

Economic impact of a potential FTA between EU and ASEAN on the German economy[§]

K. A. Kholodilin * Tanja Fendel**

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Abstract

The objective of this paper is to investigate the possible effects of a free trade agreement (FTA) between the EU and ASEAN on the German economy. We analyze the potential welfare and income gains, changes in output and trade, which are likely to happen under different FTA scenarios. The overall conclusion is that the aggregate effect on the German economy is going to be positive, albeit relatively small. The larger absolute gains will be attained in the major German export sectors, such as cars and trucks; chemical, rubber and plastic products; machinery and equipment. These effects will by far exceed the decreases expected in the agriculture and light industry, whose role in the German economy is almost negligible.

Keywords: Free-trade agreement; Germany; ASEAN; computable general equilibrium.

JEL classification: E32; C10

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*DIW Berlin, Mohrenstraße 58, 10117 Berlin, Germany, e-mail: kholodilin@diw.de

**DIW Berlin, Mohrenstraße 58, 10117 Berlin, Germany, e-mail: Tanja.Fendel@gmx.de

1 Introduction

The founding of the Association of the Southeast Asian Nations (ASEAN) in 1967 meant creation of an important and growing market for the EU countries in Asia. Since then the EU has been trying to strengthen its economic relationships with ASEAN in order to increase its influence in the region and fearing competition from the USA, Japan, and South Korea. These attempts have been intensified in the early 2000, the final goal being the achievement of a free trade agreement (FTA) between the EU and ASEAN.

The objective of this paper is to investigate the possible effects of such an agreement on the German economy¹. We analyze the potential welfare and income gains, changes in the output and trade as well as changes of the foreign direct investment (FDI) from EU and Germany to the ASEAN, which are likely to happen under different FTA scenarios. This analysis is important because it allows a careful consideration of various policy options and provides necessary information for the European and German trade-policy decision making.

The analysis is conducted using the GTAP 6 computable general equilibrium model and data base and encompasses an aggregation of 33 industries that cover agriculture, manufacturing, and services sectors. The FTA is modelled as a reduction or complete removal of the tariff barriers, which restrict the trade in goods, and a reduction or complete removal of the non-tariff barriers, which exist in the trade in services. Since the non-tariff barriers are difficult to quantify, they are estimated using a gravity modelling approach. To be more concrete, the non-tariff barriers are computed as a difference between the trade value in a situation of free trade and the actual value of the trade. One additional difficulty is related to the evaluation of the FTA's impact upon the FDI, for current version of the GTAP data base does not contain information about the country of origin of the FDI. Therefore, the partial equilibrium solution is applied. In other words, the GTAP simulated values of the determinants of FDI are taken as input in the FDI equation, where they are multiplied with the corresponding elasticities. These elasticities stem from the literature on the determinants of FDI.

In addition to the FTA between the EU and ASEAN, the effects of several potential or signed after 2001 FTAs are considered. These include the FTAs

¹This is a first such study concerning the German economy. To the best of our knowledge, only Boumellassa et al. (2006) considered the effects of the FTA between the EU and ASEAN. However, they concentrate on the economic impacts on the EU as a whole.

between ASEAN and Australia, China, Japan, Korea, and USA, on the one hand, and an FTA between EU and Mercosur, on the other hand. Taking these FTAs into account is important, since they can strongly affect the outcomes of the EU-ASEAN free trade agreement. In particular, they can reduce the gains from that agreement by diverting ASEAN's trade towards other countries.

The paper is organized as follows. In section 2, some key facts about the EU and ASEAN economies as well as about their economic relationships are analyzed. Section 3 introduces the simulation model and data, whereas section 4 reports the simulation results. Finally, section 5 concludes.

2 EU and ASEAN: Economic relations

2.1 Economic situation in the EU and ASEAN

Table 1 compares some key figures characterizing the EU25 and ASEAN member economies. In particular, the their development levels, openness degree, and degree of intra-regional integration are considered as measured by GDP per capita, share of merchandise trade in GDP, and intra-regional trade shares, respectively.

First, the development level is examined. In order to make this measure comparable across countries, it was expressed in the purchasing power parities (PPP). GDP per capita is on average higher in the EU25 than in the ASEAN10. The average GDP per capita in the EU25 (28,288 international dollars) is about six times bigger than that of the ASEAN10 (4868 international dollars). Moreover, the development level among the ASEAN countries is much more heterogeneous than that in the EU25. As shown in Table 1, the variation coefficient of the GDP per capita in ASEAN is almost five times as large as that in the EU25. According to their development level, the ASEAN members can be divided into two groups: Myanmar, Cambodia, Laos, and to certain extent also Vietnam can be classified as so-called Less Developed Countries, whereas the remaining six ASEAN countries can be treated as Middle Income countries. In the former subgroup, the average GDP per capita is 2549 international dollars compared to 13,877 international dollars in the latter subgroup. This division is also supported by the economic structure of these countries. Whereas in the middle-income countries an average of 8% of GDP are produced in the primary sector, in Myanmar, Cambodia,

Laos, and Vietnam its share exceeds on average 39%.

Second key indicator to be considered here is the openness to trade measured as the trade in goods divided by GDP. The average openness to trade of the ASEAN countries is more than two times higher than the openness in the EU25. In the EU25, the most open economy is Belgium (180.8%), while the least open is Greece (31.3%). Among the ASEAN members, the most open economy is Singapore (385.6%, which is extremely high and is due to its specific nature as a large center of trade), whereas the least open economy is Laos (28.1%, a number comparable to that of Greece).

Third key indicator is the degree of intra-regional integration. It is measured as a share of trade of a country with the other members of the same regional union to the total trade of this country. Here, the EU25 (average intra-regional trade 65.2%) turns to be much more integrated than the ASEAN (average intra-regional trade 25.1%). In the EU25, the country with the most integrated economy is the Czech Republic (82.0%), whereas that with the lowest degree of regional integration is Greece (54.4%). In the ASEAN10, the country, whose trade to the highest degree is oriented to the regional market, is Laos (79.8%), while The Philippines are the country with the lowest degree of regional integration (18.6%).

2.2 Trade between the Germany and ASEAN

As Tables 2 and 3 show, Germany and the ASEAN play relatively unimportant role in the each other's foreign trade. In fact, Germany is the 9-th (5-th) largest exporter to (importer from) ASEAN, whereas ASEAN is the 8-th (7-th) largest exporter to (importer from) Germany. The ASEAN's share in German trade in goods is about 2%, while that of Germany is 3.1%. In contrast, EU25 is a very important market for the ASEAN accounting for 12.5% of the ASEAN's merchandise trade. The EU- and Germany-ASEAN trade is characterized by a negative trade balance. EU25 (Germany) imports by 40% (17%) more from the ASEAN than it exports to the ASEAN.

In the German goods exports to the ASEAN, the SITC group "Machinery and transport equipment" has a share of 67.5% in the trade in goods and thus occupies the first place among other SITC categories. It is followed by the groups "Chemicals and related products" (12.7%) and "Manufactured goods" (9.4%). Cambodia is the only country, for which the imports of German pharmaceutical products are a more important item than machinery.

