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An Analysis of Inter-Sectoral Comparative Advantage of Seychelles

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Research Article

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ABSTRACT

The authors investigated inter-sectoral comparative advantage of Seychelles. The sector with the highest inter-sectoral comparative advantage is the Animal and animal products sector followed by the miscellaneous sector. Least is the raw hides, skins, leather and furs sector with no comparative advantage at all. The products that dominate the animal and animal products sector are various types of fish or sea products. However, the top two sectors do have very few products which have demonstrated to have comparative advantage. In general, inter-sectoral comparative advantage in Seychelles is very limited. It is recommended that Seychelles should come up with sectoral strategies to boost comparative advantage. There is a need to diversify from fish products to include other products. Seychelles should also encourage inward foreign direct investment specifically from multi-national firms which can bring in technology and improve on comparative advantage.

Keywords: Comparative advantage, international trade, export performance, Seychelles.

INTRODUCTION

In general, most studies on comparative advantage have focused on identifying revealed comparative advantage (RCA) in products only. Fewer studies, however, have ventured in analyzing comparative advantage at sectoral or industry levels. This paper investigates inter-sectoral comparative advantage of Seychelles. The justification for this paper is that Seychelles is a member of both the Common Market for Eastern and Southern Africa (COMESA) and the Southern African Development Community (SADC) making Seychelles's economic and trade indicators important to these regions.

This paper starts by reviewing some comparative advantage theories. Economists, however, tend to differ as to what determines comparative advantage. The Classical Theory of comparative advantage highlights that benefits from external trade improve welfare and that trade without significant constraints improves the world economy. The Ricardian Theory for instance, explains that the determinants of comparative advantage are the costs and differences in the advancement of technology amongst nations. On the other hand, Heckscher-Ohlin-Samuelson Theory attributes comparative advantage to existence of factor price differentials. Other theories such as the Neo-Factor-Proportion Theory emphasize the efficiency of factors while the Technology Gap and Product Cycle Theory focuses on technological progress as determinants of comparative advantage (Bender and Li, 2002).

Mzumara (2006) attributes comparative advantage from the extension made by Heckscher-Ohlin that international differences in costs of endowments determine where comparative advantage would exist. A country that possesses certain endowments, for example, will use its abundant endowments most intensively to produce products for export. The said country would then import products which use its scarce factors less intensively. The interesting thing that emerges is specialization. A country then specializes in the products whose production uses the abundant factor intensively. This brings in efficiency and competitiveness. The country will then give up the production of products where less efficiency exists by importing such products an action that helps another country also to specialize if it is endowed with resources. The action leads to a better global economy and prosperity. Widgren (2005) concurs with Mzumara (2006) and advocates that countries should export products which use their abundant factors most intensively and they should import products produced by less abundant factors. However, Khatibi (2008) attributes that it is relative factor scarcity that determine comparative advantage.

METHODOLOGY

The Balassa (1965) revealed comparative advantage (RCA) index is used in this paper. A higher RCA index is evidence that a country possesses a greater revealed comparative advantage and competitiveness in the production of the product (Wu and Chen, 2004). RCA is the frequently adopted method because it is not founded on limited assumptions which cannot hold empirically (Mutambatsere, 2007). Krugell and Matthee (2009) used the Balassa (1965) method in comparing the strength of South African regions.

The Balassa (1965) method is in the form of:

$$RCA = \left(\frac{X_{i,j}}{X_{w,j}} \right) / \left(\frac{X_{i,tot}}{X_{w,tot}} \right)$$

Where:

$X_{i,j}$ denotes country i 's exports of product j ;

$X_{i,tot}$ denotes country i 's total exports;

$X_{w,j}$ denotes the world's (all countries) export of product j ; and

$X_{w,tot}$ denotes total exports in the world.

An $RCA \geq 1$ demonstrates that a country has comparative advantage in the production of the same product. An $RCA < 1$ demonstrates that a country has a comparative disadvantage in the production of the same product.

