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Specialization and imperative of diversification for Tunisian economics

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In developing countries, specialization result of a competitive advantage achieved by a low cost of labor. However, this potential benefit must be properly operated and must be extended in a context of increased competition. This article discusses in a first section, a discussion and analysis of the specialization of the Tunisian economy, based on key indicators of specializations. In the second section we look at an analysis of the diversification of Tunisian exports, while a comparison with the countries of the Middle East and North Africa. Three sectors have, since 2004, revealed comparative advantages with the EU, they are characterized by the indicator of revealed comparative advantage greater than unity, textiles and textile articles, agribusiness and shoes. The comparative advantage recorded for miscellaneous manufactured articles Tunisia is mainly explained by an RTA for Textiles and clothing, marking an index greater than unity. Furthermore, from the results of calculating the Index Grubell Loyd, it shows appreciation of structural change, driven by the development of intra-industry trade. Three inequality indices are used to measure the diversification of products intensive margin. Is calculated as the Herfindahl -Hirschman index measuring the degree of market concentration.

Keywords: specialization, revealed comparative advantage, intra-industry trade, contribution to the trade balance, diversification

INTRODUCTION

In developing countries, specialization result of a competitive advantage achieved by a low cost of labor. However, this potential benefit must be properly operated and must be extended in a context of increased competition. This is a specialization in extractive industries that China has recorded a growing surplus of foreign trade through rising levels of technological exports (Lemoine and Ünal-Kesenci, 2002]. Understand the reasons for success or failure of some business in North Africa during the ninety years countries is of paramount importance: the insertion in the global economy is one of the main determinants of economic growth developing countries. Directorate General for International Cooperation and

Therefore development grants special interest in the analysis of the competitiveness of African countries. Still need to know what types of market it is more fruitful to improve performance! Our work is interested in distinguishing two possible strategies: diversification and strengthening of traditional markets. If there is no reason a priori to combine these two approaches in a context of low available resources, most African countries are forced to make a choice.

The objective of our paper is to detect potential competitive economy Tunisian. This fact we are interested in discussing the potential specialization of Tunisian economy by calculating the indicators in this area and analyzing the potential for export diversification.

This article discusses in a first section, a discussion and analysis of the specialization of the Tunisian economy, based on key indicators of specializations.

In the second section we look at an analysis of the diversification of Tunisian exports, while a comparison with the countries of the Middle East and North Africa.

Specialization of economy of Tunisia

New theories of international trade based their conclusions on a fundamental assumption of pure and

imperfect competition have demonstrated that the expansion of the market through the opening of borders encourages the exploitation of economies of scale, a subsequent reducing unit costs and improving the productivity of factors. This theory has highlighted the intra-industry specialization, the effects of economies of scale and product differentiation (Ben, 1994).

Specialization is defined by a national perspective and a sectoral focus (Aitken, 1997). According to the national perspective, a country specializes if there is a difference between the structure of production and consumption structure. As for the sectoral approach to a branch, domestic production exceeds domestic consumption, it is said that the country is specialized in this branch and talk to a surplus position (Lafay, 2005).

The form of specialization depends on the origin and orientation of specialization. For the beginning, when the country gained its extended position we speak of a "deductive" specialization , and when a substantial remodeling of the economy we are talking about an inductive specialization (Amurgo and Denisse, 2007). About the direction of specialization , we define it as " progressive" when a country engages in the production of a good that the international demand is growing , and when a country engages in the branches decline we speak of a " regressive" specialization.

Thus, in order to compete in international markets and strengthen its competitiveness, the country is expected to position itself on sophisticated goods with high added value . To do this it must adopt a progressive and deductive specialization. Moreover, a country must have a strong ability to product differentiation and increasing returns, and a level of intra developed branches (Lafay, 2005).

As an illustration, the case of the Mediterranean countries where their exports are more specialized in products intensive in labor and medium technology are cited. These countries are characterized by a low level of intra-industry trade with partner countries and this because of specialization based on mundane products or subcontracting (FEMISE, 2002).

Certainly, the Mediterranean countries have restructured their industries and consequently developed the share of exports of manufactures relative to primary products , they were able to specialize on products with low technology and low value-added producers .

