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# Industrialization in Egypt

Historical Development and Implications for  
Economic Policy

by

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## **Abstract**

Although Egypt has begun industrialization long ago (1920's), it is still lagging far behind other countries that have begun the industrialization process much later than Egypt. The arising problem is that the Egyptian manufactures' sector is facing a deteriorating position in terms of trade, as the Egyptian economy faces competitive pressures from three fronts: First, countries within the MENA region which opened up their economies early and took positive measures to increase their competitiveness such as Tunisia and Morocco. Second, East Asian economies and European transition economies which are characterized by having more efficient productive structures using skilled labor and capital intensive activities and hence produce higher value added and better quality goods. Third, the large unskilled, labor abundant, low wage economies such as China, India and Bangladesh that have been integrating rapidly in the global economy, exerting growing competitiveness pressures on countries exporting low-skilled manufactures such as Egypt. This paper deduces that the constraints to having a booming industrial sector are related to the inefficient human resource development, technical constraints, legislative constraints and economic constraints. Accordingly, the paper recommends having more investments in human development, building the capabilities of the public sector, more enhancements for the small industries, and managing the process of integration in the global economy.

## **JEL classification**

O14; L60; E61

## **Keywords**

Industrial development; industrial policy

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## **Introduction**

Industrialization is the process of building up a country's capacity to process raw materials and to manufacture goods for consumption or further production. (Todaro, 1997, p. 698)

In theory, for a traditional economy to industrialize it should go through a number of stages of Industrial Development. In the early stages, this traditional economy should generate a surplus in the primary sector to provide investible funds for manufacturing industries. Meaning that, the primary output should exceed the subsistence needs of the economy. In this case, the traditional economy will aim at exporting this surplus of primary output and the revenues incurred will be spent in many directions. For example, infrastructure in the form of ports, railways, and roads which serve the primary exports, however, their availability will contribute to the development of industrial activities. Also, the increase in revenues may be spent on the accumulation of human capital, which finds uses in manufacturing industries. This makes the traditional economy ready for the first step of Industrial development (Meier, 2000, 180-185).

The first step of industrial development is "the first stage of import substitution". This stage requires some tariff or quota protection to accelerate the process of industrial development. But it is important to determine the level of protection needed, as empirical evidence states that industrial countries of today relied on relatively low tariffs. On the other hand, the developing countries of today applied high tariffs that limited or almost excluded competition from imports. This proves that restrictions should be imposed but to a certain limit. This is because extensive import prohibitions may encourage inefficient, high-cost production in manufacturing industries. Goods in which developing countries begin with to import substitute are usually, clothing, shoes, and household goods made of textile fabrics, leather, and wood. This is because, these industries are (1) intensive in unskilled labor, (2) having an efficient scale if output is relatively low, and costs do not rise rapidly at low levels of production, (3) do not need sophisticated technology. Therefore, this stage is called the "easy" stage of import substitution; moreover, the production of these commodities generates external economies that improve the human capital and the spread of technology. This will result in an increase in production more than the increase in consumption of the economy (Meier, 2000, 180-185).

Afterwards, for an economy to maintain high industrial growth rates, it has two routes to choose between: either moving to the second stage of import substitution (inward-looking industrial development strategy) or the exportation of manufactured goods (outward-oriented strategy). The first strategy, the second-stage import substitution, involves the replacement of imports of intermediate goods and producer and consumer durables by domestic production. But the problem is that, since developing countries suffer a relative scarcity of physical and human capital, they are at a disadvantage in the manufacture of highly physical-capital-intensive intermediate goods and skill-intensive producer and consumer durables. As a result, this encountered increasing economic difficulties. On the other hand, countries applying outward-oriented development strategies performed better in terms of exports, economic growth, and employment than countries with continued inward orientation (Meier, 2000, 180-185).

## **Historical Background:**

In the 1920's, the Egyptian economy was characterized to be an agricultural economy; as three quarters of the Egyptian exports were raw cotton. As a result, industrial output was mainly cotton spinning and weaving; followed by preserved food, cigarettes, soap and handicrafts. Moreover, during this decade, out of an average total population of 13 million, the number of people engaged in industry was nearly half a million, which is a relatively very small number (Aglan, 2003, p.160).

