

Chapter 9.B

Re-Export Trade for the Netherlands and Singapore

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9.B.1 Introduction

Several countries throughout the world engage in re-export activity.¹ However, most countries do not provide specific information for treating transshipment activity for the GTAP Data Base. The Netherlands and Singapore are major re-exporting countries for which there are adequate data for approximating the amount of re-exports. Previous versions of the GTAP Data Base did not address the problem of indirect trade with Singapore because of inadequate data. Singapore's re-export trade is a growing problem for the GTAP Data Base. The treatment of re-exports is different for each country because of differences in data availability and reporting practices. This document describes data problems and the nature of the adjustments made for Netherlands and Singapore.

9.B.2 The Netherlands

A noteworthy change for Dutch trade is the recent growth of imports from China (table 1). A large share of goods imported from China is destined for other countries. However, this presents a problem for the GTAP Data Base because indirect trade is not permitted. China is now the second largest supplier of goods after Germany. The Netherlands trade data does not provide a distinction between gross imports and retained imports or domestic exports and re-exports as Hong Kong's data provides. Exporting partners often declare the Netherlands as the destination of goods intended for re-export. This is because suppliers are unaware of the final destination of goods. As a result, partners overstate the level goods imported by the Netherlands.² Partner reported trade data is of little use for adjusting trade flows to approximate direct trade with the Netherlands. Dutch reported trade data is also problematic because there is a considerable amount of unclassified commodities reported by the Netherlands.³ Another difference between the Netherlands and Hong Kong is that the source of goods for re-exports is far more diverse for the Netherlands. Asia supplies 25 percent of the Netherlands' goods for re-export, with China as the leading supplier from the region (table 2). All of these factors make it implausible to estimate the amount of re-exports and re-export markups from trade statistics.

¹ Other large re-exporting countries include Belgium, Germany, and the United States where more than 10 percent of their exports are re-exports. Re-exports for the United States were \$90 billion in 2004.

² Reported exports to the Netherlands as reported by partners are 14 percent higher than what the Netherlands reports as imports from the world.

³ About 15 percent of the Netherlands' exported commodities were reported as unclassified commodities.

For the Netherlands an indirect approach for estimating the amount of re-exports is used. Re-exports are implicitly measured with the help of supply and use tables from Dutch national accounts data. The approach was used to estimate the Netherlands' re-exports, domestic exports, and retained imports on a sector basis.⁴ Based on estimates from this method, re-exports for the Netherlands account for about 50 percent of total exports.⁵ The share of re-exports in total exports varies considerably by sector. The main drawback of this method is that detailed information for trading partners is not provided. Source and destination information is still based on trade statistics provided by the Netherlands.⁶ Bilateral flows are adjusted by scaling trade flows to meet sector level targets for domestic exports and retained imports.

Similar to Hong Kong, the most significant re-exporting sector is the electronic equipment sector (table 3). Reported gross exports (\$53.7 billion) far exceed estimated domestic exports (\$7.9 billion). However, the largest sector contributing to domestic exports is the chemical, rubber, and plastics sector. Other sectors where Dutch re-exports play a prominent role include textiles, wearing apparel, leather products, wood products, motor vehicles and parts, and machinery and equipment.

By re-scaling bilateral flows with trading partners redundancies in trade are reduced⁷. For example, the Netherlands reported exports of \$11.3 billion in electronic equipment to Germany. These exports were reduced to \$1.6 billion after adjusting to eliminate re-exports. With Germany's imports from the Netherlands reduced, imports partly replaced by direct imports from China. China replaces the Netherlands as Germany's leading supplier of electronic equipment. Germany's imports of electronic equipment from China are close to what Germany reports (\$16 billion). With Germany importing directly from China and with the Netherlands exporting only domestic goods to Germany, redundancy from indirect trade is eliminated.

For most sectors domestic exports and retained imports are lower than the reported trade. However, for some sectors domestic exports and retained imports are higher than what the Netherlands or its partners report (table 3 and table 4). This is generally due to unclassified commodities. For example, although partners reported gas imports from the Netherlands, there is no report of exports of gas by the Netherlands.⁸ Both the Netherlands and its partners often fail to report commodities for 'other manufactures'. Reported trade is under-reported for the sector. For this reason both domestic exports and retained imports are substantially higher than reported totals.

