

Trade Complementarity and Similarity between Nigeria and India in the context of Bilateral Trade Relations.

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Abstract: *This study established trade complementarity and similarities between Nigeria and India based on twenty major product categories for the periods 2000-2014 using the Revealed Comparative advantage index. The potentialities of increasing Nigeria and India trade were found in commodities such as mineral fuels, organic chemicals, nuclear reactors, fish crustacean and other aquatic, copper, residues and waste from food industries, coffee tea mati and spices, rubber and articles, foot wears, man-made staple fibres, edible fruit and nuts, ores slag and ash, cereals. The study has also found the possibility of increasing Nigeria and India's trade with other countries with high RCA index in products such as cotton, plastic and articles thereof, electrical machinery and equipment, aluminium and articles thereof, vehicles railway tram roll-stock and parts of such because there is no scope of increasing trade of these products because of low RCA index possessed by Nigeria and India in these products.*

Keywords: *Bilateral trade, Export, Import, Trade, Revealed Comparative Advantage index.*

I. Introduction

Trade between Nigeria and India nowadays is strategically becoming important and of global considerations because of the increasing need of Nigeria's crude oil by India and India's pharmaceutical products by Nigeria. This has significantly boomed bilateral trade relations between Nigeria and India and again expected to further and enhance trade relations between the two countries. Nigeria is now the largest trading partner of India in the whole African continent, because it is the largest market for India's exports and India also is Nigeria's second largest trading partner in the whole world (Kabiru & Dilfraz, 2014[1]). The Nigeria's exports is mostly covered by crude oil which constitutes 95% of the total exports of the country, out of which India patronized 11% of these crude oil exports (Rupa, Saikat, & Aayush, 2010[2]). In addition there are so many agreements that are still been put in place in order to increase supply of crude oil to India from Nigeria in order to help India meet its energy security (requirements). In 2000 there was an agreement between India and Nigeria as per the content of the agreement, Nigeria will be supplying crude oil to India at the rate of 1 20,000 barrels per day and hydro-carbon of 6 MT (Harshe, 2002[3]). In addition to this Nigeria exports cotton, wood, cashew nuts, gum Arabic, pearls, rubber to India while India's exports to Nigeria is made up of Pharmaceuticals and drugs, wood products, transport equipment, textiles materials, chemicals, plastic and machineries.

Trade between Nigeria and India have since 1999 been increasing with trade balance in recent years been in favour of Nigeria (Sulaiman, 2009[4]). Presently now the nature of Nigeria and India trade relation is dominated by commodity trade. India as a country with the growing service sector will now look for other areas to trade with Nigeria in order to boost their trade relation, and help India narrow the current trade imbalance/deficit with Nigeria. (Rupa, Saikat, & Aayush, 2010[2]), have identified the service sectors in Nigeria that requires immediate Foreign Direct Investment (FDI) attention, these are Oilfield services, Health care, Information technology, and Agro based. These sectors of the Nigerian economy if properly look into with huge amount of investment by India as one of the world leading service provider will help India in narrowing it trade deficit or imbalance with Nigeria.

The rationale behind this study is to establish trade complementarity and similarities between Nigeria and India in order to explore, establish and investigate the commodities of their trade having comparative advantage and those having comparative disadvantage. The study of Nigeria and India trade complementarity and similarities is very much important because of the just recent booming commodity trade between the two countries. Over the last one and half decade the trends in Nigeria and India trade for both import and export has risen which again necessitate the rise in their total trade, and with increased in the number of group of commodities that are being traded between the two nations, the intensity of their trade has become very much significant, as their import, export and total trade intensities are found to be high in these days (Kabiru & Dilfraz, 2014[1]). As a result of the recent rise in India and Nigeria trade with accompanying increase in the number of commodities or sectors traded and the high trade intensity the study centred on exploring complementarity and similarities of trade among them.

II. Methodology

The technique, method and tool of analysis under this study is the Revealed Comparative Advantage (RCA) index, which is of paramount important in establishing trade complementarity and similarities between Nigeria and India. The Revealed Comparative Advantage (RCA) index is given by the following formula:-

$$RCA = \frac{x_{ij}/X_{it}}{x_{wj}/X_{wt}} \tag{1}$$

Where:-

RCA is the Revealed Comparative Advantage index, x_{ij} are country i’s export of product j, X_{it} country i’s total export, X_{wj} world export of product j, X_{wt} world total export.