Bank Misr helped the private sector establish a number of industries, especially textiles, which laid the foundation for the development of the country's modern manufacturing sector. During the 30's, the private sector succeeded in producing intermediary goods like cement, fertilizers, paper, and chemical products. However, textiles, clothing and food processing remained to be the dominant manufacturing activities in Egypt. Moreover, Egypt's strategic position in the Middle East during the second war stimulated the growth of the manufacturing of several engineering and construction-material industries to meet the needs of the Allied Forces (Aglan, 2003, p.160).

We may conclude from the above that, Egypt in the early industrialization phase was characterized by having an agricultural-based manufacturing dominating the industrial sector, as a 65 percent of the value-added in the manufacturing sector in 1952 were agricultural based (Aglan, 2003, p.160).

As the 1952 revolution took place, a new phase of Industrialization began, and a large direct government investment in industry took place. In this phase, there was a state led industrial push, where the textile industry continued to have the highest attention, and then came the other industries like: iron and steel, fertilizer, paper and mineral industries. Yet, the government remained keen on undertaking projects that the private sector cannot finance or manage like the Aswan Dam project. In 1961, and after the attack of England, France and Israel on Egypt, the radical shift towards central planning and state-enterprise led industrialization was completed. However, in 1965 the state ended up facing a domestic fiscal and external foreign exchange crisis due to rising imports of raw materials and capital goods and large expenditures on construction and social services (Chang et al, 1995, p.3).

It took a decade, from 1965 to 1975, for a new Industrial Development phase to begin, as this period included both wars of 1967 and 1973. And as a result, the second five-year plan that was supposed to lead to an "industrial deepening" was abandoned due to the shortages in financing. This is because, after the 1967 defeat the country suffered from a deep recession and available resources had to be diverted to defense purposes in preparation for the next war (Chang et al, 1995, p.3).

The following phase (1975-1985) was associated with the implementation of the "Open Door Policy". This new policy aimed at encouraging domestic and foreign investment. Although this phase coincided with the oil boom of the 1970s, Suez Canal dues and Tourism, and large capital inflows from abroad in the form of borrowing and aids, these resources were not directed to the productive sectors of the economy, particularly manufacturing. It is worth noting that, most of the manufacturing

activities were run and financed by foreign investments. Therefore, the economy was considered to be, 'a rentier state' (Chang et al, 1995, p.4).

Finally, since 1985 and till the implementation of the ERSAP, Egypt witnessed a radical decrease in many of Egypt's external sources of revenue. However, surprisingly, there was a positive trend towards Industrial Development, as many of the import-oriented entrepreneurs were shifted to industrial activity, due to the encouragement by the state through the 'new industrial cities' law that was coupled with import restriction policies that aimed at protecting the 'domestic industry'. As a result, this phase was described to be 'industrial-liberalization' instead of 'trade-liberalization' (Chang et al, 1995, p.4).

The ERSAP aimed at reducing protection on the domestic industry, with emphasis on the removal of import barriers, increasing exports and the rapid strengthening of the role of the private sector in industrial development (Aglan, 2003, p.162). This is because it was convicted that the poor performance of the industrial sector is mainly attributable to an overvalued exchange rate, excessive administrative control on prices as well as subsidies to public sector enterprises that led to the misallocation of resources. Thus, the government is currently adopting an industrial policy that entails large-scale privatization of state owned enterprises as well as the gradual removal of subsidies and price controls in the remaining public sector companies (Chang et al, 1995, p.45).

## **An Overview of the Manufacturing Sector in Egypt:**

The process of industrialization in Egypt depends on utilizing technology, natural resources, and labor. Egypt is a country with very limited natural resources. Most of manufacturing technologies are imported. The competitive advantage that Egypt has is the abundant labor and as a result, the labor-intensive exports represent a significant portion of the exported manufactured products (Mobarak, 2001, p.4).

Manufacturing is very important for the Egyptian economy, as it creates jobs for people, develops the skills and knowledge of the workforce in different industries, achieves high added value, achieves economic prosperity and raises the standard of living for all individuals, increases the production and service capacity in the society, and contributes in decreasing the need for imports. As a result, manufacturing is an inevitable matter for Egypt. With the continuous increasing in population and scarcity in resources, there is no other way but to invest in manufacturing (Mobarak, 2001, p.4). The Egyptian manufacturing sector appears to be growing with a fair rate relative to North Africa and Developing countries as shown in the table below:

