EXPORT PROMOTION

A Decision Support Model Approach

Editors

**LUDO CUYVERS
WILMA VIVIERS**

Chapter 8

The assessment of public export activities using DSM results: the case of Belgium¹

Ludo Cuyvers & Michel Dumont

8.1 Introduction

Gathering information with regard to foreign markets, establishing (and maintaining) social networks and intermediaries necessary to enter foreign markets and the skills required for internationalisation activities may be subject to market failure (see for example BIS (2011) for an overview). Firms may be hesitant to incur research and marketing expenditures if these may also benefit their competitors. These market failures offer the the main rationale for government involvement in export promotion. However, public funding of an export promotion organisation (EPO) should be supported by an assessment of the social costs and benefits of export promotion activities (Lederman, Olarreaga & Payton, 2006:2). It should, therefore, be kept in mind that an increase in export (shares) does not necessarily imply an increase in welfare. Posen (2006) warns for faddish export promotion, pointing out that a focus on export competitiveness could erode living standards and distract policymakers from a more beneficial focus on productivity. Czinkota (2002:130) argues that EPOs in many instances have become a good idea gone bad, with goals becoming blurred and efficiency being low, EPOs becoming “grazing grounds for retired officials” and “havens for job generation” and trade missions being “tools to reward political friends”.

---

1 We are grateful to Liesbeth Van Mol and Louise Blontrock for part of the data collection and data processing, and to Jan van Doren (VOKA), Wilma Viviers (North-West University, South Africa) and Christophe Crombez (KULeuven) for comments on an earlier draft. An earlier and abridged version of this paper was published in *Review of Business and Economics*, 2008, 53(1): 69-92.

Notwithstanding some of these considerations with regard to the efficiency of national EPOs, their number has tripled over the last two decades. A World Bank estimation, using data on 119 countries, suggests that for the median EPO, one dollar of export promotion increases exports by 300 US dollars. This substantial overall result however conceals heterogeneity across countries (e.g. an additional impact of 490 US dollars for every US dollar of export promotion in Latin America but an additional impact of “only” 190 US dollars in OECD countries) and types of export promotion instruments (e.g. on-shore export support services seem to be more beneficial than country image building, marketing or market research activities). Results also suggest that there are decreasing returns to scale. Czinkota (2002) also pointed out that among industrialised countries there does not appear to be a link between export promotion expenditures and export success.

Most studies on EPOs are based on surveys of exporters (e.g. Kedia & Chhokar, 1986; Seringhaus & Botschen, 1991; Gencturk & Kotabe, 2001). These studies generally are critical with respect to the usage and efficiency of EPOs but do acknowledge their usefulness for (exporting) SMEs. A potential problem with these surveys is a selection bias (see e.g. Lederman, Olarreaga & Payton, 2006:4). In this chapter, rather than using surveys to establish the perception of EPO activities by exporters, we study the concordance between the major tenets of the export promotion policies of the public export promotion organisations in Belgium, i.e. Export Vlaanderen², AWEX and Brussels Export, in the period 1999-2003, on the one hand, and the most promising export opportunities, on the other hand, as they were derived using the decision support model (DSM) for the years 2000-2003.

Section 8.2 discusses these identified export opportunities, and which among these can be listed as realistic opportunities, as derived using the DSM based on various statistical data (for more detail on the DSM methodology, see Chapter 4).

In the next section, the export promotion activities of the three mentioned organisations, in the period 1999-2003, are reviewed, as these appear from the respective programmes and effectively implemented activities.

The third section analyses to which degree the export promotion activities of the three public export promotion organisations in Belgium can be associated with the realistic export opportunities, as reviewed in the first section.

2 In 2005, Export Vlaanderen was transformed into Flanders Investment and Trade (FIT) by the incorporation in one public institution with the functions of export promotion and of attracting foreign investment (previously the responsibility of Dienst Investeren Vlaanderen).

8.2 Realistic export opportunities for Belgium

The development of an export promotion strategy or the analysis of the effectiveness of existing export promotion programmes has to rely on hard quantitative data on foreign markets. As organisations are operating with scarce resources, a subsequent selection of opportune markets and product groups (product-country combinations) has to be made. For this purpose, the study makes use of the normative model, or decision support model, that was developed earlier (see Cuyvers, De Pelsmacker, Rayp & Roozen, 1995; Cuyvers, 1996; Cuyvers, 2004, for methodological details, see Chapter 4). This model endeavours to make a selection of possible export markets which, specifically from the Belgian point of view, are potentially profitable, from the set of all possible product-country combinations. Using macro-economic data and international trade statistics, available in 2003, the results of the decision support model was updated, which lead to the results summarised in Table 8.1.

As the aim is to determine for the Belgian exporting companies, in whatever industrial sector they are active, which products in which foreign markets should be considered as realistic export opportunities, and for an assessment of the activities of the export promotion organisations how far they promoted the exploration of these realistic export opportunities, thus determined, the use of these data, seem to be warranted. The disadvantage is that such statistical data are, by definition, never updated up to the present. This is not so much of a problem if we want to use these data for assessing export promotion activities of the past. However, if the model is used for the planning of export promotion activities, it needs to be supplemented with more qualitative data (e.g. survey data) on the business experts' judgments and prospects. If such qualitative data are used for assessing export promotion activities of EPOs in the past, when prospective events and developments are fully realised, such data might say more about the experts' expectations and biases, than that these events and developments are taken into account. Of course, assessing past export promotion activities against the expectations of business experts, who should be considered as the main beneficiaries of such activities, is worthwhile, but is beyond the scope of this paper.

See Chapter 4, Figure 4.2 for a summary of the DSM process, the criteria used, as well as the number of countries, product groups and product-country combinations involved, and Table 8.1 for the categorisation of the realistic export opportunities, thus detected according to import market characteristics and relative market importance of the product-country combinations for the exports of the Belgium-Luxembourg Economic Union (BLEU).

It can be seen that the 2000-2003 run of the DSM allowed the detection of 3,902 realistic export opportunities for the BLEU³. Because detailed international trade statistics for Flanders, Wallonia and Brussels are not available, it is impossible to assess per region (e.g. using the so-called revealed comparative advantage indices, see Balassa, 1965), whether a realistic export opportunity is more suited to the situation of Flanders, Wallonia and Brussels. It should be emphasised that the model deals with numbers of product-country combinations, which precludes any judgment or assessment based on the size of these opportunities (e.g. in terms of import value in Euro). Table 8.1 also indicates that for the 2000-2003 period, almost 45% of the realistic export opportunities are in markets where the relative BLEU market share is small. However, 33.7% of the opportunities can be situated in markets where the BLEU market share is intermediately large or large.

Table 8.1. Distribution of the realistic export opportunities 2000-2003 with respect to the relative BLEU market share and import market characteristics.