Among the goods that Germany imports from the ASEAN, machinery

and transport equipment also play a dominant role with a share of 59.6%. The SITC group “Miscellaneous manufactured articles” occupies in German imports place two and has a share of 23.2%. Nevertheless, the structure of German imports from the ASEAN varies, depending on the exporting ASEAN member. Whereas Germany imports from Myanmar, Cambodia, Laos (and to a certain degree also Vietnam) mainly textiles and clothes, its imports from the more developed ASEAN countries, such as Malaysia, Singapore, and the Philippines, are by and large dominated by “Machinery and transport equipment”, whose share on average achieves 80% of the value of goods trade. Within this group, “Office, computing, and accounting machines, and parts and accessories” followed by the “Electronic components and accessories” make up the largest share. German trade with ASEAN members, with the exception for Brunei, in the period 1994-2004 was characterized by positive growth rates. The largest increase in trade with Germany was observed in Cambodia (+30.9%) and Vietnam (+15.4%).

In the German services trade with the ASEAN countries, the major role is played by the transport services accounting for more than 38% of the value of services trade. Among other things, this can be explained by the large distance between Europe and Southeast Asia. Other important categories of services include merchanting, construction, and overhead costs. Similar to the goods trade, the services trade between Germany and ASEAN countries in the recent years has been characterized mainly by the positive growth rates.

2.3 Existing trade barriers

Governments usually erect trade barriers in order to protect their economy against international competition, prevent anti-dumping or raise their revenues. As tariff barriers are relatively easy to quantify, they could be eliminated in bilateral and multilateral negotiations for almost all sectors. Therefore, countries often use non-tariff barriers to protect important products of their economy against international competition. The UNCTAD classifies these measures into seven groups: price, finance, and quantity control measures, automatic licensing measures, monopolistic, technical, and other measures. In order to remove them, the partner countries can include restricted items into their free trade agreements; they can adjust standards or transform the non-tariff measures into their tariff equivalents (TE) to eliminate them like custom duties. To estimate the TEs both for goods and

services trade we used a typical gravity model. For details on the estimation method see Appendix 1.

As Table 6 reporting both the actual tariff barriers and estimated non-tariff barriers shows, both country groups apply the highest trade obstacles in their primary sectors. The overall level of EU import protection is much higher than that of the ASEAN. This applies also separately for the non-tariff measures, especially because of the high EU protection in manufacturing. ASEAN uses the non-tariff barriers mainly to protect its primary sector.

For ASEAN countries, the major obstacles to exports to the EU are considered to be technical standards, for a high safety as well as environmental requirements in the EU. These are often difficult for developing countries to meet, although they are not erected to limit trade. Import protections also exist for certain sensitive agricultural products of interest to ASEAN. For EU, the major trade and investment barriers erected from ASEAN are restrictions in service sectors, as well as national policies aimed at supporting selected ASEAN industrial sectors (see Vision Group (2006)).

3 Simulation model

3.1 Model and data

For the simulations, the standard GTAP model version 6.2a was used. The standard GTAP model is based on the conventional neoclassical assumptions of utility- and profit-maximizing behavior of economic agents. The regional utility is aggregated over private (non-homothetic) demands, public demands, and investment demand. Production is characterized by a perfectly competitive, constant returns-to-scale technology. Bilateral imports are differentiated by region of origin using the Armington specification. The model incorporates five factors of production, where skilled/unskilled labor and capital are perfectly mobile, whilst land and natural resources are both sector-specific with the former moving “sluggishly” between production sectors. In all factor markets, full employment is assumed, which reflects the long-run equilibrium. Finally, investment behavior is described by a fictitious “global bank”, which collects savings from each region and allocates them across regions according to a rate of return or a fixed investment share mechanism. For more details see Hertel and Tsigas (1997).

The GTAP 6 database contains data on 87 countries/regions and 57 sec-

tors. For the purposes of our analysis we have aggregated these data into 10 regions and 33 sectors. The 10 regions are: ASEAN (Indonesia, Malaysia, Philippines, Singapore, Thailand, Viet Nam, and the rest of Southeast Asia), EU24 (EU25 excluding Germany), Germany, Australia, China (People's Republic of China and Hongkong), Japan, South Korea, USA, Mercosur (Argentina, Brazil, and Uruguay), and the rest of the world (ROW). The 33 sectors, following Boumellassa et al. (2006), are aggregated as shown in Table 7. This aggregation is designed in such a way as to reflect as well as possible the specific trade pattern between the EU (Germany) and ASEAN.

3.2 Scenarios

The GTAP data used in this study refer to 2001. However, in the meanwhile many new FTAs came into force, in which either ASEAN or the EU take part (see Tables 4 and 5). In particular, the FTA between ASEAN and China, which came into force in 2003, as well as that between ASEAN and South Korea, which entered into force in 2006, play an important role and are therefore included in the basic scenario.

Moreover, the EU and ASEAN plan several further FTAs, which can strongly influence the impact of a potential FTA between the EU and ASEAN. Therefore, the following FTAs, which are now being negotiated, are also included in the basic scenario: EU-Mercosur, ASEAN-USA, ASEAN-Japan, and ASEAN-Australia. Given the lack of the data in the GTAP database, the potential FTA between ASEAN and GCC (Gulf Cooperation Council) is not simulated.

The scenarios examined in this study are listed in Table 8. The basic scenario (scenario 0) is simulated, given no FTA between the EU and ASEAN. It thus includes only the parallel FTAs. In the alternative scenarios from 1 through 4, different degrees of liberalization are simulated: from a partial removal of the trade barriers (both tariff and non-tariff ones) in the EU-ASEAN trade to their complete removal. For example, in scenario 2 a 50% liberalization in the primary and tertiary sectors together with a 100% liberalization in the secondary sector are simulated. Contrary to the scenario 3, which implies a complete removal of all trade barriers between the EU and ASEAN, scenario 4 is based on the assumption that certain so-called sensitive products are excluded from these liberalization measures. For the ASEAN countries the list of sensitive products was created using a corresponding list, which was included in the existing FTA between the ASEAN and China. A

product is contained in the list if at least one ASEAN member excluded it from the liberalization of trade with China. The exclusion is modelled at a relatively high aggregation level. Thus, for the ASEAN countries the meat and other agricultural products are treated as sensitive ones. For the EU countries the list of sensitive products is based on the FTA between the EU and Chile, which came into force in 2005. According to this list, the goods belonging to the group “Beverages, tobacco, and milk products”, are excluded from the liberalization.

4 Simulation results

4.1 Welfare and real income effects

The welfare and income effects are measured here using the change in the real GDP and that in the equivalent variation (EV) (see Table 9). Whereas the former indicator is a more conventional measure, the EV is typically reported in the literature on the economic policy as a more appropriate measure of welfare effects. For instance, according to Kohli (2003), the real GDP tends to underestimate the real income effects, which are created through the changes in the terms of trade. As can be seen from Table 9, the changes in real GDP will be for all countries between -4 and 11.3 Billion Dollars. For ASEAN a free trade agreement would provide the largest economic gains.