**Table 1: Indicators of the Manufacturing Sector in Egypt:**

<b>Indicator</b>	<b>Year/Period</b>	<b>EGYPT</b>	<b>North Africa</b>	<b>Developing Countries</b>
<b>MVA, average annual real growth rate (in %)</b>	1981-1991	6.6	4.3	5.0
	1991-2001	6.9	4.3	5.1
<b>Non-manufacturing GDP, average annual real growth rate (in %)</b>	1981-1981	4.7	2.3	3.7
	1991-2001	4.4	3.8	4.3
<b>MVA per capita, in constant 1990 US\$</b>	1981	99	149	408
	1991	150	181	409
	2001	232	225	876
<b>MVA as percentage of GDP at constant 1990 prices</b>	1981	15.2	11.2	21.0
	1991	17.7	13.0	20.9
	2001	20.9	13.7	21.1

*Source: United Nations Industrial Development Organization (UNIDO)*

It appears from the table above that Egypt's manufactured value added is relatively high in comparison to North Africa and Developing countries. However, the manufactured value added per capita is relatively very low in comparison to North African and Developing countries. Yet, it is considered to be increasing from a period to another. Moreover, the percentage of the manufactured value added in GDP is fairly low, but in North Africa the percentage is much lower.

## The Structure of the Manufacturing Sector in Egypt:

The Egyptian manufacturing sector is concentrated on quite a few industries; however, it should be taken into consideration that the relative importance of the manufacturing constituents in terms of their percentage shares in total value added of manufacturing changes from a period to another, as shown in the table below:

**Table 2: Growth rates and manufactured value added of the main industries in the economy:**

ISIC(Rev.2) – Branch	Average annual growth rate (%)		MVA Structure (% share)			
	EGYPT	North Africa	EGYPT		North Africa	
	1991-2001	1991-2001	1991	2001	1991	2001
Food, beverages and tobacco	8.6	4.4	17.3 <sup>(2)</sup>	28.7 <sup>(1)</sup>	22.0 <sup>(2)</sup>	28.3 <sup>(1)</sup>
Textiles, wearing apparel, leather and footwear	-3.2	-0.6	15.5 <sup>(3)</sup>	8.5 <sup>(6)</sup>	16.7 <sup>(3)</sup>	13.4 <sup>(4)</sup>
Wood products including furniture	1.7	1.0	0.4	0.4	2.7 <sup>(7)</sup>	2.6 <sup>(7)</sup>
Paper, printing and publishing	-0.6	0.4	2.5 <sup>(7)</sup>	1.7 <sup>(7)</sup>	2.5	2.2
Chemicals, petroleum, rubber and plastic products	-0.5	0.9	37.0 <sup>(1)</sup>	27.2 <sup>(2)</sup>	24.0 <sup>(1)</sup>	21.0 <sup>(2)</sup>
Non-metallic mineral products	5.8	2.9	6.3 <sup>(6)</sup>	8.6 <sup>(5)</sup>	9.4 <sup>(5)</sup>	10.8 <sup>(5)</sup>
Basic metals	6.7	3.8	8.6 <sup>(5)</sup>	10.6 <sup>(4)</sup>	6.2 <sup>(6)</sup>	7.0 <sup>(6)</sup>
Metal products, incl. machinery and equipment	6.9	1.1	12.0 <sup>(4)</sup>	13.9 <sup>(3)</sup>	16.1 <sup>(4)</sup>	13.9 <sup>(3)</sup>
Other manufacturing industries	6.4	5.2	0.4	0.5	0.4	0.8

Source: United Nations Industrial Development Organization (UNIDO)

\*\*Note: Chemicals include fertilizers, soap, and manufactured medicine. Non-metallic mineral products include cement, glass products, china and pottery.

As obvious from the table above, it seems that some of the industries' shares have rapidly expanded like: Food beverages and tobacco, non-metallic mineral products, basic metals, and metal products. While there are other industries that remained stagnant if not decreased slightly like: Paper, printing and publishing; chemicals, petroleum, and plastic products. The only industry that has significantly slowed-down is the textiles industry. Not only was this slow-down in production, but also in exports whether in quantity or in value. This was due to several reasons (Aglan, 2003, p.64):

1. The expansion in growing long- and medium-staple cotton in USA.
2. The old-established comparative advantage of processing Egyptian cotton with its extra long staple has diminished in favor of the cheaper medium- and short-

