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Simulations of Manufacturing Export Developments

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Simulations of Export Developments

1 Introduction

At the Cambridge AUGUR Meeting in October 2011 the Consortium asked WP 3 to have a look at the CAM model outcomes related to trade and to check the results for realism and plausibility. This contribution is a first attempt to answer this request. More precisely, this short paper on the one hand provides alternative 'estimates' for the regions' shares in the global' export cake' and compares the results with the export projections of the CAM model (for a summary of the results see Cripps, F. and Khurasee, 2011). At this this stage the comparison is mainly with the Consolidation scenario.

In this short note we fall back on the work done on the historical patterns of merchandise trade within WP 3 of the AUGUR project (see Stöllinger, 2011). In particular we use again the OECD industry classification by technology content (low, medium-low, medium-high and high tech; see Hatzichronoglou 1997) and present a simple projection procedure that aims at projecting the developments of export market shares. This projection exercise is done at the level of regions (bilateral exports) and industry groups. The focus is on the development of the regions' (and in particular the European regions') market shares in global manufacturing exports. Our work is in line with the CAM models' import growth projections for 2030 but may differ substantially from its projections for the shares in global manufacturing exports.

The results of this contribution should be seen as an input for discussion on the current CAM model results for the export developments, not on the global level but at the level of the individual regions.

2 Some results of the CAM Model concerning trade developments

The simulation exercise performed here relies on the import projections from the CAM model for each of the region. We focus on the first scenario (consolidation) and repeat briefly the main results for import developments and export market shares.

In the consolidation scenario the CAM model projects that global manufacturing imports will more than double from 8.4 trillion US-Dollars in 2010 to 19.1 trillion US-Dollar in 2030. This corresponds to an annualised growth rate of 4.17%. This means that global import growth will decelerate by about 12% compared to the preceding 20-year period (i.e. from 1990-2010).

Table 1: Annualised growth rate projections for manufacturing imports from the CAM model (Consolidation scenario) by region, in %

	EUN	EUC	EUW	EUS	EUE	US	JA	OD	EAH	CI	WA	AMS	ACX	CN	EAO	IN	ASO	AFN	AFS	WORLD
1990 - 2010	2.41	2.93	2.21	2.75	8.25	3.90	2.35	4.06	5.32	3.90	8.10	9.47	6.91	14.64	6.40	10.09	6.56	4.69	4.94	4.72
2010 - 2030	3.74	2.36	2.76	1.70	2.81	3.55	2.97	3.56	4.23	4.31	4.21	4.41	4.49	7.54	5.28	6.33	4.88	3.70	6.60	4.17

Source: CAM Model v 4.4, Consolidation scenario; wiiw-calculations

Table 1 shows that In 10 out of the 19 regions annualised import growth will slow down in 14 out of the 19 regions with a particularly strong deceleration in East Europe, West Asia, China and India. However, China is forecast to remain the region with the strongest import growth (+7.5%), while India is in third position (+6.3%), slightly behind Sub-Saharan Africa (+6.6%).

Expressed in log growth rates the global manufacturing imports increased by 76% over the period 2005/2009 to 2030 (Table 2)¹. Table 2 also shows that import growth is expected to vary substantially over regions ranging from 170% in China to a mere 3% growth in East Europe.

Table 2: Growth projections (log-growth rates) for manufacturing imports from the CAM model (Consolidation scenario), by region

	EUN	EUC	EUW	EUS	EUE	US	JA	OD	EAH	CI	WA	AMS	ACX	CN	EAO	IN	ASO	AFN	AFS	WORLD
2005/2009 - 2030	0.61	0.35	0.32	0.03	0.44	0.53	0.26	0.69	0.76	0.84	0.96	1.02	0.82	1.70	1.12	1.37	1.06	0.88	1.36	0.76

Source: CAM Model v 4.4, Consolidation scenario; wiiw-calculations. 2005/2009 are average values for the period 2005 to 2009.

Given this import growth, one of the major questions is which regions will benefit from this trade expansion and will be able to increase or defend their shares in global (and bilateral) exports. Table 3 restates the global export market shares for each of the CAM regions and also for the “larger regions”.

Some of the most striking feature in these projections in our view are:

- The **huge loss of market share of Central Europe** which ranges from -9.1% in the Consolidation scenario to -7.4% in the Multipolar scenario. This drastic development of Central Europe’s export market shares (and to a lesser extent those of the other European regions) is not discernible in the historical trend.
- In contrast to the European development, the **US is projected to suffer only a very moderate drop in export market share** (Consolidation scenario) or even an increase. Given the historical trend and the fact that the US export structure has a much larger overlap with Chinese export structure (see e.g. Chandrasekhar and Ghosh, 2011) this result is surprising.

¹ We take the average imports of the period 2005-2009 as the initial period here because this 5-year average also serves as the basis for our projection exercise in order to avoid full impact of the 2008/2009 crisis.

- The **Chinese export market share will further increase to an astonishing 30%** in the Consolidation scenario. This means that China will more than double its market share until 2030. This merits closer investigation as China despite its rapid economic development will still be a middle income country but would account for almost a third of global exports.
- **Outside Asia there will not be a large catch-up of developing and emerging regions.** In particular Africa will stagnate in terms of market shares. This is considered to be very plausible.

With the projected shares in global exports as a background we present a simple simulation exercise that leads to quite different results.

Table 3: Projected market shares in global manufacturing exports from the CAM model, by region

	2005-2009	(S1) Consolidation change		(S2) Bipolar change		(S3) Regionalism change		(S4) Multipolar change	
		2030	in p.p	2030	in p.p	2030	in p.p	2030	in p.p
EUN	3.1	1.5	-1.6	1.6	-1.6	1.7	-1.4	1.8	-1.3
EUC	24.5	15.3	-9.1	16.1	-8.4	16.1	-8.3	17.0	-7.4
EJW	3.6	2.5	-1.1	2.6	-1.0	2.6	-1.0	2.8	-0.9
EUS	7.6	4.3	-3.3	4.5	-3.1	4.7	-2.9	5.0	-2.6
EUE	4.2	3.6	-0.6	3.8	-0.4	4.0	-0.2	4.3	0.1
US	9.9	8.2	-1.7	9.5	-0.5	11.4	1.5	11.3	1.3
JA	6.0	4.1	-1.9	4.3	-1.7	3.9	-2.1	3.4	-2.6
OD	3.6	2.0	-1.7	2.1	-1.5	2.9	-0.7	2.8	-0.8
EAH	11.3	10.1	-1.2	10.6	-0.6	9.2	-2.1	9.4	-1.9
CI	1.4	0.4	-1.0	0.5	-1.0	0.8	-0.6	0.9	-0.5
WA	2.3	3.6	1.3	3.8	1.5	5.3	2.9	5.3	3.0
AMS	1.5	2.6	1.1	1.5	0.0	1.1	-0.4	1.3	-0.3
ACX	2.3	2.9	0.6	3.1	0.8	4.2	1.8	4.0	1.7
CN	12.5	30.9	18.5	28.8	16.3	24.5	12.0	23.5	11.1
EAO	3.7	4.2	0.5	4.5	0.8	4.8	1.1	4.3	0.7
IN	1.1	2.8	1.7	1.7	0.6	1.6	0.5	1.5	0.5
ASO	0.3	0.4	0.0	0.4	0.1	0.3	0.0	0.3	0.0
AFN	0.3	0.2	-0.1	0.2	-0.1	0.4	0.1	0.4	0.1
AFS	0.8	0.5	-0.3	0.6	-0.2	0.6	-0.2	0.7	-0.1
Europe	43.0	27.2	-15.7	28.5	-14.4	29.1	-13.9	30.9	-12.1
America+	17.4	15.7	-1.8	16.2	-1.2	19.6	2.2	19.3	1.9
SEEA	33.4	49.3	15.8	48.1	14.7	42.4	9.0	40.6	7.2
CIS	1.4	0.4	-1.0	0.5	-1.0	0.8	-0.6	0.9	-0.5
South Asia	1.4	3.1	1.8	2.1	0.7	1.9	0.5	1.9	0.5
Africa +	3.4	4.3	0.9	4.6	1.2	6.2	2.8	6.5	3.1

Source: CAM Model v 4.4, all scenarios; wiw-calculations. 2005/2009 are average values for the period 2005 to 2009.

3 Methodological approach

The starting point for our simulation is the CAM 'models data on the region's manufacturing imports (mm\$) where we take the average for the years 2005-2009. We also rely on the projection from the CAM model for the imports in 2030 and the model's income per capita projections. Hence, we try to be consistent with the model at this aggregate level of imports and income developments. In addition to the CAM model data we use the more detailed information on manufacturing imports and exports by industry groupings where the industry groupings are according to their technology intensity² to project the regions' export developments (in particular export market shares). For this purpose we take into account:

- The individual **income elasticities of the share** of each of the four industry groups (low, medium-low, medium-high and high tech) in total imports, at the level of the region
- The income per capita growth between 2005/2009 and 2030 as suggested by the CAM model. In combination with the above elasticities we can **simulate a structural shift** of the relative importance of the industry groups in manufacturing exports at the level of the region (and also globally).
- The region's bilateral export market shares by industry group, i.e. the **regions' current bilateral trade structures** and the **geographical orientation** of their exports
- A (linear) **time trend in export market shares**, where we calculate the change in bilateral export market shares by industry group between 2000/2005 and 2005/2009.

Our procedure consists of three main steps. In the first step we introduce the structural shifts and the regional income developments for imports. In the second step we introduce the bilateral trade shares and finally we add a linear trend in export market shares.

Step 1 – Structural shifts in imports

First of all we apply the 2005-2009 import structures by technology group of each of the region to the 2005-2009 average manufacturing imports ("mm\$") to derive each region's imports by technology category and also the relative share of the technology categories in each region's total imports.