As the EU is a more important trade partner for ASEAN than ASEAN is for the EU, the overall EU welfare gains would be around 38% smaller than the ASEAN gains. This can also be explained by the effect of other (existing or planned ASEAN) FTAs included in all five scenarios. The German welfare gains would be about one quarter of those of the EU. Overall output effects in the EU24 (Germany) would also be small — they are expected to increase on average by +0.09% (for Germany between +0.05 and +0.06%).

4.2 Sectoral changes of the output

The largest output increases in the ASEAN are expected in textiles, clothing and leather, where the output growth is estimated between 18% and 37%. The contracting industries can also be found within the manufacturing sector. The three sectors cars and trucks (on average -9.9%), other transport equipment (-12.5%) and metal and mineral products (-7.2%) would provide

the largest drops in output.

For the EU (including Germany) the largest output gains are expected to occur in the primary products sector (+1.6%), although this relatively large growth is due to the small absolute output of the primary sector in the EU and Germany. Our analysis also predicts large positive effects of the FTA upon the electronic equipment as well as machinery and equipment. In Germany, the largest output increases are expected in such industries as cars and trucks (on average +0.5%), metal and mineral products (+0.4%) as well as chemical, rubber, and plastic products. The largest decline in output for the EU (including Germany) could be found in the rice, meat, and leather production.

4.3 Trade effects

As can be seen in Table 11, the ASEAN exports are predicted to go up by 2.6% thanks to the EU-ASEAN free trade agreement. The EU and Germany's export gains will be much smaller, namely 0.34% and 0.27%, respectively. Since the other FTAs included in our simulations are mainly those of the ASEAN, the difference between the average of scenario 1 to 4 and scenario 0 for ASEAN is smaller (14%) than the difference for the EU24 (38%) and for Germany (44%).

The export effects by sectors reported in Table 12 are similar to the output effects examined in the previous subsection. ASEAN is expected to experience the largest increases in the primary sector, especially in sugar, rice, and meat production. Large export gains could also be achieved in the light industry. Compared to this, exports in heavy industry and in the service sector would decrease.

The simulations show that in the EU24 (excluding Germany) the largest export gains are expected for vegetable oils and fats sector (with an average increase of +3.3%) as well as for primary products (with an average increase of +2.5%), which can be explained by the small absolute size of these exports from EU24 to ROW. Smaller relative increases in manufacturing (in particular, in electronic equipment; machinery and equipment; other manufactures) correspond to large changes in absolute terms.

The simulated impact of the FTA upon Germany's exports is similar to that upon the EU24 exports. The largest growth rates are expected to take place in the cars and trucks sector (an average increase across scenarios 1-4 is +0.83%) as well as chemical, rubber, and plastic products (an average

increase by +0.72%). The German services exports are also expected to increase, above all transport services (+0.77%) due to the large distance between EU and ASEAN as well as in trade services (+0.76%).

5 Conclusion

In this study, the impact of a potential free-trade agreement between the EU and the ASEAN on the German economy was examined. It appears that the effects for the German economy will be rather small. However, in the case of no FTA between the EU and ASEAN, the EU and Germany could not take advantage of the benefits created by the trade liberalization. These advantages could be taken by the other trade partners of the ASEAN, which would imply a loss of Germany's international competitiveness.

The observed changes at the sectoral level would have a positive impact upon the German economy. The largest decline of production and exports would take place in the primary sector (in particular, sugar, rice as well as poultry, rabbits, and pork meat) and in the light industry (wearing apparel, textiles, and leather). These losses would have relatively small effect on the German economy compared to other EU members (e.g., Greece), since these sectors are rather underrepresented in Germany. Hence their decline should not be accompanied by a significant reduction of jobs. In contrast, the production and exports of the manufacturing products (in particular, cars and trucks; chemical, rubber and plastic products; machinery and equipment) as well as of the services sector are expected to undergo a relatively large increase. Given that these sectors have more importance for the German economy in terms of the labor force and value added, the corresponding gains are expected to more than offset the losses in the primary sector.

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Appendix 1

The estimation of “tariff equivalents” for trade in goods and services was conducted using a two-step procedure similar to that in Park (2002).

At the first stage, the following equation was estimated using the OLS method:

$$\begin{aligned}
 m_{ij} = & \alpha_0 + \alpha_1 EU25 + \alpha_2 ASEAN + \alpha_3 NAFTA + \alpha_4 Mercosur + \\
 & + \alpha_5 ComLang + \alpha_6 GDP_i + \alpha_7 GDP_PC_i + \alpha_8 RP_i + \alpha_9 GDP_j + \\
 & + \alpha_{10} GDP_PC_j + \alpha_{11} RP_j + \alpha_{12} Dist_{ij} + \varepsilon_{ij} \quad (1)
 \end{aligned}$$

where m_{ij} is the imports from country i to country j ; EU25, ASEAN, NAFTA, and Mercosur are the regional dummies, which equal 1, if exporter and importer belong to the same country group, and 0, otherwise. (For example, the dummy $EU25 = 1$, if $i \in EU25$ and $j \in EU25$, but $EU25 = 0$, if $\forall i, j \notin EU25$). ComLang is the common language dummy. It takes value 1, if both in country i and country j a common language is used, and 0, otherwise. GDP_k and GDP_PC_k are the real GDP and real GDP per capita in country k ($k = i, j$), respectively; RP_k is the relative price level in country k ($k = i, j$). This price level was computed, following Philippidis and Sanjuán (2007), as a ratio of the US dollar equivalent of PPP to the exchange rate of foreign currency with respect to the US dollar (both variables are measured in 2001), and $Dist_{ij}$ is the geographical distance between the capitals of country i and j . The above equation is a typical gravity model, which accounts for bilateral trade flows.

All variables, except constant and region dummies, are in logarithms. Zero-trade entries, i.e., when the bilateral trade in certain item is zero, are replaced by the minimum values across the corresponding sector. The data on bilateral imports are taken from GTAP 6, the data on GDP are from Global Insight’s database, whereas the distances were computed using the great circular distance formula based on the geographical coordinates of the capitals taken from the CIA World Factbook. All data refer to the year 2001, since the GTAP 6 data are linked to that period. The number of countries is 69 (all countries from the GTAP 6 database excluding the country groups).

36 gravity equations were estimated: 33 for the sectors considered in our simulations (these include 23 commodity and 10 service sectors) and 3 for the highly aggregated sectors (primary sector=mining and agriculture, secondary sector=manufacturing, and tertiary sector=services). The estimation results are reported in Table 13.

Most of the coefficient estimates are as expected. The GDP in levels has coefficients close to 1 (average coefficients for the GDP of exporting and importing countries are 0.591 and 0.637, respectively), the common language has a positive coefficient (average coefficient is 0.456), whereas the distance is negatively affecting the imports (average coefficient -0.575). The goodness-of-fit of the estimated gravity models, as measured by the adjusted R^2 , varies from 0.226 to 0.890 and is quite high on average reaching 0.629.