	Market share of BLEU relatively small	Market share of BLEU intermediately small	Market share of BLEU intermediately large	Market share of BLEU relatively large	Total
Large product market	0	0	0	0	0
Growing (long- and short-term) product market	1,467	502	296	154	2,419
Large product market, short-term growth	68	106	106	134	414
Large product market, long-term growth	79	64	99	102	344
Large product market, short- and long-term growth	126	176	192	231	725
Total	1,740	848	693	621	3,902

The distribution of the detected realistic export opportunities at the SITC 2-digit product group level can be consulted in Annex 8.1. The numbers correspond to the number of product-country combinations, which are finally considered as realistic export opportunities. Two product-country combinations belonging to the same 2-digit SITC product group can

3 These product-country combinations are at SITC 4-digit level. More recent runs of the DSM for Belgium, South Africa and Thailand are based on HS 6-digit import data (for more detail see Chapter 6).

either refer to the same country, but belonging to a different product category at the 4-digit SITC level, or to product-country combinations in two different countries.⁴

Figure 8.1. Results of the filtering sequence of the decision support model.

⁴ A list with the distribution of these opportunities over countries is available upon request from the authors.

8.3 The export promotion activities of the Belgian public export promotion organisations

In Belgium various organisations are active in the field of export promotion. This section, however, will focus on the public sector export promotion organisations, particularly the regional export promotion organisations, i.e. Export Vlaanderen⁵, AWEX and Brussels Export.

These organisations annually prepare and publish a programme of activities relating among others to the organisation of trade missions abroad, of participation in trade fairs, of workshops and conferences, etc. The planned activities are announced during the course of the year (e.g. in the case of Export Vlaanderen through its weekly publication *Exportbrief*).

However, on occasion planned activities are abandoned due to insufficient interest from the exporters, and if possible replaced by alternative activities that are announced. Therefore, the activities programmes of the regional export promotion organisations are not a static instrument, but are adjusted regularly.

In order to compare the export promotion activities of the three regional organisations, with the detected realistic export opportunities of the DSM run, we have converted all available 1999-2003 information on the export promotion activities by the regional organisations into product-country combinations. This conversion can be illustrated by the following, purely arbitrarily chosen examples (the relevant SITC 2-digit codes are between brackets):

In Las Vegas, USA, Export Vlaanderen organised together with AWEX, its Walloon counterpart, a collective stand ("group stand") at the fair Comdex from 13 until 17 November 2000, for the exhibition of hardware and software products (SITC product groups 75 and 76) and for internet applications of speech technology (SITC product group 93). At the 2-digit level, the activities can be converted into product-country combinations relating to the USA and to SITC product groups 75, 76, and 93, respectively.

There was also participation in a fair in the Anaheim Convention Center (California) from 24 until 26 March 2000, in order to promote the following products:

- (i) Organic products: beverages (SITC product group 11), fresh products (SITC product groups 0, 1, 2, 3 en 5), dairy products (SITC product group 2), cereals (SITC product group 4), and even organic fertiliser (SITC product group 56) and fodder (SITC product group 8);
- (ii) Personal care: cosmetics (SITC product group 55), body and hair care (SITC product group 55) and soap (SITC product group 55);

5 After Export Vlaanderen became Flandes Investment and Trade (FIT) it also became responsible for inward FDI promotion in the Flemish region of Belgium.

- (iii) Food supplements: vitamins (SITC product group 54), minerals (SITC product group 54), herbs (SITC product group 9) en sportsmen food products (SITC product group 9);
- (iv) Herbs and medicinal products: aromatherapy (SITC product group 54), herb extracts (SITC product group 54) and essential oils (SITC product group 55);
- (v) Vegetarian and natural food products (SITC product group 9);
- (vi) Delicacies: soy products (SITC product group 5), tea (SITC product group 11), macrobiotic products (SITC product group 9), bakery products (SITC product group 9), flour (SITC product group 4), ready-made meals (SITC product group 9), rice products (SITC product group 9), sweets (SITC product group 6) and deserts (SITC product group 9); and
- (vii) Environmental products: household products (SITC product group 55), washing products (SITC product group 55), paper (SITC product group 64), clothes (SITC product group 84), books (SITC product group 64), magazines (SITC product group 64) and audiovisual products (SITC product group 76).

Export Vlaanderen also organised from 5 until 8 December 2000 a business trip for Flemish exporters from industrial sectors relating to equipment and investment goods (SITC product group 72, 74 and 77) to three German *Länder*: Hessen, Rheinland-Pfalz en Saarland. From 16 until 20 February 2000 Export Vlaanderen was present with a collective stand at the Berlin construction fair Bautech. This bi-annual fair is specialised in construction as such (SITC product group 81), but also in doors (SITC product group 89), windows (SITC product group 89), roll-down shutters (SITC product group 89) and gates (SITC product group 89), heating and ventilation systems (SITC product group 81), insulation (SITC product group 89), roof works (SITC product group 89), wall facing (SITC product group 89), electronic equipment (SITC product group 77), construction sites (SITC product group 53), construction chemistry (SITC product group 59), recycling of building material (SITC product group 93), specific software (SITC product group 76).

This study also convert international trade fair participation into product-country combinations, distinguishing between local, regional and international trade fairs, with due regard to the nationality of the visitors.⁶ Only in case of local fairs, the conversion to product-country combinations is limited to the country at issue (e.g. Agrimaroc in Morocco, or Carrefour de Bois in France) and a "1" is assigned for the country and the relevant product group(s). For regional trade fairs (e.g. Bouwbeurs Utrecht, Netherlands) a "1" is

6 The best-known sources for nationality of exhibitors at trade fairs is *Le Moniteur du Commerce International*, *Ausstellungs- und Messe-Ausschuss der Deutschen Wirtschaft e.V.*, and *M+A Messeplaner*. These sources, however, do not provide sufficient information on nationality of visitors. We are indebted to Mr Marc Degraeve (export advisor of the regional export centre at Brugge), Mr André de Schryver (Manager Logistical Activities of Export Vlaanderen, Brussel) and Mr Jeroen de Vuyst (project manager, Export Vlaanderen, Brussel), for information allowing us to distinguish between local, regional and international trade fairs.

assigned per relevant product group to the country where the fair is organised (this is the Netherlands in the example of Bouwbeurs Utrecht), and a "0.5" per relevant product group, to each country from which visitors are coming (again in the case of Bouwbeurs Utrecht: Germany, Belgium and the United Kingdom). For the few truly international trade fairs (e.g. Anuga in Germany) a "1" is assigned per relevant product group to the country where the fair is organised, and a "0.5" to all other countries.

Annex 8.2 shows the thus coded export promotion activities of Export Vlaanderen, AWEX and Brussels Export during the period 1999-2003 per 2-digit product group and country respectively.

