	2	0	2	0	0	0	7
Wood and products of wood and cork	2	0	1	0	0	0	4
Pulp, paper, paper products, printing and publishing	13	1	31	1	1	0	46
Coke, refined petroleum products and nuclear fuel	9	0	8	18	1	0	136
Chemicals and chemical products	52	2	51	8	3	-1	168
Rubber and plastics products	10	0	5	1	1	0	25
Other non-metallic mineral products	5	0	3	0	0	0	10
Basic metals	2	0	5	1	0	0	13
Fabricated metal products	16	1	18	7	2	0	83
Computer, electronic and optical products	6	0	9	0	0	0	19
Electrical machinery and apparatus n.e.c	3	0	3	0	0	0	8
Machinery and equipment n.e.c	27	1	38	3	2	-1	90
Motor vehicles, trailers and semi-trailers	3	0	3	0	1	0	10
Other transport equipment	6	0	9	0	0	0	14
Manufacturing n.e.c; recycling	14	0	13	1	1	0	35
Electricity, gas and water supply	20	0	18	2	1	0	55
Other community, social and personal services	37	0	19	1	2	0	74
Construction	32	0	14	1	1	0	59
Wholesale and retail trade; repairs	56	2	131	10	5	-1	230
Transport and storage	280	0	331	2	22	-2	582
Post and telecommunications	14	1	18	1	1	-1	45
Hotels and restaurants	22	0	18	1	2	-1	49
Computer and related activities	66	1	26	2	2	0	118
Finance and insurance	45	22	295	21	16	-10	571
Real estate activities	19	0	19	1	1	0	47
R&D and other business activities	109	4	141	9	9	-2	321
Renting of machinery and equipment	18	0	20	1	1	0	43
Public admin. and defence; social security	14	0	11	0	1	0	30
Education	8	0	6	0	0	0	20
Health and social work	7	0	4	0	0	0	16
Private households with employed persons	0	0	0	0	0	0	0
Total	**1040**	**42**	**1353**	**110**	**91**	**-25**	**3287**

Source: SEO Amsterdam Economics. n.e.c. = not elsewhere classified.

4.2 Scenario 2: Comparative Advantages

An alternative scenario for estimating the impact of trade liberalisation on employment is to assume that employment effects depend on relative competitiveness of Dutch export sectors. In this chapter we compute an alternate scenario of the impact of the trade agreement on employment. Highly competitive sectors are thought to benefit more from trade liberalisation.[16] The objective of this chapter is thus to identify those sectors and attribute a larger share of the (direct) benefits of the trade agreements specifically to these sectors. Additionally using the same methods the comparative (dis)advantages of the six FTA counterparties are identified.

The relative competitiveness of each sector can be expressed by computing the revealed comparative advantage for each sector in each country. The next section discusses the theoretical foundations of the comparative advantage.

4.2.1 The Concept of Revealed Comparative Advantage

Comparative advantages in the production of commodities arise due to differences in technologies across industries or so-called factor endowments such as the availability of land, labour and capital (Jackman et. al. 2011). A country with an abundance of available labour will likely have low labour costs and is thus able to cheaply produce goods that require a lot of labour.

The relative prices of factor endowments are a rather theoretical concept and not observable. This makes measuring a comparative advantage based on level of technology or available factor endowment difficult. Balassa (1965) therefor developed a method to measure comparative advantage based on the existing export flows of countries. This way, it is not necessary to search for the causes of comparative advantage (differences in technologies or factor endowments). Put differently, this method looks at the resulting export flows rather than the underlying causes to find comparative advantages of countries. Balassa's method is currently the most widely used approach to analysing comparative advantages and is known as the Balassa Index or Revealed Comparative Advantage (RCA) (Jackman et. al. 2011). The revealed comparative (dis)advantage of a country i in commodity j is calculated by:

$$RCA = \frac{\frac{export\ of\ country\ i\ in\ commodity\ j}{total\ exports\ of\ country\ i}}{\frac{exports\ of\ country\ peer\ group\ in\ commodity\ j}{total\ exports\ of\ country\ peer\ group}}$$

A country has a comparative advantage if the relative share of exports in commodity j compared to its total exports is larger than that same share for the peer group countries. If 10% of Dutch exports are flowers whereas only 5% of the total exports of peer group countries are flowers an RCA of 2 is computed. An RCA of over 1 signifies a comparative advantage. And RCA between 0 and 1 is means a country has a comparative disadvantage in the production of the commodity.

The main advantage of the RCA concept is that it is a relative straightforward way to calculate comparative advantages. It is not necessary to know or estimate the background of a certain

[16] Both because these sectors are expected to export relatively more to other countries as they are able to provide high quality products against competitive prices but also because they are less vulnerable in their domestic market. Given the fact that these sectors are internationally competitive it reduces the chance of foreign competitors taking over market share in the domestic market. Both effects combined mean that more competitive sectors are likely to attribute more to the expected GDP effect of the trade agreements.

advantage (the differences in production factors). It only requires trade data of the country of interest and trade data of a peer group of countries to compare with. A possible disadvantage is that a country may actually export products in which it has no real comparative advantage. This is because trade flows are determined not only by efficiency but also by trade barriers, historical trade patterns, political preferences and supply and demand stocks. All of these are unintendedly measured in the RCA. The fact, for example, that India trades a lot with the United Kingdom could be an expression of the historical and political relation between the ex-colony and ex-coloniser rather than an expression of comparative advantages of the two countries. (Leromain en Orefice, 2014)

Due to the relative simplicity of the method, the Balassa RCA remains a very popular measurement for comparative advantages to date. However, researchers have found several (econometrical) shortcomings of the Balassa RCA (Vollrath 1991, Laursen 1998, Proudman and Redding 1998, Hoen and Oosterhaven 2006). First off, the outcomes of the Balassa-index are not symmetrical. Values in the Balassa index fall between 0 and 1 if a country does not have a comparative advantage, so they have to be tightly packed, with little room to differ from each other. Values are larger than 1 if the country does have an advantage. There is no maximum.

Secondly, Balassa RCAs are not easily comparable over countries, commodities or time. The Balassa RCA tends to be exaggeratedly large for countries with a small market share in the world export market or for countries with an advantage in a commodity which has relatively little trade around the world (Yu 2009). This means that we cannot readily compare the Netherlands' RCA in machinery with Germany's RCA in machinery (because of the different sizes of the economy's exports). Neither can the Netherlands' RCA in chemicals be directly compared to the machinery RCA. This is especially true when the world trade in chemicals is much larger than the world trade in machinery. Finally, comparing RCA's from different years can be difficult when both economy size and commodity size have changed over time.

Normalised revealed comparative advantage

A number of researchers have proposed alternative RCA indices , which all improve certain aspects of Balassa RCA. We chose to use the alternative index proposed by Yu (2009), who developed the Normalised RCA.

The Normalised RCA (NRCA) is calculated[17] as follows:

$$NRCA = \frac{export\ of\ country\ i\ in\ commodity\ j}{total\ country\ peer\ group\ \ exports} - \left(\frac{total\ exports\ of\ country\ i}{total\ country\ peer\ group\ \ exports} \cdot \frac{total\ peer\ group\ exports\ in\ commodity\ j}{total\ country\ peer\ group\ \ exports}\right)$$

The export from a certain country of a certain commodity (say: the Netherlands' export in machinery) is compared to the country peer group export in all commodities, and corrected for the relative size of the country's total exports (the Netherlands' export of all commodities) and the size of the trade in the particular commodity (the total exports in machinery of the peer group).
The values of the NRCA are symmetrical around 0. This means that a negative NRCA indicates a disadvantage and a positive NRCA indicates an advantage. There are as many negative NRCAs as there are positive ones, and they always add up to 0.

17 We multiply the resulting NRCA by 400 which results in a theoretical range of NRCA values from -100 to 100 rather than the -0,25 to 0,25 scale proposed by Yu (2009).

NRCAs are comparable over time, commodity and country. It is thus possible to compare the Netherlands' NRCA in machinery export in 2015 to Germany's NRCA in machinery exports. Similarly one can compare the Netherlands' NRCA in food exports to the Netherlands' machinery exports of calculate the NRCA over several years and analyse its development. The NRCA thus corrects for countries' total exports and the size of world trade in that commodity making them comparable. If both Germany and the Netherlands have a low export share in textiles, this results in a larger negative NRCA for Germany because Germany has larger total exports. Also, a low export share for the Netherlands in textiles will result in a lower NRCA than a low export share in space freight, because textiles is a much larger sector in world trade.

The next section uses NRCA metrics to identify those sectors in which the Netherlands comparative advantages lie.

4.2.2 Revealed Comparative Advantages of the Netherlands

Given that the envisaged FTAs are negotiated at the EU level and would apply to all EU28 countries, it makes sense to analyse the relative competitiveness of Dutch export sectors compared to these countries. Those sectors that are considered comparatively competitive relative to other EU countries can then be assumed to benefit most from the formation of a trade agreement.[18]

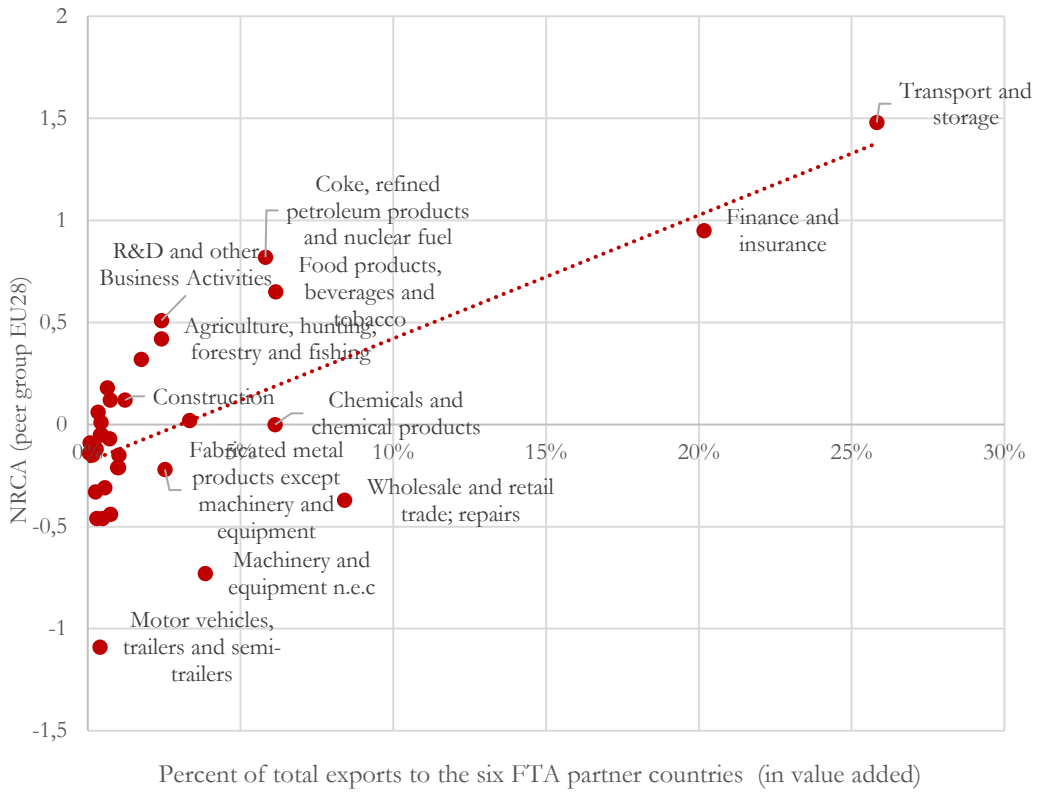
Compared to other EU countries, the Netherlands turns out to have a relatively high NRCA in transport and storage (logistics). This implicates that the Netherlands is comparatively better in these activities than, for example, in the production of motor vehicles. Figure 4.3 shows the share of total value added content exported by the Netherlands to the six trade agreement countries on the horizontal axis. Just over 25 percent of exports fall into the category transport and storage services. The vertical axis displays the NRCA relative to the EU28 peer group. The figure shows a positive relation between the level of exports to the six trade agreement countries and the relative strength compared to the EU28. Sectors in which no particular comparative advantage is observed generally export little to the six trade agreement countries. The two sectors with the highest NRCA also export most to the six trade agreement countries.

Table 4.3 provides an overview of the NRCA in all 34 sectors identified by TiVA. The highest NRCA is observed for *Transport and Storage* followed by *Finance and Insurance*, *Refined Petroleum, Food products*, *R&D and other Business Activities* and *Agriculture*. The height of the NRCA indicates the relative strength to other Dutch sectors compared to each other. The Netherlands is therefore relatively stronger in *Food products* than in *Agriculture*.

The next step is to compare the NRCAs found for the Netherlands with those of other EU28 countries. The Netherlands may be strong in food products (compared to other sectors) but the same holds for other EU countries. The second to right column indicates the relative strength (rank of NRCA) of the Netherlands compared to the rest of the EU28. The right most column gives the name an NRCA of the country with the strongest NRCA in the EU28.

[18] The competitiveness of trade partners outside the EU remains relevant as well. If countries outside of the EU are highly specialised in the production of certain goods, Australia may opt to keep importing from those countries despite the fact that trade barriers with the EU have been lowered. Appendix H therefore analyses the revealed comparative advantages with respect to the rest of the world as well. ("World" as peer group.)

Figure 4.2 Dutch exports to FTA partners countries are positively correlated with sectoral comparative advantages.



Source: SEO Amsterdam Economics based on TiVA.

The Netherlands has the highest NRCA among all EU28 countries in the *Petroleum* and *Food products* sectors. The Netherlands also has a high NRCA in *Transport and Storage*, but the NRCA of Denmark in this sector is even higher (1.53). Similarly, the UK (as well as Luxemburg and Ireland) are comparatively stronger in *Finance and Insurance*. Appendix H shows a similar table with the entire world as peer group for the NRCAs.

Table 4.3 Compared to other EU28 countries, the Netherlands is comparatively strongest in refined petroleum and food products.

ISIC codes	Sector	NRCA	EU28 rank	#1 EU country
C60T63	Transport and storage	1.48	2	Denmark (1.53)
C65T67	Finance and insurance	0.95	4	UK (4.74)
C23	Coke, refined petroleum products and nuclear fuel	0.82	1	Netherlands (0.82)
C15T16	Food products, beverages and tobacco	0.65	1	Netherlands (0.65)
C73T74	R&D and other Business Activities	0.51	3	UK (4.38)
C01T05	Agriculture, hunting, forestry and fishing	0.42	3	France (0.46)
C90T93	Other community, social and personal services	0.32	2	UK (1.01)
C64	Post and telecommunications	0.18	2	Italy (0.22)
C75	Public admin. and defence; compulsory social security	0.12	2	Spain (0.19)
C45	Construction	0.12	4	France (0.40)
C80	Education	0.06	2	UK (0.23)
C72	Computer and related activities	0.02	7	Ireland (1.13)
C85	Health and social work	0.01	4	France (0.07)
C24	Chemicals and chemical products	0.00	6	Ireland (1.57)
C70	Real estate activities	-0.05	24	Italy (0.19)
C71	Renting of machinery and equipment	-0.05	24	France (0.52)
C36T37	Manufacturing n.e.c; recycling	-0.07	25	France (0.37)
C20	Wood and products of wood and cork	-0.09	25	Austria (0.19)
C26	Other non-metallic mineral products	-0.12	27	Italy (0.31)
C10T14	Mining and quarrying	-0.14	23	UK (2.16)
C21T22	Pulp, paper, paper products, printing and publishing	-0.15	25	Finland (0.64)
C40T41	Electricity, gas and water supply	-0.15	24	Germany (2.47)
C55	Hotels and restaurants	-0.21	26	Spain (1.31)
C25	Rubber and plastics products	-0.21	27	Germany (0.59)
C28	Fabricated metal products except machinery and equipment	-0.22	25	Italy (0.85)
C35	Other transport equipment	-0.31	28	France (1.85)
C17T19	Textiles, textile products, leather and footwear	-0.33	26	Italy (2.16)
C50T52	Wholesale and retail trade; repairs	-0.37	26	France (1.94)
C30T33	Computer, electronic and optical products	-0.44	27	Germany (1.41)
C27	Basic metals	-0.46	27	Germany (0.40)
C31	Electrical machinery and apparatus n.e.c	-0.46	27	Germany (1.69)
C29	Machinery and equipment n.e.c	-0.73	25	Germany (3.82)
C34	Motor vehicles, trailers and semi-trailers	-1.09	27	Germany (6.12)

Source: SEO Amsterdam Economics based on TiVA (peer group EU28).

4.2.3 Revealed Comparative Advantages of FTA Partner Countries

Table 4.4 is similar to Table 4.3 but compares the Netherlands with the six FTA counterparty countries. The right most column shows which country has the largest comparative advantage.

Table 4.4 FTA counterparties are competitive in agro and food, manufacturing and mining.

