

The Trade Performance Index

Background paper

ITC

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SUMMARY

ITC developed the Trade Performance Index (TPI) with the aim of assessing and monitoring the multi-faceted dimensions of export performance and competitiveness by sector and by country. At present, the TPI covers 184 countries and 14 different export sectors. The index calculates the level of competitiveness and diversification of a particular export sector using comparisons with other countries. In particular, it brings out gains and losses in world market shares and sheds light on the factors causing these changes. Moreover, it monitors the evolution of export diversification for products and markets. The TPI is limited by its purely quantitative approach, although it does provide a systematic overview of sectoral export performance and comparative and competitive advantages.

For each country and each sector, the TPI provides three types of indicators: a *general profile*, a country *position* for the latest available year and *changes* in export performance in recent years. Altogether, the TPI makes use of around two dozen quantitative performance indicators. For ease of reference, these indicators are presented in absolute terms and, in addition, ranked among the 184 countries covered by the TPI.

Moreover, two composite rankings are calculated. One of these rankings refers to the overall *position* of a country and sector and another ranking refers to *changes in performance*. The composite ranking referring to the overall *position* is based on five criteria, namely the value of net exports, per capita exports, the world market share, the diversification of products, and the diversification of markets. The composite ranking referring to *changes in performance* is based on five criteria, namely the change in the world market share, the change in the cover ratio (exports divided by imports), the level of specialisation in dynamic products, the change in product diversification and the change in market diversification.

Introduction

The trade performance of individual countries tends to be a good indicator of economic performance since well performing countries tend to record higher rates of GDP growth. The majority of developing countries have joined the World Trade Organization (WTO) and have taken initiatives aimed at opening their economies. Nevertheless, the outcome has not always been systematically positive with export performance sometimes remaining disappointing. It is difficult to establish an all embracing definition of successful trade performance. Trade champions contrast with certain specialised exporters that suffer from a deterioration in their terms of trade. For example, some developing countries record high growth rates by specialising in niche markets and concentrating their export markets, while other developing countries record more moderate rates of growth with a well

diversified array of products and partner countries. In other cases, successful performance is the result of a favourable product or market penetration since the beginning. Successful performance can also be gauged in terms of a country's ability to adapt its export profile to changing patterns of world demand. The last approach is the most dynamic and demand-driven trade policy stance.

The Trade Performance Index (TPI thereafter) designed by ITC aims to tackle the complex and multidimensional nature of trade patterns. This index is computed using the world's largest trade database, COMTRADE (of the United Nations Statistics Division), covering 184 countries¹, where more than 90% of world trade in 3,500 products is reported at the 5-digit level of the SITC². Since COMTRADE captures around 90 % of world trade, the TPI is calculated not only for countries that report their own trade data, but also for over one hundred primarily low-income countries that do not report national trade statistics.

Given that such an amount of information would be overwhelming to the final user, products are grouped into 14 sectors (see appendix 2). Calculations are made at the product level and results are presented at the sectoral level and for the economy as a whole. For each country and each sector, the TPI provides a *general profile*, indicators on a country's *position* and indicators on *changes* in export performance in recent years.

The rest of the paper covers the objectives, methodology and results of the TPI framework.

1- Motivation for developing the Trade Performance Index

Generally, trade performance is characterised by rough indicators, such as the level of openness (total trade in goods and services divided by GDP) or growth of exports over a given period (such as the World Bank's *World Development Indicators*).

Recent research on the relationship between trade and growth suggests that openness alone is not a sufficient criteria for determining high levels of growth. Other factors, such as the type of product available, the level of market and economic diversification, the positioning on quality ladders, are also significant in explaining growth. In addition, it is important to determine the reasons for country differences in export growth and to determine the redistributive process of market shares among competitors.

¹ In the case of non-reporting countries, the trade is reconstituted on the basis of partner country statistics (mirror statistics). This approach does not capture trade among non-reporting countries.

² Standard International Trade Classification.

Departing from the rough indicators referred to above, microeconomic and generally qualitative indicators are used to characterise the competitiveness of nations. In this light, the “Microeconomic index of competitiveness” (Porter and Christensen, 1999), is based on the micro-foundations of a country’s competitiveness. Launched in 1998 as part of the Global Competitiveness Report, this index is based on a survey of some 4,000 businessmen and government officials in 58 countries, including OECD countries³. Regressing income per capita on this index explains more than 80% of the variance of income in the sample. A quantitative method was developed in order to complement the qualitative approach, which may be criticised on the ground of being limited to a small number of developing countries.

It appears that the relative position of a country or product on the international market, and its development over time, is a good indicator of competitiveness. Trade statistics capture these changes. Trade statistics have the advantage of being available for a substantial number of countries. For those countries which do not report trade statistics, their trade profile can be (partially) completed by using mirror statistics. Lastly, trade data is broken down at the industry and product levels, which provides a disaggregated insight into trade performances.

On this basis, developing countries can be ranked according to their trade performance, based on various criteria. A ranking can be provided by country, sector, or a combination of different criteria.

It must be stressed that the performance of individual countries cannot be determined on the basis of a restricted sample of countries or products. The derivation of the relative export performance is achieved by including a significant number of countries, together with a detailed product breakdown.

2- Content of the TPI

For each country and each sector, the TPI provides indicators on a country’s general profile, on a country’s position and on changes in a country’s export performance. Altogether, the TPI consists of 22 quantitative indicators of trade performance. For ease of reference, these indicators are presented in absolute terms and, in addition, combined to form a ranking among the countries. Two composite rankings are calculated, one for the overall position of the country and sector under review and another one for the change in performance.

³ Indicators range from the overall infrastructure quality to administrative infrastructure, information infrastructure, capital availability, human resources etc.

All this information is grouped under three categories referring to “general profile”, “position” and “change”.

Firstly, descriptive indicators are provided, which will not be used in the calculation of the ranking. It is worthwhile computing their values since they provide valuable additional information for trade performance analysis. These are, for a given group of products:

- G1. The value of exports (in thousand US \$) in 1998
- G2. The (weighted) trend of exports (94-98)
- G3. The share in national exports in 1998
- G4. The share in national imports in 1998
- G5. The average annual change in per capita exports (94-98)
- G6. The relative unit value in 1998
- G7. The average annual change in relative unit value (94-98)
- G8. The revealed comparative advantage.

A decreasing rank is calculated for the trend in exports and also for the change in per capita exports. However, these are indicative rankings that do not enter into the final ranking. Complementing this first set of information, the country specialisation index for the group of products considered is calculated and presented separately. Such an indicator should be considered separately since competitiveness and specialisation refer to two separate concepts: competitiveness refers to the advantage a country has in exporting a certain product over other countries, while specialisation refers to the allocation of resources within the exporting sector, under the assumption of balanced total trade.

Then, the TPI provides a second set of indicators related to *positions*:

- P1. Value of net exports (in thousand US \$)
- P2. Per capita exports (US\$/inhabitant)
- P3. Share in world market (%)
- P4-a. Product diversification (number)
- P4-b. Product spread (ranking)

P5-a. Market diversification (number)

P5-b. Market spread (ranking)

For each of these indicators, a ranking is established, by decreasing performance, which will be used in the calculation of a composite ranking of *position*. The reasons for calculating two separate indicators of diversification for products and markets are clarified below. The composite index of *position* considers a simple average of the corresponding two ranks (average of the rankings for P4-a and P4-b for instance).