9.B.3 Singapore

Previous versions of the GTAP Data Base did not address the problem of indirect trade with Singapore. However, it is no longer possible to meaningfully reconcile trade flows with

⁴ This approach was used in previous versions of the GTAP Data Base. Sector level estimates for domestic exports and retained imports for the Netherlands were provided by Nico van Leeuwen at the Netherlands Bureau for Economic Policy Analysis (CPB).

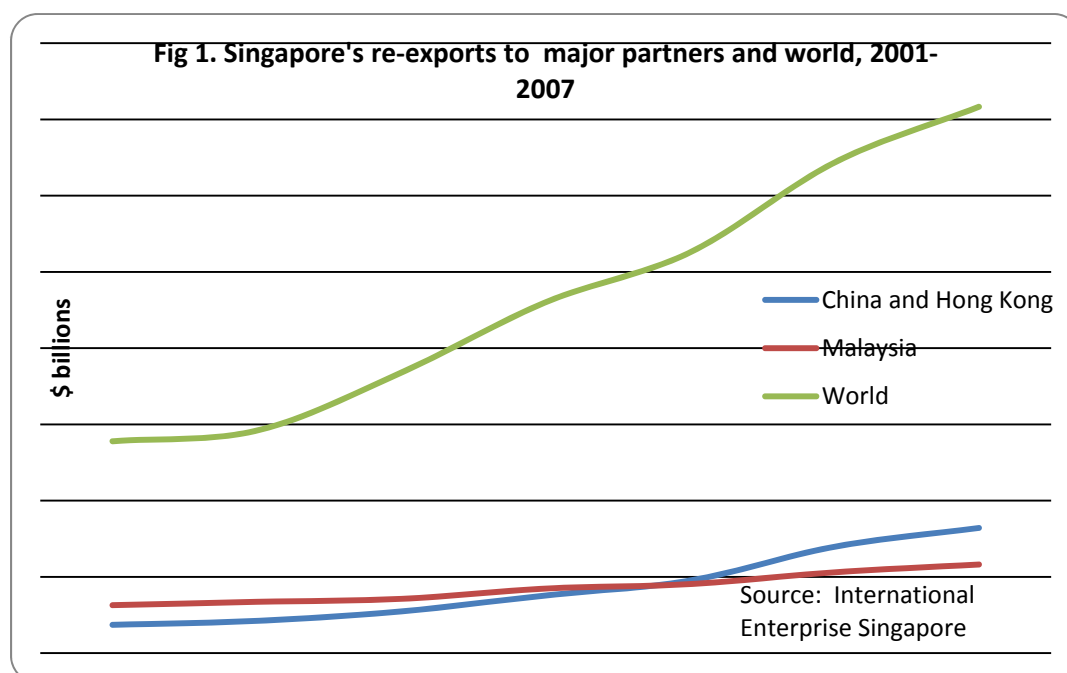
⁵ These estimates are consistent with Mellens, Noordman, and Verbruggen (2007) for re-exports in the Netherlands.

⁶ Dutch trade statistics are provided by EuroStat.

⁷ Trade is double counted when goods are exported from the Netherlands to Germany and again imported directly from China in the reported data.

⁸ Beginning in 2001 the Netherlands treated gas as an unclassified commodity.

Singapore by conventional practices. The size and growth of Singapore's re-exports has made treatment unavoidable for preparing data for the GTAP Data Base (fig.1).



Estimates for re-exports made from national accounts data was not available for Singapore. Singapore provides estimates of re-exports reported from its trade statistics.⁹ However, re-export data is not available on a source and destination basis as it is for Hong Kong. Singapore's imports included goods for re-exports. According to International Enterprise Singapore (IES), Singapore's exports for all goods in 2004 were about \$200 billion and re-exports accounted for 46 percent of total exports. However, there are major discrepancies with Singapore's trading partners.¹⁰ Unlike reported trade for other entrepôts, Singapore's trading partners generally report lower levels of trade for both Singapore's outbound and inbound trade. These differences are mainly because trading partners do not consider Singapore as the destination or the source of certain goods. For example, Malaysia's reported imports (\$11.6 billion) from Singapore are less than half of Singapore's reported exports (\$27.3 billion) to Malaysia. Singapore's reported exports include re-exports from other countries, while Malaysia reports imports of goods produced by Singapore. For Singapore's inbound trade Malaysia also reports a lower export value (\$16 billion) than what Singapore reports (\$25 billion). It is generally assumed that partner data is better suited for depicting Singapore's direct trade.

