VERTICAL SPECIALIZATION IN THE MIDDLE EAST; EVIDENCE FROM THE IMPORT CONTENT OF EXPORTS[*]

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Abstract

In this study, we provide estimates of vertical specialization (VS), as reflected in the imported content of exports, for four Middle Eastern countries; Jordan, Lebanon, Egypt and Turkey. Using input-output tables, we find that the level and trade of change of VS trade vary substantially among these countries, and across sectors. But there are some common features overall VS share has been high in each of Lebanon and Jordan compared to those in Egypt and Turkey. The increase in VS share, which has been growing over time in each of the four countries, has mostly been driven by the manufacturing sector, specifically in high – technology products. Involvement of these countries in VS trade has been reflected on the high role of VS in explaining trade growth, especially in Lebanon and Jordan. Policy implications are finally discussed.

Keywords: External trade, Vertical specialization, Import content of exports, Input- output analysis, Middle East

Introduction

The size, pattern and structure of world trade have witnessed considerable changes over the last few decades. Major aspects of the evolving structure of global trade are: growing trade interconnectedness, the growing role of global supply chains and the diffusion of key players in global markets, especially high technology exporters

The global market integration of production processes involves vertical linkages among countries. An important feature of these linkages is vertical specialization (VS), defined broadly as international fragmentation

of productive processes. This means that production processes are split into subsequent phases, which are curried out separately in different countries.

Vertical Specialization (VS), has been considered in different ways, and several indicators have been produced to assess it. These ways include imported inputs as a share of total imports, the import content of domestic production and a third way focuses on the participation in vertical specialization chain through using imported inputs to produce goods that are afterwards exported, which is proxied by the import content (IC) of exports.

Most empirical studies, have focused on this last way, the import content of exports, and most of them have employed the proposed approach in the pioneer work of Hummels et al. (2001). We will focus in this study on this particular aspect of VS by looking at imported goods used as inputs in the production of export goods. This means that the imported content of exports comprises a narrow concept of the VS phenomenon.

An intensive empirical research on this phenomenon has been carried out on countries which are widely involved in VS trade, such as the industrialized countries and recently the merging market economies and some developing countries. (IMF, 2011, p.   ).

The emergence of VS has enabled there countries to expand their exports through exploiting their comparative advantage at a much finer level of specialization in global production chains. From the perspective of inputs importing countries, they can choose the most efficient inputs, and obtain more value from imported intermediates through building skills, technology and regional networks. Hence, the expected improvement in the competitiveness of the products of these countries will raise their exports and may be reflected on the enhancement of their economic growth and development.

Given the widely recognized importance of the above mentioned benefits that could be obtained from VS trade, and because this phenomenon has not received much attention in many regions such as the Middle East (WS, 2008).

We are motivated to conduct a research to examine this issue which may assist policy makers to understand the capabilities of their export promotion policies.

Accordingly, this paper has two main objectives. First, to address the question of how much import content is there in the exports of Jordan, Lebanon, Egypt and Turkey. For each country we will measure the level of IC and its development over time for the economy as a whole and for its main aggregates. Emphasis will be put on the analysis of IC in 21 manufacturing sub- sectors, highlighting the technology intensity of their exported products. Second, to examine the contribution of VS trade growth to exports growth.

Limitations of the Study

Dependence on I-O tables to compute IC, as in the widely- used method of Hummels et al.(2001), provides more accurate results, and facilitates the comparisons among countries. In the case of this study on the Middle East, the salient limitation to examine VS trade through calculating IC is that I-O tables are not available at all for some countries in the region, or do not exist on continuous and recent basis.

Therefore, our sample is confined to four countries; two small countries (Jordan and Lebanon) and two large ones (Turkey and Egypt). Turkey has been chosen, although it does not have recent data because of its growing importance as a strong economic actor in the middle East region.

We recognize that the Turkish latest input-output table of 2002 does not reflect the current situation of the linkages between the sectors of the Turkish economy and therefore, our estimates should not be taken as representing the current structure of trade or the nature of VS in Turkey. We also realize that after 2002 Turkey has witnessed a remarkable economic and social improvement after the implementation of the modernized program of the new Turkish government,

But, as no studies exist on this important issue of VS trade about Turkey, we believe that this study may be considered as a referential and historical base for comparison with future research utilizing input-output tables that are expected to be produced later to cover years beyond 2002[4]. Also, our figures are useful for means of assessing trade pattern in Turkey during the period (1998-2002) and for comparison with other economies in the same period.