Lastly, the TPI provides a second set of indicators related to *change*:

C1. Percentage change in world market share

C2. Trend of import coverage by exports

C3. Matching with dynamics of world demand

C4-a. Change in product diversification

C4-b. Change in product spread

C5-a. Change in market diversification

C5-b. Change in market spread

The percentage change of world market share (C1) is divided into four complementary effects that are quantified separately, namely the competitiveness effect, the impact of initial geographic and product specialisation and the adaptation to changes in the patterns of world demand.

All these indicators enter into a composite ranking of change.

3- Calculation of indicators

This section examines the rationale and the calculation of each indicator entering in the TPI. General profile indicators, position-related indicators and change-related indicators are surveyed respectively.

All indicators are calculated for each of the 14 sectors at the product level. Original data used in the computation is at the 5-digit level of the SITC nomenclature, corresponding to some 3,500 products as a whole.

A first set of indicators aims at giving the general profile for the country considered. However, these indicators are not used in the calculation of the final ranking provided by the TPI, as already mentioned.

G1- Value of exports

Value of total country exports by sector is given in million of US\$ for 1998. Exports are given in FOB terms if the country is a direct reporter to the COMTRADE database or in CIF terms when using mirror statistics.

G2- Trend of exports

The weighted trend measures, for each country and each sector, the annual percentage growth of exports from 1994 to 1998. The index is calculated using the ordinary least squares method. In this index the trend is weighted against the individual weight of specific products within the sector. This technique aims to render the results more stable and minimise the effect of strong fluctuations. The ranking of the 184 countries is proportional to the average growth rate of their respective exports.

G3 (G4)- Share in national exports (imports)

This refers to the share of exports (imports) by sector in relation to total country exports (imports), for the year 1998.

G5- Change in per capita exports

The level of exports is determined by the demand for a country's products on world markets and a country's ability to satisfy that demand, which can be related to its size. Hence, the value of per capita exports shows how outward looking is a country, and the extent to which the population produces for the world market. The change in per capita exports reflects changes in a country's outward looking stance and performance for the group of products considered.

G6- Relative unit value

The RUV of each sector is calculated as the ratio of the average unit value of exports for a country to the world average unit value. The reference point or average relative unit value is 1 (the unit value in the targeted country equals the unit value in the world market). If the RUV is below (above) 1, then the country exports its product at a lower (higher) price than the world average unit price.

Traditionally, the comparison of unit values for homogeneous products gives an indication of exporters' relative prices. However, according to the new theories of international trade, products are differentiated by quality, which is often reflected by differences in price. Accordingly, prices are considered as an indirect indicator of the quality of differentiated products: assuming that a consumer has access to product information, two products of different quality cannot be sold at the same price. However, since prices are not available for individual products, or even for industries, unit values (values divided by quantities) are taken as proxies for prices. Higher unit values are considered as reflecting a higher quality, other things being equal, and not as an indication of poor price competitiveness.

G7- Change in relative unit value

The change in Relative Unit Value represents the average annual evolution of the RUV index over the period (1993-1998).

G8- Comparative advantage (not displayed)

In trade flows analysis, an indicator of comparative advantage aims at measuring specialisation. The specialisation of a country is an indication of how a given country allocates its resources to its various industries, under the assumption of balanced total trade. The rationale underpinning this assumption is that the contribution of any product or industry to the theoretical level of specialisation must be isolated from business cycle related effects, such as the impact on trade of changes in the real exchange rate. This is the goal of the index measuring the contribution to the net trade balance developed by CEPII⁴ and used in the present analysis. Accordingly, the indicator has a structural character.

The index, measured in thousand parts of trade, gives the contribution of each sector (and market) to the overall trade balance. It is calculated as the difference between the actual net balance and the theoretical net balance. The theoretical net balance corresponds to the net value that the sector (or market) under analysis would register when global equilibrium occurs in the country's trade. The aim of this index is to identify for each country those sectors with the highest levels of specialisation, rather than to compare countries.

Since this indicator compares levels of specialisation for different industries in a given country, it is not presented in the synthetic table but in a separate graph.

⁴ Centre d'études prospectives et d'informations internationales, Paris.

According to equation (0), the revealed comparative advantage is standardised by total trade for the exporting country considered.

$$RCA_{icl}^t = \frac{1000}{(X_{i..}^t + M_{i..}^t)} * \left[(X_{icl.}^t - M_{icl.}^t) - (X_{i..}^t - M_{i..}^t) * \frac{(X_{icl.}^t + M_{icl.}^t)}{(X_{i..}^t + M_{i..}^t)} \right] \quad (0)$$

with:

$X_{i..}^t$ and $M_{i..}^t$ respectively country i total exports and imports in year t

$X_{i,cl}^t$ and $M_{i,cl}^t$ respectively country i total exports and imports of products belonging to the cluster cl in year t

$(X_{icl.}^t - M_{icl.}^t)$ the observed trade imbalance of country i for the cluster cl in year t .

$\frac{(X_{icl.}^t + M_{icl.}^t)}{(X_{i..}^t + M_{i..}^t)}$ the weight of cluster cl in country i exports in year t .

$(X_{i..}^t - M_{i..}^t) * \frac{(X_{icl.}^t + M_{icl.}^t)}{(X_{i..}^t + M_{i..}^t)}$ the theoretical imbalance of country i for the cluster cl in year t .

P1- Value of net exports

Net exports are defined as exports less imports. A country's net exports are a reliable indicator of its position on the world market for two reasons. Firstly, net exports eliminate re-exports, which would otherwise introduce a bias into the raw data. Secondly, the indicator takes into account the international division of production processes, since a large part of imported intermediate products found within exports usually belong to the same sector (e.g. electronic parts and assembled computers). Hence, net exports provide a very simple but reliable correction for dealing with the globalisation of production processes and the induced vertical specialisation of countries at various stages of production.

P2- Per capita exports

The value of per capita exports indicates the level of outward lookingness of a country and the extent to which a country's population produces for the world market.

P3- Share in world market (percentage share of world exports)

The world market share for a specific country is the ratio of total country exports to total world exports. The market share can also be defined as the country's share in national markets for each partner country, and the importance of each of these partners in world trade.

Equation (1) defines the market share PM_i^t of country i at year t .

$$PM_i^t = \frac{X_{ijk}^t}{X_{.jk}^t} = \left[\frac{X_{ijk}^t}{X_{.j.}^t} * \frac{X_{.jk}^t}{X_{...}^t} \right] \quad (1)$$

with

X_{ijk}^t country i exports of product k to country j at year t .

$X_{.jk}^t$ total exports of product k to country j at year t .

$X_{.j.}^t$ total exports to country j at year t .

$X_{...}^t$ world exports of all products at year t .

$\frac{X_{ijk}^t}{X_{.jk}^t}$ the market share of country i in country j for the product k at year t .

$\frac{X_{.jk}^t}{X_{...}^t}$ the weight of the importing market in world imports.

P4- Product diversification

Diversification, measured through exports, is a good indicator of production structures and industry's development level. Diversification limits the dependence on a small number of products and hence reduces a country's vulnerability to industry-specific external shocks.

In order to capture the degree of product diversification, two separate indicators are calculated: the equivalent number of products and the spread. The spread is the inverse of the corresponding concentration. The equivalent number (EN=1/Herfindal), is a theoretical value which represents the number of markets of identical size that would lead to the degree of export concentration exactly equal to the observed one. Because this indicator is not highly sensitive to activities of relatively weak importance, it is a measurement that is suited to sectoral studies. We start by presenting these indicators and then turn to an example illustrating the value added of combining the two indicators.

