

# IDENTIFICATION AND COMPARISON OF EXPORT OPPORTUNITIES FOR SOUTH AFRICAN PRODUCTS AND SERVICES

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## 1. INTRODUCTION

Export promotion policies and programs are mainly aimed at stimulating export growth which could result in GDP growth, improved balance of payment figures, employment and industry diversification (Gillespie & Riddle, 2004). The main objective for export promotion agencies (EPAs) is therefore to assist firms to find foreign markets where their products or services can be sold which would ultimately lead to export market diversification (Martincus & Carballo, 2008). Many export promotion instruments can be used to achieve this objective, such as trade shows and trade missions, providing market information and export assistance, financial incentives and also training to new exporters.

EPAs, however, face a common problem of allocating scarce resources and capacity to provide efficient services and ultimately achieve the goal of export market diversification and export growth (Cuyvers, De Pelsmacker, Rayp & Roozen, 1995). Great selectivity is therefore required in implementing government export promotion activities (Cuyvers, 2004; Shankarmahesh *et al.*,

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2005). Governments should therefore choose specific markets for export promotion and allocate limited resources among these markets (Shankarmahesh *et al.*, 2005). The identification of new export markets and diversifying the range of products are also considered important objectives of EPAs (Lederman, Olarreaga & Payton, 2006; Martincus & Carballo, 2008).

In order to assist EPAs with this market selection / identification process, a government decision support model (DSM) was developed by Cuyvers, De Pelsmacker, Rayp and Roozen (1995) to identify realistic export opportunities for Belgian exporters. The model was also refined, adapted and applied by Cuyvers (1997; 2004), to identify export opportunities for Thailand. The model aimed to view all products and countries in the world as potential export destinations. These potential product-country combinations were analysed through a filtering process and the result of the model was a list of potential export opportunities for Belgian / Thai exporters. The model could therefore be used as a scientific tool for EPAs in focussing their export promotion activities and allocating scarce resources more effectively.

In January 2007, the South African Cabinet adopted the National Industrial Policy Framework (NIPF) which sets out the government's broad approach to internationalisation and focuses on export diversification in order for the country to compete internationally beyond the country's current reliance on exports of traditional commodities (DTI, 2010a).

Hausmann and Klinger (2008) indicated that South Africa needs to increase the growth in exports by diversifying its exports to other non-resource based sectors in the economy. The same study also indicated that no incentives exist for industry in South Africa to develop new

opportunities and become more competitive. Evidence over the last two decades shows that non-resource manufactures have outstripped growth in primary products and resource-based manufactures in world trade (DTI, 2010a). To avoid the curse of ‘diminishing return’, an economy must diversify its industrial base and continually upgrade the sophistication of its export basket. Therefore, *what a country exports* does matter for growth.

The original DSM provides a method with which the issue of diversifying exports in South Africa could be addressed. Therefore, in order to address the need for export diversification in South Africa, the original DSM was adapted for the Department of Trade and Industry (DTI) in South Africa in 2007 (Viviers & Pearson, 2007) and further refined in 2009 (Viviers, Rossouw & Steenkamp, 2009) and the result was a new decision support model (DSM) for South African products. The model identified realistic export opportunities for South African products by using the same filtering process as the model applied to Belgium and Thailand.

However the DSM was only applied to products and left a gap to identify export opportunities in the *services* industry. The services sector in South Africa has played a more considerable role in the economy and is becoming one of South Africa’s significant export sectors (Steuart & Cassim, 2005).

The total exports of services globally amounted to USD 3.4 billion in 2009 and constituted 22% of total world exports in during this year. The internationalisation of services is expected to continue to grow and some analysts predict that service trade will make up more than 50 per cent of world trade by the year 2020 (Clements-Hunt, 2004). Therefore, there has been a structural

shift in world trade away from commodity production, raw materials and simple manufactured products, towards increasingly knowledge-based goods and services (DTI, 2010a). Services trade is driving economic growth, and the world's fastest growing economies are significant exporters of services (DTI, 2010a).

Francois and Hoekman (2010) also recommended that governments should move away from focusing only on the traditional manufacturing industries and shift their focus to the services sector that can provide differentiation in their economies, which in turn can expand employment and economic growth. The same study also indicated that the services sector is one of the key determinants of competitiveness for other economic sectors as well. Many governments are realising the potential that services exports have and are directing export promotion instruments at expanding services exports. However, very little literature exists on export promotion guidelines for services. The ITC is one of the only institutions that have published guidelines on the export promotion of services (ITC, 2009). The study indicated that the greatest barrier services firms face is to export to markets where they have no well-known reputation and that EPAs should be involved in assisting these firms with advertising, participation in trade fairs and trade missions. EPAs could also provide quality assurance to service firms which would help to establish their reputation with new buyers.

In South Africa the services sector contributed 65% to the total GDP over the 5 year period between 2005 and 2009, but only 20% of South Africa's exports originated from the different services sectors. Also, 63% of the exports of services in South Africa are contributed by the tourism industry. In the South African Trade Policy and Strategy Framework (TPSF), the

Department of Trade and Industry (DTI), expresses the need for well-considered research that identifies the related development and export potential of key service sectors. It is further stated that it is necessary to determine South Africa's competitive strengths in services trade and to fully access the trade dimensions of the regulatory environment (DTI, 2010a).

