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# **Identifying Thailand's Post-Crisis Export Opportunities <sup>1</sup>**

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## 1. Introduction

Public export promotion in industrial and developing countries should be basically concerned with the creation of a public good, by pooling of information, and by enhancing the knowledge and capabilities in the field of international trade relations. This can be achieved using various instruments, such as the organisation of outgoing trade missions, centralised information gathering and dissemination, the provision of incentives to acquire more detailed market knowledge through trade fair participation of companies, international marketing training, etc. To the extent that these activities are providing information or are creating know-how that is non-rival and non-excludable (Romer, 1990),<sup>1</sup> the conditions of public good will be fulfilled. This in turn will imply that a public export promotion body, in pursuing these activities, can increase national welfare. In assessing this welfare-increasing effect, one should evidently take into account the social costs involved, which depend on the competence and personal interests of the civil servants, the degree of flexibility of the organisation, the degree of behavioural inertia of people and organisational structures, the quality of the communication channels with the private sector, etc. (see e.g., Hogan, Keesing and Singer, 1991).

Thailand has recently been facing a dramatic fall in its exports and in the Thai press the call for more government support in foreign markets has been voiced louder and louder. As a member of the World Trade Organization, however, the country will have to take into account the various provisions of the Uruguay Round Agreements on subsidies or trade related investment measures.<sup>2</sup> What are, however, Thailand's potentials of improving its export records using the traditional tools of public export promotion? It is clear that due to a budget constraint these potentials are limited and that, therefore, severe selectivity is required in Thailand's export promotion strategies. This selectivity should be based on a thorough analysis of the potential export opportunities.

From a methodological point of view, the investigation of potential export opportunities of a country is not different from the market research of a company. Therefore, economic policy makers and export promotion agencies, and their respective advisers, have a large tool kit of research instruments at their disposal for assessing the foreign market potentials of the locally produced goods.

In a recent paper (Cuyvers, De Pelsmacker, Rayp & Roozen, 1995), a decision support model for the planning and the assessment of export promotion activities was developed and applied to Belgium. This model consists of four consecutive steps or "filters", leading to a list of realistic export opportunities in countries that have sufficient macroeconomic strength and performance. In the present paper, we report the results of an attempt to use this decision support model, adapted for an analysis of foreign trade data at the SITC 4-digit level up to 1997, to the case of Thailand, and compare these with previous results using the same model (Cuyvers, 1996). For the reader's convenience, Appendix 1 provides a summary of the selection criteria and definitions used, and shows a list of the symbols.

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<sup>1</sup> According to Romer, goods or services are non-rival and non-excludable if their consumption by one agent does not constrain its consumption by others.

## 2. Which countries show preliminary export opportunities for Thai products?

The aim of the first step in our analysis is to determine which countries merit closer investigation as potential markets. The criteria used here are relatively low commercial and political risks, together with total market potential as measured by macro-economic growth and/or size of the economy.

Commercial and political risks involved in doing business with foreign countries can be assessed using parameters such as, e.g., the current account deficit as a percentage of GDP, the external debt service as a percentage of export earnings, the stock of foreign debts of a country in proportion to its GDP, etc., as well as the past and future change of these parameters. This information is available through the International Monetary Fund and other international organisations. In addition, some academic and private organisations are publishing such information, based on commercial and political risk assessments by foreign business people.<sup>3</sup> As this analysis is the same from the point of view of Belgium as that of Thailand, and as in Cuyvers, De Pelsmacker, Rayp and Roozen (1995), the country credit ratings of the *Office National du Ducroire (OND)*, the Belgian public credit insurance agency, was used, we have taken as input the results of the updated OND credit rating model. In this way, we dropped 91 countries belonging to the two highest credit risk groups of the OND (in the 1996 study: 83 countries), leaving 142 countries (in 1996: 160 countries).

For 83 countries of these 142 (in 1996 90 of 160 countries) data on GNP and GNP per capita between 1996 and 1998 could be collected.<sup>4</sup> No or incomplete data were available for 59, mostly small countries (in 1996: 70), such as for instance Andorra, Cayman Islands, Cook Islands, Faeroer, Liechtenstein, Vatican City, and others.<sup>5</sup> In order to select among these 83 countries the more interesting markets, a cut-off point  $\chi$  is calculated for the GNP and GNP per capita values, such that

$$\chi = \bar{X} - \alpha\sigma_{X_j} \quad [1]$$

with  $\bar{X}$  the average of X (GNP or GNP per capita),

$\sigma_{X_j}$  the standard deviation of X,

$\alpha$  a factor which is determined in such a way that small changes in its value only marginally affect the number of countries screened out, or when within a small range of values for  $\alpha$  that have this property, a comparable number of countries is selected for both criteria.

Countries are selected when the condition applies:

$$X_j \geq \chi \quad [2]$$

(GNP and GNP per capita, respectively, larger than or equal to the cut-off value) for at least two consecutive years of the most recent three-year period for which data are available.

<sup>2</sup> On this subject, the reader is referred to Cuyvers, De Lombaerde, Dewulf and Van Den Bulcke (1996).

<sup>3</sup> Such risk assessments for e.g., Asian countries are contained in the publications by Political and Economic Risk Consultancy, Ltd., Hong Kong ([www.asiarisk.com](http://www.asiarisk.com)). For corruption indexes, see e.g., Internet Center for Corruption Research ([www.qwdg.de](http://www.qwdg.de)).

<sup>4</sup> These macro-economic data are from *The World Bank Atlas* of 1996 and 1997 and *The World Development Report 1998*. The World Bank Atlas is using GNP figures in purchasing power parity (PPP). Using these data would finally leave out countries like Czechia, Hungary, Peru, Slovakia and Turkey, which would bias the further analysis. It therefore was decided, contrary to the 1996 analysis, to use data in current USD.

<sup>5</sup> But also large countries such as Saudi Arabia and the United Arab Emirates.

Here  $\alpha = 0.296$  is chosen (in 1996  $\alpha = 0.255$ ), in which case 48 countries meet the condition [2] for GNP and GNP per capita, respectively (in 1996: 53), which is the union of the two sets of 44 and 31 countries selected on the basis of GNP and GNP per capita that merit further in-depth investigation<sup>6</sup> (in 1996: 39 for each criterion). Among the countries that are not fulfilling condition [2] we mention, e.g., some central and Eastern European countries (such as Estonia, Lethuania and Slovakia), some Asian Less Developed Countries (such as Papua New Guinea and Sri Lanka,), one North-African country (Tunisia), a number of Latin-American countries (Costa Rica, El Salvador, Paraguay and Uruguay) and Caribbean islands (such as the Dominican Republic, Jamaica, Grenada or Trinidad and Tobago). Among the countries that pass the test of this first stage we find the OECD countries, the ASEAN countries (with notable exceptions such as Indonesia and Vietnam), China, Taiwan, Hong Kong, South Korea, India, South Africa, New Zealand and Australia, Argentina, etc.

### 3. Detecting possible export opportunities

In the next stage of the assessment of Thailand's export opportunities, data on imports are analysed for each country selected in the previous section. The data used are at the SITC (Revision 2) 4-digit level over the period 1992-1997.<sup>7</sup> However, for Czechia, Luxemburg and Slovenia no trade data were available, so that only 45 countries remain for a detection of possible export opportunities. Based on these data, in total 44,100 trade figures (in 1996:49,980) - henceforth called product/country combinations - will be analysed for the remaining 45 countries, using growth of imports and import market size as criterion, with the purpose to eliminate the non-interesting product/market combinations.

As in the previous step (see section 2), a cut-off point is calculated for each product group at SITC 4-digit level, using for each criterion the average, the standard deviation and a parameter  $\alpha$ , the value of which has to be determined. The cut-off points that are finally used also take into account whether or not Thailand is relatively specialised in the respective products or not, as the so-called "revealed comparative advantage" (RCA) index indicates.<sup>8</sup> The rationale is that if Thailand is relatively specialised in a particular product  $i$  ( $RCA_i > 1$ ), one may allow the selection of interesting markets to be more lax, than if Thailand is not specialised in it ( $RCA_i \leq 1$ ).

Evidently, the time period considered for growth of imports of each product group is important. As far as short term growth is concerned, the simple percentage growth rate of the imports of each product group  $j$  in country  $i$  is calculated for 1997. Long-term growth, however, stretches over a longer period and is calculated as the compounded annual growth rate of imports of product group  $j$  in country  $i$  between 1992 and 1997.

In order to take into account the degree of specialisation in the exports of Thailand of a product group  $j$ , we define a scaling factor  $s_j$ , following Willemé and Van Steerteghem (1993), such that:

<sup>6</sup> Based on this  $\alpha = 0.296$ , the cut-off GNP is 20,544 million USD and the cut-off GNP per capita is 6,626 USD.

<sup>7</sup> The data are from the United Nations, as made availbale on CD-ROM *World Trade Data Base* by Statistics Canada.

<sup>8</sup> The RCA index is defined as follows  $\frac{X_{Thailand}^j / X_{Thailand}^{tot}}{X_{World}^j / X_{World}^{tot}}$ , with  $X^j$  the exports of the country/world of product group  $j$ , and  $X^{tot}$  the total exports of the country/world of all product groups. See Balassa (1965).

$$s_j = 0.8 + \frac{1}{(RCA_j + 0.85)e^{(RCA_j - 0.1)}} [3]^9$$

The cut-off point for imports growth of product group j is then

$$G_j = g_{World,j} \cdot S_j \quad \text{if } g_{World,j} > 0, \text{ and}$$

$$G_j = g_{World,j} / S_j \quad \text{if } g_{World,j} < 0 \text{ (see Willemé \& Van Steerteghem, 1993: 6-7)}^{10}$$

Hence, the market in a particular country i for product group j will be deemed sufficiently promising, iff:

$$g_{i,j} \geq G_j [4]$$

This procedure is applied to calculate both short-term and long-term cut-off growth rates.