Calculating product differentiation by means of the equivalent number distinguishes for each country the equivalent number of exported goods of equal importance (either within each sector or in the whole national economy) leading to the same concentration of exports. The increase in rank is a function of the increase in the level of diversification (both for products and markets). The larger the index value, the greater the diversification of exports, and consequently the better the ranking.

The *spread index* complements the equivalent number. Spread indices measure the dispersion between the highest and lowest value in a given statistical serie. They are calculated using a weighted standard error. The spread index for products calculates for each country the distribution of export products and compares it to the average export value. The greater the distribution (i.e. spread) of exports from a country as compared to the average, the higher the value of the index.

If all countries export all products, one of these indicators would be sufficient. Since this is not the case, the combination of the two indicators is useful. The value added of combining the two indicators of dispersion can be illustrated by the example in Table 1.

For example, we consider 4 countries and 10 industries. Country A exhibits uniformity in the level of specialisation in its industries, thereby achieving the highest level of diversification. Country B is specialised with equal intensity in 5 out of the 10 industries. Country C exports products in 8 industries and is highly specialised in industry 7, which accounts for 35% of its exports. Lastly, country D exhibits the same specialisation patterns but tenfold. The choice between the two indicators is not the same for country A and B on the one hand, and B and C and the other hand. Neither indicator discriminates simultaneously between countries belonging to each of these pairs.

Consider the country pair A and B: the spread is zero in both cases (indicating uniformity in the specialisation in industries) whereas the equivalent number is twice as large for country A (indicating that country A is diversified twice as much as B). The spread does not take into account the number of industries in which a country is active, but only the share of each industry in total exports. The equivalent number, on the other hand, ignores the differences in each industry's share to total exports and only focuses on the number of industries a country is active in. Hence, the spread indicator does not distinguish any differences between country A and country B, whereas the equivalent number finds differences between them.

In the case of countries B and C, the opposite result is obtained. The equivalent number of markets of equal size is 5 in both cases. However, since the dispersion is much larger in country C, the spread can rank these two countries.

In sum, country A is the most diversified country, followed by B. Countries C and D are the least diversified.

Lastly, the comparison of results for countries C and D highlights the advantage of using the weighted spread to the standard deviation. Using the standard deviation, the dispersion in country D is ten times larger than in country C, even though only their size differs.

Table 1: An example of complementarity between the two indicators of diversification

	Country A	Country B	Country C	Country D
industry 1	20		20	200
industry 2	20		15	150
industry 3	20		26	260
industry 4	20		20	200
industry 5	20		20	200
industry 6	20	40		
industry 7	20	40	74	740
industry 8	20	40	5	50
industry 9	20	40	20	200
industry 10	20	40		
Total exports	200	200	200	2000
equivalent number	10.00	5.00	5.00	5.00
standard deviation	0.00	0.00	20.71	207.10
weighted spread	0.00	0.00	0.104	0.104
Rank EN	1	2	2	2
Rank weighted spread	1	1	3	3
Ranking	1	2	3	3

In technical terms, the equivalent number (for products) is calculated as in equation (2) below:

$$NE_{icl}^t = \frac{1}{n \left(\frac{X_{i,k}^t}{X_{i,cl}^t} \right)^2} \quad (2)$$

with: $X_{i,k}^t$ the export of product k by country i at year t .

$X_{i,cl}^t$ country i exports of all products belonging to the cluster cl at year t .

$\frac{X_{i,k}^t}{X_{i,cl}^t}$ the share of product k in total exports of country i in cluster cl .

Turning to the index of weighted spread, equation (3) indicates that the standard deviation divided by the number of products times the average value of exports for individual products has been used.

$$S_{cl}^t = \left[\frac{\sqrt{\sum_{k=1}^{cl} \left(X_{i,k}^t - \bar{X}_{i,cl}^t \right)^2}}{N(\bar{X}_{i,cl}^t)} \right] \quad (3)$$

with:

$X_{i,k}^t$ country i exports of product k to market i in year t .

$\bar{X}_{i,cl}^t$ the average value of country i exports in year t for the cluster cl .

$\left(X_{i,k}^t - \bar{X}_{i,cl}^t \right)$ the deviation to the average of product k in cluster cl for country i .

$\sqrt{\sum_{k=1}^{cl} \left(X_{i,k}^t - \bar{X}_{i,cl}^t \right)^2}$ the standard deviation.

S_{cl}^t the weighted spread.

P5- Diversification of markets

Diversifying partner countries reduces a country's dependence on a small number of export markets and hence the vulnerability to shocks within destination countries.

In order to capture the degree of market diversification, the same two complementary indicators referred to above are used: the equivalent number of markets and the spread.

The equivalent number used for calculating market diversification (equation 4) distinguishes for each country, the number of partner countries weighed according to their importance. The increase

in rank is a function of the increase in the level of diversification of markets. The bigger the index value, the greater the diversification of markets and consequently the better the ranking.

$$NE_i^t = \frac{1}{\sqrt[p]{\sum_{j=1}^p \left(\frac{X_{ijcl}^t}{X_{i.cl}^t} \right)^2}} \quad (4)$$

with :

X_{ijcl}^t country i exports of all products belonging to the cluster cl to country j in year t .

$X_{i.cl}^t$ country i total exports of all products belonging to the cluster cl

$\frac{X_{ijcl}^t}{X_{i.cl}^t}$ the share of market j in country i total exports of products belonging to the cluster cl .

Spread indices measure the existing dispersion between the highest and lowest value of a given statistical series. They are calculated using the weighted standard error (equation 5). The spread index for markets compares for each country, the share of its exports directed to different partner countries with the average export value. The greater the dispersion of exports from this country (i.e. the greater the spread) as compared to the average, the higher the value of the index.

Concerning positions, the ranking of the 184 countries is a function of the degree of diffusion of exported products (of a country's exports to partner countries). The smaller the index, the more exported products are evenly distributed (amongst partner countries) and the better the ranking.

$$S_{pcl}^t = \frac{\sqrt[p]{\sum_{j=1}^p \left(X_{ijcl}^t - \bar{X}_{ipcl}^t \right)^2}}{N(\bar{X}_{ipcl}^t)} \quad (5)$$

with:

X_{ijcl}^t country i total exports to market j in cluster cl in year t .

\bar{X}_{ipcl}^t country i average export to the p markets of products belonging to the cluster cl in year t

$\sqrt[p]{\sum_{k=1}^{cl} \left(X_{ijcl}^t - \bar{X}_{ipcl}^t \right)^2}$ the standard deviation.

C1- Change in world market share

Turning to variations, the decomposition of the variation in the world market share provides information on the competitiveness of the country considered. The market share variation can be tabulated as the simple average of the rankings according to four criteria: competitiveness, initial geographic specialisation, initial product specialisation and responsiveness to changes in world demand. These indicators are calculated by decomposing changes in a country's market share in elementary markets.

An elementary market is defined as the destination market "j" for a specific product "k". The market share of country "i" in the world market can be written as the sum of partner countries (markets "j") as well as products (sectors "k"), weighted by the share of these markets in world exports.

The variation in country "i"'s market share is the total derivative of this weighted average. The equation can be written as the sum of the following components:

Competitiveness effect p.a.: Gains in market shares due to increased competitiveness. It is calculated as the change in the exporting country's share in destination market imports, multiplied by the initial share of the partner countries' imports in world trade.