This is done by multiplying the import structure Matrix ($shMM$) which is a 4 x 19 matrix with the industry groups in the rows and the importer regions in the columns with the 19 x 19 import matrix (M^{diag}). This import matrix is a diagonal matrix which contains the regions' manufacturing imports in the diagonals and zeros in all other cells. This yields a 4 x 19 import matrix (MM) which contains the regions' import values by industry group:

$$MM = shMM \cdot M^{diag}$$

² See Appendix 1 for the classification of industries according to technology intensity.

Then we estimate the elasticity of the industry groups' shares in overall imports for each of from historical import data. The regression is run separately for each of the industry groups. The simple two-way fixed effects estimation takes the form:

$$shmm_{i,\tau,t} = \mu_i + \theta_t + INC_{i,t} + \epsilon_{i,\tau,t}$$

where $shmm_{i,\tau,t}$ is the share of industry group τ in region i at time t^3 . The μ_i 's and θ_t 's are region fixed and time fixed effects respectively and $INC_{i,t}$ is region i 's income per capita at time t . The error term is denoted by $\epsilon_{i,\tau,t}$.

The regression results are shown in Table 4.

Table 4: Estimation of the share of industry groups in manufacturing imports with respect to income per capita

Period	low	medium-low	medium-high	high
1980/1985-2005/2009				
income per capita	-4.01165 *** 1.154	-5.71189 *** 1.123	3.28478 *** 1.234	6.43875 *** 1.105
F	13.02132	28.51966	4.87137	50.68823
R ²	0.46747	0.65785	0.24722	0.77361
R ² -adj	0.32387	0.56558	0.04422	0.71256
Obs.	114	114	114	114
1990/1995-2005/2009				
income per capita	-4.1098 * 2.067	-3.60252 ** 1.662	2.96256 1.897	4.74976 ** 1.89
F	15.7746	23.47247	3.10577	18.38245
R ²	0.54349	0.63919	0.18989	0.58113
R ² -adj	0.354	0.48941	-0.14638	0.40725
Obs.	76	76	76	76

Note: wiiw-calculations. Standard errors are indicated below coefficients. ***, **, * indicate statistical significance at the 1%, 5% and 10% level respectively. Five year averages are used as periods.

The results are shown for two periods, between 1980 and 2009 and 1990 and 2009. For the simulations we use the estimates for the shorter period, i.e. between 1990 and 2009. This is done primarily because the estimated coefficients are smaller and we do not expect such strong shifts in the importance of the industry groups until 2030, the period to which these estimated will be applied. Note, however, that qualitatively the results for both periods are the same, only that the 1980-2009 results show higher statistical significance because of the larger sample size.

³ $shmm_{i,\tau,t}$ corresponds to the elements of the import share matrix ($shMM$) above but for the regression we calculate these shares not only for the 2005/2009 but also for the preceding 5-year periods.

The estimated coefficients are positive for medium-high and high tech industries and negative for low and medium-low industry. Note that the estimated coefficients have to add up to one because the regression is run on relative import shares.

Hence, according to our estimation a 1% increase in income per capita

- Reduces the share of low tech imports by 0.0411 percentage points
- Reduces the share of medium-low tech imports by 0.0360 percentage points
- Increases the share of medium-high tech imports by 0.0296 percentage points
- Increases the share of high tech imports by 0.0475 percentage points

With these structural change coefficients for the imports we proceed by calculation the (log) growth rate of the regions' income per capita using the data and projections from the CAM model (base scenario; scenario 1). We then multiply the region specific income growth rates with the industry group specific import share elasticities. This yields region-specific changes in the relative share of the industry group in the regions' imports.

By adding these changes to the initial shares in the year 2009 ($shmm_{i,\tau,2009}$) we obtain the import structure of the year 2030 ($shmm_{i,\tau,2030}$):

$$shmm_{i,\tau,2030} = shmm_{i,\tau,2009} + \left(coeff_{\tau} \cdot \ln \frac{INC_{i,2030}}{INC_{i,2009}} \right)$$

where $coeff_{\tau}$ are the estimated coefficients from Table 1 and $\ln \frac{INC_{i,2030}}{INC_{i,2009}}$ is the income growth rate.

The changes in the import structure, which are given in percentage points, are referred to as structural import change factors. The factors are shown in Table 5, along with the resulting import structure applicable in 2030.

Table 5: Estimation of the income elasticity of industry group shares in imports

Change in the structure 2005/2009 vs. 2030

	EUN	EUC	EUW	EUS	EUE	US	JA	OD	EAH	CI	WA	AM	ACX	CN	EAO	IN	ASO	AFN	AFS
low	-1.47	-0.82	-0.77	0.35	-1.42	-0.95	-1.64	-1.35	-2.40	-4.03	-2.35	-3.80	-2.48	-6.91	-3.50	-5.86	-3.46	-2.11	-4.00
med-low	-1.28	-0.72	-0.68	0.31	-1.24	-0.83	-1.43	-1.18	-2.10	-3.53	-2.06	-3.33	-2.17	-6.05	-3.07	-5.14	-3.03	-1.85	-3.51
med-high	1.06	0.59	0.56	-0.25	1.02	0.68	1.18	0.97	1.73	2.90	1.69	2.74	1.79	4.97	2.52	4.22	2.49	1.52	2.88
high	1.69	0.95	0.89	-0.41	1.64	1.10	1.89	1.56	2.78	4.65	2.72	4.40	2.87	7.98	4.05	6.78	4.00	2.44	4.63

Resulting import structure for 2030

	EUN	EUC	EUW	EUS	EUE	US	JA	OD	EAH	CI	WA	AM	ACX	CN	EAO	IN	ASO	AFN	AFS
low	15.98	15.81	18.37	19.98	15.35	13.80	19.69	13.08	7.21	18.57	12.97	9.08	13.28	2.53	8.87	3.70	23.79	19.05	15.30
med-low	23.76	24.04	23.29	22.82	22.31	19.71	20.21	21.50	21.80	17.68	27.30	15.93	28.93	13.66	23.89	27.80	19.58	22.26	27.37
med-high	42.69	40.24	39.52	41.70	45.36	42.27	34.92	49.14	34.70	47.69	44.43	54.80	42.66	53.59	39.01	45.00	41.91	45.56	42.04
high	17.56	19.91	18.82	15.51	16.98	24.22	25.18	16.28	36.29	16.06	15.29	20.19	15.14	30.22	28.23	23.49	14.73	13.12	15.30

Note: wiiw-calculations using CAM model import growth projections.

In matrix notation we first multiply the coefficient vector (column vector) with the (logarithmic) income per capita vector (inc) to get the structural change matrix S which is the 4 x 19 matrix shown in Table 5 (upper part).

$$S = \vec{c} \cdot \overline{m\vec{c}}$$

By adding this structural change matrix to the import shares matrix for the year 2005/2009 ($shMM_{2009}$) we obtain the import share matrix applicable for 2030 ($shMM_{2030}$) which also shown in Table 6 (lower part):

$$shMM_{2030} = shMM_{2009} + S$$

From this new import structure in 2030 we can retrieve the 2030 import values for each region and industry group by using again the 2030 CAM projections for manufacturing imports. We apply the same logic as above to get

$$MM_{2030} = shMM_{2030} \cdot M_{2030}^{diag}$$

From the region-industry group specific import values in the MM_{2030} and MM_{2009} import matrices it is straightforward to calculate region and industry group specific import growth rates (calculate again log growth rates).

Step 2 – Introduction of bilateral trade structures

At this stage we introduce the bilateral export market shares by industry group ($mshXX_{2009}$). This is a 76 (19 regions, 4 industries) x 19 (regions) matrix for 2005-2009. In this matrix the exporters are in the rows and the importing regions are in column dimension. Figure 1 show the structure of this $mshXX_{2009}$ -matrix (left) and also that of the MM_{2009} matrix.

The $mshXX_{2009}$ matrix contains as typical element the bilateral market share of exporter k in market j in the respective industry group. Note that the column sums of this matrix if built individually for each industry group must add up to hundred. This is because from the import market's (j) point of view, the elements of the $mshXX_{2009}$ matrix is the share that importer j sources from k , again at the level of industry groups. For example, in the case of Central Europe's bilateral exports to market j we can write.

$$x_{\tau,j,t}^{EUC} = m_{\tau,EUC,t}^j$$

where j now denotes the partner country (x denotes exports and m imports).

Using this logic it is obvious that we can, at any time t , perform an element-wise multiplication of each of the $\tau_{k,j}$ -blocs with the corresponding bloc of the MM matrix. This yields the bilateral trade values for all regions and by industry group for the year 2009. We collect these bilateral trade values again in a 76 x 19 bilateral trade matrix bTT_{2009} . (The structure of bTT is the same as that of $mshXX_{2009}$).

Figure 1: Schematic representation of the $mshXX$ matrix and the MM matrix



What we are finally interested, however, is the bTT matrix for the year 2030 (bTT_{2030}). To get there we first apply the industry group specific import growth rates to the $MbTT_{2009}$ matrix. By doing so we assume that the exports by industry group of each exporting region k to a specific market j grows at the same (industry-group specific and importer specific) rate. This yields a new bTT matrix for the year 2030 which we denote by $bTT_{2030\ unadj}$. This is because the matrix is not adjusted for the historical time trends of exports which we add in a third step.

Step 3 – Adding a time trend of export shares

With the help of the interim bilateral import matrix $bTT_{2030\ unadj}$ and the manufacturing import matrix by industry groups for the year 2030 (MM_{2030}) we calculate the interim bilateral export market shares matrix $mshXX_{2030\ unadj}$.