Therefore when the value of RCA index is less than one it implies that the country has a revealed comparative disadvantage in the production and exportation of the product whereas if the value of the index is greater than one it means that the country involved has a comparative advantage in the production and exportation of the product.

This study analysed revealed comparative advantage index of India and Nigeria using data collected from UNCOMTRADE and assessed via World Integrated Trade Solution (WITS). The time period covered under this study is 2000-2014, the Revealed Comparative Advantage index and mean Revealed Comparative Advantage index for the selected products category were computed for the whole period. Twenty major product categories of Nigeria and India were chosen and selected for the analysis based on their high export value between the periods 2000-2014. These products categories include mineral fuels, organic chemicals, cotton, nuclear reactors, plastic and articles thereof, ships boats and floating structures, fish and crustacean and other aquatic invertebrate, copper and articles thereof, residues and waste from food industries, electrical machinery and equipment parts thereof and sound recorder, coffee tea and spices, rubber and articles thereof, footwear and parts of such articles, man-made staple fibres, Lac; gums resins and other vegetable, aluminium and articles thereof, edible fruit and nuts peel of citrus or melons, ores slag and ash, vehicles railway tram roll-stock parts and accessories, cereals.

III. The analysis of Nigeria and India comparative advantage of 20 major products

The TABLES below shows the revealed comparative advantage RCA indices of twenty major product categories of Nigeria and India for the period 2000-2014, together with mean revealed comparative advantage MRCA which is a measure of product competitiveness for the whole periods 2000-2014. Table 1; shows product competitiveness of Nigeria’s export relative to the world exports of these products and Table 2; shows product competitiveness of India’s export relative to the world exports of these products and Table 3; shows product competitiveness of Nigeria and India’s export relative to the world exports of these products for the whole periods 2000-2014.

Table 1: Nigeria Revealed Comparative Advantage of 20 major products from 2000-2014.

Product Categories	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Mineral fuels	10.634	11.218	10.935	10.682	9.919	8.081	7.203	7.438	5.648	6.875	6.012	5.529	5.113	5.430	7.690
Organic chemicals	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.047	0.062	0.040	0.011	0.008	0.011	0.012
Cotton	0.002	0.000	0.003	0.018	0.018	0.018	0.005	0.006	0.015	0.038	0.039	0.008	0.006	0.015	0.016
Nuclear reactors	0.016	0.011	0.009	0.011	0.012	0.014	0.038	0.336	0.388	0.749	1.772	0.323	0.890	0.795	0.731
Plastics and articles thereof	0.002	0.000	0.001	0.006	0.006	0.006	0.008	0.060	0.223	0.093	0.145	0.039	0.021	0.078	0.077
Ships, boats and floating structures.	0.087	0.092	3.595	1.812	1.863	1.922	0.911	0.372	2.252	0.341	0.506	0.816	1.330	0.736	1.011
Fish & crustacean, mollusc & other aquatic	0.012	0.017	0.002	0.000	0.000	0.000	0.001	0.217	0.199	1.192	0.694	0.157	0.444	0.588	0.431
Copper and articles thereof	0.000	0.000	0.004	0.002	0.002	0.001	0.000	0.074	0.137	0.033	0.025	0.032	0.086	0.149	0.127
Residues & waste from food indust;	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.114	0.082	0.133	0.066	0.051	1.158	0.102	0.084
Electrical machinery and equip.	0.000	0.000	0.005	0.002	0.001	0.002	0.002	0.000	0.004	0.004	0.002	0.003	0.001	0.007	0.007
Coffee, tea, mati and spices	0.003	0.006	0.001	0.006	0.007	0.006	0.000	0.140	0.076	0.126	0.230	0.121	0.240	0.470	0.429
Rubber and articles thereof	0.001	0.014	0.132	0.068	0.067	0.067	0.029	0.350	0.525	0.332	0.553	4.453	5.516	2.290	2.185
Footwear and parts of such articles	0.007	0.001	0.003	0.019	0.020	0.021	0.078	0.188	0.119	0.263	0.627	0.156	0.175	0.305	0.372
Man-made staple fibres	0.068	0.426	0.007	0.042	0.047	0.052	0.043	0.244	0.966	0.482	0.524	0.112	0.049	0.183	0.202
Lac; gums, resins & other vegetable saps & extracts.	0.001	0.002	0.002	0.002	0.002	0.002	9.221	3.987	2.374	8.148	7.167	1.223	0.788	1.305	1.027
Aluminium and articles thereof	0.008	0.002	0.005	0.004	0.004	0.004	0.002	0.187	0.139	0.134	0.378	0.146	0.181	0.299	0.241
Edible fruit and nuts; peel of citrus fruit or melons	0.003	0.000	0.001	0.000	0.000	0.000	0.038	0.461	0.209	0.329	0.544	0.345	0.917	0.627	0.411
Ores, slag and ash	0.000	0.019	0.020	0.015	0.012	0.009	0.003	0.048	0.019	0.015	0.008	0.050	0.013	0.057	0.032
Vehicles, railway/tram, roll-stock and pts	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.002	0.008	0.014	0.001	0.007	0.001	0.002	0.002
Cereals	0.001	0.002	0.002	0.004	0.004	0.004	0.002	0.006	0.001	0.000	0.001	0.004	0.000	0.325	0.199