Initial geographic specialisation p.a.: This effect captures the benefits associated with the initial specialisation of domestic exports on dynamic markets. Quantitatively, it is calculated as the initial market share of the exporting country in partner countries, multiplied by the change in the share of partner countries in world trade.

Initial product specialisation p.a.: This effect captures the benefits associated with the initial sector specialisation of domestic supply on products facing a dynamic demand. Quantitatively, it is calculated as the change in the share of elementary markets in world trade, multiplied by the difference between the initial share of the exporting country in elementary markets and the initial market share of the exporting country in destination markets.

Adaptation p.a.: This effect captures the ability to adjust the supply of exports to changes in world demand. This is obtained by calculating the cross variation of changes in country "i"'s market share and the change in its share of elementary markets in world imports. If both changes are positive (+,+), this indicates that over the period studied, country "i" has experienced an increase in its market share on dynamic elementary markets. It follows that the outcome from the cross variation is positive. If both changes are negative (-,-), it means that over the period studied, country "i" has experienced a decrease in its market share on recessive elementary markets. Thus, the cross variation is once again positive. In contrast, increasing market shares on recessive markets (+,-) or losing market shares on dynamic markets (-,+) leads to a negative cross variation.

In sum, the *ranking* for the change in market share is calculated as the simple average of the rankings for the 4 following items: competitiveness, geographic specialisation, product specialisation and responsiveness to changes in world demand.

More formally, the change in world market share can be written as in (3).

$$\partial PM_i = \sum_{j,k} \left[\frac{X_{ijk}}{X_{.jk}} \right] * \left[\frac{X_{.jk}^0}{X_{...}^0} \right] + \sum_{j,k} \left[\frac{X_{ijk}^0}{X_{.jk}^0} \right] * \left[\frac{X_{.jk}}{X_{...}} \right] + \sum_{j,k} \left[\frac{X_{ijk}}{X_{.jk}} \right] * \left[\frac{X_{.jk}}{X_{...}} \right] \quad (3)$$

This is the sum of three terms, namely:

the gains or losses in market shares associated with changes in competitiveness:

$$\sum_{j,k} \left[\frac{X_{ijk}}{X_{.jk}} \right] * \left[\frac{X_{.jk}^0}{X_{...}^0} \right]$$

the benefits of the initial specialisation on dynamic markets:

$$\sum_{j,k} \left[\frac{X_{ijk}^0}{X_{.jk}^0} \right] * \left[\frac{X_{.jk}}{X_{...}} \right]$$

the adaptation to the changes in world demand:

$$\sum_{j,k} \left[\frac{X_{ijk}}{X_{.jk}} \right] * \left[\frac{X_{.jk}}{X_{...}} \right]$$

It is possible to split the effect of initial specialisation (the second term in equation 3) into two parts corresponding to the benefits of the initial specialisation by destination market and by product.

$$\sum_{j,k} \left[\frac{X_{ijk}^0}{X_{.jk}^0} \right] * \left[\frac{X_{.jk}}{X_{...}} \right] = \sum_j \left[\frac{X_{ij.}^0}{X_{.j.}^0} \right] * \left[\frac{X_{.j.}}{X_{...}} \right] + \sum_{j,k} \left[\frac{X_{ijk}^0}{X_{.jk}^0} - \frac{X_{ij.}^0}{X_{.j.}^0} \right] * \left[\frac{X_{.jk}}{X_{...}} \right] \quad (4)$$

The first term on the right side of equation (4) corresponds to the effect of the initial specialisation on destination markets. The impact is positive if the country benefits from strong initial positions on dynamic markets. The second term refers to the impact of the initial product specialisation. The two terms are not symmetric since it is impossible to fully disentangle the geographic and sectorial impacts.

C2- Trend of the coverage of imports by exports

The index is calculated as the average annual growth rate of the cover ratio between 1994-1998 (based on the ordinary least-squares method). It indicates the evolution of the trade balance for a group of products. A positive index will be associated with a positive trend.

C3- Adapting to world demand

This index is calculated with a view to ranking countries according to their ability to adapt to the dynamics of world demand. It is based on Spearman's rank correlation between the ranking share of the exporting countries' export products in its total exports, and the rank of growth trends in worldwide exports of those products.

Each country is given a correlation index that takes a value between 1 and -1. A value of 1 (-1) indicates that the relative importance of a country's exported goods is in full accordance (discordance) with the ranking of world export growth rates for the same goods.

The country ranking is dependent on the rank correlation index. The closer the index is to 1, the better the country ranking under analysis.

C4 : Change in the diversification of products

The change in the product diversification of a given country represents the average annual variation over the period 1994-1998 in the number of equivalent export products.

The change in the product spread of a given country represents the average annual variation over the period 1994-1998 in the concentration of export products.

C5 : Change in market diversification

The change in the product diversification of a given country represents the average annual variation over the period 1994-1998 in the number of equivalent export markets.

The change in the product spread of a given country represents the average annual variation over the period 1994-1998 in the concentration of export markets.

4- Interpretation of the results

In addition to a general profile, the TPI ranks countries for each indicator according to two criteria: the *position*, which is essentially a "snapshot" of a country's performance at a given point of time, and the *evolution* of export performance over a given time period (5 years). The TPI positions the export sectors of member countries by export competitiveness, both from a static and dynamic perspective.

There are 5 groups of indicators for the *position* and the *evolution* based ranks (Table 2). The TPI is tabulated independently for the position and evolution of each country, and alternatively by combining the *position* and *evolution* into a synthetic index.

Table 2: Content of the TPI

	Indicator	Unit	Weight in the ranking
G1	Value of exports	Thousand current dollars, 1998	No ranking
G2	Trend in net exports	Percent, 1994-98	0
G3	Share in national exports	Percent	No ranking
G4	Share in national imports	Percent	No ranking
G5	Change in per capita exports	Percentage variation, 1994-98	0
G6	Relative unit value	No unit	0
G7	Change in relative unit value	Percentage variation, 1994-98	0
G8	Comparative advantage (Not displayed)	Per thousands of exporter's trade	No ranking
P1	Value of net exports	Thousand current dollars, 1998	1
P2	Per capita exports	Current dollars, 1998	1
P3	World market share	Percent	1
	Diversification of products		(1)
P4-a	Equivalent number	No unit	0.5
P4-b	Product spread	No unit	0.5
	Diversification of markets		(1)
P5-a	Equivalent number	No unit	0.5
P5-b	Market spread	No unit	0.5
C1	Change in world market share reflecting:	Percentage variation, 1994-98	(1)
	Change in competitiveness	Percentage variation, 1994-98	0.25
	Initial geographic specialisation	Percentage points	0.25
	Initial product specialisation	Percentage points	0.25
	Adaptation to changes in world demand	Percentage points	0.25
C2	Trend of the coverage of imports by exports	Percent, 1994-98	1
C3	Matching with the dynamics of world demand	No unit	1
	Change in the diversification of products		(1)
C4-a	Variation of the equivalent number	No unit, only the ranking displayed	0.5
C4-b	Spread variation	No unit, only the ranking displayed	0.5
	Change in the diversification of markets		(1)
C5-a	Variation of the equivalent number	No unit, only the ranking displayed	0.5
C5-b	Spread variation	No unit, only the ranking displayed	0.5
	TOTAL		10