However in South Africa there are very little activities within the export promotion of the DTI that focus only on services. There are a few export councils and industry associations that focus on specific sub-sectors of services (DTI, 2009). If South Africa wishes to expand exports through diversification, this should include services sectors as well. Although studies have been undertaken to identify realistic export opportunities for South African products (Viviers & Pearson, 2007; Viviers, *et al.*, 2009 and Viviers, *et al.*, 2010), no studies have been conducted to determine the export opportunities of South African services. Therefore there is a need to develop a model that is similar to the DSM for products to identify export opportunities for services in South Africa.

The DSM model for products was therefore adapted in this study on the available data for services and also to incorporate the nature of services. The result of this development was a new DSM for services that identified export opportunities for South African services.

The main aim of this study is therefore to explain and compare the decision support models adapted and applied for products and services, in order to identify export opportunities for South African products and services. This will provide more comprehensive, scientifically-based guidelines for the trade promotion activities for the DTI in South Africa.

Henceforth the study will describe the normative methodology used in the previous applications of the DSM for products (section 2.1). An explanation of the refinements proposed in this study to the methodology of the DSM for products in South Africa as well as the DSM for services in South Africa will follow in sections 2.2 and 3. The two sets of results will be compared in section 4 in order to provide the DTI in South Africa with a set of products, services and countries that should receive their main focus in export promotion activities.

## **2. THE IDENTIFICATION OF EXPORT OPPORTUNITIES FOR SOUTH AFRICAN PRODUCTS**

### **2.1 The normative methodology of the decision support model (DSM) for products**

The decision support model starts from the assumption that all world markets hold potential export opportunities for a particular country and therefore all possible worldwide product-country combinations enter the filtering process (Cuyvers, 2004). After every filter, a number of markets are rendered unrealistic and is not considered in subsequent filters.

In filter 1, countries that hold too high a political and/or commercial risk are firstly eliminated in filter 1.1. A second elimination of countries is done based on macro-economic size and growth in filter 1.2. The rationale for this is that, with all world countries as a starting point, filter 1 enables the researchers to quickly eliminate countries with relatively low general market potential in order to concentrate in detail on a more limited set of possible export opportunities.

In filter 2, a more specific assessment of the various product groups for the remaining countries is done to identify the market potential of each possible product-market combination. The main purpose of this filter is therefore to eliminate markets that do not show sufficient demand potential. The main criteria that are used in this filter is the growth rate of imports of a given product group by a given country (import growth) and the value of imports of a given product group by a given country (import market size). Three variables are calculated for each market, namely, short term import growth, long term import growth and import market size. Short term import growth is considered to be the most recent year's growth rate in imports, while long-term growth is calculated as the average annual percentage growth in imports over a period of five years. Finally, the relative import market size is calculated as the ratio of imports of country  $i$  for product group  $j$  and the total imports of all countries that entered filter 2 of product group  $j$  (Cuyvers *et al.*, 1995; Cuyvers, 2004).

In filter 3, trade restrictions and other barriers to entry are considered to further screen the remaining possible export opportunities. Two categories of barriers are considered in this filter, namely, the degree of market concentration (competitor analysis in filter 3.1) and trade restrictions (market accessibility in filter 3.2).

In the last stage of the analysis (filter 4), the export opportunities (product-country combinations) that were identified in filters 1 to 3, are categorised according to their relative market importance (the exporting country's current market share compared to that of the top six competitors) and their relative market size and growth (Cuyvers, 2004).

Cut-off values in most filters are determined at a value around the average for the particular variable within a certain percentage of the standard deviation. The specific percentage of the standard deviation allowed is determined by a definite break in the number of opportunities eliminated. For a more detailed description of the filters, formulas used and the determination of cut-off values, see Cuyvers (1997; 2004).

As mentioned in section 1, one of the main benefits of the decision support model (DSM) is that it provides a tool to assist export promotion authorities to decide how to allocate their scarce resources to export promotion activities in various markets. It also provides information on export markets that are useful to derive appropriate export promotion actions in the different markets (Cuyvers *et al.*, 1995). The model further provides export promotion agencies with a limited list of export promotion priorities, based on measurable and objective economic data and draws the attention to markets that have not previously been recognised as potential export markets (Cuyvers *et al.*, 1995).

Despite the above-mentioned benefits of using the model to identify realistic export opportunities for a specific exporting country, Cuyvers *et al.* (1995) warn that it would be unwise to rest all export promotion decisions upon the model alone. Other considerations, such as feedback from foreign trade offices (on the demand side of exports) and export councils (on the supply side), should also be taken into consideration. Diplomatic and political issues would also lead to government supporting exports to a particular country, even though it might not be identified by the model as an economically promising market (Cuyvers *et al.*, 1995). Export promotion is furthermore an activity that is very often only effective in the long run, and since the model's

scope is more short term and based on historical data, some export opportunities that are considered by the model as suboptimal, might be good opportunities in the long run (Cuyvers *et al.*, 1995). Therefore basing export promotion decisions only on the results of the model, could also lead to missed opportunities. Cuyvers *et al.* (1995) also state that it is important to keep in mind that the purpose of the model is not to provide a ranking of export opportunities but rather to list of choices of interesting markets, grouped into categories reflecting market size, market growth and market importance.