- staple varieties processed by foreign competitors, using advanced technology and reduced costs.
3. The substantial expansion in the production of synthetic fibers worldwide.
  4. Ginning and textile factories were public enterprises lacking investment in technological improvement, which made them suffer from a very low competitive advantage in the world market.
  5. These enterprises also suffered from the abrupt rise in the interest rates that made them suffer from a heavy indebtedness burden.
  6. Low labor cost is gradually losing its global competitive advantage due to the low productivity per worker; low training and ineffective supervision; and finally the lack of creative specialized staff in marketing which has limited the textiles' sales.
  7. The high cost of the production of raw cotton and manufacturing of textiles compared with the foreign cottons has induced the private sector firms in Egypt to manufacture products from imported cheap yarn.

### **The Egyptian Manufactures' Trade Position:**

The Egyptian economy faces competitive pressures from three fronts (IMC, 2003):

1. Countries within the MENA region which opened up their economies early and took positive measures to increase their competitiveness such as Tunisia and Morocco.
2. East Asian economies and European transition economies which exert pressure on Egypt through their more efficient productive structures using skilled labor and capital intensive activities to produce higher value added and better quality goods.
3. The large unskilled, labor abundant, low wage economies such as China, India and Bangladesh that have been integrating rapidly in the global economy, exerting growing competitiveness pressures on countries exporting low-skilled manufactures such as Egypt.

### The Specialization Index of Egypt:

The index measures the country's revealed comparative advantage in exports according to the Balassa formula. The index compares the share of a given sector in national exports with the share of this sector in world exports. Values above 1 indicate that the country is specialized in the sector under review. The graph shows the ranking of the specialization indices across countries: Rank 1 indicates that the country has the highest specialization index in the world for the sector under review.

**Table 3: The Revealed Comparative Advantage of the Egyptian Manufactures:**

EGYPT	Rank	Revealed Comparative Advantage (RCA)
Textiles	8	3.73
Clothing	29	4.28
Minerals	44	2.86
Basic Manufactures	45	1.18
Chemicals	48	0.76
Leather Products	54	1.09
Miscellaneous Manufacturing	64	0.55
Non-electric Machinery	71	0.21
Electric Components	78	0.11
Processed Food	83	0.97
Fresh Food	84	2.44

Source: ITC 2002: Calculations based on COMTRADE of UNSD

It appears from the table above that Egypt has a comparative advantage in only a few industries (those with RCA more than 1), which are: Textiles, Clothing, Minerals and Basic Manufactures.

Egypt tends to have a very weak trade position in manufacturing. This appears in the low level of Egyptian exports in North Africa's total, or the Developing countries' total, or the World's total. This is obvious in the table below:

**Table 4: The Egyptian Manufactured Value Added and Manufactured Exports as a percentage in North Africa's total, Developing countries total and in the World's total:**

Type	Year	In North Africa's total	In the Developing countries' total	In the World's total
MVA (share in %)	1981	26.2	0.9	0.1
	1991	32.6	1.1	0.2
	2001	40.2	1.1	0.3
Manufactured Exports (share in %)	1981	14.6	0.3	-
	1991	16.9	0.3	-

Source: United Nations Industrial Development Organization (UNIDO)

Although Egypt has considerable share in the manufactured value added of North African countries and Developing countries, it seems to have a very weak share in the exports of both North Africa and Developing countries. Furthermore, Egyptian exports have a negligible percentage share in the total world's exports. There are several reasons behind Egypt's low level of manufactured exports:

1. The inferior quality of the Egyptian products.
2. Lack of expertise.
3. Fierce International Competition.

4. The price inelastic demand for our exports even if there was devaluation in the domestic currency.
5. The lack of marketing and advertising skills and know-how among sales personnel.
6. High production costs due to heavy taxation.
7. The lack of investment in the research and development.
8. Past heavy protection through subsidization and tariffs, and fixing physical output targets to be met by each public enterprise, irrespective of the quality, costs of production and market demand led to the widening of the gap between domestic and international prices of manufactured goods that have become uncompetitive in most cases.
9. The composition of its exports is skewed away from high productivity goods compared to countries at similar levels of development.

#### The Impact of Tariffs on Industrialization:

Egypt has traditionally resorted to high protective measures to promote industrialization, believing that it will help achieve self-sufficiency in strategic sectors and protect domestic employment. However, in recent years opinions have shifted, as evidence revealed that openness is the key to growth and development, as it was found that open economies grew at an average annual rate of 4.5 percent over the 1970s and 1980s, while closed economies grew at only 0.7 percent. Egypt, Argentina and India were among the inward-oriented countries that started the 1970s with GDP growth rates that were higher than many outward-oriented countries at the time, then deteriorated and ended up worse off (Refaat, 2003, p.1).