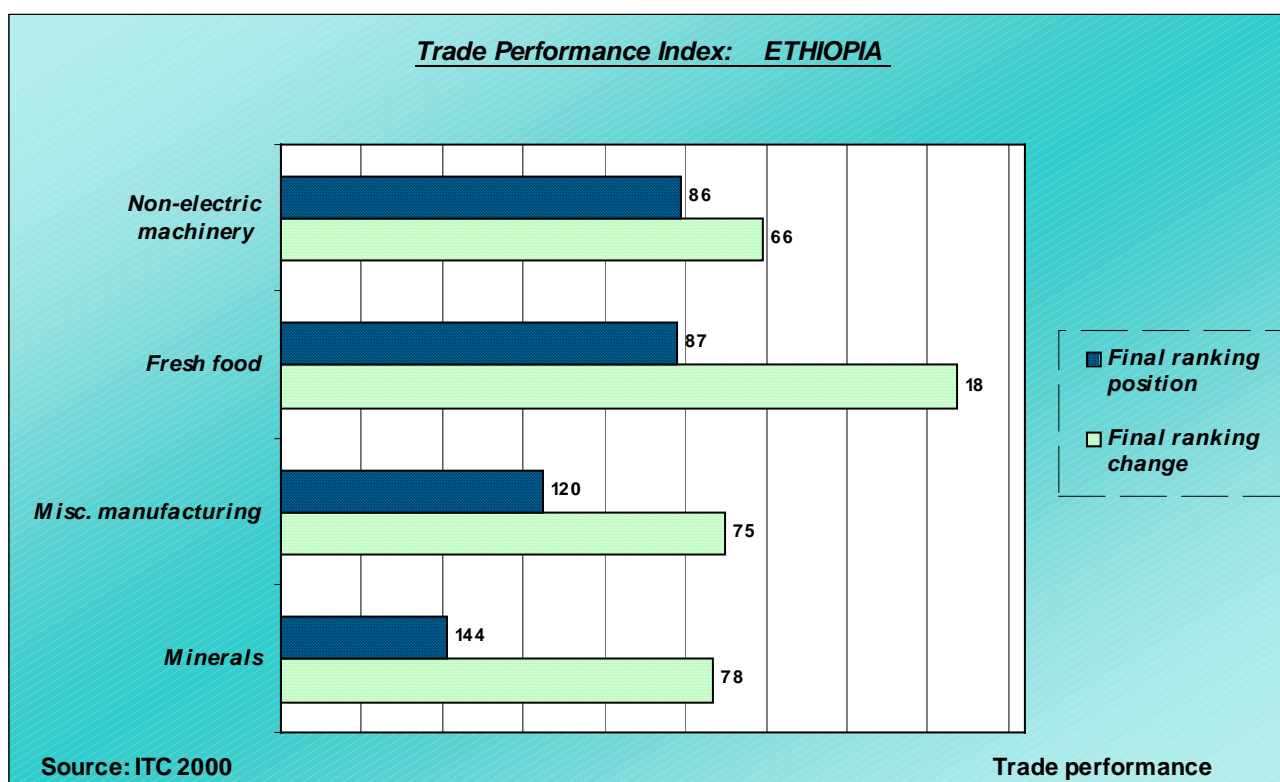
The final ranking is a weighted average of the individual rankings for each of the different indices. The improvement in the ranking reflects improvements in its trade performance (both in absolute and relative terms). As an example, table 3 shows the standard output of the TPI for Ethiopia. Three types of indicators are presented in the table, namely the general profile, the position in 1998 and the change over 1994-98.

Table 3: Results of the TPI for Ethiopia, 1998.

Indicators		ETHIOPIA	Fresh food		Non-electric machinery		Misc. manufacturing		Minerals		
			Value	Ranking	Value	Ranking	Value	Ranking	Value	Ranking	
General profile	G1	Value of exports (\$ 000)	482.951		7.911		7.286		6.697		
	G2	Trend of exports (94-98) p.a.	14%	47	-6%	87	7%	89	0%	115	
	G3	Share in national export	93%		2%		1%		1%		
	G4	Share in national import	7%		22%		7%		1%		
	G5	Average annual change in per capita exports	14%	27	-11%	166	13%	61	266%	11	
	G6	Relative unit value (world average = 1)	1.6		0.6		0.1		1.1		
	G7	Average annual change in relative unit value	4%		-2%		-18%		-3%		
Position in 1998	P1	Value of net exports (\$ 000)	418,470	36	-197,777	53	-54,416	58	875	73	
	P2	Per capita exports (\$/inhabitant)	8.3	142	0.1	158	0.1	164	0.1	174	
	P3	Share in world market	0.20%	59	0.00%	86	0.00%	100	0.00%	134	
	P4a	Product diversification (N° of equivalent products)	2	154	1	114	1	133	1	145	
	P4b	Product spread (concentration)		119		84		110		135	
	P5a	Market diversification (N° of equivalent markets)	7	61	1	83	1	116	2	125	
	P5b	Market spread (concentration)		69		83		115		140	
Change 1994-1998	C1	Sources	Percentage change of world market share* p.a.	0.15%		-0.12%		0.10%		2.80%	
			Competitiveness effect p.a.	0.17%	22	-0.16%	86	0.03%	51	2.30%	7
			Initial geographic specialisation p.a.	-0.01%	139	0.02%	28	0.01%	36	0.00%	83
			Initial product specialisation p.a.	0.01%	76	0.16%	1	0.04%	12	0.00%	89
			Adaptation p.a.	-0.01%	99	-0.14%	83	0.01%	26	0.50%	6
	C2	Trend of import coverage by exports	41%	12	-19%	109	9%	33	131%	9	
	C3	Matching with dynamics of world demand		81		11		17		55	
	C4a	Change in product diversification (N° of equiv.		93		59		121		140	
	C4b	Change in product spread (concentration)		95		77		123		144	
	C5a	Change in market diversification (N° of equiv. markets)		41		39		115		98	
	C5b	Change in market spread (concentration)		43		39		113		99	
	Composite ranking position		87		86		120		144		
	Composite ranking change		18		66		75		78		

Figure 1 plots the TPI rankings reported in Table 3. For each exporting sector, the first bar represents the performance according to the end of period position. In the case of Ethiopia, non-electrical machinery is the most performant export sector in 1998. The second bar represents the performance according to changes over the period under consideration. Fresh food products recorded the greatest progress in performance between 1994 and 1998. It should be noted that Ethiopia only exports in 4 clusters out of 14.

Figure 1: Sectorial TPI rankings for Ethiopia, 1998



Lastly, comparative advantages do not enter in the ranking and are displayed separately. There is a definition of comparative advantage for each industry, whereas all the previous indicators are related to exports or market shares only for those sectors in which the country exports.