At the second stage, tariff equivalents (in percents of trade value) for goods and services imported to country j from country i were computed using the residuals of the above equation:

$$TE_j = 100 \exp\left(-\sum_{i=1}^I \frac{AFH_{ij}}{\sigma}\right) - 100 \quad (2)$$

where AFH_{ij} is a deviation from free trade ($AFH_{ij} = \hat{\varepsilon}_{ij} - \max(\hat{\varepsilon})$, where $\hat{\varepsilon}_{ij}$ is a residual of equation (1); $\hat{\varepsilon}$ is a vector of residuals of equation (1)), I is the total number of trade partners of country j , and σ is the elasticity of substitution of imports. The corresponding elasticities of substitution are taken from the GTAP 6 data base and are reported in Table 8.

Notice that the estimates of the tariff equivalents for services flowing to and from ASEAN and EU25 as well as between them, were obtained by adding up the corresponding residuals across member states. E.g., $\hat{\varepsilon}_{ASEAN,EU} = \sum_i \sum_j \hat{\varepsilon}_{i,j}$, where $i \in ASEAN$, $j \in EU$.

Appendix 2

Table 1: Comparison of the key characteristics of the EU25 and ASEAN member countries, 2006

	EU25	ASEAN10
GDP per capita (PPP, 1000 current int. dollars)		
Minimum	16.0	2.1
Average	28.3	4.9
Maximum	75.2	30.4
Variation coefficient	0.4	2.1
Openness to trade (% of GDP)		
Minimum	31.3	28.1
Average	63.6	130.9
Maximum	180.8	385.6
Intra-regional trade (% of total trade)		
Minimum	54.4	18.6
Average	65.2	25.1
Maximum	82.0	79.8

Source: ASEAN Statistics, Eurostat, IMF, and own calculations.

Table 2: Germany's major trading partners 2005

Exports				Imports			
Rank	Partner	bn. \$	% of total	Rank	Partner	bn. \$	% of total
1	EU24	620.0	63.5	1	EU24	458.3	59.0
2	USA	86.1	8.8	2	USA	51.4	6.6
3	Switzerland	37.4	3.8	3	China	49.4	6.4
4	China	26.4	2.7	4	Switzerland	29.3	3.8
5	Russia	21.4	2.2	5	Russia	26.9	3.5
6	Japan	16.6	1.7	6	Japan	26.6	3.4
7	Turkey	15.9	1.6	7	<i>ASEAN</i>	<i>20.0</i>	<i>2.6</i>
8	<i>ASEAN</i>	<i>15.7</i>	<i>1.6</i>	8	Norway	18.6	2.4
9	Korea	8.8	0.9	9	Korea	11.2	1.4
10	South Africa	8.3	0.8	10	Turkey	10.3	1.3
11	Mexico	7.3	0.8	11	Brazil	7.1	0.9
12	Norway	7.1	0.7	12	Libya	4.8	0.6
13	Canada	6.8	0.7	13	Romania	4.3	0.5
14	Brazil	6.8	0.7	14	India	4.2	0.5
15	Romania	6.6	0.7	15	South Africa	4.2	0.5
	ROW	85.8	8.8		ROW	50.4	6.5
	World total				World total		
	(wo ASEAN)	977.0	100.0		(wo ASEAN)	776.9	100.0

Source: IMF and own calculations.

Table 3: ASEAN's major trading partners (extra-ASEAN merchandise trade) 2005

Exports				Imports			
Rank	Partner	bn. \$	% of total	Rank	Partner	bn. \$	% of total
1	USA	92.9	19.2	1	Japan	81.1	18.6
2	Japan	72.8	15.0	2	China	61.1	14.0
3	China	52.3	10.8	3	USA	61.0	14.0
4	Korea	24.4	5.0	4	Korea	23.6	5.4
5	Australia	19.6	4.1	5	<i>Germany</i>	<i>14.7</i>	<i>3.4</i>
6	Netherlands	17.0	3.5	6	Australia	11.6	2.7
7	India	15.0	3.1	7	Taiwan	11.5	2.6
8	Hong Kong	13.9	2.9	8	India	8.0	1.8
9	<i>Germany</i>	<i>13.7</i>	<i>2.8</i>	9	France	7.2	1.7
10	UK	11.0	2.3	10	UK	6.8	1.6
11	Taiwan	8.3	1.7	11	Saudi Arabia	6.4	1.5
12	France	6.6	1.4	12	Hong Kong	5.6	1.3
13	Belgium	3.2	0.7	13	Italy	4.5	1.0
14	Canada	3.1	0.6	14	Netherlands	3.8	0.9
15	Italy	2.9	0.6	15	Russia	3.2	0.7
	ROW	127.6	26.3		ROW	125.7	28.8
	World total				World total		
	(wo ASEAN)	484.3	100.0		(wo ASEAN)	435.7	100.0

Source: ASEAN Statistics and own calculations.

Table 4: Bilateral FTAs of the EU

Country/ region	GDP in billion USD, 2005	EU goods trade, billion USD, 2005				FTA status	Year of entry into force
		EU exports to	EU imports from	Trade balance	Total trade		
ASEAN	897.9	48.9	66.2	-17.3	115.1	B	
CAN ^a	237.5	5.7	9.8	-4.1	15.5	B	
Central America ^b	82.2	4.6	6.4	-1.8	10.9	B	
GCC ^c	618.2	62.5	46.2	16.3	108.7	B	
India	809.7	26.5	24.3	2.2	50.8	C	
Korea	791.3	25.4	43.7	-18.2	69.1	B	
Mercosur ^d	1088.2	25.8	41.3	-15.5	67.1	B	
Egypt	93	10.6	6.6	4	17.1	A	2004
Chile	119	4.9	10.7	-5.9	15.6	A	2003
Libanon	22.1	3.9	0.3	3.7	4.2	A	2003
Croatia	38.8	13.4	5.1	8.2	18.5	A	2002
Jordan	12.9	2.9	0.3	2.6	3.3	A	2002
FYROM ^e	5.8	2	1.3	0.7	3.2	A	2001
South Africa	241.7	22.9	22.9	0	45.8	A	2000
AKP Group ^f	477.9	62.1	67.8	-5.7	129.9	A	2000
Morocco	51.6	14.6	11.4	3.2	26.1	A	2000
Israel	131.2	17	12.6	4.3	29.6	A	2000
Mexico	767.9	20.9	10.7	10.2	31.6	A	2000
Tunisia	28.7	9.9	8.6	1.4	18.5	A	1998
Palestine	na	na	na	na	na	A	1997
Faroe Islands	na	0.5	0.5	0	0.9	A	1997
Syria	27.9	3.5	3.7	-0.1	7.2	A	1977
Algeria	103.1	13.1	26	-12.9	39	A	1976
EFTA	689.6	149.6	173.5	-23.9	323.1	A	1973
OCTs ^g	na	na	na	na	na	A	1971
<i>Subtotal</i>	<i>6438.3</i>	<i>166.7</i>	<i>203.6</i>	<i>-36.9</i>	<i>370.3</i>		
EU25 total	13583.6	1333.5	1472.7	-139.2	2806.2		

^aComunidad Andina de Naciones: Bolivia, Columbia, Ecuador, and Peru.