We will resort in our analysis to the effective protection rather than the nominal protection, as it is a more useful indicator for producers and policymakers, as it reveals the structure of incentives in different sectors of the economy, by accounting for both tariffs on outputs and inputs. Thus, effective protection deals with the full range of tariff interventions that may affect a given production process. When calculating the effective import tariffs, it should be taken into account the tariff barriers to trade and the Input-Output (I/O) tables for Egypt that reflects the inter-industry trade. Effective Rates of Protection (ERP) decreased from 1991/92 to 1998/99, but they remained almost unchanged between 1998 and 2002. However, there is a wide divergence in the ERPs of the different industries as shown in the table below:

**Table 5: Effective Rates of Protection in the Egyptian Manufacturing Sector (%):**

	1991/92 I/O Tables			1998/99 I/O Tables	
	1994	1998	2001	1994	1998
<b>Food processing</b>	8.1	7.4	7.4	5.8	1.5
<b>Cotton ginning and pressing</b>	- 8.9	- 6.2	- 5.9	- 11.1	- 11.5
<b>Spinning and weaving</b>	50.3	44.9	48.2	36.2	38.4
<b>Garments</b>	82.8	44.3	826.0		
<b>Garments and footwear</b>				43.9	674.1
<b>Leather products excl. shoes</b>	60.9	38.7	50.8	33.2	43.6
<b>Shoes</b>	94.4	50.4	51.8		
<b>Wood, wood products, excl. furniture</b>	6.1	5.8	9.4		
<b>Furniture</b>	99.0	55.1	53.8		
<b>Wood products including furniture</b>				9.1	12.0
<b>Paper and Printing</b>	17.1	16.2	16.0	15.2	15.0
<b>Chemicals and products, excl. petroleum</b>	9.6	9.5	9.7	9.2	6.9
<b>Rubber, plastic and products</b>	49.6	37.0	38.1	30.1	31.0
<b>Porcelain, china, pottery</b>	62.0	39.0	38.9		
<b>Glass and products</b>	40.0	28.9	29.2		
<b>Mineral products, n.e.i.</b>	20.5	17.6	19.0	20.9	19.6
<b>Iron, steel, other base metals</b>	22.1	16.6	16.8	15.4	12.0
<b>Machinery and appliances</b>	19.2	14.2	14.3	14.4	11.1
<b>Transportation equipment</b>	54.8	46.7	46.6	45.4	44.6
<b><u>Unweighted manufacturing average*</u></b>	37.8	26.4	27.8	18.6	18.6
<b><u>Dispersion*</u></b>	31.4	18.5	19.2	15.5	17.4

\*Average and dispersion are for all industries included in the table excluding clothing.

Source: Refaat (2003), p.6

Remarks to be deduced from the table above (Refaat, 2003, 5-7):

1. Cotton ginning remains to be the industry that is continuously negatively protected.
2. The industries that are highly protected (i.e. their EPR is above average) are textiles; clothing; leather products excluding footwear; transportation; and rubber and plastic.
3. Due to aggregation, tables hide other highly protected industries like: furniture (included under wood products), glass and pottery (included under mineral products), and footwear (included under clothing).
4. There is an uneven structure of incentives in the manufacturing sector. For example, clothing industry at one extreme receives a very high subsidy to its value added due to high tariffs, while at the other extreme, cotton ginning has its value added taxed. As a result, there are increased incentives for factors of production to move towards the clothing industry which is highly protected and hence, they will have higher returns than under free trade. On the other hand, there is a disincentive for investment and may squeeze resources out of industries such as cotton ginning. In this case, the government attempts to

increase its competitiveness by raising tariffs on competing final products, while providing it with low-priced inputs.