The paper is organized as follows. In section 2 we review the literature. Section 3 briefly describes the data and methodology. In section 4 we report, and analyze the results. The role of VS in exports' growth is examined in section 5. Section 6 summarizes the study and concludes with some final remarks.

A Review of the Literature

There is a vast and growing literature on the phenomenon of international fragmentation of production. Available empirical research on VS trade covers many aspects, such as the measurement and analysis of its level and evaluation over time, examination of its determinants, in addition

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[4] In fact, the authors' recent contact with the president of the "Turkish Statistical Institute" has confirmed that Turkish latest input-output table is that of 2002, and the expected new table will cover data of 2012 and will be released in 2016. However unavailability of recent data should not impede research based on the input-output table of 2002, as in the recent study of Duman and Ozguzer (2012)

to the assessment of its effects on the volume and pattern of trade, employment, firm productivity and economic development.

As this study is concerned with measuring and analysing the IC of exports in the Middle East, in addition to assessing the impact of its growth on the growth of its trade, we focus on reviewing empirical literature covering these aspects. Most of the researchers discussing the IC of exports have been interested in providing empirical estimates on the extent of this ratio for the advanced countries, and recently, for China and East Asia countries. Their assessments of IC are mainly based on input - output tables following Hummels et al. (2001) approach.

Hummels et al. (2001) report results for ten OECD countries, in addition to four emerging market economies. The results indicate that VS accounts for 21 percent of the countries' exports and grew about 30 percent between 1970 and 1990. Camara (2012) studies VS trade in developed countries only and concludes that this trade is significant to understand trade dynamic.

Some studies focus on certain regions as appears in the WTO and IDE-JETRO (2011) book on trade patterns and global value chains in East Asia. They compute VS share and found that the level and growth of VS do not only vary substantially among the Asian economies, but also within sectors. Research carried out to investigate VS in specific countries is found in koopman et al. (2008) in his study on China. They estimate its VS trade during 1997-2007. The result is that total VS share increased from 17.6 percent in 1997 to 28.7 percent in 2007. While Casero and Astarloa (2010) provide estimates of VS, as reflected in IC, for Argentine exports. They find that IC is about 14.5 percent of total exports (using 1997 Input-Output Tables).

World organizations that are concerned about this issue have carried out research examining it in a general manner, and covering several regions in the world including the Middle East. According to the IMF, it has been found that advanced economies and sum of the emerging and developing countries have shifted toward VS and supply chain trade, but the involvement in this pattern of trade of the Middle East, and most of Africa and Latin American has been weak (IMF, 2013). The same conclusion regarding the Middle East region had been reached in a study conducted by the World Bank (WB, 2008).

These organizations have focused, in general, on the study of regions and not countries, and focused not on the simple narrow form of VS trade, that has been driven initially by trade liberalization, but rather on the pattern of VS which is based on the fragmentation of production processes as in the Asian supply chain, where intermediate inputs cross borders several times

before reaching their final destination and used in processing exported goods (IMF, 2011, p.4).

The reasons mentioned to explain this poor achievement in the Middle East are: the limited foreign direct investment, especially in manufacturing, the small size of many Middle East economies, the narrow trade base and the weak regional integration of the region in global production.

It should be noted that the results obtained from most world organization' studies are, in general, not based on precise measurement, but rather depend on the use of crude indicators to estimate VS, such as intra-industry trade and components trade. As pointed in the IMF (2013), vertical specialization computed on the basis of I-O tables, allows a more precise measure of a country's involvement in a global production network.

Research dedicated to explore VS trade in individual Middle East countries is limited. A paper on the determinations of international fragmentation of production in Turkey has been conducted by Özenç and Altayligil (2012), focussing on the determinants of trade in parts and components as an indicator of international fragmentation of production. The empirical analysis has been carried out in a gravity model framework for the period 1992-2009. The results reveal that labor cost advantages, inclusion into trade agreements and internet usage have significant positive effects, while real exchange rate and GDP impacts are not significant.

The use of input-output tables of 1998 and 2002 by Duman and Ozguzer (2012) was confined to the analysis of the phenomenon of rising imports in the domestic sectors of the Turkish economy. However, the import content of exports has not been examined.

As for Jordan, Lebanon, and Egypt, it seems that studies on VS trade in general, or those specified to investigate the VS trade using input-output tables do not exist.

On the basis of the above literature review, we can say that there is a dearth on detailed empirical research founded on relevant indicators to assess the VS trade for individual countries of the Middle East region. A plausible explanation for the scarcity of studies may be the paucity input – output tables prepared in these countries.