⁹ COMTRADE does not provide re-export statistics for Singapore. Re-export data is available from International Enterprise Singapore.

¹⁰ For specific information on the nature of discrepancies with Singapore's major partners, see Singapore Department of Statistics (2005).

Reported exports by Singapore were reduced from a gross value of about \$200 billion to \$117 billion to reflect direct trade for domestic exports (table 5).¹¹ Estimated domestic exports were based on data provided by IES. Partner data was re-scaled to meet the specific sector level domestic exports. Reported partner data for Singapore was also used to approximate retained imports. Singapore's reported imports of \$176 billion were reduced to \$129 billion to reflect Singapore's retained imports.

Although Malaysia is the leading destination based on Singapore's reported gross exports, China is the leading destination based on Singapore's domestic exports (table 5). A further complication is that Hong Kong is among Singapore's leading importing partners.¹² Singapore reports exports of nearly \$18 billion to Hong Kong, while direct imports from Singapore are only \$3.8 billion. With direct trade, imports to Hong Kong are comprised only of Hong Kong's retained imports while Singapore's exports to Hong Kong comprise only of domestic exports.¹³

Singapore's re-exports comprise of a wide range of goods (table 6). However, re-exports are most heavily concentrated among machinery and electrical equipment, accounting for more than 70 percent of Singapore's total re-exports. Differences between Singapore's total exports and domestic exports at the GTAP sector level are shown in table 7. Even after adjusting for Singapore's re-exports, the electronic equipment sector remains the largest sector contributing to domestic exports. Nearly two-thirds of Singapore domestic exports are comprised of electronic equipment and the chemicals, rubber, and plastics sector. Future revisions of Singapore's trade data for both domestic exports and retained import will likely be lowered.¹⁴

9.B.4 Summary and Conclusions

The treatment for re-exports for the Netherlands and Singapore depends on the type of data available and reporting practices of the re-exporting countries and partners. Estimates of re-exports and retained imports for the Netherlands is indirectly calculated from national accounts data. Bilateral trade reported by the Netherlands is scaled to meet sector totals for domestic exports and retained imports. Singapore's trade data is adjusted for re-exports using partner data and direct estimates of re-exports are made from Singapore's trade statistics. As more detailed data becomes available for Singapore improvements in the estimate of retained imports could be made.

¹¹ About \$7 billion in unclassified commodity exports are reported by Singapore.

¹² Singapore reports exports of \$18 billion to Hong Kong of which 50 percent are re-exports from other countries.

¹³ There are numerous unsolved puzzles with trade taking place between Singapore, Hong Kong and the Netherlands. The actual reported amount of trade from Singapore to Hong Kong includes Singapore's re-exports, which are likely re-exported again by Hong Kong.

¹⁴ The level of Singapore's domestic exports have been revised more recently to \$107 billion for 2004.

References

Hong Kong Census and Statistical Department (HKCSD), *Hong Kong Monthly Digest of Statistics*, various issues, Hong Kong

Joint Commission on Commerce and Trade (JCCT), 1995, “*Report of the ‘Trade Statistics Subgroup’*,” Trade and Investment Working Group, Washington DC, October 17, <http://www.census.gov/foreign-trade/reconcile/china.html>

Mellens, M.C., H.G.A Noordman, and J.P. Verbruggen, 2007, “Re-exports: International Comparisons and Implications for Performance Indicators” Netherlands Bureau for Economic Policy Analysis (CPB) Document No. 149.