The normative methodology of the model had certain limitations for the South African circumstances and some refinements were necessary. These refinements will be discussed in the following section.

## **2.2 Refinements and application of the DSM for products for South Africa**

Most of the filters of the normative model discussed in section 2.1 were applied in the same way in this study to identify export opportunities for South African products. However, four main refinements were made:

- i. Harmonised System (HS) six-digit level trade data were used instead of the SITC two- and four-digit data used in the previous applications of the model. This adjustment was made due to the fact that exporters mostly use the Harmonised System (HS) product classification to specify their goods in export ventures and documentation (Tempier, 2010). The HS six-digit level product classification is also the most disaggregated level of product specifications that is standardised throughout the world (Tempier, 2010). The introduction

of HS six-digit level trade data would therefore contribute to the effective use and application of the results of the DSM by export promotion agencies and exporters.

- ii. Calculating a potential export value for each selected product-country combination in order to prioritise between export opportunities. Although the previous applications of the model provided a list of realistic export opportunities; it did not give an indication of which opportunities are of a higher value than others. It was therefore difficult to prioritise between the identified export opportunities. The potential export value for each product-country combination identified as an export opportunity for South Africa, was therefore calculated in this study as follows:

<b><math display="block">\frac{\text{The total imports of country } i \text{ of product } j}{\text{number of countries that contributes 80\% of these imports} + 1}.</math></b>
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This estimation of export potential gives an indication of the size of the import demand for each product-country combination and takes into consideration the possibility of South Africa being added (therefore the plus one in the formula) to the group of countries that collectively supplies 80 percent of the imports of product *j* to country *i*.

- iii. Taking South Africa's production capability into consideration by including an additional revealed comparative advantage criterion. The model mostly focuses on the demand potential (size, growth, competitors, market access) for products in different countries and do not take into consideration the production capacity of the exporting country. It may therefore be that, in the previous applications of the model, there are export opportunities identified for a specific product in many countries, but the exporting country does not have the excess capacity to produce more of this product. The additional criterion introduced in this study, involves that South Africa should have a revealed comparative advantage of more than one in a particular product in order for markets to selected in the model. The

revealed comparative advantage is an indication of South Africa’s relative specialisation in the production and exportation of a particular product (Balassa, 1965; Krugell and Matthee, 2009). The formula used to calculate South Africa’s revealed comparative advantage is:

$$RCA_j = \left( \frac{X_{SA,j}}{X_{World,j}} \right) / \left( \frac{X_{SA,tot}}{X_{World,tot}} \right)$$

where  $X_{SA,j}$  is South Africa’s exports of product  $j$ ,  $X_{SA,tot}$  is South Africa’s total exports of all products,  $X_{World,j}$  is the world’s exports of product  $j$  and  $X_{World,tot}$  is total world exports of all products (Balassa, 1965; Krugell and Matthee, 2009). The introduction of this criterion ensured that only products in which South Africa is relatively specialised in, were selected as export opportunities.

- iv. Determining a new method of measuring the market accessibility of South Africa in the different product-country combinations (filter 3.2). An index for “revealed absence of barriers to trade” was used as a proxy for trade barriers in filter 3.2 in the Belgian and Thai studies. It was argued that if Belgium’s (or Thailand’s) neighbours could successfully export a particular product to a country, it would not be too difficult for Belgium (or Thailand) to also be able to overcome the trade barriers in that market (Cuyvers *et al.*, 1995; Cuyvers, 1997; Cuyvers, 2004). In the application of the model to identify realistic export opportunities for South Africa, the second part of filter 3 could not be applied in the same way. The reason for this is that South Africa’s neighbouring countries do not have many similar characteristics to South Africa (Viviers and Pearson, 2007). Therefore a different approach needed to be followed. In the first application of the model for South Africa, Viviers and Pearson (2007) used crow-fly distances between Pretoria, South Africa and the capital cities of the countries that entered filter 3 as a measure of trade barriers.

This proxy can, on its own, not be considered a very accurate estimation of market accessibility and another proxy for market accessibility had to be found (Viviers *et al.*, 2009). In the second application of the model for South Africa (Viviers *et al.*, 2009; Steenkamp *et al.*, 2009) an index for market accessibility was constructed by using distance, transport cost, the World Bank Logistics Performance Index (LPI), average applied tariffs per country and the frequency coverage ratio of non-tariff barriers per country (Steenkamp *et al.*, 2009). The main limitation of this measure of market accessibility (or barriers to trade) is that the index was only calculated on a country level and not a product-country level. A country can therefore perform well overall in terms of this measure / index, but specific products can still be highly protected or restricted in that country. With the purpose of the DSM to identify product-country combinations with the largest export potential, this country-level measure of market accessibility is not ideal. Therefore in this study, a new way of measuring South Africa's market accessibility on a product-country level was therefore devised that included the following variables:

- *international shipment time* (ocean freight) from Durban harbour to the main port in the destination country (Linescape, 2010);
- *international shipment cost* (ocean freight) from Durban harbour to the main port in the destination country (quotes obtained from three main shipping lines per country);
- *domestic time to import* including the time required for obtaining all necessary documents, inland transport and handling, customs clearance and inspections and port and terminal handling (Doing Business Report, The World Bank, 2009);

- *domestic cost to import* including the costs associated with all documentation, inland transport and handling, customs clearance and inspections, port and terminal handling and official costs (no bribes) (Doing Business Report, The World Bank, 2009);
- *logistics performance index* measuring the efficiency of the customs clearance process; quality of trade and transport-related infrastructure; ease of arranging competitively priced shipments; competence and quality of logistics services; ability to track and trace consignments; and the frequency with which shipments reach the consignee within the scheduled or expected time (Arvis, Mustra, Ojala, Shepherd and Saslavsky, 2010);
- *ad valorem* equivalent tariffs per product-country combination (ITC, 2010a);
- *ad valorem* equivalent non-tariff barriers per product-country combination (Kee, Nicita and Olarreaga, 2008).