Accordingly, in this study we try to contribute to the existing literature on this issue by adding evidence on the VS trade for four countries in the Middle East (Jordan, Lebanon, Egypt and Turkey).

Methodology and Data
Data set
The choice of countries and years of the study is mainly subject to the availability of input-output tables required to compute the IC of exports.

Data are sourced from input-output tables produced by national statistical departments in each chosen country. Tables that exist for each of Jordan, Lebanon and Turkey are prepared for only two years; 2006 and 2010 for the first country, 2002 and 2008 for the second, and 1998 and 2002 for the third. Only in the case of Egypt we find I-O tables on continuous time series basis. We have selected the years of I-O tables that are common with those of the other three chosen countries, in order to facilitate the comparison process among them. The chosen year for Egypt are: 2002, 2006, 2008 and 2010.

Methodology

We follow Hummels et al. (2001) in measuring the extent of vertical specialization (VS) for a certain country. VS of country k and sector i is defined as:

$$VS_{ki} = \left(\frac{\text{imported intermediates}}{\text{gross output}} \right) \times \text{exports} \qquad ....(1)$$

The imported intermediate content of exports can be calculated as a share of total exports for the country as a whole. Hence, to obtain the VS share of total exports, we first calculate the overall VS for county k as the sum of VS across all i ($VS_k = \sum VS_{ki}$), then divide it by total exports, X, of the country.

Thus, VS share of total exports =

$$\left(\frac{VS_k}{X_k} \right) = \left(\frac{\sum_i VS_{ki}}{\sum_i X_{ki}} \right) \qquad ....(2)$$

In matrix notation, VS share of total exports,

$$\left(\frac{VS_k}{X_k} \right) = \left(\frac{mX}{X_k} \right) \qquad ....(3)$$

Where **m** is a $1 \times n$ vector of imported coefficients, **X** is a $n \times 1$ vector of exports, n is the number of sectors and X_k is the sum of exports across the n sectors. Each element m_i of vector **m** denotes the imported inputs of sector i employed in the production of one unit of gross output.

Equation (3) provides the value of the direct import content of exports. That is, imports of intermediate inputs acquired from both foreign suppliers and foreign affiliates. Using I-O tables allows us to compute also the indirect import content that is already embodied in capital goods and intermediate inputs which are obtained from domestic suppliers. In order to construct a more general measure, we include all direct and indirect imported inputs, by adding the matrix $[\mathbf{I} - \mathbf{A}^D]^{-1}$ to the above formula, where **I** is an n

× n identity matrix, and $\mathbf{A}^D$ is the n × n domestic technical coefficients matrix.

Hence, our preferred specification for the imported intermediate content (IC) of exports as a share of total exports for country k, which will be employed in this study, becomes:

$$\text{VS share of total exports} = m\left[I - A^D \right]^{-1} \cdot X/X_K \qquad \dots(4)$$

Empirical Results
VS Assessment: Overall and Major Economic Activities

Import content (IC) of exports has been measured to asses VS share for each of the chosen countries at three levels; the whole economy, major economic aggregates and manufacturing sub-sectors.

Table (1) reports the overall IC of exports and those of four main economic activities: agriculture, mining, manufacturing and services. It is obvious that the overall IC in 2002 was higher for Lebanon than those for Egypt and Turkey, reaching 61 percent against 40 percent and 33 percent for Egypt and Turkey, respectively. Whereas comparison of Egypt's IC to that for Jordan (in 2006) indicates that IC in Jordan was also higher, and registered 62 percent against 42 percent for Egypt.

As Jordan and Lebanon are small countries, it is expected that the IC of their exports will be high. This is consistent with the results of several empirical studies such as those of Hummels et al. (2001) and Breda et al. (2008) among others. More recent examples are found in the IMF (2011).

More recent examples are found in IMF (2011). The IC for large countries in 2005 was 12.3 percent in USA and 12.2 percent in Japan, against a high ratio reaching about 59 percent in Luxembourg. Comparison of the IC ratio computed for Jordan in this study (in 2006) with the result obtained for Luxembourg in the IMF study reveals approximately the same results.