ISIC codes	Sector NRCA:	NLD	AUS	NZL	PHL	MEX	CHL	IDN	Best FTA counterparty
C60T63	Transport and storage	**0.51**	0.07	0.06	0.11	-0.18	0.00	-0.25	Netherlands
C65T67	Finance and insurance	**0.40**	-0.21	-0.02	-0.03	-0.18	-0.06	-0.17	Netherlands
C73T74	R&D and other Business Activities	**0.31**	-0.18	-0.01	0.06	-0.27	-0.06	-0.22	Netherlands
C15T16	Food products, beverages and tobacco	0.24	0.05	0.24	0.03	-0.02	0.09	**0.36**	Indonesia
C23	Coke, refined petroleum products and nuclear fuel	**0.16**	-0.18	-0.02	-0.04	-0.09	-0.05	-0.05	Netherlands
C90T93	Other community, social and personal services	**0.14**	-0.04	0.00	0.00	-0.09	-0.02	-0.05	Netherlands
C24	Chemicals and chemical products	**0.10**	-0.26	-0.06	-0.06	-0.18	-0.09	-0.09	Netherlands
C01T05	Agriculture, hunting, forestry and fishing	0.09	0.21	0.11	0.00	0.04	0.05	**0.22**	Indonesia
C64	Post and telecommunications	**0.08**	-0.04	0.00	0.05	-0.03	0.00	-0.01	Netherlands
C45	Construction	**0.05**	-0.01	0.00	0.00	-0.03	0.02	-0.01	Netherlands
C72	Computer and related activities	**0.05**	-0.07	0.00	-0.01	-0.07	-0.02	-0.06	Netherlands
C75	Public admin. and defence; compulsory social security	**0.04**	-0.01	0.00	0.00	-0.01	0.00	-0.01	Netherlands
C80	Education	**0.02**	0.01	0.00	0.00	-0.01	0.00	0.00	Netherlands
C85	Health and social work	**0.01**	-0.01	0.00	0.00	0.00	0.00	0.00	Netherlands
C40T41	Electricity, gas and water supply	0.00	-0.04	**0.01**	-0.01	-0.02	0.00	-0.03	New Zealand
C70	Real estate activities	0.00	**0.01**	0.00	0.00	-0.01	0.00	0.00	Australia
C21T22	Pulp, paper, paper products, printing and publishing	-0.01	-0.08	0.00	-0.02	-0.06	**0.04**	0.03	Chile
C71	Renting of machinery and equipment	-0.01	-0.03	-0.01	-0.01	**0.00**	-0.01	-0.02	Mexico
C20	Wood and products of wood and cork	-0.02	-0.01	0.02	0.01	-0.02	0.03	**0.05**	Indonesia
C28	Fabricated metal products except machinery and equipment	-0.02	-0.10	**-0.01**	-0.02	-0.03	-0.02	-0.06	New Zealand
C26	Other non-metallic mineral products	-0.02	-0.05	-0.01	-0.01	**0.01**	-0.01	-0.02	Mexico
C55	Hotels and restaurants	-0.03	0.01	**0.02**	0.00	-0.01	-0.02	0.00	New Zealand
C25	Rubber and plastics products	-0.04	-0.10	-0.01	-0.01	-0.02	-0.02	**0.00**	Indonesia
C36T37	Manufacturing n.e.c; recycling	-0.05	-0.09	-0.02	**-0.01**	-0.04	-0.03	-0.05	Philippines
C35	Other transport equipment	-0.09	-0.15	**-0.01**	-0.02	-0.10	-0.05	-0.08	New Zealand
C31	Electrical machinery and apparatus n.e.c	-0.10	-0.13	-0.02	0.04	**0.23**	-0.04	-0.03	Mexico
C29	Machinery and equipment n.e.c	-0.11	-0.30	-0.03	-0.06	**0.06**	-0.09	-0.22	Mexico
C17T19	Textiles, textile products, leather and footwear	-0.14	-0.17	-0.01	-0.01	-0.09	-0.05	**0.09**	Indonesia
C50T52	Wholesale and retail trade; repairs	-0.17	**0.08**	0.00	-0.01	-0.10	-0.06	0.07	Australia
C34	Motor vehicles, trailers and semi-trailers	-0.20	-0.29	-0.05	-0.03	**0.60**	-0.08	-0.19	Mexico
C27	Basic metals	-0.21	0.14	-0.01	-0.02	0.21	**0.58**	0.01	Chile
C30T33	Computer, electronic and optical products	-0.28	-0.39	-0.07	**0.20**	0.04	-0.12	-0.18	Philippines
C10T14	Mining and quarrying	-0.70	**2.36**	-0.10	-0.14	0.45	0.09	0.98	Australia

Source: SEO Amsterdam Economics based on TiVA (peer group World). TiVA distinguishes 61 different countries and 'the rest of the world'.

Because none of the FTA counterparty countries are in Europe, a peer group consisting of the EU28 would not make sense here. In this case we therefore use a peer group consisting of all countries in the TiVA-database, which are 61 countries plus 'the rest of the world'. Using a different peer group alters the values of the NRCAs somewhat from before. However, this does not have much influence on which sectors are considered to be most competitive. The top 5 in Table 4.4 (i.e., the sectors with the highest Dutch NRCA) is identical to the top 5 in Table 4.3. The main difference is that *R&D and other Business Activities* has risen from having the fifth highest NRCA to being in third place. *Coke, refined petroleum products and nuclear fuel* has dropped from place three to five.[19]

Comparing the Netherlands with FTA counterparty countries is relevant because it provides insights into the export specialisation of these countries. The Netherlands might be able to benefit from these specialisations by importing goods and services of higher quality or at lower costs than elsewhere available.[20] Furthermore, it would relevant to check whether FTA counterparty countries have similar specialisations as the Netherlands. In such cases, companies from these countries might become competitors of Dutch exporting companies once the FTA becomes active. Their increased access to the European market may not be beneficial for Dutch companies currently serving this market. Unfortunately, TiVA data does not allow for detailed analysis of subsectors and product groups which would be needed to identify those products in which Dutch companies directly compete with companies from any of the FTA counterparty countries. As such, Table 4.4 merely provides information at the aggregate level.

The Netherlands is comparatively strongest in *Transport and Storage, Finance and Insurance* and R&D and other Business Activities. Both Indonesia and the Philippines are comparatively strong in *Food products, beverages and tobacco*. Australia, New Zealand and again Indonesia are strong in *Agriculture, hunting, forestry and fishing*. It is likely that many of the agricultural and food products exported by Indonesia, the Philippines and Australia are different from those exported from the Netherlands. However, in other cases they could be the same.

To illustrate this, we also used the UN Comtrade database which provides gross trade flows (rather than value added), but at a much more detailed level.[21] Table 4.5 displays several product groups[22] (at a 3-digit SITC level) from the *Food and live animals, Beverages and tobacco and animal* and *vegetable oils, fats and waxes* sectors which correspond broadly with *Food products, beverages and tobacco* and *Agriculture, hunting, forestry and fishing* in the TiVA database.

As Table 4.5 shows, the Netherlands is comparatively strong in meat, cheese, vegetables, fruit, feeding stuff for animals, and the product group *Edible products and preparations n.e.s* which includes food preparations for infant use (i.e., baby milk formula). Furthermore, cacao is identified as a

19 This makes intuitive sense. The EU28 only has a limited number of countries that specialise in *Coke, refined petroleum products and nuclear fuel*. Using the entire world as a peer group means including countries such as Russia, the United States and Saudi Arabia. Compared to that peer group, the comparative advantage of the Netherlands this sector is naturally lower. For the same reason, a Dutch sector such as *R&D and other Business Activities* appears to be more competitive (third instead of fifth place) when compared to the entire world, which includes many developing countries which have a relatively small tertiary sector.

20 Provided that no prohibitive barriers to trade (besides distance) remain after the FTA is in place.

21 The gross data will differ from the value added flows obtained from TiVA. However, basic agricultural or food related products typically have relatively shorter value chains (compared with an electronic gadget) which means that the risk of large deviations between gross and value added trade flows is less of a concern.

22 Because of the sheer number of different product groups distinguished by UN Comtrade, Table 4.4 only includes those product groups in which one of the seven countries has a clear comparative advantage.

product group in which the Netherlands in comparatively strong, due to the presence of large cocoa processing companies.

Table 4.5 Indonesia is highly specialised in vegetable oils and fats.

SITC Rev 3 code	Product group	NLD	AUS	NZL	PHL	MEX	CHL	IND
S3-001	Live animals	0,04	0,02	0,01	0,00	0,01	0,00	0,00
S3-011	Bovine meat, fresh, chilled or frozen	0,03	**0,12**	0,04	0,00	0,00	0,00	-0,01
S3-012	Other meat, fresh, chilled or frozen	**0,07**	0,05	**0,05**	0,00	-0,02	0,01	-0,01
S3-022	Milk and cream	0,04	0,01	**0,16**	0,00	-0,02	0,00	-0,01
S3-024	Cheese and curd	**0,07**	0,01	0,02	0,00	-0,01	0,00	-0,01
S3-034	Fish, fresh, chilled or frozen	0,00	-0,01	0,01	0,00	-0,02	**0,08**	0,01
S3-041	Wheat, unmilled	-0,03	**0,09**	0,00	0,00	-0,01	0,00	-0,01
S3-054	Vegetables etc. fresh or simply preserved	**0,11**	0,00	0,00	0,00	**0,08**	0,00	-0,01
S3-056	Vegetables etc. preserved or prepared	0,04	-0,01	0,00	0,00	-0,01	0,00	-0,01
S3-057	Fruit, nuts, fresh or dried	**0,05**	0,00	0,02	0,03	0,04	**0,10**	0,00
S3-072	Cocoa	**0,06**	0,00	0,00	0,00	-0,01	0,00	0,02
S3-081	Feeding stuff for animals	**0,08**	0,00	0,00	0,00	-0,03	0,00	0,00
S3-098	Edible products and preparations n.e.s.	**0,09**	0,00	0,02	0,00	-0,01	0,00	0,00
S3-111	Non-alcoholic beverages	0,02	0,00	0,00	0,00	0,00	0,00	0,00
S3-112	Alcoholic beverages	0,01	0,01	0,02	-0,01	0,03	0,03	-0,02
S3-122	Tobacco, manufactured	0,04	-0,01	0,00	0,00	-0,01	0,00	0,01
S3-422	Fixed vegetable oils and fats, non-soft	0,01	-0,01	0,00	0,02	-0,02	0,00	**0,38**

Source: SEO Amsterdam Economics based on UN Comtrade data (2014). Values above 0,05 in bold.

The table further shows that Australia's comparative advantage in *Agriculture, hunting, forestry and fishing* (Table 4.4) is mostly due to bovina meat and wheat exports. New Zealand has comparative advantages in meat, milk and cheese. Both New Zealand and Australia could therefore be competitors for the Dutch dairy and meat farms. Similarly, Mexico might be able to compete in vegetables and Chile in fruits. On the other hand, the strong comparative advantage of Indonesia in *Agriculture, hunting, forestry and fishing* appears to be almost entirely based on vegetable (palm) oils and fats.

The Netherlands is specialised in many sectors in which none of the FTA counterparties have a comparative advantage. This provides ample opportunities for export. Similarly, the Netherlands may be able to benefit from the Australian and Chilean specialties in mining and basic metals, respectively. Better access to the Mexican manufacturing industry or Philippine computer, electronic and optical products could also lead to higher quality or cheaper products in the Netherlands. The most significant overlap between specialties is visible in the agro and food sectors. While the Netherlands may be able to export more of these products to the FTA counterparty countries, the same might be true the other way around when Australia and New Zealand gain better access to the European market. Of course, the distance between these country groups is significant, which may remain an obstacle when exporting fresh or perishable goods.

4.2.4 Gains per Sector Based on Revealed Comparative Advantages

The previous sections have discussed the different aspects that come into play when assessing the impact of an FTA on the specific sectors of the Dutch economy. The export specialisations of the six FTA counterparty countries (section 4.2.3) are likely to be relevant. However, given the sheer number of different products that could be exported it remains difficult to conclusively say where opportunities lie and where competitive pressures may build. Similarly, current trade barriers (section 4.3) are relevant to get an indication of market potential once barriers are removed. However, each barrier is unique in its own right. Hence, it is impossible to accurately estimate the size of each barrier and thus the untapped market potential once the barrier is removed.

Instead of taking current trade patterns as given, our second scenario takes the comparative advantages of Dutch export sectors (compared to other EU28 countries) as the best indication of which sectors are likely to benefit. Once relevant trade barriers are taken down, the export sectors that are the most competitive are assumed to be most likely to benefit from an FTA. We operationalise this idea by assuming that those sectors which have a positive comparative advantage will benefit, whereas those with a comparative disadvantage will not.[23] The Netherlands has 14 sectors with a positive comparative advantage (NRCA>0). These are given in Table 4.6.

In this scenario, the size of the NRCA for each sector will determine the extent to which these sectors benefit from the total GDP increase computed by the gravity model. A nice feature of the NRCA metric is its comparability. Thus, a sector with an NRCA twice the size will benefit twice as much, which makes intuitive sense. We use this characteristic to distribute the 'FTA impulse' across the 14 sectors. The right most column in Table 4.6 displays the resulting shares in the total demand impulse.

Sectors with a comparative disadvantage will still benefit indirectly. For example, agriculture will benefit because the sector provides goods and services to the food products sector. These indirect effects are calculated using the multipliers based on the input-output table discussed earlier.

[23] Another possible assumption would have been that those sectors with a comparative disadvantage will suffer from the FTA, e.g., because imports in that sector will increase and would replace domestic production of the same goods. However, this does not seem to be the correct assumption to make, because having a comparative disadvantage in a particular sector relative to other EU 28 countries does not necessarily mean that imports from the FTA country will replace domestic production. Most likely, these sectors will already be relying on imports from other countries. Therefore, it would seem unrealistic to assume, for example, that the FTA with Australia would lead to additional imports of wine that replace domestic production of wine. Due to the reduction in trade costs, it is likely that the Netherlands will increase imports of Australian wine, but since the Netherlands does not have a comparative advantage in wine, these imports would most likely replace wine imports from other countries (such as France) rather than Dutch wine (i.e., it would lead to trade diversion rather than trade creation).

Table 4.6 The 14 Dutch sectors that have a comparative advantage.

	NRCA	EU28 Rank	% of total impulse*
Transport and storage	1.48	2	26.1%
Finance and insurance	0.95	4	16.8%
Coke, refined petroleum products and nuclear fuel	0.82	1	14.5%
Food products, beverages and tobacco	0.65	1	11.5%
R&D and other Business Activities	0.51	3	9.0%
Agriculture, hunting, forestry and fishing	0.42	3	7.4%
Other community, social and personal services	0.32	2	5.7%
Post and telecommunications	0.18	2	3.2%
Construction	0.12	2	2.1%
Public admin. and defence; compulsory social security	0.12	4	2.1%
Education	0.06	2	1.1%
Computer and related activities	0.02	7	0.4%
Health and social work	0.01	4	0.2%
Chemicals and chemical products	0.00	6	0.0%
Total	**-**	**-**	**100%**

Source: SEO Amsterdam Economics based on TiVA. (Peer group EU28).
*For example: 26.1 percent of the total increase in GDP computed by the gravity model will be attributed to *Transport and Storage*.

4.2.5 Impact on Employment by Sector

Table 4.7, which can be compared to Table 4.1, shows the net employment effects of scenario 2 over a 10-year period expressed in FTA labour years.[24] This scenario assumes that the attribution of each sector to the GDP growth dependent is on the comparative advantage of that sector. Sectors that do not enjoy a comparative advantage are assumed to attribute indirectly to GDP growth by providing goods and services to other sectors.

Under scenario 2, the sectors that are likely the attribute most to the GDP increase are *Transportation and storage*, *Agriculture, hunting, forestry and fishing* and to a lesser extent *Finance and Insurance, Food products, beverages and tobacco* and *Construction*. In addition, the sector *R&D and other Business Activities* shows a relatively large employment effect. This sector includes employment agencies, cleaning, security, as well as consultancy. These activities have ties to many other sectors, which makes them (indirectly) benefit from production increases elsewhere (see Table 4.8)

[24] A FTE labour year is equivalent to one full time job during one year time. Similarly, a full time job that lasts six years would be equivalent to six FTE labour years.

Table 4.7 Based on scenario 2, the six new FTAs would jointly increase Dutch employment by 40,695 labour years over a 10-year period. Like in scenario 1, this is equivalent to roughly 4,000 FTE jobs with a total duration of ten years.

Net employment in FTE labour years summed over 10 years	**AUS**	**CHL**	**IDN**	**MEX**	**NZL**	**PHL**	**ALL**
Agriculture, hunting, forestry and fishing	1881	75	2449	199	165	-45	5950
Mining and quarrying	10	0	13	1	1	0	31
Food products, beverages and tobacco	579	23	754	61	51	-14	1832
Textiles, textile products, leather and footwear	2	0	3	0	0	0	7
Wood and products of wood and cork	10	0	13	1	1	0	32
Pulp, paper, paper products, printing and publishing	85	3	110	9	7	-2	268
Coke, refined petroleum products and nuclear fuel	95	4	123	10	8	-2	300
Chemicals and chemical products	32	1	42	3	3	-1	101
Rubber and plastics products	17	1	22	2	1	0	53
Other non-metallic mineral products	23	1	30	2	2	-1	73
Basic metals	7	0	9	1	1	0	21
Fabricated metal products	45	2	59	5	4	-1	142
Computer, electronic and optical products	5	0	6	1	0	0	16
Electrical machinery and apparatus n.e.c	14	1	18	1	1	0	44
Machinery and equipment n.e.c	23	1	30	2	2	-1	73
Motor vehicles, trailers and semi-trailers	1	0	1	0	0	0	2
Other transport equipment	13	1	17	1	1	0	41
Manufacturing n.e.c; recycling	79	3	103	8	7	-2	250
Electricity, gas and water supply	30	1	40	3	3	-1	96
Other community, social and personal services	1064	43	1385	113	93	-26	3363
Construction	531	21	691	56	47	-13	1678
Wholesale and retail trade; repairs	234	9	304	25	20	-6	739
Transport and storage	2803	112	3650	297	246	-67	8865
Post and telecommunications	200	8	260	21	17	-5	631
Hotels and restaurants	190	8	247	20	17	-5	601
Computer and related activities	194	8	253	21	17	-5	615
Finance and insurance	572	23	745	61	50	-14	1809
Real estate activities	26	1	34	3	2	-1	82
R&D and other Business Activities	3449	138	4491	365	302	-83	10908
Renting of machinery and equipment	68	3	88	7	6	-2	214
Public admin. and defence; social security	304	12	396	32	27	-7	962
Education	215	9	280	23	19	-5	681
Health and social work	68	3	89	7	6	-2	216
Private households with employed persons	0	0	0	0	0	0	0
Total	**12869**	**516**	**16753**	**1362**	**1128**	**-309**	**40695**

Source: SEO Amsterdam Economics. The term ‘n.e.c.’ denotes ‘not elsewhere classified’.

Table 4.8 Based on scenario 2, the sectoral distribution of value added is determined by Dutch comparative advantages.

