COMPETITIVE ADVANTAGE OF YEMEN DURING INTERNATIONAL TRADE IN THE EU MARKET

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ABSTRACT

This paper explores and assesses the competitive advantage experienced during Yemeni international trade in the European Union (EU) market. Yemen has been placed under a special situation since the "Arab Spring" in 2011; therefore, our analyses study the eleven years prior to the war, between 2000 and 2011, and employ 2-digit SITCsto identify the various products for the selected study period. Balassa´s index has been utilized to measure competitive advantage (CTA). This approach is universally popular and is widely reported in literature; however, we are cognizant to the fact that this index may not be empirically relevant. Despite this drawback, Balassa's index has a feature for gross sectoral competiveness of the examined country or a group of countries. According to our empirical analyses using Balassa's index, we identified Yemen to have competitive advantages at the global level during international tradein the selected study period. The competitive advantage was restricted to a few groups of commodities, especially those in the energy and fishing sectors.

KEYWORDS: Competitive Advantage, International Trade, EU

JEL: F10, F11, F14

1. INTRODUCTION

Currently, Yemen is overshadowed by a civil war. Conflict began in 2014, which has now flared into a civil war. These hostilities have brought about deterioration of the economic situation and have proved to be a humanitarian catastrophe. Therefore, our paper analyzes the Yemeni international trade environment prior to the war (2000–2011) with special emphasis on its competitive advantage in the EU market

Competitive advantage is described as the tendency for countries to export those commodities that they are relatively adept at producing, *to*the rest of the world. Therefore, according to Addison-Smyth (2005), if a country is capable of producing a commodity at a relatively reduced cost in comparison to other countries, then that commodity is concentrated on for international trade, and that country tends to devote more of its scare resources to attain maximum production of that particular product. Through trade, that country can import other goods at a lower price (opportunity cost) in exchange for the commodity for which it has a comparative advantage.

This study strives to do a comparativeexamination betweenthe competitive advantage of international trade by the EU and the USA in relation to their being trade partners. This paper comes at an important time with exhaustive preparation being done for the TTIP agreement between the EU and the USA.

This paper is distributed across 5sections. The paper begins with an introduction, which is followed by a literature review on more or less similar topicsasthe subject concerned. Methodology, and data used in the analysis are dealt with in the next section, which is followed by the empirical findings. In the final section, we try to draw conclusions for our work.

2. LITERATURE REVIEW

The comparative advantage or competitiveness of a country can be determined by employing various techniques. The most popular technique continues to be Balsa's index of "revealed comparative advantage" (Balsa, B., 1965). This technique has been in vogue for the past five decades and most scientific economic studies have used it. A few studies have used this method to measure a country´s Revealed Comparative Advantage and Competitiveness vies á vis, other trade partners or trade blocks (Utkulu U. and Seymen D (2004), Obadi, S.M. (2004), (2005) and (2012) and Startienėa, G. and Remeikienė, R. (2014)). Similary, a few other studies have used this index to quantify a country´s revealed comparative advantage as a whole and its internal regions (Yue, C. and Hua, P. (2002) and Clark, D. P. et al. (2005)).

Balassa B. and Noland M. (1989) used a modified method of Balassa's index in their paper "Revealed comparative advantage in Japan and the USA."In this study they surveyed the changing comparative advantage scenein Japan and USA. They measured RCA for 57 primary and 167 manufactured product categories and classified all their products into 20 commodity groups. They noted a drastic change in Japanese pattern of specialization during 1967-1983, when the Japanese shifted from unskilled labor intensive goods to human capital intensive products. During this same period, its comparative advantage increased in natural resources intensive products. However, the USA continued to retain its specialization in physical and human capital intensive goods, with increase in its comparative advantage for natural resources intensive products. Both countries were observed to have higher comparative advantage for high technology products.