Data on exports for Seychelles and the world exports was obtained from the Trade map compiled by the International Trade Centre (ITC) based in Geneva, Switzerland. Countries report their trade data to the ITC. The ITC also has a mechanism of capturing the trade data on every country which have not reported. The data used pertains to 2008, 2009 and 2010 and is on a 6-digit level product classification. It is the most accepted internationally disaggregated data.

RESULTS AND DISCUSSION

Results pertaining to inter-sectoral comparative advantage of Seychelles are reported in table 1.

Table 1: Inter-Sectoral comparative advantage of Seychelles results

Rank	Sectoral code	Sectoral description	Number of products with $RCA \geq 1$ in the sector
1	01-05	Animal and animal products	24
2	90-97	Miscellaneous	23
3	84-85	Machinery/electric	16
4	72-83	Metals	15
5	06-15	Vegetable products	10
6	16-24	Foodstuffs	8
7	86-89	Transportation	7
8	28-38	Chemicals and allied products	5
8	50-63	Textiles	5
9	68-71	Stone/glass	4
10	25-27	Mineral products	3
10	39-40	Plastic/rubber	3
11	41-49	Wood and wood products	1
11	64-67	Foot wear/head gear	1
12	41-43	Raw hides, skins, leather and furs	0

Source: *Results of this study.*

In table 1, column 1 is the rank of the sector based on the number of products with $RCA \geq 1$. In column 2 are sectoral codes derived from the first two digits in the product code. Column 3 is description of the sectors and column 4 is the number of products with $RCA \geq 1$ in each sector. The sector with the highest inter-sectoral comparative advantage in Seychelles is animal and animal products which has 24 products with $RCA \geq 1$. It is followed by the miscellaneous sector with 23 products. In third place is machinery/electric sector with 16 products. In fourth place are metals sector with 15 products. It is followed by vegetable products with 10 products. In sixth place is foodstuffs sector with 8 products in it that have $RCA \geq 1$. In the seventh place is transportation sector with 7 products in it. It is followed by chemicals and allied products and textiles sectors both with 5 products respectively. In ninth position is stone/glass sector with 4 products. In tenth position are two sectors namely mineral products and plastic/rubber with 3 products each. In eleventh place are two sectors. These are wood and wood products and foot wear/head gear sectors and have only 1 product each. The sector that lacks comparative advantage completely is raw hides, skins, leather and furs.

Generally, the results show that Seychelles has very limited sectoral comparative advantage. The top sector, animal and animal products, has very few products (24) in which it has comparative advantage. These products are very few for a sector that is ranked first in Seychelles in terms of comparative advantage. These results point to the fact that the overall comparative advantage in Seychelles is very limited. Other sectors such as wood and wood products and foot wear/head gear sectors have only 1 product each and there is an existence of a sector that does not have even a single product in which it has comparative advantage. This is raw hides, skins, leather and furs. Table 2 shows top 5 products in the animal and animal products sector in which Seychelles has comparative advantage.

Table 2: Top 5 products in the animal and animal products sector in which Seychelles has comparative advantage

Rank	Product	Product description	2008 RCA	2009 RCA	2010 RCA	Average RCA
1	030569	Fish salted or in brine not dried or smoked	12841.48	0	0	4280.494
2	030344	Tunas (alabacore, longfin) frozen, whole	0	2312.137	2326.542	1546.226
3	030342	Tunas (yellow fine) frozen, whole	0	758.6752	1238.584	665.7532
4	030343	Skipjack, stripe-bellied bonito, frozen, whole	0	752.8616	1041.995	598.2856
5	030349	Tunas, frozen, whole	0	1049.796	724.1523	591.3161

Source: Results of this study.

In table 2, fish salted or in brine not dried or smoked in the animal and animal product sector has the highest RCA index of 4280.5. It is followed by Tunas (alabacore, longfin) frozen, whole with RCA index of 1546. In the third place are tunas (yellow fine) frozen, whole with an index of 665.8. In the fourth place is skipjack, stripe-bellied bonito, frozen, whole with an index of 598.3. In the fifth place are tunas, frozen, whole with an index of 591. Seychelles seems to be more specialized in the production of sea products.