To arrive at the final export market share matrix in 2030 ($mshXX_{2030}$) we add a linear trend of the bilateral export market share (T_{EX}).

$$mshXX_{2030} = mshXX_{2030\ unadj} + T_{EX}$$

The changes in export market shares, since they are bilateral are exporter-and importer specific but they are also industry group specific. The data for these trends we take from

our previous work in WP 3 on the patterns of merchandise trade. For this time trend we opt for a relatively short time span and calculate the change in bilateral market shares at the level of industry groups as the difference between the average (bilateral) market share in 2000-2004 and 2005-2009. For the detailed data see Appendix 3⁴.

The final bilateral and industry-specific export market share matrix for 2030, $mshXX_{2030}$, is shown in appendix 4⁵.

As before, by element-wise multiplication of the $\tau_{k,j}$ -blobs in the $mshXX_{2030}$ matrix with the corresponding bloc of the MM matrix we obtain the final bilateral and industry specific trade matrix for 2030, bTT_{2030} . This matrix that takes into account the shifts in the industry composition due to the historical trend and also the importing regions' growth development and the regions initial export structure (i.e. export market shares in 2005/2009). It serves as the basis for calculating the regions' market shares in global exports by industry group, the regions' overall market share and also the bilateral export market shares for manufactures (i.e. without distinguishing between industry groups).

⁴ There is only one adjustment we make to this historical export trends and that concerns West Europe's (EUW) trend in medium-low goods in the Indian market. This trend in market shares is -6.95 which is very high given West Europe's initial market share. This trend would lead to a negative market share of West Europe in India for manufacturing exports as a whole. To avoid this we (somewhat arbitrarily) reduce this trend to -3.95. We adjust the market shares of other regions in the Indian market accordingly. More precisely, we adjust downwards Central Europe's trend by 1 p.p., North Europe's and South Europe's by 0.2 p.p. respectively, the US trend and Japan's trend by 0.3 p.p. respectively and High Income East Asia's trend by 1 p.p.

⁵ In a few number of cases the bilateral market shares at the industry level turn negative. While this can be adjusted at this stage we left the negatives at the bilateral region-industry group level because it does not strongly affect the main results. So far we only made adjustments were overall export market shares in any market would turn negative, see footnote 4..

4 Results of this Analysis

As pointed out above our simulation exercise is in line with the AUGUR projections for manufacturing imports and income per capita growth. However, applying our methodology leads to very different results concerning the export shares of the individual regions.

We present the main results from our methodology and also relate these results to those in the AUGUR projections.

We start in Table 6 with the bilateral market shares in manufacturing exports.

Table 6: Simulation results for bilateral export market share (in %) and changes versus 2005/2009 (in p.p.), total manufacturing, 2030

		2030 IMPORTER																			
EXPORTER		eun	euw	eus	eue	us	ja	od	eah	ci	wa	am	acx	cn	eao	in	as	afn	afs	world	
EUN		19.40	3.62	4.97	3.05	2.80	1.86	1.34	1.91	1.03	4.66	2.47	1.51	0.66	1.02	0.95	2.16	4.03	2.39	2.58	2.52
	change in p.p	-0.80	-0.28	-0.33	-0.25	-0.50	0.06	-0.47	0.11	0.03	-1.44	-0.14	-0.39	-0.04	-0.68	-0.15	-0.35	1.43	-0.31	0.28	-0.68
EUC		34.45	39.24	39.04	40.01	38.54	12.59	10.50	11.13	8.13	20.72	15.54	10.28	7.84	12.60	8.12	16.52	7.20	19.70	16.75	19.15
	change in p.p	-1.35	-0.16	-0.06	-2.39	-3.06	0.49	-0.30	0.53	0.03	-1.88	-5.06	-1.62	0.94	0.60	0.02	-3.28	-1.20	-6.80	-2.65	-4.35
EUW		4.46	4.21	0.01	5.05	1.81	3.17	1.41	2.57	1.09	2.31	2.77	0.64	1.01	0.91	0.69	0.68	1.54	1.30	2.40	2.14
	change in p.p	-1.64	-1.09	0.01	-1.85	-0.79	-0.13	-0.39	-0.43	-0.32	-0.30	-1.33	-0.76	0.01	-0.29	-0.41	-2.32	-0.86	-1.20	-2.40	-1.16
EUS		6.64	12.91	12.79	13.35	10.54	5.11	3.06	3.98	1.81	6.34	6.96	3.60	4.49	2.42	2.00	3.22	2.44	15.88	4.43	5.95
	change in p.p	-0.56	-0.69	-0.81	0.05	-1.96	0.01	-0.44	0.18	-0.19	-0.06	-1.54	-1.70	0.39	-0.08	0.00	0.02	-0.06	-2.42	-1.08	-1.85
EUE		7.49	8.41	6.12	7.36	19.17	0.76	0.63	0.91	0.35	10.63	4.32	0.76	0.57	0.92	0.36	0.93	0.93	2.58	2.50	3.50
	change in p.p	2.09	0.91	2.02	1.56	2.77	0.06	0.13	0.21	0.05	1.43	1.02	0.06	0.17	0.22	0.06	0.13	0.33	0.38	1.00	-0.30
US		3.09	5.63	5.88	3.46	1.03	0.00	11.14	32.69	8.33	3.18	8.24	16.87	36.11	7.88	6.39	11.63	4.52	5.48	5.51	8.32
	change in p.p	-0.92	-1.17	-2.03	-0.94	-1.07	0.00	-4.46	-8.11	-1.97	-1.02	0.34	-3.43	-12.79	-1.02	-2.52	1.43	-0.08	0.18	-1.19	-1.18
JA		1.18	2.06	1.94	1.41	2.05	6.56	0.00	5.90	12.91	6.22	6.45	3.32	5.76	17.59	12.45	2.48	4.31	3.38	3.45	7.90
	change in p.p	-0.92	-0.94	-1.16	-0.79	-0.26	-2.84	0.00	-0.40	-3.39	1.72	-0.15	-0.88	0.76	-2.01	-4.15	-1.72	-1.69	-0.32	-0.45	0.70
OD		1.54	0.92	1.68	0.90	0.46	13.50	2.85	2.77	1.81	1.06	2.33	1.55	3.26	2.08	2.56	4.26	1.54	0.85	1.98	3.24
	change in p.p	0.14	-0.08	-0.42	-0.10	-0.04	-2.50	-0.85	-0.13	-0.49	-0.04	-0.07	-0.35	0.16	-0.82	-0.94	-0.24	-0.46	-0.15	-0.22	-0.76
EAH		3.04	2.53	4.03	2.31	5.33	4.96	11.88	7.19	14.59	5.61	5.50	6.42	7.62	35.23	25.27	10.53	4.41	3.14	4.88	13.04
	change in p.p	0.04	-0.28	-0.07	-0.29	1.43	-1.94	-1.02	0.69	0.99	1.81	-0.10	0.92	2.12	2.83	-0.13	-1.67	-7.09	-0.06	-0.02	4.44
CI		5.05	2.10	2.40	2.63	2.77	1.80	1.37	0.69	0.84	15.22	4.63	1.85	0.50	0.67	1.00	3.47	3.32	5.05	1.13	2.14
	change in p.p	0.75	0.30	0.40	0.43	-0.03	0.40	0.07	0.09	-0.06	-6.38	-0.17	0.25	0.00	-1.43	-0.20	0.67	1.12	0.75	0.13	-0.26
WA		1.45	1.93	2.88	2.86	2.65	0.58	2.17	0.77	2.30	2.41	9.84	0.47	0.37	1.56	1.83	10.93	14.79	12.06	8.11	2.60
	change in p.p	0.35	0.33	0.48	0.66	0.65	-0.02	0.17	0.07	-0.10	-0.09	-0.06	-0.04	0.07	0.26	-0.07	2.13	0.59	2.66	1.21	0.50
AM		1.22	1.61	0.96	2.15	0.72	2.86	1.48	2.24	1.42	2.44	1.72	23.47	7.11	1.91	1.26	0.75	2.08	4.47	2.99	2.78
	change in p.p	0.22	0.31	-0.04	0.35	0.02	-0.04	0.18	0.64	0.22	0.04	-0.08	-0.93	0.81	-0.69	-0.04	-0.75	-0.12	0.67	0.19	0.28
ACX		0.44	0.71	0.65	0.47	0.23	11.81	0.76	3.52	0.53	-0.03	0.43	6.00	5.50	1.06	0.43	0.52	0.19	0.30	1.92	2.49
	change in p.p	0.04	0.11	0.05	0.07	-0.07	-0.09	0.06	0.32	0.13	-0.33	0.03	1.40	0.30	0.26	0.13	0.12	0.09	0.10	0.82	-0.11
CN		7.90	9.76	10.61	9.64	9.65	26.22	36.83	16.50	31.24	16.26	14.17	18.13	14.87	0.19	19.97	25.15	19.97	14.39	18.05	14.47
	change in p.p	2.30	2.76	2.41	2.94	2.95	6.62	7.43	5.00	5.14	6.26	4.57	6.93	5.97	-0.11	6.47	10.05	5.77	5.29	6.45	2.77
EAO		1.29	2.02	1.77	1.45	0.98	4.89	11.68	5.39	10.56	1.95	4.93	2.68	3.36	12.48	14.25	4.49	11.65	3.01	4.55	6.51
	change in p.p	-0.01	-0.08	-0.63	-0.05	-0.32	-0.41	-0.52	0.99	-0.44	0.35	0.83	0.48	0.96	2.88	1.65	-2.01	0.15	0.61	0.15	1.61
IN		0.57	0.97	1.59	1.20	0.62	1.72	0.97	1.03	2.37	0.63	6.10	1.87	0.65	0.63	1.97	0.00	14.02	2.90	6.85	1.66
	change in p.p	0.07	0.17	0.39	0.30	0.22	0.32	0.17	0.13	0.47	0.03	1.30	0.47	0.15	-0.08	0.27	0.00	1.62	0.70	2.05	0.36
ASO		0.23	0.30	0.54	0.41	0.17	0.45	0.13	0.18	0.13	0.12	0.77	0.11	0.11	0.07	0.11	0.52	1.48	0.22	0.93	0.28
	change in p.p	0.03	0.00	0.04	0.11	0.07	-0.05	0.03	-0.02	-0.07	0.02	0.07	0.01	0.01	-0.13	0.01	-0.48	0.18	0.02	0.23	-0.03
AFN		0.10	0.56	0.36	1.51	0.18	0.34	0.08	0.14	0.15	0.12	1.41	0.23	0.14	0.12	0.10	1.21	1.28	1.87	1.07	0.41
	change in p.p	0.00	-0.04	-0.04	0.11	0.08	0.04	-0.02	0.04	0.05	0.02	0.21	-0.27	0.04	0.02	0.00	-0.09	0.48	-0.33	0.17	-0.09
AFS		0.47	0.51	1.83	0.76	0.30	0.82	1.74	0.49	0.42	0.16	1.43	0.25	0.08	0.66	0.30	0.56	0.32	1.05	9.94	0.89
	change in p.p	0.07	-0.19	-0.07	-0.04	0.10	0.12	0.24	0.09	-0.08	-0.05	0.23	-0.05	-0.02	-0.04	-0.10	-1.64	-0.18	0.35	-4.66	-0.01

Note: wiiw-calculations using CAM model import growth projections.