Consider for instance a 1997 growth rate of world imports of a product group j of 20 % and a scale factor of 2, in which case we will select only these countries with a 1997 growth in their imports of product group j of 40 % or more. If, however, world imports of product group j are declining with 40 % in 1997, the cut-off point will be -10 %.

For market size of country i for product group j we, obviously, have not taken the imports value of j in i as a proxy, but rather the share of this market in the world imports of that product group. This criterion enables to also select markets that do not show growth, but are interesting markets because of their size. Taking into account the degree of specialisation of Thailand in a particular product group j, the cut-off point for relative import market size  $S_j$  is determined as follows:

$$S_j = 0.02 M_{World,j} \text{ if } RCA_j > 1$$

$$S_j = [(3 - RCA_j)/100] \cdot M_{World,j} \text{ if } RCA_j \leq 1$$

with  $M_{World,j}$ , the aggregate imports in the world of product group j. As can easily be seen, the cut-off points for relative import market size will vary between 3 and 2 % according to the RCA.

Therefore, the relative import market size of country i for product group j will be considered as sufficiently large, and consequently, the product/country combination will be selected as possible export opportunity for Thailand if:

$$M_{i,j} \geq S_j [5]$$

Each product/country combination is now assigned a 1 or a 0, according to condition [5] being fulfilled or not. However, due to lacking import or export data, 25,559 product/country combinations could not be investigated. The distribution of the remaining 18,451 product/country combinations according to the various combinations of fulfillment or non-fulfillment of conditions [4] for short-term and long-term market growth, and of [5], is shown in Table 1.

Following Cuyvers, De Pelsmacker, Rayp and Roozen (1995: 179) we will only consider further the product/country combinations that show **either** sufficient relative import market size, **or** sufficiently

<sup>9</sup> The properties of the scaling factor are as follows:  $s_j = 2$  for  $RCA = 0$ ,  $s_j = 1$  for  $RCA = 1$ ,  $s_j \approx 0.848$  for  $RCA = 2$  and  $s_j = 0.8$  for  $RCA = \infty$ .

<sup>10</sup> In the original version of the decision support model a different procedure was followed. See Cuyvers, De Pelsmacker, Rayp & Roozen, 1995: 179, Table 1.

high import market growth in the short run and in the long run. This implies that the product/country combinations in the categories 0, 1 and 2 are not selected, and that this stage of the selection process ends up with 10,760 possible export opportunities for Thailand.<sup>11</sup>

**Table 1: Distribution of product/country combinations according to short-term import market growth, long-term import market growth, and relative import market size, 1993 and 1997**

Category	Short-term market growth	Long-term market growth	Relative market size	Number of product/country combinations, 1993	Number of product/country combinations, 1997
0	0	0	0	10,377	4,926
1	1	0	0	2,952	2,527
2	0	1	0	3,215	2,331
3	0	0	1	1,807	1,776
4	1	1	0	5,870	4,013
5	1	0	1	770	966
6	0	1	1	781	587
7	1	1	1	1,532	1,325
				27,304	18,451

#### 4. The selection of realistic export opportunities

The purpose of the third stage of the decision support model used, is to analyse further the 8,667 product/country combinations (10,760 in 1993) selected in the previous stage according to their “accessability” for Thai exporters. This “accessability” depends on trade restrictions and other barriers to entry, which can prevent the Thai exporters of a product group  $j$  to acquire a significant market position in country  $i$ . The decision support model considers two such barriers: the degree of market concentration and import restrictions.

Market concentration is measured using the well-known Herfindahl-Hirschmann index (Hirschmann, 1964):

$$HHI_{i,j} = \sum_k \left( \frac{X_{k,i,j}}{M_{tot,i,j}} \right)^2$$

with  $X_{k,i,j}$  country's  $k$ 's exports of product group  $j$  to country  $i$

$M_{tot,i,j}$  country  $i$ 's total imports of product group  $j$

It is assumed that if an import market is relatively highly concentrated, i.e. supplied by a few countries, it will be more difficult for Thai exporters of the product group at issue to penetrate that market, than if an import market shows a relatively low HHI.

Import restrictions are brought into the picture indirectly, by using as proxy the combined relative market share  $m_{i,j}$  of the other ASEAN-5 countries<sup>12</sup> for product  $i$  in country  $j$ :

<sup>11</sup> Each criterion considered separately, will in a number of cases lead to distorted results. In combination, however, there is much less room for anomalies, although the fact that we are not considering e.g. category 1 or 2 in Table 1 as interesting export opportunities remains purely arbitrary. This degree of arbitrariness is the price that we pay for selectivity.

$$m_{ij} = \frac{\frac{X_{\text{Indo},i,j}}{X_{\text{Indo},j}} + \frac{X_{\text{Mal},i,j}}{X_{\text{Mal},j}} + \frac{X_{\text{Fil},i,j}}{X_{\text{Fil},j}} + \frac{X_{\text{Sing},i,j}}{X_{\text{Sing},j}}}{\frac{X_{\text{World},i,j}}{X_{\text{World},j}}}$$

which is an indicator of “revealed absence of barriers to trade”. The rationale for using  $m_{ij}$  is that when the fellow ASEAN countries of Thailand together have a sufficiently large relative market share in country  $j$  for product group  $i$ , there is *a priori* no reason why Thailand would not be able to penetrate the same market.

Contrary to the original decision support model, we have introduced here a third criterion. In this third step, we only consider product groups  $j$  for which Thailand shows an  $\text{RCA}_j > 0.02$ . This criterion enables us to reduce unnecessary time-consuming testing of likely irrelevant product groups, and to delete 1,481 product/country combinations from these selected in the foregoing step (2,744 in 1993).

In order to determine whether  $\text{HHI}_{i,j}$  is sufficiently low, cut-off points are calculated analogously to the procedure outlined in section 2, using average, standard deviation  $\sigma$  and a parameter  $\alpha$  to be determined. Therefore the cut-off point for HHI is defined as:

$$h_k = -0.05\alpha\sigma_h, \text{ for product/country combinations of category 3 (see Table 1),}$$

$$h_k = +0.05\alpha\sigma_h, \text{ for product/country combinations of category 4, 5 or 6 (see Table 1)}$$

$$h_k = +0.15\alpha\sigma_h, \text{ for product/country combinations of category 7 (see Table 1)}$$

$$h_k \geq \text{HHI}_{i,j} \text{ [6]}$$

A visual inspection of the number of product/country combinations that are fulfilling condition [6] does not give a conclusive indication of a “jump” in that number for varying  $\alpha$ .<sup>13</sup> We therefore followed a numerical approach to determine such a “jump”, which finally leads to  $\alpha = 11.4$ .<sup>14</sup> Using condition [6] we then calculated the cut-off point, which is  $h_k = 0.115$ <sup>15</sup> ( $k$ =category 3),  $0.462$ <sup>16</sup> ( $k$  = category 4, 5 or 6) and  $0.809$ <sup>17</sup> ( $k$  = category 7). Hence, in relatively large markets, we require the degree of concentration of that particular market, measured by HHI to be not higher than 11.5 % (19.4 % in the 1996 study). In relatively large and growing markets the degree of concentration is allowed to be higher, and in the most interesting markets (relatively large and growing both in the short and in the long run) the cut-off point is even at 80.9 % concentration (in our 1996 paper: 70.9 %).

<sup>12</sup> ASEAN-5 consists of Thailand, Malaysia, Singapore, Indonesia and the Philippines, the founding members of ASEAN.

<sup>13</sup> That number increases first monotonously from 4,481 product/country combinations ( $\alpha=0$ ) to 5,144 ( $\alpha=11.7$ ), after which the number declines again and hovers around 5,068 (for  $\alpha$  between 14,6 and 16,8). After that, the number of product/country combinations increase monotonously again to 5,180 ( $\alpha = 20$ ), the maximum.

<sup>14</sup> We have calculated the change in the number of product/country combinations by varying  $\alpha$  with 0.1 in intervals going from 1 to 4. By considering then the respective sums of these changes per unit of  $\alpha$ , the smallest sum is found at  $\alpha = 16.8$  (in Cuyvers, 1996: 12.5) and an  $\alpha$ -interval of 3 to 3.8 (2.2 in our 1996 study). We can then assume that a “jump” in the number of product/country combinations which takes place at  $\alpha = 15.5$  ( $=16.8-3.8/3$ ) (in the 1996 study this was  $\alpha=11.4 = 12.5 - 2.2/2$ ) will have the smallest impact on the results. We are grateful to Mr. Glenn Rayp for having suggested this approach.

<sup>15</sup> 0.194 in the 1996 study.

<sup>16</sup> 0.451 in the 1996 study.

<sup>17</sup> 0.709 in the 1996 study.

Next, we proceed by calculating the index of “revealed absence of barriers to trade”  $m_{ij}$ . This index shows the share of Thailand’s fellow ASEAN-5 countries’ exports to country  $i$  of product group  $j$  in their respective exports of product group  $j$ , corrected for the share of that country  $i$  in world trade of product group  $j$ . As no  $\alpha$  could be determined unambiguously, we were compelled to use the rule of thumb

$$m_{ij} \geq 0.95 \quad [7]$$

which implies that, apart from a margin of error of 5 %, Thailand is assumed to have no “revealed barriers to trade” in a market if **at least one** of the four other ASEAN-5 countries has a “revealed comparative advantage” in exporting to that market.