Table 1. Imported intermediate content of exports for broad aggregates
(Percentage Values)

	Jordan		Egypt				Lebanon		Turkey	
	2006	2010	2002	2006	2008	2010	2002	2008	1998	2002
Agriculture	32.5	35.7	39.3	39.2	40.3	43.0	31.5	40.9	23.2	17.1
Mining	16.0	17.5	20.9	21.3	23.8	26.2	16.4	20.4	12.2	8.4
Manufacturing	61.2	79.7	43.0	43.9	45.1	46.9	65.4	86.9	42.5	32.5
Services	17.8	18.9	23.2	25.6	27.4	26.7	17.2	20.1	13.1	9.1
Total	62.1	70.2	40.3	42.1	44.7	45.4	61.0	81.2	32.8	26.7

Source: Authors' calculations based on National Input-Output Tables for each country.

The very high level of VS, as reflected on the high ratios of the import content of exports in the cases of Lebanon and Jordan indicates that these countries depend largely on using imported inputs and assembly of imported parts, and not on inputs produced domestically. This result

compares with the conclusions reached in many studies, such as that of Meng et al. (2011). They find that certain sectors in a given country, that do only assembly by using parts that are mainly imported, have a very high level of vertical specialization.

In fact, these two countries have recently adopted rigorous trade liberalization strategies through their early accession to the WTO and conclusion of several bilateral and regional trade agreements. The resulted trade openness has created large exports' opportunities and increased the export volume in both countries. Imports also have increased, including intermediate inputs required for the production of goods for both the domestic market and abroad. The rise in imported inputs' volume has been considerable, in light of the narrow productive base, as the economy of each of Lebanon and Jordan is dominated by the services sector (about 70 percent of GDP). Egypt's IC was higher than that for Turkey in 2002, as it has applied economic adjustment programs and adopted liberalized trade strategies that led to considerable rise in its exports and imports. On the other hand, Egypt is large country and is relatively rich in its resources, hence, its dependence on foreign markets for its inputs is much less than that in the other smaller countries of the sample (Jordan and Lebanon). This appears in its lower IC level compared to their's.

Regarding the changes in total IC between the two considered years, it seems that the rise of IC in each of Jordan, Lebanon and Egypt is consistent with the general trend in world VS trade. However, IC in Turkey has dropped between the initial and final years by 12.5 percentage points. This has been the case in some other countries in the world, such as the UK and Norway between 1995 and 2005 (IMF,2011).

A possible explanation of this decline in the case of Turkey is that it has adopted an industrial policy that aims at remeding what has been called "import dependence" problem, which raised the current account deficit of the country. The government initiated a strategy to reduce this problem through projects focusing on demotic production of imports, including intermediate imports (Atiyas and Bakis, 2013).

With regard to the broad categories of the economic activity, Table (1) shows that nearly the same pattern applies to the four countries. Manufacturing, as could be expected, has the largest share, followed by agriculture, and the remaining share is divided almost equally between mining and services sectors (see for the experiences of other countries: Breda et al. (2008).

While only minor increases have been observed in the IC of agriculture, mining and services in Jordan between 2006 and 2010, a dramatic rise has been registered in its manufacturing sector's IC reaching 30

percentage points. This latter rise has supported the other smaller increases and caused an increase in overall IC by 13 percentage points.

This has not been the case for Egypt between the above two years. It is true that the overall IC has increased, as a result of the rise in all sectors, but the driving force was mining and not manufacturing.

The most remarkable change has been recorded in Lebanon, where total IC was up by 33 percentage points between 2002 and 2008, compared to 11 percentage points for Egypt during the same period. Also, similar to Jordan, the manufacturing sector's IC growth was the highest, but unlike Jordan, IC for the agricultural sector was also high.

Turkey, on the other hand, has recorded a drop in the IC of each sector, but that of manufacturing was only 17.1 percentage points against about 30 percentage points for each of the other sectors. The smaller decline in manufacturing IC has mitigated the impact of the other sectors' decreases on total IC.

The Degree of VS by Industry

As manufacturing sector in each country in the same sample, has the largest IC, it is important to thoroughly analyze its sub-sectors' position. Because the emergence of supply chain has allowed most countries, particularly emerging economies to enhance the technology content of their exports (see IMF, 2011), it is convenient to study IC of manufacturing branches focusing on the level of the technology content of exports. Based on the OECD classification in this regard (OECD, 2011), Table 2 reports manufacturing sub-sectors' IC for the four countries.