An index value was calculated per product-country combination by means of a principle components analysis. Three factors that measure the market accessibility of a market were identified in the principle components analysis, namely a *domestic* factor that incorporates domestic time and cost and the LPI; an *international* factor that includes international shipping time and –cost; and a *barrier* factor that includes tariff and non-tariff barriers. The three factor scores were then added to arrive at a market accessibility index for each product-country combination that entered filter 3.

The above refinements were made to the model and the results are a more accurate indication of realistic exports for products in South Africa. In order to address the limitation in the literature of

a model to identify realistic export opportunities for services, the following section will explain how the DSM for products in South Africa was adapted to develop a model to identify export opportunities for services in South Africa. The results of the refined South African DSM for products will be compared to the results for services in section 4.

### **3. DECISION SUPPORT MODEL FOR SERVICES**

As mentioned in section 1, the DSM is adapted and applied to identify realistic export opportunities for services in South Africa. The model is based on the same principle as the DSM for products by using a filtering process, as explained in section 2.1. However some of the filters had to be adapted to allow for the limited availability of services data.

The first filter of the DSM for products (see section 2.1) focussed on macro-economic data and the same methodology could be used in the DSM for services. Country and political risk as well as economic growth are equally important for both product and services exporters.

The second filter of the DSM for products (see section 2.1) analysed the product-country combinations that continued from the first filter to determine whether these potential opportunities had sufficient import demand and growth in the short and long term. The same methodology could also be applied to the available import and export data for services on a sub-sector level (ITC, 2010b). The sub-sector data for services are grouped according to the EBOPS classification system (United Nations, 2002).

The calculations used in the DSM for products in filter 3.1 and 3.2 (see section 2.2) could not be used for the DSM for services. The import and export data for services are not available on a bilateral basis for all countries. Therefore the competitor analysis for market concentration cannot be applied in filter 3.1. Also the variables used to calculate market access in filter 3.2 (see section 2.2) is not applicable to services as these variables are not measurable for services trade. Therefore a new methodology was developed for the third filter for the DSM for services.

A new methodology was developed for *filter 3.1* to measure market concentration, or market openness. The filter used the total imports of services in ratio to the total services demanded in that market as a proxy for market openness. Therefore the assumption was made that if a country has high imports of a service in ratio to the total demand of that service in the market, the market is viewed as relatively open to the imports of the service. The calculation of total demand of each services sector was calculated by using the GDP figures for services (i.e. services produced in the domestic market), adding total imports and subtracting total exports of each services sector, as is shown in the following formula:

$$SD_j = SP_j + Z_j - X_j$$

Where:

SD = services demanded within the importing country

SP = services produced within the importing country

Z = services imported

X = services exported

j = importing country/market

Thereafter it was necessary to determine the ratio of imported services to the total services demanded to determine the openness in the market for the specific services sector. This calculation was made as follows:

$$OSI_j = \frac{Z_j}{SD_j}$$

Where:

j = importing country/market

OSI = openness for services or demand for services in the importing country

Z = services imported

SD = services demanded in the importing country as calculated for  $SD_j$  above.

The OSI percentages were calculated for each services-country combination that continued from filter 2 and this created an index of market openness for services (OSI). A cut-off value was determined based on the same method described in section 2.1 to indicate which service-country combinations showed a sufficient level of market openness and were not viewed as too concentrated. The final set of services-country combinations from filter 3.1's selection process could continue to the final filter 3 selection, together with the results of filter 3.2 as described below.

*Filter 3.2* is based on market accessibility and therefore this filter needed a measure of market barriers in order to determine the accessibility of the market. For the purposes of this filter for services the frequency measures developed by Hoekman (1996) was used to calculate each services-country combinations' total market accessibility. All WTO member countries commits under the GATS agreement to the level of restrictions they will apply to each services sector.

These commitments are made available by the WTO in a schedule of commitments for each country (WTO, 2009). Within these commitments each country specifies whether the specific sector has no trade restrictions (a commitment of ‘none’), whether they make a specific restriction to the sector (shown in detail in the list of commitments), or whether the country is not willing to make any commitments under a specific sector (a commitment of ‘unbound’). The frequency method allocates a scale value of 1, 0.5 or 0 respectively to each commitment on a sub-sector level for a specific country.

Therefore the total level of market access (MA) could be calculated as follows (author’s own formula):

$$MA_j = Average \left( \frac{LMA_j}{LMA_t} \right) + \left( \frac{LNT_j}{LNT_t} \right)$$

Where:

MA = Market access

j = importing country

t = total / maximum amount of commitments that can be made for the sector

LMA = Total Score for Limitations on Market Access as per GATS commitments

LNT = Total Score for Limitations on National Treatment as per GATS commitments

These values were calculated for each services sector in each country that continued from filter 2 and could then be compared to the maximum amount of commitments a country can make under each services sector in order to build an index of market accessibility. A cut-off value was determined (see section 2.1) in order to eliminate the services-country combinations that had very low market accessibility.