Applying condition [6] leads to 5,069<sup>18</sup>, and condition [7] to 2,858<sup>19</sup> potential export opportunities out of the 7,184 product/country combinations that were selected in the previous step. Following the original decision support model (Cuyvers, De Pelsmacker, Rayp & Roozen, 1995: 181) we only consider as realistic export opportunities these that fulfill **both** condition [6] and [7]. This is the case for 2,246 product/country combinations.<sup>20</sup>

Figure 1a illustrates and summarises the subsequent steps in the selection process followed based on the data up to 1993, and Figure 1b regarding the 1997 situation.

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<sup>18</sup> In the 1996 study: 5,963.

<sup>19</sup> 3,441 in the 1996 study.

<sup>20</sup> 2,962 in the 1996 study.



Figure 1a: Selection of realistic export opportunities for Thailand, 1993

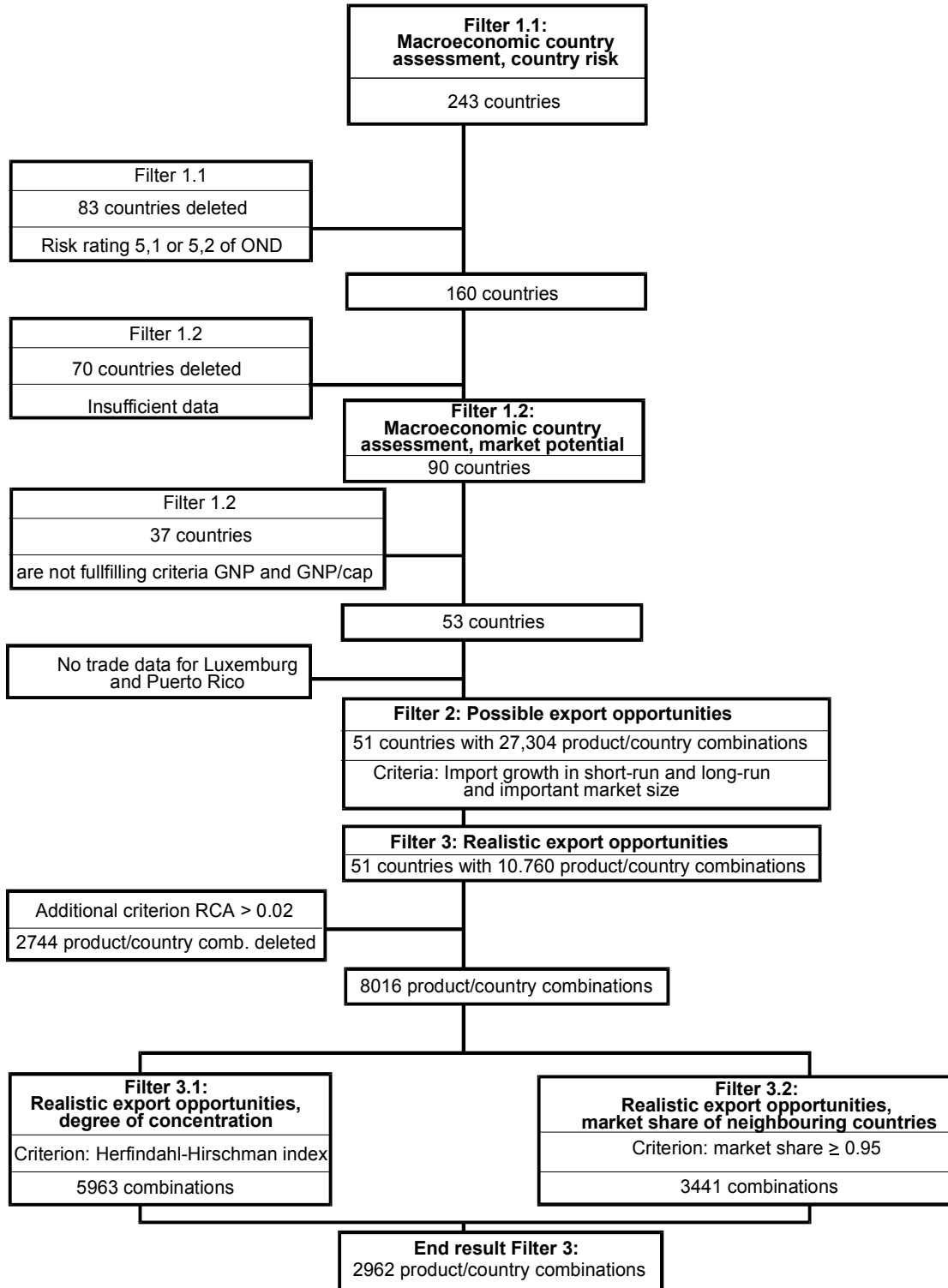
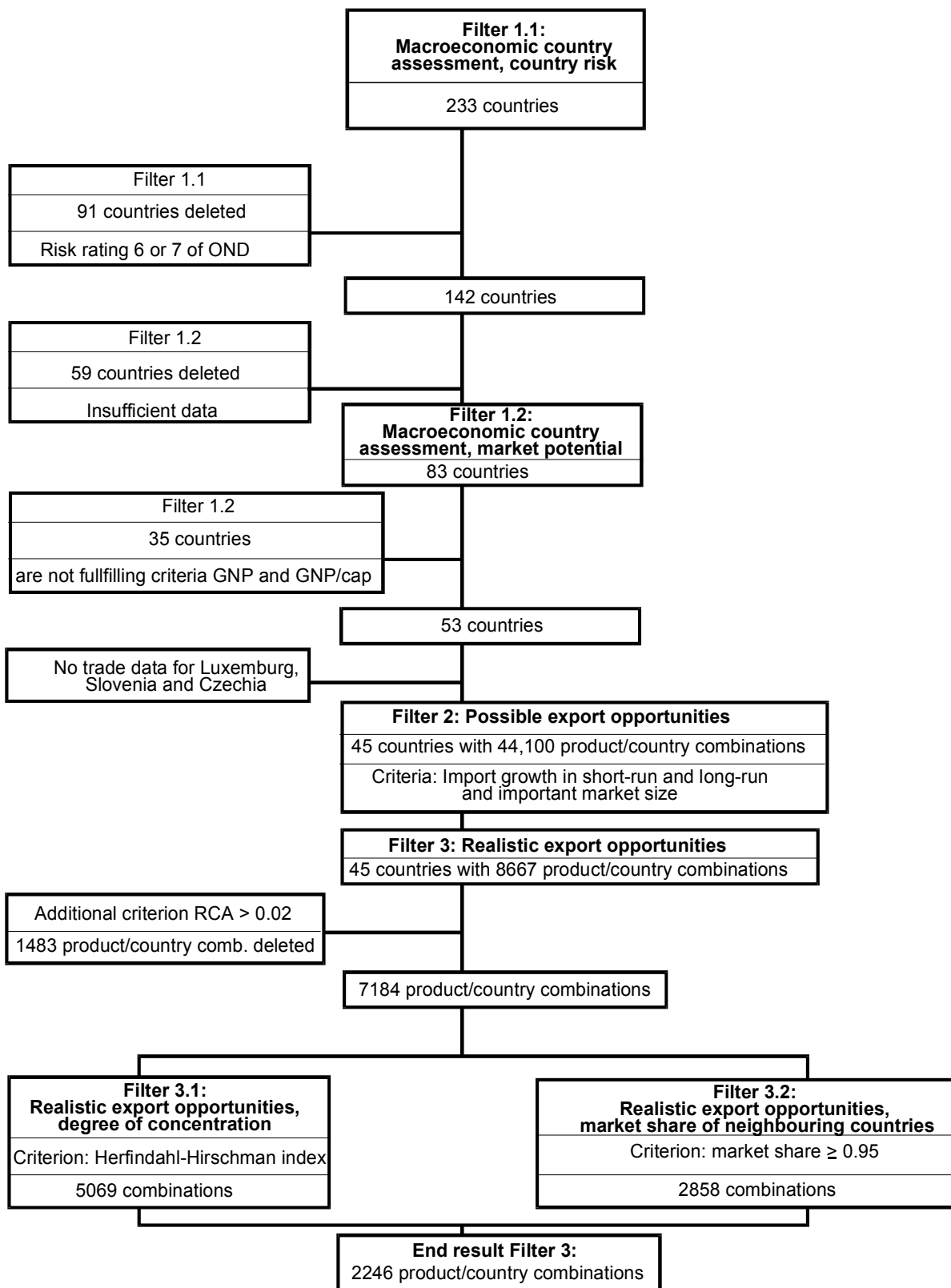


Figure 1b: Selection of realistic export opportunities for Thailand, 1997



## 5. An analysis of Thailand's realistic export opportunities

In this section, we are analysing the 2,246 realistic export opportunities detected according to their product group, the geographical markets involved and some major characteristics of these markets.