Over ninety years, China's foreign trade was marked by the rise of outgoing industry based on imported inputs , this economic power was marked by significant growth in exports resulting from assembly operations which accounted for over 55 % of China's total exports since 1996. This trend makes exports less vulnerable to the effects of an appreciation of the real exchange rate as exports are characterized by a high import content. Furthermore, in 1998-1999, this type of export has weathered the Asian crisis than ordinary exports . These assembly activities have created the Chinese breakthrough in new markets and the emergence of comparative advantages in new areas (Lemoine and Ünal - Kesenci, 2002).

The choice of the type of specialization is important in order to successfully open , the problem is therefore entitled to choose whether a country like Japan a strong inter-industry specialization or develop like most European countries a trade without sectoral intra-industry specialization marked .

Beyond the opening , the nature of trade specialization is a factor that affects the trade balance.There are two types of specialization, horizontal specialization when a country has a comparative advantage in the whole process of production and vertical specialization , when a country has an advantage in one or more stages of manufacturing a product and comparative disadvantages in the other stages (Farazi, 2011). The experience of China's vertical specialization is the strongest among the developing countries such as the economic power has developed specialization in assembly operations generating the development of export high-tech capabilities that are superior to other emerging countries (Lemoine and Ünal - Kesenci, 2002).

In order to assess the nature of a dynamic process of specialization in the medium to long term , it must be measured using reliable indicators (Agosin, 2005).

Various types of specialization indicators were generally offered on annual flows (Lafay, 2005) spread over three families specialization indicators that relate to foreign trade, the domestic situation or the relationship between the national economy and the rest of the world. As part of this analysis, we are interested in a diagnosis of the comparative advantage of Tunisian products, including indicator of the contribution to the trade balance and the revealed comparative advantage is used, and then looks at the evolution of intra-industry trade via indicator Grubel & Lloyd.

I-II-products that have a positive contribution to the trade balance

To calculate this indicator we used the classification of the NSI values of imports and exports by HS2 chapter and those for 2002-2010.

With this indicator (Table 1), it has been revealed that the products belonging to the AFI sector (meat) and the textile sector have a positive contribution to the trade balance since 2002. Nevertheless, it is important to note that the electrical machinery, transport equipment (aerial or satellite navigation) and food products industries have recently contributed positively to the trade balance, actually, it is only since 2004 that they recorded favorable results. However, there is a lack of petroleum products, chemicals and pharmaceuticals among this category of products, although they are products particularly crucial for national development.