Source: Computed from UNCOMTRADE Statistics dated 23/04/2014.

The TABLE above shows the revealed comparative advantage indices of Nigeria’s exports of twenty major product categories. Nigeria has comparative advantage in the production of mineral fuels this is because the value of the indices are greater than one for the whole periods 2000-2014. The high value of the indices recorded throughout the years is as result of the fact that Nigeria is an oil producing country and this signifies that it has a more comparative advantage in mineral fuels as the indices are far greater than one. From 2000-2014 the RCA index of mineral fuels of each year stood between 5.113 and 11.218 which is a very high index and indicate high comparative advantage in the production and exportation of the product. From 2000-2014 it has been observed that the indices of product competitiveness with which the Nigeria has in the production of mineral fuels undergoes a continuous declined which is as a result of; unstop-able crises in the oil exploration regions which has for long years been causing drawback in the exploration of oil in the country, the inherent political social and religious crises and the continuous move toward alternative use of such product by trading partners. As in the case of ships boats and floating structures, lac; gums resins and other vegetables Nigeria has comparative advantage in some years and comparative disadvantage in others, which implies that the country was in a better position to export these products to other countries with low RCA or comparative disadvantage in these products. Throughout the whole periods 2000-2014 Nigeria has comparative disadvantage in products such as organic chemicals, cotton, nuclear reactors (except in 2010), plastic and articles thereof, fish and crustacean and other aquatic, copper and articles thereof, residues and waste from food industries, electrical machinery and equipment, coffee tea mati and spices, footwear and parts of such articles, man-made staple fibres, aluminium and articles thereof, edible fruit and nuts peel of citrus fruit or melons, ores slag and ash, vehicles railway tram roll-stock and parts of such, cereal because the RCA indices for the whole periods 2000-2014 are zero or less than one. The main reason for such comparative disadvantage in these products is as result of; Nigeria is not technologically advanced economy in case of products of such nature like electrical machinery and equipment and vehicles railway tram roll-stock and parts of such, whereas in others, is as a result of poor internal and foreign trade policies that will enhance production of these products in way that will improve the competitiveness of the country’s products in the world markets.

Table 2: India Revealed Comparative Advantage of 20 major products from 2000-2014.