Table 3: Top 5 products in the miscellaneous sector in which Seychelles has comparative advantage

Rank	Product code	Product description	2008 RCA	2009 RCA	2010 RCA	Average RCA
1	911430	Clock watch dials	2000.575	1495.457	1553.784	1616.605
2	930119	Artillery weapons (e.g. guns, howitzers and mortars)	1504.396	373.2271	248.5316	708.7142
3	911090	Watch straps etc and parts, of leather/ plastics	719.9381	517.1108	531.312	549.4537
4	911090	Clock movements, un/partly assembled, rough clocks	640.3553	412.1647	523.7977	525.4392
5	901580	Surveying instruments	22.58356	0.534825	0.548489	7.88958

Source: Results of this study.

In table 3, clock watch dials in the miscellaneous sector has the highest RCA index in this sector of 1617. They are followed by artillery weapons (e.g. guns, howitzers and mortars) with RCA index of 709. In third place are watch straps etc and parts, of leather/plastics with an index of 549.5. In fourth place are clock movements, un/partially assembled, rough clocks with RCA index of 525. In fifth place are surveying instruments with an index of 8.

Table 4: Top 3 products in the machinery/electric sector in which Seychelles has comparative advantage

Rank	Product code	Product description	2008 RCA	2009 RCA	2010 RCA	Average RCA
1	845380	Machinery for leather, skin goods making except sewing	0	0	194.6857	64.89524
2	844851	Sinkers, needles for knitting machines etc	6.850585	11.081119	12.42905	10.12037
3	845522	Cold metal rolling meals	15.96824	6.513367	7.060095	9.847233

Source: Results of this study.

In table 4, machinery for leather, skin goods making except sewing in the machinery/electric sector has the highest RCA index of 64.9. It is followed by sinkers, needles for knitting machines etc with RCA index of 10. In third place are cold metal rolling meals with an index of 9.8.

Table 5: Top 3 products in the metals sector in which Seychelles has comparative advantage

Rank	Product code	Product description	2008 RCA	2009 RCA	2010 RCA	Average RCA
1	811213	Beryllium waste and scrap	241.2884	171655.6	189.5546	57362.15
2	761511	Pots sourers, aluminium	311.1927	0	0	103.7309
3	811213	Antimony waste and scrap	99.33235	62.46565	25.87033	62.556611

Source: Results of this study.

In table 5, beryllium waste and scrap in metals sector has the highest RCA in this sector with an index of 57362. It is followed by pots sourers, aluminium with an index of 104. In third place is antimony waste and scrap with an index of 62.6.

Table 6: Top 3 products in the vegetable products sector in which Seychelles has comparative advantage

Rank	Product code	Product description	2008 RCA	2009 RCA	2010 RCA	Average RCA
1	150420	Fish oils except liver, not chemically modified	130.6312	140.7544	108.2489	126.5448
2	090920	Coriander	0	0	168.0614	56.02046
3	080119	Coconut, fresh shelled	73.93965	0	0	24.64655

Source: Results of this study.

In table 6, fish oil except liver, not chemically modified in the vegetable sector has the highest RCA with an index of 127. It is followed by coriander with RCA of 56. In third place is coconut fresh shelled with an RCA index of 25.

Table 7: Top 3 products in the foodstuffs sector in which Seychelles has comparative advantage

Rank	Product code	Product description	2008 RCA	2009 RCA	2010 RCA	Average RCA
1	160414	Tuna, skipjack, bonito, prepared/preserved, not minced	1225.507	1682.958	1409.319	1439.261
2	160420	Fish prepared or preserved, except whole, in pieces	0.027559	52.27843	75.48222	42.59607
3	230120	Flour or meal, pellet, fish etc for animal feed	13.61748	21.24948	28.86075	21.24257

Source: Results of this study.