Table 2 shows the product composition of the set of realistic export opportunities at SITC 3-digits level.<sup>21</sup>

**Table 2: Product composition of Thailand's realistic export opportunities, 1993 and 1997**

SITC	Product group	Number of export opportunities, 1993	Number of export opportunities, 1997
001	Live animals chiefly for food	0	1
011	Meat, edible meat offals, fresh, chilled or frozen	9	5
014	Meat and edib. offals, prep./pres., fish extracts	7	3
022	Milk and cream	9	10
025	Eggs and yolks, fresh, dried or otherwise preserved	4	2
034	Fish, fresh (live or dead), chilled or frozen	34	28
035	Fish, dried, salted or in brine, smoked fish	9	8
036	Crustaceans and molluscs, fresh, chilled, frozen, etc.	16	17
037	Fish, crustaceans and molluscs, prepared or preserved	22	19
042	Rice	7	4
044	Maize (corn), unmilled	0	1
045	Cereals, unmilled (no wheat, rice, barley or maize)	1	0
046	Meal and flour of wheat and flour of meslin	2	0
047	Other cereal meals and flours	6	5
048	Cereal prepar. and preps. of flour of fruits or vegetables	33	29
054	Vegetab., fresh, chilled, frozen/pres., roots, tubers	20	15
056	Vegetab., roots and tubers, prepared/preserved, n.e.s.	21	16
057	Fruits and nuts (not incl. oil nuts), fresh or dried	14	17
058	Fruits, preserved, and fruit preparations	41	41
061	Sugar and honey	17	16
062	Sugar confectionery and other sugar preparations	7	8
071	Coffee and coffee substitutes	14	1
073	Chocolate and other food preptns, containing cocoa	8	6
074	Tea and mate	10	3
075	Spices	19	0
081	Feed. stuff for animals (not incl. unmilled cereals)	16	17
098	Edible products and preparations n.e.s.	11	9
111	Non-alcoholic beverages, n.e.s.	5	10
112	Alcoholic beverages	8	18
121	Tobacco, unmanufactured ; tobacco refuse	20	14
122	Tobacco manufactured	0	5
211	Hides and skins (except furskins), raw	6	5
222	Oil seeds and oleaginous fruit, whole or broken	5	2
223	Oil seeds and oleaginous fruit, whole or broken	5	3
232	Natural rubber latex, nat. rubber and sim. nat. gums	16	14
233	Synth. rubb. lat., synth. rubb. and reclaimed, waste scrap	7	11
245	Fuel wood (excl. wood waste) and wood charcoal	7	7
246	Pulpwood (incl. chips and wood waste)	2	1
248	Wood, sumply worked, and railway sleepers of wood	14	14
251	Pulp and wate paper	8	5
261	Silk	6	6
263	Cotton	4	0
264	Jute and other textile bast fibres, n.e.s., raw/processed	3	2
265	Vegetable textile fibres and waste of such fibres	5	0
266	Synthetic fibres suitable for spinning	11	0
268	Wool and other animal hair (excl. wool tops)	1	4
269	Old clothing and other old textile articles, rags	3	1
273	Stone, sand and gravel	8	14
277	Natural abrasives, n.e.s. (incl. industrial diamonds)	7	2
278	Other crude minerals	29	16
282	Waste and scrap metal of iron or steel	6	3
287	Ores and concentrates of base metals, n.e.s.	6	6
288	Non-ferrous base metals, waste and scrap, n.e.s.	12	8
289	Ores and concentrates of precious metals, waste, scrap	4	4
291	Crude animal materials, n.e.s.	19	21

<sup>21</sup> The list of export opportunities at SITC 4-digit level can be obtained with the author on request.

SITC	Product group	Number of export opportunities, 1993	Number of export opportunities, 1997
292	Crude vegetable materials, n.e.s.	56	57
333	Petrol.oils, crude, & crude oils obtained from bituminous minerals	0	6
334	Petroleum products, refined	17	20
335	Residual petroleum products, n.e.s. and relat. materials	8	13
341	Gas, natural and manufactured	3	0
411	Animal oils and fats	4	4
423	Fixed vegetable oils, soft, crude, refined/purified	4	12
424	Other fixed vegetable oils, fluid or solid, crude	14	28
431	Animal and vegetable oils and fats, processed and waxes	12	14
512	Alcohols, phenols, phenol alcohols and their derivat.	20	9
513	Carboxylic acids and their anhydrides, halides	14	0
514	Nitrogen function compounds	8	0
515	Organo-inorganic and heterocyclic compounds	5	0
516	Other organic chemicals	3	5
522	Inorganic chemical elements, oxides and halogen salts	35	27
523	Other inorganic chemicals	9	13
533	Pigments, paints, varnishes and related materials	25	15
541	Medicinal and pharmaceutical products	18	31
551	Essential oils, perfume and flavour materials	9	11
553	Perfumery, cosmetics and toilet preparations	6	10
554	Soap, cleansing and polishing preparations	16	12
562	Fertilizers, manufactured	6	6
582	Condensation, polycondensation and polyaddition prod.	11	0
583	Polymerization and copolymerization products	11	0
591	Disinfectants, insecticides, fungicides, weed killers	2	0
592	Starches, inulin and wheat gluten, albuminoidal subst.	20	13
598	Miscellaneous chemical products, n.e.s.	14	11
611	Leather	9	0
612	Manufactures of leather/of composition leather n.e.s.	13	0
613	Furskins, tanned/dressed, pieces/cuttings of fur skin	0	4
621	Materials of rubber (e.g., pastes, plates, sheets, etc.)	15	11
625	Rubber tyres, tyre cases, etc. for wheels	20	0
628	Articles of rubber, n.e.s.	23	19
634	Veneers, plywood, improved or reconstituted wood	29	13
635	Wood manufactures n.e.s.	33	24
641	Paper and paperboard	31	29
642	Paper and paperboard, cut to size or shape	26	26
651	Textile yarn	49	31
652	Cotton fabrics, woven	18	16
653	Fabrics, woven, of man-made fibres	27	21
654	Textile fabrics, woven, oth. than cotton/man-made fibr.	6	4
656	Tulle, lace, embroidery, ribbons and other small wares	10	10
657	Special textile fabrics and related products	35	33
658	Made-up articles, wholly/chiefly of textile materials	41	41
659	Floor coverings, etc.	14	4
661	Lime, cement, and fabricated construction materials	19	20
662	Clay construct. materials and refractory constr. mater.	13	11
663	Mineral manufactures, n.e.s.	33	23
665	Glassware	12	0
666	Pottery	42	36
667	Pearls, precious and semi-prec. stones, unwork./worked	10	9
671	Pig iron, spiegeleisen, sponge iron, iron or steel	7	3
672	Ingots and other pri;ary forms, of iron or steel	3	2
673	Iron and steel bars, rods, angles, shapes and sections	10	14
674	Universals, plates and sheets, of iron and steel	12	0
677	Iron/steel wire/wheth./not coated, but not insulated	6	5
678	Tubes, pipes and fittings, of iron or steel	27	30
679	Iron and steel castings, forgings and stampings, rough	18	9
681	Silver, platinum and oth. metals of the platinum group	3	4
682	Copper	7	7
684	Aluminium	6	6
685	Lead	1	5
686	Zinc	3	8
689	Miscell. non-ferrous base metals employed in metallurgy	8	0
691	Structures and parts of structures, iron, steel, aluminium	6	0
692	Metal containers for storage and transport	6	0
693	Wire products and fencing grills	15	13
694	Nails, screws, nuts, bolts, etc. of iron, steel, copper	11	8
695	Tools for use in hand or in machines	28	12
696	Cutlery	8	10
697	Household equipment of base metals, n.e.s.	12	12
699	Manufactures of base metal, n.e.s.	51	42
712	Steam and other vapour power units, steam engines	3	0

SITC	Product group	Number of export opportunities, 1993	Number of export opportunities, 1997
713	Internal combustion piston engines and parts	13	1
714	Engines and motors, non-electric	3	0
716	Rotating electric plant and parts	10	0
721	Agricultural machinery and parts	10	6
722	Tractors, fitted or not with power take offs, etc.	3	0
723	Civil engineering and contractors plant and parts	6	0
724	Textile and leather machinery and parts	14	15
725	Paper and pulp mill mach., mach. for manuf. of paper	7	4
726	Printing and bookbinding machinery and parts	7	0
727	Food processing machines and parts	5	0
728	Mach. and equipment specialized for particular ind.	23	22
736	Mach. tools for working metal or met. carb., parts	16	13
737	Metal working machinery and parts	4	3
741	Heating and cooling equipment and parts	29	29
742	Pumps for liquids, liq. elevators and parts	8	0
743	Pumps and compressors, fans and blowers, centrifuges	11	0
744	Mechanical handling equip. and parts	15	16
745	Other non-electrical mach. tools, apparatus and parts	8	7
749	Non-electrical parts and accessories of machines	37	26
751	Office machines	26	18
752	Automatic data processing machines and units thereof	11	0
759	Parts of and accessories suitable for 751 or 752	2	9
761	Television receivers	15	0
762	Radio-broadcast receivers	13	0
764	Telecommunications equipment and parts	44	55
771	Electrical power machinery and parts thereof	12	0
772	Elect. app. such as switches, relays, fuses, plugs, etc.	12	0
773	Equipment for distributing electricity	12	15
774	Electric apparatus for medical purposes (radiolog)	5	0
775	Household type, electr. and non-electrical equipment	47	39
776	Thermionic, cold and photo-cathode valves, tubes, parts	16	0
778	Electrical machinery and apparatus	45	37
781	Passenger motor cars, for transport of pass. & goods	0	3
782	Motor vehicles for transport of goods/materials	7	11
784	Parts and accessories of 722, 781, 782, 783	5	2
785	Motorcycles, motor scooters, invalid carriages	14	15
786	Trailers and other vehicles, not motorized	7	0
792	Aircraft and associated equipment and parts	7	0
793	Ships, boats and floating structures	7	0
812	Sanitary, plumbing, heating, lighting fixtures	22	21
821	Furniture and parts thereof	18	0
831	Travel goods, handbags, brief cases, purses, sheaths	17	14
842	Outer garments, men's, of textile fabrics	53	38
843	Outer garments, women's, of textile fabrics	46	27
844	Under garments of textile fabrics	25	16
845	Outer garments and other articles, knitted	41	35
846	Under garments, knitted or crocheted	22	19
847	Clothing accessories of textile fabrics	27	16
848	Art. of apparel and clothing accessories, no textile	47	42
851	Footwear	27	19
871	Optical instruments and apparatus	13	11
872	Medical instruments and appliances	11	10
874	Measuring, checking, analysing instruments	43	31
881	Photographic apparatus and equipment, n.e.s.	20	25
882	Photographic and cinematographic supplies	6	0
883	Cinematograph film, exposed-developed, neg. or pos.	1	2
884	Optical goods, n.e.s.	20	6
885	Watches and clocks	14	17
892	Printed matter	32	22
893	Articles of materials described in division 58	32	23
894	Baby carriages, toys, games and sporting goods	34	30
895	Office and stationery supplies, n.e.s.	17	0
896	Works of art, collectors pieces and antiques	7	0
897	Jewellery, goldsmiths and other art. of precious m.	13	0
898	Musical instruments, parts and accessories	29	30
899	Other miscellaneous manufactured articles	57	44
931	Special transactions and commodities, not class. to kind	3	16
941	Animals, live, n.e.s., incl. zoo-animals	13	8
951	Armoured fighting vehicles, arms of war & ammunit.	0	3
971	Gold, non-monetary	3	6