Value added in millions of euros	**AUS**	**CHL**	**IDN**	**MEX**	**NZL**	**PHL**	**ALL**
Agriculture, hunting, forestry and fishing	77	3	101	8	7	-2	244
Mining and quarrying	44	2	57	5	4	-1	139
Food products, beverages and tobacco	92	4	120	10	8	-2	291
Textiles, textile products, leather and footwear	0	0	0	0	0	0	1
Wood and products of wood and cork	1	0	1	0	0	0	3
Pulp, paper, paper products, printing and publishing	8	0	10	1	1	0	24
Coke, refined petroleum products and nuclear fuel	97	4	126	10	9	-2	307
Chemicals and chemical products	9	0	12	1	1	0	29
Rubber and plastics products	1	0	1	0	0	0	3
Other non-metallic mineral products	2	0	2	0	0	0	6
Basic metals	0	0	0	0	0	0	1
Fabricated metal products	3	0	4	0	0	0	11
Computer, electronic and optical products	0	0	0	0	0	0	1
Electrical machinery and apparatus n.e.c	0	0	1	0	0	0	2
Machinery and equipment n.e.c	3	0	4	0	0	0	9
Motor vehicles, trailers and semi-trailers	0	0	0	0	0	0	0
Other transport equipment	1	0	1	0	0	0	3
Manufacturing n.e.c; recycling	5	0	6	0	0	0	15
Electricity, gas and water supply	18	1	24	2	2	0	58
Other community, social and personal services	50	2	66	5	4	-1	159
Construction	27	1	35	3	2	-1	86
Wholesale and retail trade; repairs	17	1	23	2	2	0	55
Transport and storage	180	7	235	19	16	-4	570
Post and telecommunications	31	1	41	3	3	-1	99
Hotels and restaurants	9	0	11	1	1	0	27
Computer and related activities	14	1	18	1	1	0	43
Finance and insurance	154	6	200	16	13	-4	486
Real estate activities	11	0	14	1	1	0	34
R&D and other Business Activities	142	6	185	15	12	-3	448
Renting of machinery and equipment	10	0	13	1	1	0	32
Public admin. and defence; social security	19	1	24	2	2	0	59
Education	11	0	14	1	1	0	33
Health and social work	4	0	5	0	0	0	12
Private households with employed persons	0	0	0	0	0	0	0
Total	**1040**	**42**	**1353**	**110**	**91**	**-25**	**3287**

Source: SEO Amsterdam Economics. n.e.c. = not elsewhere classified.

4.3 Trade Barriers

Besides the competitive strength of different sectors, the number and severity of current trade barriers might also be relevant for employment effects. Competitive sectors that previously were subject to trade barriers that will now be lifted by the FTA might see a larger increase in exports than sectors for which no (serious) trade barriers were present prior to the FTA.

The most objective data source that reports existing trade barriers is the Market Access Database (MADB) of the European Commission. [25] Here, companies can report any trade barriers that they encounter when exporting goods or services from the EU. As part of this study, all trade barriers reported with regard to trade to the six FTA counterparty countries have been analysed. These are reported in full in Appendix I. Table 4.9 provides an overview of the categories of trade barriers and how often they are reported.

Most of the barriers to trade reported are related to the food and agriculture sectors. As Table 4.9 shows, they are typically related to food safety, animal health and plant health measures, or so-called Sanitary and Phytosanitary (SPS) measures. Another barrier that is reported often is poor protection of Intellectual property rights for products such as medicines, luxury goods, or music and movies. Ineffective policy towards preventing counterfeits or pirated goods can hurt trade. Other barriers include time consuming and unclear customs procedures, restrictions on investing in the partner country and taxes that favour domestic producers.

Table 4.9 Most barriers to trade reported for the six countries relate to sanitary and phytosanitary measures.

Number of trade barriers reported by category	Australia	Indonesia	Mexico	New Zealand	Philippines	Chile	**Total**
Sanitary and phytosanitary measures	4	5	5	2	1		**17**
Intellectual Property Rights	3		2	1	1	2	**9**
Registration, documentation, customs procedures		2	2			1	**5**
Investment related barriers		2	1		1		**4**
Internal taxation	3						**3**
Government procurement	1	1			1		**3**
Standards and other technical requirements			1			1	**2**
Discriminatory treatment					2		**2**
Other		2					**2**
Quantitative restrictions and related measures	1	1					**2**
Non-tariff barriers					1		**1**
Total	**12**	**13**	**11**	**3**	**7**	**4**	**50**

Source: SEO Amsterdam Economics, based on the EU Market Access Database (MADB).

[25] Source: http://madb.europa.eu/madb/indexPubli.htm

The SPS-measures mainly occur for meat imports. European stock farms have experienced outbreaks of epidemic diseases for chicken, pigs, and cattle, and countries around the world have reacted to that by banning European meat from their markets.[26]

Another 'popular' category for trade barriers is the poor defense of IPR. For example, the MADB reports that "[t]he huge market for counterfeit and piracy goods in Mexico is a major obstacle for the sale of certain authentic products. Effective controls and sanctions are needed to diminish the importation and commercialisation of counterfeit goods. The European sectors most affected include pharmaceuticals, luxury goods, electronics, alcoholic beverages, personal care, auto parts and tobacco industries among others, as well as entertainment and cultural products in both physical and digital format and illegal software."

Some barriers to trade are not specific to a sector but have implications for all sectors or at least a range of differing sectors. Labelling requirements in Indonesia are an example of such a barrier.[27]

While Table 4.9 provides a useful insight into type of trade barriers that are at play, its use has limitations. In particular, the absolute number of trade barriers identified may not be representative for the ease or difficulty of exporting to a certain country. The barriers vary widely in product type, scope and strictness, and it is possible that one trade barriers in an important export sector could do much more harm than five reported barriers in less important sectors.

Another downside of the MADB is that it does not report import barriers for trade flows into the European Union. Hence, we only have information on the trade barriers that European companies encounter when exporting to e.g. Australia, but we cannot infer from the MADB which trade barriers are encountered by Australian companies that wish to export to the EU.

A final shortcoming is that the MADB only contains information on import restrictions when these are reported by companies, and only when they breach international trade rules. This could give incomplete or biased information, as it is possible that actually existing trade barriers are reported more often by companies in certain sectors that have the means and knowledge to report these barriers. The pharmaceutical industry and the agriculture sector occur often in the database, but we do not know whether this is because there are actually more trade barriers in these sectors, or whether companies in these sectors are simply more likely to report trade barriers.

Using the MADB information to quantify the impact of removing trade barriers is, unfortunately, difficult. First, we do not know ex ante to what extent the trade barriers in Table 4.9 and Appendix I will actually be removed in the new trade agreements, or whether agreements to remove them will also be enforced in practice. Second, we do not have trade barrier information of this same

---

26 An example from the MADB: "Australia has a strict import regime for pig meat and pig meat products, including specific requirements for heat treatment and de-boning of the meat. For some products heat treatment would need to be carried out within Australia, e.g. for certain products containing bones, e.g. ham. Uncooked pig meat may only be imported from Canada and New Zealand. One MS, Denmark, is able to export uncooked, de-boned pig meat to Australia, on the condition that the meat is heat treated before release on the market. Market prospects for value added products such as cooked bone-in hams and dried cured hams (such as Serrano and Parma type) have been identified. Furthermore, market prospects for fresh/frozen, deboned meat, might be interesting. However, import into Australia is not yet possible."

27 Another example from the MADB: "Indonesia has introduced burdensome labelling requirements for a range of products (e.g. motor vehicle parts, telecom equipment, home appliance electronics, construction materials), according to which labels must be approved by the Ministry of Trade before import takes place, and labelling is only allowed in the country of origin."

level of detail for all trade agreements and all country pairs in our database, which would be necessary to be able to estimate the impact of removing trade barriers in our gravity model. Unfortunately the MADB database only concerns the EU. The information provided by Table 4.9 and Appendix I is therefore merely of qualitative use.

4.4 Comparing the Two Scenarios

Under scenario 2, the total employment created is slightly higher than in scenario 1, but comparable. Both scenarios predict that the six FTAs jointly would create around 4,000 FTE jobs with a total duration of 10 years. Nearly 1,300 of these jobs would result from the FTA with Australia (as compared with 1,500 under scenario 1), and nearly 1,700 from the FTA with Indonesia (similarly to scenario 1).

The two scenarios do differ with respect to the distribution of the employment impact over different sectors of the Dutch economy. In scenario 2, the employment effects in *Agriculture, Forestry and Fishing, R&D and other Business Activities* and *Renting and Food Products, Beverages and Tobacco* are larger than in scenario 1. This is due to the fact that the Netherlands features high NRCA values (Table 4.3) for these sectors. The *Wholesale and Retail Trade* as well as many of the manufacturing sectors on the other hand show smaller employment effects than in scenario 1. This is due to the fact that the Netherlands is not comparatively strong in these sectors as a whole, while it does currently export these goods to a number of the FTA partner countries.[28]

Both scenarios provide plausible results, which makes it difficult to choose one over the other. An argument in favour of scenario 1 is that sectors that are already exporting goods and services to the FTA parter countries are likely to be best positioned to benefit from a trade agreement. However, this scenario neglects the fact that trade barriers may be such that specific product groups are not exported simply because of the trade barriers present. Furthermore, scenario 1 assumes that most benefits from the trade agreement will result from additional bilateral trade. This is not necessarily true since the trade agreements are made on an EU-wide scale which means that there may also be sizeable trade diversion effects when it comes to intra-EU trade. Scenario 2 overcomes these disadvantages by assuming that the comparative strength of each sector ultimately determines whether or not it can benefit from a trade agreement. This scenario, however, does not account for differences between FTA counterparties. While the size of the total GDP-effect differs for each FTA, the division of employment effects over the sectors is the same for all six FTAs.

[28] The manufacturing sector does include the (processed) food- and petrochemical industries in which the Netherlands is strong but also many subsectors like the production of motor vehicles and machinery and equipment in which the Netherlands has no comparative advantage.

5 Conclusions

This report has estimated the economic impact of six envisaged Free Trade Agreements (FTAs) between the EU and six of its trade partners: Australia, Chile, Indonesia, Mexico, New Zealand, and the Philippines. We estimated these effects in two stages: first, we used a gravity model to assess the impact on bilateral trade, trade between third countries, and real GDP of all countries concerned, taking into account indirect trade effects that could occur due to changes in relative prices and relative incomes. Second, we used an input-output labour market model to project the implications for Dutch production, value added, and employment by sector, taking into account value chain linkages between sectors.

As always in economic research, our results are subject to a number of simplifying assumptions. We have aimed to make these assumptions explicit throughout the paper in order to achieve full transparency. Moreover, we have tested the robustness of our results by exploring the impact of making different assumptions. The most important of these robustness checks have been reported as well, and others are available at request. We generally found that our results did not change substantially under different realistic variations of our assumptions, strengthening the confidence in our results.

Our key findings can be summarized as follows:

1. **All six envisaged FTAs would lead to a substantial increase in Dutch exports to the six countries.** In absolute value, the largest increase in Dutch exports would occur in case of the envisaged FTA with Australia, which would imply a €4 billion increase in Dutch exports. The second largest impact would occur in case of an FTA with Indonesia, which would generate €1.3 billion in additional exports. In both cases, this would be an increase of around 175%, which would nearly triple the current level of Dutch exports to these countries. The smallest impact on Dutch exports occurs is estimated at $109 million in the case of Chile, which is still a 19% increase in current Dutch exports to Chile.

2. **All envisaged FTAs would also lead to a substantial increase in Dutch imports from the six countries.** The estimated increase in Dutch bilateral imports ranges from 17% for Chile to 121% for New Zealand. In the cases of Australia and Mexico, the impact on net trade (exports minus imports) with these countries would still be positive, but in the other four cases, the impact on imports would exceed the impact on exports.

3. **In addition to *trade creation* effects, there are also *trade diversion* effects, due to changes in relative prices and relative incomes.** For example, as a result of the envisaged FTA between the EU and Australia, other EU countries like Germany are also expected to increase their exports to Australia, as a result of which they may reduce their exports to the Netherlands.

4. **If all six FTAs were to take effect simultaneously, Dutch real GDP would grow by around half a percentage point, or €3.3 billion.** Taking into account both trade creation and trade diversion effects, the estimated overall impact on Dutch real GDP is still positive in five out of six cases, and largest for Australia and Indonesia. The largest increase in Dutch real GDP occurs for the FTAs with Australia and Indonesia, amounting to 0.16% (around €1 billion) and 0.21% of GDP (around €1.3 billion) respectively. The estimated impact on Dutch real GDP is very small for the other four envisaged FTAs. In case of the FTA with the Philippines, the impact on Dutch real GDP is slightly negative but negligibly small.

5. **The impact on low- and middle income countries is limited.** On average, low-income countries see a slight decrease in real GDP after each of the envisaged FTAs, but these effects are relatively small, ranging from an average decrease of 0.01% for the FTA with Chile to an average decrease of 0.20% for the FTA with Australia. This occurs because of trade diversion effects: the EU and the six trade partners will trade more with each other, and slightly less with the rest of the world. Note, however, that this is an average effect. A small number of low-income countries are also estimated to see an increase in their real GDP. The exception to this rule appears to be the FTA with the Philippines which, on average, results in small gains for low-income countries.

6. **The estimated impact on Dutch employment is the largest for the envisaged FTAs with Australia and Indonesia.** This occurs for the same reason that the impact on real GDP is highest for the FTAs with these two countries. For Chile and Mexico, the employment effects are expected to be smaller because of the existing trade agreements that are already in effect, which naturally limits the additional impact of the new trade agreement. For New Zealand and the Philippines, the impact on Dutch employment is small mainly because of the size of their respective economies.

7. **The FTAs that have a positive impact on real GDP also have a positive impact on employment and wages in the Netherlands.** This is because the increase in real incomes leads to higher domestic demand, hence more production, which implies a higher demand for labour and therefore an increase in wages. The total net impact on employment in the Netherlands is again largest for the envisaged FTAs with Australia and Indonesia. The effect is slightly larger when we take into account the comparative advantages of the Dutch economy relative to other EU countries. While the increase in employment is temporary, the increase in wages and the decrease in prices are permanent.

References

Allen, T. Arkolakis, C. and Takahashi, Y. (2014) 'Universal Gravity', *NBER Working Paper No. 20787*.

Anderson, J.E, (2011), 'The Gravity Model', *Annual Review of Economics* 3, 133-160.

Anderson, J.E., (2979), 'A Theoretical Foundation for the Gravity Equation', *American Economic Review* 69(1), 106-116/

Anderson, J. E., & Van Wincoop, E. (2003). Gravity with gravitas: a solution to the border puzzle. *the american economic review*, *93*(1), 170-192.

Anderson, J.E., (2010), 'The Changing Incidence of Geography', *American Economic Review* 100(5), 2157-2186.

Anderson, J.E., Larch, M. and Yotov, Y., 'Estimating General Equilibrium Trade Policy Effects: GE PPML', *CESifo Working Paper No. 5592*.

Arkolakis, C., Costinot, A. and Rodriguez-Clare, A. (2012), 'New Trade Modesl, Same Old Gains?', *American Economic Review* 2012(1), 94-130.

Armington, P.S. (1969) 'A Theory of Demand for Products Distinguished by Place of Production', *IMF Staff Papers* 16, 159-176.

Baier, S. L., Bergstrand, J. H., & Feng, M. (2014) 'Economic Integration Agreements and the Margins of International Trade', *Journal of International Economics* 93(2), 339-350.

Bekkers, E., & Rojas-Romagosa, H. (2016), 'Literature Survey on the Economic Impact of TTIP', *CPB Background Document May 2016*.

Bisschop, P., C. Koopmans, R. Lieshout, J. Prins & M. Volkerink (2012). Het betere werk. Economische effecten van een nieuw gevechtsvliegtuig, report 2012-80, Amsterdam: SEO Economic Research.

Brakman, S., Kohl, T., & Van Marrewijk, C. (2015), 'The Impact of the Transatlantic Trade and Investment Partnership (TTIP) on Low Income Countires: Agreement Heterogeneity and Supply Chain Linkages', *Report for the Directorate of Trade Policy and International Economic Governance, the Ministry of Foreign Affairs, the Netherlands*.

Carrere C. (2006) Revisiting the effects of regional trade agreements on trade flows with proper specification of the gravity model. European Economic Review. 2006, 50(2): 223-47.

Centraal Planbureau (2009). Werkgelegenheidseffecten deelname JSF-programma. CPB Notitie. Den Haag, 23 februari 2009

Chang, H. J. (2015). The failure of neoliberalism and the future of capitalism. In Beyond Global Capitalism (pp. 19-34). Springer Japan.

Chaney, T. (2008), 'Distorted Gravity: The Intensive and Extensive Margins of International Trade', *American Economic Review* 98(4), 1707-1721.

Eaton, J., & Kortum, S. (2002), 'Technology, Geography, and Trade', *Econometrica* 70(5), 1741-1779.

Egger, P., & Larch, M. (2011), ´An Assessment of the Europe Agreements' Effects on Bilateral Trade, GDP, and Welfare', *European Economic Review* 55(2), 263-279.

Egger, P., Larch, M., Staub, K. E., & Winkelmann, R. (2011). The trade effects of endogenous preferential trade agreements. *American Economic Journal: Economic Policy*, *3*(3), 113-143.

Fally, T. (2015) 'Structural Gravity and Fixed Effects', *Journal of International Economics* 97(1), 76-85.

Felbermayr, G. J., & Larch, M. (2013). The transatlantic trade and investment partnership (TTIP): Potentials, problems and perspectives. In CESifo Forum (Vol. 2, No. 2013, pp. 49-60). Ifo Institute for Economic Research at the University of Munich.

Felbermayr, G., Heid, B., & Lehwald, S. (2013). Transatlantic Free Trade: Winners, Losers and Necessary Accompanying Measures. Law and Business Review of the Americas. 19(4), 445-484.

Freund, C. (2010). Third-country Effects of Regional Trade Agreements. The World Economy, 33(11), 1589-1605.

Head, K., & Mayer, T. (2014) 'Gravity Equations: Workhorse, Toolkit, and Cookbook', in: Gopinath, G., Helpman, E., & Rogoff, K. (eds.), *Handbook of International Economics* Vol. 4., Amsterdam: Elsevier, 131-195.

Helpman, E., Melitz, M., & Rubinstein, Y. (2008), 'Estimating Trade Flows: Trading Partners and Trading Volumes', *Quarterly Journal of Economics* 123(2), 411-487.

Hoen, A. R., & Oosterhaven, J. (2006). On the measurement of comparative advantage. *The Annals of Regional Science*, *40*(3), 677-691.