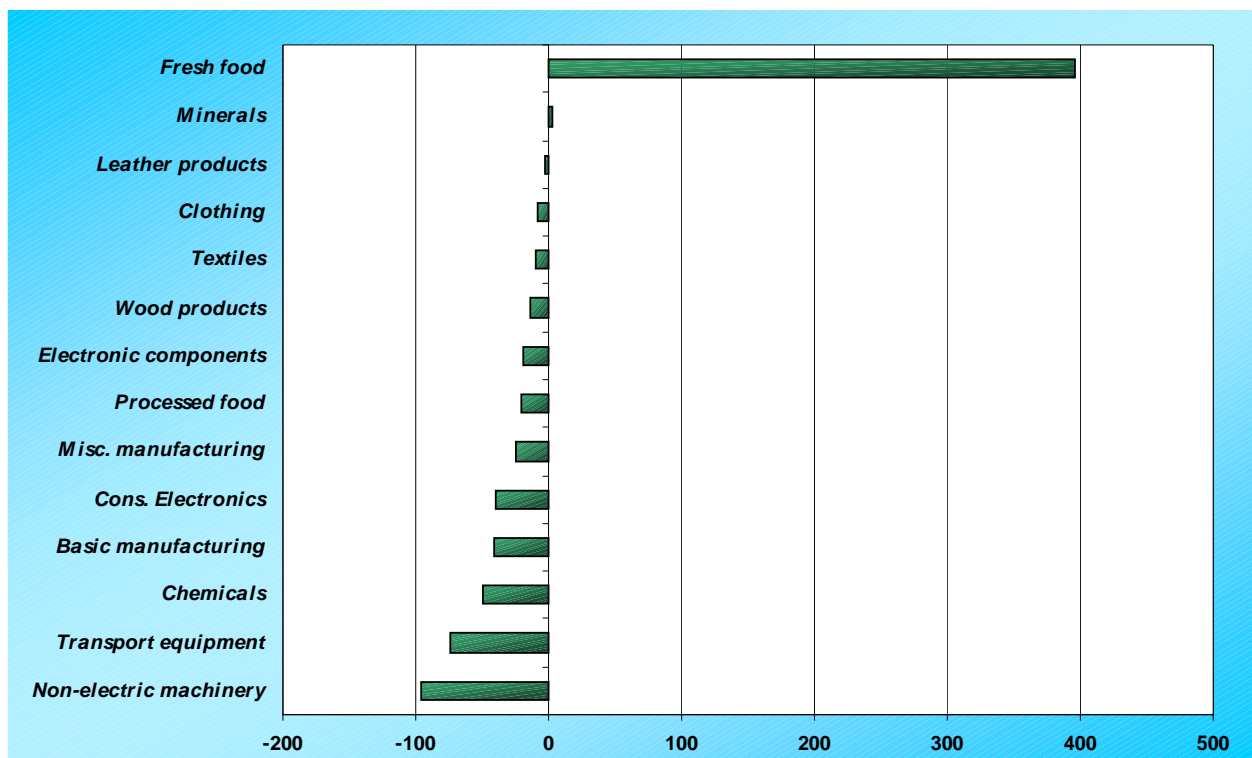
Three remarks have to be made concerning the table below. First, this indicator adds up to 0. Second, the ranking of industries are calculated for each country. Such an approach differs significantly from the rankings of countries for a given industry, as referred to above. Third, figures in the column “revealed comparative advantage” are specific to each country and should not be compared with other countries.

Table 4: Ethiopian Revealed comparative advantages (1998)

ETHIOPIA	Revealed comparative advantage	Rank
<i>Fresh food</i>	396	1
<i>Minerals</i>	3	2
<i>Leather products</i>	-2	3
<i>Clothing</i>	-8	4
<i>Textiles</i>	-10	5
<i>Wood products</i>	-13	6
<i>Electronic components</i>	-19	7
<i>Processed food</i>	-21	8
<i>Misc. manufacturing</i>	-25	9
<i>Cons. Electronics</i>	-40	10
<i>Basic manufacturing</i>	-42	11
<i>Chemicals</i>	-50	12
<i>Transport equipment</i>	-74	13
<i>Non-electric machinery</i>	-96	14
TOTAL	0	

The table above and graph below show that Ethiopia has a single comparative advantage on fresh food products.

Figure 2: Ethiopian Revealed comparative advantages (1998)



Appendix-1: the combined ranking: summary

	Indicators	What does it mean?	How is it calculated?	Ranking	Weight in the ranking
G1	Value of exports	Importance of the sector considered	Exports in 1998	no	.
G2	Trend of exports	Development of exports	Growth of exports over the period 1994-1998 (based on the least-squared method)	yes	0
G3	Share in national exports	Importance of the products in national exports	Exports in the group of products divided by total exports	no	.
G4	Share in national imports	Importance of the products in national imports	Imports in the group of products divided by total exports	no	.
G5	Average annual change in per capita exports	Evolution in the outward lookingness of the economy	Percentage change in the ratio of exports to population	no	0
G6	Relative unit value	Standard of quality reached by country exports	Unit value (value divided by quantity) of country relative to the world unit value	no	0
G7	Average annual change in relative unit value	Change in the quality of country exports	Percent change of relative unit values	no	0
G8	Revealed comparative advantage (Not displayed)	Specialisation of county under the assumption of balanced trade	Contribution to the trade balance defined as the difference between observed and theoretical relative trade surplus.	no	.
P1	Value of net exports	Importance of the trade balance in the sector considered	Exports less imports in 1998	yes	1
P2	Per capita exports	Extent to which the labour force produces for the world market	Exports divided by population	yes	1
P3	Share in world market	Success on the world market	Percentage share of world imports	yes	1
	Product diversification, reflecting:	Number and weight of exported products	See cells below		(1)
P4-a	Equivalent number	Number of export products of equal size that would lead to the observed concentration of exports	Inverse of the Herfindhal index	yes	0.5
P4-b	Product spread	Concentration of export markets by value	Weighted standard error	yes	0.5
	Market diversification, reflecting:	Number and weight of partner countries	See cells below	yes	(1)
P5-a	Equivalent number	Number of markets of equal size that would lead to the observed concentration of exports	Inverse of the Herfindhal index	yes	0.5
P5-b	Market spread	Concentration of export markets by value	Weighted standard error	yes	0.5
C1	Percentage annual change in world market share reflecting:	Change in global performance	Change in the world market share	no	(1)
	Change in competitiveness	Gain in market share due to increased competitiveness	Change in the exporting country's share in destination markets' imports times by the initial share of partner countries' imports in world trade (weighted average of the variation in the country's position on elementary markets*)	yes	0.25
	Initial geographic specialisation	Benefits associated with the initial specialisation of domestic exporters on dynamic markets	Initial market share of the exporting country in partner countries times by the change in the share of partner countries in world trade (weighted average of variations in the relative importance of export markets)	yes	0.25
	Initial product specialisation	Benefits associated with the initial sectorial specialisation of domestic supply on products characterised by dynamic demand.	Change in the share of elementary markets in world trade times by the difference between the initial share of the exporting country in elementary markets* and the initial market share of the exporting country in destination markets (initial product orientation weighted average of changes in destination market's share in world imports)	yes	0.25
	Adaptation to changes in world demand	Ability to adjust export supply to changes in world demand	Change in the share of the elementary markets* in world trade times by the change in the exporting county's market share in these elementary markets*	yes	0.25
C2	Trend of import coverage by exports	Development of sectorial surplus or deficit of exports over imports	Growth trend of the coverage ratio (exports divided by imports) over the period 1993-1998 (based on the least-squared method)	yes	1
C3	Matching with the dynamics of world demand	Focus of the national export portfolio on the world's most dynamic products	Spearman's rank correlation between the country's share of export products in national exports and the respective trends in world demand	yes	1
	Change in product diversification:	Ability to develop new export products	See cells below	yes	(1)
C4-a	Change in the equivalent number	Change in the number of export products of equal size that would lead to the observed concentration of exports	Variation in the inverse of the Herfindhal index	yes	0.5
C4-b	Change in the product spread	Change in the concentration of the export markets by value	Variation in the weighted standard error	yes	0.5
	Change in the diversification of markets	Ability to penetrate new markets	See cells below	yes	(1)
C5-a	Change in the equivalent number	Change in the number of markets of equal size that would lead to the observed concentration of exports	Variation in the inverse of the Herfindhal index	yes	0.5
C5-b	Change in market spread	Change in the concentration of the distribution of export markets	Variation in the weighted standard error	yes	0.5

Notes: All absolute values refer to 1998; growth rates to the period 1994 - 1998. World trade is calculated on the basis some 80 reporting countries, which cover approximately 90% of actual world trade.