Table 1: Products with a positive contribution to the trade balance

03-Fish, crustaceans and molluscs	0,0129388	0,0132745	0,01115268	0,01178499	0,0105941	0,01032156	0,01172901	0,0132745
05-Products of animal origin	0,00036302	0,00036947	0,0016841	0,00099739	0,00074045	0,00045523	0,00044736	0,00036947
06-Living Plants and flowers	-0,00011747	1,9494E-06	9,542E-05	0,00013759	0,00016732	0,00012393	0,00031301	1,9494E-06
08-fruit peel, citrus fruits and melons	0,00853263	0,007346	0,01204213	0,01058054	0,00960171	0,00903496	0,01127674	0,007346
11Products of the milling	0,00320255	0,00469886	0,00256415	0,00342212	3,3149E-05	8,1809E-05	0,00205223	0,00469886
15Graisses oils waxes etc.	0,04470204	0,026492	0,01664257	-0,0004005	0,00377724	0,04662057	0,02755509	0,026492
16Préparations meat and fish	-0,00020407	-1,3581E-05	-1,235E-05	-7,2008E-05	-2,813E-05	0,00019861	0,00023394	-1,3581E-05
19Préparations from cereals	0,00365473	0,00349067	0,0033106	0,00487479	0,00415639	0,00381677	0,00480861	0,00349067
20Préparations vegetables and fruits	0,00411232	0,0025953	0,00297064	0,00330112	0,00071783	0,00136897	0,00152767	0,0025953
22Boissons alcohol and vinegar	0,00286183	0,00237283	0,0025474	0,00272951	0,00310749	0,00260293	0,00499114	0,00237283
26 Metallic ores waste	-1068517,99	0,00280654	0,00115398	0,0011402	0,00136146	0,00138471	0,00131241	0,00280654
28Produits inorganic chemicals	0,04306599	0,0330855	0,02822691	0,02536536	0,01398119	0,01767545	0,02200353	0,0330855
31Engrais	0,04764261	0,04331996	0,04174499	0,04028963	0,04081879	0,04269666	0,03824818	0,04331996
33Essential oils perfume	0,00110106	0,00047457	0,00143309	0,0010851	0,00051389	-0,00072611	0,00119209	0,00047457
36Poudres matches and explosives	0,00011148	0,00015201	0,00025858	0,0001855	0,00047421	0,00025671	0,00041089	0,00015201
42Leather Ouvrages	0,00478535	0,00526449	0,00615138	0,00572674	0,00517093	0,00472907	0,00460355	0,00526449
45Liege and cork	0,00127838	0,00171324	0,0011515	0,00169218	0,00234584	0,00228875	0,00131122	0,00171324
53Autres vegetable textile fibers	0,00015235	0,00047132	-0,00044163	-0,00066627	-0,0005702	-0,00028574	0,00016152	0,00047132
57Tapis and other floor coverings	0,0003491	0,00024701	0,00025908	0,00022748	0,00023838	0,00017195	7,5845E-05	0,00024701
61Vêtements and accessories knitted or crocheted	-0,00880428	0,05719372	0,05610963	0,06549362	0,0620512	0,05477573	0,04775712	0,05719372
62Vet.et accessories, knitted aut	0,28243255	0,25854407	0,27131666	0,25847556	0,25039039	0,22760928	0,20129537	0,25854407
63Aut.art.confectionnés and thrift	-5,7461²E-05	0,00232308	0,00575699	0,00997619	0,0115572	0,01172619	0,01095941	0,00232308
64Chaussures	0,03706692	0,03364961	0,03554384	0,03547199	0,03416906	0,03751533	0,03618956	0,03364961
65Coiffures	0,00055421	0,00034618	0,00045001	0,0005485	0,00072116	0,00061547	0,00061671	0,00034618
66Parapluies umbrellas canes etc.	2,8644E-05	0,00033962	0,00049577	0,00027672	0,0003222	0,00031343	0,00031267	0,00033962
67Dûvet, artificial flowers etc.	0,00010932	0,00011169	6,8505E-05	0,00022972	0,00020576	0,00019787	0,00014051	0,00011169
69ceramics Produits	0,00351327	0,00461143	0,00447365	0,00449987	0,00448616	0,00477285	0,00475216	0,00461143
84Chaudières reactors and aut. gear. mechanical	0,02494722	0,02478221	0,0295361	0,0296334	0,02209478	0,01896317	0,03705646	0,02478221
88Aeronautical or space Navigation	-0,01738107	-0,00252954	-0,00097792	-0,00143399	-0,00122113	0,00056258	0,00045334	-0,00252954
90Optique scientific equipment	0,0002741	0,00029467	0,00019499	0,00023545	0,00023712	0,00042422	0,00041115	0,00029467
93Armes and ammunition	0,0007485	0,00141828	0,00107705	0,00167191	0,0016863	0,00105325	0,00261843	0,00141828
94Meubles art bedding and chandeliers	0,00100148	0,00035426	0,00050653	0,00078551	0,00106934	0,00109088	0,00102884	0,00035426
96Ouvrages various	-4,0159E-06	4,3056E-07	-0,00438457	5,2052E-05	7,1646E-05	6,0009E-05	4,7284E-06	4,3056E-07

Compilation personnelle, source INS.

I-II- Indicator of revealed comparative advantage

This indicator measures the share of national product k in total exports relative to its share in European trade, the indicator is written as follows: $ACR_{ik} = (X_{ik} / X_{it}) / (X_{WK} / X_{wt})$

With Xik is the value of exports from country i of product k and Xit is the value of total exports, w refers to the total world. In our analysis, we restrict ourselves to trade with the EU main trading partner. From, data collected trade statistics of Eurostat for EU imports from Tunisia by HS2 chapter, total EU imports from Tunisia, extra-EU imports by Chapter and HS2 the total extra EU imports, was calculated indicator of revealed comparative advantage in the years 2004-2010 (See table 2).

Three sectors have, since 2004, revealed comparative advantages with the EU, they are characterized by the indicator of revealed comparative advantage greater than unity, textiles and textile articles, agribusiness and shoes.

The ranking of sectors according to their revealed comparative advantage has not experienced significant changes since 1990. Unlike textiles, shoes and food industries which occupy the top spots , mechanical industries (vehicles, ships and aircraft equipment associated transport), chemical products , industrial metal and metal products and manufacturing various display very obvious disadvantages .

In holding the important and major role in the manufacturing sector in international trade for Tunisia, we will focus on a detailed analysis of revealed comparative advantage in this sector.