Jackman, M., Lorde, T., Lowe, S., & Alleyne, A. (2011). Evaluating tourism competitiveness of small island developing states: a revealed comparative advantage approach. Anatolia, 22(3), 350-360.

James Proudman, Stephen Redding. Evolving patterns of international trade Rev. Int. Econ., 8 (3) (2000), pp. 373–396

Kepaptsoglou, K., Karlaftis, M. G., & Tsamboulas, D. (2010). The gravity model specification for modeling international trade flows and free trade agreement effects: a 10-year review of empirical studies. The Open Economics Journal, 3(1).

Kohl, T. (2014) 'Do We Really Know That Trade Agreements Increase Trade?', *Review of World Economics* 150(3), 443-469.

Kohl, T., & Trojanowska, S. (2015) 'Heterogeneous Trade Agreements, WTO Membership and International Trade: An Analysis Using Matching Econometrics', *Applied Economics* 47(33), 3499-3509.

Kohl, T., Brakman, S., & Garretsen, H. (2016), 'Do Trade Agreements Stimulate International Trade Differently? Evidence from 296 Trade Agreements'. *The World Economy* 39(1), 97-131.

Kohl, T., Brakman, S., & Van Marrewijk, C. (2015), '*The Impact of the Transatlantic Trade & Investment Partnership (TTIP) on Low Income Countries: Agreement Heterogeneity and Supply Chain Linkages*', *Report for the Dutch Ministry of Foreign Affairs*.

Koopmans, C.C. & Volkerink, M. (2014). 'Zorgen overheidsbestedingen voor extra banen?' *Tijdschrift voor arbeidsvraagstukken, 30* (1), 40-52.

Koopmans, C., Heyma, A., Hof, B., Imandt, M., Kok, L. & Pomp, M. (2016). *Werkwijzer voor kosten-batenanalyse in het sociale domein – Hoofdrapport. SEO-rapport 2016-11A.* Amsterdam: SEO

Krugman, P. (1980), 'Scale Economies, Product Differentiation, and the Pattern of Trade', *American Economic Review* 70(5), 950-959.

Larch and Yotov (2016), 'General Equilibrium Trade Policy Analysis with Structural Gravity', *WTO Working Paper ERSD-2016-08*.

Laursen, K. (1998). *Revealed comparative advantage and the alternatives as measures of international specialisation* (No. 98-30). DRUID, Copenhagen Business School, Department of Industrial Economics and Strategy/Aalborg University, Department of Business Studies.

Leromain, E., & Orefice, G. (2014). New revealed comparative advantage index: Dataset and empirical distribution. *International Economics*, *139*, 48-70.

Lucas (1976), 'Econometric Policy Evaluation: A Critique', *Carnegie-Rochester Conference Series on Public Policy* 1, 19-46.

Mayer, T., & Zignago, S. (2011), 'Notes on CEPII's Distances Measures: The GeoDist Database', *CEPII Working Paper* 2011-25.

OECD. (2016) "Trade In Value Added (TiVA) 1995-2011". Retrieved from https://stats.oecd.org/

Santos-Silva, J.M.C. and Tenreyro, S. (2006) 'The Log of Gravity' *Review of Economics and Statistics* 88(4) 641-658.

Santos-Silva, J.M.C. and Tenreyro, S. (2010) 'On the Existence of the Maximum Likelihood Estimates in Poisson Regression', *Economic Letters* 107(2), 310-312.

Santos-Silva, J.M.C. and Tenreyro, S. (2011) 'Further Simulation Evidence on the Performance of the Poisson Pseudo-Maximum Likelihood Estimator', *Economic Letters* 112(2), 220-222.

Soloaga I, Winters A. (2001) Regionalism in the Nineties: What Effect on Trade? The North American Journal of Economics and Finance. 2001, 12(1): 1-29.

Tang, D. (2005) Effects of the regional trading arrangements on trade: evidence from the NAFTA, ANZCER and ASEAN Countries, 1989-2000. The Journal of International Trade & Economic Development. 2005, 14(2): 241-65.

Tinbergen, J. (1962), *Shaping the World Economy: Suggestions for an International Economic Policy,* New York: Twentieth-Century Fund.

Volkerink, M., Rougoor, W., Tieben, B., Blom, M. & Schepers, B. (2012). Bouwen en banen. *SEO-rapport, 2012-91*. Amsterdam: SEO Economic Research.

Vollrath, T. L. (1991). A theoretical evaluation of alternative trade intensity measures of revealed comparative advantage. Weltwirtschaftliches Archiv, 127(2), 265-280.

Yu, R., Cai, J., & Leung, P. (2009). The normalized revealed comparative advantage index. *The Annals of Regional Science*, *43*(1), 267-282.

Appendix A Gravity Model

To estimate the effects of FTAs on trade and GDP we employ the workhorse model of international economics: the (structural) gravity model, arguably the most successful empirical model in economics (Anderson, 2011). The original gravity model due to Tinbergen (1962) is quite a literal analogy to the Newtonian Law of Universal Gravitation: trade is proportional to the 'masses' (GDP) of trading countries and inversely proportional to their distance squared. Later models have refined this notion, but the idea remains essentially the same. One notable early refinement in terms of economic theory is Anderson (1979). The model has grown to be commonplace in the international trade literature.

The gravity model is widely used in the empirical international trade literature, including in policy analysis (see e.g. Larch and Yotov, 2016, note 37; for a list of recent studies). In this light, wewould like to mention Anderson & Yotov (2010), Anderson & Van Wincoop (2003), Helpman, Melitz & Rubinstein (2008), Egger & Larch (2011), Head & Mayer (2014), Brakman, Kohl & Van Marrewijk (2015), and Bekkers & Rojas-Romagosa (2016) among others.Larch and Yotov (2016) identify five features of the model that explain its popularity. First, the model is intuitive in the sense that it is analogous to the Newtonian Law of Universal Gravitation. Second, the model has solid theoretical foundations. This makes the model suitable for (counterfactual) policy analysis, in the sense that it negates the Lucas Critique (Lucas, 1976). Third, the model considers a general equilibrium setting. Fourth, the model is fairly flexible in the sense that it can be extended to include a variety of (non-standard) features (e.g. labour markets, investments, the environment). Finally, the model has strong predictive power: empirical estimates typically deliver a fit between 60 and 90 percent with aggregate data.

Larch and Yotov (2016) argue that another attractive feature of the gravity model is that it is consistent with a wide variety of microfoundations. The model we present below is a demand-side derivation based on 'love-of-variety' preferences and exogenous output (Anderson, 1979; Anderson and Van Wincoop, 2003). Eaton and Kortum (2002) show that identical gravity equations can be obtained from the supply side. Arkolakis, Costinot and Rodriguez-Clare (2012) demonstrate that a large class of models generates isomorphic gravity equations. Moreover, they argue that the gains from trade are invariant to various alternative microfoundations (various alternative microfoundations can be found in Eaton and Kortum, 2002; Krugman, 1980; Chaney, 2008; and Helpman, Melitz and Rubinstein; 2008). Furthermore, Allen, Arkolakis and Takahashi (2014) derive sufficient existence and uniqueness conditions of the trade equilibrium for a wide class of general equilibrium trade models.

The Model

We consider a structural gravity model (canonical is Anderson and Van Wincoop, 2003). Consumers have 'love-of-variety' preferences where goods are differentiated by place of origin

(Armington, 1969). Factory-gate prices follow from market clearing, but output is exogenous, as are trade imbalances. Trade costs are modeled based on the 'iceberg transport cost model'.[29].

Below, we succinctly lay out the model. More details can be found in e.g. Anderson and Van Wincoop (2003) and Larch and Yotov (2016) among others.

The world. Let there be N countries indexed i.

Demand. Let $j \in N$ have a CES utility function

$$U(x)_j = \left(\sum_i \alpha_i^{\frac{1-\sigma}{\sigma}} c_{ij}^{\frac{\sigma-1}{\sigma}} \right)^{\frac{\sigma}{\sigma-1}}$$

subject to a budget constraint:

$$E_j = \sum_i p_{ij} c_{ij}$$

where α_i is a preference parameter, $\sigma > 1$ is the elasticity of substitution, c_{ij} is the consumption of i type goods by j, E_j is expenditure, and p_{ij} is the j price of i type goods.

Utility maximisation yields Marshallian demand

$$c_{ij} = \left(\frac{\alpha_i p_{ij}}{P_j} \right)^{1-\sigma} E_j$$

where

$$P_j = \left(\sum_i \left(\alpha_i p_{ij} \right)^{1-\sigma} \right)^{\frac{1}{1-\sigma}}$$

is the CES price index.

Supply. Let all $i \in N$ be endowment economies. Goods are differentiated by place of origin (Armington, 1969). Then

$$Y_i = p_i \bar{Q}_i$$

[29] The iceberg transport cost model models the costs of transporting a good as if they are paid with a portion of the transported good, rather than with any other resources. The model dates back to Paul Samuelson's 1954 article in Deardorffs' *Glossary of International Economics.*

where Y_i is nominal output, p_i is the factory gate price, and $\bar{Q}_i$ is the endowment.[30]

Trade costs. Let

$$p_{ij} = t_{ij} p_i$$

where t_{ij} are iceberg trade costs.

Trade imbalance. Allow

$$E_i = \phi_i Y_i$$

where ϕ_i is an exogenous trade deficit or surplus parameter.

Equilibrium. Market clearance for all goods implies:

$$Y_i = \sum_j \left(\frac{\alpha_i p_{ij}}{P_j} \right)^{1-\sigma} E_j$$

Let $Y = \sum_i Y_i$. Divide the above equation by Y and combine with the definition of p_{ij} to find

$$(\alpha_i p_i)^{1-\sigma} = \frac{Y_i}{Y} \frac{1}{\sum_j \left(\frac{t_{ij}}{P_j} \right)^{1-\sigma} \frac{E_j}{Y}}$$

Define

$$\Pi_i^{1-\sigma} = \sum_j \left(\frac{t_{ij}}{P_j} \right)^{1-\sigma} \frac{E_j}{Y}$$

and combine these last two equations with Marshallian demand and the CES price index to find

$$x_{ij} = \frac{Y_i E_j}{Y} \left(\frac{t_{ij}}{P_j \Pi_i} \right)^{1-\sigma}$$

30 The assumption of endowment economies is innocuous in a *static* general equilibrium model. Consider for instance instead that output is determined by some production function $f(A, L, K)$ that satisfies the usual conditions. Labour supply is typically considered exogenous in general equilibrium and the capital stock should be at some optimal steady state in general equilibrium. Then output is 'fixed'. The present assumption however, does prohibit us from studying the transition between equilibriums within the context of the gravity model; that is, the present model is a *static* gravity model, not a *dynamic* gravity model. Few dynamic gravity models exist in the current literature. A notable exception is Anderson, Larch & Yotov (2015). Their model could be used to extend our study. The present study however does not necessarily require such a dynamic framework. We simply seek to assess the counterfactual state of the world given a counterfactual trade agreement. It would stretch too far to suppose that a counterfactual trade agreement would alter the equilibrium labour supply, capital stock steady state and/or factor productivity. In fact, most studies (including studies based on CGE models) on the effects of FTAs assume they do not. We follow the literature in this assumption.

$$P_j^{1-\sigma} = \sum_i \left(\frac{t_{ij}}{\Pi_i}\right)^{1-\sigma} \frac{Y_i}{Y}$$

$$\Pi_i^{1-\sigma} = \sum_j \left(\frac{t_{ij}}{\mathrm{P}_j}\right)^{1-\sigma} \frac{E_j}{Y}$$

These last two equations are referred to as the 'inward multilateral resistance' and 'outward multilateral resistance' terms, respectively (Anderson and Van Wincoop, 2003). These multilateral resistances are consistent aggregates of all bilateral trade costs. They reflect the insight that bilateral trade is a function of relative bilateral trade costs, i.e. two countries trade more if bilateral trade costs are *comparatively* low. An important consequence of these multilateral resistances is that changes in bilateral trade costs between two countries, e.g. as a result of an FTA, can affect trade flows between all other countries as well.

In equilibrium, the following holds:

$$p_i = \left(\frac{Y_i}{Y}\right)^{\frac{1}{1-\sigma}} \frac{1}{\alpha_i \Pi_i}$$

$$Y_i = p_i \bar{Q}_i$$

$$E_i = \phi_i Y_i$$

We employ these last six equations in our policy experiment.

Given parameter estimates (Appendix B), we may calculate general equilibrium indices that reflect the effect of an envisioned FTA. Employing general equilibrium indices in hypothetical trade policy analysis is common (see, e.g. Egger and Larch, 2011; Anderson, Larch, & Yotov, 2015; Larch and Yotov, 2016; Bergstrand, Egger, & Larch, 2013).

Given changes in trade costs, multilateral resistances, and nominal output and expenditure, we calculate the change in bilateral trade and real GDP:[31]

$$\frac{x_{ij}^c}{x_{ij}} = \left(\frac{t_{ij}^c}{t_{ij}}\right)^{1-\sigma} \left(\frac{\Pi_i P_j}{\Pi_i^c P_j^c}\right)^{1-\sigma} \frac{Y_i^c E_j^c}{Y_i E_j}$$

$$\frac{W_j^c}{W_j} = \frac{E_j^c}{E_j} \frac{P_j}{P_j^c}$$

[31] An extension to the present study lies in calculating the confidence intervals associated with these general equilibrium indices. This currently is not common practice in the literature. Yet, Anderson and Yotov (2016) and Larch and Yotov (2016) argue in favor of calculating these margins of error. These authors suggest bootstrapping the confidence intervals. Although straightforward to implement, this calculation is computationally very intensive and was beyond the scope of this study.

Appendix B Estimation

We aim to estimate the effect of various envisaged FTAs. To this end, we employ the methodology of Anderson, Larch and Yotov (2015) and Larch and Yotov (2016). This methodology is fairly standard in the counterfactual trade policy analysis literature. For more details, please consult their papers.

We employ the PPML estimator to estimate the gravity equation. This yields estimated parameters that we together with 'hypothetical data' employ to estimate the effect of the envisaged new trade policy on trade. Given the gravity model and the choice of estimator, we can readily obtain general equilibrium effects.

Below, we briefly lay out the estimation procedure.

PPML estimation. We employ the PPML estimator to estimate

$$x_{ij} = \exp\left(\boldsymbol{z}_{ij}\boldsymbol{b}' + f_i + f_j\right) + \varepsilon_{ij}$$

where $\boldsymbol{z}_{ij}$ is a vector of observable bilateral covariates, and f_i and f_j are country fixed effects. The country fixed effects account for all (observed and unobserved) country characteristics, including multilateral resistances. We denote the estimates of this regression $\boldsymbol{b}^*$. The vector $\boldsymbol{z}_{ij}$ contains variables standard in gravity equation estimations like indicator variables denoting the presence of a trade agreement, a common border, a shared language, colonial links, and a measure of bilateral distance as proxies for trade costs. This estimation is consistent with the theoretical structural gravity model conditional on the appropriate measures of trade costs and the PPML estimator (Larch and Yotov, 2016; Fally, 2015).

The PPML estimator is the current state-of-the-art estimator for empirical gravity models given that it has various attractive features that make it preferred to the traditional method of estimating log-linearized (augmented) gravity equations (Santos Silva and Tenreyro, 2016; Santos Silva and Tenreyro, 2011). Among other benefits, it easily deals with zero trade flows. Additionally, a special property of the PPML estimator allows the multilateral resistances to be recovered from the single equation regression above (Fally, 2015; Larch and Yotov, 2016). We will return to this below.

Given estimates $\boldsymbol{b}^*$ we can predict trade costs

$$\widehat{t_{ij}^{1-\sigma}} = \exp(\boldsymbol{z}_{ij}\boldsymbol{b}^*)$$

Given an envisaged vector of covariates $\boldsymbol{z}_{ij}^c$ we may also predict envisaged trade costs

$$\widehat{t_{ij}^{1-\sigma,c}} = \exp(\boldsymbol{z}_{ij}^c\boldsymbol{b}^*)$$

Together, these last two equations may be employed to predict the change in trade due to the change in trade costs due to a envisaged FTA. Like Yotov and Larch (2016), we label this the *direct effect* of an FTA.

Multilateral resistance. The gravity model implies that the above changes in trade costs have an effect on the multilateral resistances. We predict this effect by exploiting a special property of the PPML estimator. It can be shown that, up to a normalisation, the estimated fixed effects with PPML are consistent with the theoretical multilateral resistances (Fally, 2015):

$$\widehat{\Pi}_i^{1-\sigma} \propto f_i$$

$$\widehat{P}_j^{1-\sigma} \propto f_j$$

We thus recover the baseline multilateral resistances directly from our initial estimation of the gravity equation. We obtain the envisaged multilateral resistances by reestimating the gravity equation using envisaged data $\boldsymbol{z}_{ij}^c$ but constrained parameters $\boldsymbol{b}^*$. We thus only reestimate the fixed effects and thus obtain envisaged multilateral resistances. This procedure is more convenient than the traditional method of jointly estimating the (log-linearized) gravity equation and multilateral resistances or solving for the multilateral resistances post-estimation (for applications, see e.g. Anderson and Van Wincoop, 2003).

Given the predicted change in trade costs and the predicted change in multilateral resistances we can calculate what Larch and Yotov (2016) refer to as the *conditional general equilibrium* effects of envisaged trade policy: general equilibrium effects conditional on constant nominal output and expenditure.

General equilibrium effects. The gravity model implies that nominal output and expenditure may change as a result of a envisaged trade policy. To obtain what Larch and Yotov (2016) call *full general equilibrium* effects, we account for this fact. The model derived above implies that:

$$Z_i^c = \frac{p_i^c}{p_i} Z_i$$
$$Z = \{Y, E\}$$

It can be shown that $p_i^c \; p_i^{-1} \propto f_i^c f_i^{-1}$ (Larch and Yotov, 2016). We thus calculate the changes in output and expenditure from the estimated fixed effects.

The gravity model also implies that the multilateral resistances are a function of nominal output and expenditure. In order to account for this, we apply an iterative procedure. First, given a envisaged trade policy, we calculate the change in trade costs. Second, we calculate the change in multilateral resistances. We then allow output and expenditure to change, recalculate the multilateral resistances,recalculate the change in output and expenditure, and repeat until convergence in factory gate prices.