8.4. General assessment of the export promotion activities in Belgium, based on the BLEU's realistic export opportunities

In this section the study assesses globally the appropriateness and effectiveness of the export promotion activities of Export Vlaanderen, AWEX and Brussels Export with regard of the previously detected realistic export opportunities for the BLEU.

Although the international trade data used in the updating of the normative model are not going beyond the year 2000, they are the most recent ones for analysing the export promotion activities of the three Belgian regional organisations during the 1999-2003 period.

While interpreting the results reported below, one should keep in mind that the comparison is made with the BLEU's export opportunities, as detected using the decision support model, i.e. not specifically opportunities for Flanders, Wallonia or the Brussels region *per se*. It is also relevant to stress that the Flemish region accounted for 76.2 % of the Belgian exports in the period 2000-2002.

As the respective data sets are not normally distributed, we measure the degree of association between the export promotion activities in a specific target market abroad, and the realistic export opportunities, by Spearman's rank correlation coefficients. If both variables are quantitative, a Pearson correlation coefficient can be computed which gives an indication of the degree of association between two variables. However, the Pearson correlation coefficient requires normality of the variables. If this is not the case, a nonparametric correlation coefficient (e.g. Spearman) can be estimated by ranking the observations of both variables and measuring the degree of association in ranking. For the degree of association between the export promotion activities and the realistic export opportunities in all relevant target markets Pearson correlation coefficients have been computed as in this case the normality condition appeared to be satisfied.

For the period 1999-2003, correlation coefficients were calculated between the export promotion activities of Export Vlaanderen, AWEX and Brussels Export, converted into product-country combinations at the 2-digit product group level, on the one hand, and the realistic export opportunities at the same level of aggregation. Starting from the data set of realistic export opportunities the study analyses to what extent the export promotion activities of the regional organisations are related to these opportunities.⁷ The results can be found in the following Tables 8.2a, 8.2b and 8.2c, with the last column of each of these tables showing the correlation between the export promotion activities in the period 1999-2003 and the BLEU's realistic export opportunities for the most important countries.

Table 8.2a. Spearman correlation coefficients between the export promotion activities of Export Vlaanderen and all realistic export opportunities, SITC product groups (2 digit), by country (1999-2003).

Country	1999	2000	2001	2002	2003	1999-2003
Denmark	0.279*	0.252*	0.262*	0.303**	0.262*	0.313**
Germany	0.269*	0.251*	0.187	0.234*	0.131	0.216
Finland	0.093	0.219	0.148	0.065	0.129	0.214
France	0.191	0.449**	0.351**	0.445**	0.382**	0.396**
Greece	0.102	0.212	0.203	0.188	0.137	0.210
Ireland	0.409**	0.535**	0.292**	0.297**	0.316**	0.478**
Italy	0.379**	0.236*	0.325**	0.282*	0.287*	0.358**
Netherlands	0.199	0.364**	0.277*	0.320**	0.326**	0.356**
Austria	0.130	0.156	0.221	0.235*	0.234*	0.263*
Poland	0.103	0.289**	0.079	0.231*	0.153	0.255*
Portugal	0.179	0.192	0.232*	0.185	0.336**	0.275*
Spain	0.191	0.236*	0.200	0.350**	0.139	0.255*
United Kingdom	0.340**	0.338**	0.332**	0.435**	0.492**	0.486**
Sweden	0.136	0.182	0.330**	0.265*	0.271*	0.344**
Norway	0.246*	0.361**	0.248*	0.184	0.153	0.305**
Russia	0.124	0.175	-0.010	0.131	-0.061	0.071
Turkey	0.121	0.353**	0.269*	0.291**	0.297**	0.299**
South Africa	-0.068	-0.008	-0.115	-0.068	-0.110	-0.081
Canada	-0.157	0.044	0.085	0.020	-0.034	0.038
USA	0.264*	0.324**	0.289**	0.164	0.260*	0.358**
Brazil	-0.106	-0.157	-0.049	-0.025	-0.090	-0.103

⁷ Alternatively, the data on export promotion activities of the three regional organisations could be aggregated and correlated with the realistic export opportunities. This would provide a more general assessment of export promotion in Belgium, but at the price of losing the possibility of a comparison of the regional organisations' performance.

Country	1999	2000	2001	2002	2003	1999-2003
Mexico	0.197	0.271*	0.203	0.177	0.247*	0.295**
Uruguay	0.131	0.053	0.064	0.079	0.061	0.061
Venezuela	-0.092	-0.033	-0.074	-0.041	0.039	0.039
China	0.103	0.171	0.148	0.143	0.167	0.221*
Hong Kong	0.057	0.104	0.045	0.060	0.011	0.107
India	0.165	0.119	0.047	0.052	0.151	0.109
Indonesia	0.181	0.167	0.105	0.087	0.101	0.094
Japan	0.117	0.266*	0.234*	0.212	0.132	0.280*
Singapore	0.181	0.410**	0.291**	0.204	0.291**	0.424**
Taiwan	0.173	0.278*	0.216	0.249*	0.174	0.293**
Thailand	0.051	0.085	-0.061	0.045	-0.003	0.008
South Korea	-0.017	0.154	0.123	0.124	0.122	0.089
Australia	0.273*	0.132	0.280*	0.145	0.102	0.286*
Total	0.168**	0.201**	0.139**	0.158**	0.169**	0.215**

Note: significant at 1% **, at 5% *.

Table 8.2b. Spearman correlation coefficients between the export promotion activities of AWEX and all realistic export opportunities, SITC product groups (2 digit), by country (1999-2003).

Country	1999	2000	2001	2002	2003	1999-2003
Denmark	0.362**	0.311**	0.325**	0.249*	0.338**	0.318**
Germany	0.393**	0.386**	0.373**	0.205	0.389**	0.387**
Finland	0.168	0.087	0.084	0.143	0.182	0.115
France	0.463**	0.426**	0.395**	0.449**	0.539**	0.523**
Greece	0.291**	0.284*	0.161	0.418**	0.303**	0.271*
Ireland	0.331**	0.337**	0.313**	0.399**	0.491**	0.408**
Italy	0.403**	0.421**	0.381**	0.319**	0.483**	0.529**
Netherlands	0.362**	0.386**	0.271*	0.498**	0.442**	0.454**
Austria	0.157	0.258*	0.173	0.378**	0.256*	0.253*
Poland	0.286*	0.265*	0.295**	0.335**	0.257*	0.315**
Portugal	0.370**	0.440**	0.265*	0.426**	0.396**	0.434**
Spain	0.311**	0.369**	0.225*	0.433**	0.400**	0.390**
United Kingdom	0.420**	0.443**	0.433*	0.558**	0.486**	0.479**
Sweden	0.283*	0.289**	0.299**	0.312**	0.259*	0.304**
Norway	0.285*	0.281*	0.313**	0.390**	0.313**	0.322**
Russia	0.150	0.263*	0.092	0.123	0.235*	0.231*
Turkey	0.267*	0.331**	0.267*	0.385	0.359**	0.347**

