

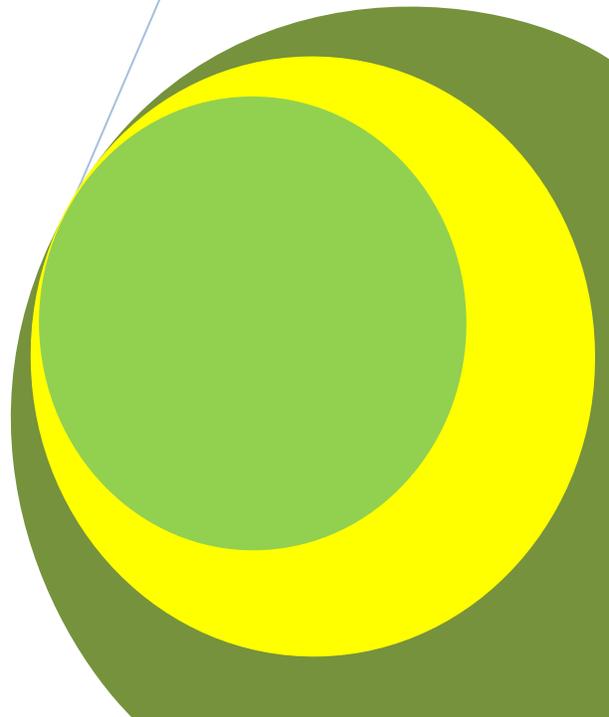
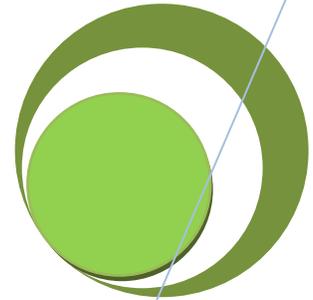
Greener Journal of Economics and Accountancy

ISSN: 2354-2357

Is it Oil only that Matters in Sudan's Foreign Sector?

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Research Article

Is it Oil only that Matters in Sudan's Foreign Sector?

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ABSTRACT

The authors have investigated comparative advantage of Sudan. The results show that Sudan has comparative advantage in 60 product lines. The authors have concluded that Sudan has capabilities of producing other products other than oil although the current base is too small. The authors also concluded that Sudan exports oil in a crude form hence it is losing earnings by not refining the product.

Keywords: Comparative advantage, exports, international trade.

INTRODUCTION

Sudan as a member of the Common Market for Eastern and Southern Africa (COMESA) is an important player hence its macroeconomic indicators are important to analyze them. Exports play an important role in improving macroeconomic environment of a country. It is therefore important to gauge the position of Sudan's exports on the world market. The authors are motivated to carry out this study because they are citizens of sub-region of COMESA to which Sudan is a member and hence its economic well being affect them as well in the integration process. The objective of this paper is to investigate whether Sudan has comparative advantage in other products it produces other than oil.

Background

Sudan is located in North-east of Africa. It is the largest nation in Africa and Arabic nations. It is the tenth largest nation in area size in the world. It shares a border with Egypt in the North and the Red sea to the North-east. It shares borders with Eritrea and Ethiopia to the East. In South-east it shares borders with Kenya and Uganda. In South-West it shares borders with the Democratic Republic of Congo and the Central African Republic. It shares a common border with Chad in the West and Libya in North-east. The Nile River separates the country between East and West (Sudan Net, 2013).

The inhabitants of Sudan are known for antiquity dating back when they were ruled by Egypt. Sudan became independent from Egypt and the United Kingdom in 1956. Sudan underwent 17 years of civil war. It was then followed by ethnic, religious and economic civil conflict between the Arab and Nubian descendants in the Northern Sudan and the Christians and animist of Southern Sudan. This culminated to the second civil war in 1983 (Sudan Net, 2013).

The country since then has attained greater economic growth through the implementation of sound macroeconomic reforms and finally the ending of the civil war through the adoption of a new Constitution in 2005. This was followed by rebel groups from the South being given limited autonomy which culminated in a referendum for independence. The agreement that brought the above is the Nawasha Comprehensive Peace Agreement. A referendum was conducted on 9th of January 2011 (Insight Conflict, 2013; Sudan Net, 2013). Then South Sudan became independent on 9th July 2012 (World Food Programme, 2013).