The pace of trade reform has slowed down and tariff levels and dispersion have not gone below their levels in 1998. This slowdown is irritating because Egypt was already in a relatively unfavorable position regarding its trade position. Furthermore, it has a high level of protection relative to its comparators as shown in the table below:

**Table 6. Trade Protection in Egypt and for Different Country Groups, Late 1990s:**

	Simple Average Tariff	Weighted Average Tariff	Standard Deviation	NTB Coverage	Escalation Index	Aggregate Measures of Protection	
	(%)	(%)	(%)	(%)	Ratio	Oliva	AN
<b>EGYPT</b>	<b>28.1</b>	<b>13.7</b>	<b>130.6</b>	<b>28.8</b>	<b>2.1</b>	<b>55.8</b>	<b>23.5</b>
<b>Comparators by Income Group</b>							
Low-Income	15.5	12.6	10.9	5.5	1.5	11.7	21.2
Lower Middle Income	15.3	12.5	15.0	13.4	1.7	14.7	15.1
Upper Middle Income	13.8	11.6	12.3	14.7	1.6	13.6	11.8
High Income	4.3	3.4	7.0	15.6	1.7	8.0	10.9
<b>By region</b>							
Europe and Central Asia	9.8	6.7	11.0	10.9	2.0	10.4	11.6
East Asia	13.1	8.7	16.8	9.9	1.8	13.2	11.3
Latin America	13.1	11.9	8.5	17.1	1.6	12.9	14.7
Sub-Saharan Africa	17.7	14.2	13.3	4.5	1.5	13.1	18.9
South Asia	19.7	18.8	11.7	8.2	1.2	14.6	27.7

*Source: Refaat (2003), p. 13*

It is evident from the table above, which compares trade protection indicators for Egypt to different country groups that Egypt is more protected than all its comparators by all measures, with only minor exceptions. Among 97 countries, Egypt had the highest dispersion of tariff rates, and the highest overall trade protection index, which indicates that Egypt is considered to be one of the least open economies in 2002 (Refaat, 2003, p.12).

Very fast growing economies like: Chile, Hong Kong, Indonesia, Korea, Malaysia, Singapore and Thailand have been achieving rapid growth of manufactured exports. This has been supported by trade policies that allowed manufacturing exporters to operate at world prices for inputs of capital and intermediate goods and for the sale of exports on world markets. Meaning that, governments avoided tariffs and quotas on inputs, inconvertibility of the currency, state monopolization of exports on

unfavorable terms of exporters, or explicit taxation of exports but rather they provided implicit or explicit subsidization of exports. On the other hand, other slower-growing economies like Egypt tended to support domestic manufacturers by protecting the home markets rather than promoting exports activities (Sachs, 1996, p.10).

Openness made several contributions to growth (Sachs, 1996, p.12):

1. It ensured the efficient allocation of resources, through specialization, comparative advantage, and dynamic learning by doing.
2. It promoted domestic competition by limiting the market powers of domestic firms and by providing a harsh international benchmark of performance.
3. It promoted the rapid improvement of technology through the importation of foreign technologies.

### The Impact of Industrialization on Employment:

It is important to analyze the employment effect of various industries on the economy. This is because Egypt is a country which suffers from a high number of population and hence a high level of unemployment. Thus, the employment impact of the industry is an important angle in any economic analysis.

**Table 7: The Capital intensity in manufacturing in 1995/96:**

Industry	Capital		Labor		Capital-labor ratio (LE 000) (3)=(1)/(2)	Ranking
	LE million	%	LE million	%		
<b>Food</b>	6224.6	16.3	217786	18.7	28.58	<b>5</b>
<b>Textiles</b>	5247.5	13.7	346846	29.8	15.13	<b>8</b>
<b>Wood</b>	276.6	0.7	18010	1.5	15.36	<b>7</b>
<b>Paper</b>	1198.6	6.6	35483	3.0	33.78	<b>4</b>
<b>Chemicals</b>	10697.7	28.0	159576	13.7	67.04	<b>2</b>
<b>Non-metallic Products</b>	6475.4	16.9	91990	7.9	70.39	<b>1</b>
<b>Metal</b>	3247.2	8.4	78655	6.8	40.90	<b>3</b>
<b>Metal Products and equipment</b>	3554.1	9.3	215125	18.5	16.52	<b>6</b>
<b>Total</b>	<b>38223.9</b>	<b>100.0</b>	<b>1163473</b>	<b>100.0</b>	<b>36.00</b>	

*Source: CAPMAS, Census of Annual Industrial Production, 1995/96, 2 vols, (May and Sept. 1998)  
Cited in Abdel Khalek (2001), p.106*

We can deduce from the table above that:

1. Non-metallic minerals industry is the most capital intensive among Egyptian manufacturing industries.
2. The textiles industry is having the lowest capital-labor ratio in all Egyptian industries, which makes it have a very positive impact on the employment level in Egypt, afterwards comes the woods industry.