On a disaggregated way , we can classify the manufacturing sector in product group as classified by UNCTAD and articles manufacturing (SITC 5 to 8 less 667 and 68) , chemicals (SITC 5) , machinery and transport equipment (SITC 7) , sundries manufacturing (SITC 6 +8 least 667et 68).

It is noted that Tunisia has significant comparative advantages revealed in this sector. It raises a revealed comparative advantage for large items manufacturing, chemicals, miscellaneous manufactured articles, articles manufacturing -intensive

Labor and from natural resources and manufacturing products with high technology and high skills (ICRH ≥ 1). However,the CAB is much more important for high-tech manufacturing products that articles in intensive labor (Table 3).

The comparative advantage recorded for miscellaneous manufactured articles Tunisia is mainly explained by an RTA for Textiles (SITC division 65) and clothing (SITC division 84) , marking an index greater than unity

I-II-Index grubel and lloyd

To evaluate efforts to diversify it is important to analyze the evolution of intra-industry trade advocated by the new theory. For this we propose to calculate the index of Grubel Lloyd by HS2 chapter for 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010 using the classification of the NSI values of imports and exports by HS2 chapter. This indicator is written as follows: IGi = 1 - (Xi-Mi / Mi + Xi), where Xi is the value of exports of product i, and Mi the value of imports of product i. After calculating this indicator for all customs chapters, chapters that present value of the average of the Grubel Lloyd index close to unity during the years studied is over (See table 4).

The results obtained allow us to see a decline in intra branches in recent years for live animals and animal products , vegetable products and essential oils perfume (GI values respectively 0.94 , 0.96 and 0.74 in 2003 against , 0.97 , 0.60 0.85et in 2010). However , we note an increase in intra branches for textiles

leather apparels (Articles of leather , cotton) , Down , artificial flowers, maritime navigation that actually values IG very close to unity , with each value as 0.98 , 0.90 , 0.96 , 0.99 in 2010 against only 0.44 , 0.68 , 0.64 , 0.46 in 2003.

The intra-industry trade of leather articles attended a degradation during the years 2005, 2006, 2007 , however, in 2010 , there has been marked by a GI value of 0.98 intensification.

There is an intensification of intra branches Plastics materials and articles with GI value , 0.87 in 2010 against only 0.39 in 2003. For Glass and glassware , there is a clear development of intra-industry trade , supported by a GI value of 0.92 in 2010 against 0.34 in 2003 only . Furthermore, from these results, it shows appreciation of structural change driven by the development of intra-industry trade. Like the intra-industry trade, diversification and upgrading are key to the sustainability of the trade

II-Need for export diversification of tunisia: a comparative analysis in the mena region

Tunisia has four comparative advantages to finance imports and balance its trade balance, in the areas of clothing, leather goods , electronic components and food. However, this pattern of specialization is based on intensive traditional products in low-skilled labor , cheap and low-tech. Thus, in order to strengthen its international integration , Tunisia is expected to diversify its exports are highly concentrated in the textile apparels sector representing 70% of export manufacturing sectors. This growth is mainly due to the clothing industry , which continued at a steady pace over the period 1997-2010 : exports rose 50 % to 4.020 billion dinars in 2001, representing an average annual growth rate 8.5 %. Moreover, in 2010, there was a 0.5% decline in exports of clothing business from 2004 (Central Bank 2005). Excluding this concentration poses a major risk to the national economy despite the dismantling of the Multi Fibre Arrangement which generates the growth of the

Table 2: IACR for the 20 main sectors (SH2)