Bhattacharyya, R., (2011) too used the RCA index in his study. He used the index to study the comparative advantage of India in vegetable, fruits and flower trade in the Asian, EU and North American (USA & Canada) markets as compared to selected other South East Asian countries. Serin, V. &Civan A., (2008) conducted a similar study in Turkey for tomato, olive oil, and fruit juice industries. They analyzed the influence in the EU market for 1995–2005. Fertő, I. and Hubbard, L.J. (2002) investigated the competitiveness of Hungarian agriculture in relation to that of the EU. Their study used four indices to measure comparative advantage for the period 1992 to 1998. Muendler, M. A., (2007) examined Brazilian agriculture, specifically mining and manufacturing sectors, between 1986 and 200.He applied a correlation between the comparative advantage series and trade-related variables.

Most studies used RCA index as a measure of international specialization. Only a few have used it as a measure of competitiveness or competitive advantage. This study uses this index as a measure of competitive advantage (CTA). Nevertheless, competitiveness has a wider platform than international specialization. Usually, competitiveness is reviewed in the context of firm or competitive advantage of nations. Such an approach was pioneered by Porter, M. E. (1990) and others, withObadi and Korcek (2016) adopting the same and following it.

Balassa index is widely popular for identification of international trade specialization or sectoralcompetitiveness; however, its appropriateness is under debate. Literature abounds with several other alternative indices and methods.

Most critics of Balassa's index, includingLeromain, E. and Orefice, G. (2013), have tried to construct a "New Revealed Comparative Advantage Index". They noted that "Balassa'sIndex (1965) was more popular in literature to

measure country-sector Revealed Comparative Advantage.However, because it is measured on observed trade flows, it tends to mix up all the factors influencing trade flows. One of the major drawbacks is that Balassa's Index fails to isolate exporter-sector (ex-ante) specific factors, which are the source of comparative advantage in the spirit of the traditional trade model. Furthermore, Balassa's Index is noted to have some empirical distribution weaknesses, mainly time instability and poor ordinal ranking property (Yeats 1985; Hinloopen and Van Marrewijk 2001).

3. METHODOLOGY AND DATA

Comparative advantage is considered to be a country's proficiency to produce certain goods. However, this variable evolves through time by the influence of a variety of endogenous and exogenous factors, such as changes in factor endowments, including technology and human capital.

Several methods have been employed to determine whether or not a country has comparative advantage. 'Balassa index' (1965) is one such popular method. This index takes into account the goods produced or exported, or the numbers employed in each industry, relative to other countries[1]. Although this is a widely accepted approach to analyzing trade data and comparative advantage, the definition and empirical adaptation of RCA are subject to controversies and thus some alternative measures now exist. Since we are interested in the revealed comparative advantage of Yemen with respect to the EU and USA, we measure RCA of Yemen on the global level as the comparator.

It is important to determine Yemen's comparative advantage because the international market is highly competitive. Comparative advantage is the term used to describe the tendency for countries to export those commodities that they are relatively adept at producing, *Vis-a`-Vis*the rest of the world. In other words, if a country can produce a good at a lower relative cost than other countries, then with international trade, that country should devote more of its scare resources to the production of the good(Addison-Smyth 2005). Through trade, that country can obtain other goods at a lower price (opportunity cost) in exchange for the good in which it has a comparative advantage.

In simple terms, a country having a comparative advantage for the production of a particular good should be found to export a higher proportion of that good relative to other countries. Therefore, this study seeks to determine Yemen's comparative advantage by using international trade data to compare exports in particular industries with the rest of the world and particularly with the EU.

The formula to measure a country's revealed comparative advantage (RCA) is as follows:

$$RCA_i = (X_{i,c}/\sum X_{ic}) / (X_{i,w}/\sum X_w) \quad (1)$$

where

RCA_i = revealed comparative advantage for good i.

$X_{i,c}$ = exports of good i by country c

$\sum X_{i,c}$ = total exports by country c

$X_{i,w}$ = world exports of good i

$\sum X_w$ = total world exports

If RCAi> 1, then country has a comparative advantage in good i.

If RCAi< 1, then country has a comparative disadvantage in good i.

The aforementioned formula when applied to Yemen, EU, and world trade data, one can identify the sectors and industries in which Yemen has a comparative advantage and has a potential to increase its export to the markets of EU.