The results of filter 3.1 and 3.2 was then combined into a final filter 3 in which a services-country combination had to comply to the criteria in both filters 3.1 and 3.2 in order to continue to filter 4.

The results were a number of realistic services export opportunities for South Africa. In filter 4 the results were categorised in a new structure according to the market size and growth of the services-country combinations (from filter 2) and the market openness and accessibility (from filter 3). The potential import value could not be calculated for each export opportunity as bilateral services trade data is not available for all countries. Therefore the total imports of a services sector in a country was used as a proxy for the total import demand in that market.

The following section will provide a comparison of the results of both the DSM for products and the DSM for services in order to establish guidelines for diversification of exports in South Africa.

## **4. COMPARISON OF THE RESULTS**

### **4.1 Comparison of the DSM results in each filter**

In order to develop a successful national export promotion strategy for South African products and services, the results for both products and services should be incorporated. A combined view of both DSM's will show the regions in which South Africa has the highest export potential for

both products and services. Table 4.1 below highlights the results of each filter in the DSM for products as well as the DSM for services as applied to the available data from 2003 to 2007.

**Table 4.1: Comparing the results of the DSM for products and services**

Filter	Products	Services
<b>Filter 1.1</b>	Political and commercial risk assessment of all world countries.  <u>Results:</u> 209 countries selected	Political and commercial risk assessment of all world countries. Same as product model.  <u>Results:</u> 209 countries selected
<b>Filter 1.2</b>	Assessment of the GDP / GDP per capita and GDP growth / GDP per capita growth of all world countries.  <u>Results:</u> 101 countries selected	Assessment of the GDP / GDP per capita and GDP growth / GDP per capita growth of all world countries.  <u>Results:</u> 101 countries selected
<b>Filter 2</b>	Import market size and growth assessment per product-country combination.  <u>Results:</u> 545 703 product-country combinations entered filter 2  136 581 product-country combinations selected to continue	Import market size and growth. Same as product model.  <u>Results:</u> 6 039 services-country combinations entered filter 2  1 843 services-country combinations selected to continue

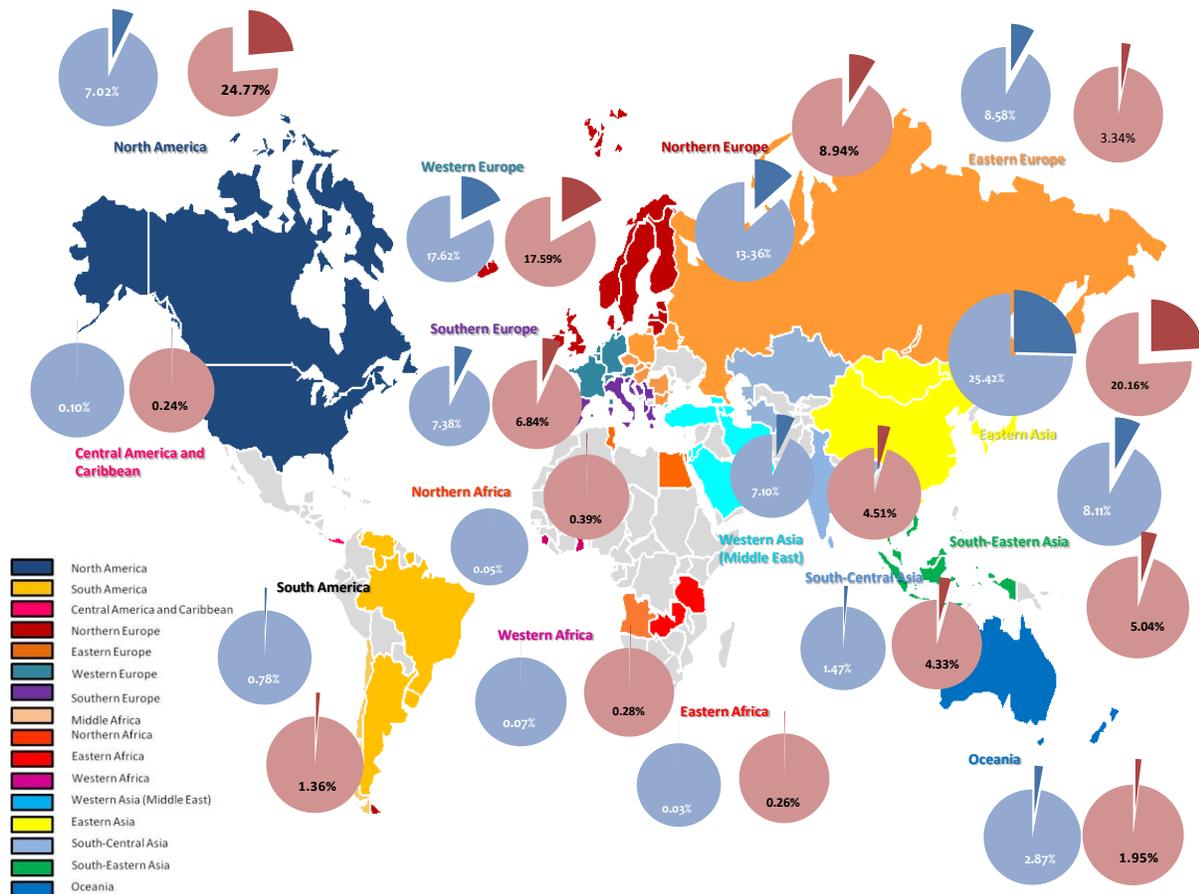
<b>Filter 3.1</b>	Market concentration. <u>Results:</u> 136 581 product-country combinations entered filter 3.1 89 220 product-country combinations selected for the final selection in filter 3	Market openness. <u>Results:</u> 1 843 services-country combinations entered filter 3.1 961 services-country combinations selected for the final selection in filter 3
<b>Filter 3.2</b>	Market accessibility. <u>Results:</u> 136 581 product-country combinations entered filter 3.1 115 360 product-country combinations selected for the final selection in filter 3	Market accessibility. <u>Results:</u> 1 843 services-country combinations entered filter 3.1 666 services-country combinations selected for the final selection in filter 3
<b>Filter 3 final selection</b>	Product-market combinations were selected if it qualifies based on market concentration AND market accessibility. <u>Results:</u> 136 581 product-country combinations entered filter 3 78 098 product-country combinations selected to continue With the additional criterion of RCA >1 (see section 2.2), 15 389 product-countries selected.	Services-market combinations were selected if it qualifies based on market openness AND market accessibility. <u>Results:</u> 1 843 service-country combinations entered filter 3 578 service-country combinations selected to continue
<b>Filter 4</b>	Classification of 15 389 identified export opportunities into 20 cells based on import market size and growth (rows) and the exporting country's relative market share compared to the main competitors (columns).	Classification of 578 identified export opportunities into 20 cells based on market size and growth (rows) and the market openness and accessibility (columns).