Chapter HS2	Sector	2004	2005	2006	2007	2008	2009	2010
01-5	**live animals**	0.95	1.19	1.08	1.08	0.98	0.92	0.10
06-14	**plant products**	0.44	0.55	0.45	0.48	0.48	0.51	0.62
15	**Animal or vegetable fats and oils**	1.76	1.49	1.01	2.07	4.08	1.84	1.14
16-24	**Prepared foods: Drinks**	0.13	0.11	0.12	0.10	0.13	0.17	0.21
25-27	**mineral products**	0.64	0.59	0.55	0.60	0.61	0.51	0.53
28-38	**Chemical products**	0.55	0.59	0.57	0.53	0.53	0.50	0.47
39-40	**plastics**	0.11	0.19	0.27	0.26	0.27	0.32	0.40
41-43	**Raw hides and skins, leather**	0.68	0.86	0.83	0.86	0.88	0.84	0.84
44-46	**Wood and articles of wood**	0.11	0.20	0.16	0.20	0.23	0.22	0.25
47-49	**Pulp of wood or of other fibrous cellulosic material**	0.25	0.27	0.27	0.25	0.27	0.29	0.30
50-63	**Textiles and textile products**	6.86	7.36	7.08	7.13	6.76	6.26	6.33
64-67	**Shoes**	4.78	5.58	5.06	5.12	5.08	4.37	4.54
68-70	**Articles of stone, plaster, cement.**	0.51	0.62	0.55	0.64	0.61	0.70	0.74
71	**Natural or cultured pearls, precious or semi-precious stones.**	0.04	0.05	0.06	0.05	0.07	0.06	0.05
72-83	**Non-precious metals and articles of base metal**	0.34	0.33	0.37	0.32	0.32	0.41	0.44
84-85	**Machinery and mechanical appliances**	0.45	0.50	0.54	0.57	0.62	0.67	0.78
86-89	**Vehicles, aircraft, vessels and associated transport equipment**	0.19	0.32	0.42	0.26	0.30	0.38	0.37
90-92	**Optical photographic film**	0.25	0.24	0.19	0.23	0.28	0.31	0.41
94-96	**Miscellaneous manufactured articles**	0.28	0.31	0.36	0.48	0.65	0.76	0.75
97	**Works of art**	0.0023	0.0063	0.016	0.015	0.002	0.003	0.0006

Compilation personnelle, source Eurostat , JITAP

Table 3: Balassa revealed comparative advantage in the manufacturing sector : the case of Tunisia

	2002	2003	2004	2005	2006	2007	2008	2009	2010
Manufactured articles (SITC 5 to 8 less 667 and 68)	1,0902	1,0488	1,0639	1,0615	1,0206	1,1004	1,1306	1,1583	1,1637
Chemicals (SITC 5)	1,2861	1,1814	0,8888	0,8739	0,8941	1,4587	0,9154	0,9774	0,97535
Machinery and transport equipment (SITC 7)	0,2491	0,3414	0,5113	0,5536	0,5314	0,6216	0,7437	0,8415	0,78857
Miscellaneous manufactures (SITC 6 +8 least 667et 68)	2,2625	2,2413	2,0760	2,0188	1,8947	1,6927	1,8558	1,7756	1,85205
Intensive manufacturing labor and items from natural resources	3,9219	4,0522	3,9601	3,7022	3,5572	3,2051	3,2842	3,1940	3,45026
Manufactures technology and low skills	0,5289	0,2916	0,4171	0,6091	0,6019	0,5754	0,7012	0,6340	0,64964
Manufactured items and medium technology skills	0,3781	0,5641	0,7860	0,7992	0,7381	0,8096	1,0069	1,0780	1,03384
Manufactures high-tech and high-skill	0,5220	0,4204	0,4381	0,4799	0,4968	0,8102	0,6089	0,7079	0,6474

Compilation personnelle et base de la CNUCED

Table 4: Index GRUBEL & LLOYD

4Milk, butter, cheese, eggs and honey	0,52554128	0,38541568	0,5362981	0,82278777	0,94116554	0,99037888	0,98502174	0,79199266
5Products animal	0,69671896	0,8128039	0,95669111	0,96902088	0,96713541	0,98893232	0,79145253	0,85172836
10cereals	0,43433237	0,23259733	0,44309782	0,35213943	0,87956047	0,94151976	0,33291343	0,50016417
23Résidus food industries	0,80372392	0,7301256	0,81902288	0,77420526	0,8239787	0,55732069	0,92554093	0,73479898
24Tabacs	0,87721646	0,77403639	0,78021089	0,81540089	0,75969409	0,69691328	0,73843753	0,90221995
26Minerais metallurgical waste	0,32122216	0,87835182	0,80194133	0,83965221	0,81111762	0,83050099	0,85984114	0,81294832
32Produits Tanning paintings etc.	0,9866278	0,88545452	0,99609569	0,97876726	0,91243179	0,75366505	0,9764396	0,89708473
33Essential oils perfume	0,94544503	0,96484593	0,80658676	0,81106059	0,7497205	0,68101565	0,60573644	0,60345411
39Matières plastics and articles	0,39843848	0,56832694	0,44175038	0,69837664	0,65783944	0,64791951	0,89307308	0,87195207
Leather 42Ouvrages	0,92819079	0,86600109	0,4416171	0,1139641	0,14037354	0,53505702	0,43778073	0,98844206
cotton	0,86916478	0,94770277	0,6874714	0,59423766	0,68777075	0,77833131	0,93570043	0,9042881
67Dûvet, artificial flowers etc.	0,73195398	0,55877279	0,64720704	0,67688341	0,70543785	0,70549238	0,6831569	0,96143925
70Glass and glassware	0,34776409	0,48099203	0,46621188	0,39750071	0,56888121	0,67240817	0,5752614	0,92380324
89maritime Navigation	0,93263882	0,93826184	0,91338578	0,94922532	0,97017015	0,93643392	0,92550399	0,99966507
92Instruments music	0,9145955	0,9975354	0,93690557	0,9503155	0,92936223	0,98925271	0,80844979	0,90758145
93Weapons and ammunition	0,8772385	0,92270963	0,95219605	0,95051857	0,75905006	0,73952911	0,77217388	0,80015354