Given the predicted change in trade costs, the predicted change in multilateral resistances, and the predicted change in nominal output and expenditure, we may calculate the *full general equilibrium* effect of a envisaged trade policy (Larch and Yotov, 2016).

Appendix C Robustness

We have probed our regression estimates with respect to different modelling assumptions of FTA heterogeneity. We qualitatively describe our efforts below, but do not report estimates. In summary, we do not find significant qualitative nor quantitative differences between specifications.

First, we relax the assumption that an FTA provision only contributes to the FTA impact if it is legally enforceable. This may be too narrow. In theory, the commitment to a certain provision without legal enforceability may also have a trade inducing effect. We re-estimated our model while accounting for this possibility, by recalculating our trade agreement index as the ratio of the sum of covered and legally enforceable provisions to the total number of provisions – legally enforceable and not – that may be part of an FTA. We find no significant differences with our main specification. The same holds if we *only* consider provisions that may be covered, but not legally enforced.

Another check, or rather, an interesting refinement of the model, is to test for the separate impact of (groups of) provisions in an FTA. Our main index TAI simply aggregates provisions into a single index by adding them up. This implicitly assumes that each provision in an FTA has equal 'value' in terms of its impact on trade. Intuitively, however, one would expect that some provisions in an FTA do more for trade than others (e.g. lowering import tariffs vs. converging definitions and standards).

Unfortunately, it is not possible to statistically identify the separate impact of each of the 26 provisions in an FTA in the Kohl, Brakman & Garretsen (2016) dataset. The reason is that many provisions are strongly correlated: if one provision is part of an FTA, other provisions are likely to be part of an FTA as well. This multicollinearity causes regression estimates to be imprecise and sensitive to small changes in the data. Additionally, standard errors of regression coefficients typically are inflated in the presence of multicollinearity. For the present study, the risk of poor out-of-sample prediction performance must also be noted. We explored two ways to deal with this multicollinearity problem:

1. Factor analysis (principal components) to generate 'groups' of provisions that are likely to appear together in FTAs, and then study the effect of each individual group. By construction, each group is uncorrelated to all other groups. We did not find significant differences with our main specification.
2. Classifying provisions in groups based on their ex ante perceived importance. We attempted this by bundling provisions that are covered by the WTO and those that are not. This is similar to the analysis in Kohl, Brakman & Garretsen (2016). Given our limited sample, inference proved problematic. Additionally, we considered the grouping of Kohl, Brakman and Van Marrewijk (2015). Unfortunately, in this case our sample did not allow identification either.

A third robustness check that we would have liked to carry out, but were unable to, is to further refine the classification of provisions within an FTA. For our data on FTAs, we rely on the Brakman, Kohl, & Garretsen (2016) dataset that describe the contents of 296 FTAs. This dataset has in a coherent and consistent manner classified the contents of FTAs in great detail. We can

therefore use this dataset to obtain valid, consistent estimates of the effects of FTAs. However, it is possible that a different method of classification may lead to different estimates and therefore conclusions. We cannot assess this possibility in the present study. Furthermore, we do not observe the exact degree of trade liberalisation within each provision. It may be the case that an FTA of countries A and B covers the same provisions as that of countries C and D, but that the degree of liberalisation is slightly larger for countries A and B.[32] Accounting for these differences would be preferred, but has proven to be impossible in the scope of the present study as it would require reconstructing the entire dataset. Not reconstructing the entire dataset whilst trying to account for these differences would be inconsistent.[33]

A fourth robustness check is the inclusion of additional years of data. In our baseline model, we obtained coefficient estimates for the gravity model through a cross-sectional regression analysis. Alternatively, we could have employed a panel data regression analysis that would exploit additional variance over time. We have tested our main specification in a panel data context to assess to what extent the inclusion of additional years affects parameter estimates. We find that including up to 15 years of observations does little to affect parameter estimates. For computational convenience, we therefore report estimates based on cross sectional data only.

Lastly, we probed for differences in the estimated results due to differences in model trade agreements. Specifically, we were asked to assess what would happen in case the Labour and Environment provisions in a CETA-type FTA were not legally enforceable. To answer this question, we re-estimated the impact of the CETA-type FTAs without these provisions. This made the CETA model equal to the EU-Vietnam model. Re-estimation revealed small differences. The largest difference occurred for the FTA with Australia, where the estimated real GDP effect in case of non-enforceability of Labour and Environment provisions was 0.02 percentage points lower than reported in Table 3.2 in the main text (i.e., it would imply a 0.14% instead of 0.16% increase in real GDP). This difference is small in percentage terms, but still corresponds to a noticeable nominal difference of roughly € 130 million. Note, however, that this simply reflects the impact of adding two "average" legally enforceable provisions. In reality, the impact of the provisions Labour and Environment may well be larger than this average impact, but for reasons described above, it was not econometrically possible to identify separate effects for each of the 26 provisions.

32 Of course, the degree of liberalisation in both FTAs must still be sufficiently large as to credibly classify them as covering certain provisions.

33 Suppose, for instance, in the case of Mexico that we had extra information about the contents of provisions of the present and counterfactual FTAs. Although their present FTA covers import tariffs and their counterfactual FTA covers import tariffs, it may be the case that the counterfactual FTA reduces import tariffs even further. In that case, our present estimates may underestimate the actual effect of an FTA. We could try to account for this by changing the definition of the present FTA. However, then we would no long have a consistent measure of the contents of FTA, raising issues with respect to the validity of our regression estimates. Wishing to avoid this inconsistency, we here note the caveat and suggest it as a point of interest for future research.

Appendix D Input-Output Model

We consider an input-output model of the Dutch economy. Let y be output by sector. Then:

$$y = \mathbb{A}y + d$$

where $\mathbb{A}$ is the input-output matrix and d is final demand by sector. We find the Leontief inverse $\mathbb{L}$:

$$y = (\mathbb{I} - \mathbb{A})^{-1}d$$
$$y = \mathbb{L}d$$

so that:

$$\Delta y = \mathbb{L}\Delta d$$

Labour market effects by sector
Given the change in output, we calculate the change in employment.

Given an impulse Δy, the change in value added ΔVA is calculated as:

$$\Delta VA = \mathbb{a}\Delta y$$

with $\mathbb{a}$ being a vector of constants representing the proportion of value added in output.

Let labour productivity α follow

$$\alpha L = VA$$

The gross change in labour years then is equal to

$$\Delta L_g = \alpha^{-1}\Delta VA$$

The total gross change in labour may be filled by migrant workers, currently employed workers, and currently unemployed workers. We assume zero migration. For the remaining two categories, we assume 50% crowding out at 5% unemployment in the long run. We rebase crowding out using

$$c = c^* - [\ln u - \ln c^*]\mathrm{c}^*$$

where c is crowding out, $c^* = 0.5$ is crowding out at full employment, and u is present (measured) unemployment. Next we calculate the crowding out by sector by taking into account the labour market stress by sector. We do this by considering the relative number of vacancies per sector according to the formula

$$c_i = c + c\left(\frac{\ln(v_i) - \ln \bar{v}}{\sqrt{C}\,\sigma_v}\right)$$

where v_i is vacancies as a percentage of labour years for sector i, $\bar{v}$ is the a number of vacancies as a percentage of labour years, σ_v is the standard deviation of vacancies as a percentage of labour years per sector, and C is the number of sectors.

Of all gross created labour years in sector i, a fraction c_i will be filled by workers currently employed. The remainder will be filled by workers currently unemployed. By assumption, the change in gross labour years will be zero in the long run. Details on this can be found in Koopmans and Volkerink (2012).

Appendix E Data

In this appendix we describe our data.

Data sources

Our bilateral trade data (exports, imports) are obtained from the Direction of Trade Statistics (IMF, 2016). The bilateral covariates on distance, common borders, shared language, and colonial links are obtained from CEPIIs GeoDist dataset (Mayer & Zignago, 2011). We employ the FTA dataset of Brakman, Kohl, and Garretsen (2016). We further discuss this dataset below.

Counties

The countries in our sample are: Aruba, Afghanistan, Angola, Albania, Andorra, United Arab Emirates, Argentina, Armenia, Australia, Austria, Azerbaijan, Burundi, Belgium, Benin Burkina Faso, Bangladesh, Bulgaria, Bahrain, Bahamas, Bosnia and Herzegovina, Belarus, Belize, Bermuda, Bolivia, Brazil, Barbados, Brunei, Central African Republic, Canada, Switzerland, Chile, China, Cote d'Ivoire, Cameroon, Congo, Colombia, Comoros, Cabo Verde, Costa Rica, Cuba, Cyprus, Czech Republic, Germany, Dominica, Djibouti, Dominican Republic, Denmark, Algeria, Ecuador, Egypt, Spain, Estonia, Ethiopia, Finland, Fiji, France, Faroe Island, Gabon, United Kingdom, Georgia, Ghana, Guinea, Gambia, Guinea-Bissau, Equatorial Guinea, Greece, Grenada, Greenland, Guatemala, Guyana, Hong Kong, Honduras, Croatia, Haiti, Hungary, Indonesia, India, Ireland, Iran, Iraq, Iceland, Israel, Italy, Jamaica, Jordan, Japan, Kazakhstan, Kenya, Kyrgyzstan, Cambodia, Saint Kitts and Nevis, Republic of Korea, Kuwait, Laos, Lebanon, Liberia, Libya, Saint Lucia, Sri Lanka, Lithuania, Luxembourg, Latvia, Macao, Morocco, Moldova, Madagascar, Maldives, Mexico, Macedonia, Mali, Malta, Myanmar, Mongolia, Mozambique, Mauritania, Mauritius, Malawi, Malaysia, New Caledonia, Niger, Nigeria, Nicaragua, Netherlands, Norway, Nepal, New Zealand, Oman, Pakistan, Panama, Peru, Philippines, Papua New Guinea, Poland, People's Republic of Korea, Portugal, Paraguay, Qatar, Reunion, Russia, Rwanda, Saudi Arabia, Sudan, Senegal, Singapore, Solomon Islands, Sierra Leone, El Salvador, Somalia, Sao Tome and Principe, Suriname, Slovakia, Slovenia, Sweden Seychelles, Syran Arab Republic, Chad, Togo, Thailand, Tajikistan, Turkmenistan, Tonga, Trinidad and Tobago, Tunisia, Turkey, Tanzania, Uganda, Ukraine, Uruguay, Uzbekistan, Saint Vincent and the Grenadines, Venezuela, Viet Nam, Samoa, Yemen, South Africa, Zambia, Zimbabwe, United States of America.

FTAs

Brakman, Kohl, & Garretsen (2016) have classified the contents of 296 FTAs. They identified 26 'provisions' that may be part of an FTA. Based on in-depth desk study, they determined for each FTA whether or not each of the 26 provisions is covered, and whether or not a 'covered' provision is also 'legally enforceable'.

Below we reproduce Table A2 from Brakman, Kohl, and Garretsen (2016) to describe the 26 provisions.

Table E.1 FTA provisions.

Provision	Description
Agriculture	Agreement to liberalise trade in agricultural commodities by reducing/abolishing barriers to trade such as tariffs, quotas and subsidies. Agreement to harmonise agricultural policies may also be included. Undertakings may be in line with, deepen and/or broaden the scope of provisions specified in the GATT 1994/WTO Agriculture Agreement.
Anti-dumping and countervailing measures (AD and CVM)	Agreement with rules on anti-dumping and countervailing measures that specify the conditions under which parties may deviate from their liberalisation commitments to offset injury caused by dumping. Undertakings may be in line with, deepen and/or broaden the scope of provisions specified in the GATT 1994/WTO Agreement on Subsidies and Countervailing Measures (SCM Agreement).
Customs administration	Agreement to reduce administrative barriers to trade by simplifying customs administration with respect to issues such as import licensing requirements, valuation and nomenclature. Undertakings may be in line with, deepen and/or broaden the scope of provisions specified in the GATT 1994/WTO Agreement on Import Licensing Procedures.
Export restrictions	Agreement to liberalise duties, charges and/or quantitative restrictions on exported goods. Undertakings may be in line with, deepen and/or broaden the scope of provisions specified in the GATT 1994.
Import restrictions	Agreement to liberalise duties, charges and/or quantitative restrictions on imported goods. Undertakings may be in line with, deepen and/or broaden the scope of provisions specified in the GATT 1994.
Intellectual property rights	Agreement on the protection of IPR (copyrights, patents, trademarks, etc.) in foreign markets. Undertakings may be in line with, deepen and/or broaden the scope of provisions specified in the WTO Agreement on Trade-Related Aspects of IPR (TRIPS Agreement).
Investment	Agreement to prohibit discriminatory trade-related investment practices such as local content requirements, trade balancing requirements and foreign exchange restrictions. Undertakings may be in line with, deepen and/or broaden the scope of provisions specified in the WTO Agreement on Trade-Related Investment Measures (TRIMS).
Public procurement	Agreement to grant access to foreign parties and further liberalise the market for public procurement. Undertakings may be in line with, deepen and/or broaden the scope of provisions specified in the WTO Agreement on Government Procurement (GPA).
Sanitary and phytosanitary measures (SPS)	Agreement to simplify and/or harmonise import requirements with respect to food safety and animal and plant health. Undertakings may be in line with, deepen and/or broaden the scope of provisions specified in the WTO SPS Agreement.
Services	Agreement to liberalise trade in services. Undertakings may be in line with, deepen and/or broaden the scope of provisions specified in the General Agreement on Trade in Services (GATS).
State aid	Agreement to restrict any form of aid that could give rise to unfair competitive advantages. Undertakings may be in line with, deepen and/or broaden the scope of provisions specified in the GATT 1994/WTO Agreement on Subsidies and Countervailing Measures (SCM Agreement).
State trading enterprises (STE)	Agreements to ensure market access and non-discriminatory behaviour by governmental enterprises. Undertakings may be in line with, deepen and/or broaden the scope of provisions specified in the GATT 1994.
Technical barriers to trade (TBT)	Agreements to reduce barriers to trade by simplifying and harmonising standards and technical barriers such as testing and certification procedures. Undertakings may be in line with, deepen and/or broaden the scope of provisions specified in the WTO Agreement on TBT.

Capital Mobility	Agreement to improve capital mobility by relaxing restrictions on foreign capital and facilitating cross-border financial transfers.
Competition	Agreements on competition policy to restrict or prohibit monopolies' activities to promote undistorted competition.
Environment	Agreement to uphold environmental laws, provided that they are not used as disguised barriers to trade. Commitments to enforce environmental laws so as not to attract (foreign) business activity that would exploit environmental resources.
Labour	Agreement to uphold labour laws so as not to attract (foreign) business activity that would exploit employees and/or to facilitate labour mobility.
Consultations	Signatories wishing to address issues arising from the implementation of the RTA, or their broader economic partnership in general, may engage in a diplomatic dialogue known as consultations "with a view to finding a mutually satisfactory solution". When specified, consultation procedures provide details on when and where consultations are to be held, which parties may attend, and the issues that may be addressed. In most cases, signatories must first attempt to solve disputes according to consultation procedures before having access to the RTA's dispute settlement mechanism.
Definitions	By providing definitions of key concepts, signatories increase the clarity, scope and certainty of their commitments.
Dispute settlement	By agreeing on dispute settlement procedures, signatories reduce ambiguity and create a judicially binding mechanism that ensures the implementation of the RTA.
Duration & Termination	Signatories reduce ambiguity about their commitments by specifying the duration of the RTA and the means by which it can be terminated.
Evolutionary clause	Signatories commit themselves to a built-in periodic review mechanism that facilitates amendments and improvements to the original RTA.
Institutional framework	The signatories provide details on the institutional framework that will be used to oversee implementation.
Objectives	The signatories enhance the clarity and context of their commitments by specifying the objectives they envision by signing the RTA.
Plan & Schedule	The signatories commit themselves to a specific timetable by detailing the schedule according to which the RTA is to be implemented.
Transparency	The signatories commit themselves to creating greater institutional transparency, e.g., by agreeing on how and when information on economic policy will be shared.

Source: Kohl, Brakman & Garretsen (2016).

Technically, Kohl, Brakman & Garretsen (2016) encode each provision covered and enforced with a binary indicator variable. This allows the easy construction of simple averages that function as FTA comprehensiveness indices.

Note on FTA Mexico and FTA Chile

As noted in the main text, the EU currently already has an FTA with both Mexico and Chile. Below we summarize the present content of these FTAs and compare them to our model FTAs.

Table E.2 Existing versus envisaged new FTA with Mexico.

	Existing EU-Mexico		New EU-Mexico (CETA)	
	Covered	**Legally enforceable**	**Covered**	**Legally enforceable**
Anti-Dumping & Counterveiling Measures	✓	✓	✓	✓
Agriculture	✓	✓	✓	✓
Customs Administration	✓	✓	✓	✓
Export Restrictions	✓	✓	✓	✓
Services	✓	✓	✓	✓
Import Restrictions	✓	✓	✓	✓
Public Procurement	✓	✓	✓	✓
Sanitary & Phytosanitary Measures	✓	X	✓	✓
State Aid	X	X	✓	✓
State Trading Enterprises	✓	✓	✓	✓
Technical Barriers to Trade	✓	✓	✓	✓
Investment	X	X	✓	✓
Intellectual Property Rights	✓	X	✓	✓
Capital Mobility	X	X	✓	✓
Competition	✓	✓	✓	X
Environment	X	X	✓	✓
Labour	X	X	✓	✓
Consultations	✓	✓	✓	✓
Definitions	✓	✓	✓	✓
Dispute Settlement	✓	✓	✓	✓
Duration & Termination	X	X	✓	✓
Evolutionary Clause	✓	✓	✓	✓
Institutional Framework	✓	✓	✓	✓
Objectives	✓	✓	✓	✓
Plan & Schedule	✓	✓	✓	✓
Transparency	✓	✓	✓	✓

Source: SEO Amsterdam Economics.

The envisaged new FTA with Mexico covers several additional provisions (State Aid, Investment, Capital Mobility, Environment, Labour, and Duration and Termination clauses). Additionally, several covered provisions in the present FTA will become legally enforceable (Sanitary and Phytosanitary Measures, Intellectual Property Rights). In the newly envisaged FTA based on CETA, the competition provision is no longer legally enforceable.