4. EMPIRICAL FINDINGS

The empirical analysis in the study is based on the measurement of RCA. This study is mainly concerned with the competitiveness of Yemen in the markets of EU; therefore, an index of RCA is calculated with respect to the EU as the comparator, both globally and bilaterally.Global competitiveness of Yemen and the EU is measured by assuming that both Yemen and the EU are exporting to and importing from other world markets[2]. Atn the bilateral level, however, onlythe trade between Yemen and the EU is considered for measurement.

To calculate RCAfor global competitiveness of Yemen, we used the annual two-digit SITCRev.3 data (61 product groups) including allexports in Yemen at a global scale between 2000 and 2011. The data was collected from the United Nations COMTRADE Database. In addition, annual two-digit SITCRev.3 data (66 product groups) covering Extra-EU-27 exports at the world level for the same period of 2000-2011 were collected from the same database.

Table 1: RCA of Yemen with Respect to the EU at the Bilateral Between the Years 2000 and 2011

SITC Code	Description	2000	2002	2004	2006	2008	2010	2011
03	Fish, crustacean and molluscs, and preparations thereof	52.1	134.0	196.5	132.7	177.1	47.5	14.7
12	Tobacco and tobacco-relatedgood	0.0	1.6	0.0	0.0	0.0	0.0	0.0
21	Hides, skins and furskins(raw)	38.7	136.1	68.2	22.8	37.7	10.8	4.1
26	Textile fibres (not wool tops) and their wastes (not in yarn)	4.3	18.8	8.7	8.3	2.1	0.0	4.2
27	Crude fertilizer and crude minerals	0.0	1.4	0.0	0.0	0.0	0.0	0.0
28	Metalliferous ores and metal scrap	14.0	1.8	6.8	6.3	8.7	3.5	1.8
29	Crude animal and vegetable materials,	0.0	2.2	0.0	0.0	0.0	0.0	0.0
33	Petroleum, petroleum products and related materials	17.5	7.6	6.7	12.1	6.0	0.0	0.0
34	Gas, natural and manufactured	31.3	0.0	0.0	0.0	0.0	742.5	0.0
SITC Code	Description	2000	2002	2004	2006	2008	2010	2011
61	Leather, leather products, and dressed fur skins	2.6	2.7	3.1	0.0	2.3	2.1	1.9
68	Non-ferrous metals	0.0	2.5	0.0	0.0	1.7	0.0	1.1
71	Power-generating machinery and equipment	1.2	1.0	1.3	0.0	0.0	0.0	0.0
76	Telecommunications, sound recording and reproducing equipment	0.0	0.0	1.5	0.0	0.0	0.0	0.0
87	Professional, scientific, controlling instruments, and apparatus	0.0	1.7	0.0	0.0	0.0	0.0	0.0
96	Coin (nongoldand noncurrent)	381.5	552.0	0.0	0.0	0.0	345.6	0.0

Source: Author's calculation base on UN COMTRADE Database, 2012

In accordance to the data presented in the aforementioned table Yemen has a comparative advantage with respect to EU in fifteen commodities for the study period. For five commodities (12 SITC, 27 SITC, 29 SITC, 76 SITC and 87 SITC), Yemen has a comparative advantage only in one year. The highest level of RCA coefficient Yemen has at the

bilateral level is petroleum and petroleum products (33 SITC), followed by Hides, skins and fur skins (raw) (21 SITC), Gas, natural and manufactured (34 SITC), Fish, crustacean and molluscs, and preparations thereof (03 SITC) and Coin (nongoldand noncurrent) (96 SITC).

This result is not surprising, as the commodities 33 SITC and 34 SITC account for more than 98% of total Yemeni exports.

5. CONCLUSIONS

One of the main outcomes of the last international economic crisis was its adverse impression on all economies globally. Some the impacts were noticeddirectly, while others were found to have an indirect impact. The economy in Yemen also slumbered as a result of indirect influence, especially through trade flows. The main impact was on Yemeni export. The export crunch was severe during the height of the crisis (2008-2009).The effect was enormous, especially in relation to the small economy of Yemen. However, with the revival of the Yemeni natural gas (LNG) export, the exporting trends have recovered between 2010 and 2011.