Singapore Department of Statistic, 2005, “Discrepancies in Bilateral Trade Statistics: The Case of Hong Kong and Singapore.” Occasional Paper on Economic Statistics. <http://www.singstat.gov.sg/pubn/papers/economy/op-e26.pdf>

Table 1. Major suppliers of merchandise goods to the Netherlands

	2000	2001	2002	2003	2004	2005	2006	2007
	\$ billions							
Germany	34.8	35.3	37.9	46.8	57.0	60.2	70.8	86.7
China	7.6	9.1	11.3	16.6	23.7	31.9	38.9	51.8
Belgium	18.2	17.8	21.3	26.2	31.1	33.8	39.3	45.7
United States	21.2	19.9	19.4	20.8	25.2	27.3	31.9	35.8
United Kingdom	18.9	14.6	16.7	18.9	20.2	21.0	24.5	28.3
France	11.2	11.1	11.7	13.3	15.9	16.9	18.5	21.5

Source: EuroStat

Table 2. Source and destinations of Dutch manufacturers, 2002-2005

	Domestic exports	Re-exports	Total exports	Retained imports	Imports for re-exports	Total imports
	percent					
Belgium	11.5	9.6	10.7	11.9	9.9	10.9
Germany	22.9	21.6	22.4	21.9	20.1	20.1
France	9.8	9.7	9.8	6.1	5.4	5.8
Italy	6.1	6.1	6.1	3.2	2.9	3.1
Spain	3.9	4.3	4.1	6.0	6.1	6.0
United Kingdom	10.1	11.3	10.6	13.5	12.2	12.9
Rest of Western Europe	13.3	14.5	13.8	3.6	3.5	3.6
Total Europe	83.2	83.7	83.4	66.2	60.4	63.2
United States	4.8	4.9	4.8	8.4	9.8	9.1
Rest of America	2.0	1.6	1.8	4.4	3.3	3.9
Asia	7.4	7.6	7.5	18.7	25.1	22.0
Rest of world	4.7	3.8	4.3	2.2	1.4	1.8
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Adopted from Mellens, Noordman, and Verbruggen (2007)

Table 3. The Netherland's exports by GTAP sector

	Netherlands reported exports	Partner reported imports from Netherlands	Domestic exports estimated
	\$ millions		
Paddy rice	6	19	0
Wheat	42	58	25
Cereal grains n.e.c.	117	172	13
Vegetables, fruit, nuts	6,118	4,891	2,705
Oil seeds	564	351	4
Sugar cane, sugar beet	0	1	4
Plant-based fibers	4	5	4
Crops n.e.c.	7,515	7,445	6,023
Bovine cattle, sheep and goat	254	264	136
Animals products n.e.c.	1,556	1,643	1,368
Raw milk	0	0	0
Wool, silk-worm cocoons	5	7	28
Forestry	208	215	154
Fishing	533	567	471
Coal	574	186	0
Oil	35	7,545	27
Gas	0	3,140	3,751
Minerals	1,387	1,662	435
Bovine meat prods	2,102	1,904	1,719
Meat products n.e.c.	3,767	3,804	3,709
Vegetable oils and fats	2,872	2,860	699
Dairy products	4,794	4,544	4,242
Processed rice	39	76	0
Sugar	176	214	169
Food products n.e.c.	13,816	13,631	12,637
Beverages and tobacco	6,552	6,724	5,994
Textiles	5,242	4,836	2,175
Wearing apparel	2,830	2,035	644
Leather products	1,847	2,042	269
Wood products	1,911	1,942	668
Paper products, publishing	6,297	6,366	5,686
Petroleum, coal products	17,344	15,530	15,837
Chemical, rubber, plastic	53,414	55,350	41,917
Mineral products	1,807	1,976	1,597
Ferrous metals	7,106	6,959	7,153
Metals n.e.c.	3,969	5,117	2,757
Metal products	4,814	5,252	5,308
Motor vehicles and parts	11,831	13,295	8,354
Transport equipment	3,930	3,161	2,733
Electronic equipment	53,718	36,280	7,852
Machinery and equipment	41,488	33,589	15,201
Manufactures n.e.c.	2,260	2,476	5,028
Unspecified	45,195	22,117	
Total specified trade	272,845	258,134	167,496
Total trade	318,040	280,251	167,496