In Jordan, all industries have an IC of exports that exceeded 50 percent in 2010, except non-metallic mineral products, whose share was only 16.1 percent. This industry, which consists of glass, ceramic and cement products, depends basically on domestic mineral inputs, and it is mostly directed toward the domestic market (according to the Industrial Survey of 2010, exported sales of this industry constituted only 3.5 percent of total sales). On the other hand, medium-high technology industries such as chemicals, electrical machinery, machines and equipment, motor vehicles and other transport equipment have a share above the average of total manufacturing (76.7 percent). It is worth mentioning that the "chemicals category" includes pharmaceuticals and fertilizers. The latter industry is mainly based on domestic phosphates minerals. The pharmaceutical industry is considered a high-technology one and directed mostly to foreign markets (78 percent of the total sales in 2010).

Regarding Lebanon, it is evident that the largest shares are those of the categories with high and medium-high technology intensity, with a share above the average, such as: electronics, electrical machinery and chemicals.

Electronics recorded the highest growth in IC between the two considered years reaching 131.5 percentage points. This reflects Lebanon's tendency to integrate in the high technology global fragmentation of production.

In Egypt, the number of sub sectors with IC above the average in each of the four considered years was 10 industries. Arrangement of there industries according to their level of IC in 2010 are as follows: machinery and electrical appliances, rubber and plastic products, medical devices, basic metals, making equipment, radio and TVs.

The highest increases in IC have been recorded in machinery and electrical appliances, medical devices, basic metals and "making equipment, radios and TVs". Such sub-sectors are classified as high, as well as medium-high technology exports.

Table 2. Imported intermediate content of exports for manufacturing sectors in Jordan, Egypt, Lebanon and Turkey (Percentage Values)

ISIC-3	Manufacturing Sectors	Jordan		Egypt				Lebanon		Turkey	
		2006	2010	2002	2006	2008	2010	2002	2008	1998	2002
15	Manufacture of food products and beverages	40.9	67	38.1	38.2	38.1	40.2	65.4	87.5	40.9	21.4
16	Manufacture of tobacco products	94.1	61.7	50.2	49.9	50.3	54.2	64.1	76.3	32.1	21.4
17	Making textiles	88.0	65.9	40.5	40.8	41.0	41.2	67.5	78.9	54.0	20.1
18	Making clothes and creating and dyeing of fur	25.0	86.6	41.5	41.5	42.1	43.8	65.2	78.4	62.1	21.4
19	Tanning and dressing of leather and bags	67.6	86.6	38.4	38.7	39.4	39.9	62.8	79.9	31.4	12.4
20	Made of wood and wood products	39.2	94.4	30.1	31.1	32.7	34.5	46.4	79.5	39.2	12.4
21	Making paper and paper products	90.3	86.3	44.3	45.1	45.6	48.5	83.4	76.3	31.4	12.4
22	Printing, publishing and reproduction modes	76.3	92.5	40.2	40.5	40.9	42.9	71.4	78.4	42.5	23.1
23	Manufacture of coke and petroleum products	100	93.9	55.6	56.1	57.8	58.1	71.2	96.5	12.4	12.5
24	Manufacture of chemicals and chemical products	94.0	72.8	54.6	54.9	56.1	57.0	65.4	92.1	61.0	72.8

25	Manufacture of rubber and plastics products	92.3	92.4	53.2	51.2	55.9	58.8	70.1	92.4	23.8	14.1
26	Manufacture of non-metallic mineral products	21.2	16.1	30.5	34.5	34.8	36.5	80.3	94.3	21.2	16.1
27	Manufacture of basic metals	91.2	82.7	50.6	51.8	53.6	55.2	79.1	93.9	62.1	35.4
28	Manufacture of fabricated metal products	42.2	83.6	40.3	40.9	42.8	45.5	67.4	94.6	40.1	14.5
29	Making machines and minerals not classified	-	82.6	35.2	36.3	38.1	40.5	65.1	95.6	54.1	55.4
31	Making machinery and electrical appliances	14.5	92.2	50.2	54.2	57.1	59.2	65.4	96.1	51.3	62.5
32	Making equipment , radios, TVs	-	-	48.5	49.3	49.5	51.3	42.1	97.4	54.1	54.5
33	Manufacture of medical devices	-	63.1	51.5	53.5	55.1	56.2	68.1	96.2	61.2	63.1
34	Manufacture of motor vehicles	0	90.0	46.5	46.4	46.5	48.2	64.1	88.4	50.1	54.2
35	Manufacture of other transport equipment	-	94.0	30.2	31.8	34.9	36.7	62.4	84.2	45.1	50.5
36	Furniture making , and other industries	1.4	93.5	32.9	34.2	35.1	36.7	45.3	62.4	21.4	32.5
	Total manufacturing	61.2	79.7	43.0	43.9	45.1	46.9	65.4	86.9	42.5	32.5

Source: Authors' calculations.