From this Table 2 it clearly appears that the realistic export opportunities of Thailand are found in a large number of product groups. Some 190 product groups at 3-digit level of SITC are mentioned, both for 1993 and 1997. A number of these export opportunities are present in a lot of countries, as is evidenced by the associated number of product/country combinations.

Compared to 1993, the 1997 export opportunities show a similar pattern. Correlation between the two lists is 0,86056. It is striking, however, that at the 3-digit level, the number of opportunities in SITC group 7, and even more in SITC group 8, are in most cases lower.

Top scorers in 1993 were:

- Orthopaedic appliances, surgical belts, basketwork, wickerwork, etc. of plaiting materials, small wares and toilet articles, and manufactured goods n.e.s. (SITC 899): 57 product/country combinations,
- Crude vegetable materials, such as resins, bulbs, cut flowers, seeds, etc. (SITC 292): 56 product/country combinations,
- Overcoats and other coats for men, men's suits, trousers and other outer garments of textile fabrics (SITC 842): 53 product/country combinations,
- Miscellaneous articles of base metal, articles of iron and steel, copper, nickel, aluminium, lead, zinc, tin and semi-manufactured goods of tungsten, molybdenum, etc. (SITC 699): 51 product/country combinations,
- Yarn of wool or animal hair, yarn containing synthetic fibres, yarn of regenerated fibres, etc. (SITC 651): 49 product/country combinations,
- Articles of clothing, of leather and plastic (SITC 848): 47 product/country combinations,
- Coats and jackets, women's suits and costumes, women's dresses and skirts, all of textile fabrics (SITC 843): 46 product/country combinations,
- Telephonic and telegraphic apparatus, microphones, loudspeakers, amplifiers, and parts (SITC 764): 44 product/country combinations,
- Measuring, controlling and scientific instruments, and parts (SITC 874): 43 product/country combinations,
- Tableware and other articles of porcelain, china, etc., ornaments and articles of adornment (SITC 666): 42 product/country combinations,
- Jerseys, pull-overs, dresses, skirts, suits, other outer garments, knitted or crocheted (SITC 845): 41 product/country combinations,
- Bed linen, table linen, toilet and kitchen linen, etc. (SITC 658): 41 product/country combinations,
- Unfermented fruit and vegetable juices, and prepared or preserved fruit (SITC 058): 41 product/country combinations,

The importance of a number of textile products is striking. On the other hand, the low number of agricultural products strikes the eye.

In 1997 major realistic export opportunities seem to be found in product groups, such as:

- Crude vegetable materials, such as resins, bulbs, cut flowers, seeds, etc. (SITC 292): 57 product/country combinations (in 1993: 56),
- Telecommunications equipments and parts (microphones, loudspeakers, etc.): 55 product/country combinations (in 1993: 44),
- Orthopaedic appliances, surgical belts, basketwork, wickerwork, etc. of plaiting materials, small wares and toilet articles, and manufactured goods n.e.s. (SITC 899): 44 product/country combinations (57 in 1993),
- Miscellaneous articles of base metal, articles of iron and steel, copper, nickel, aluminium, lead, zinc, tin and semi-manufactured goods of tungsten, molybdenum, etc. (SITC 699): 42 product/country combinations (51 in 1993),
- Articles of clothing, of leather and plastic (SITC 848): 42 product/country combinations (47 in 1993),
- Unfermented fruit and vegetable juices, and prepared or preserved fruit (SITC 058): 41 product/country combinations (the same number as in 1993),
- Travelling rugs and blankets, bed linen, table linen, other made-up articles of textile material (SITC 658): 41 product/country combinations (the same number as in 1993),
- Household type electrical and non-electrical equipment (SITC 775): 39 product/country combinations (47 in 1993),
- Overcoats and other coats for men, men's suits, trousers and other outer garments of textile fabrics (SITC 842): 38 product/country combinations (in 1993: 53),
- Electrical machinery and apparatus (SITC 778): 37 product/country combinations (in 1993: 45).

As can be seen in Table 3, the geographical markets for these export opportunities are also very diverse, with the countries of the Pacific Rim showing the largest numbers (the United States, Japan, Hong Kong, Korea, Taiwan, and the other ASEAN-5 countries), but also some European countries (e.g., the United Kingdom, Germany, the Netherlands) coming close.

**Table 3: Realistic export opportunities per country, 1993 and 1997**

Rank 1997	Rank 1993	Country	No Opport. 1997	No Opport. 1993	Rank 1997	Rank 1993	Country	No Opport. 1997	No Opport. 1993
1.	1.	US	199	237	29.	0.	Hungary	17	0
2.	3.	Japan	179	211	30.	31.	Israel	14	17
3.	5.	China	144	164	31.	34.	Ireland	12	12
4.	4.	Hong Kong	142	189	32.	38.	Mexico	11	10
5.	12.	Malaysia	134	108	33.	46.	Finland	11	3
6.	6.	United Kingdom	123	151	34.	30.	Colombia	10	17
7.	9.	Philippines	114	119	35.	43.	Portugal	10	5
8.	21.	India	114	49	36.	0.	Peru	9	0
9.	17.	Australia	99	67	37.	41.	Greece	8	7
10.	2.	Singapore	95	224	38.	44.	Norway	8	4
11.	10.	Taiwan	82	115	39.	35.	Switzerland	7	12
12.	0.	Bangladesh	66	0	40.	40.	Sweden	7	10
13.	8.	Germany	62	125	41.	0.	Morocco	7	0
14.	13.	Netherlands	61	107	42.	42.	Malta	6	5
15.	16.	Italy	57	83	43.	0.	Venezuela	5	0
16.	7.	Korea	53	128	44.	48.	Iceland	1	1
17.	19.	Canada	50	53	0.	11.	Indonesia	0	111
18.	14.	France	49	86	0.	15.	Un. Arab. Em.	0	85

Rank 1997	Rank 1993	Country	No Opport. 1997	No Opport. 1993	Rank 1997	Rank 1993	Country	No Opport. 1997	No Opport. 1993
19.	24.	Belgium-Lux.	48	38	0.	18.	Pakistan	0	54
20.	22.	Turkey	42	43	0.	23.	Oman	0	41
21.	0.	Chile	31	0	0.	26.	Brazil	0	34
22.	45.	Denmark	30	3	0.	27.	Saoudi Arabia	0	30
23.	28.	South Africa	28	29	0.	29.	Brunei	0	27
24.	0.	Egypt	24	0	0.	32.	Cyprus	0	15
25.	0.	Argentina	22	0	0.	33.	Qatar	0	15
26.	39.	Poland	20	10	0.	36.	Bahrein	0	11
27.	25.	Spain	18	36	0.	37.	Austria	0	10
28.	20.	New Zealand	17	51	0.	47.	Barbados	0	1

The distribution of the realistic export opportunities according to regions/countries is shown in Table 4.

**Table 4: Thailand: Distribution of realistic export opportunities according to countries/regions - 1993-1997**

	# Opport. 1993	%	# Opport. 1997	%
Australia	67	2,26%	99	4,41 %
Canada	53	1,79%	50	2,23 %
EU	676	22,82%	496	22,08 %
New Zealand	51	1,72%	17	0,76 %
United States	237	8,00%	199	8,86 %
Asia Pacific	1396	47,13%	943	41,99 %
Other	482	16,27%	442	19,68 %
	2962	100,00%	2246	100,00 %

From this Table it appears that the share of the EU in the number of realistic export opportunities found has remained stable, while that of the Asia-Pacific<sup>22</sup> declined dramatically. In the next section we will come back to the distribution within the last group.

As the realistic export opportunities can be further grouped according to their relative market importance for Thailand, and according to their relative size and growth rate, Table 4 depicts this grouping tentatively.

For each chosen exporting country  $n$ , we define the degree of market importance of country  $n$ 's exports of product group  $j$  to country  $i$  as

$$I_{n,i,j} = \frac{X_{n,i,j} / X_{World,i,j}}{X_{n,j} / X_{World,j}}$$

with  $X_{n,i,j}$  country  $n$ 's exports of product group  $j$  to country  $i$ ,  
 $X_{World,i,j}$  the world's exports of product group  $j$  to country  $i$ ,  
 $X_{n,j}$  country  $n$ 's total exports of product group  $j$   
 $X_{World,j}$  the world's total exports of product group  $j$ .