Product Categories	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Mineral fuels	0.364	0.551	0.540	0.666	0.818	0.864	1.089	1.286	1.113	1.034	1.181	1.164	1.143	1.281	1.723
Organic chemicals	1.376	1.269	1.357	1.409	1.441	1.511	1.732	1.636	1.736	1.442	1.465	1.398	1.638	1.538	1.659
Cotton	0.340	0.305	0.279	0.241	0.217	0.178	0.204	0.207	0.181	0.132	0.238	0.204	0.237	0.274	0.236
Nuclear reactors	6.159	7.336	7.035	7.269	8.027	9.819	10.698	12.151	14.057	12.475	10.230	9.553	10.773	10.792	10.898
Plastics and articles thereof	0.459	0.567	0.626	0.588	0.755	0.656	0.665	0.546	0.493	0.398	0.492	0.557	0.529	0.562	0.510
Ships, boats and floating structures.	0.145	0.135	0.130	0.236	0.563	0.835	0.787	0.992	1.432	1.685	1.552	2.090	1.563	1.304	2.404
Fish & crustacean, mollusc & other aquatic	5.251	4.309	4.129	3.465	2.636	2.664	2.380	2.190	1.620	1.411	1.820	2.018	2.175	2.525	2.275
Copper and articles thereof	0.561	0.731	1.132	1.565	1.595	1.715	2.005	1.789	1.337	0.956	2.271	0.923	0.993	1.017	1.035
Residues & waste from food indust;	3.642	2.931	2.333	2.263	3.781	2.774	3.798	3.670	4.428	2.230	2.419	2.426	2.151	2.429	1.164
Electrical machinery and equip.	0.173	0.213	0.202	0.222	0.191	0.199	0.235	0.261	0.300	0.444	0.323	0.348	0.331	0.291	0.264
Coffee, tea, mati and spices	8.278	9.596	7.535	6.366	6.089	4.874	5.009	4.897	4.765	3.475	3.713	3.541	3.568	3.375	3.376
Rubber and articles thereof	0.822	0.913	1.046	1.051	0.931	0.962	0.959	0.796	0.896	0.663	0.651	0.643	0.740	0.754	0.709
Footwear and parts of such articles	2.151	1.992	1.740	1.682	1.743	1.694	1.674	1.647	1.531	1.281	1.187	1.098	1.042	1.115	1.656
Man-made staple fibres	2.751	2.859	3.168	3.510	3.532	3.129	3.377	3.837	3.795	3.228	3.404	3.324	3.283	3.089	3.609
Lac; gums, resins & other vegetable saps & extracts.	15.947	13.224	10.284	9.880	9.395	10.290	9.566	8.425	7.981	5.002	7.953	17.281	32.570	18.918	11.864
Aluminium and articles thereof	0.660	0.676	0.825	0.581	0.514	0.623	0.542	0.603	0.638	0.586	0.606	0.484	0.601	0.704	0.754
Edible fruit and nuts; peel of citrus fruit or melons	3.373	2.717	2.502	1.827	1.986	1.865	1.642	1.393	1.443	1.101	0.993	1.015	0.992	0.969	0.657
Ores, slag and ash	2.849	2.962	4.812	4.477	6.654	7.204	4.917	4.763	4.171	3.625	2.582	1.189	0.895	0.570	0.193
Vehicles, railway/tram, roll-stock and pts	0.209	0.201	0.198	0.244	0.293	0.332	0.329	0.297	0.384	0.427	0.523	0.426	0.511	0.495	0.496
Cereals	2.777	3.662	5.532	4.452	4.899	4.377	3.100	3.533	3.123	2.567	2.264	2.640	4.339	4.588	2.761

Source: Computed from UNCOMTRADE Statistics dated 23/04/2014.

The TABLE above shows India’s RCA indices. In case of mineral fuels from 2000-2005 RCA indices are less than one implying that India has low comparative advantage in the production and exportation of mineral fuels and this implies low product competitiveness in the world market, from this period up to 2014 it has comparative advantage in the production and exportation of this product because the RCA indices are greater than one. The low RCA indices of mineral fuels recorded from 2000-2005 is because India is poor in oil and gas

resources. The increasing global competitiveness of India's mineral fuels from 2005-2014 is as a result of its energy security and requirement accompanied with its energy source diversification and its engagement into contract with Syria in the exploration of crude oil and petroleum production in November 2013. Other products categories with which India has RCA index greater than one are organic chemicals, nuclear reactors, ships boats and floating structures (except in the years 2000-2007), fish and crustacean mollusc and other aquatic, copper and articles thereof (except in the years 2000 and 2001), Residues and waste from food industry, Coffee tea mati and spices, Rubber and articles thereof (except in the years 2000 and 2002 and years 2004-2014), footwear and parts of such articles, man-made staple fibres, lac; gum resins and other vegetables, edible fruit and nuts, ores slag and ash (except in the years 2012-2014), cereals. While those products with which it RCA indices are less than one are cotton, plastic and article thereof, electrical machinery and equipment, aluminium and articles thereof, vehicles railway tram and roll-stock. India can export those products with RCA value greater than and import those with RCA value of less than one.