The results of the DSM for products and services as indicated in table 4.1 can be compared by sector and region in order to identify whether there are overlapping export opportunities for products and services. The geographical comparison is done in section 4.2. These opportunities can then be used for export promotion purposes to diversify exports from South Africa to specific regions.

#### 4.2 Comparison of the DSM results on a geographical basis

Figure 4.1 below indicates the number of export opportunities for each region for services (in blue) and products (in red).

**Figure 4.1: Geographical distribution of the potential value of export opportunities for products and services**



The results for each region in figure 4.1 are similar for both products and services; however the North American region shows a large difference. This is due to the fact that the United States had very little services export opportunities due to low market accessibility, as calculated in filter 3. Therefore the majority of services export opportunities identified were in Canada. The other regions in figure 4.1 show that the European and Asian markets hold the highest export opportunities per potential value for South Africa's exports of both products and services. Eastern Asia and Western Europe holds about 40% of the export potential for both products and services. Therefore these are the regions that should receive large focus from export promotion programmes in South Africa.

It is important to establish which product and services sectors should be promoted in these geographical areas. The following section compares the top DSM results for products and services per country and sector.

### **4.3 Comparison of the DSM results per country and sector**

The top 20 countries identified in the DSM for products and services, respectively, are shown in table 4.2 below. This table shows that many of the top export opportunities for products and services are in the same countries. The matching countries should be used in export promotion strategies for both products and services as these are the countries with the highest export potential for South Africa.

**Table 4.2: Top 20 countries ranked based on the total export potential value\***

Ranking	Countries identified in DSM for products	Countries identified in DSM for services <sup>4</sup>
1	United States	China
2	Japan	Germany
3	China	United Kingdom
4	Germany	South Korea
5	United Kingdom	Canada
6	India	Japan
7	Canada	Russia
8	Belgium	Singapore
9	Italy	Saudi Arabia
10	Netherlands	France
11	France	Spain
12	Spain	Italy
13	Hong Kong	Netherlands
14	Australia	Hong Kong
15	Israel	Romania
16	Singapore	Malaysia
17	Indonesia	Australia
18	Saudi Arabia	Norway
19	Switzerland	Ireland
20	Brazil	Sweden

(\* A complete list of results are available from the authors on request)

<sup>4</sup> It is important to note that the export potential value for the identified export opportunities for services could not be calculated in the same manner as for products (see section 2.3). The total import value for each identified sector in the identified country was used to create a proxy for potential import value for services.

In order to develop the most effective export promotion strategies it is important to compare the top product-country combinations from the DSM for products with the top services-country combinations from the DSM for services. This will provide a more detailed, sector- and market-specific approach for export promotion activities. The top 20 product-country combinations are compared with the top 20 service-country combinations in table 4.3 below.

The top product-country combinations from table 4.3 are mostly situated in the United States, the United Kingdom, Japan and India, whereas the top services-country combinations are mostly situated in China, Japan and South Korea. However these combinations are useful when developing specific export promotion strategies for each region in the world.

It's also interesting to see that travel and transport are the only main services sectors that are in the top 20 results for services. Although the travel sector already contributes 63% to services exports (see section 1.1), the results from the DSM indicates that there is scope for further growth in this sector. For the purposes of further diversification in services the extensive list of results show export opportunities in many other sectors such as financial services, communication, construction and computer services. Therefore these sectors will also need to receive attention in export promotion strategies.