^bCentral America: Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, and Panama.

^cGulf Cooperation Council.

^dArgentina, Brazil, Paraguay, and Uruguay.

^eThe Former Yugoslav Republic of Macedonia.

^fgroup of the African, Caribbean, and Pacific states, 79 countries, here excluding the South Africa in order to avoid double count.

^gOverseas Countries and Territories.

Sources: Francois (2007); Global Insight; Eurostat; IMF.

Note: A = agreed; B = under negotiation; C = under consideration.

Table 5: Bilateral FTAs of the ASEAN

Country/ region	GDP in billion USD, 2005	ASEAN goods trade, billion USD, 2005			Total trade	FTA status	Year of entry into force
		EU exports to	EU imports from	Trade balance			
China	2244,1	52,3	61,1	-8,9	113,4	A	2010 ^a & 2015 ^b
India	809,7	15,0	8,0	7,1	23,0	B	2011 & 2016
Japan	4553,4	72,8	81,1	-8,3	153,8	B	
Korea	791,3	24,4	23,6	0,8	48,0	A	2006 ^c
EU25	13583,6	66,2	48,9	17,3	115,1	B ^d	
USA	12433,9	92,9	61,0	32,0	153,9	B	
Australia	710,9	19,6	11,6	8,1	31,2	B	
New Zealand	108,8	2,6	1,5	1,2	4,1	B	
<i>Subtotal</i>	<i>35235,7</i>	<i>360,6</i>	<i>307,4</i>	<i>53,2</i>	<i>668,0</i>		
ASEAN total	897,9	648,1	576,7	71,4	1224,9		

^awith six ASEAN members

^bwith other four ASEAN members

^cwith exception of Thailand

^dwith individual ASEAN members, possibly with exception of Burma

Sources: Global Insight; ASEAN Trade Statistics.

Note: A = agreed; B = under negotiation; C = under consideration.

Table 6: Bilateral trade barriers between EU25 and ASEAN classified by sectors

Sector	EU25 trade barriers for ASEAN imports			ASEAN trade barriers for EU25 imports		
	tariff barriers	non-tariff barriers	tariff + non-tariff barriers	tariff barriers	non-tariff barriers	tariff + non-tariff barriers
	Primary sector					
Non-agricultural primary products	0.0	32.1	32.1	1.5	155.1	156.6
Fishing	3.0	23.5	26.5	1.4	29.1	30.5
Rice	96.2	64.6	160.8	5.8	76.9	82.7
Sugar	53.9	85.4	139.3	35.3	50.2	85.5
Poultry	23.9	31.9	55.8	7.8	35.7	43.5
Animals and other meat	0.6	27.2	27.8	1.1	36.6	37.7
Other agricultural products	2.7	31.4	34.1	11.9	12.5	24.4
Vegetable oils and fats	5.0	48.8	53.8	4.8	75.1	79.9
Beverages, tobacco, and diary	17.0	44.2	61.2	12.9	7.4	20.3
Food products	12.0	40.3	52.3	11.3	13.0	24.3
	Secondary sector					
Apparel	9.6	10.7	20.3	11.5	25.2	36.7
Textile	7.7	30.9	38.6	11.1	15.7	26.8
Leather	8.6	34.8	43.4	5.9	42.1	48.0
Wood products	1.1	21.5	22.6	6.8	28.9	35.7
Cars and trucks	5.5	42.6	48.1	28.5	27.9	56.4
Other transport equipment	2.5	9.3	11.8	1.3	3.7	5.0
Metal and mineral products	2.2	24.5	26.7	5.8	0.0	5.8
Paper and publishing	0.1	24.6	24.7	5.3	12.8	18.1
Chemical, rubber, and plastic products	2.3	26.0	28.3	4.7	4.3	9.0
Electronic equipment	0.9	20.7	21.6	1.4	0.0	1.4
Machinery and equipment	0.9	18.0	18.9	3.0	0.0	3.0
Other manufactures	1.2	12.2	13.4	5.1	13.8	18.9
	Tertiary sector					
Dwellings	—	—	—	—	—	—
Transport	—	24.5	24.5	—	13.3	13.3
Air transport	—	4.2	4.2	—	3.9	3.9
Recreation and other services	—	11.8	11.8	—	14.2	14.2
Financial services	—	21.9	21.9	—	20.9	20.9
Business services	—	23.4	23.4	—	0.0	0.0
Energy and water supply	—	26.7	26.7	—	54.2	54.2
Public interest services	—	9.2	9.2	—	15.7	15.7
Communication	—	15.9	15.9	—	21.5	21.5
Construction	—	33.2	33.2	—	32.8	32.8
Trade	—	38.2	38.2	—	22.0	22.0

Sources: GTAP 6 Data Base; own estimations.

Table 7: Mapping between our model's aggregation and that of GTAP 6

Our aggregation	GTAP aggregation
Non-agricultural primary products	
Primary products	Coal Oil Gas Minerals nec
Agriculture and food	
Fishing	Fishing
Rice	Paddy rice Processed rice
Sugar	Sugar cane, sugar beet Sugar
Poultry	Bovine cattle, sheep and goat meat products Meat products
Animals and other meat	Bovine cattle, sheep and goats, horses Raw milk
Other agricultural products	Wool, silk-worm cocoons Wheat Cereal grains nec Vegetables, fruit, nuts Oil seeds Plant-based fibers Crops nec
Vegetable oils and fats	Animal products nec Vegetable oils and fats
Beverages, tobacco, and dairy	Dairy products Beverages and tobacco products
Food products	Food products nec
Industry	
Apparel	Wearing apparel
Textiles	Textiles
Leather	Leather products
Wood products	Forestry Wood products
Cars and trucks	Motor vehicles and parts
Other transport equipment	Transport equipment nec
Metal and mineral products	Mineral products nec

Table 7: Mapping between our model's aggregation and that of GTAP 6 (continued)

Our aggregation	GTAP aggregation
	Ferrous metals
	Metals nec
	Metal products
Paper and publishing	Paper products, publishing
Chemical, rubber, and plastic products	Petroleum, coal products
	Chemical, rubber, plastic products
Electronic equipment	Electronic equipment
Machinery and equipment	Machinery and equipment nec
Other manufactures	Manufactures nec
Services	
Dwellings	Ownership of dwellings
Transport	Transport nec
	Water transport
Air transport	Air transport
Recreation and other services	Recreational and other services
Financial services	Financial services nec
	Insurance
Business services	Business services nec
Energy and water supply	Electricity
	Gas manufacture, distribution
	Water
Public interest services	Public admin. and defence, education, health
Communication	Communication
Construction	Construction
Trade	Trade