Table 4. The Netherland's imports by GTAP sector

	Netherlands Reported imports	Partner reported exports to the Netherlands	Retained imports estimated
	millions		
Paddy rice	39	29	21
Wheat	627	634	725
Cereal grains n.e.c.	731	797	668
Vegetables, fruit, nuts	3,589	3,907	1,908
Oil seeds	1,860	1,517	1,467
Sugar cane, sugar beet	2	0	1
Plant-based fibers	8	34	13
Crops n.e.c.	2,917	2,830	2,182
Bovine cattle, sheep and goat	200	260	166
Animals products n.e.c.	577	706	398
Raw milk	0	0	0
Wool, silk-worm cocoons	2	2	6
Forestry	294	292	300
Fishing	364	475	862
Coal	1,016	1,661	557
Oil	16,611	22,173	12,671
Gas	1,942	1,080	1,757
Minerals	2,295	2,768	1,855
Bovine meat prods	983	1,256	810
Meat products n.e.c.	1,554	2,116	1,647
Vegetable oils and fats	2,622	4,146	10
Dairy products	2,599	2,788	2,159
Processed rice	56	83	54
Sugar	128	162	41
Food products n.e.c.	6,646	8,122	7,388
Beverages and tobacco	2,718	3,052	2,317
Textiles	4,687	5,901	2,961
Wearing apparel	4,501	5,487	3,388
Leather products	2,043	2,884	1,604
Wood products	4,754	6,039	2,471
Paper products, publishing	6,281	8,713	6,372
Petroleum, coal products	8,936	14,348	8,007
Chemical, rubber, plastic	39,652	46,226	23,909
Mineral products	2,454	3,454	2,651
Ferrous metals	5,804	7,925	7,748
Metals n.e.c.	4,026	9,997	4,084
Metal products	4,810	6,947	5,673
Motor vehicles and parts	16,336	19,472	14,138
Transport equipment	4,702	7,439	3,250
Electronic equipment	55,017	56,470	11,946
Machinery and equipment	33,253	40,508	13,205
Manufactures n.e.c.	2,609	3,549	9,139
Unspecified	33,769	17,078	
Total specified trade	250,245	306,251	160,530
Total trade	284,014	323,329	160,530

Table 5. Singapore's partner trade, reported and estimated direct trade in 2004

	Exports reported by Singapore	Domestic exports estimated	Imports reported by Singapore	Retained imports estimated
	\$ billions			
Malaysia	27.3	13.0	25.0	16.2
United States	22.2	12.4	20.7	16.6
Indonesia	19.0	10.0	9.7	7.2
Hong Kong	17.7	3.8	3.7	0.5
China	15.4	15.6	16.2	12.7
Japan	11.6	7.1	19.1	15.3
ROW	85.6	55.2	79.2	60.5
Total	198.8	117.1	173.6	129.0

Table 6. Singapore's re-exports in 2004

HS-2 digit	Description	\$ millions
01	Live Animals	6
02	Meat	27
03	Fish And Seafood	219
04	Dairy,Eggs,Honey,Etc	107
05	Other Of Animal Origin	23
06	Live Trees And Plants	7
07	Vegetables	25
08	Edible Fruit And Nuts	78
09	Spices,Coffee And Tea	196
10	Cereals	30
11	Milling;Malt;Starch	13
12	Misc Grain,Seed,Fruit	56
13	Lac;Vegetabl Sap,Extrct	14
14	Other Vegetable	6
15	Fats And Oils	38
16	Prepared Meat,Fish,Etc	51
17	Sugars	34
18	Cocoa	35
19	Baking Related	29
20	Preserved Food	77
21	Miscellaneous Food	76
22	Beverages	581
23	Food Waste; Animal Feed	22
24	Tobacco	341
25	Salt;Sulfur;Earth,Stone	14
26	Ores,Slag,Ash	14
27	Mineral Fuel, Oil Etc	2,436
28	Inorg Chem;Rare Erth Mt	110
29	Organic Chemicals	1,374
30	Pharmaceutical Products	259
31	Fertilizers	7
32	Tanning,Dye,Paint,Putty	592
33	Perfumery,Cosmetic,Etc	770
34	Soap,Wax,Et;Dental Prep	115
35	Albumins;Mod Strch;Glue	118
36	Explosives	18
37	Photographic/Cinematogr	562
38	Misc. Chemical Products	670
39	Plastic	1,100
40	Rubber	679
41	Hides And Skins	72
42	Leathr Art;Saddlry;Bags	131
43	Furskin+Artificial Fur	0
44	Wood	172
45	Cork	1
46	Straw,Esparto	1
47	Woodpulp, Etc.	1
48	Paper,Paperboard	189
49	Book+Newspapr;Manuscrpt	215