The shifts in relative importance of the industry groups in manufacturing imports and the regions' income developments combined with the initial geographic export orientation and the historical trend in manufacturing exports make it possible that the changes in the bilateral export shares do vary considerably over the destination markets. For example, Central Europe, the region with the biggest loss in global export market shares (-4.3 p.p.), suffers declines in almost all regions but manages to gain market shares in China and the US. This may be (at least partly) be explained by the fact that Central Europe had an initially very high export shares in the fast growing Chinese market, plus a positive structural shift effect in the medium-tech industries, Central Europe's traditional stronghold. Similar variation across export markets is observable for other exporting regions as well. In the case of China, for example, the massive increase in India (+10 p.p.) stands out. A bit odd is the 0.7% increase in Japan's global export market share, given that it is losing market shares in all major export markets (Central Europe, US, China). This surprising result is due to Japan's favourable geographic orientation of exports which are highly geared towards the high growing Asian regions, above all China.

In Table 7 we stress again that the overall changes in the market shares in global manufacturing exports are the result of potential structural shifts on the one hand and the historical export trend on the other hand. These two effects may move in opposite directions.

Table 7: Regions' market shares in manufacturing exports to the world (in %), 2009 vs. 2030 and changes in market shares (in p.p.)

exporter	2009	2030 unadj.	2030 final	structural shift	export trend	overall change
EUN	3.20	2.80	2.52	-0.40	-0.28	-0.68
EUC	23.50	19.90	19.15	-3.60	-0.75	-4.35
EUW	3.30	2.80	2.14	-0.50	-0.66	-1.16
EUS	7.80	6.30	5.95	-1.50	-0.35	-1.85
EUE	3.80	2.90	3.50	-0.90	0.60	-0.30
US	9.50	10.30	8.32	0.80	-1.98	-1.18
JA	7.20	9.70	7.90	2.50	-1.80	0.70
OD	4.00	3.70	3.24	-0.30	-0.46	-0.76
EAH	8.60	13.00	13.04	4.40	0.04	4.44
CI	2.40	2.30	2.14	-0.10	-0.16	-0.26
WA	2.10	2.20	2.60	0.10	0.40	0.50
AM	2.50	2.40	2.78	-0.10	0.38	0.28
ACX	2.60	2.30	2.49	-0.30	0.19	-0.11
CN	11.70	10.50	14.47	-1.20	3.97	2.77
EAO	4.90	5.90	6.51	1.00	0.61	1.61
IN	1.30	1.30	1.66	0.00	0.36	0.36
ASO	0.30	0.20	0.28	-0.10	0.08	-0.03
AFN	0.50	0.40	0.41	-0.10	0.01	-0.09
AFS	0.90	1.00	0.89	0.10	-0.11	-0.01

Note: Note: wiiw-calculations using CAM model import growth projections. 2030 unadj. are the simulated market shares in global exports if the historical export trend is not taken into account

This is for example the case for the US which has a positive structural shift effect (+0.8 p.p.) but a highly negative export trend (-2 p.p.). The opposite applies to China which has a negative structural shift (-1.2 p.p.) and a strong positive export trend (+4 p.p.). The negative structural shift effect in our simple simulation is mainly due to the fact that Chinese exports do not benefit from its own strong income growth while all other regions can. Chinese growth is also a main explanatory factor for the high increase in market shares of High Income East Asia (+4.4 p.p.). Note also that our simulation results for the African regions and also for Other South Asia are very well in line with the CAM model results, as we also find hardly any increases in market shares in global exports.

Importantly, our results are *qualitatively* in line with the results of the CAM model regarding strong significant losses in export market shares of Central Europe (-4.3 p.p.). In our projections this is the result of both a negative structural shift effect and a negative time trend. However, *quantitatively* our results for Central Europe's export share development differ substantially from the CAM model results. The loss in export market shares in our projections is much lower and in our view more plausible than the drastic declines suggested by the CAM model. This is particularly true, when comparing Central Europe's export development with that of the US. Finally, we also feel that China's 2.8 p.p. gain in market shares and the resulting share of 14.5% is much more plausible than the 30% suggested by CAM model outcome.

For the sake of completeness we also report the regions' market shares in manufacturing exports by industry groupings. Table 8 shows that most regions that experience either a loss or a gain in all industry groups according to technology content. However, Japan, High Income East Asia, the CIS-region and also East Europe have gains in market shares in some industry groups but losses in others showing that there is also variation in export development across industry types at the level of individual regions.

Table 8: Regions' market shares in exports to the world, by industry group, 2009 vs. 2030

2030				
EXPORTER	industry group by technology intensity			
	low	medium low	medium high	high
	EUN	3.34	2.88	2.70
changes in p.p.	-0.79	-0.49	-0.32	-0.97
EUC	19.02	16.58	22.89	14.41
changes in p.p.	-2.17	-4.51	-5.67	-3.30
EUW	1.72	2.12	2.52	1.64
changes in p.p.	-0.69	-1.07	-1.11	-1.91
EUS	8.46	5.44	6.35	4.42
changes in p.p.	-1.52	-1.53	-2.07	-1.44
EUE	4.55	3.38	3.71	2.71
changes in p.p.	-0.12	-0.44	-0.25	0.03
US	6.12	6.37	10.01	7.89
changes in p.p.	-0.57	-0.71	-1.07	-3.30
JA	0.93	5.68	12.41	4.69
changes in p.p.	-0.21	0.64	1.47	-1.92
OD	4.79	4.46	3.11	1.64
changes in p.p.	-0.77	-0.10	-0.85	-0.71
EAH	1.22	10.01	13.21	21.16
changes in p.p.	-1.90	1.97	5.50	5.80
CI	2.17	6.44	1.28	-0.07
changes in p.p.	0.10	0.08	0.03	-0.28
WA	2.48	5.51	2.36	0.51
changes in p.p.	0.20	1.20	0.70	0.04
AM	7.51	4.79	1.83	0.51
changes in p.p.	1.57	1.05	0.35	0.05
ACX	2.12	1.91	2.69	2.82
changes in p.p.	-0.22	0.11	-0.34	-0.07
CN	20.55	12.75	9.53	22.47
changes in p.p.	4.96	1.34	2.28	4.14
EAO	8.85	4.48	3.57	12.81
changes in p.p.	1.38	1.02	1.00	3.54
IN	2.57	3.57	1.07	0.64
changes in p.p.	0.57	1.10	0.33	0.22
ASO	1.80	0.22	0.05	0.01
changes in p.p.	0.19	0.07	0.01	-0.01
AFN	0.78	0.76	0.31	0.13
changes in p.p.	-0.01	-0.05	0.02	0.03
AFS	1.01	2.66	0.43	0.14
changes in p.p.	0.01	0.32	-0.02	0.04

Note: wiiw-calculations using CAM model import growth projections.

We also calculate the (log) growth rate of exports for each region in each market for the periods 2005/2009 (Table 9).

The export growth rates show once more the importance of the Asian markets for all regions increase in export values. Growth rates are also high South America and Sub-Saharan Africa but the importance in terms of size is more limited in these cases (particularly in the case of Sub-Saharan Africa). In contrast, exports to Europe, the US and Japan

grow less strongly, a direct result of these regions more modest growth rates. Some regions exports to East Europe and Japan, according to our projections, will even decline in absolute terms.

At the world level, High Income East Asia will enjoy the highest export growth which is the result of a positive export structure (high share of high tech exports) and its geographic orientation of exports (strongly growing Asian markets). China's (log) growth rate of exports is about 100%, slightly lower than that of Other East Asia and India. The main reason for that in our projections is not that these countries have a stronger positive export trend but that these regions benefit strongly from Chinese growth. Chinese exports, however, do not directly increase as a result of high growth of China's income per capita.