Compiliationpersonnel

market share of some competitors (China) on the EU market at the expense of Tunisia.

In addition, there is a strong dependence on the European market and especially the French , Italian and German market , with shares in total exports of 32.9 %, 24% and 8.4 %.

In 2005 , Tunisia exported nearly 10885.5 MTD to the EU (80% of total exports) , whereas 77.7 % of imports from the EU [Central Bank (2005)] . Consequently , it is important to note that Tunisia exports little to particularly dynamic markets such as China, India , the United States or the United Kingdom , it actually has the major market share in low- dynamic markets (France , Italy) or declining (Germany). In addition, South-South trade and regional economic integration could also contribute to the diversification of exports.

It is important for Tunisia to opt for greater diversification of export markets in order to reduce the vulnerability of Tunisian exports face the decline in economic activity in Europe , target markets could therefore be the Arab countries , countries of Africa and the countries of north America .However, in recent years there has been an improvement in the structure of exports, certainly emergence of new export products such as wiring harnesses, electronic components, some plastic products and essential oils. Thus, began the journey to the " diversification in the direction of the production of products with higher added value and processed products , as well as to activities such as labeling , design , packaging, differentiation products , provision of services and delivery, is considered a crucial component of development efforts of countries dependent on commodities."

Regarding services , Tunisia should also opt for a diversification of exports of services with high added values like computer information services and communications services for business, education and clinical services .

Now inadequate physical and technological infrastructure, export taxation , lack of investment in value-added activities remain the main obstacles to diversification of Tunisian exports , so active public policies are considered crucial to strengthen the diversification and competitiveness through increased productivity .

The obtained results suggest that the diversification of markets and products is able to enhance the sustainability of the trade balance and meet the competitive challenge through the development of intra-industry trade and upmarket. In addition to a study of appropriate and its effect

on the competitive potential of the Tunisian economy through an analysis of statistical indicators of foreign trade, specialization indicators and determinants of competitiveness trade policy , an econometric study of the effect of a policy of openness to trade balance is essential to refine our results.

Several empirical studies have agreed that export diversification has a strong and positive impact on growth through various channels.

Indeed, export diversification increases productivity through knowledge spillovers (Feenstra and Kee 2004). This is supported by new models of economic growth suggesting that the new export products may represent innovations.

Comparing the experience of Tunisia to other countries in the MENA region , we see that all countries in the region rely heavily on a few export products. In addition, exports are generally produced with low levels of skills and are unsophisticated : only 21% of exports from the MENA (the Arab Republic of Egypt , Jordan, Lebanon , Morocco and Tunisia Republic) are classified as medium or high technology, against nearly 37 % of exports in other emerging economies. This structure technology affects productivity in the area is low compared to the levels of income countries (World Bank Report 2010) .

In addition, the export structure also limits the growth of his last , because the orientation of the production does not follow global demand. Indeed, most countries in the region should know a faster export growth in the 1990s if their production guidelines obeyed global demand.

Three inequality indices are used to measure the diversification of products intensive margin . Is calculated as the Herfindahl -Hirschman index measuring the degree of market concentration (Marouane, 2012).