In table 7, tuna, skipjack, bonito, prepared/preserved, not minced in the foodstuffs sector has the highest RCA of 1439. It is followed by fish prepared or preserved, except whole, in pieces with an index of 42.6. In third place is flour or meal, pellet, fish etc for animal feed with an index of 21. Table 8 shows top 3 products in the transportation sector in which Seychelles has comparative advantage.

Table 8: Top 3 products in the transportation sector in which Seychelles has comparative advantage

Rank	Product code	Product description	2008 RCA	2009 RCA	2010 RCA	Average RCA
1	880400	Parachutes, parts and accessories	107.6515	60.28193	61.77102	76.56813
2	890200	Fishing vessels and factory ships	0	0	149.4898	49.82995
3	890391	Sail boats, with or without auxiliary motor	0	19.99329	2.921625	7.638306

Source: Results of this study.

In table 8, parachutes, parts and accessories in the transportation sector have the highest RCA index in this sector of 76.6. It is followed by fishing vessels and factory ships with an index of 50. In third place sail boats, with or without auxiliary motor with an index of 8.

Table 9 shows top 3 products in the chemicals and allied industries sector in which Seychelles has comparative advantage.

Table 9: Top 3 products in the chemicals and allied industries sector in which Seychelles has comparative advantage

Rank	Product code	Product description	2008 RCA	2009 RCA	2010 RCA	Average RCA
1	300310	Penicillins or streptomycins and derivatives in bulk	0	29.27573	0	9.758576
2	290319	Chlorinated derivatives saturated acyclic hydrocarbons	0	0	21.76257	7.254189
3	382471	Mixture containing acyclic	0	16.33907	0	5.446358

Source: Results of this study.

In table 9, penicillins or streptomycins and derivatives in bulk in the chemicals and allied industries sector has the highest RCA in this sector with an index of 9.8. They are followed by chlorinated derivatives saturated acyclic hydrocarbons with an index of 7.3. In third place is Mixture containing acyclic with an index of 5.

Table 10: Top 3 products in the textiles sector in which Seychelles has comparative advantage

Rank	Product code	Product description	2008 RCA	2009 RCA	2010 RCA	Average RCA
1	620329	Men's, boys ensembles, of material not knit	13.17837	9.753701	20.33259	14.42155
2	590190	Tracing cloth, painting canvas, stiffened textile	7.207392	0	0	2.402464
3	630312	Curtains drapes blind valances, synthetic	0	2.079792	2.678228	1.586007

Source: Results of this study.

In table 10, men's, boys' ensembles, of material not knit in textiles sector has the highest RCA in this sector with an index of 14. They are followed by tracing cloth, painting canvas and stiffened textile with an index of 2. In third place are curtains drapes blind valances, synthetic with an index of 1.6.

Table 11: Top 3 products in stone/glass sector in which Seychelles has comparative advantage

Rank	Product code	Product description	2008 RCA	2009 RCA	2010 RCA	Average RCA
1	710811	Gold powder non-monetary	97.57237	25.61257	13.66039	45.61511
2	710812	Gold in unwrought forms non-monetary	11.26279	5.189546	5.17569	7.209342
3	691110	Tableware and kitchenware of porcelain or China	4.135728	0	0.018796	1.384841

Source: Results of this study.

In table 11, gold powder non-monetary in stone/glass sector has the highest RCA in this sector with an index of 46. It is followed by gold in unwrought forms non-monetary with an index of 7. In third place is tableware and kitchenware of porcelain or China with an index of 1.4. Table 12 shows top 3 products in mineral products sector in which Seychelles has comparative advantage.

Table 12: Top 3 products in mineral products sector in which Seychelles has comparative advantage

Rank	Product code	Product description	2008 RCA	2009 RCA	2010 RCA	Average RCA
1	271019	Light petroleum	11.57287	0.833941	1.159239	4.522016
2	261310	Molbybdenum concentrates, roused	0	0	11.71185	3.903951
3	252390	Hydraulic cement except Portland or aluminium	0	3.558426	5.623332	2.860586

Source: Results of this study.