Although the global trading systemic prospective, it is bound by various impediments. The system fails to acknowledge poor states, usually ignoring the specific needs of such states, thereby making them liable to further poverty. Yemen is one such state. Some of the important shortcomings of Yemen are poor industrial infrastructure and remoteness, which is the main cause for time consumption of development projects. Apart from these issues, Yemeni export is also hindered by non-tariff barriers that are brought into effect by several countries under the guise of quality standards and quarantine procedures. Because of inadequate capacity and amenities for testing and accreditation, the export industry in Yemen has never been brought to the forefront. This scenario has resulted in the import of sub-standard products, which have flooded the Yemen market.

Yemen must engage in a dual strategy to find a solution to its economic downslide.Whilereaping benefits of globalization and free trade, Yemen must also frame policies to counter the disruptive and potentially negative effects. A proactive approach must be formulated, with active participation of the Government as well as the private sector. In addition, the approach must include both national and international forums. Yemen cannot compete with the prices and quality at the world market, as it is a less developed country. Neither does Yemen have the facilities, resources or finances to manufacture a complete range of products at competitive scales. The policy changes implemented by Yemen have improved the profits for the consumer by improving choice and reducing costs. Yemen shows a promising economy for revival in the production of goods from the natural resources, which would gradually help in reducing imports. A large-scale targeted effort at import substitution would prove to be profitable in the long run. The profits would be equally distributed between the producer and the consumer, particularly with growth of the Yemen market as well as its population.

Yemeni market need not be concerned with accession restriction, as it is a United Nations designated LDC. Therefore, developed markets provide preferential access for various goods duringexports. This provision is, however, subject to the rule of origin being met. Among the various policies, the EU initiative (Everything but Arms) under the GSP has proved to be most profitable for Yemen. This initiative provides duty-free access to all goods of Yemen origin, except arms and munition, in the EU market. Despite these backings, Yemeni suppliers continue to have hitches to meet the western sanitary standards on food exports, especially fish, fruits and vegetables, to the EU, United States and Japan.

However, this issue mainly concerns the supply side and is being overcomewith improvements in inspection facilities in Yemen.

How has Yemen exploited the preferential access available to them, particularly to the EU markets? Furthermore, what more can be done to exploit these preferences and increase export in Yemen? Sections 3.2 and 4.1 provide answers to the first question. The second question is answered as follows:

The competitiveness of the Yemeni products and their exports can be improved by focusing on several aspects, starting with the political reforms, resolving political questions and democratization of the society, stabilizing the security situation in the country, followed by decline in administrative bureaucracy and corruption in all spheres of the economy.Subsequent to these reforms, an effective economic and trade policy must be formulated. The policy must stress on export promotion, generating a competitive and fair business practice. These changes must be hand in glove with erecting effective institutions for inspections. Inspection must be mandatory not just for export products, but also for imported products. Inauguration of the Free zone in Aden and its effective operation might improve the economic trend in Yemen. Building of Free zones in several more prominent business areas would help improve the Yemeni exports and also result in an economic boom. Therefore, this study suggests the possibilities for export to the EU, specifically highlighting the commodities that are exported.

EXPORT TO THE EU

Apart from the commodities already recognized for its comparative advantage in Yemen as exports to the EU (Tables 5 and 6), the following commodities also show prospective potential to improve the export trade:

Vegetables and fruits (SITC-05),

Coffee, tea, cocoa, spices and related merchandises (SITC-07),

Crude fertilizers and crude minerals (SITC-27),

Rubber products (SITC-62) and

Special transaction commodities, especially those not classified according to class (SITC-93).