**Table 8: Alternative simulation scenarios: Removing trade barriers
(in %)**

	Scenario 0 no EU- ASEAN FTA	Scenario 1	Scenario 2	Scenario 3	Scenario 4 excluding sensitive products
	FTA between the EU and ASEAN				
Primary sector	0	50	50	100	100
Secondary sector	0	100	100	100	100
Tertiary sector	0	25	50	100	100
	Other FTAs				
Primary sector	100	100	100	100	100
Secondary sector	100	100	100	100	100
Tertiary sector	100	100	100	100	100

Table 9: Overall welfare and real income effects

	Scenario 0		Scenario 1		Scenario 2		Scenario 3		Scenario 4	
	EV in million US dollar	real GDP in %	EV in million US dollar	real GDP in %	EV in million US dollar	real GDP in %	EV in million US dollar	real GDP in %	EV in million US dollar	real GDP in %
ASEAN	8060.3	0.52	10825.8	0.72	10920.3	0.73	11337.6	0.75	11310.6	0.75
EU24	3248.5	0.07	4041.5	0.09	4101.6	0.09	4323.4	0.09	4326.1	0.09
Germany	476.6	0.03	993.5	0.05	1010.7	0.05	1126.5	0.06	1128.4	0.06
ROW	-3330.5	-0.02	-3980.3	-0.03	-3991.1	-0.03	-4036.9	-0.03	-4033.2	-0.03
Australia	2.5	0.02	-39.0	0.02	-39.7	0.02	-45.8	0.02	-40.6	0.02
China	-513.8	0.01	-829.8	0.01	-832.2	0.01	-856.7	0.01	-856.9	0.01
Japan	4994.4	0.11	4439.8	0.11	4435.6	0.11	4362.2	0.11	4357.9	0.11
Korea	530.2	0.09	418.0	0.09	417.0	0.09	407.1	0.09	407.0	0.09
USA	-1855.5	0.00	-2214.2	0.00	-2229.2	0.00	-2281.2	0.00	-2281.4	0.00
Mercosur	2843.5	0.16	2791.5	0.16	2791.1	0.16	2765.3	0.16	2767.1	0.16

Table 10: Changes of sectoral output, in %

	Scenario 0			Scenario 1			Scenario 2			Scenario 3			Scenario 4		
	ASEAN	EU24	DE	ASEAN	EU24	DE	ASEAN	EU24	DE	ASEAN	EU24	DE	ASEAN	EU24	DE
Fish	0.45	0.13	0.11	0.58	0.13	0.06	0.59	0.13	0.06	0.78	0.13	0.07	0.76	0.14	0.07
PrimProd	-3.53	1.34	1.48	-4.96	1.42	1.63	-4.97	1.42	1.62	-5.60	1.52	1.75	-5.62	1.56	1.79
Rice	1.40	-0.16	0.11	2.43	-11.50	-22.93	2.43	-11.49	-22.91	4.21	-29.05	-58.70	4.20	-29.04	-58.68
Sugar	11.41	-1.52	-0.84	11.01	-1.45	-0.79	11.00	-1.45	-0.79	11.09	-1.35	-0.68	11.03	-1.35	-0.67
Poultry	1.74	-6.88	-6.50	4.16	-7.19	-7.05	4.15	-7.19	-7.05	8.07	-7.54	-7.77	8.26	-7.59	-7.82
Animal	-0.44	-2.14	-1.37	0.23	-2.20	-1.48	0.24	-2.20	-1.48	1.11	-2.25	-1.59	1.12	-2.26	-1.59
OAP	-0.06	-1.40	-1.54	-0.03	-1.47	-1.70	-0.03	-1.47	-1.69	0.16	-1.52	-1.82	0.22	-1.58	-1.88
VegOil	-2.08	0.68	-0.06	-2.63	0.47	-0.13	-2.66	0.47	-0.12	-1.53	0.11	-0.21	-1.54	0.11	-0.21
Beverage	-2.32	-0.01	-0.05	-2.81	0.09	-0.04	-2.80	0.09	-0.04	-3.28	0.20	0.00	-3.69	0.23	0.02
FoodProd	0.25	-0.69	-0.70	0.21	-0.74	-0.82	0.19	-0.74	-0.82	0.87	-0.79	-0.91	0.82	-0.79	-0.92
Apparel	27.38	-0.08	-0.17	35.63	-1.45	-1.58	35.58	-1.45	-1.57	35.21	-1.41	-1.55	35.20	-1.41	-1.55
Textile	13.04	-0.08	-0.42	18.22	-0.60	-1.36	18.16	-0.60	-1.36	17.70	-0.56	-1.33	17.64	-0.55	-1.32
Leather	20.75	-0.04	-0.34	37.59	-2.79	-3.31	37.52	-2.79	-3.30	37.10	-2.72	-3.26	37.03	-2.70	-3.25
WoodProd	-2.62	0.38	0.13	-4.71	0.45	0.15	-4.76	0.45	0.15	-5.14	0.47	0.17	-5.12	0.48	0.18
Car	-8.83	0.17	0.09	-9.88	0.39	0.46	-9.88	0.39	0.46	-9.96	0.40	0.47	-9.95	0.40	0.47
OTE	-13.26	-0.41	-0.87	-12.26	-0.60	-1.13	-12.30	-0.60	-1.13	-12.64	-0.58	-1.12	-12.62	-0.57	-1.12
Metal	-5.47	0.12	0.11	-7.07	0.28	0.21	-7.10	0.28	0.21	-7.36	0.29	0.22	-7.34	0.30	0.22
Paper	-2.86	0.10	0.06	-4.69	0.18	0.07	-4.71	0.18	0.07	-4.92	0.18	0.07	-4.92	0.18	0.07
Chemical	2.66	0.20	0.22	1.95	0.27	0.31	1.93	0.27	0.31	1.67	0.28	0.33	1.67	0.28	0.33
Electronic	-1.20	0.71	0.29	-2.28	0.78	0.17	-2.32	0.79	0.17	-2.66	0.84	0.21	-2.63	0.84	0.21
Machine	1.69	0.49	0.37	0.09	0.68	0.36	0.05	0.68	0.36	-0.31	0.70	0.37	-0.28	0.70	0.37
OM	-3.55	0.21	0.04	-4.29	0.29	0.00	-4.32	0.29	0.00	-4.60	0.31	0.00	-4.59	0.31	0.00
Dwelling	0.77	0.04	0.03	1.09	0.04	0.05	1.10	0.04	0.06	1.17	0.04	0.06	1.16	0.04	0.06
Transport	-1.25	0.17	0.11	-1.61	0.19	0.10	-1.59	0.19	0.10	-1.61	0.20	0.10	-1.61	0.20	0.10
AirTrans	-2.01	0.14	0.04	-2.46	0.14	-0.06	-2.39	0.15	-0.07	-2.36	0.16	-0.07	-2.35	0.16	-0.07
Recreat	-0.39	0.06	0.00	-0.36	0.06	0.00	-0.34	0.06	0.00	-0.37	0.07	0.00	-0.38	0.07	0.00
FinServ	-1.09	0.04	0.02	-1.40	0.03	0.01	-1.41	0.03	0.01	-1.47	0.03	0.01	-1.46	0.03	0.01
BusServ	-3.90	0.11	0.06	-4.62	0.11	0.05	-4.54	0.11	0.05	-4.51	0.11	0.05	-4.50	0.11	0.05
Energy	-0.09	0.00	0.03	-0.22	0.01	0.03	-0.22	0.01	0.03	-0.26	0.00	0.03	-0.27	0.00	0.03
PI5	-0.26	0.04	0.01	-0.24	0.03	0.02	-0.23	0.03	0.02	-0.20	0.03	0.02	-0.20	0.04	0.02
Communic	-2.06	0.07	0.03	-2.56	0.07	0.01	-2.55	0.07	0.01	-2.60	0.07	0.02	-2.59	0.07	0.02
Construct	4.95	-0.10	-0.11	6.26	-0.07	-0.07	6.29	-0.07	-0.07	6.35	-0.06	-0.06	6.33	-0.06	-0.06
Trade	-0.45	0.03	0.02	-0.51	0.03	0.03	-0.50	0.03	0.03	-0.50	0.03	0.03	-0.50	0.03	0.03