Herfindahl –hirschman index

It has been normalized to obtain values between 0 and 1 (maximum concentration) , using the following formula :

$$H_i = \frac{\sqrt{\sum_{j=1}^{n} \left(\frac{x_{ij}}{X_i}\right)^2} - \sqrt{\frac{1}{n}}}{1 - \sqrt{\frac{1}{n}}}$$

Hi = Value of the concentration index for product i
x ij = Value of exports and imports of country j for product i

$$X_i = \sum_{j=1}^{n} x_{ij}$$

N = maximum number of individual economies
A relative index of 1 indicates a very high concentration of the market for this particular product . In contrast, a value close to 0 shows a more homogeneous distribution of trade between exporters and importers .

Work established by the World Bank (2007) on the concentration ratios , as measured by the Theil index , Herfindahl and Gini reveal a high concentration of exports in the MENA region.

The Theil index , showed that exports MENA10 countries show a high but slightly declining trend in concentration since 1988 . A clear difference can be detected in level and trend of concentration of exports in countries with low labor resources (APIL) and the resource-rich and labor-sending countries (RRLA) . APIL some countries (Lebanon, Morocco and Tunisia) have a low concentration compared to Asian countries. Jordan also reduced the concentration of exports in the late 1980s. In contrast, exports from RRLA are highly concentrated , with some decrease in concentration since the 80s .

This work has found that the GCC countries also show a high level of concentration, a slight increase since 1990. The Herfindahl index, is most influenced by changes in the products with the largest share of total exports , provides insights into the degree of concentration of exports.

These concentration ratios for countries MENA10 indicate similar to those of the Theil index trend. Compared with Asia , Latin America and the Caribbean , the average concentration level is lower and the decline is more pronounced. Indeed, the decline in concentration MENA10 is greater, because the shares of the largest export sector are higher compared to those countries.

The Herfindahl index shows an improvement in the trend of diversification of exports to the North (Figure 1) Africa. Indeed, there has been a decrease in the index for the year 1995 to 2010, respectively from 0.53 to 0.52 for Algeria, from 0.24 to 0.13 for the Egypt of 0 , 17 0.15 Morocco, from 0.21 to 0.16 Tunisia and the exception is recorded for Libya , marking an increase of the index.

Moreover, Kuwait , Qatar and Saudi Arabia respectively recorded a slight decrease in concentration, thus improving their diversification , while maintaining a high concentration of 0.9 to 0.7, 0.6 to 0 , 4 and stagnation for Saudi Arabia noting an index of 0.7 for the years 1995 and 2000. As for Jordan, it follows not from North Africa with a small decrease in the index representing a strong export diversification.

The Herfindahl index does not show a downward trend in the concentration of exports to the GCC countries, suggesting some success in increasing the share of relatively small export sectors. The Syrian Arab Republic shows a less pronounced export concentration with Herfindahl index rather than the Theil index decreases, the difference between the two indices is smaller for Algeria, Libya, and the Republic of Yemen. For the Gini index , this work has found that it is most influenced by changes in the distribution environment (middle of the distribution), and unlike the other two indices , it is not influenced by the level of aggregation. There was a net decrease in the trend of concentration of exports in the MENA region.

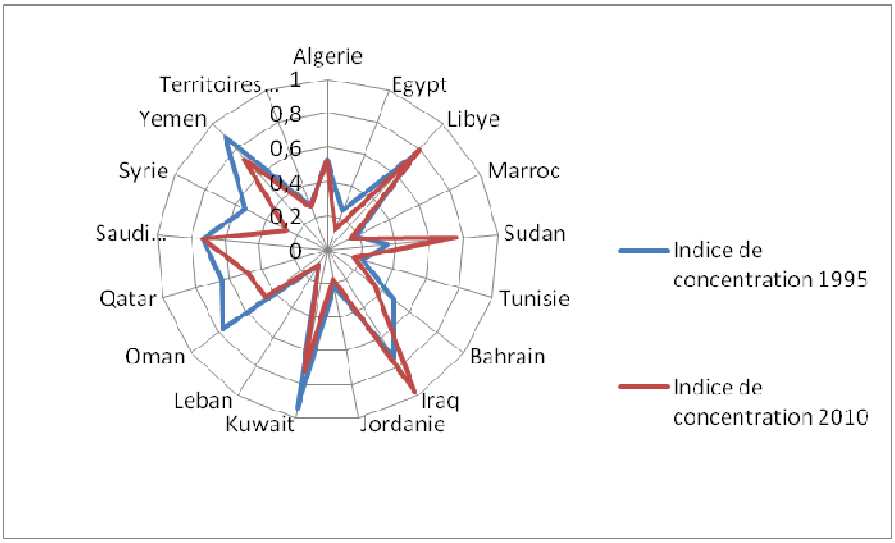

Figure 1: Herfindahl-Hirschman Concentration of exports, 1995 and 2010
(Source : compilation personnelle)

In our work, we are interested in analyzing the concentration index Herindhfal and diversification index, which measures the change in business structure (UNCTAD (2011)).