According to African Economic Outlook (2012), Gross Domestic Product (GDP) in Sudan decreased from 5% in 2010 to 2.8% in 2011 due to the impact of secession by South Sudan. The impact was also visible as population of Sudan was reduced by 20% and oil revenues by 75%. However, average inflation increased from 15% in 2010 to 20% in 2011 due mainly to increases in food prices and the loss in value of the Sudanese pound. The current account deficit was reduced to 7.5% of the GDP in 2010.

The government introduced a three year emergency economic programme thrusting austerity measures meant to reduce spending. This programme somehow removed subsidies on petroleum and sugar. This move was much welcomed by the International Monetary Fund. The fiscal side of the programme is aimed at instilling fiscal discipline in all government institutions. This is being achieved by controlling expenditure in the medium term and through the non-oil-deficit an essential fiscal indicator (African Economic Outlook, 2012).

Sudan is the member of the African Union (AU). It is also a member of the Common Market for Eastern and Southern Africa (COMESA) which launched its customs union. This paper investigates whether Sudan has comparative advantage in other products it produces other than oil.

Comparative Advantage

Comparative advantage is defined as a tendency for nations to export goods which they are efficiently able to produce compared to the rest of the world. That means a nation should be able to produce a product at a lower cost than other nations. If that occurs, such a nation should commit its resources to production of that particular product (Serin and Civan, 2008). There are several methods that are used to measure strong and weak sectors/industries of a particular country. The frequent used technique is the revealed comparative advantage developed by Balassa (1965) (Serin and Civan, 2008).

In a neo-classical production for the world, economy is influenced by costs. In the world, economy prices and costs mean the same thing hence trade will be influenced by comparative advantage. Consequently, it is a common knowledge that labour, land and capital specifically in the developing nations do not account for their opportunity costs due to market distortion (Goldin, 1990). According to Bender and Li (2000), the classical theory of comparative advantage forecasted that benefits from trade enhance welfare and that trade without restrictions would bring prosperity to the world economy. The authors however, acknowledge that there is no agreement amongst trade economist about the sources of comparative advantage. One example is the Ricardian theory which explains comparative advantage is determined by costs and technological differentials in countries. The Neo-Factor-Proportion theory attributes comparative advantage from differences amongst countries of factor efficiency. The Hecksher-Ohlin-Samuelson theory, comparative advantage is determined by factor differences in countries. The technological gap and product cycle theory attributes comparative advantage is determined by technological innovations such as soft technological change. According to Memedovic (1994), comparative advantage is determined by the actions of a government through class base, administrative capacity and the modus operandi of its intervention in the economy. Krugman (1989) and Barry and Hannan (2001) have added historical and political factors also as determinants of comparative advantage.

Empirical Evidence of Comparative Advantage

Mirzaei et al (2001) investigated whether Iran's chicken meat export to the Middle East region have comparative advantage. Using Revealed Comparative Advantage (RCA) indices during the period 1990-1999, concluded that Iran does not have comparative advantage. Khatibi (2008) investigated Kazakhstan's exports to the European Union and Intra-European Union exports. The study showed that even though Kazakhstan showed acceptable RCA in a number of sectors, its comparative advantage fell in almost all sectors. Kalaba and Tseudo (2008) have used RCA in assessing effectiveness of the trade protocol in the Southern African Development Community (SADC). Krugell and Matthee (2009) used the RCA to measure trade performance of South African regions. Mzumara (2011a) investigated whether Zimbabwe was competitive 2000-2009. Using data for a 5 year period on 4-digit level, 91 products of 241 had comparative advantage. The study concluded that Zimbabwe was competitive. Shinyekwa and Othieno (2011) investigated whether Uganda in the East African Community had comparative advantage. The study concluded that Uganda had comparative advantage. Mzumara (2011b) examined 4, 764 products on 6-digit level to measure Mozambique's performance. The study in a 10 year period identified 222 products in which Mozambique had an RCA equal or greater than 1. It was concluded that Mozambique had performed well.

METHODOLOGY

The technique used in this paper is the Balassa (1965) Revealed Comparative Advantage (RCA): There are many indices which can be used to measure revealed comparative advantage. Volarth (1991) developed one known as relative trade advantage (RTA) which takes into account imports and exports. Then there is Serin and Civan (2008) they provide another measure of the RCA. They call it Comparative Advantage Export Advantage (CEP) index. It

focuses on measuring export specialization of a country in respect of specific categories of goods. This paper has opted for Balassa (1965). This methodology was selected because Wu and Chen (2004) have justified the method as the most useful tool in a competitive market economy which is able to demonstrate comparative advantage as shown in export composition. In addition, they justify that the method is consistent with comparative advantage based on a specific country's economy factor endowment and evolve along with economic development. The RCA reveals true comparative advantage (Deardorff, 2010).