<sup>22</sup> Asia-Pacific in this study consists of the ASEAN, South-Korea, Hong-Kong, China, Taiwan and Japan.



A comparison can now be made for any particular product/country combination selected in the previous section, of Thailand's  $\mu_{\text{Thailand},i,j}$  with  $\mu_{\text{Six},i,j}$ , the combined degree of market importance of the six exporting countries with the largest exports of the product category to the country at issue. By calculating the difference between Thailand's degree of market importance and that of the six dominant exporting countries of product group  $j$  to country  $i$ , we can now determine whether Thailand's relative market share is high or small. We, therefore, are using the following rule of thumb:

- $\mu_{\text{Six},i,j} - \mu_{\text{Thailand},i,j} > 3$ : relatively small market share of Thailand,
- $1.5 < \mu_{\text{Six},i,j} - \mu_{\text{Thailand},i,j} \leq 3$ : relative market share of Thailand intermediate small,
- $0 < \mu_{\text{Six},i,j} - \mu_{\text{Thailand},i,j} \leq 1.5$ : relative market share of Thailand intermediate high,
- $\mu_{\text{Six},i,j} - \mu_{\text{Thailand},i,j} \leq 0$ : relative market share of Thailand relatively high.<sup>23</sup>

Table 5 shows the distribution of realistic export opportunities for 1997 and 1993, according to the characteristics of the foreign markets and Thailand's relative market share. From Table 5, it appears that about 40 % of the realistic export opportunities found for 1997, is corresponding to product/country combinations with a relatively small market share for Thailand. For 1993 this was almost 70 %, implying that the filtering analysis used has been more selective against countries with a small or marginal market importance for Thailand. Taking into account the relatively limited resources that Thailand can devote to its public export promotion activities, an obvious policy option could be not to actively promote the export opportunities in the cells 1-5 of Table 5, but rather gather and disseminate market information to the Thai exporters regarding these opportunities. It is even defensible to act accordingly regarding the export opportunities in the cells 6-10 (representing some 27 % of all realistic export opportunities in 1997, against 16 % in 1993), although these opportunities could be explored further in depth using the official trade counsellors at the Thai embassies abroad and the services of Thailand's Department of Export Promotion.

At the other extreme we find the product/country combinations of cells 16-20, which account for 14 % of all realistic export opportunities in 1997 (7 % in 1993). Since the relative market share of Thailand for these combinations is already large, a defensive strategy of "market maintenance" seems appropriate. In the Belgian case, we argued that the need of promotion into these market segments could best be judged by the exporters themselves (see Cuyvers, De Pelsmacker, Rayp & Roozen, 1995: 184). Contrary to the Belgian case, however, it might well be that Thai exporters that are supplying these market segments are less experienced than their Belgian colleagues and still need public export promotion support here, not to mention the small and medium sized exporters.

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<sup>23</sup> An alternative rule would be to divide the 2,246 product/combinations (in 1993: 2,962) in four groups that are about equal in size. This rule was used in our previous research on Belgium's realistic export opportunities (Roozen, Cuyvers, De Pelsmacker & Rayp, 1992). The upper and lower bounds for  $\mu_{\text{Six},i,j} - \mu_{\text{Thailand},i,j}$  that were found in that research, are used here for the sake of comparability, but as we will see, the groups thus determined are far from equal in size. As Belgium and Thailand are competing in the same global market, it seems defensible to use the same criteria for comparing Belgium's and Thailand's relative market shares. However, the opposite view is equally tenable.

**Table 5: Thailand's realistic export opportunities according to its relative market position and the market characteristics, 1997 compared to 1993.\***

	Market share of Thailand relatively small	Intermediate small	Intermediate high	Market share of Thailand relatively high	Total
Large product/market	(CELL 1) 31 [307]	(CELL 6) 52 [54]	(CELL 11) 33 [6]	(CELL 16) 8 [8]	124 [375]
Growing (long and short term) product/market	(CELL 2) 557 [1048]	(CELL 7) 186 [173]	(CELL 12) 110 [71]	(CELL 17) 129 [105]	982 [1433]
Large product/market short term growth	(CELL 3) 77 [62]	(CELL 8) 111 [63]	(CELL 13) 83 [44]	(CELL 18) 32 [19]	303 [288]
Large product/market long term growth	(CELL 4) 51 [153]	(CELL 9) 72 [31]	(CELL 14) 56 [13]	(CELL 19) 61 [18]	240 [215]
Large product/market short and long term growth	(CELL 5) 172 [359]	(CELL 10) 174 [153]	(CELL 15) 164 [79]	(CELL 20) 87 [60]	597 [651]
Total	888 [2065]	595 [474]	446 [213]	317 [210]	2246 [2962]

An active and offensive export promotion strategy of “market expansion” can be implemented by Thailand's Department of Export Promotion for the product/country combinations in the cells 11-15. In these market segments, the Thai exporters have already shown considerable success. The successes and experience gained there by the Thai exporters, however, allow further future expansion of Thailand's market shares. Thailand's export promotion for these product/country combinations has to be carefully designed in order to get the most synergetic effects with the private sector's efforts.

For Thailand's export promotion policies a case can be made, however, for still higher selectivity, especially with due regard to the Government budget constraint and the limited resources that can be devoted to public export promotion, by taking two additional criteria into account.<sup>24</sup> One criterion is the degree of homogeneity of the products. Homogeneous goods tend to be traded in well-developed international markets, where competition is primarily on a price basis. It can be argued that in such markets the marginal social benefits for exporters of export promotion will be less than in the markets of less-homogeneous goods, where non-price competition, standards, reputation, and information needs are high. If we assume for the sake of the argument, that the products of SITC 0-5 are falling in the category of relatively homogeneous goods, Thailand's export promotion institutions might better devote less attention to the 35.4 % of the product groups listed in Table 2 which belong to these SITC categories (in 1993: 31.5 %). On the other hand, access to the national markets of quite a number of these homogeneous products is restricted by technical regulations, health and safety measures, etc. , so that there is an objective need for e.g., general as well as specific information, or direct exposure of potential exporters through trade mission or trade fair participation, and therefore for public export promotion.

Another criterion is the value-added creation in Thailand, related to the products for which realistic export opportunities were detected. As Thailand has been increasingly used as an export base by multinational companies, there is not much point in promoting exports of products that are already exported by foreign subsidiaries to other subsidiaries belonging to the same multinational group, or to promote such exports to countries that are outside the strategic scope of the multinationals at issue. Of course, if in the sectors involved, also local Thai producers are active, there still can be a good

\* The numbers between square brackets [ ] refer to 1993.

case for promoting the exports of these companies.<sup>25</sup> In both situations, export promotion activities in favour of product categories that fall into these categories have to be carefully planned and coordinated with the private sector.

Moreover, one should not forget that even in subsidiaries of multinational companies, there can be considerable room for local strategic decision-making on e.g., export destinations, depending on the availability of local competitive skills and on the importance of the local market for the group as a whole (Bartlett and Goshal, 1989: 105-113). In many industrial sectors in Thailand these skills are still underdeveloped, though not in all and they are increasing. More importantly, however, we are convinced that the impact of the improving local competitive skills in Thailand is further strengthened by the liberalization of intra-ASEAN trade under AFTA. For ASEAN export destinations, local strategic decision-making might well become increasingly important within the group of multinational subsidiaries and joint ventures in Thailand, making public export promotion in ASEAN target markets more effective than before.

## 6. Realistic export opportunities in the Asia-Pacific region

With 943 realistic export opportunities, the Asia-Pacific region *sensu stricto* is the region in the world which offers the largest scope for Thailand's exports. Compared to 1993, however, both the absolute number of opportunities detected and its share declined, as is clearly evidenced by Table 4. If we add Australia and New Zealand to the region, thus considering the Asia-Pacific region *sensu largo*, the absolute number of export opportunities becomes 1059 (from 1514 in 1993), or 47.2 % (against 51.1 % in 1993). With almost half of the realistic export opportunities to be found in Asia-Pacific, closer attention is warranted.

Table 6 shows the country distribution of the opportunities mentioned and how this changed between 1993 and 1997.

**Table 6: Thailand: Distribution of realistic export opportunities in the Asia-Pacific – 1993-1997**

	No of REO 1993	%	No of REO 1997	%
Brunei	27	1,93%	-	-
China	164	11,75%	144	15,27%
Philippines	119	8,52%	114	12,09%
Hong Kong	189	13,54%	142	15,06%
Indonesia	111	7,95%	-	-
Japan	211	15,11%	179	18,98%
Malaysia	108	7,74%	134	14,21%
Singapore	224	16,05%	95	10,07%
Taiwan	115	8,24%	82	8,70%
South-Korea	128	9,17%	53	5,62%
Total	1396	100,00%	943	100,00%

<sup>24</sup> We are grateful to Michael Plummer for pointing this out.

<sup>25</sup> If, however, access to export promotion benefits would be restricted to Thai companies, the Department of Export Promotion of Thailand, in our opinion, would be treading on insecure ground, because of violating the spirit of the national treatment obligation of the WTO Agreements on Trade Related Investment Measures (TRIMs) or on Subsidies.

From this table it can be deduced that in 1997, among the Asia-Pacific countries, Japan provided most scope for Thailand's exports. China and Hong Kong are coming close second and third. It is remarkable that among the countries of the region, Taiwan and S. Korea are offering the least number of export opportunities for Thailand. Also noteworthy is that between 1993 and 1997 some remarkable changes occurred. Indonesia which in 1993 still represented almost 8 % of Thailand's realistic export opportunities in the Asia-Pacific, dropped out in 1997 because of high political and commercial risks due to the raging Asian crisis. This crisis also seems to have reduced markedly market potential in Singapore, which in 1993 was good for 16 % of all export opportunities in the region, against only 10 % in 1997. On the other hand, countries that were relatively less severely effected by the Asian crisis experienced an increase in their importance as potential export market for Thailand (China, Philippines, Malaysia).