**Table 4.3: Top 20 product-country and services-country combinations ranked based on the total export potential value\***

Rank	Top product-country combinations from the DSM for products		Top services-country combinations from the DSM for services	
	Country	Products	Country	Services
1	United States	870323 - Automobiles, spark ignition engine of 1500-3000 cc	China	208 - Sea Transport - Freight
2	United States	710239 - Diamonds (jewellery) worked but not mounted or set	United Kingdom	243 - Travel Personal - Other
3	Japan	270112 - Bituminous coal, not agglomerated	Japan	208 - Sea Transport - Freight
4	Canada	870323 - Automobiles, spark ignition engine of 1500-3000 cc	China	243 - Travel Personal - Other
5	United States	271011 - Aviation spirit	Canada	243 - Travel Personal - Other
6	Hong Kong	710239 - Diamonds (jewellery) worked but not mounted or set	Russia	243 - Travel Personal - Other
7	India	710231 - Diamonds (jewellery) unworked or simply sawn, cleaved	Saudi Arabia	243 - Travel Personal - Other
8	Japan	260300 - Copper ores and concentrates	Germany	243 - Travel Personal - Other
9	United Kingdom	270799 - Coal tar distillation products n.e.s.	Romania	243 - Travel Personal - Other
10	United States	940190 - Parts of seats	France	243 - Travel Personal - Other
11	United States	760110 - Aluminium unwrought, not alloyed	South Korea	208 - Sea Transport - Freight
12	United Kingdom	710231 - Diamonds (jewellery) unworked or simply sawn, cleaved	South Korea	243 - Travel Personal - Other
13	Germany	271011 - Aviation spirit	Hong Kong	243 - Travel Personal - Other
14	India	270119 - Coal except anthracite or bituminous, not agglomerate	Australia	243 - Travel Personal - Other
15	China	260300 - Copper ores and concentrates	Norway	243 - Travel Personal - Other
16	Singapore	271011 - Aviation spirit	China	277 - Business and management consultancy and public relations services

17	United States	711011 - Platinum unwrought or in powder form	South Korea	209 - Sea Transport - Other
18	Australia	870323 - Automobiles, spark ignition engine of 1500-3000 cc	Japan	211 - Air Transport - Passenger
19	Israel	710231 - Diamonds (jewellery) unworked or simply sawn, cleaved	Singapore	243 - Travel Personal - Other
20	United States	750210 - Nickel unwrought, not alloyed	Japan	209 - Sea Transport - Other

(\* A complete list of results are available from the authors on request)

Given the above results for products and services per country and sector, it is important that the DTI in South Africa use these results in combination with market intelligence and industry information and formulate export promotion strategies that would increase the exports from these specific sectors and assist to diversify the export activities in South Africa.

## 5. CONCLUSIONS

The objective of this study was to provide guidelines for the export promotion of products and services in South Africa. The study outlined the background to the original decision support model (DSM) and the adaptations that were made for products in South Africa in section 2. The study also explained the decision support model that was developed for services in South Africa in section 3. No other model exists for services that perform the same function and therefore this model offers a great contribution to the literature. Both these models provide a list of realistic export opportunities for products and services in South Africa and the models provide a scientific-based tool that can be used by the DTI in South Africa to formulate export promotion strategies.

Section 4 of the study compared the results of the DSM for products with the DSM for services and identified specific regions, countries and sectors that have high export opportunities for South African products and services. The DTI in South Africa should use these results in conjunction with market intelligence and information from industry to formulate a national export promotion strategy that would ensure export growth and diversification in the long run.

## **6. REFERENCES**

Arvis, J.F., Mustra, M.A., Ojala, L., Shepherd, B. and Saslavsky, D., 2010. Connecting to Compete 2010: Trade Logistics in the Global Economy. *The World Bank*, 50p.

Balassa, B., 1965. Trade liberalisation and revealed comparative advantage. New Haven, CT: Yale University Economic Growth Centre.

Clements-Hunt, A., 2004. Making the most of a services sector revolution. *International Trade Forum*, 52(4). <http://www.tradeforum.org/news/fullstory.php/aid/781>. Date of access: 6 April 2011.

Cuyvers, L., De Pelsmacker, P., Rayp, G. & Roozen, I.T.M., 1995. A decision support model for the planning and assessment of export promotion activities by government export promotion institutions: the Belgian case. *International Journal of Research in Marketing*, 12, pp.173-186.

Cuyvers, L., 1997. Export opportunities of Thailand: a decision support model approach. Centre for International Management and Development and Centre for ASEAN studies, *CAS discussion paper* 9, pp.3-21.

Cuyvers, L., 2004. Identifying export opportunities: the case of Thailand. *International Marketing Review* 21(3), pp.255-278.

Daniels, P.W., 2000. Exports of services or servicing exports? *Annaler: Series B, Human Geography*, Blackwell Synergy. Series B: Human Geography, 82(1), pp.1–15.

Department of Trade and Industry., 2009. Export organisations.

<http://www.thedti.gov.za/econdb/raportt/defaulttrap.asp>. Date of access: 1 March 2011.

Department of Trade and Industry., 2010a. A south African Trade Policy and Strategy Framework. The dti Campus, Pretoria. 64p.