Table 9: Regions' export growth rates (log growth rates), 2005/2009 vs 2030

Exporter	Importer																			
	eun	euc	euw	eus	eue	us	ja	od	eah	ci	wa	am	acx	cn	eao	in	aso	afn	afs	world
EUN	0.57	0.28	0.26	-0.04	0.27	0.55	-0.03	0.75	0.80	0.57	0.90	0.79	0.74	1.21	1.01	1.24	1.51	0.76	1.46	0.53
EUC	0.57	0.34	0.32	-0.02	0.37	0.57	0.23	0.74	0.76	0.75	0.68	0.87	0.94	1.75	1.12	1.19	0.90	0.58	1.21	0.55
EUW	0.30	0.11	0.26	-0.27	0.09	0.50	0.01	0.55	0.48	0.70	0.56	0.27	0.84	1.43	0.60	-0.13	0.64	0.22	0.65	0.32
EUS	0.53	0.30	0.26	0.04	0.27	0.53	0.13	0.73	0.67	0.83	0.75	0.64	0.91	1.65	1.14	1.37	1.02	0.74	1.14	0.48
EUE	0.93	0.47	0.73	0.27	0.60	0.56	0.51	0.99	0.92	0.98	1.22	1.17	1.18	2.02	1.31	1.49	1.50	1.04	1.87	0.68
US	0.34	0.16	0.03	-0.22	-0.27		-0.07	0.47	0.55	0.55	1.00	0.84	0.51	1.58	0.78	1.50	1.04	0.91	1.16	0.62
JA	0.02	-0.02	-0.14	-0.41	0.34	0.17		0.62	0.52	1.15	0.93	0.79	0.96	1.59	0.83	0.86	0.73	0.78	1.22	0.85
OD	0.70	0.23	0.09	-0.06	0.36	0.36	-0.01	0.63	0.54	0.83	0.95	0.80	0.87	1.37	0.80	1.32	0.80	0.72	1.24	0.54
EAH	0.64	0.23	0.29	-0.10	0.74	0.20	0.18	0.79	0.82	1.22	0.94	1.17	1.14	1.79	1.12	1.23	0.10	0.85	1.36	1.17
CI	0.77	0.48	0.50	0.22	0.43	0.78	0.31	0.90	0.72	0.48	0.92	1.19	0.91	0.58	0.92	1.58	1.47	1.03	1.45	0.65
WA	0.92	0.54	0.49	0.29	0.71	0.46	0.36	0.79	0.69	0.79	0.95	1.00	0.99	1.92	1.09	1.58	1.09	1.13	1.52	0.95
AM	0.81	0.56	0.30	0.19	0.51	0.51	0.36	1.01	0.91	0.87	0.92	0.98	0.94	1.39	1.11	0.70	1.01	1.05	1.44	0.86
ACX	0.61	0.57	0.39	0.12	0.23	0.52	0.33	0.79	0.94		1.14	1.28	0.87	2.02	1.39	1.70	1.35	1.10	1.90	0.71
CN	0.96	0.68	0.58	0.40	0.81	0.82	0.49	1.05	0.93	1.33	1.34	1.50	1.33	1.22	1.51	1.89	1.40	1.33	1.79	0.97
EAO	0.59	0.30	0.03	0.01	0.15	0.46	0.22	0.88	0.72	1.04	1.15	1.23	1.14	1.96	1.24	1.00	1.07	1.09	1.40	1.05
IN	0.81	0.58	0.57	0.34	0.79	0.73	0.47	0.85	1.00	0.81	1.20	1.33	1.12	1.56	1.28		1.18	1.16	1.70	1.02
ASO	0.59	0.40	0.35	0.25	0.72	0.45	0.22	0.60	0.57	0.99	1.12	0.95	0.98	0.70	0.97	0.73	1.16	1.05	1.67	0.65
AFN	0.79	0.31	0.19	0.12	0.67	0.58	0.41	0.99	0.87	1.17	1.09	0.23	1.13	1.94	1.37	1.31	1.53	0.73	1.57	0.66
AFS	0.73	0.08	0.26	0.00	0.74	0.65	0.39	0.82	0.68	0.46	1.17	0.80	0.45	1.66	0.85	0.01	0.67	1.23	0.97	0.74

Note: wiiw-calculations using CAM model import growth projections. The growth rates are log growth rates.

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Appendix

Appendix 1 – Definition of World Regions

Code	Region Name	Bloc	Code	Region Name	Bloc
AFN	North Africa		ACX	Central America	
DZ	Algeria	AFN	AMO2)	Other America	ACX
EG	Egypt	AFN	CR	Costa Rica	ACX
LY	Libyan Arab Jamahiriya	AFN	CU	Cuba	ACX
MA	Morocco	AFN	DO	Dominican Republic	ACX
SD	Sudan	AFN	GT	Guatemala	ACX
TN	Tunisia	AFN	HN	Honduras	ACX
			HAT	Haiti	ACX
AFS	Other Africa		JM	Jamaica	ACX
AFO1)	Other Africa	AFS	MX	Mexico	ACX
AFS	Africa small LDCs	AFS	NI	Nicaragua	ACX
AO	Angola	AFS	PA	Panama	ACX
BF	Burkina Faso	AFS	SV	El Salvador	ACX
BI	Burundi	AFS			
BJ	Benin	AFS	AM	South America	
CD	Democratic Republic of the Congo	AFS	AR	Argentina	AM
CF	Central African Republic	AFS	BO	Bolivia	AM
CG	Congo	AFS	BR	Brazil	AM
CI	Cote d'Ivoire	AFS	CL	Chile	AM
CM	Cameroon	AFS	CO	Colombia	AM
ET	Ethiopia	AFS	EC	Ecuador	AM
GH	Ghana	AFS	PE	Peru	AM
GN	Guinea	AFS	PY	Paraguay	AM
KE	Kenya	AFS	UY	Uruguay	AM
LR	Liberia	AFS	VE	Venezuela	AM
MG	Madagascar	AFS			
ML	Mali	AFS	IN	India	
MR	Mauritania	AFS	IN	India	IN
MW	Malawi	AFS			
MZ	Mozambique	AFS	ASO	Other South Asia	
NE	Niger	AFS	AF	Afghanistan	ASO
NG	Nigeria	AFS	ASL3)	Other South Asia	ASO
RW	Rwanda	AFS	BD	Bangladesh	ASO
SL	Sierra Leone	AFS	LK	Sri Lanka	ASO
SN	Senegal	AFS	NP	Nepal	ASO
SO	Somalia	AFS	PK	Pakistan	ASO
TD	Chad	AFS			
TG	Togo	AFS	CI	Commonwealth of Independent States	
TZ	United Republic of Tanzania	AFS	SU	Former Soviet Union	CI
UG	Uganda	AFS			
ZA	South Africa	AFS			
ZM	Zambia	AFS			
ZW	Zimbabwe	AFS			

Appendix 1 – Definition of World Regions (continued)

Code	Region Name	Bloc	Code	Region Name	Bloc
JA	Japan		EUC	Central Europe	
JP	Japan	JA	AT	Austria	EUC
CN	China		BEL	Belgium-Luxembourg	EUC
CNM	China inc Macao	CN	CH	Switzerland	EUC
EAH	East Asia High Income		DE	Germany	EUC
HK	Hong Kong SAR of China	EAH	FR	France	EUC
KR	Republic of Korea	EAH	NL	Netherlands	EUC
SG	Singapore	EAH	EUE	East Europe	
TW	Taiwan	EAH	AL	Albania	EUE
EAO	Other East Asia		BG	Bulgaria	EUE
ID	Indonesia	EAO	CS	Former Czechoslovakia	EUE
KH	Cambodia	EAO	HU	Hungary	EUE
KP	Democratic Peoples Rep of Korea	EAO	PL	Poland	EUE
LA	Lao Peoples Democratic Republic	EAO	RO	Romania	EUE
MM	Myanmar	EAO	YU	Former Yugoslavia	EUE
MN	Mongolia	EAO	EUN	North Europe	
MY	Malaysia	EAO	DK	Denmark	EUN
OCO4)	Other Oceania	EAO	FI	Finland	EUN
PG	Papua New Guinea	EAO	NO	Norway	EUN
PH	Philippines	EAO	SE	Sweden	EUN
TH	Thailand	EAO	EUS	South Europe	
VN	Vietnam	EAO	ES	Spain	EUS
WA	West Asia		OEU 6)	Other Europe	EUS
AE	United Arab Emirates	WA	GR	Greece	EUS
BH	Bahrain	WA	IE	Ireland	EUS
IQ	Iraq	WA	IT	Italy	EUS
IR	Iran (Islamic Republic of)	WA	PT	Portugal	EUS
JO	Jordan	WA	EUW	West Europe	
KW	Kuwait	WA	GB	United Kingdom	EUW
LB	Lebanon	WA	OD	Other Developed	
MEO5)	Other Middle East	WA	AU	Australia	OD
OM	Oman	WA	CA	Canada	OD
SA	Saudi Arabia	WA	IL	Israel	OD
SY	Syrian Arab Republic	WA	NZ	New Zealand	OD
TR	Turkey	WA	US	USA	
YE	Republic of Yemen	WA	US	United States	US

1) AFO includes: Botswana, Cape Verde, Gabon, Mauritius, Seychelles.

2) AMO includes: Antigua and Barbuda, Barbados, Bermuda, Bahamas, Belize, Dominica, Falkland Islands (Malvinas), Grenada, Guyana, Anguilla, Saint Kitts and Nevis, Cayman Islands, Saint Lucia, Montserrat, Saint Pierre and Miquelon, Suriname, Turks and Caicos Islands, Trinidad and Tobago, Saint Vincent and the Grenadines.

3) ASL includes: Bhutan, Maldives.

4) OCO includes: Cook Islands, Fiji, Kiribati, New Caledonia, Nauru, French Polynesia, Solomon Islands, Tonga, Tuvalu, British Virgin Islands, Vanuatu, Samoa.

5) MEO includes: Qatar, Occupied Palestinian Territory.

6) includes: Andorra, Cyprus, Iceland, Liechtenstein, Malta.