Balassa (1965) RCA takes the form of:

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

With:

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

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

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

$X_{W,tot}$ denoting total exports in the world.

An $RCA \geq 1$ demonstrates that a country has comparative advantage in the production of the product. An $RCA < 1$ demonstrates that a country has no comparative advantage in the production of the product.

Data on exports for Sudan and for the world was obtained from International Trade Centre (ITC)'s Trademap based in Geneva, Switzerland for 2008, 2009 and 2010. Sudan has not provided up-to-date trade data to ITC as required. The data used to compute RCA is mirror data which ITC obtained from other sources other than Sudan. An RCA was computed for every product separately for 2008, 2009 and 2010 then an average RCA for the three years was computed which was used either to reject as lack of comparative advantage or accepting that Sudan possess a comparative advantage in a particular product.

RESULTS AND DISCUSSION

The results show that Sudan has an $RCA \geq 1$ in 60 product lines. The results demonstrate that Sudan has comparative advantage in 60 products line. It also demonstrates that Sudan has comparative advantage in other products other than oil only. Table 1 below shows products with $RCA \geq 1$.

Table 1: Products with $RCA \geq 1$

Product code	Product description	RCA 2008	RCA 2009	RCA 2010	Average RCA
930610	Cartridges for rivet etc tools, humane killers etc	3.185844	4070.336	21.22929	1364.917
130120	Gum Arabic	348.7649	204.233	243.4348	265.4776
010410	Sheep, live	80.2322	290.7259	386.0372	252.3318
120740	Sesamum seeds	177.2951	124.9577	137.4088	146.5539
010420	Goats, live	3.617223	37.92994	222.1886	87.91193
410510	Tanned/crust skins of sheep/lambs, without wool on, in the wet state	77.29592	68.57966	49.78037	65.19865
020421	Sheep carcasses and half carcasses, fresh or chilled	0	0	122.8834	40.96112
121299	Vegetable products for human consumption	55.66296	39.77092	25.26885	40.23424
020430	Lamb carcasses and half carcasses, frozen	0	98.86906	0	32.95635

410621	Tanned/crust hides & skins of goats/kids/without wool/hair on, in the wet	43.32364	12.29105	38.14735	31.25401
950310	Electric trains, train set etc.	2.951097	75.37659	13.3459	30.55786
120799	Oil seeds and oleaginous fruit	13.91893	22.51435	0.510408	12.31456
270900	Petroleum oils, oils from bituminous minerals, crude	9.782954	10.67944	12.22897	10.89712
710813	Gold, semi-manufactured forms, non-monetary	0	29.99236	0	9.997454
170310	Cane molasses	13.41597	3.553057	11.83281	9.600612
100700	Grain sorghum	24.46801	0	3.264223	9.244078
130190	Natural gum, resin, gum resin, balsam, not gum Arabic	2.91362	3.222825	20.4345	8.856982
121190	Plants & parts, pharmacy, perfume, insecticide use	3.570245	2.370233	15.20348	7.047985
520100	Cotton, not carded or combed	8.936779	6.663224	4.796583	6.798862
850690	Parts of primary cells and primary batteries	17.48173	2.451331	0	6.644354
261000	Carp live	4.587556	3.270766	10.9646	6.274309
854810	Waste & scrap of prime cell	0	0.0163476	14.14031	4.767929
410229	Sheep or lamb skins, raw, except pickled, no wool.	1.715847	11.09164	0.715471	4.567652
710812	Gold in wrought forms non-monetary	0	11.63722	1.42077	4.352662
050800	Coral, seashell, cuttle bone etc, unworked, powder waste	4.620781	2.29899	5.848608	4.189296
780200	Lead waste or scrap	4.480923	5.183406	2.316308	3.993545
440349	Logs, tropical woods	0	0	10.65446	3.551487
271311	Petroleum coke, not calcined	0	0	10.47092	3.490307
010619	Live mammals	0	0	9.671478	3.223826
720430	Waste or scrap, of tinned iron or steel	7.764182	0.573137	0.689301	3.008873
121410	Lucerne (alfalfa) meal and pellets	3.959729	4.57767	0	2.8458
410120	Whole bovine (including buffalo)/equine hides & skins weight per skin not exceeding>8kg	3.424136	1.555372	2.149505	2.376338
711810	Coin (other than gold coin) not being legal tender	6.870274	0	0	2.290091
740321	Copper-zinc base alloys, unwrought	0	0	6.63718	2.207906
410390	Raw hides/skins except bovine/equine/sheep/goat	0.475491	1.108672	4.92998	2.171381
271091	Heavy furnace oil (heating or motor fuel) < 1% sulphur	6.086847	0	0	2.0289