Country	1999	2000	2001	2002	2003	1999-2003
South Africa	0.058	-0.089	0.039	0.029	0.073	0.066
Canada	0.120	0.071	0.088	0.170	0.161	0.148
USA	0.332**	0.329**	0.298**	0.353**	0.268*	0.358**
Brazil	-0.088	-0.019	-0.073	-0.105	0.212	-0.012
Mexico	0.220	0.231*	0.305**	0.204	0.288*	0.243*
Uruguay	0.126	0.062	0.061	0.056	0.083	0.130
Venezuela	0.089	-0.103	0.014	-0.026	0.033	0.073
China	0.131	0.201	0.212	0.202	0.331**	0.296**
Hong Kong	0.096	0.089	0.061	0.189	0.170	0.126
India	0.119	0.050	0.128	0.129	0.265*	0.251*
Indonesia	0.088	0.144	0.132	0.262*	0.046	0.132
Japan	0.325**	0.183	0.310**	0.272*	0.245*	0.317**
Singapore	0.135	0.138	0.140	0.270*	0.293**	0.216
Taiwan	0.204	0.164	0.250*	0.153	0.195	0.203
Thailand	0.083	0.007	0.000	0.157	0.023	0.058
South Korea	0.121	0.130	0.214	0.102	0.306**	0.198
Australia	0.256*	0.211	0.249*	0.174	0.317**	0.289**
Total	0.222**	0.244**	0.292**	0.231**	0.359**	0.318**

Note: significant at 1% **, at 5% *.

Table 8.2c. Spearman correlation coefficients between the export promotion activities of Brussels Export and all realistic export opportunities, SITC product groups (2 digit), by country (1999-2003).

Country	1999	2000	2001	2002	2003	1999-2003
Denmark	0.271*	0.284*	0.368**	0.213	-0.002	0.232*
Germany	0.256*	0.224*	0.302**	0.316**	0.263*	0.310**
Finland	0.069	0.009	0.009	0.044	0.230*	0.104
France	0.354**	0.325**	0.554**	0.378**	0.527**	0.535**
Greece	0.365**	0.203	0.340**	0.272*	0.360**	0.428**
Ireland	0.253*	0.268*	0.264*	0.310**	0.193	0.350**
Italy	0.285*	0.260*	0.416**	0.324**	0.460**	0.451**
Netherlands	0.197	0.223*	0.223*	0.281*	0.371**	0.374**
Austria	0.365**	0.197	0.243*	0.281*	0.155	0.366**
Poland	0.139	0.054	0.054	0.257*	0.193	0.229*
Portugal	0.377**	0.220	0.361**	0.253*	0.294**	0.406**
Spain	0.237*	0.181	0.391**	0.218	0.275*	0.370**
United Kingdom	0.383**	0.373**	0.374**	0.306**	0.374**	0.434**
Sweden	0.225*	0.162	0.333**	0.169	0.119	0.313**

Country	1999	2000	2001	2002	2003	1999-2003
Norway	0.376**	0.304**	0.304**	0.256*	0.222*	0.319**
Russia	-0.002	-0.068	-0.075	-0.014	0.120	0.030
Turkey	0.314**	0.409**	0.364**	0.367**	0.380**	0.390**
South Africa	0.079	0.083	0.039	0.023	0.017	0.093
Canada	0.084	0.054	0.084	0.079	0.093	0.074
USA	0.196	0.233*	0.243*	0.215	0.365**	0.380**
Brazil	-0.053	-0.079	-0.116	-0.105	0.101	-0.054
Mexico	0.119	0.070	0.054	0.069	0.159	0.127
Uruguay	0.074	0.032	-0.035	0.022	0.011	0.012
Venezuela	-0.039	-0.074	-0.082	-0.014	0.120	0.072
China	-0.063	-0.079	-0.109	0.004	0.091	-0.027
Hong Kong	-0.004	-0.041	-0.037	-0.048	0.041	-0.002
India	0.045	0.236*	0.022	0.182	0.186	0.217
Indonesia	0.320**	0.264*	0.253*	0.225*	0.070	0.263*
Japan	0.065	0.138	0.005	0.059	0.115	0.199
Singapore	0.082	0.114	0.116	0.112	-0.002	0.119
Taiwan	0.116	0.139	0.140	0.145	0.245*	0.258*
Thailand	0.160	0.113	0.106	0.102	0.034	0.126
South Korea	0.171	0.164	0.167	0.164	0.023	0.142
Australia	0.041	0.048	0.048	0.053	0.191	0.115
Total	0.154**	0.143**	0.170**	0.147**	0.266**	0.210**

Note: significant at 1% **, at 5% *.

The correlations for Export Vlaanderen, AWEX and Brussels Export are also depicted in Figures 8.2a, 8.2b and 8.2c, which will allow for a better visual inspection and assessment.

Whereas in the period 1990-1992 there was still somewhat more than a 60% probability that the export promotion activities of Export Vlaanderen exploited realistic export opportunities, and for AWEX 55% (Cuyvers and Rayp, 1993)⁸, the planned and organised activities of the regional organisations for the 1999-2003 period show only a small, albeit a statistically significant relationship with the list of BLEU exports opportunities, with overall correlation of 0.215 for Export Vlaanderen, 0.318 for AWEX and 0.210 for Brussels Export.

8 There is no figure of reference for Brussels Export in the period 1990-1992.

Figure 8.2a. Spearman correlation coefficients between the export promotion activities of Export Vlaanderen and all realistic export opportunities, SITC product groups (2 digit), by country (1999-2003).

Figure 8.2b. Spearman correlation coefficients between the export promotion activities of AWEX and all realistic export opportunities, SITC product groups (2 digit), by country (1999-2003).

Figure 8.2c. Spearman correlation coefficients between the export promotion activities of Brussels Export and all realistic export opportunities, SITC product groups (2 digit), by country (1999-2003).

Moreover, it appears that the correlation coefficients remain in later years of the period 1999-2003 of the same order of magnitude (or improve sometimes). As the list of realistic export opportunities refers to 2000, this could lead to a cautious conclusion that the consideration of the BLEU export opportunities by the regional organisations, if at all, is done with considerable delay in time and/or inertia. This conclusion is supported by the higher correlation coefficients for AWEX activities than these of Export Vlaanderen, taking into account that Wallonia represented in the period 2000-2002 only 14% of the Belgian exports, against 76.2% for Flanders.