Appendix 2 – Industry classification according to global technological intensity

Industry	ISIC codes
High technology	
Pharmaceuticals	3522
Computer, office machinery	3825
Electronics-communications	3832
Aerospace	3845
Medium-high technology	
Scientific Instruments	385
Motor vehicles	3843
Electrical machinery	383 (except 3832)
Chemicals	351, 352, 3522
Other transport equipment	3842, 3844,3849
Non-electrical machinery	382 (except 3825)
Medium-high technology	
Rubber and plastic products	355,356
Shipbuilding	3841
Other manufacturing	39
Non-ferrous metals	372
Non-metallic mineral products	36
Fabricated metal products	381
Petroleum refining	351, 354
Ferrous metals	371
Medium-high technology	
Paper printing	34
Textiles and clothing	32
Food, beverages and tobacco	31
Wood and furniture	33

Source: Hatzichronoglou (1997)

Appendix 3 – Bilateral and industry group specific trend in export market shares, average 2000/2005 to 2005/2009 (T_{EX})

EXPORTER	IMPORTER	tech intensity																				
			EUN	EUC	EUW	EUS	EUE	US	JA	OD	EAH	CI	WA	AM	ACX	CN	EAO	IN	ASO	AFN	AFS	
EUN	low		-2.34	-1.13	-1.86	-1.01	-0.39	-0.23	-0.98	-0.3	-0.19	-1.54	-0.59	-0.48	0.03	0.61	-0.22	0.07	0.04	0.23	-0.19	
EUN	medium-low		-0.73	-0.12	0.65	0.06	0.09	0.23	0.02	0.02	0.14	-0.99	-0.41	-0.18	0.1	-0.06	-0.19	0.28	0.24	-0.36	-1.01	
EUN	medium-high		-0.36	0.12	-0.08	0.31	-0.37	0.01	-0.33	0.3	0.38	-1.23	-0.29	-0.28	0.04	-0.1	-0.03	-0.05	0.22	-0.04	-0.01	
EUN	high		1.34	-0.4	-0.34	-1.11	-1.64	0.08	-0.51	-0.07	-0.27	-2.75	0.15	-1.09	-0.79	-1.65	-0.17	-1.78	5.82	-1.86	1.99	
EUC	low		-0.11	0.41	0.91	-1.77	-0.99	0.32	1.14	0.3	1.2	-1.86	-2.46	-1.35	0.14	1.89	-0.61	-0.48	-0.61	-9.37	-1.89	
EUC	medium-low		-2.25	-0.81	-2.26	-5.33	-2.88	0.51	-1.36	-2.45	-0.73	-1.26	-5.87	-1.92	1.68	0.2	-0.71	-12.1	-3.48	-4.66	-1.2	
EUC	medium-high		-1.56	-0.91	-0.6	-2.45	-4.79	-0.07	-2.66	1.21	0.58	-3.06	-5.55	-3.04	0.24	0.32	-1.32	-2.77	-2	-6.66	-5.01	
EUC	high		-1.92	2.27	2.17	2.12	-0.86	1.01	1.9	1.92	-0.55	-3.65	-6.83	-0.09	1.23	0.36	2.01	4.84	-1.43	-11.2	-4.15	
EUW	low		-0.86	-0.55	0	-1.09	-0.46	-0.33	-0.41	-0.51	-0.27	-0.59	-1.27	-0.89	-0.05	0.92	-0.46	0.8	-0.6	-2.36	-2.49	
EUW	medium-low		-1.67	-1.05	-0.01	-1.53	-0.5	0.29	-0.4	-0.29	-0.7	-1.11	-1.44	-0.37	0.31	0.09	-0.32	-3.95	-0.72	-0.7	-2.72	
EUW	medium-high		-0.88	-1	0	-1.26	-0.63	-0.08	-0.57	-0.19	-0.38	0.1	-0.92	-0.71	-0.07	-0.13	-0.64	-1.58	-0.76	-1.32	-1.91	
EUW	high		-4.36	-2.05	0.01	-4.57	-2	-0.39	-0.36	-1.22	-0.13	-1.09	-3.61	-0.93	-0.18	-0.58	-0.37	-1.64	-1.96	-0.55	-4.19	
EUS	low		-1.89	-1.28	-1.65	0.01	-4.53	-0.89	-0.32	-0.48	0.64	0.66	-1.43	-1.44	-0.04	1.37	0.18	0.58	-0.15	-2.53	-0.68	
EUS	medium-low		-0.41	-1.07	-2.14	-0.42	-1.24	-0.67	-0.95	-0.68	-0.34	-0.87	-1.46	-1.66	1.27	0.92	-0.13	0.03	-0.27	-1.18	-1.28	
EUS	medium-high		-0.28	-0.76	-0.28	-0.16	-0.88	0.42	-0.57	0.31	-0.08	0	-1.61	-1.54	0.1	-0.26	-0.29	-0.01	-0.05	-2.4	-1.09	
EUS	high		-0.13	0.44	0.53	1.26	-2.36	-0.39	0.32	1.29	-0.13	0.43	-1.45	-1.89	0.38	0.09	0.41	-0.38	-0.77	-1.38	-1.12	
EUE	low		1.21	0.04	0.77	0.41	3.03	-0.05	0.15	0.18	0.1	0.05	0.18	0.04	-0.03	0.14	0.06	0.02	0.18	-0.58	0.4	
EUE	medium-low		1.31	0.44	0.68	0.43	2.07	-0.13	-0.01	-0.04	0.01	1.05	0.23	-0.07	0.08	0.01	-0.09	0.23	0.3	0.12	0.49	
EUE	medium-high		1.93	1.52	2.17	2.23	3.15	0.1	0.3	0.33	0.22	1.13	0.84	0.22	0.25	0.53	0.06	0.07	0.12	0.61	0.91	
EUE	high		4.03	1.29	4.44	2.99	3.91	0.06	0.01	0.39	-0.09	3.25	3.05	-0.1	0.26	-0.08	0.19	-0.08	0.92	1.48	2.02	
US	low		-0.46	-0.56	-1.03	-0.86	-0.32	0	-4.16	-5.87	-1.81	-1.4	-2.12	-1.64	-7.38	2.25	-0.61	-1.39	-0.54	0.7	1.44	
US	medium-low		-0.22	-0.64	-1.03	0.22	-0.51	0	-3.21	-7.32	-1.33	-0.52	-0.07	2.2	-9.65	0.05	-1.52	-0.59	0.04	1.18	-1.41	
US	medium-high		-0.83	-1.18	-2.82	-1.08	-0.56	0	-6.86	-8.35	-2.03	-0.41	0.58	-4.55	-11	-0.49	-1.89	-0.58	-0.36	0.33	-0.6	
US	high		-3.59	-2.88	-3.02	-2.36	-4.19	0	-3.54	-10.5	-2.99	-4.17	0.08	-8.84	-23	-2.43	-6.78	2.74	-1.92	-3.81	-4.84	
JA	low		-0.08	-0.07	-0.06	-0.1	-0.1	-0.17	0	-0.19	-0.48	0.03	-0.23	-0.12	0.04	-2.21	-1.15	-0.14	-0.23	0	-0.03	
JA	medium-low		-1.03	-0.47	-0.43	-0.65	-0.25	-2.35	0	0.05	-0.9	-0.08	-1.33	-0.38	-0.13	-0.21	-4.49	-0.9	-1.87	-1.15	-1.11	