Coverage of non-reporting countries: the trade of non-reporting countries is reconstituted on the basis of partner country statistics (mirror statistics). This approach does not capture trade among non-reporting countries.

* An elementary market refers to one country's export of a specific product to a specific market.

Appendix-2: the classification of products

Sectors	SITC Rev.3	Products
1 Fresh food and agrobased products	001	LIVE ANIMALS
	011	BOVINE MEAT
	012	OTHER MEAT, MEAT OFFAL
	034	FISH,FRESH,CHILLED,FROZN
	036	CRUSTACEANS,MOLLUSCS ETC
	041	WHEAT, MESLIN, UNMILLED
	0421	RICE
	043	BARLEY, UNMILLED
	044	MAIZE UNMILLED
	045	OTHER CEREALS, UNMILLED
	054	VEGETABLES
	057	FRUIT,NUTS EXCL.OIL NUTS
	071	COFFEE,COFFEE SUBSTITUTE
	072	COCOA
	074	TEA AND MATE
	075	SPICES
	121	TOBACCO, UNMANUFACTURED
	211	HIDES,SKINS(EX.FURS),RAW
	212	FURSKINS, RAW
	222	OILSEED(SFT.FIX VEG.OIL)
	223	OILSEED(OTH.FIX. VEG.OIL)
	231	NATURAL RUBBER, ETC.
	261	SILK
	263	COTTON
	264	JUTE,OTH.TEXTL.BAST FIBR
	265	VEGETABLE TEXTILE FIBRES
	268	WOOL, OTHER ANIMAL HAIR
	291	CRUDE ANIMAL MATERLS.NES
	292	CRUDE VEG.MATERIALS, NES
2 Processed food and agro-based products	016	MEAT,ED.OFFL,DRY,SLT,SMK
	017	MEAT,OFFL.PRPD,PRSV, NES
	022	MILK AND CREAM
	023	BUTTER,OTHER FAT OF MILK
	024	CHEESE AND CURD
	025	EGGS,BIRDS,YOLKS,ALBUMIN
	035	FISH,DRIED,SALTED,SMOKED
	037	FISH ETC.PRPD,PRSV, NES
	0422	RICE
	0423	RICE
	046	MEAL,FLOUR OF WHEAT,MSLN
	047	OTHER CEREAL MEAL,FLOURS
	048	CEREAL PREPARATIONS
	056	VEGTABLES,PRPD,PRSV, NES
	058	FRUIT,PRESERVED,PREPARED
	059	FRUIT, VEGETABLE JUICES
	061	SUGARS,MOLASSES,HONEY
	062	SUGAR CONFECTIONERY
	073	CHOCOLATE,OTH.COCOA PREP
	081	ANIMAL FEED STUFF
	091	MARGARINE AND SHORTENING
	098	EDIBLE PROD.PREPTNS, NES
	111	NON-ALCOHOL.BEVERAGE, NES
112	ALCOHOLIC BEVERAGES	
122	TOBACCO, MANUFACTURED	
411	ANIMAL OILS AND FATS	

	421	FIXED VEG.FAT,OILS, SOFT
	422	FIXED VEG.FAT,OILS,OTHER
	431	ANIMAL,VEG.FATS,OILS,NES
	551	ESSNTL.OIL,PERFUME,FLAVR
3 Wood, wood products and paper	244	CORK,NATURAL,RAW;WASTE
	245	FUEL WOOD, WOOD CHARCOAL
	246	WOOD IN CHIPS, PARTICLES
	247	WOOD ROUGH,ROUGH SQUARED
	248	WOOD, SIMPLY WORKED
	251	PULP AND WASTE PAPER
	633	CORK MANUFACTURES
	634	VENEERS, PLYWOOD, ETC.
	635	WOOD MANUFACTURES, NES
	641	PAPER AND PAPERBOARD
	642	PAPER,PAPERBOARD,CUT ETC
	8215	Wooden furniture
4 Yarn, fabrics and textiles	651	TEXTILE YARN
	652	COTTON FABRICS, WOVEN
	653	FABRICS,MAN-MADE FIBRES
	654	OTH.TEXTILE FABRIC,WOVEN
	655	KNIT.CROCHET.FABRIC NES
	656	TULLE,LACE,EMBROIDRY.ETC
	657	SPECIAL YARN,TXTL.FABRIC
	658	TEXTILE ARTICLES NES
	659	FLOOR COVERINGS, ETC.
5 Chemicals	232	SYNTHETIC RUBBER, ETC.
	266	SYNTHETIC FIBRES
	267	OTHER MAN-MADE FIBRES
	511	HYDROCARBONS,NES,DERIVTS
	512	ALCOHOL,PHENOL,ETC.DERIV
	513	CARBOXYLIC ACIDS,DERIVTS
	514	NITROGEN-FUNCT.COMPOUNDS
	515	ORGANO-INORGANIC COMPNDS
	516	OTHER ORGANIC CHEMICALS
	522	INORGANIC CHEM.ELEMENTS
	523	METAL.SALTS,INORGAN.ACID
	524	OTHER CHEMICAL COMPOUNDS
	525	RADIO-ACTIVE MATERIALS
	531	SYNTH.COLOURS,LAKES,ETC.
	532	DYEING,TANNING MATERIALS
	533	PIGMENTS, PAINTS, ETC.
	541	MEDICINES,ETC.EXC.GRP542
	542	MEDICAMENTS
	553	PERFUMERY,COSMETICS,ETC.
	554	SOAP,CLEANERS,POLISH,ETC
	562	FERTILIZER,EXCEPT GRP272
	571	POLYMERS OF ETHYLENE
	572	POLYMERS OF STYRENE
	573	POLYMERS,VINYL CHLORIDE
	574	POLYACETAL,POLYCARBONATE
	575	OTH.PLASTIC,PRIMARY FORM
	579	PLASTIC WASTE, SCRAP ETC
	581	PLASTIC TUBE,PIPE,HOSE
	582	PLASTIC PLATE,SHEETS,ETC
	583	MONOFILAMENT OF PLASTICS
	591	INSECTICIDES, ETC.
	592	STARCHES,INULIN,ETC.
	593	EXPLOSIVES,PYROTECHNICS
	597	PREPRD ADDITIVES,LIQUIDS