410221	Sheep or lamb skins, pickled, without wool	0	0	6.00571	2.001903
410210	Sheep or lamb skins, raw, wool on except Persian	1.186898	4.510951	0.03169	1.933673
284450	Spent fuel elements of nuclear reactors	5.625838	0	0	1.875279
842630	Portal or pedestal jib cranes	5.127741	0	0.378311	1.835351
220710	Undenatured ethyl alcohol >80% by volume	0	0	5.414471	1.804824
410411	Tanned/crust hides & skins of bovine (including buffalo)	3.809358	0.727349	0.564286	1.700331
230230	Wheat bran, sharps, other residues	2.385099	0	2.713473	1.699524
240310	Cigarette or pipe tobacco and tobacco substitutes	0	0	4.905754	1.635251
291250	Cyclic polymers of aldehydes	4.881612	0	0	1.627204
410691	Tanned/crust hides & skins without wool/ hair on in the wet state	0	0	4.414803	1.471601
252510	Mica in crude form, sheet and splittings	2.803136	1.396869	0	1.40002
151550	Sesame oil or fractions not chemically modified	0.575862	1.367775	2.05638	1.33339
090950	Fennel seeds, juniper berries	3.488078	0.322533	0	1.270204
010210	Bovine animals, live pure-bred breeding	0.349687	3.432207	0	1.260631
720449	Ferrous waste or scrap	1.076348	0.369363	2.23985	1.22852
4115510	Composition leather with a basis of leather/leather fibre, slabs/sheet	0	0	3.647624	1.215875
170111	Raw sugar, cane	0.23261	2.268113	1.048868	1.183197
230610	Cotton seed oil-cake and other solid residues	3.347274	0	0	1.115758
740400	Copper/copper alloy waste or scrap	1.473201	0.765054	1.089847	1.109368
120210	Ground-nuts in shell not roasted or cooked	2.75589	0.262217	0.39117	1.057072
720410	Waste or scrap, of cast iron	2.517828	0.262217	0.39117	1.057072
410190	Bovine (including buffalo)/equine hides & skins	0	2.288505	0.831092	1.039865
271011	Aviation spirit	1.51761	1.576603	0	1.031404

Source: Computed using export data obtained from Trademap (2013).

Cartridges have the highest index of 1364.9. It is followed by Arabic gum with an index of 265 and then live sheep with an index of 252. Petroleum oil which is largest foreign currency earner in Sudan ranks number thirteen with an index of 10.9. This clearly shows that Sudan produces efficiently other products other than petroleum oil. However, most of its earnings are from oil exports signifying that the other products are of low value while petroleum oil is of a higher value. Further, Sudan is disadvantaged by exports of petroleum oil in crude form rather than in refined form. Since the petroleum is exported in crude form, the implication is that Sudan is losing a lot of earnings which are

transferred to the countries which refine the product and there as well job losses as a result of failure by Sudan to add value.

The results are consistent with Mzumara (2011a; 2011b) and Shinyekwa and Othieno (2011). The results are however not consistent with Mirzaei et al (2001) and Khatibi (2008). The results are also evidence of the Ricardian Theory that a country no matter how small it is it will always have products in which it has comparative advantage in.

CONCLUSIONS AND RECOMMENDATIONS

The evidence as shown by the results discussed above makes a strong case to concluded that Sudan has a comparative advantage in other products other than oil although the base of such products is very small. Technically, Sudan has very small number of products in which it has comparative advantage in. There is over-reliance on petroleum. However, petroleum is exported in crude form without value addition and it prevents Sudan from maximizing earnings from the product. It is recommended that Sudan should diversify so it can have a larger number of products in which it may have comparative advantage in. It is further recommended that Sudan should explore the possibility of establishing its own refineries so it does not export crude petroleum instead it should export the finished products. A further study is recommended in future when statistics will be available to properly do the study which does not include production from South Sudan. This study has used production which included production from South Sudan and such a study can be done in the years to come.

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