Table 11: Changes of real merchandize exports, in %

	Scenario 0	Scenario 1	Scenario 2	Scenario 3	Scenario 4
ASEAN	2.28	2.66	2.66	2.64	2.63
EU24	0.21	0.33	0.33	0.35	0.35
Germany	0.15	0.26	0.26	0.28	0.28
ROW	-0.08	-0.10	-0.10	-0.10	-0.10
Australia	0.75	0.71	0.71	0.70	0.70
China	1.40	1.35	1.35	1.34	1.34
Japan	0.81	0.81	0.81	0.80	0.80
Korea	0.50	0.51	0.51	0.51	0.51
USA	0.51	0.50	0.50	0.49	0.49
Mercosur	1.77	1.78	1.78	1.79	1.79

Table 12: Changes of the real exports to the rest of the world by sectors, in %

	Scenario 0		Scenario 1		Scenario 2		Scenario 3		Scenario 4			
	ASEAN	EU24	ASEAN	EU24	ASEAN	EU24	ASEAN	EU24	ASEAN	EU24		
Fish	-1.05	0.32	0.64	0.28	0.64	0.28	0.64	0.26	-1.88	0.26	0.62	0.65
PrimProd	-5.78	2.31	4.12	2.42	5.39	2.42	5.39	2.60	-8.73	2.60	5.75	5.86
Rice	16.99	-0.11	-1.16	-22.68	-26.44	-22.67	-26.43	-54.89	41.60	-54.89	-62.32	-62.30
Sugar	112.08	-5.43	-9.16	-4.42	-6.29	-4.42	-6.29	-3.08	113.41	-3.08	-1.61	-1.61
Poultry	15.38	-21.83	-25.27	-22.79	-25.91	-22.79	-25.91	-24.14	59.21	-24.14	-26.38	-26.67
Animal	-6.60	-1.23	-1.11	-1.42	-1.18	-1.42	-1.18	-1.44	-9.92	-1.44	-0.88	-0.86
OAP	3.55	0.13	0.22	0.17	0.22	0.17	0.22	0.32	0.88	0.32	0.47	0.19
VegOil	-3.97	3.84	1.50	3.51	0.70	3.52	0.71	2.65	-3.01	2.65	-0.35	-0.35
Beverage	0.57	-0.03	-0.38	-0.99	-0.34	-0.35	-0.34	0.81	-1.28	0.81	-0.12	-0.01
FoodProd	3.56	-1.18	-2.06	-1.13	-2.30	-1.13	-2.29	-1.05	6.31	-1.05	-2.41	-2.41
Apparel	45.60	-0.38	-0.53	-2.14	-2.82	-2.14	-2.81	-2.08	59.92	-2.08	-2.76	-2.76
Textile	22.96	-0.20	-0.66	-0.33	-1.38	-0.33	-1.38	-0.27	31.18	-0.27	-1.33	-1.32
Leather	29.11	-0.37	-0.94	-3.24	-4.56	-3.24	-4.55	-3.14	52.44	-3.14	-4.49	-4.47
WoodProd	-2.94	0.74	0.61	0.94	0.77	0.94	0.77	0.99	-5.99	0.99	0.84	0.84
Car	-0.11	0.32	0.18	0.26	0.74	0.26	0.74	0.83	7.82	0.75	0.83	0.83
OTE	-9.19	-0.57	-1.06	-0.79	-1.31	-0.79	-1.31	-0.76	-6.88	-0.76	-1.31	-1.30
Metal	-5.00	0.29	0.37	-6.94	0.71	0.64	0.64	0.73	-7.43	0.73	0.66	0.66
Paper	-2.50	0.43	0.26	0.75	0.40	0.75	0.40	0.76	-5.94	0.76	0.40	0.40
Chemical	10.61	0.42	0.46	0.65	0.71	0.64	0.71	0.67	9.53	0.67	0.74	0.74
Electronic	-1.06	1.04	0.54	-2.14	1.28	0.45	0.45	1.35	-2.53	1.35	0.50	0.50
Machine	4.50	0.84	0.58	3.14	1.17	0.60	0.60	1.19	2.69	1.19	0.61	0.61
OM	-4.90	0.61	0.44	-5.52	0.98	0.52	0.52	1.02	-6.10	1.02	0.55	0.55
Dwelling	0.73	0.04	0.03	1.04	0.05	0.04	0.05	0.04	1.11	0.04	0.06	0.06
Transport	-3.18	0.61	0.72	-3.81	0.67	0.76	0.77	0.72	-3.59	0.72	0.81	0.81
AirTrans	-3.29	0.19	0.10	-3.89	0.22	-0.01	-0.01	0.25	-3.53	0.25	0.01	0.01
Recreat	-7.41	0.27	0.11	-8.57	0.29	0.02	0.03	0.35	-8.35	0.35	0.08	0.08
FinServ	-9.95	0.35	0.21	-11.91	0.41	0.14	0.16	0.47	-11.60	0.47	0.19	0.19
BusServ	-7.24	0.40	0.28	-8.01	0.44	0.19	0.20	0.48	-7.36	0.48	0.23	0.22
Energy	-10.35	0.39	0.46	-12.09	0.36	0.26	0.26	0.39	-11.61	0.39	0.28	0.28
PIIS	-8.16	0.09	-0.10	-10.01	0.06	-0.26	-0.25	0.12	-9.85	0.12	-0.21	-0.21
Communic	-10.56	0.29	0.16	-12.40	0.29	0.07	0.08	0.33	-11.89	0.33	0.11	0.11
Construct	-4.96	0.50	0.47	-5.16	0.65	0.55	0.58	0.73	-4.45	0.73	0.65	0.65
Trade	-9.08	0.74	0.65	-10.51	0.83	0.73	0.76	0.88	-9.94	0.88	0.84	0.83