The whole foregoing analysis of revealed comparative advantage indices calculated for Nigeria and India is to try to establish complementarity and similarities of trade between the two countries in order to know the products which need to be traded between the two countries, and this is shown in the Mean Revealed Comparative Advantage table.

Table 3: Nigeria and India Revealed Comparative Advantage of 20 major products for the whole periods 2000-2014.

Product Categories	Nigeria	India
Mineral fuels	6.668	1.215
Organic chemicals	0.016	1.504
Cotton	0.014	0.216
Nuclear reactors	0.560	10.189
Plastics and articles thereof	0.067	0.545
Ships, boats and floating structures.	1.038	1.446
Fish & crustacean, mollusc & other aquatic	0.359	2.380
Copper and articles thereof	0.071	1.351
Residues & waste from food indust;	0.265	2.628
Electrical machinery and equip.	0.003	0.284
Coffee, tea, mati and spices	0.208	4.293
Rubber and articles thereof	2.343	0.789
Footwear and parts of such articles	0.214	1.366
Man-made staple fibres	0.228	3.149
Lac; gums, resins & other vegetable saps & extracts.	2.463	16.973
Aluminium and articles thereof	0.163	0.616
Edible fruit and nuts; peel of citrus fruit or melons	0.435	1.253
Ores, slag and ash	0.033	2.162
Vehicles, railway/tram, roll-stock and pts	0.003	0.409
Cereals	0.074	3.746

Source: Computed from UNCOMTRADE dated 23/04/2014.

The TABLE above shows the mean revealed comparative advantage indices of Nigeria and India of twenty major product categories of Nigeria and India's exports. As it can be seen from the TABLE Nigeria has comparative advantage in only few products like mineral fuels, ships boats and floating structures, rubber and articles thereof, lac; gums resins and other vegetables. The RCA indices of these products are greater than one which implies that Nigeria can only export these products to India if and only if India has low comparative advantage in them. Based on the RCA indices Nigeria has comparative advantage in mineral fuels, rubber and articles thereof than India as it RCA indices of these products are 6.668 and 2.343 while that of India is 1.215 and 0.789. Despite the comparative advantage with which the Nigeria has in ships boat and floating structures and lac; gums resins and other vegetable its scope of trade with India in these products will be limited because India also has comparative advantage in them more than Nigeria. Out of these twenty major products Nigeria can only export mineral fuels, rubber and articles of rubber to India.

India has comparative advantage in most of the products than Nigeria. The RCA indices are greater than one in most of the products in case of India implying that it has more comparative advantage in most of the products than Nigeria. India can export to Nigeria organic chemicals, nuclear reactors, fish crustacean and other aquatic, copper, coffee tea mati and spices, residues and waste from food industries, footwear, man-made staple fibres, edible fruit and nuts, cereals. Neither do Nigeria nor India has comparative advantage in products such as cotton, plastic and articles thereof, electrical machinery and equipment, aluminium and vehicles railway tram and roll-stock. This means that Nigeria and India scope of trade in this commodities will be high with other countries with high comparative advantage in these products.

IV. Conclusion

The conclusion drawn from the whole analysis is that despite the existence of trade similarities between Nigeria and India, complementarity of trade exists between Nigeria and India also. There is opportunities of increasing the scope of trade between Nigeria and India in products such as mineral fuels, organic chemicals, nuclear reactors, fish crustacean and other aquatic, copper, residues and waste from food industries, coffee tea mati and spices, rubber and articles, footwear, man-made staple fibres, edible fruit and nuts, ores slag and ash, cereals. Trade between Nigeria and India will be improve by enhancing Nigeria's exports to India of products such as mineral fuels, rubber and articles thereof and India's export to Nigeria of products such as organic chemicals, nuclear reactors, fish crustacean and other aquatic, copper, residues and waste from food industries, coffee tea mati and spices, footwear, man-made staple fibres, edible fruit and nuts, ores slag and ash and cereals. So also there is possibility of enhancing Nigeria and India's trade with other countries with high revealed comparative advantage index in products such as cotton, plastic and articles thereof, electrical machinery and equipment, aluminium and articles thereof, vehicles railway tram roll-stock and parts of such because there is no scope of increasing trade of these products because of low RCA index possessed by Nigeria and India in these products.

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