JA	medium-high		-1.09	-0.93	-1.56	-1.03	-1.09	-2.83	0	-0.33	-4.5	2.93	0.39	-0.92	1.15	-1.28	-5.52	-3.08	-3.51	-0.08	-0.6	
JA	high		-1.59	-2.43	-2.42	-1.11	-0.94	-5.4	0	-2.09	-5.33	-0.21	-1.21	-2.35	0.34	-5.61	-4.64	-1.24	-0.12	-1.19	-1	
OD	low		-0.04	-0.32	-0.57	-0.59	-0.15	-5.38	-1.05	-0.45	0.72	0.34	-0.04	-0.95	-0.14	1.08	-1.58	-1.56	-0.39	0.32	-0.14	
OD	medium-low		0.79	-0.32	-0.61	0.24	-0.08	-0.71	-1.42	-0.38	-0.88	-0.24	0.15	0.19	0.3	1.36	-1.3	1.31	-0.42	-0.08	-0.44	
OD	medium-high		0.02	0	-0.09	-0.02	0.03	-3.15	-0.55	0.03	-0.25	0.06	0.15	-0.23	0.37	-0.43	-0.09	0.05	-0.09	-0.45	-0.15	
OD	high		-0.18	0.07	-0.67	-0.12	-0.14	-0.77	-0.07	0.21	-0.1	-0.42	-0.56	-1.01	0.07	-0.32	-0.22	-0.8	-1.01	0.38	-0.42	
EAH	low		-0.66	-0.49	-0.97	-0.32	-0.4	-2.62	-1.25	-1.49	-2.95	-0.12	-1.66	-1.7	-0.79	-13.6	-7.6	-1.24	-13.9	-0.56	-1.49	
EAH	medium-low		-0.7	0.22	0.42	-0.04	0.19	-1.34	-2.7	4.24	-0.46	0.85	-0.66	1.77	0.4	-5.2	3.19	2.96	-6.71	-1.63	0.28	
EAH	medium-high		0.07	0.34	0.51	-0.1	1.27	-0.02	1.19	0.69	-0.88	2.58	0.67	0.97	2.08	1.67	-1.6	-0.57	-3.66	1	0.16	
EAH	high		1.43	-2.36	-1.61	-1.3	3.49	-5.81	-3.41	-2.37	3.02	0.51	-0.9	1.99	4.9	3.88	1.85	-11.3	-6.79	-1.51	-0.48	
CI	low		0.35	-0.09	-0.24	-0.05	0.15	-0.27	0.17	0.06	0.01	-2.01	0.23	0.01	0.01	0.09	0.08	0.44	2.73	0.16	0.06	
CI	medium-low		3.12	0.99	1.85	1.79	-0.51	2.1	0.51	0.49	0.01	-3.24	1.43	-0.35	-0.05	-3.45	-0.87	0.26	0.76	2.64	0.36	
CI	medium-high		0.65	0.21	0.15	0.08	0.27	0.15	0.03	0.08	0.09	-7.16	-0.52	0.57	0.11	-0.29	0.18	1.48	1	0.08	0.13	
CI	high		-0.9	0	0.02	-0.01	0.09	0.01	0	0	-1.95	-0.41	0.15	0.11	-0.95	0	-0.05	-0.02	2.07	-0.07		
WA	low		0.42	-0.16	-0.01	0.44	0.38	-0.46	0.03	0.03	0.07	-0.32	-0.82	0.06	0.08	0.17	0.24	0.56	1.73	2.54	1.26	
WA	medium-low		0.34	0.55	0.99	0.78	1.29	0.09	1.28	-0.09	-0.44	0.72	1.04	-0.58	0.17	0.17	-0.6	7.94	4.45	3.09	2.95	
WA	medium-high		0.39	0.6	0.57	0.89	0.72	0.03	0.13	0.23	0.33	0.21	0.67	0.21	0.04	0.56	0.45	0.47	1.19	1.06	1.3	
WA	high		0.52	0.09	0.08	0.08	-0.07	0.04	0	0	-0.07	-1.04	-0.47	0.01	0.01	0	0.01	1.16	-1.4	8.02	0.8	
AM	low		0.93	0.72	0.33	0.23	0.41	-0.11	0.74	0.35	1.59	2.2	0.49	0.62	2.17	4.47	2.4	-2.63	0.35	4.49	2.76	
AM	medium-low		-0.05	0.55	-0.34	1.06	0.12	0.42	0.04	1.86	1.02	0.07	-0.1	-2.42	1.19	2.79	0.09	0.13	-0.1	-0.25	-0.05	
AM	medium-high		0.23	0.24	0.06	0.04	0.04	0.25	0.16	0.3	0.01	0.07	0.21	1.57	1.02	-0.09	0.06	-0.19	0.13	0.4	0.6	
AM	high		0.15	-0.02	-0.02	-0.09	-0.16	-0.54	0.01	0.49	0.04	0.02	-0.01	1.79	0.42	0.05	0.01	0.01	0.13	0.03	-0.79	
ACX	low		0	-0.01	-0.22	0.01	-0.05	-2.38	0.23	-0.07	0.07	-1.94	-0.12	0.33	2.05	0.17	0.07	0.02	0.02	-0.06	0.4	
ACX	medium-low		0.07	0.07	-0.06	0.14	0.13	0.58	0.06	-0.28	0.25	-0.06	0.06	0.08	0.37	0.38	-0.02	0.27	0.15	0.05	0.17	
ACX	medium-high		-0.06	0.17	0.32	0.07	0.03	0.23	0.05	0.51	0.03	0.14	0.09	1.22	0.24	0.02	0.06	0.16	0.03	0.13	1.44	
ACX	high		0.07	0.26	-0.21	-0.18	-0.55	-0.29	-0.13	0.71	0.06	0	0.13	1.86	0.5	0.52	0.21	-0.07	-0.01	0	0.37	
CN	low		3.37	3.53	4.97	4.04	2.79	10.46	5.21	7.84	1.24	5.05	5.68	5.66	2.57	-0.73	4.49	9.02	3.97	4.62	3.86	
CN	medium-low		1.19	1.98	1.85	3.03	1.63	0.85	3.88	3.82	-1.27	5.83	2.15	4.76	3.97	0.19	4.09	4.91	3.14	2.7	5.49	
CN	medium-high		1.45	1.31	1.29	1.76	1.71	4.09	8.31	2.9	6.14	4.65	3	5.2	4.6	0.04	6.38	9.11	5.07	5.6	6.37	
CN	high		5.17	5.92	3.47	4.83	7.23	13.95	11.61	11.28	9.7	10.93	11.22	12.47	13.4	0.04	8.67	12.5	10.57	7.82	9.53	
EAO	low		-0.15	0.04	-0.42	0.18	0.03	1.7	0.35	0.65	0.49	0.98	1.12	1.19	0.91	2.79	3.83	-4.4	5.17	1.41	2.78	
EAO	medium-low		-0.07	-0.13	-0.3	-0.1	-0.01	-0.44	2.17	0.79	2.74	-0.38	0.53	0.08	-0.1	1.23	2.82	1.15	-1.09	0.08	-0.11	
EAO	medium-high		0.11	0.02	0.12	0.07	-0.04	0.27	1.21	1.49	0.21	0.25	1.49	0.76	0.63	-0.02	3.65	-0.26	0.09	0.83	0.37	
EAO	high		-0.08	-0.4	-2.57	-0.54	-2.09	-2.62	-5.56	-0.09	-3.27	0.64	0.26	-0.32	2.17	6.66	-1.51	-3.65	-0.98	-0.14	0.26	
IN	low		0.21	0.2	0.45	0.27	0.19	0.46	0.21	-0.17	-0.02	0.07	1.73	0.73	0.22	0.32	0.78	0	1.58	1.2	0.09	
IN	medium-low		0.18	0.36	0.61	0.46	0.21	0.18	0.57	0.25	2.62	0.2	3.85	1.22	0.09	-0.01	0.29	0	4.94	0.58	4.23	
IN	medium-high		0.11	0.19	0.3	0.3	0.12	0.43	0.17	0.28	0.16	-0.14	0.57	0.35	0.2	0.06	0.49	0	1.9	0.6	1.36	
IN	high		0.02	0.12	0.17	0.14	0.32	0.32	0.01	0.11	0.09	-0.46</										