Table 13: Results of the gravity models estimation

Sector	Constant	EU	ASEAN	NAFTA	Mercosur	ComLang	GDP ₁	GDP _{PC1}	RP ₁	GDP ₂	GDP _{PC2}	RP ₂	Dist	R ² _{adj}
Primary	3.938***	0.119	2.083***	0.626	1.475**	0.917**	0.845***	0.01	0.002	0.875***	-0.312***	-0.012	-0.86***	0.676
Secondary	2.559***	0.011	2.253***	-0.519	0.518	0.698***	0.92***	0.045***	0	1.091***	0.111***	-0.039***	-1.118***	0.837
Tertiary	-5.905***	-0.015	1.141***	-0.693**	-1.293**	0.054	0.792***	0.154***	0.015**	0.691***	0.387***	-0.073**	-0.278***	0.890
PrimProd	2.982***	0.05	1.78***	3.36***	1.604**	0.852***	0.578***	-0.106***	0.027*	0.65	-0.363***	0	-0.61***	0.439
Fish	-0.655***	0.287***	0.919***	2.315***	0.559	0.318***	0.25***	0.009	0.048*	2	0.088***	0.012	-0.28***	0.311
Rice	-0.614**	0.303***	1.607***	1.112***	2.388***	0.26***	0.128***	-0.011	0.009	0.266***	-0.237***	0.036**	-0.116***	0.226
Sugar	0.164**	0.164**	0.874**	3.528***	0.93	0.582**	0.238***	-0.082***	0.037***	0.248**	-0.117**	-0.041**	-0.302**	0.297
Poultry	-0.36	0.405***	0.793**	2.633**	2.318**	0.588**	0.455***	-0.006	0.054**	0.453***	0.005	0.079**	-0.527**	0.487
Animal	-1.196***	0.142	-0.531**	4.245***	1.496***	0.401**	0.241***	-0.039***	0.01	0.155***	-0.01	-0.021**	-0.239***	0.274
OAP	3.28***	0.269***	1.401***	2.08***	1.406**	0.8	0.685***	0.018	-0.024*	0.755***	-0.445***	-0.062**	-0.691***	0.573
VegOil	0.69**	0.309***	1.971***	2.416***	1.219**	0.496***	0.271***	-0.096***	-0.01	0.349***	-0.134***	0.002	-0.369***	0.309
Beverage	-0.737***	0.505**	2.25***	1.856***	1.843**	0.871***	0.519***	-0.008	0.048**	0.49***	0.181***	0.036**	-0.669***	0.605
FoodProd	1.753**	0.149	2.079**	0.784	1.823**	0.855	0.635***	-0.047**	0.06*	0.765**	-0.157***	0.021	-0.798**	0.648
Apparel	3.026***	0.165*	1.238**	1.238**	0.421	0.433**	0.618***	0.142***	0.058***	0.707***	-0.328***	-0.04***	-0.871**	0.645
Textile	4.255***	0.291***	1.234**	0.681	0.722	0.624**	0.692***	-0.05***	-0.009	0.889***	-0.229***	-0.093**	-1.009***	0.706
Leather	2.822***	0.376***	0.807***	0.653	2.349**	0.42***	0.576**	0.002	0.048**	0.721***	-0.38***	0.026*	-0.687***	0.585
WoodProd	3.274***	0.61***	0.995***	1.938***	0.904	0.53***	0.651***	0.018	0.06**	0.638***	-0.148***	0.05**	-0.94***	0.661
Car	0.893**	0.801**	1.167***	3.428***	2.586**	0.465***	0.594***	-0.066**	0.041**	0.912***	-0.037**	-0.033**	-0.865***	0.688
OTE	0.602	0.193*	1.281**	2.215**	-0.177	0.621**	0.498***	-0.012	0.002	0.77**	-0.059**	0.045**	-0.734**	0.578
Metal	3.738***	0.156*	1.519***	-0.061	0.411	0.745**	0.86***	-0.063***	0.001	0.96***	-0.041**	-0.045**	-1.15***	0.772
Paper	2.341***	0.338**	1.459***	1.341**	1.722**	0.873***	0.637***	-0.122***	0.028**	0.712***	0.106***	0.063**	-0.957***	0.705
Chemical	2.755**	0.05	2.089***	-0.355	1.207**	0.698***	0.82***	-0.104***	-0.009	0.907***	0.108***	0.001	-1.092***	0.805
Electronic	-1.851***	0.433***	3.806***	1.592**	-0.552	0.809***	0.645***	0.081***	0.011	0.904***	0.169***	0.041**	-0.759***	0.652
Machine	1.412***	-0.005	2.208**	0.621	0.377	0.67***	0.744***	-0.049**	0.03	0.998***	0.25***	-0.01	-1.103***	0.791
OM	-0.017	0.023	1.164**	0.647	-0.555	0.757**	0.648***	0.031*	0.053**	0.787***	-0.068**	0.024**	-0.703**	0.700
Transport	-6.971***	-0.157***	0.662**	-0.385	-1.164***	0.025	0.735***	0.173***	0.007	0.572***	-0.283**	-0.114**	-0.175**	0.848
AirTrans	-8.805***	-0.345***	1.006***	0.396	-1.368**	0.221**	0.687***	0.154***	0.023**	0.584***	0.335***	-0.037**	-0.042**	0.809
Recreat	-7.249***	0.256**	0.907**	0.566	-1.467**	0.12	0.633***	0.129**	0.004	0.574***	0.273**	-0.042**	-0.166***	0.778
FinServ	-7.501***	0.035	0.896***	1.331***	-1.591**	0.279**	0.62***	0.115***	-0.012	0.582***	0.307***	0.024**	-0.139***	0.744
BusServ	-6.594***	0.255***	1.667***	-1.59***	-2.704**	-0.017	0.724***	0.12**	0.079**	0.659***	0.385***	-0.043**	-0.293**	0.767
Energy	1.103	0.252**	-1.205**	2.335**	0.09	0.08	0.337***	-0.013	0.033**	0.285***	0.061**	0.042**	-0.634**	0.441
PIS	-5.353**	-0.113*	-0.116	0.485	-1.512**	0.158**	0.655**	0.061**	0.01	0.573**	0.164**	-0.019**	-0.212**	0.758
Communic	-6.308***	0.095	-0.148	0.713*	-1.463**	0.045	0.576***	0.186***	0.044**	0.459***	0.211**	0.101**	-0.197**	0.756
Construct	-1.876***	0.582***	0.138	-0.708	-2.18**	-0.415***	0.429***	-0.022	0.053**	0.426***	0.061***	-0.034**	-0.381***	0.498
Trade	-7.077***	0.176**	1.264***	-0.756	-2.366**	0.132**	0.737***	0.061**	0.009	0.603***	0.315***	-0.066**	-0.168***	0.763

Note: ***, **, *, and * denote 1%, 5%, and 10% significance levels, respectively.