Table E.3 Existing versus envisaged new FTA with Chile.

	Existing EU-Chile		New EU-Chile (CETA)	
	Covered	**Legally enforceable**	**Covered**	**Legally enforceable**
Anti-Dumping & Counterveiling Measures	✓	✓	✓	✓
Agriculture	✓	✓	✓	✓
Customs Administration	✓	✓	✓	✓
Export Restrictions	✓	✓	✓	✓
Services	✓	X	✓	✓
Import Restrictions	✓	✓	✓	✓
Public Procurement	✓	✓	✓	✓
Sanitary & Phytosanitary Measures	✓	✓	✓	✓
State Aid	✓	X	✓	✓
State Trading Enterprises	✓	X	✓	✓
Technical Barriers to Trade	✓	✓	✓	✓
Investment	✓	✓	✓	✓
Intellectual Property Rights	✓	✓	✓	✓
Capital Mobility	✓	✓	✓	✓
Competition	✓	X	✓	X
Environment	✓	X	✓	✓
Labour	✓	X	✓	✓
Consultations	✓	✓	✓	✓
Definitions	✓	✓	✓	✓
Dispute Settlement	✓	✓	✓	✓
Duration & Termination	✓	✓	✓	✓
Evolutionary Clause	✓	✓	✓	✓
Institutional Framework	✓	✓	✓	✓
Objectives	✓	✓	✓	✓
Plan & Schedule	✓	✓	✓	✓
Transparency	✓	✓	✓	✓

Source: SEO Amsterdam Economics.

In the envisaged new FTA for Chile several covered provisions will become legally enforceable. These provisions are Services, State Aid, State Trading Enterprises, Environment, and Labour.

Appendix F Third Country Effects

Table F.1 Third country effects in percent of real GDP growth.

	FTA Australia	FTA Chile	FTA Indonesia	FTA Mexico	FTA New Zealand	FTA Philippines	ALL
Afghanistan	-0,08%	0,00%	-0,04%	-0,02%	0,00%	0,01%	-0,10%
Albania	-0,21%	-0,01%	-0,13%	-0,04%	-0,02%	0,00%	-0,44%
Algeria	-0,22%	-0,01%	-0,14%	-0,05%	-0,02%	-0,01%	-0,48%
Andorra	-0,20%	-0,01%	-0,07%	-0,06%	-0,02%	0,00%	-0,46%
Angola	-0,17%	-0,01%	-0,09%	-0,03%	-0,02%	0,00%	-0,32%
Argentina	-0,14%	-0,13%	-0,05%	-0,06%	-0,01%	0,00%	-0,43%
Armenia	-0,11%	0,00%	-0,06%	-0,02%	-0,01%	0,01%	-0,17%
Aruba	-0,21%	-0,01%	-0,08%	-0,07%	-0,02%	0,00%	-0,49%
Australia	4,54%	-0,01%	-0,24%	-0,02%	-0,12%	-0,01%	3,12%
Austria	0,21%	0,01%	0,15%	0,02%	0,02%	0,00%	0,48%
Azerbaijan	-0,09%	0,00%	-0,05%	-0,02%	-0,01%	0,01%	-0,13%
Bahamas	-0,21%	-0,01%	-0,09%	-0,07%	-0,02%	0,00%	-0,51%
Bahrain	-0,04%	0,00%	-0,02%	-0,02%	0,00%	0,01%	-0,05%
Bangladesh	-0,09%	0,00%	-0,06%	-0,01%	0,00%	0,01%	-0,07%
Barbados	-0,23%	-0,01%	-0,09%	-0,06%	-0,03%	0,00%	-0,49%
Belarus	-0,12%	0,00%	-0,07%	-0,03%	-0,01%	0,00%	-0,23%
Belgium	0,09%	0,00%	0,05%	0,00%	0,01%	-0,01%	0,20%
Belize	-0,24%	-0,01%	-0,09%	-0,26%	-0,03%	0,00%	-0,73%
Benin	-0,05%	0,00%	-0,02%	-0,02%	-0,01%	0,01%	-0,02%
Bermuda	-0,14%	0,00%	-0,05%	-0,03%	-0,02%	0,00%	-0,38%
Bolivia	-0,15%	-0,07%	-0,05%	-0,08%	-0,02%	0,00%	-0,42%
Bosnia and Herzegovina	-0,22%	-0,01%	-0,14%	-0,05%	-0,02%	-0,01%	-0,49%
Brazil	-0,18%	-0,03%	-0,06%	-0,06%	-0,02%	0,00%	-0,38%
Brunei Darussalam	-0,25%	-0,01%	-0,23%	-0,01%	-0,02%	0,01%	-0,28%
Bulgaria	0,55%	0,02%	0,38%	0,09%	0,05%	0,01%	1,35%
Burkina Faso	-0,15%	-0,01%	-0,08%	-0,04%	-0,01%	0,00%	-0,29%
Burundi	-0,16%	-0,01%	-0,08%	-0,03%	-0,01%	0,00%	-0,28%
Cabo Verde	-0,16%	-0,01%	-0,08%	-0,05%	-0,02%	0,00%	-0,34%
Cambodia	-0,20%	0,00%	-0,13%	-0,01%	-0,02%	0,01%	-0,19%
Cameroon	-0,19%	-0,01%	-0,08%	-0,03%	-0,02%	0,00%	-0,30%
Canada	0,18%	0,01%	0,00%	0,15%	0,00%	0,01%	0,19%
Central African Republic	-0,15%	-0,01%	-0,08%	-0,03%	-0,01%	0,01%	-0,26%
Chad	-0,14%	-0,01%	-0,07%	-0,03%	-0,01%	0,01%	-0,23%
Chile	-0,34%	1,59%	-0,03%	-0,08%	-0,03%	0,00%	0,56%
China	-0,09%	-0,01%	-0,08%	-0,02%	-0,03%	0,00%	-0,19%
Colombia	-0,13%	-0,01%	-0,04%	-0,11%	-0,01%	0,00%	-0,39%
Comoros	-0,19%	-0,01%	-0,10%	-0,03%	-0,02%	0,01%	-0,31%

Congo	-0,13%	-0,01%	-0,07%	-0,03%	-0,01%	0,01%	-0,21%
Costa Rica	-0,08%	-0,02%	-0,04%	-0,20%	-0,01%	0,00%	-0,55%
Côte d'Ivoire	-0,18%	-0,01%	-0,10%	-0,04%	-0,02%	0,00%	-0,36%
Croatia	0,44%	0,11%	0,30%	0,25%	0,04%	0,00%	1,33%
Cuba	-0,14%	-0,01%	-0,06%	-0,16%	-0,01%	0,00%	-0,52%
Cyprus	0,70%	0,03%	0,50%	0,09%	0,07%	0,02%	1,69%
Czech Republic	0,28%	0,01%	0,19%	0,04%	0,03%	0,00%	0,66%
Denmark	0,33%	0,01%	0,23%	0,04%	0,03%	0,00%	0,77%
Djibouti	-0,12%	0,00%	-0,07%	-0,02%	-0,01%	0,01%	-0,18%
Dominica	-0,23%	-0,01%	-0,10%	-0,06%	-0,03%	0,00%	-0,50%
Dominican Republic	-0,09%	0,00%	-0,07%	-0,02%	-0,01%	0,00%	-0,38%
Ecuador	-0,16%	-0,02%	-0,05%	-0,12%	-0,02%	0,00%	-0,44%
Egypt	-0,16%	-0,01%	-0,08%	-0,02%	-0,02%	0,00%	-0,26%
El Salvador	-0,08%	-0,02%	-0,04%	-0,28%	-0,01%	0,00%	-0,63%
Equatorial Guinea	-0,14%	-0,01%	-0,07%	-0,04%	-0,01%	0,00%	-0,28%
Estonia	0,46%	0,02%	0,31%	0,06%	0,04%	0,00%	1,05%
Ethiopia	-0,14%	0,00%	-0,08%	-0,03%	-0,01%	0,01%	-0,24%
Faroe Islands	-0,20%	-0,01%	-0,12%	-0,05%	-0,02%	0,00%	-0,41%
Fiji	-0,94%	0,00%	-0,08%	-0,05%	-0,10%	0,01%	-1,21%
Finland	0,45%	0,02%	0,31%	0,06%	0,04%	0,00%	1,02%
France	0,23%	0,01%	0,15%	0,03%	0,02%	0,00%	0,55%
Gabon	-0,15%	-0,01%	-0,07%	-0,03%	-0,01%	0,01%	-0,24%
Gambia	-0,20%	-0,01%	-0,08%	-0,04%	-0,02%	0,00%	-0,38%
Georgia	-0,10%	0,00%	-0,05%	-0,02%	-0,01%	0,01%	-0,16%
Germany	0,25%	0,01%	0,15%	0,05%	0,02%	0,00%	0,61%
Ghana	-0,16%	-0,01%	-0,06%	-0,03%	-0,02%	0,00%	-0,26%
Greece	0,60%	0,02%	0,42%	0,09%	0,06%	0,01%	1,45%
Greenland	-0,19%	-0,01%	-0,11%	-0,05%	-0,02%	0,00%	-0,45%
Grenada	-0,22%	-0,01%	-0,09%	-0,06%	-0,02%	0,00%	-0,47%
Guatemala	-0,08%	0,00%	-0,04%	-0,52%	-0,01%	0,00%	-0,88%
Guinea	-0,16%	-0,01%	-0,08%	-0,04%	-0,02%	0,00%	-0,35%
Guinea-Bissau	-0,16%	-0,01%	-0,08%	-0,04%	-0,02%	0,00%	-0,35%
Guyana	-0,22%	-0,01%	-0,09%	-0,05%	-0,02%	0,00%	-0,45%
Haiti	-0,19%	-0,01%	-0,09%	-0,08%	-0,02%	0,00%	-0,48%
Honduras	-0,08%	0,00%	-0,04%	-0,26%	-0,01%	0,00%	-0,59%
Hong Kong	-0,03%	0,00%	0,00%	0,00%	0,00%	0,01%	0,04%
Hungary	0,38%	0,01%	0,26%	0,05%	0,04%	0,00%	0,92%
Iceland	-0,18%	-0,01%	-0,11%	-0,09%	-0,02%	0,00%	-0,44%
India	-0,08%	0,00%	-0,06%	-0,01%	0,00%	0,01%	-0,06%
Indonesia	-0,31%	0,00%	2,53%	-0,01%	-0,02%	0,01%	-0,24%
Iran	-0,10%	0,00%	-0,05%	-0,02%	-0,01%	0,01%	-0,15%
Iraq	-0,07%	0,00%	-0,03%	-0,02%	-0,01%	0,01%	-0,06%
Ireland	0,51%	0,02%	0,26%	0,10%	0,04%	0,01%	1,27%
Israel	-0,17%	-0,01%	-0,09%	-0,04%	-0,02%	0,00%	-0,35%
Italy	0,46%	0,02%	0,31%	0,08%	0,04%	0,01%	1,13%

Jamaica	-0,23%	-0,01%	-0,09%	-0,08%	-0,03%	0,00%	-0,53%
Japan	-0,08%	0,00%	-0,10%	-0,03%	0,00%	0,00%	-0,12%
Jordan	-0,14%	0,00%	-0,07%	-0,02%	-0,01%	0,00%	-0,24%
Kazakhstan	-0,09%	0,00%	-0,04%	-0,02%	0,00%	0,01%	-0,10%
Kenya	-0,20%	0,00%	-0,08%	-0,03%	-0,02%	0,00%	-0,32%
Korea, Democratic People's Republic of	-0,01%	0,00%	0,02%	-0,01%	0,01%	0,02%	0,08%
Korea, Republic of	-0,05%	0,00%	0,00%	0,00%	0,00%	0,01%	0,04%
Kuwait	-0,07%	0,00%	-0,02%	-0,01%	-0,01%	0,01%	-0,02%
Kyrgyzstan	-0,06%	0,00%	-0,03%	-0,02%	0,00%	0,01%	-0,04%
Laos	-0,14%	0,00%	-0,06%	-0,01%	-0,01%	0,01%	-0,07%
Latvia	0,47%	0,02%	0,32%	0,06%	0,04%	0,01%	1,08%
Lebanon	-0,16%	-0,01%	-0,08%	-0,03%	-0,02%	0,00%	-0,27%
Liberia	-0,18%	-0,01%	-0,07%	-0,04%	-0,02%	0,00%	-0,34%
Libya	-0,15%	-0,01%	-0,09%	-0,03%	-0,01%	0,00%	-0,30%
Lithuania	0,47%	0,02%	0,32%	0,06%	0,04%	0,01%	1,09%
Luxembourg	0,15%	0,01%	0,10%	0,02%	0,01%	0,00%	0,36%
Macao	-0,04%	0,00%	-0,01%	-0,01%	0,00%	0,01%	0,03%
Macedonia	-0,22%	-0,01%	-0,14%	-0,05%	-0,02%	-0,01%	-0,48%
Madagascar	-0,21%	-0,01%	-0,11%	-0,03%	-0,02%	0,01%	-0,35%
Malawi	-0,23%	-0,01%	-0,09%	-0,03%	-0,02%	0,00%	-0,36%
Malaysia	-0,11%	0,00%	-0,37%	-0,01%	-0,01%	0,01%	-0,27%
Maldives	-0,17%	0,00%	-0,12%	-0,02%	-0,01%	0,01%	-0,28%
Mali	-0,16%	-0,01%	-0,08%	-0,04%	-0,02%	0,00%	-0,31%
Malta	0,68%	0,02%	0,36%	0,08%	0,06%	0,01%	1,50%
Mauritania	-0,16%	-0,01%	-0,09%	-0,04%	-0,02%	0,00%	-0,35%
Mauritius	-0,27%	0,00%	-0,11%	-0,02%	-0,02%	0,00%	-0,41%
Mexico	-0,02%	-0,01%	-0,04%	2,96%	-0,01%	0,00%	3,07%
Moldova	-0,13%	0,00%	-0,08%	-0,03%	-0,01%	0,00%	-0,24%
Mongolia	-0,02%	0,00%	0,02%	-0,01%	0,01%	0,02%	0,09%
Morocco	-0,17%	-0,01%	-0,11%	-0,04%	-0,02%	0,00%	-0,41%
Mozambique	-0,19%	-0,01%	-0,09%	-0,03%	-0,02%	0,01%	-0,32%
Myanmar	-0,15%	0,00%	-0,07%	-0,01%	-0,01%	0,01%	-0,12%
Nepal	-0,09%	0,00%	-0,05%	-0,02%	0,00%	0,01%	-0,12%
Netherlands	0,16%	0,01%	0,21%	0,02%	0,01%	0,00%	0,51%
New Caledonia	-0,72%	-0,01%	-0,12%	-0,05%	-0,06%	0,01%	-0,95%
New Zealand	-0,96%	-0,01%	-0,13%	-0,03%	5,13%	0,01%	-0,59%
Nicaragua	-0,08%	0,00%	-0,04%	-0,23%	-0,01%	0,00%	-0,56%
Niger	-0,12%	-0,01%	-0,06%	-0,03%	-0,01%	0,01%	-0,21%
Nigeria	-0,21%	-0,01%	-0,09%	-0,03%	-0,02%	0,00%	-0,40%
Norway	-0,22%	-0,01%	-0,14%	-0,08%	-0,02%	-0,01%	-0,51%
Oman	-0,06%	0,00%	-0,03%	-0,02%	0,00%	0,01%	-0,12%
Pakistan	-0,07%	0,00%	-0,01%	-0,01%	0,00%	0,01%	-0,05%
Panama	-0,14%	-0,03%	-0,04%	-0,10%	-0,01%	0,00%	-0,40%

Papua New Guinea	-1,22%	0,00%	-0,19%	-0,03%	-0,05%	0,01%	-1,48%
Paraguay	-0,10%	-0,04%	-0,03%	-0,05%	-0,01%	0,00%	-0,26%
Peru	-0,09%	-0,05%	-0,02%	-0,06%	-0,01%	0,01%	-0,36%
Philippines	-0,34%	0,00%	-0,11%	-0,01%	-0,03%	3,99%	0,00%
Poland	0,32%	0,01%	0,23%	0,03%	0,03%	0,00%	0,73%
Portugal	0,52%	0,02%	0,34%	0,10%	0,05%	0,01%	1,32%
Qatar	-0,03%	0,00%	-0,01%	-0,01%	0,00%	0,01%	0,04%
Réunion	-0,20%	-0,01%	-0,13%	-0,06%	-0,02%	-0,01%	-0,45%
Russian Federation	-0,11%	0,00%	-0,06%	-0,03%	-0,01%	0,01%	-0,18%
Rwanda	-0,20%	0,00%	-0,08%	-0,03%	-0,02%	0,00%	-0,33%
Saint Kitts and Nevis	-0,22%	-0,01%	-0,09%	-0,06%	-0,02%	0,00%	-0,49%
Saint Lucia	-0,22%	-0,01%	-0,09%	-0,06%	-0,02%	0,00%	-0,47%
Saint Vincent and the Grenadines	-0,22%	-0,01%	-0,09%	-0,06%	-0,02%	0,00%	-0,48%
Samoa	-0,92%	0,00%	-0,08%	-0,04%	-0,14%	0,01%	-1,20%
Sao Tome and Principe	-0,15%	-0,01%	-0,07%	-0,03%	-0,01%	0,01%	-0,26%
Saudi Arabia	-0,08%	0,00%	-0,04%	-0,02%	-0,01%	0,01%	-0,09%
Senegal	-0,16%	-0,01%	-0,08%	-0,04%	-0,02%	0,00%	-0,34%
Seychelles	-0,23%	0,00%	-0,10%	-0,02%	-0,02%	0,00%	-0,34%
Sierra Leone	-0,20%	-0,01%	-0,08%	-0,04%	-0,02%	0,00%	-0,39%
Singapore	-0,14%	0,00%	-0,15%	-0,01%	-0,01%	0,00%	-0,25%
Slovakia	0,27%	0,01%	0,18%	0,03%	0,02%	0,00%	0,64%
Slovenia	0,32%	0,01%	0,21%	0,04%	0,03%	0,00%	0,78%
Solomon Islands	-0,77%	0,00%	-0,10%	-0,04%	-0,06%	0,01%	-0,95%
Somalia	-0,18%	-0,01%	-0,10%	-0,03%	-0,02%	0,01%	-0,28%
South Africa	-0,08%	0,00%	-0,03%	-0,02%	-0,01%	0,01%	-0,08%
Spain	0,49%	0,05%	0,32%	0,20%	0,05%	0,02%	1,31%
Sri Lanka	-0,13%	0,00%	-0,10%	-0,02%	-0,01%	0,01%	-0,15%
Sudan	-0,13%	0,00%	-0,07%	-0,02%	-0,01%	0,01%	-0,20%
Suriname	-0,20%	-0,01%	-0,10%	-0,06%	-0,02%	0,00%	-0,45%
Sweden	0,48%	0,02%	0,32%	0,07%	0,05%	0,01%	1,13%
Switzerland	-0,21%	-0,01%	-0,13%	-0,07%	-0,02%	-0,01%	-0,48%
Syria	-0,13%	0,00%	-0,08%	-0,03%	-0,01%	0,00%	-0,26%
Tajikistan	-0,09%	0,00%	-0,04%	-0,02%	0,00%	0,01%	-0,11%
Tanzania	-0,18%	-0,01%	-0,09%	-0,03%	-0,02%	0,01%	-0,30%
Thailand	-0,23%	0,00%	-0,12%	-0,01%	-0,02%	0,01%	-0,25%
Togo	-0,12%	-0,01%	-0,06%	-0,03%	-0,01%	0,01%	-0,22%
Tonga	-0,78%	-0,01%	-0,09%	-0,05%	-0,10%	0,01%	-1,03%
Trinidad and Tobago	-0,23%	-0,01%	-0,09%	-0,06%	-0,03%	0,00%	-0,49%
Tunisia	-0,19%	-0,01%	-0,12%	-0,04%	-0,02%	0,00%	-0,39%
Turkey	-0,16%	-0,01%	-0,11%	-0,03%	-0,02%	0,00%	-0,31%
Turkmenistan	-0,09%	0,00%	-0,05%	-0,02%	-0,01%	0,01%	-0,12%
Uganda	-0,20%	0,00%	-0,08%	-0,03%	-0,02%	0,00%	-0,32%