It also appears that the correlation coefficients are higher for the EU countries (e.g. even 0.478 for Ireland and 0.486 for the United Kingdom in the case of Export Vlaanderen; or 0.523 with France, 0.479 with the UK in the case of AWEX) than for countries outside the EU. However, for some important distant markets, the correlation coefficients are reasonable (e.g. de USA), but mostly low and not statistically significant.

The activities of Export Vlaanderen with respect to the BRIC countries are mostly poorly correlated with the realistic opportunities there. However, the correlation between the activities of AWEX and the BLEU's export opportunities is statistically significant for both China and India. In the most recent years, it seems that the three regional export promotion organisations have aligned their activities towards the emerging economies better with the opportunities detected, as compared with the earlier years.

8.5 Correlation between the export promotion activities of Export Vlaanderen, AWEX and Brussels Export, and the corresponding product-country combinations under the assumption of geographical focus

The Belgian regional export promotion organisations might well be focusing their export promotion geographically and/or sectorally, due to budget constraints, which would provide some explanation for the low correlation reported in the previous section. The 3,902 product-country combinations of realistic export opportunities are found in 61 countries. A policy of geographical concentration of export promotion activities will then, obviously, leave many opportunities untapped, which in turn will lead to low correlation with the full set of realistic export opportunities.

In order to test the relevance of this hypothesis, we have calculated the correlation between the export promotion activities and the corresponding product-country combinations from the complete set of realistic export opportunities. Stated more concretely, we deleted from the full list of realistic export opportunities, the product-country combinations with which no export promotion activity corresponds. This allows us to test whether realistic export opportunities are corresponding with the export promotion activities, whereas in the previous section we tested whether the export opportunities and the export promotion programmes correlate which create an upward bias in the correlation coefficients, due to the many combinations of product-country combinations, to which corresponds no realistic export opportunity, nor any public export promotion activity.

The new correlation coefficients are shown in Tables 8.3a, b and c, as well as in the following Figures 8.3a, b and c. From Tables 8.3a, b and c it clearly appears that the correlation coefficients, both in terms of value and significance, suffer from the data restrictions thus introduced. The results suffered least for AWEX, although the statistical significance has disappeared. For the full period 1999-2003 only some ten countries remain for which AWEX's export promotion activities and the realistic export opportunities are relatively strongly and significantly correlated (see Table 8.3b).

The value of the correlation coefficients for the export promotion activities of Export Vlaanderen and Brussels Export have decreased sharply and the statistical significance has vanished mostly. For the total period 1999-2003, for instance, Export Vlaanderen's situation shows only one correlation coefficient which is positive and significantly different from zero (see Table 8.3a): with the realistic export opportunities in France (notwithstanding correlation coefficients for the individual years that are not significant). Apart from this poor result, Table 8.3a, only shows significant coefficients for individual years, such as for Norway (1999 and 2001), Egypt (1999), Indonesia (2000) and Australia (1999).

Table 8.3a. Spearman correlation between export promotion activities of Export Vlaanderen and the corresponding realistic export opportunities, SITC product groups (2 digit) by country (1999-2003).

Country	1999	2000	2001	2002	2003	1999-2003
Denmark	Ct	0.071	0.394	0.210	0.154	0.246
Germany	-0.145	0.113	-0.050	0.079	0.124	0.199
Finland	Ct	-0.029	-0.121	0.090	-0.016	-0.113
France	0.025	-0.150	-0.130	0.182	0.027	0.443**
Greece	Ct	-0.048	-0.192	0.007	-0.415	-0.157
Ireland	-0.118	0.133	-0.201	-0.065	0.073	0.046
Italy	-0.045	0.266	-0.115	0.031	-0.097	0.054
Netherlands	Ct	0.113	-0.266	-0.036	-0.244	0.029
Austria	Ct	-0.376	-0.297	0.130	-0.081	-0.019
Poland	Ct	0.104	-0.426*	0.123	0.071	0.029
Portugal	0.261	-0.333	-0.076	0.090	-0.405	0.053
Spain	-0.052	0.295	0.117	0.029	-0.066	0.076
United Kingdom	0.125	0.074	-0.031	0.078	-0.092	0.185
Sweden	0.411	0.046	0.283	0.206	-0.158	-0.019
Norway	0.707**	-0.140	0.428*	-0.249	-0.121	0.165
Russia	-0.080	0.179	-0.093	-0.025	-0.289	0.072
Turkey	-0.183	0.239	0.188	-0.283	-0.078	0.284
South Africa	-0.151	-0.187	Ct	-0.068	-0.221	-0.070
Canada	0.136	-0.305	Ct	0.116	0.059	-0.255
USA	0.249	0.053	-0.087	-0.229	-0.132	0.026
Brazil	-0.048	-0.076	-0.188	0.272	-0.078	-0.045
Mexico	0.159	-0.198	-0.106	0.040	0.146	0.216
Uruguay	-0.048	-0.149	0.098	-0.066	-0.069	0.122
Venezuela	Ct	-0.132	Ct	0.056	-0.202	-0.331
China	-0.268	0.037	-0.247	-0.278	0.031	-0.096
Hong Kong	-0.305	-0.074	-0.010	0.101	0.125	-0.194
India	0.003	-0.178	-0.142	0.156	-0.213	-0.019
Indonesia	Ct	0.475*	Ct	-0.249	-0.263	0.330
Japan	-0.322	-0.253	Ct	-0.166	-0.041	-0.395
Singapore	Ct	-0.044	0.295	-0.189	0.396	-0.066
Taiwan	Ct	0.181	Ct	0.261	0.396	0.069
Thailand	0.466	0.237	-0.125	0.226	-0.253	0.278
South Korea	0.009	Ct	Ct	-0.071	-0.078	0.138
Australia	0.512*	-0.271	0.325	-0.376	-0.280	-0.114
Total	0.194**	0.199**	0.122**	0.160**	0.157**	0.127**

Note: significant at 1% **, at 5% * ; Ct: at least 1 variable constant

Table 8.3b. Spearman correlation between export promotion activities of AWEX and the corresponding realistic export opportunities, SITC product groups (2 digit) by country (1999-2003).