In table 12, light petroleum in the mineral products sector has the highest RCA in this sector with an index of 5. It is followed by molbybdenum concentrates, roused with an index of 4. In the third place is hydraulic cement except Portland or aluminium with an index of 2.9. Table 13 shows top 3 products in plastic/rubber sector in which Seychelles has comparative advantage.

Table 13: Top 3 products in plastic/rubber sector in which Seychelles has comparative advantage

Rank	Product code	Product description	2008 RCA	2009 RCA	2010 RCA	Average RCA
1	400941	Tubes, pipes, hoses of vulcanised rubber other than hard rubber	0	6.691026	0	2.230342
2	401695	Rubber articles, inflatable vulcanised rubber	0	4.680712	0	1.560237
3	391590	Plastic waste or scrap	0	1.351596	2.06798	1.139859

Source: Results of this study

In table 13, tubes, pipes, hoses of vulcanised rubber other than hard rubber in the plastic/rubber sector have the highest RCA in this sector with an index of 2. It is followed by rubber articles, inflatable vulcanised rubber with an index of 1.6. In third place is plastic waste or scrap with an index of 1.

Table 14: A product in wood and wood products sector in which Seychelles has comparative advantage

Rank	Product code	Product description	2008 RCA	2009 RCA	2010 RCA	Average RCA
1	442010	Statuettes and other ornaments of wood	2.844046	0.202602	0.058022	1.03489

Source: Results of this study

In table 14, statuettes and other ornaments of wood in wood and wood products sector is the only product with $RCA \geq 1$ in this sector. It has an index of 1.

Table 15: A product in foot wear/head gear sector in which Seychelles has comparative advantage

Rank	Product code	Product description	2008 RCA	2009 RCA	2010 RCA	Average RCA
1	640110	Water proof foot wear (wellingtons) metal toe cap	15.9847	10.79279	9.144117	11.97387

Source: Results of this study.

In table 15, waterproof foot wear (wellingtons) metal toe cap in foot wear/head gear sector is the only product in this sector with an $RCA \geq 1$. It has an index of 12.

CONCLUSIONS AND RECOMMENDATIONS

Animal and animal product sector tops in comparative advantage in Seychelles. The products dominating this sector are various types of fish or sea products. It is followed by the miscellaneous sector. However, both of these sectors do have very few products which have demonstrated to have comparative advantage. The raw hides, skins, leather and furs sector has no comparative advantage at all. In general, inter-sectoral comparative advantage in Seychelles is very limited. It is recommended that Seychelles should come up with sectoral strategies to boost comparative advantage. There is a need to diversify from fish products to include other products. Seychelles should also encourage inward foreign direct investment specifically from multi-national firms which can bring in technology and improve on comparative advantage.

REFERENCES

- Balassa, B. (1965). Trade liberalization and Revealed comparative Advantage. New Haven: Yale University of Economic Center.
- Bender, S. & Li, K. (2002). The changing trade and revealed comparative advantages of Asian and Latin American manufacture exports. Economic Growth Centre, Yale University, Discussion paper no. 843.

- Khatibi, A. (2008). Kazakhstan's Revealed Comparative Advantage Vis-à-vis the EU-27. ECIPE Working Paper no. 03/2008.
- Krugell, W., & Matthee, M. (2009). Measuring the Export Capability of South African Regions. *Development Southern Africa*, 26(3), 459-476.
- Mutambatsere, E. (2007). Competiveness and Revealed Comparative Advantage in the SADC Maize Industry. AAAE Conference Proceedings, 57-62.
- Mzumara M (2006). The theory of money and banking in modern times. Mustang, OH: Tate Publishing, LCC.
- Widgren, M. (2005). Revealed Comparative Advantage in the Market. Turku School of Economics, The Research Institute of Finish Economy (ETLA), CEPR and CESifo.
- Wu, H. L., & Chen, C. H. (2004). Changes in the Foreign Market Competitiveness of East Asian Export. *Journal of Contemporary Asia*, 34(4), 505-522.