Ukraine	-0,12%	0,00%	-0,07%	-0,03%	-0,01%	0,00%	-0,22%
United Arab Emirates	-0,04%	0,00%	-0,02%	-0,01%	0,00%	0,01%	0,03%
United Kingdom	0,60%	0,01%	0,19%	0,04%	0,06%	0,00%	1,03%
United States of America	-0,28%	-0,02%	-0,02%	-0,22%	-0,01%	0,00%	-0,48%
Uruguay	-0,09%	-0,03%	-0,03%	-0,04%	-0,01%	0,00%	-0,20%
Uzbekistan	-0,11%	0,00%	-0,06%	-0,02%	-0,01%	0,01%	-0,15%
Venezuela	-0,12%	-0,02%	-0,05%	-0,10%	-0,01%	0,00%	-0,40%
Vietnam	-0,16%	0,00%	-0,06%	-0,01%	-0,01%	0,01%	-0,12%
Yemen	-0,08%	0,00%	-0,04%	-0,02%	-0,01%	0,01%	-0,07%
Zambia	-0,22%	-0,01%	-0,08%	-0,03%	-0,02%	0,00%	-0,35%
Zimbabwe	-0,22%	0,00%	-0,08%	-0,03%	-0,02%	0,00%	-0,35%

Source: SEO Amsterdam Economics.

Appendix G Historical Trade with FTA Countries

Table B. 1 Value added content exported to trade agreement countries (2011).

Millions of USD value added content exported, by sector	AUS	NZL	PHI	MEX	IND	CHL	Total
Agriculture, hunting, forestry and fishing	53	3	3	39	5	3	**106**
Mining and quarrying	2	0	0	0	0	0	**3**
Food products, beverages and tobacco	134	20	36	28	41	12	**271**
Textiles, textile products, leather and footwear	4	1	2	3	1	1	**11**
Wood and products of wood and cork	2	0	0	1	0	0	**3**
Pulp, paper, paper products, printing and publishing	15	2	3	3	20	1	**45**
Coke, refined petroleum products and nuclear fuel	9	1	1	243	2	1	**256**
Chemicals and chemical products	107	8	17	82	43	13	**270**
Rubber and plastics products	23	4	1	10	4	2	**44**
Other non-metallic mineral products	6	0	0	3	1	0	**12**
Basic metals	4	0	0	11	5	1	**21**
Fabricated metal products except machinery and equipment	18	2	2	78	8	3	**111**
Machinery and equipment n.e.c	63	7	11	43	36	10	**170**
Computer, electronic and optical products	13	1	4	5	7	2	**33**
Electrical machinery and apparatus n.e.c	6	1	1	3	2	1	**13**
Motor vehicles, trailers and semi-trailers	7	3	1	2	2	2	**18**
Other transport equipment	12	1	1	2	8	1	**25**
Manufacturing n.e.c; recycling	17	1	3	4	5	1	**31**
Electricity, gas and water supply	5	0	0	0	1	0	**7**
Construction	44	0	2	5	2	0	**54**
Wholesale and retail trade; repairs	97	11	25	110	115	13	**370**
Hotels and restaurants	29	2	9	0	4	0	**43**
Transport and storage	684	65	40	21	325	2	**1137**
Post and telecommunications	13	2	5	0	4	4	**28**
Finance and insurance	26	36	206	216	241	163	**888**
Real estate activities	13	0	2	1	1	1	**18**
Renting of machinery and equipment	11	1	1	1	5	0	**20**
Computer and related activities	128	2	1	6	8	2	**147**
R&D and other Business Activities	43	3	6	11	32	11	**106**
Public admin. and defence; compulsory social security	23	1	1	1	5	0	**32**
Education	11	0	1	0	2	1	**15**
Health and social work	13	0	4	1	1	1	**19**
Other community, social and personal services	59	2	6	4	5	1	**77**
Private households with employed persons	0	0	0	0	0	0	**0**
Total	**1694**	**179**	**395**	**940**	**943**	**253**	**4403**

Source: SEO Amsterdam Economics based on TiVA (2011)

Appendix H Revealed Comparative Advantages (Peer Group: World)

Table C 1 NRCA compared to World.

ISIC codes	Sector	NRCA	World Rank*
C60T63	Transport and storage	0,51	2
C65T67	Finance and insurance	0,40	7
C73T74	R&D and other Business Activities	0,31	6
C15T16	Food products, beverages and tobacco	0,24	6
C23	Coke, refined petroleum products and nuclear fuel	0,16	6
C90T93	Other community, social and personal services	0,14	4
C24	Chemicals and chemical products	0,10	10
C01T05	Agriculture, hunting, forestry and fishing	0,09	11
C64	Post and telecommunications	0,08	3
C45	Construction	0,05	5
C72	Computer and related activities	0,05	9
C75	Public admin. and defence; compulsory social security	0,04	3
C80	Education	0,02	4
C85	Health and social work	0,01	8
C40T41	Electricity, gas and water supply	0,00	15
C70	Real estate activities	0,00	45
C21T22	Pulp, paper, paper products, printing and publishing	-0,01	38
C71	Renting of machinery and equipment	-0,01	42
C20	Wood and products of wood and cork	-0,02	51
C28	Fabricated metal products except machinery and equipment	-0,02	43
C26	Other non-metallic mineral products	-0,02	50
C55	Hotels and restaurants	-0,03	51
C25	Rubber and plastics products	-0,04	50
C36T37	Manufacturing n.e.c; recycling	-0,05	50
C35	Other transport equipment	-0,09	56
C31	Electrical machinery and apparatus n.e.c	-0,10	55
C29	Machinery and equipment n.e.c	-0,11	48
C17T19	Textiles, textile products, leather and footwear	-0,14	53
C50T52	Wholesale and retail trade; repairs	-0,17	55
C34	Motor vehicles, trailers and semi-trailers	-0,20	54
C27	Basic metals	-0,21	57
C30T33X	Computer, electronic and optical products	-0,28	51
C10T14	Mining and quarrying	-0,70	51

Source: SEO Amsterdam Economics based on TiVA (2011).
*TiVA distinguishes 61 different countries and 'the rest of the world'.

Appendix I Existing Trade Barriers

Trade barriers Australia

title	**Australia-wine equalisation tax**
sector	Agriculture and Fisheries
category	Internal Taxation
description	Australia operates a 29% value-based Wine Equalisation Tax (WET) on wine consumed in Australia, but provides a capped rebate which effectively exempts over 90% of domestic producers from the WET.
provision	Agriculture
title	**'Alcopop' tax**
sector	Wines & Spirits
category	Internal Taxation
description	As part of the measures to control problem drinking and alcohol abuse at young age (notably binge drinking), the Government dramatically increased the tax on spirit-based 'ready-to-drink' (alcopops, which designates sweetened alcoholic beverages) to the same as the excise rate applying to spirits to increase the prices of such spirit-based drinks and other alcoholic beverages that mimic those alcopops, and made new definitions of beers and wines. Thus beer-based drinks that mimic 'alcopops' became taxed at the same rate as the latter. This had a significant impact on Belgian fruit beers, which were no longer considered as beers but as alcopops, and were hit by the $A66.67 per litre of alcohol content excise duty (compared to $A39.36 before the amendment), since revised to $A80.41 (compared to $A47.47)
provision	Other
title	**Australia- Luxury Car Tax**
sector	Automotive
category	Internal Taxation
description	Australia levies a 33% sales tax (25% prior to 01/07/08), known as the Luxury Car Tax (LCT), on all imported and domestically produced cars valued over a specified threshold. This tax is in addition to the duty of 10% (passenger cars) or 5% (commercial vehicles) and a Goods and Service Tax (GST) of 10% (applicable on all retail sales).
provision	Other
title	**Regulations in the vehicle sector**
sector	Automotive
category	Quantitative restrictions and related measures
description	Imports of second-hand passenger cars are subject to an ad valorem tariff rate of 10% (5% after 2010)5% since 2010 (10% previously , with an additional flat rate duty of $A 12.000 (7.250) charged per vehicle (Item 37 of Schedule 4 of the Customs Tariff allows for the waiving of the $A 12,000 duty component on second-hand cars, provided the Department of Infrastructure and Regional Development has issued a Vehicle Import Approval (VIA), which a vehicle generally must have to be imported, meaning the flat rate duty has rarely been applied since 2011also eliminated on 1 January 2010). The LCT rate is 33%. Its threshold is a GST inclusive value which, for the 2012/13 financial year, is set at $59,133.).
provision	Import restrictions
title	**State Trading Enterprises**
sector	Agriculture and Fisheries
category	Competition issues

description	One producer-owned agricultural marketing company, the former cooperative Ricegrowers Limited (trading as SunRice), has statutory powers to control all exports of rice from the State of New South Wales (the domestic market is deregulated). Under the Marketing of Primary Products Act 1983, the Rice Marketing Board for the State of New South Wales has appointed Ricegrowers Limited as the sole and exclusive export licence holder and single desk seller of rice from New South Wales.
provision	Competition
title	**Australia- Government Procurement**
sector	Horizontal
category	Government procurement
description	Long a hold out amongst advanced economies, Australia has finally committed to join the WTO Agreement on Government Procurement (GPA), submitting its initial offer in July 2015. This provides an opportunity to seek to address outstanding access issues, particularly at the sub-central level (the Australian States and Territories) where non-discrimination has not been adopted as a key principle, and some patently discriminatory measures remain in place.
provision	Public Procurement
title	**Australia - Raw milk cheese standards**
sector	Agriculture and Fisheries
category	Sanitary and phytosanitary measures
description	Australia's Food Standards Code for dairy products did not allow raw milk products unless they are specifically approved. In 2012 and 2014, Australia reviewed this standard and the Australia New Zealand Food Standards Code - namely "P1022 – Primary Production & Processing Requirements For Raw Milk Products" and the "P1017 – Criteria for Listeria monocytogenes – Microbiological Limits for Foods". Member States and EU exporters are encouraged to keep the European Commisison informed on any possible difficulty related to the above-mentioned requirements and crieria and test the Australian market once the new import requirements will be in place.
provision	Sanitary and phytosanitary measures
title	**Australia - Bovine animals and products on the basis of BSE**
sector	Agriculture and Fisheries
category	Sanitary and phytosanitary measures
description	Unjustified import restrictions on a number of animals and animal products relating to Bovine Spongiform Encephalopathy (BSE).
provision	Sanitary and phytosanitary measures
title	**Australia - Pork meat import restrictions (PRRS/PMWS)**
sector	Agriculture and Fisheries
category	Sanitary and phytosanitary measures
description	Australia has a strict import regime for pig meat and pig meat products, including specific requirements for heat treatment and de-boning of the meat. For some products heat treatment would need to be carried out within Australia, e.g. for certain products containing bones, e.g. ham. Uncooked pig meat may only be imported from Canada and New Zealand. One MS, Denmark, is able to export uncooked, de-boned pig meat to Australia, on the condition that the meat is heat treated before release on the market. Market prospects for value added products such as cooked bone-in hams and dried cured hams (such as Serrano and Parma type) have been identified. Furthermore, market prospects for fresh/frozen, deboned meat, might be interesting. However, import into Australia is not yet possible.
provision	Sanitary and phytosanitary measures
title	**Australia- Chicken meat**
sector	Agriculture and Fisheries
category	Sanitary and phytosanitary measures

description	Australia published a draft import risk assessment (IRA) on chicken meat in July 2006. The EU submitted substantial comments, in particular in relation to IBD (Gumboro Disease). Australia issued in October 2008 a revised version of the IRA. However, the EU comments were not taken into account. The EU suggested alternative approaches in line with international standards and supported by scientific evidence. In general, the EU considers Australia import conditions on chicken meat excessive and not meeting the objective of minimising negative trade effects while setting its own appropriate level of protection.
provision	Sanitary and phytosanitary measures
title	**Australia- IPR: insufficient protection of GIs for spirits and food products**
sector	Agriculture and Fisheries
category	IPR
description	EU producers have reported difficulties in adequately defending their rights in Australia, especially in the food and spirits sector. With large European ethnic populations in Australia, who brought their traditions with them, there is widespread use of EU names particularly for meat products and cheeses. By using such names, Australian producers can take advantage of, but also could potentially damage, the reputation of EU GIs.
provision	Intellectual property rights
title	**Australia- counterfeit products**
sector	Horizontal
category	IPR
description	Australia does not have legislation or operational practices in place to allow its customs officials to efficiently prevent counterfeit products (believed to be intended for commercial purposes), from being brought into Australia by individuals. The issue is of particular concern to high-end European branded products companies, such as Louis Vuitton.
provision	Intellectual property rights
title	**Short data exclusivity protection of biological pharmaceuticals**
sector	Pharmaceuticals
category	IPR
description	Australia has a short period of data exclusivity protection for biological pharmaceuticals: Australia has 5 years of protection, whereas the US has 12 years, Canada and Japan 8 years and Europe 11 years.
provision	Intellectual property rights

Trade barriers Indonesia

title	**Labelling requirements**
sector	Horizontal
category	Registration, documentation, customs procedures
description	Indonesia has introduced burdensome labelling requirements (Regulation 22/2010 amending Regulation 62/2009) for a range of products (e.g. motor vehicle parts, telecom equipment, home appliance electronics, construction materials), according to which labels must be approved by the Ministry of Trade before import takes place, and labelling is only allowed in the country of origin. There may also be plans to extend this to include foodstuff and cosmetics. Indonesia has notified the measures to the WTO post-factum, as notification G/TBT/N/IDN/47.
provision	Technical barriers to trade
title	Import licenses and pre-shipment controls
sector	**Horizontal**
category	Registration, documentation, customs procedures

description	a) Importers must obtain an Importer Identification Number (API) which is distinct depending on whether imports are done for production ("API-P") or distribution ("API-U") purposes. A 'special relationship' with exporters has to be certified through Indonesian Embassies in the export country, which implies costs and inconsistent procedures. (Ministry of Trade Regulations 27/2012 and 59/2012). b) Pre-shipment controls and entry port restrictions for over 500 product categories have been extended until the end of 2015 (Ministry of Trade Regulation 83/2012, on Import Provisions for Certain Goods), now excluding (EU) companies from priority lane status. Trade Minister Reg 61 dated 30 Sept 2013 on the Provision of Import of Certain Products, revised Reg. 83/2012. There are at least three major revisions: (1) remove "loading port", which in Reg. 83/2012 became the location of verification or import technical inspection, but Reg. 61/2013 does not specify the new location; (2) the verification or import technical inspection now must also verify/examine SPPT SNI (Product Certification Number of Indonesia's National Standard Marking) for products subject to mandatory SNI; and Certificate of Analysis for certain products required; (3) removal of the exclusion of cosmetics from products subject to verification or import technical inspection, and hence cosmetics imports now have to be equipped with a Surveyor report. Furthermore one new provision has been inserted, nr 23A, which states that a Surveyor Report as a complementary document have to be included also for cosmetics imports starting by 1 January 2014. c) Burdensome testing requirements and limit of entrance ports for horticulture products to a few ports only, if partners do not have a "Country Recognition Agreement". (Ministry of Agriculture Regulations 42, 43 and 60 of 2012). d) Pre-shipment controls, trading and import limitations, technical standards and procedures on import licences for cellular phones (Ministry of Trade Regulation 82/2012)
provision	Technical barriers to trade
title	**Alcoholic beverages - Non-transparent import procedures, restrictions**
sector	Wines & Spirits
category	Quantitative restrictions and related measures
description	Non-transparent import procedures, application of a quota system and other restrictions (such as import procedures and insufficient quota allocations) lead to quantitative restrictions in imports of alcoholic beverages.
provision	Import restrictions
title	**Government Procurement**
sector	Horizontal
category	Government procurement
description	Foreign companies can only bid in cooperation with a national company (unless no national company has the ability to provide the goods and services requested) and only on bids that exceed the following thresholds: Rp 100 billion for construction services (USD 10m), RP 20 billion for goods and other services and Rp 10 billion for consulting services. (Presidential Regulation n. 54/2010 art. 104). In addition, Presidential Regulation n. 54/2010 art. 97 mandates the use of domestic products in government procurement if there are providers offering goods and services with a local content exceeding 40%.
provision	Public Procurement
title	**SPS - restrictions on poultry meat due to highly pathogenic avian influenza**
sector	Agriculture and Fisheries
category	Sanitary and phytosanitary measures
description	Unjustified restrictions of poultry and poultry meat due to outbreak of avian influenza.
provision	Sanitary and phytosanitary measures
title	**Fresh food of plant origin, including access to Tanjung Priok port**
sector	Agriculture and Fisheries
category	Sanitary and phytosanitary measures