Diversification index

The diversification index indicates whether the commodity structure of exports of a country or group of countries differs little or a lot of the product structure of total exports in the world. This index whose value is between 0 to 1 , indicates the magnitude of difference between the structure of trade of a country or group of countries and the world average. The higher the index is close to 1 , the difference is more significant . It is calculated as follows:

$$S_j = \frac{\sum_i \left| h_{ij} - h_i \right|}{2}$$

where hij = share of product i in total exports (or imports) of country j
hi = share of product i in total exports (or import) .

This index is a variant of the indicator Finger (1979), on the similarity of the structure of trade. The diversification index measures the absolute deviation of the structure of the country in relation to the global structure.

On the diversification index , Algeria , Libya, Sudan , Iraq and Kuwait have a wide variation in market shares in exporters, indicating that the commodity structure of exports of this group of countries differs a lot of structure products of total exports in the world. This trend saves considerable variability between countries of Algeria marks a decrease for the year 2000, from 0.8 to 0.7 (a value close to unity) . We notice an increase in the diversification index from 0.5 to 0.8 for Libya , from 0.5 to 0.8 for Sudan , of 0.7 to 0.8 for Iraq and finally stagnation for Kuwait (0.8) and Yemen (0.7) .

In addition, Qatar and AS recorded a slight decrease in the index while remaining high (close to unity) However, Egypt, Morocco and Tunisia recorded a decrease in the index by 0.6 to 0.5 0.7 to 0.6 0.6 to 0.5. However , we note that the commodity structure of exports of this group of countries differs slightly from the product structure of total exports in the world and a small change in market share among exporters.

Moreover, the concentration change in the MENA region reflects the introduction of new export products known change in the extensive margin or change in traditional exports , known as the changes in the intensive margin

Index Theil

The Theil index is used to answer the following question: To what extent is oriented diversification into new products and markets? This index mathematical properties that make it easily decomposed into two concepts : component "within" the Theil index which largely reflects the intensive margin , while the " betwen " component reflects the extensive margin . It is calculated in units, weighted by the logarithm of the share of exports in each category.

$T = 1/n \Sigma^{n}_{i=1} X_{ij}/ \mu \ln (X_{ij}/ \mu)$

Avec $\mu = \Sigma^{n}_{i=1} X_{ij} / n$

A study by the World Bank (2007) detected a decrease in concentration ratios in the region, due to a lower concentration of traditional products and relatively limited in the development of new products development. These results confirm the findings of the comparison of the Herfindahl index and the Theil index. They argue that lower ratios of concentrations MENA10 is attributable to the decrease in the concentration of traditional exports rather than the introduction of new exports and penetrate new markets. Traditional export sectors have experienced a significant increase in concentration in the GCC countries, with some progress in the introduction of new lines for export.

CONCLUSION

Several diversification indices were calculated for each country in our sample. Their study clearly shows that the countries that have made the greatest gains in competitiveness are precisely those best able to diversify their exports. This is the case of North Africa.

The comparative advantage recorded for miscellaneous manufactured articles Tunisia is mainly explained by an RTA for Textiles and clothing, marking an index greater than unity . Furthermore, from the results of calculating the Index Grubell Loyd, it shows appreciation of structural change, driven by the development of intra-industry trade. Three inequality indices are used to measure the diversification of products intensive margin. Is calculated as the Herfindahl -Hirschman index measuring the degree of market concentration.

By comparing the specialization of Tunisia to other countries in the MENA region, we find that countries that have made the greatest gains in competitiveness are precisely those best able to diversify their exports. This is the case of North Africa.

Moreover, it concluded a lack of diversification of manufacturing exports to the MENA region. Indeed, it receives a significant extensive margin (intensive manufactured goods on hand works) advocated mainly by good specialization (ACR). However, low specialization in high technology products reduced exports and releases the intensive margin.

Furthermore, our research can be expanded and have a deeper dimension by performing econometric analysis. In this same sense of work, manufacturing pats lose competitiveness for the Tunisian economy and that due to political instability and institutional problem faced by the country. Moreover, this constraint would not it be beneficial research on economic policy.

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