Department of Trade and Industry., 2010b. Industrial Policy Action Plan (IPAP 2): 2011/11 – 2012/13. The dti Campus, Pretoria, 99p.

DTI see Department of Trade and Industry.

Francis, J. & Collins-Dodd, C., 2003. Impact of export promotion programs on firm competencies, strategies and performance: the case of Canadian high-technology SMEs. *International Marketing Review*, 21(4/5), pp.474-495.

Francois, J. & Hoekman, B., 2010. Services trade and policy. *Journal of Economic Literature*, 48, pp.642-692, September.

Gillespie, K. & Riddle, L., 2004. Export promotion organisation emergence and development: a call to research. *International Marketing Review*, 21(4/5), pp.462-473.

Hausmann, R. & Klinger, B., 2008. South Africa's export predicament. *Economics of Transition*, 16(4), pp.609-637.

Hirshmann, A., 1964. The paternity of an index. *American Economic Review* 54, pp.761, September.

Hoekman, B., 1996. Assessing the general agreement on trade in services. (*In* Martin, W. & Winters, L.A. *The Uruguay Round and the developing countries*. Cambridge: University Press, pp. 88-124).

ITC. See International Trade Centre.

International Trade Centre., 2009. Including services in national export development plans.

<http://www.intracen.org/serviceexport/>. Date of access: 5 February 2010.

International Trade Centre., 2010a. Market Access Map, Detailed Analysis, Applied Tariffs. <http://www.macmap.org/trademap/Applied.Tariffs.aspx>. Date of access: 18-29 January 2010.

International Trade Centre., 2010b. Trade Map: existing and potential trade. <http://www.trademap.org/>. Date of access: 6 Apr. 2010.

Kee, H.L., Nicita, A. and Olarreaga, M., 2008. Estimating Trade Restrictiveness Indices. *The World Bank*, November.

Krugell, W. & Matthee, M., 2009. Measuring the export capability of South African regions. *Development Southern Africa*, 26(3), pp.459:476, September.

Lederman, D., Olarreaga, M. & Payton, L., 2006. Export promotion agencies: what works and what doesn't. World Bank Policy Research Working Paper No. 4044, November 2006.

Linescape., 2010. Independent Search Engine for Ocean Container Schedules. <http://www.linescape.com>. Date of access: 1-12 February 2010.

Martincus, C.V. & Carballo, J., 2008. Is export promotion effective in developing countries? Firm-level evidence on the intensive and the extensive margins of exports. *Journal of International Economics*, 76, pp.89-106.

Office National Du Ducroire., 2009. Country risk ratings. <http://www.ondd.be/WebONDD>. Date of access: 27 October 2009.

ONDD see Office National Du Ducroire.

Shankarmahesh, M.N., Olsen, H.W. & Honeycutt, E.D.jr., 2005. A dominant product-dominant country framework of industrial export segmentation. *Industrial Marketing Management*, 34, pp.203-210.

Steenkamp, E.A., Rossouw, R., Viviers, W. & Cuyvers, L., 2009. Export market selection methods and the identification of realistic export opportunities for South Africa using a decision support model. Trade and Industrial Policy Strategies (TIPS), Australian government, AusAID. Working Paper series 2009-03, November.

Steuart, I. & Cassim, R., 2005. Opportunities and risks in liberalising trade in services: country study of South Africa. International Centre for Trade and Sustainable Development (ICTSD), Feb 2005.

Tempier, L., 2010. Harmonized System.

<http://www.gfptt.org/Entities/TopicProfile.aspx?tid=eba119e3-69fa-4e28-82fa-c2c788b51a02>.

Date of access: 27 September 2010.

The Worldbank., 2009. Doing Business 2010: Reforming through Difficult Times. *The World Bank, International Finance Corporation and Palgrave MacMillan*, 215p.

UNCTAD see United Nations Commission on Trade and Development.

United Nations., 2002. Manual on statistics of international trade of services. New York: United Nations Publications ST/ESA/STAT/SER.M/86.

United Nations., 2010. World macro regions.

<http://www.un.org/depts/dj/maplib/worldregions.htm>. Date of access: 15/09/2010.

United Nations Commission on Trade and Development., 2010. Handbook of Statistics.

<http://unctadstat.unctad.org/>Date of access: 16 February 2011.

Viviers, W. & Pearson, J.J.A., 2007. The construction of a Decision Support Model for evaluating and identifying realistic export opportunities for South Africa. Report prepared for the Statistical Analysis and Modeling unit at the DTI. The dti campus, Pretoria.

Viviers, W., Rossouw, R. & Steenkamp, E.A., 2009. The sustainability of the DSM for identifying realistic export opportunities for South Africa: 2007-2008. Report prepared for the Statistical Analysis and Modelling unit at the DTI. The dti campus, Pretoria.

Viviers, W., Steenkamp, E.A., Rossouw, R., & Cuyvers, L., 2010. Identification of realistic export opportunities for South Africa: Application of a Decision Support Model (DSM) using HS 6-digit level data. Report prepared for the Statistical Analysis and Modelling unit at the DTI. The dti campus, Pretoria.

World Trade Organisation., 2009. Services Database: schedules of commitments.

<http://tsdb.wto.org/default.aspx>. Date of access: 15 November 2009.

WTO see World Trade Organisation.