Country	1999	2000	2001	2002	2003	1999-2003
Denmark	0.092	0.668**	0.385*	0.344	0.220	0.389*
Germany	-0.226	-0.152	-0.015	0.146	0.244	0.268
Finland	-0.046	0.120	0.060	-0.016	-0.025	0.127
France	0.564**	0.380*	0.470**	0.252	0.308	0.468**
Greece	0.266	0.372	0.164	-0.050	0.253	0.469**
Ireland	-0.094	0.217	0.366*	-0.034	-0.219	0.234
Italy	0.253	0.069	0.298	0.068	0.286	0.488**
Netherlands	0.467*	0.376	0.357*	-0.019	0.089	0.437**
Austria	-0.055	0.363	0.064	0.432*	0.242	0.355*
Poland	0.087	-0.323	0.150	0.029	0.179	0.148
Portugal	0.242	0.158	0.338	0.020	0.492**	0.441**
Spain	0.128	0.047	0.370*	-0.109	0.064	0.244
United Kingdom	0.343	0.105	0.281	0.054	0.221	0.433**
Sweden	0.066	0.577**	0.143	0.127	0.270	0.290
Norway	-0.151	0.251	0.453*	0.303	-0.029	0.385*
Russia	0.074	0.242	0.161	-0.266	0.267	0.101
Turkey	0.173	0.135	0.491**	0.259	0.090	0.277
South Africa	-0.255	-0.403	-0.079	0.197	-0.133	0.093
Canada	-0.068	0.074	-0.066	0.025	0.204	0.047
USA	-0.326	-0.195	-0.027	-0.380	0.189	0.042
Brazil	-0.034	-0.174	-0.074	-0.028	0.325	0.016
Mexico	0.105	0.009	0.224	-0.198	0.375	0.251
Uruguay	-0.042	0.067	0.010	0.142	-0.240	0.003
Venezuela	-0.132	0.034	0.175	-0.03	0.204	-0.195
China	-0.370	-0.200	-0.002	-0.512*	-0.061	0.054
Hong Kong	0.001	-0.039	0.128	-0.478*	-0.102	0.067
India	0.221	0.188	0.132	-0.230	0.025	-0.125
Indonesia	-0.207	-0.138	0.277	0.413	-0.240	0.159
Japan	-0.183	-0.027	0.318	-0.626**	0.238	0.182
Singapore	0.122	-0.181	0.343	0.027	0.293	0.319
Taiwan	0.356	0.264	0.401*	-0.061	0.188	0.284
Thailand	-0.232	-0.115	-0.252	0.465	-0.234	0.098
South Korea	0.237	0.168	0.213	0.053	-0.034	0.256
Australia	-0.030	0.079	0.152	-0.409	0.216	0.194
Total	0.196**	0.237**	0.353**	0.195**	0.384**	0.301**

Note: significant at 1% **, at 5% *; Ct: at least 1 variable constant.

Table 8.3c. Spearman correlation between export promotion activities of Brussels Export and the corresponding realistic export opportunities, SITC product groups (2 digit) by country (1999-2003).

Country	1999	2000	2001	2002	2003	1999-2003
Denmark	Ct	0.244	-0.135	0.348	Ct	0.469*
Germany	-0.418	-0.526	-0.692**	0.203	-0.047	-0.112
Finland	Ct	0.345	0.345	0.043	Ct	0.037
France	0.118	-0.175	-0.663**	-0.081	-0.200	-0.129
Greece	Ct	0.157	-0.236	-0.604*	-0.08	-0.108
Ireland	Ct	0.228	-0.228	-0.415	0.604	0.040
Italy	-0.358	-0.159	-0.457	-0.177	0.213	-0.076
Netherlands	Ct	0.076	0.076	-0.124	0.038	-0.248
Austria	-0.028	Ct	Ct	-0.112	Ct	0.101
Poland	Ct	Ct	Ct	-0.095	0.227	-0.101
Portugal	Ct	0.383	-0.416	-0.265	0.115	0.032
Spain	-0.122	-0.129	-0.489*	-0.396	0.073	-0.199
United Kingdom	-0.350	-0.086	-0.115	-0.144	0.233	0.049
Sweden	Ct	0.470	-0.238	-0.163	-0.100	0.074
Norway	Ct	0.632*	0.632*	-0.542*	0.255	0.298
Russia	Ct	Ct	-0.346	-0.430	Ct	-0.322
Turkey	Ct	-0.053	0.000	-0.054	0.136	0.276
South Africa	Ct	0.209	0.285	-0.371	Ct	-0.078
Canada	0.376	-0.243	0.376	0.277	0.110	0.493
USA	-0.734*	-0.477	0.593*	-0.533	-0.072	0.282
Brazil	-0.258	-0.059	Ct	1.000**	Ct	-0.098
Mexico	Ct	0.350	-0.350	0.352	Ct	0.057
Uruguay	Ct	0.285	Ct	-0.191	Ct	0.008
Venezuela	Ct	0.222	-0.222	-0.545	Ct	-0.356
China	Ct	0.165	0.285	0.145	Ct	-0.066
Hong Kong	Ct	Ct	0.222	-0.289	Ct	-0.123
India	Ct	Ct	-0.093	-0.163	Ct	-0.227
Indonesia	Ct	Ct	-0.350	-0.402	Ct	-0.110
Japan	Ct	0.604*	-0.356	0.767**	-0.671	-0.259
Singapore	Ct	Ct	0.087	-0.076	Ct	-0.019
Taiwan	Ct	Ct	0.043	0.261	0.180	0.051
Thailand	Ct	Ct	-0.285	-0.371	Ct	-0.203
South Korea	Ct	Ct	0.167	-0.036	Ct	0.329
Australia	Ct	Ct	0.000	0.181	Ct	-0.102
Total	0.198**	0.264**	0.120**	0.175**	0.219**	0.123**

Note: significant at 1% **, at 5% *; Ct: at least 1 variable constant.

Figure 8.3a. Spearman correlation between export promotion activities of Export Vlaanderen and the corresponding realistic export opportunities, SITC product groups (2 digit) by country (1999-2003).

Figure 8.3b. Spearman correlation between export promotion activities of AWEX and the corresponding realistic export opportunities, SITC product groups (2 digit) by country (1999-2003).

Figure 8.3c. Spearman correlation between export promotion activities of AWEX and the corresponding realistic export opportunities, SITC product groups (2 digit) by country (1999-2003).

8.6 Conclusion

This chapter assessed the degree of correspondence, for the period 1999-2003 between the export promotion activities of the main public export promotion organisations in Belgium (Export Vlaanderen, AWEX and Brussels Export) and the realistic export opportunities of the BLEU.

There is hardly any evidence that in the period studied, export promotion activities were sufficiently geared to realistic export opportunities. These opportunities, as detected using an updated DSM, correlate most of the times only weakly with the export promotion activities. When due account is taken of a hypothetical export promotion focus (which is not corroborated by our results) on a selective number of countries and opportunities, or opportunities in countries where the BLEU's market position warrants more success, due to e.g. a budget constraint, the average correlation coefficients are even lower (and not significantly different from zero).

As a matter of fact, AWEX seems to score highest of the three organisations. When correlation coefficients are calculated for a limited data set from which the product-country combinations are deleted to which no export promotion activity corresponds, a number of

coefficients for AWEX remain at about 0.30 and 0.50, and are significantly different from zero, in contrast to these for Export Vlaanderen and Brussels Export.