	598	MISC.CHEMICAL PRODTS.NES
	621	MATERIALS OF RUBBER
	625	RUBBER TYRES,TUBES,ETC.
	629	ARTICLES OF RUBBER, NES
6 Leather and leather products	611	LEATHER
	612	MANUFACT.LEATHER ETC.NES
	613	FURSKINS,TANNED,DRESSED
	831	TRUNK,SUIT-CASES,BAG,ETC
	851	FOOTWEAR
7 Metal and other basic manufacturing	661	LIME,CEMENT,CONSTR.MATRL
	662	CLAY,REFRCT.CONSTR.MATRL
	663	MINERAL MANUFACTURES,NES
	664	GLASS
	665	GLASSWARE
	666	POTTERY
	670	REST OF 67 NOT DEFINED
	671	PIG IRON,SPIEGELEISN,ETC
	672	INGOTS ETC.IRON OR STEEL
	673	FLAT-ROLLED IRON ETC.
	674	FLAT-ROLLED PLATED IRON
	675	FLAT-ROLLED, ALLOY STEEL
	676	IRON,STL.BAR,SHAPES ETC.
	677	RAILWAY TRACK IRON,STEEL
	678	WIRE OF IRON OR STEEL
	679	TUBES,PIPES,ETC.IRON,STL
	681	SILVER,PLATINUM,ETC.
	682	COPPER
	683	NICKEL
	684	ALUMINIUM
	685	LEAD
	686	ZINC
	687	TIN
	689	MISC.NON-FERR.BASE METAL
	691	METALLIC STRUCTURES NES
	692	CONTAINERS,STORAGE,TRNSP
	693	WIRE PRODUCTS EXCL.ELECT
	694	NAILS,SCREWS,NUTS,ETC.
	695	TOOLS
	696	CUTLERY
	697	HOUSEHOLD EQUIPMENT,NES
	699	MANUFACTS.BASE METAL,NES
8 Non-electric machinery	711	STEAM GENER. BOILERS,ETC.
	712	STEAM TURBINES
	713	INTRNL COMBUS PSTN ENGIN
	714	ENGINES,MOTORS NON-ELECT
	716	ROTATING ELECTRIC PLANT
	718	OTH.POWR.GENRTNG.MACHNRY
	721	AGRIC.MACHINES,EX.TRACTR
	722	TRACTORS
	723	CIVIL ENGINEERING EQUIPT
	724	TEXTILE,LEATHER MACHINES
	725	PAPER,PULP MILL MACHINES
	726	PRINTNG,BOOKBINDNG MACHS
	727	FOOD-PROCESS.MCH.NON DOM
	728	OTH.MACH,PTS,SPCL INDUST
	731	METAL REMOVAL WORK TOOLS
	733	MACH-TOOLS,METAL-WORKING
	735	PARTS,NES,FOR MACH-TOOLS
	737	METALWORKING MACHNRY NES
	741	HEATNG,COOLNG EQUIP,PART

	742	PUMPS FOR LIQUIDS,PARTS
	743	PUMPS NES,CENTRIFUGS ETC
	744	MECHANICAL HANDLNG EQUIP
	745	OTH.NONELEC MCH,TOOL,NES
	746	BALL OR ROLLER BEARINGS
	747	TAPS,COCKS,VALVES,ETC.
	748	TRANSMISSIONS SHAFTS ETC
	749	NON-ELECT MACH,PARTS,ETC
9 Computers, telecomm; cons. Electronics	751	OFFICE MACHINES
	752	AUTOMATC.DATA PROC.EQUIP
	759	PARTS,FOR OFFICE MACHINS
	761	TELEVISION RECEIVERS ETC
	762	RADIO-BROADCAST RECEIVER
	763	SOUND RECORDER,PHONOGRPH
	764	TELECOMM.EQUIP.PARTS NES
10 Electronic components	771	ELECT POWER MACHNY.PARTS
	772	ELEC.SWITCH.RELAY.CIRCUT
	773	ELECTR DISTRIBT.EQPT NES
	774	ELECTRO-MEDCL,XRAY EQUIP
	775	DOM.ELEC,NON-ELEC.EQUIPT
	776	TRANSISTORS,VALVES,ETC.
	778	ELECTRIC.MACH.APPART.NES
11 Transport equipment	781	PASS.MOTOR VEHCLS.EX.BUS
	782	GOODS,SPCL TRANSPORT VEH
	783	ROAD MOTOR VEHICLES NES
	784	PARTS,TRACTORS,MOTOR VEH
	785	CYCLES,MOTORCYCLES ETC.
	786	TRAILERS,SEMI-TRAILR,ETC
	791	RAILWAY VEHICLES.EQUIPNT
	792	AIRCRAFT,ASSOCTD.EQUIPNT
	793	SHIP,BOAT,FLOAT.STRUCTRS
12 Clothing	841	MENS,BOYS CLOTHNG,X-KNIT
	842	WOMEN,GIRL CLOTHNG,XKNIT
	843	MENS,BOYS CLOTHING,KNIT
	844	WOMEN,GIRLS CLOTHNG.KNIT
	845	OTHR.TEXTILE APPAREL,NES
	846	CLOTHING ACCESSRS,FABRIC
	848	CLOTHNG,NONTXTL,HEADGEAR
13 Misc. manufacturing	811	PREFABRICATED BUILDINGS
	812	PLUMBNG,SANITRY,EQPT.ETC
	813	LIGHTNG FIXTURES ETC.NES
	871	OPTICAL INSTRUMENTS,NES
	872	MEDICAL INSTRUMENTS NES
	873	METERS,COUNTERS,NES
	874	MEASURE,CONTROL INSTRMNT
	881	PHOTOGRAPH APPAR.ETC.NES
	882	PHOTO.CINEMATOGRPH.SUPPL
	883	CINE.FILM EXPOSD.DEVELPD
	884	OPTICAL GOODS NES
	885	WATCHES AND CLOCKS
	891	ARMS AND AMMUNITION
	892	PRINTED MATTER
	893	ARTICLES,NES,OF PLASTICS
	894	BABY CARRIAGE,TOYS,GAMES
	895	OFFICE,STATIONERY SUPPLS
	896	WORKS OF ART,ANTIQUE ETC
	897	GOLD,SILVERWARE,JEWL NES
	898	MUSICAL INSTRUMENTS,ETC.
	899	MISC MANUFCTRD GOODS NES

14 Minerals- to be excluded	272	FERTILIZERS, CRUDE
	273	STONE, SAND AND GRAVEL
	274	SULPHUR,UNRSTD.IRON PYRS
	277	NATURAL ABRASIVES, NES
	278	OTHER CRUDE MINERALS
	281	IRON ORE, CONCENTRATES
	282	FERROUS WASTE AND SCRAP
	283	COPPER ORES,CONCENTRATES
	284	NICKEL ORES,CONCTR,MATTE
	285	ALUMINIUM ORE,CONCTR.ETC
	286	URANIUM,THORIUM ORES,ETC
	287	ORE,CONCENTR.BASE METALS
	288	NON-FERROUS WASTE,SCRAP
	289	PREC.METAL ORES,CONCTRTS
	321	COAL,NOT AGGLOMERATED
	322	BRIQUETTES,LIGNITE,PEAT
	325	COKE,SEMI-COKE,RET.CARBN
	333	PETROLEUM OILS, CRUDE
	334	PETROLEUM PRODUCTS
	335	RESIDUAL PETROL.PRODUCTS
	342	LIQUEFIED PROPANE,BUTANE
	343	NATURAL GAS
	344	PETROLEUM GASES, NES
	345	COAL GAS,WATER GAS, ETC.
	351	ELECTRIC CURRENT
	667	PEARLS,PRECIOUS STONES
Excluded	269	WORN CLOTHING,TEXTL.ARTL
	911	MAIL NOT CLASSED BY KIND
	931	SPEC.TRANSACT.NOT CLASSD
	961	COIN NONGOLD NONCURRENT
	971	GOLD,NONMONTRY EXCL ORES