Evidently, Thailand's capacities for exploiting these realistic export opportunities in Asia-Pacific depend on the country's relative market shares compared to its neighbouring countries. Applying the same rule of thumb as before, Thailand's realistic export opportunities can be grouped as in Table 7. It appears that some 41 % of all export opportunities are detected for products in countries where Thailand's relative market share is intermediate high or high (cells 11-20 in Table 7).

**Table 7: Thailand's realistic export opportunities in the Asia-Pacific region, according to its relative market position and the market characteristics, 1997.**

	Market share of Thailand relatively small	Intermediate small	Intermediate high	Market share of Thailand relatively high	Total
Large product/market	(CELL 1) 12	(CELL 6) 10	(CELL 11) 5	(CELL 16) 5	32
Growing (long and short term) product/market	(CELL 2) 214	(CELL 7) 58	(CELL 12) 39	(CELL 17) 81	382
Large product/market short term growth	(CELL 3) 21	(CELL 8) 20	(CELL 13) 22	(CELL 18) 19	82
Large product/market long term growth	(CELL 4) 34	(CELL 9) 35	(CELL 14) 39	(CELL 19) 56	164
Large product/market short and long term growth	(CELL 5) 95	(CELL 10) 57	(CELL 15) 53	(CELL 20) 68	273
Total	376	180	158	229	943

The Asia-Pacific region is offering only few export opportunities for Thailand in the categories of large product/market combinations, but is particularly strong in product categories showing both long and short term growth, together with large market size. This evidence, however, does not suitably take into account the deepness of the Asian crisis in 1997 and 1998, as the international trade data used do not extend beyond 1997. Therefore, the results should be treated with caution.

Appendix 2 depicts the product distribution of the realistic export opportunities in markets where Thailand is holding already a relatively intermediate or large share. From this appendix the following product groups seem to be most promising<sup>26</sup>:

<sup>26</sup> The list of export opportunities at SITC 4-digit level can be obtained with the author on request.

- Measuring, checking and analysing instruments (SITC 874) with 16 mentions. A large relative market share is already achieved in Japan, Taiwan, Singapore, Malaysia and the Philippines, but there is also scope for more exports for product where Thailand's market share is at an intermediate level in these countries, as well as in Hong Kong and South Korea.
- Telecommunications equipment and parts (SITC 764) with 12 mentions. Here a large relative market share is already achieved in Japan, Singapore and the Philippines, but Japan also shows opportunities in products where Thailand has an intermediate market share. In addition also South Korea, Hong Kong, as well as the Philippines and Malaysia show interesting prospects for the future.
- Paper and paperboard (SITC 641) with 10 mentions. In this case all but one export opportunities are in countries where Thailand's market share is already relatively high, such as Hong Kong, Taiwan, the Philippines and Malaysia. One export opportunity is detected now in China, where Thailand's market share is intermediate high.
- Non-electrical parts and accessories of machines (SITC 749), with 9 mentions, 6 of which in high relative market share markets such as Japan, the Philippines, Singapore and Malaysia. Three export opportunities are detected in Malaysia and Taiwan, where Thailand's market share for the products at issue is intermediate high.
- Electrical machinery and apparatus (SITC 778), with 9 mentions. Five export opportunities are in the high market share markets of Japan, Singapore, South Korea and the Philippines; The remaining four are in intermediate high market share markets in the same countries (except the Philippines).
- Machinery and equipment specialised for particular industries (SITC 728) with 8 mentions. Six export opportunities are in high market share markets of Japan, Singapore, Taiwan, Hong Kong, Malaysia and the Philippines. Only two are in intermediate high market share markets of South Korea and Taiwan.
- Heating and cooling equipment and parts (SITC 741) , with 8 mentions, of which four in high market share markets of Japan, Singapore and Taiwan. The remaining four are in intermediate –high market share markets of Taiwan, Singapore, Malaysia and the Philippines.
- Household type electrical and non-electrical equipment (SITC 775), with 8 mentions. Five are in high market share markets of Japan, Singapore and the Philippines, and three in intermediate high market share markets of Hong Kong and the Philippines.

## **7. Some tentative conclusions**

In this paper, we have endeavoured to identify the realistic export opportunities of Thailand, using a methodology developed in Cuyvers, De Pelsmacker, Rayp and Roozen (1995) and previously applied to Thailand in Cuyvers (1996).

In a first stage, countries showing high credit risks were deleted. The list of remaining countries was analysed further on the basis of macro-economic characteristics such as relative size of the market (measured by GNP) and relative wealth of the inhabitants (measured by GNP per capita). By defining

a cut-off point for these macro-economic variables, the least interesting countries could be deleted. In a second stage, four-digit import trade data for the countries selected in the first stage were investigated with respect to long-term and short-term growth and relative import market size, compared to the rest of the group of countries. The respective cut-off points used in this stage take into account the degree of specialisation of Thailand in exporting each product group considered: the selectivity is more lax for a product group for which Thailand has “revealed comparative advantage”, than for other product groups.

The third stage looked at the “accessability” for Thai exporters of the product/country combinations selected in the previous stage, as measured by market concentration and an index of the “revealed absence of barriers to trade”. The list of combinations thus selected according to these criteria was further grouped according to the market characteristics of long-term market growth, short-term market growth and relative market size on the one hand, and the relative market importance for Thailand on the other hand. This grouping enables an in-depth discussion to better design suitable export promotion strategies for Thailand, particularly their offensiveness and the appropriate export promotion “policy mix”.

The analysis is conducted using the international trade data up to 1997 and compared with the results of the previous analysis based on data up to 1993 (Cuyvers, 1996). In spite of some minor discrepancies in the results of 1997, as compared to 1993, it is found that Thailand’s realistic export opportunities thus detected relate to a large number of product groups, but are noteworthy in specific textile products and garments, as well as some technology-intensive products.

Of the Asia-Pacific *sensu stricto* a number of countries had to be left out of the further analysis because of too high commercial/political risks involved (e.g. Vietnam), so that for the 1997 analysis, we ended up with China, Hong Kong, Japan, Malaysia, the Philippines, Singapore, South Korea and Taiwan. The realistic export opportunities detected for Thailand in this region represent 42 % of the total number. Among these in Asia-Pacific markets where Thailand occupies already a large or intermediate high market share special mention can be made of product groups such as measuring, checking and analysing instruments; telecommunication equipment and parts; paper and paperboard; non-electrical parts and accessories of machines; electrical machinery and apparatus; machines and equipment specialised for particular industries; heating and cooling equipment and parts; and household type electrical and non-electrical equipment. In this category of export opportunities, the agro-industry and chemical industry products are clearly less important than the manufactured products.

In using four-digit international trade data, the decision support model that was originally designed for data at a two-digit level, had to be adapted to suit this higher level of dis-aggregation. One of the problems encountered was the difficulty to find “jumps” in the number of product/country combinations selected for varying selection parameters, i.e. to determine the selection parameter which only marginally affects the number of countries or product/country combinations selected. We followed the solution suggested in Cuyvers (1996) which is a heuristic one, but further research is needed to better apply the methodology in the future.

Another problem is related to the non-availability of more recent data and, hence, to the fact that the results obtained and the selection performed, depends on trade data that are already three years old. This problem cannot be solved, implying that the application of the results of our “data filtering” to the problems of designing export promotion strategies can only be considered as one, although an important, element of the considerations of the policy-makers, the Export Development Committee and the Department of Export Promotion in Thailand.

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## APPENDIX 1: SELECTION CRITERIA, DEFINITIONS AND VARIABLES

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### Filter 1.1: Macro-economic country assessment, country risk

Country risk rating of OND < Risk rating of risk category 5,1 and 5,2 of OND

### Filter 1.2: Macro-economic country assessment, market potential

$$\chi = \bar{X} - \alpha\sigma_{X_j}$$

$$X_j \geq \chi$$

### Filter 2: Possible export opportunities

$$G_j = g_{World,j} \cdot S_j \text{ if } g_{World,j} > 0, \text{ and}$$

$$G_j = g_{World,j} / S_j \text{ if } g_{World,j} < 0$$

$$s_j = 0.8 + \frac{1}{(RCA_j + 0.85)e^{(RCA_j - .01)}}$$

$$g_{i,j} \geq G_j$$

$$S_j = 0.02 M_{World,j} \text{ if } RCA_j > 1$$

$$S_j = [(3 - RCA_j)/100] \cdot M_{World,j} \text{ if } RCA_j \leq 1$$

$$M_{i,j} / M_{World,j} \geq S_j$$

### Filter 3.1: Realistic export opportunities, degree of concentration

$$h \geq HHI_{i,j}$$

$$h = -0.05\alpha\sigma_h, \text{ for product/country combinations of category 3 (see Table 1),}$$

$$h = +0.05\alpha\sigma_h, \text{ for product/country combinations of category 4, 5 or 6 (see Table 1)}$$

$$h = +0.15\alpha\sigma_h, \text{ for product/country combinations of category 7 (see Table 1)}$$

$$\alpha = 11.4$$

### Filter 3.2: Realistic export opportunities, market share of neighbouring countries

$$m_{i,j} = \frac{\frac{X_{Indo,i,j}}{X_{Indo,j}} + \frac{X_{Mal,i,j}}{X_{Mal,j}} + \frac{X_{Fil,i,j}}{X_{Fil,j}} + \frac{X_{Sing,i,j}}{X_{Sing,j}}}{\frac{X_{World,i,j}}{X_{World,j}}}$$

$$m_{i,j} \geq 0.95$$

with:

$X_j$  country j's GNP or GNP per capita



$\bar{X}$	the average of X (GNP or GNP per capita),
$\sigma_{Xj}$	the standard deviation of X,
$\sigma_h$	the standard deviation of HHI
$\alpha$	an exogeneously determined factor
$\chi$	the cut-off value of X
$g_{World,j}$	the rate of growth of world imports of product group j
$g_{i,j}$	the rate of growth of the imports in country i of product group j
$s_j$	a scaling factor
$G_j$	the cut-off value for the rate of growth of imports of product group j
$RCA_j$	the revealed comparative advantage index of Thailand in trading product j
$M_{world,j}$	the aggregate imports in the world of product group j
$S_j$	the cut-off value of relative import market size $M_{i,j}/M_{world,j}$ of country i
$HHI_{i,j}$	the Herfindahl-Hirschmann index of country i's import market of product group j
$h$	the cut-off value of the Herfindahl-Hirschmann index
$m_{i,j}$	the index of "revealed absence of barriers to trade" in product j in country i
$X_{.,i,j}$	neighbouring country . 's exports of product group j to country i
$X_{world,i,j}$	the world exports of product group j to country i
$X_{.,j}$	neighbouring country . 's exports of product group j
$X_{world,j}$	the world exports of product group j



SITCxxx	Product group	No of REOs	Cell 11	Cell 12	Cell 13	Cell 14	Cell 15	Cell 16	Cell 17	Cell 18	Cell 19	Cell 20
522	Inorganic chemical elements, oxides and halogen salts	1									Japan	
523	Other inorganic chemicals	2	Japan						Singapore			
533	Pigments, paints, varnishes and related materials	5	S.Korea		Japan				Philippines	H.Kong Taiwan		
541	Medicinal and pharmaceutical products	7		Philippines					Malaysia (3) Philippines (2) Singapore			
551	Essential oils, perfume and flavour materials	2						H.Kong Japan				
553	Perfumery, cosmetics and toilet preparations	2					Japan		Philippines			
554	Soap, cleansing and polishing preparations	1				Japan						
592	Starches, inulin and wheat gluten, albuminoidal subst.	4		Taiwan			China					Malaysia Taiwan
598	Miscellaneous chemical products, n.e.s.	2				S.Korea	Taiwan					
621	Materials of rubber (e.g., pastes, plates, sheets, etc.)	2							Japan			H.Kong
628	Articles of rubber, n.e.s.	3		H.Kong								Singapore Japan
634	Veneers, plywood, improved or reconstituted wood	1							H.Kong			
635	Wood manufactures n.e.s.	2							Philippines		Japan	
641	Paper and paperboard	10					China		Taiwan (3) Philippines (2) Malaysia			H.Kong (3)
642	Paper and paperboard, cut to size or shape	6		Japan					Japan Philippines Malaysia S.Korea	H.Kong		
651	Textile yarn	4					China Japan H.Kong		Malaysia	Japan		
652	Cotton fabrics, woven	1										
653	Fabrics, woven, of man-made fibres	2			H.Kong				Philippines			
656	Tulle, lace, embroidery, ribbons and other small wares	1					H.Kong					
657	Special textile fabrics and related products	9		Malaysia			H.Kong		Singapore (2) Philippines		S.Korea	H.Kong Singapore Japan
658	Made-up articles, wholly/chiefly of textile materials	1									Japan	
661	Lime, cement, and fabricated construction materials	4					Singapore		Taiwan			Malaysia China
662	Clay construct. materials and refractory constr. mater.	2							Philippines			Japan
663	Mineral manufactures, n.e.s.	6					Japan			H.Kong	Singapore	Japan Malaysia Singapore
666	Pottery	3				Japan (3)						
667	Pearls, precious and semi-prec. stones, un-work./worked	3			H.Kong		H.Kong Singapore					
671	Pig iron, spiegeleisen, sponge iron, iron or steel	1							Singapore			
673	Iron and steel bars, rods, angles, shapes and sections	4				H.Kong			Philippines			Singapore (2)
677	Iron/steel wire/wheth./not coated, but not insulated	2							Singapore		Japan	
678	Tubes, pipes and fittings, of iron or steel	5							Japan H.Kong		Japan	Singapore (2)
679	Iron and steel castings, forgings and stampings, rough	1										Japan
681	Silver, platinum and oth. metals of the platinum group	1					Japan					
682	Copper	3					H.Kong		H.Kong			Malaysia
684	Aluminium	2				H.Kong				Japan		
686	Zinc	1					Malaysia					
693	Wire products and fencing grills	4		Philippines Singapore					Japan		Singapore	
694	Nails, screws, nuts, bolts, etc. of iron, steel, copper	1							Japan			
695	Tools for use in hand or in machines	1										Japan
697	Househols equipment of	1				Japan						

SITCxxx	Product group	No of REOs	Cell 11	Cell 12	Cell 13	Cell 14	Cell 15	Cell 16	Cell 17	Cell 18	Cell 19	Cell 20
	base metals, n.e.s.											
699	Manufactures of base metal, n.e.s.	7				Japan		Singapore	Malaysia Philippines (2)	Japan		Japan
724	Textile and leather machinery and parts	5		Malaysia	H.Kong Taiwan				Japan			H.Kong
725	Paper and pulp mill mach., mach. for manuf. of paper	1										Malaysia
728	Mach. and equipment specialized for particular ind.	8				S.Korea	Taiwan		H.Kong Philippines	Malaysia		Japan Singapore Taiwan
736	Mach. tools for working metal or met. carb., parts	4		Philippines	Japan	Malaysia	Taiwan					
737	Metal working machinery and parts	2		H.Kong							Malaysia	
741	Heating and cooling equipment and parts	8		Philippines Malaysia	Taiwan	Singapore				Japan	Singapore	Japan Taiwan
744	Mechanical handling equip. and parts	5							Philippines		Malaysia (2) H.Kong	Singapore
745	Other non-electrical mach. tools, apparatus and parts	1							Philippines			
749	Non-electrical parts and accessories of machines	9		Malaysia (2)	Taiwan				Philippines (2)	Japan	Singapore Malaysia	Japan
751	Office machines	8				Japan	Japan China H.Kong Taiwan		Philippines			Malaysia Singapore
759	Parts of and accessories suitable for 751 or 752	3		Taiwan							Japan	H.Kong
764	Telecommunications equipment and parts	12		S.Korea (2) Philippines		Japan (2) Malaysia S.Korea	H.Kong (2)		Philippines		Japan Singapore	
773	Equipment for distributing electricity	4									Malaysia	Philippines Japan Taiwan
775	Household type, electr. and non-electrical equipment	8		Philippines		H.Kong	H.Kong		Singapore Philippines		Japan (2)	Japan
778	Electrical machinery and apparatus	9		Japan	H.Kong	Singapore	S.Korea		Singapore Philippines		Japan Singapore	S.Korea
781	Passenger motor cars, for transport of pass. & goods	1				Japan						
785	Motorcycles, motor scooters, invalid carriages	2			H.Kong				Philippines			
812	Sanitary, plumbing, heating, lighting fixtures	4		Japan Singapore	H.Kong						Japan	
831	Travel goods, handbags, brief cases, purses, sheaths	2				Japan			Taiwan			
842	Outer garments, men's, of textile fabrics	1				Japan						
843	Outer garments, women's, of textile fabrics	2		Singapore			Japan					
844	Under garments of textile fabrics	1										
845	Outer garments and other articles, knitted	3			Japan (3)							
847	Clothing accessories of textile fabrics	2					H.Kong				Japan	
848	Art. of apparel and clothing accessories, no textile	6		Taiwan		Japan			Taiwan (2) Singapore		Japan	
851	Footwear	1		Philippines								
871	Optical instruments and apparatus	3				S.Korea	H.Kong Japan					
872	Medical instruments and appliances	3		Philippines Singapore							Japan	
874	Measuring, checking, analysing instruments	16		Malaysia (2) Philippines H.Kong	Japan	S.Korea	Singapore Taiwan		Malaysia (2) Philippines		Japan (2) Singapore	Singapore Taiwan
881	Photographic apparatus and equipment, n.e.s.	6			H.Kong Taiwan	S.Korea	Taiwan				Japan	Japan
883	Cinematograph film, exposed-developed, neg. or pos.	1		Malaysia								
884	Optical goods, n.e.s.	2					Japan				Japan	
885	Watches and clocks	5			H.Kong		Japan Japan Malaysia Singapore				Japan	
892	Printed matter	3				Japan			Japan Singapore			
893	Articles of materials described in division 58	4		Philippines	H.Kong						Japan	Japan
894	Baby carriages, toys, games and sporting goods	3		Philippines							Japan (2)	
898	Musical instruments, parts	7				Japan	H.Kong				Singapore	Japan

SITCxxx	Product group	No of REOs	Cell 11	Cell 12	Cell 13	Cell 14	Cell 15	Cell 16	Cell 17	Cell 18	Cell 19	Cell 20
	and accessories						Japan Malaysia				(2)	
899	Other miscellaneous manufactured articles	3							Taiwan		Japan (2)	
931	Special transactions and commodities, not class. to kind	4			Japan		H.Kong Taiwan					Singapore
941	Animals, live, n.e.s., incl. zoo-animals	1										H.Kong
	Total	943	5	39	22	39	53	5	81	19	56	68