Industries with an IC share above the average for total manufacturing in both years of the study are those classified as high-technology industries, such as electronics, medical devices and measuring instruments, as well as medium-high technology products including chemicals, machinery and motor vehicles. While each of medium-low and low technologies' industries has a share of less than the average.

Changes in the IC share exhibit a drop in those of low and medium technology products, particularly textiles and clothes at more than 60 percentage points for each. On the other hand, high as well as medium-high

technology products witnessed a rise in their shares reaching 21 percentage points in electrical appliances. Accordingly, the decline in total manufacturing IC has been driven by the high drop in the IC of low-technology industries, as the rise in the IC of high-technology industries was not enough to compensate for that decline. These changes in Turkey's pattern of trade may indicate that it has become more involved in the global production networks, particularly in exports with a high technology import content.

Vertical Specialization and Export Growth

In order to specify the VS contribution to total exports growth, we follow Hummels et al. (2001), and employ growth accounting to analyze the sources of growth in total exports (as a share of gross output, GO). Export growth is divided into two parts; VS growth and "other exports growth".

$$\vartriangleleft \frac{X_{k,t}}{GO_{k,t}} = \vartriangleleft \frac{VS_{k,t}}{GO_{k,t}} + \vartriangleleft \frac{X_{k,t} - VS_{k,t}}{GO_{k,t}} \qquad ....(6)$$

Where $\Delta Z_t = Z_t - Z_{t-1}$

Table 3. Results of growth accounting for Jordan, Egypt, Lebanon and Turkey
(Percentage Values)

	First, last year	VS contribution	Other exports contribution
Jordan	2006, 2010	69.84	30.16
Egypt	2002, 2006	43.94	56.07
	2002, 2008	44.11	55.89
	2002, 2010	45.02	54.98
	2006, 2010	43.27	56.73
Lebanon	2002, 2008	68.58	31.42
Turkey	1998, 2002	26.17	73.83

Source: Authors' calculations, based on input–output Tables for Jordan, Egypt, Lebanon and Turkey.

Table 3 shows the results of computing growth accounting between the two years under consideration for each of the four countries. In Jordan, as well as in Lebanon, VS contribution is to a large extent similar, and is the main source of trade growth, reaching about 70 percent. While the opposite has been registered in the case of Turkey, as the growth in VS accounts for 26 percent of exports growth, and the major source of trade growth is "other exports growth". This means that domestic value added embodied in exports is more important in explaining export growth, in the case of relatively large countries as Turkey, in comparison with Jordan and Lebanon

Summary and Conclusion

Empirical research examining the extent of the VS trade in individual Middle Eastern countries is scarce. An attempt is made in this paper to examine this phenomenon, utilizing a widely-used indicator for this purpose, import content (IC) of exports, for four countries in this region (Jordan, Lebanon, Egypt and Turkey).

The results of employing Hummels et al. (2001) method on the basis of input-output tables suggest that the overall level and growth of VS vary substantially among the Middle East countries chosen in this study, as well as within sectors. However, some common features do exist, particularly between Jordan and Lebanon.

At the beginning of the 2000 decade, specifically in 2002, the overall IC was the highest in lebanon, followed by Egypt and then Turkey. Also, Jordan's IC (in 2006) compared to that of Egypt was higher. This reflects the intensive dependence of Jordan and Lebanon on foreign markets for intermediate inputs, which is similar to most small developing countries.

IC ratio has increased at the end of the 2000s decade in all the countries in question (except Turkey) reaching 81 percent, 70 percent and 45 percent in Lebanon, Jordan and Egypt, respectively.

Also, the pattern of IC growth over the previous decade has considerably increased toward the manufacturing sector, especially in Jordan and Lebanon.

A common feature among the four considered countries is the rise in IC of exports in more sophisticated goads, with high and medium high technology. Such changes indicate that the Middle Eastern countries are becoming more integrated into global production products.

It seems that the role of VS trade in this region is increasing, as appears in the relatively high contribution to export growth.

Further studies on the Middle East that examine the nature and structure of VS trade and explore the stages of production (final assembly process or middle stage of production) are of vital importance. Also, research investigating the determinants and effects of VS trade which give a clearer picture of VS may be useful for designing policies related to foreign markets. Import liberalization of necessary intermediates, which promotes exports may be regarded an appropriate trade policy. At the same time measures undertaken to move up the value chain of the domestic production by directing producers to make products that have more value added invested in them may be reflected on increases in the national product and returns of producers.

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