Obviously, the existing processes of identification, formulation and planning of export promotion activities within the three regional organisations must be held responsible for the poor correlation with export opportunities. It is possible that, particularly in the case of Export Vlaanderen and Brussels Export, the organisations hardly used hard and quantitative data during these processes. This, in turn, implies that too much is relied on subjective and possibly strongly personal information about developments in foreign markets. An alternative explanation is the existence of interference in the processes of identification, formulation and planning from directly interested exporters and their professional organisations.

A potential problem of export promotion in Belgium is the finding of the aforementioned World Bank study that "A single and strong EPO should be preferred to the sometimes observed proliferation of organisations within countries" (Lederman, Olarreaga & Payton, 2006:5). Not only are there three regional EPOs in Belgium but also numerous private and semi-private organisations take on the role of export promotion. The expenditures of the Belgian regional EPOs are well above the level resulting in a maximum impact on exports, estimated by Lederman, Olarreaga and Payton (2006) to lie between 0.6 and 2.7 dollar per capita. The best performing EPO in the world appear to be publicly funded but with a large share of the executive board in the hands of the private sector (Lederman, Olarreaga & Payton, 2006:5). If for political reasons a single publicly funded EPO is not possible in Belgium, the established diminishing returns to scale of export promotion call for strategic choices. We believe that determining realistic export opportunities is a valuable instrument to put public funds for export promotion to good use.

References

- Balassa, B. 1965. Trade liberalisation and revealed comparative advantage. *Centre Paper 63*, Yale University Economic Growth Centre, New Haven.
- BIS. 2011. International trade and investment: the economic rationale for government support. *BIS Economics Paper 13*, The Department for Business, Innovation and Skills, May 2011.
- Czinkota, M. 2002. National export promotion: a statement of issues, changes, and opportunities. In: Kotabe, M. and Aulakh, P. (eds). *Emerging issues in international business research*. Cheltenham (UK): Edward Elgar.
- Cuyvers, L. 1996. Export opportunities of Thailand: a decision support model approach. *Journal of Euro-Asian Management*, 2(2): 71-97.
- Cuyvers, L. 2004. Identifying export opportunities: the case of Thailand. *International Marketing Review*, 21(3): 255-278.
- Cuyvers, L., De Pelsmacker, P., Rayp, G. & Roozen, I.T.M. 1995. A decision support model for the planning and assessment of export promotion activities by government promotion institutions: the Belgian case. *International Journal of Research in Marketing*, 12(2): 173-186.
- Cuyvers, L. & Rayp, G. 1993. Handelspolitiek in België: een poging tot evaluatie van het institutioneel kader en de getroffen maatregelen. *De onderneming en de dynamiek van de economische orde* (Papers 21st Vlaams Wetenschappelijk Economisch Congres), Vereniging voor Economie, 1993, pp. 239-289.
- Gencturk, E. & Kotabe, M. 2001. The effect of export assistance program usage on export performance: a contingency explanation. *Journal of International Marketing*, 9(2): 51-72.
- Kedia, B. & Chhokar, J. 1986. An empirical investigation of export promotion programs. *Columbia Journal of World Business*, 21: 13-20.
- Lederman, D., Olarreaga, M. & Payton, L. 2006. Export promotion agencies: what works and what does not. *Trade Note 30*, World Bank group, Washington D.C.
- Posen, A.S. 2006. Faddish export promotion is a heavy burden for any economy. *Financial Times* (9 August).
- Seringhaus, F. & Botschen, G. 1991. Cross-national comparison of export promotion services: the views of Canadian and Austrian companies. *Journal of International Business Studies*, 22(1): 115-133.

Annexures

Annex 8.1. Export opportunities according to the normative model (SITC 2-digit).

	2000	2001	2002	2003
00 Live animals other than fish, crustaceans, mollusks and aquatic invertebrates of division 03	12	13	13	15
01 Meat and meat preparations	41	37	36	37
02 Dairy products and birds' eggs	30	30	35	32
03 Fish (not marine mammals), crustaceans, mollusks and aquatic invertebrates, and preparations thereof	21	23	17	21
04 Cereals and cereal preparations	47	34	30	38
05 Vegetables and fruit	49	48	30	43
06 Sugars, sugar preparations and honey	18	22	19	20
07 Coffee, tea, cocoa, spices and manufactures thereof	14	14	20	16
08 Feeding stuff for animals (not including unmilled cereals)	21	22	23	21
09 Miscellaneous edible products and preparations	5	7	8	5
11 Beverages	18	18	16	16
12 Tobacco and tobacco manufactures	17	17	15	16
21 Hides, skins and fur skins, raw	10	8	12	9
22 Oil seeds and oleaginous fruits	16	16	14	12
23 Crude rubber (including synthetic and reclaimed)	6	8	8	7
24 Cork and wood	18	21	20	18
25 Pulp and waste paper	8	7	8	9
26 Textile fibers (other than wool tops and other combed wool) and their wastes (not manufactured into yarn)	19	19	17	18
27 Crude fertilizers (imports only), except those of division 56, and crude minerals (excluding coal, petrol)	24	30	31	23
28 Metalliferous ores and metal scrap	16	16	16	14
29 Crude animal and vegetable materials, n.e.s.	29	37	35	31
32 Coal, coke and briquettes	7	9	9	8
33 Petroleum, petroleum products and related materials	15	17	21	17
34 Gas, natural and manufactured	0	0	0	0
35 Electric current	1	1	1	1
41 Animal oils and fats	7	5	8	nvt
42 Fixed vegetable fats and oils, crude, refined or fractionated	16	21	16	17
43 Animal or vegetable fats and oils processed; waxes and inedible mixtures or preparations of animal or vegetables	13	14	13	12
	0	0	0	0
51 Organic chemicals	15	13	17	17
52 Inorganic chemicals	17	16	24	18
53 Dyeing, tanning and coloring materials	8	12	14	8
54 Medicinal and pharmaceutical products	19	23	23	21
55 Essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations	12	13	14	13
56 Fertilizers (exports include group 272; imports exclude group 272)	6	11	7	7
57 Plastics in primary forms	0	0	0	0
58 Plastics in nonprimary forms	0	0	0	0
59 Chemical materials and products, n.e.s.	15	15	18	17