description	Export of plant and plant products through Tanjung Priok port (Jakarta) are since early 2012 opened only to countries with a so-called Country Recognition Agreement (CRA). Other countries still might export through other ports in ID, but this leads to much more complicated trade flows.
provision	Sanitary and phytosanitary measures
title	**Indonesia- Live ruminants and their products**
sector	Agriculture and Fisheries
category	Sanitary and phytosanitary measures
description	Unjustified import restrictions on a number of animals and animal products relating to Bovine spongiform encephalopathy (BSE) (and other diseases).
provision	Sanitary and phytosanitary measures
title	**foodstuffs - registration and other technical requirements**
sector	Agriculture and Fisheries
category	Sanitary and phytosanitary measures
description	Registration issues: Indonesian Consumer Protection Law (2000) requires all foodstuffs sold to Indonesian consumers to be approved and bear a registration number. The process of approval by the Food and Drug Safety Agency (BPOM) is a cause of concern for European companies
provision	Sanitary and phytosanitary measures
title	**Indonesia - SPS related import restrictions**
sector	Agriculture and Fisheries
category	Sanitary and phytosanitary measures
description	New legislation for food (Food Law 18/2012) self-sufficiency puts temporary ban on imports. • Burdensome registration and labelling requirements and import conditions for food products. • Unjustified import restrictions on a number of animals and animal products. • Law 18/2009 introduced burdensome and non-transparent risk assessment procedures for meat and dairy imports stemming from country establishment approval requirements. In addition, processing of EU export applications is extremely slow and not transparent. Audits are carried out establishment-based.
provision	Sanitary and phytosanitary measures
title	**Pharmaceuticals - Foreign direct investment limitations, import restrictions and IPR/data exclusivity issues**
sector	Pharmaceuticals
category	Investment related barriers
description	a) Distribution of pharmaceutical products is closed to FDI and wholly foreign-owned manufacturing is not possible. b) Draft Law on Pharmaceuticals, medical devices, household health products and processed food restricts OTC sales of drugs, but also implies a strong role of State Owned Enterprises. c) Legislation on data exclusivity of pharmaceutical and agrochemical products incompatible with TRIPs Agreement. Import restrictions: Ministry of Health Decree 1010/2008 on Drug Registration severely restricts imports of pharmaceuticals products. Imports of drugs are only allowed on a case-by-case basis if they are needed for the national health program or if they are not manufactured locally. As a general rule, registration of drugs is only allowed for companies that have manufacturing facilities in Indonesia. Investment: Foreign Direct Investment (FDI) in the pharmaceuticals industry is limited to a maximum of 75%, whereas the distribution of pharmaceuticals is closed to FDI, except for some exceptions where the Ministry of Health can allow for special permits. IPR: Indonesia has not yet incorporated data exclusivity clause for pharmaceutical and agrochemical products to its patent legislation and hence might fall foul of relevant provisions of the WTO TRIPs Agreement.
provision	a) Investment; b) Competition; c) IPR
title	**Investment restrictions**

sector	Horizontal
category	Foreign Direct Investment limitations
description	1. The "Investment Negative List" (Presidential Regulation 36/2010) and other sectoral regulations restrict foreign ownership in sectors of EU interest including telecommunications, transport services, health services, pharmaceuticals, alcoholic beverages, horticulture, etc. A revision of the list being prepared in 2013 raises serious concerns as regards further limitations to foreign direct investment. 2. The minimum investment requirement for foreign investment has been increased to a minimum of US$1.1 million, which restricts investment by small and medium-sized investors.
provision	Investment
title	**Laws and Transparency - Industry Law and Trade Law**
sector	Horizontal
category	Other
description	1. The Industry Law, which entered into force on 15 January 2014, increases the role of the state to control strategic industries. It aims to defend the Indonesian market by stimulating the use of domestic products and by adopting enhanced powers to restrict imports and exports, in particular by a Government empowerment to impose export bans on raw materials. 2. The Trade Law, adopted by the Indonesian Parliament on 11 February 2014 to enter into force in March 2014, often overlaps with the Industry Law. The law foresees strong supervision and control of the circulation of goods. In particular, the Government may impose restrictions on import and exports for goods and services out of national interest; these restrictions may include rules on licensing & standardisation, and export prohibitions.
provision	Export restrictions, import restrictions
title	**Mining and export restrictions**
sector	Mining
category	Other (export related)
description	a) Law 4/2009 disciplining mineral and mining activities, which contains restrictions on foreign investment and local content requirements, Implementing Regulations 7 and 11 of 2012 contain local processing requirements and result in a de facto ban on exports of mineral and metal ores. Regulation 20/2013 specifies that the export of mineral ores is allowed up to 12 January 2014. b) Export taxes and restrictions on commodities exports
provision	Investment, export restrictions

Trade barriers Mexico

title	**Registration and approval of health products and agro-chemicals**
sector	Horizontal
category	Registration, documentation, customs procedures
description	The process for marketing authorisations for pharmaceutical and agro-chemical products includes three stages and several actors. Therefore very few approvals are being awarded and delays the process of market access, which needs on average about 4 years.
provision	Technical barriers to trade
title	**Arbitrary customs procedures**
sector	Horizontal
category	Registration, documentation, customs procedures

description	Excessive document requirements for importers are causing delays and represent a non-tariff barrier. EU companies report that customs procedures are sometimes not transparent nor consistent with the rules stipulated in the EU-Mexico Free Trade Agreement. These issues have been partially addressed in the recent customs reform of 2013.
provision	Customs Administration
title	**Labelling**
sector	Horizontal
category	Standards and other technical requirements
description	Mexican labelling requirements are in many cases complex and difficult to comply with. Main affected sectors are textiles and ceramic tiles. Mexico requires information on the labels which is different from, or in addition to, internationally agreed practices. This implies additional costs for EU exporters who have to design specific labels for the Mexican market.
provision	Technical barriers to trade
title	**Mexico- Cured Ham**
sector	Agriculture and Fisheries
category	Sanitary and phytosanitary measures
description	Spanish ham may enter the Mexican market only if it meets the US import requirements applied to ham from those countries and also if it has previously been imported into the US. Thus exports of ham from Spain into Mexico are hindered by a triangular, needless trade mechanism of wasting time and increasing costs through the US.
provision	Sanitary and phytosanitary measures
title	**Mexico- Fresh fruit and vegetables**
sector	Agriculture and Fisheries
category	Sanitary and phytosanitary measures
description	Import restrictions on fresh fruit and vegetable due to cumbersome administrative procedures import protocols which include a disproportionate mitigation measures (cold treatment) and pre-shipment inspections in the country of origin paid by the industry (preclearance).Disproportionate and trade-disruptive measures, which are also against the IPPC, impede effectively EU export of fruits to Mexico, although the EU-Mexico Free Trade Agreement in force. Mexico has not yet provided the basis of their risk assessment to apply this wide range of pests and mitigation measures.
provision	Sanitary and Phytosanitary Measures (SPS)
title	**Mexico - Import measures for EU beef, beef products and other bovine products including collagen and gelatine due to BSE**
sector	Agriculture and Fisheries
category	Sanitary and phytosanitary measures
description	The relevant international standards for animal health are set by the OIE. Since May 2011 the OIE officially classified 25 EU countries as countries with negligible risk or controlled risk (Romania and Bulgaria still under evaluation). In addition, in 2009 the OIE added boneless beef (obtained under certain conditions) with no age limitation to the list of non-risk products, allowing it to be traded regardless of a country's BSE status.
provision	Sanitary and phytosanitary measures)
title	**Mexico - Pig meat, pig semen and breeding pigs**

sector	Agriculture and Fisheries
category	Sanitary and phytosanitary measures
description	Ban on the import of pigmeat, pig semen and breeding pigs.
provision	Sanitary and phytosanitary measures
title	**Mexico - Procedure for the approval of establishments without prior inspection**
sector	Agriculture and Fisheries
category	Sanitary and phytosanitary measures
description	Mexico applies a burdensome and costly procedure to approve establishments of meat and meat products, with on the spot inspections for each new establishment. The cost of this procedure is covered by the EU establishments visited. However, the EU grants to Mexico the approval of the list of establishments from which to import without prior inspection (the so-called prelisting system). The system is not in place for EU exporting establishments for meat and meat products . It only exists for dairy products.
provision	Sanitary and phytosanitary measures
title	**Restrictions on Foreign Direct Investment (FDI)**
sector	Horizontal
category	Foreign Direct Investment limitations
description	Mexico has traditionally imposed significant restrictions on foreign direct investment in a number of important economic sectors, which have been reserved to the State or to Mexican citizens, or where foreign participation is limited to certain ceilings. This has been a major barrier for access of EU (and other) companies to the Mexican markets, particularly in key services sectors, and also has an impact on the overall competitiveness of the Mexican economy. Furthermore, cumbersome procedures and weak rule of law impose additional costs on foreign investors in all sectors. However, since 2013 Mexico has undertaken the "Pact for Mexico" structural reforms in several key economic sectors such as the telecommunication, energy, labour, insurance and leasing sectors. These reforms aim, among other things, at opening the sectors for foreign investment. The content of their respective secondary legislation and its implementation will be key for the industry to determine the impact of the reforms.
provision	Services
title	**Geographical Indications and EU names**
sector	Agriculture and Fisheries
category	Enforcement problens on IPR
description	The registration in Mexico of foreign geographical indications (GI) as such is not possible and alternatives offer only weak and uncertain protection. This opens the way to a number of imitations and usurpations of European names and GI's, which affect the access to the market of the authentic products and raise confusion among consumers.
provision	Intellectual property rights
title	**Protection and enforcement of Intellectual Property Rights**
sector	Horizontal
category	Enforcement problems on IPR

description	The huge market for counterfeit and piracy goods in Mexico is a major obstacle for the sale of certain authentic products. Effective controls and sanctions are needed to diminish the importation and commercialisation of counterfeit goods. The European sectors most affected include pharmaceuticals, luxury goods, electronics, alcoholic beverages, personal care, auto parts and tobacco industries among others as well as entertainment and cultural products in both physical and digital format and illegal software.
provision	Intellectual property rights

Trade barriers New Zealand

title	**New Zealand - Slow approval process and setting up generic import conditions**
sector	Agriculture and Fisheries
category	Sanitary and phytosanitary measures
description	Due to the legislative procedures, the period of time for New Zealand to establishing import risk assessments (and consequently allow imports into New Zealand) is very long. New Zealand only starts and sets import health standards upon a specific request from an applicant third country. EU exporters of plants and plant products are not encouraged to export to New Zealand market due to the mentioned long approval periods. However, New Zealand exporters benefit from a more transparent and less restrictive approval procedures compared to the EU. It needs also to be taken into account that: a) the New Zealand market is small so that the cost benefit ratio is in any circumstances unfavourable; b) setting up import phytosanitary conditions for products of plant origin is technically more complex than setting import sanitary conditions for products of animal origin.
provision	Sanitary and phytosanitary measures
title	**New Zealand- Chicken meat**
sector	Agriculture and Fisheries
category	Sanitary and phytosanitary measures
description	Disproportionate import restrictions on chicken meat relating to Infectious Bursal Disease (Gumboro Disease).
provision	Sanitary and phytosanitary measures
title	**Geographical Indications**
sector	Wines & Spirits
category	Legislation on Appelations of Origin and Geographic Indications (1)
description	The NZ Government passed the Geographical Indications (Wines and Spirits) Registration Act in 2006, but has delayed its implementation so far. This prevents EU producers from registering their rights as GIs in New Zealand. With some European ethnic populations in New Zealand, who brought their traditions with them, some EU Member States have also reported the use of some EU names particularly for cheeses, wines and spirits. By using these EU names, New Zealand producers can take advantage of, or could damage, the reputation of EU's Geographical Indications.
provision	Intellectual property rights

Trade barriers Philippines

title	**Food and Agriculture: Accreditation of Member States, product registration and import licenses issues**
sector	Agriculture and Fisheries
category	Non-tariff bariers

description	The accreditation of EU MS for meat imports into the PH is still a concern especially since it is taking a long time in DA for most EU MS applicants to be accredited (as only 3 have received DA accreditation to date, namely Denmark, Ireland and Spain). The National Meat Inspection Service (NMIS) had also issued supplemental guidelines imposing additional requirements which could restrict imports intended for certain markets (i.e., wet markets) and have nothing to do with food safety.
provision	Sanitary and phytosanitary measures
title	**Government Procurement**
sector	Horizontal
category	Government procurement
description	Government procurement laws and regulations favour Philippine-controlled companies and locally produced materials and supplies.
provision	Public Procurement
title	**SPS – Restrictions on imports of meat products**
sector	Agriculture and Fisheries
category	Sanitary and phytosanitary measures
description	Trade restrictive measure on meat by issuing hygienic conditions only for certain categories of meat and not for 'warm meat' which is considered containing a higher risk
provision	Sanitary and phytosanitary measures
title	**Investment related issues: Foreign Ownership Caps**
sector	Horizontal
category	Foreign Direct Investment limitations
description	In agriculture, it is mainly the sensitive rice and corn sectors, as well as fisheries that are heavily protected (generally up to 40% foreign equity only). In public utilities (transport, water, electricity, storage, energy and telecoms) foreign participation is allowed up to 40% – except electricity generation and electricity retail supply where 100% is allowed as they are no longer considered public utilities. In construction only up to 25% foreign equity is allowed for public works contracts (except for BOT/PPP where 100% is allowed as operation of public utilities is treated separately). The few specific limitations affecting manufacturing relate to dangerous drugs (up to 40% foreign), pyrotechnics (none), firearms and weapons (up to 40% if export-oriented). The restrictions on mining (nominally at 40%) have been addressed through the authorisation of financial and technical assistance agreements (effectively allowing 100% foreign equity).
provision	Investment
title	**Cheaper Medicines Act - compulsory licenses**
sector	Pharmaceuticals
category	IPR
description	On 6 June 2008, the Philippines adopted the 'Universally Accessible Cheaper and Quality Medicines Republic Act 9502'; called the 'Cheaper Medicines Act'. The Commission's main concern regarding this act relates to a provision on compulsory licenses which provides for the license to be granted without prior negotiations with the right holder (Section 95.2 d). This seems to be an additional ground (to the three contemplated by TRIPS Art. 31) for waiving the obligation to negotiate appropriate remuneration with the patent holder, when "demand for patented drugs or medicines is not being met to an adequate extent and on reasonable terms".
provision	Intellectual property rights

title	**Maritime Transport Services.**
sector	Services – Transport
category	Discriminatory treatment
description	The Philippines' maritime transport sector is constrained under the Constitution (Section 11, Article XII) to 40% foreign equity participation.
provision	Investment, Services
title	**Services: restrictions for retail trade**
sector	Services – Distribution
category	Discriminatory treatment
description	The Retail Trade Liberalisation Act of 2000 allows for 100% foreign ownership, but only under the following restrictive conditions: paid-up capital of at least USD2.5 M, with the opening of branches/stores allowed only for investments per store above USD0.83 M. In the case of enterprises specializing in high-end or luxury products the minimum investment per store is set lower, at USD0.25 . If foreign ownership exceeds 80%, at least 30% of equity should be offered to the public within 8 years of operation (except for high end or luxury firms).
provision	Services

Trade barriers Chili

title	**Swordfish - Access to Chilean ports for EU vessels**
sector	Agriculture and Fisheries
category	Registration, documentation, customs procedures
description	Chile has applied an outright prohibition on the landing, trans-shipment and transit of swordfish caught in international waters from the fishing boats in Chilean harbours. According to Chiles fisheries laws (Supreme Decree 430 of September 1991) swordfish is considered to be a species fully exploited and shared between the exclusive economic zone and adjacent international waters and therefore landing, transhipment and transit of fresh and frozen swordfish in Chilean ports has been forbidden.
provision	Import restrictions
title	**Non-recognition of certificates of imported products**
sector	Horizontal
category	Standards and other technical requirements
description	Imports of EU electronic and fuel burning products have to go through a burdensome two-step certification procedure. Certificates or tests carried out in the origin country, although valid in Chile, must be completed with tests in Chile which increase the cost for importing goods. This requirement also applies for products certified in their country of origin by internationally recognized labouratories and which are based on international standards. In addition, the foreign certificates also have to be validated by the Chilean consulate in the country of origin.
provision	Technical barriers to trade
title	**Copyright legislation**
sector	Horizontal

category	Legislation on copyright and related rights
description	Chile's Copyright Law (Law 17.336) was modified in 2010 (Law 20.435) and, although a positive step, it still contains some weaknesses. The reform provides for liability of internet service providers (ISP), increases sanctions, and regulates the extent and scope of private copies. However, it is necessary to strengthen measures against digital piracy and ensure effective action to address illegal content on the internet. A system of notifications by ISPs to subscribers suspected of infringing copyright material came into effect in 2012 and is being used by the six major ISPs representing 95% of the fixed broadband market. The government ran a major public awareness campaign about this system. It is hoped that this system will be effective and avoid a certain number of court cases as having to resort to court orders to take-down illegal material from the internet is time consuming and costly. More enforcement on the streets is necessary. The proper implementation of the law and the notification system has to be monitored carefully.
provision	Intellectual property rights
title	**IPR enforcement - pharmaceuticals and agro-chemicals**
sector	Pharmaceuticals
category	Enforcement problens on IPR
description	The marketing authorisation procedure concerning new pharmaceuticals and agro-chemicals does not provide enough assurance that tests and other undisclosed data submitted by right holders are not used by third parties to register their "new" pharmaceutical products. The implementing regulations for data protection for agro-chemicals do not refer clearly to data exclusivity and, in any event, do not provide clearly for non-reliance.
provision	Intellectual property rights

Source: SEO Amsterdam Economics based on the EU Market Access Database

seo amsterdam economics

Roetersstraat 29 . 1018 WB Amsterdam . T (+31) 20 525 16 30 . F (+31) 20 525 16 86 . www.seo.nl