Appendix 4 – Bilateral and industry group specific export market shares, 2030
(mshXX₂₀₃₀)

	tech intensity	IMPORTER																		
		eun	euc	euw	eus	eue	us	ja	od	eah	ci	wa	am	acx	cn	eao	in	as	afn	afs
EUN	low	23.0	4.1	5.6	2.8	3.7	1.0	1.8	1.4	0.6	5.2	2.3	0.8	0.8	3.0	1.2	2.3	1.3	5.8	1.5
EUN	med-low	26.6	4.0	7.7	3.5	4.0	2.1	1.2	1.3	1.1	4.5	0.5	1.3	0.6	1.3	0.3	2.5	1.4	0.7	0.0
EUN	med-high	16.1	3.9	3.8	3.1	2.5	2.0	1.6	2.2	2.1	4.5	2.0	1.9	0.8	1.9	1.1	2.5	1.8	1.7	2.5
EUN	high	14.5	2.2	3.5	2.7	1.2	1.8	0.7	2.3	0.0	4.8	7.5	0.9	0.2	-0.9	1.2	1.0	18.3	2.8	8.4
EUC	low	28.3	40.3	32.7	33.0	34.9	6.1	8.6	7.6	8.0	15.8	10.6	4.1	3.4	8.7	6.1	5.8	2.9	12.2	12.5
EUC	med-low	24.3	41.6	28.5	25.7	34.8	10.0	3.7	7.1	4.6	13.3	9.8	6.6	8.0	9.6	5.0	14.5	2.5	13.7	13.3
EUC	med-high	44.7	41.8	49.4	49.8	44.9	16.1	16.3	12.7	14.8	25.1	20.9	11.6	9.5	16.9	8.1	16.2	9.2	25.0	19.4
EUC	high	28.8	30.5	36.4	43.9	29.6	12.3	9.4	14.6	3.9	21.5	14.3	12.3	6.6	6.7	11.5	21.2	14.7	22.2	19.9
EUW	low	2.5	2.3	0.0	5.6	1.6	1.1	0.4	1.7	1.5	1.1	1.1	0.5	0.8	2.6	1.0	4.2	1.2	-0.9	1.8
EUW	med-low	4.1	4.6	0.0	5.5	1.3	3.2	0.8	3.0	0.3	0.6	1.4	0.8	1.3	1.3	0.4	0.3	0.7	1.4	1.3
EUW	med-high	6.0	4.9	0.0	5.0	2.2	3.8	2.2	2.2	1.4	3.7	3.8	0.8	1.0	1.2	0.7	1.0	2.4	1.4	3.5
EUW	high	2.8	3.8	0.0	3.8	1.7	3.3	1.6	3.8	1.2	1.4	3.8	0.2	0.6	0.1	0.8	-0.1	0.7	3.9	2.0
EUS	low	6.8	13.8	15.3	16.5	11.9	4.1	4.3	5.2	5.4	8.1	7.0	4.2	4.2	5.6	2.3	4.0	1.1	14.8	4.9
EUS	med-low	5.9	10.2	7.6	14.5	12.5	3.1	0.5	2.3	1.0	4.1	6.6	3.3	5.9	3.3	1.0	1.6	1.0	22.6	3.6
EUS	med-high	6.8	14.0	14.4	12.7	12.0	6.7	4.3	3.7	1.9	6.9	8.3	4.3	4.2	2.4	1.9	5.1	4.1	16.2	4.9
EUS	high	7.0	13.2	13.4	9.5	2.9	4.5	2.5	6.1	1.5	5.0	3.7	1.8	2.8	1.7	2.9	1.4	1.8	4.9	4.0
EUE	low	7.0	8.0	4.2	7.5	24.8	0.6	0.7	1.1	0.4	10.0	2.8	0.3	0.2	0.6	0.5	0.4	0.6	1.6	1.4
EUE	med-low	6.3	7.3	3.5	5.4	24.5	0.5	0.2	0.4	0.3	9.9	3.5	0.6	0.4	0.8	0.1	0.8	0.9	2.5	1.6
EUE	med-high	6.9	10.5	6.2	8.1	16.6	1.0	1.1	1.0	0.6	9.2	3.6	1.1	0.7	1.4	0.4	1.3	0.6	2.6	2.5
EUE	high	11.1	5.8	11.1	8.1	14.0	0.7	0.3	1.1	0.1	16.4	9.1	0.3	0.8	0.2	0.5	0.3	2.5	4.2	5.2
US	low	0.8	1.0	2.4	1.0	0.7	0.0	7.6	29.2	5.2	2.2	3.1	9.3	47.8	15.5	7.2	4.3	1.9	5.2	2.9
US	med-low	1.8	2.7	5.9	3.0	0.8	0.0	4.1	26.9	4.2	1.3	3.4	20.9	41.4	5.6	1.7	4.3	1.7	5.2	2.7
US	med-high	3.8	6.3	5.1	2.9	1.8	0.0	12.6	41.3	12.0	5.2	10.8	17.4	40.8	8.9	6.3	11.3	5.3	6.2	8.2
US	high	5.0	11.4	10.8	8.7	-0.5	0.0	17.5	17.1	7.9	0.3	13.9	15.6	2.6	6.5	10.2	22.2	10.3	4.0	5.6
JA	low	0.1	0.1	0.2	0.1	0.1	0.6	0.0	0.3	4.1	0.2	0.5	0.1	0.4	7.4	3.3	0.9	0.6	0.2	0.3
JA	med-low	0.0	0.9	1.3	0.4	0.7	1.5	0.0	4.1	14.3	1.7	1.9	2.8	3.1	19.8	11.4	1.7	2.0	0.5	1.3
JA	med-high	2.2	3.6	3.6	2.7	2.9	13.7	0.0	9.3	21.7	11.3	12.6	5.2	8.5	22.2	17.9	3.8	8.1	7.0	6.9
JA	high	1.4	1.7	1.0	1.3	3.5	1.5	0.0	2.4	5.4	3.0	1.8	0.2	8.0	9.2	8.6	1.1	2.5	0.5	1.1
OD	low	1.0	0.7	2.4	0.4	0.3	13.6	8.0	6.3	6.8	1.6	3.9	1.5	4.9	9.6	8.6	2.3	3.4	2.9	2.7
OD	med-low	3.8	0.9	2.7	1.7	0.3	18.2	3.5	2.5	3.0	0.3	1.5	1.6	2.7	5.7	3.3	9.1	0.9	0.4	0.9
OD	med-high	0.6	0.8	1.0	0.6	0.5	15.1	0.9	2.1	1.1	1.2	3.0	1.9	3.7	1.7	2.1	2.9	1.2	0.1	2.6
OD	high	1.1	1.5	1.1	1.2	0.8	6.8	1.0	2.3	0.8	0.8	0.5	0.6	1.7	0.5	0.7	1.4	0.3	1.3	1.7
EAH	low	0.8	0.1	0.6	0.3	0.1	0.3	2.4	1.0	1.8	0.9	1.0	0.5	0.9	4.0	10.1	6.6	-0.7	0.2	1.8
EAH	med-low	2.5	2.6	4.0	3.0	1.6	4.5	13.0	16.8	10.1	2.9	4.6	7.8	3.8	23.9	37.5	15.3	1.7	0.7	5.1
EAH	med-high	2.0	2.5	4.4	2.1	4.5	5.9	12.3	4.9	6.8	8.1	7.2	6.1	7.3	34.6	18.5	11.1	7.9	5.8	5.3
EAH	high	8.5	4.3	6.6	4.4	17.2	6.3	17.8	6.5	27.3	6.7	6.2	8.8	21.9	44.1	29.1	4.5	6.3	2.4	6.3
CI	low	4.9	1.1	1.0	1.3	2.3	0.0	0.8	0.4	0.3	20.8	3.1	0.1	0.1	2.6	0.6	3.1	5.9	4.0	0.3
CI	med-low	12.9	6.4	8.5	9.6	6.3	7.5	5.7	2.3	3.0	39.1	14.7	1.6	0.7	2.6	2.3	3.0	2.5	13.7	2.5
CI	med-high	2.8	0.9	0.6	0.4	2.0	0.7	0.2	0.3	0.4	8.3	0.6	2.8	0.6	0.9	1.0	5.5	3.3	1.4	1.0
CI	high	0.1	0.1	0.1	0.1	0.7	0.1	0.0	0.0	0.0	2.9	-0.3	0.4	0.3	-0.8	0.1	0.2	0.3	4.7	0.1
WA	low	2.5	2.5	2.9	2.8	3.3	0.8	0.3	0.9	0.4	2.6	11.1	0.3	0.3	0.5	0.9	3.3	5.8	9.3	4.5
WA	med-low	1.2	2.6	5.6	4.2	3.9	1.5	9.1	1.2	7.5	4.0	17.1	0.7	0.9	1.8	3.5	24.7	45.1	17.7	17.5
WA	med-high	1.2	2.0	2.0	2.9	2.7	0.4	0.8	0.8	1.7	2.6	7.5	0.6	0.2	2.4	2.3	7.4	10.4	8.3	5.2
WA	high	1.5	0.6	1.3	0.7	0.4	0.1	0.0	0.0	0.1	-0.1	2.4	0.0	0.0	0.0	0.0	2.6	1.4	19.4	3.0
AM	low	3.9	4.3	3.4	4.5	3.1	4.3	3.8	3.4	5.7	11.6	8.1	48.5	10.5	15.8	9.6	7.4	7.3	18.6	10.9
AM	med-low	0.5	2.2	0.6	4.4	0.5	7.6	2.3	5.1	4.1	0.3	1.0	28.0	10.6	9.5	1.0	0.6	0.4	1.0	1.3
AM	med-high	0.9	0.9	0.5	0.5	0.2	1.8	0.7	1.0	0.2	0.4	0.9	22.8	5.6	0.3	0.4	0.6	0.5	1.5	2.5
AM	high	0.6	0.2	0.1	0.1	0.1	0.1	0.1	1.1	0.1	0.1	0.1	10.6	1.8	0.2	0.1	0.1	0.3	0.1	-0.6
ACX	low	0.1	0.3	0.4	0.5	0.0	8.6	1.1	2.3	0.4	-1.5	0.0	3.5	12.8	0.8	0.3	0.1	0.1	0.2	1.1
ACX	med-low	0.8	0.5	0.1	1.0	0.6	8.4	0.4	1.3	0.9	0.1	0.4	3.4	7.0	1.1	0.2	0.8	0.4	0.3	0.9
ACX	med-high	0.4	0.8	1.0	0.3	0.2	15.2	0.8	4.2	0.3	0.4	0.5	5.5	2.8	0.4	0.3	0.4	0.2	0.4	3.1
ACX	high	0.4	1.0	0.9	0.0	-0.1	10.6	0.7	5.3	0.6	0.2	0.7	10.6	3.8	2.2	0.9	0.4	0.2	0.2	1.2
CN	low	12.2	12.1	17.2	13.2	8.9	39.2	45.4	28.5	45.2	14.7	18.9	18.0	8.0	0.7	18.0	24.0	17.7	12.0	15.8
CN	med-low	6.5	9.0	12.9	11.0	6.5	23.0	29.5	17.3	21.2	17.0	10.2	15.9	11.8	0.7	15.6	12.1	11.4	10.5	16.8
CN	med-high	4.2	4.7	5.4	5.7	5.5	14.0	32.9	8.4	27.8	11.6	9.8	13.6	11.6	0.0	19.7	25.1	21.2	14.9	16.9
CN	high	14.8	19.0	12.4	13.8	25.5	42.8	41.5	30.2	37.8	31.1	29.9	32.3	35.9	0.2	24.7	40.8	31.7	22.8	25.6
EAO	low	2.8	4.1	4.6	3.3	1.7	12.9	13.3	7.3	11.7	4.4	10.6	5.1	3.5	18.5	24.6	24.9	31.7	7.0	15.7
EAO	med-low	0.7	1.1	1.5	1.1	0.5	1.9	15.6	5.6	13.2	0.1	3.4	1.2	0.6	6.8	13.5	3.6	3.7	1.3	2.4
EAO	med-high	0.7	0.8	1.1	0.8	0.6	1.9	12.0	4.3	6.4	0.9	4.6	2.3	2.1	3.8	17.2	4.2	7.1	2.5	2.3
EAO	high	2.1	3.8	0.7	1.2	2.0	8.0	6.8	6.7	12.8	4.1	4.0	3.7	12.2	30.0	7.7	2.9	2.6	1.8	3.4
IN	low	1.6	1.7	2.9	2.1	1.0	3.0	1.0	1.3	1.4	0.8	8.5	2.2	0.7	1.6	4.3	0.0	14.7	3.7	4.4
IN	med-low	0.6	1.6	2.5	1.5	0.6	3.1	2.6	1.9	8.8	0.6	12.9	3.8	0.6	1.4	2.3	0.0	21.0	3.3	11.4
IN	med-high	0.3	0.6	1.0	0.9	0.4	1.2	0.6	0.8	0.7	0.2	2.6	1.4	0.7	0.7	1.9	0.0	13.4	2.5	4.7
IN	high	0.1	0.3	0.5	0.4	0.8	0.8	0.1	0.3	0.3	1.9	1.9	1.6	0.6	0.1	1.0	0.0	5.4	2.3	7.0
ASO	low	1.2	1.6	2.6	1.9	1.0	3.0	0.3	1.3	0.7	0.6	3.9	0.9	0.6	1.7	0.8	5.8	3.8	0.6	2.6
ASO	med-low	0.1	0.1	0.1	0.1	0.0	0.1	0.3	0.1	0.3	0.0	0.8	0.1	0.1	0.2	0.1	1.0	1.7	0.1	0.8
ASO	med-high	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.5	0.1	0.6
ASO	high	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.3	0.2	0.3
AFN	low	0.2	0.9	0.6	2.4	0.3	0.5	0.1	0.2	0.1	0.4	2.7	0.1	0.2	0.1	0.1	0.3	0.4	1.7	1.9
AFN	med-low	0.2	0.7	0.5	2.6	0.1	1.2	0.3	0.3	0.4	0.2	2.2	-1.0	0.3	0.2	0.1	2.9			