	2000	2001	2002	2003
61 Leather, leather manufactures, n.e.s., and dressed fur skins	2	2	5	2
62 Rubber manufactures, n.e.s.	12	14	12	11
63 Cork and wood manufactures other than furniture	9	16	15	9
64 Paper, paperboard, and articles of paper pulp, paper or paper board	27	31	29	29
65 Textile yarn, fabrics, made-up articles, n.e.s., and related products	36	44	48	29
66 Nonmetallic mineral manufactures, n.e.s.	39	50	49	37
67 Iron and steel	35	45	39	38
68 Nonferrous metals	25	40	38	24
69 Manufactures of metals, n.e.s.	42	53	45	44
71 Power generating machinery and equipment	14	19	17	16
72 Machinery specialised for particular industries	46	55	45	42
73 Metalworking machinery	17	29	24	24
74 General industrial machinery and equipment, n.e.s., and machine parts, n.e.s.	39	52	43	47
75 Office machines and automatic data processing machines	11	14	14	13
76 Telecommunications and sound recording and reproducing apparatus and equipment	19	16	19	19
77 Electrical machinery, apparatus and appliances, n.e.s., and electrical parts thereof	45	43	37	43
78 Road vehicles (including air-cushion vehicles)	21	24	20	17
79 Transport equipment, n.e.s.	0	0	0	0
81 Prefabricated buildings; sanitary, plumbing, heating and lighting fixtures and fittings, n.e.s.	20	27	22	20
82 Furniture and parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishing	0	0	0	0
83 Travel goods, handbags and similar containers	9	11	12	10
84 Articles of apparel and clothing accessories	74	66	61	76
85 Footwear	9	7	9	10
87 Professional, scientific and controlling instruments and apparatus, n.e.s.	18	19	27	20
88 Photographic apparatus, equipment and supplies and optical goods, n.e.s.; watches and clocks	30	40	37	31
89 Miscellaneous manufactured articles, n.e.s.	49	66	60	47
93 Special transactions and commodities not classified according to kind	7	7	8	9
95 Coin, including gold coin; proof and presentation sets and current coin	7	9	6	8
96 Coin (other than gold coin), not being legal tender	0	0	0	0
97 Gold, nonmonetary (excluding gold ores and concentrates)	5	7	3	5
98 Estimate of items valued under \$251 and of other low valued items nonexempt from formal entry	0	0	0	0
99 Estimate of non-canadian low value shipments; compiled low value shipments to Canada; and various shipment	0	0	0	0

Annex 8.2. Activities Export Vlaanderen (SITC 2-digit).

	2000	2001	2002	2003
00 Live animals other than fish, crustaceans, mollusks and aquatic invertebrates of division 03	2	26	17	1
01 Meat and meat preparations	16	34	17	7
02 Dairy products and birds' eggs	17	33	17	4
03 Fish (not marine mammals), crustaceans, molluscs and aquatic invertebrates, and preparations thereof	14	33	17	1
04 Cereals and cereal preparations	15	33	17	1
05 Vegetables and fruit	16	33	17	8
06 Sugars, sugar preparations and honey	16	33	18	3
07 Coffee, tea, cocoa, spices and manufactures thereof	13	33	17	1
08 Feeding stuff for animals (not including unmilled cereals)	1	0	17	3
09 Miscellaneous edible products and preparations	31	33	18	34
11 Beverages	7	30	2	3
12 Tobacco and tobacco manufactures	0	0	0	0
21 Hides, skins and fur skins, raw	0	0	0	0
22 Oil seeds and oleaginous fruits	0	0	0	0
23 Crude rubber (including synthetic and reclaimed)	0	0	0	0
24 Cork and wood	1	0	1	6
25 Pulp and waste paper	0	0	2	8
26 Textile fibers (other than wool tops and other combed wool) and their wastes (not manufactured into yarn)	0	13	0	0
27 Crude fertilizers (imports only), except those of division 56, and crude minerals (excluding coal, petrol)	0	0	0	0
28 Metalliferous ores and metal scrap	0	0	0	0
29 Crude animal and vegetable materials, n.e.s.	6	0	0	1
32 Coal, coke and briquettes	1	0	0	1
33 Petroleum, petroleum products and related materials	1	8	3	2
34 Gas, natural and manufactured	1	0	3	1
35 Electric current	1	4	6	5
41 Animal oils and fats	0	0	0	0
42 Fixed vegetable fats and oils, crude, refined or fractionated	0	0	0	0
43 Animal or vegetable fats and oils processed; waxes and inedible mixtures or preparations of animal or vegetables	0	0	0	0
51 Organic chemicals	0	1	4	1
52 Inorganic chemicals	0	1	4	2
53 Dyeing, tanning and coloring materials	2	0	1	0
54 Medicinal and pharmaceutical products	6	10	6	11
55 Essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations	9	0	1	6
56 Fertilizers (exports include group 272; imports exclude group 272)	1	0	2	0
57 Plastics in primary forms	0	0	0	0
58 Plastics in nonprimary forms	1	0	0	0
59 Chemical materials and products, n.e.s.	9	2	0	18
61 Leather, leather manufactures, n.e.s., and dressed furskins	1	0	2	0
62 Rubber manufactures, n.e.s.	0	0	1	0

	2000	2001	2002	2003
63 Cork and wood manufactures other than furniture	0	0	0	1
64 Paper, paperboard, and articles of paper pulp, paper or paper board	5	2	0	9
65 Textile yarn, fabrics, made-up articles, n.e.s., and related products	20	0	6	16
66 Nonmetallic mineral manufactures, n.e.s.	0	0	2	2
67 Iron and steel	0	4	3	5
68 Nonferrous metals	0	0	0	0
69 Manufactures of metals, n.e.s.	1	0	1	4
71 Power generating machinery and equipment	11	0	4	1
72 Machinery specialised for particular industries	5	4	10	21
73 Metalworking machinery	1	4	7	0
74 General industrial machinery and equipment, n.e.s., and machine parts, n.e.s.	8	10	6	6
75 Office machines and automatic data processing machines	8	10	5	5
76 Telecommunications and sound recording and reproducing apparatus and equipment	21	16	13	16
77 Electrical machinery, apparatus and appliances, n.e.s., and electrical parts thereof	23	22	7	11
78 Road vehicles (including air-cushion vehicles)	9	9	6	9
79 Transport equipment, n.e.s.	3	4	15	20
81 Prefabricated buildings; sanitary, plumbing, heating and lighting fixtures and fittings, n.e.s.	17	13	12	25
82 Furniture and parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishing	5	5	6	18
83 Travel goods, handbags and similar containers	0	0	1	0
84 Articles of apparel and clothing accessories	5	8	0	2
85 Footwear	2	0	0	0
87 Professional, scientific and controlling instruments and apparatus, n.e.s.	3	0	0	1
88 Photographic apparatus, equipment and supplies and optical goods, n.e.s.; watches and clocks	1	1	0	2
89 Miscellaneous manufactured articles, n.e.s.	11	0	4	12
93 Special transactions and commodities not classified according to kind	9	10	0	9
95 Coin, including gold coin; proof and presentation sets and current coin	0	0	0	0
96 Coin (other than gold coin), not being legal tender	0	0	0	0
97 Gold, nonmonetary (excluding gold ores and concentrates)	1	0	0	0
98 Estimate of items valued under \$251 and of other low valued items nonexempt from formal entry	3	1	3	1
99 Estimate of non-canadian low value shipments; compiled low value shipments to Canada; and various shipment	0	0	0	2