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APPENDIX

**Table 2: RCA of Yemen with Respect to the EU on the Bilateral
Level in Select Years,by Product Group and % Changes in Index**

	2000	2002	2004	2006	2008	2010	2011
01	0.000	0.000	0.000	0.549	0.000	0.000	0.000
03	52.094	133.965	196.544	132.744	177.074	47.472	14.707
04	0.000	0.023	0.000	0.447	0.000	0.000	0.000
05	0.009	4.975	0.197	0.041	0.144	0.045	0.001
06	0.000	0.005	0.000	0.000	0.007	0.000	0.000
07	0.307	0.503	0.470	0.177	0.967	0.457	0.226
09	0.000	0.000	0.000	0.046	0.000	0.000	0.013
11	0.000	0.003	0.032	0.011	0.018	0.014	0.012
12	0.173	1.570	0.000	0.033	0.000	0.000	0.000
21	38.674	136.148	68.152	22.805	37.651	10.764	4.059
22	0.189	0.000	0.000	0.000	0.000	0.000	0.000
26	4.274	18.798	8.670	8.272	2.091	0.274	4.201
27	0.011	1.389	0.577	0.168	0.465	0.050	0.538
28	13.995	1.785	6.770	6.267	8.701	3.454	1.811
29	0.879	2.217	0.859	0.303	0.999	0.464	0.377
33	17.539	7.601	6.730	12.078	5.977	0.981	2.291
34	31.307	0.000	0.000	0.000	0.000	742.492	709.002
42	0.000	0.393	0.000	0.000	0.000	0.003	0.003
53	0.011	0.093	0.000	0.000	0.000	0.002	0.000
54	0.028	0.003	0.000	0.001	0.001	0.002	0.000
55	0.121	0.002	0.006	0.000	0.055	0.008	0.000
56	0.152	0.000	0.000	0.000	0.000	0.108	0.000
58	0.079	0.000	0.029	0.001	0.003	0.000	0.000
59	0.074	0.013	0.026	0.000	0.000	0.106	0.024
61	2.551	2.697	3.138	0.347	2.309	2.062	1.890
62	0.301	0.091	0.130	0.250	0.593	0.056	0.018
63	0.013	0.010	0.008	0.000	0.003	0.000	0.000
64	0.011	0.008	0.008	0.003	0.000	0.000	0.000
65	0.132	0.039	0.004	0.011	0.000	0.001	0.001
66	0.007	0.004	0.041	0.006	0.076	0.034	0.011
67	0.001	0.107	0.034	0.000	0.037	0.000	0.000
68	0.000	2.477	0.000	0.259	1.749	0.549	1.055
69	0.254	0.095	0.169	0.067	0.056	0.032	0.015
71	1.211	1.029	1.265	0.651	0.110	0.157	0.009
72	0.287	0.089	0.039	0.005	0.280	0.248	0.011
73	0.009	0.506	0.005	0.000	0.266	0.000	0.001
74	0.140	0.163	0.213	0.040	0.157	0.033	0.009
75	0.020	0.176	0.058	0.078	0.067	0.059	0.000
76	0.181	0.346	1.479	0.261	0.662	0.185	0.011
77	0.087	0.216	0.302	0.017	0.161	0.032	0.013
78	0.060	0.052	0.007	0.048	0.209	0.030	0.001
79	0.366	0.268	0.313	0.097	0.215	0.016	0.023
81	0.027	0.045	0.016	0.001	0.000	0.000	0.000
82	0.022	0.056	0.015	0.011	0.039	0.007	0.013
83	0.025	0.023	0.000	0.000	0.005	0.001	0.000
84	0.008	0.009	0.238	0.078	0.009	0.011	0.002
85	0.000	0.000	0.028	0.000	0.000	0.021	0.000
87	0.848	1.659	0.509	0.105	0.246	0.031	0.020
88	0.008	0.018	0.039	0.003	0.009	0.043	0.008
89	0.040	0.102	0.034	0.009	0.128	0.017	0.004
93	0.675	0.234	0.467	0.279	0.617	0.184	0.042
96	381.513	551.962	0.000	0.000	0.164	345.608	0.000

Source: Author's calculation base on UN COMTRADE Database, 2005