Table 6 continued

50	Silk;Silk Yarn,Fabric	26
51	Animal Hair+Yarn,Fabrc	4
52	Cotton+Yarn,Fabric	101
53	Other Veg Textile Fiber	2
54	Manmade Filament,Fabric	83
55	Manmade Staple Fibers	188
56	Wadding,Felt,Twine,Rope	29
57	Textile Floor Coverings	15
58	Spcl Woven Fabric,Etc	50
59	Impregnatd Text Fabrics	67
60	Knit,Crocheted Fabrics	55
61	Knit Apparel	1,141
62	Woven Apparel	448
63	Misc Textile Articles	78
64	Footwear	178
65	Headgear	4
66	Umbrella,Wlk-Sticks,Etc	1
67	Artif Flowers,Feathers	1
68	Stone,Plastr,Cement,Etc	56
69	Ceramic Products	28
70	Glass And Glassware	114
71	Precious Stones,Metals	1,248
72	Iron And Steel	648
73	Iron/Steel Products	779
74	Copper+Articles Thereof	321
75	Nickel+Articles Thereof	128
76	Aluminum	345
78	Lead	23
79	Zinc+Articles Thereof	169
80	Tin + Articles Thereof	520
81	Other Base Metals, Etc.	57
82	Tool,Cutlry, Of Base Mtls	420
83	Misc Art Of Base Metal	115
84	Machinery	16,968
85	Electrical Machinery	48,019
86	Railway;Trf Sign Eq	13
87	Vehicles, Not Railway	2,006
88	Aircraft,Spacecraft	920
89	Ships And Boats	134
90	Optic,Nt 8544;Med Instr	2,779
91	Clocks And Watches	395
92	Musical Instruments	28
93	Arms And Ammunition	0
94	Furniture And Bedding	136
95	Toys And Sports Equipmt	315
96	Miscellaneous Manufact	119
97	Art And Antiques	18
98	Special Other	944
99	O Specl Impr Provisions	103
	Total	92,045

Source: International Enterprise Singapore

Table 7. Singapore's reported and domestic exports by GTAP sector

	Singapore's reported exports	Domestic exports
	\$ millions	
Paddy rice	0	0
Wheat	0	0
Cereal grains n.e.c.	1	5
Vegetables, fruit, nuts	100	58
Oil seeds	10	9
Sugar cane, sugar beet	0	0
Plant-based fibers	0	15
Crops n.e.c.	265	171
Bovine cattle, sheep and goat	2	2
Animals products n.e.c.	56	31
Raw milk	0	0
Wool, silk-worm cocoons	0	0
Forestry	34	30
Fishing	62	75
Coal	0	0
Oil	0	1
Gas	0	0
Minerals	60	108
Bovine meat prods	18	19
Meat products n.e.c.	29	15
Vegetable oils and fats	289	334
Dairy products	168	162
Processed rice	29	30
Sugar	36	15
Food products n.e.c.	1,564	1,294
Beverages and tobacco	1,122	834
Textiles	1,639	1,101
Wearing apparel	1,286	572
Leather products	426	309
Wood products	288	305
Paper products, publishing	1,403	1,488
Petroleum, coal products	19,334	9,172
Chemical, rubber, plastic	27,250	24,500
Mineral products	609	516
Ferrous metals	1,448	1,109
Metals n.e.c.	2,685	1,673
Metal products	1,802	1,339
Motor vehicles and parts	2,307	775
Transport equipment	2,224	2,435
Electronic equipment	94,730	53,458
Machinery and equipment	28,652	13,702
Manufactures n.e.c.	1,936	1,392
Total trade	191,865	117,054