Since Egypt is a labor-abundant, capital-scarce country, the allocative efficiency of resources in the manufacturing activity implies that Egypt should specialize in the labor-intensive activities. Meaning that, Egypt should specialize in textiles, wood and furniture, metal products, food processing and paper, as in all these activities the value of the capital-labor ratio is below the mean value for the total manufacturing activities

(Abdel Khalek, 2001, p.107). From table 2, it seems that potential comparative advantage in wood and paper is still relatively unexploited, as they are having a relatively low manufactured value added. However, food and metal products are having a relatively high manufactured value added, which shows allocative efficiency in this respect. Thus, these labor intensive manufacturing activities, including textiles, should receive more attention.

On the other hand, the metal industry which is among the most capital intensive industries tends to have a relatively high manufactured value added (from table 2) while it is highly inefficient to produce such products since they are have high domestic resource cost which were unlikely to allow efficient exports. Iron and steel are industries with economic rates of return which are much less than the financial rates of return (Abdel Khalek, 2001, p.108).

However, it is worth noting that the productivity of the Egyptian labor is relatively very low in comparison to other comparators as shown in the table below:

Country	Average Measures (% of countries average) (1991-1995)		
	Wage per labor	Productivity per labor	Wage per labor adjusted for productivity
China	-----	-----	-----
Egypt	0.275	0.169	1.343
Indonesia	0.173	0.183	0.598
Jordan	0.534	0.410	0.985
Korea	2.631	4.494	1.115
Philippines	0.437	0.248	1.002
Thailand	0.572	1.052	0.303
Tunisia	0.763	0.617	1.790
Turkey	1.750	0.828	0.968

Source: Calculated from UNIDO ISIC4 Database, 1997.

Cited in: Abdel-Latif, L. & Selim, K.(1998)

The table above shows the low level of productivity of labor. This weak symptom leads to increasing the cost of production. The relatively low level of wages of Egyptian workers is outweighed by relatively low productivity. As shown in the table, weighting wage levels by the relative productivity of labor in each specific nation adjusted to reflect the relative production position in the whole sample of countries, show that in a cost-benefit context, labor is not relatively cheap in Egypt as one may compare Egypt's figure with that of Thailand for instance: 1.343 versus 0.303 (Abdel-Latif, L. & Selim, K., 1998).

### **Divergence between the Economic profitability and the Financial Profitability of Egyptian Manufactures:**

Unfortunately, there tends to be a high divergence between the economic and financial profitability for most of the Egyptian manufactures. Meaning that, the industries that seem to be financially highly profitable to investors tend to be with a very low benefit to the economy. This may be due to the high protection and the subsidizing of industries that tend to be inefficient or with a low benefit to the

economy in terms of foreign exchange, employment, and value added, which ends up giving the investors in these industries very high profits. This may be shown in the table below:

**Table 8: The divergence between economic and financial profitability: single year estimates, FY 1980/81:**

<b>Industry</b>	<b>Economic Rate of Return</b>	<b>Financial Rate of Return</b>
Cotton textiles	13.6	5.9
Wool textiles	14.1	15.5
Jute products	5.1	17.5
Carpets	4.2	18.3
Oil, soap & detergents	14.4	-6.6
Sugar	34.2	7.1
Processed Vegetables	12.3	2.2
Oil & essences	78.1	17.6
Starch & Yeast	45.0	6.2
Artificial fibres	-9.5	1.9
Non-edible oils	-11.1	3.8
Coke	-17.4	-20.7
Leather and tanning	8.3	4.1
Iron & Steel	2.7	10.9
Aluminum	-21.0	12.5
Non-ferrous metals	-3.1	15.5
Steel pipes	-2.0	18.9
Formed & shaped steel	6.4	11.7
Ferrous castings	-46.2	-6.7
Road motor vehicles	-32.7	13.4
Railway carriage	17.3	12.1
Bicycles & motorcycles	-3.2	1.5
Industrial electrical products	52.6	24.4
Electric consumer durables	20.0	15.8
Consumer electronics	-3.6	20.5
Ceramics	-12.8	2.4
China & glass	-16.4	20.6

*Source: World Bank (1983, p. XVIII)*

*Cited in Abdel Khalek (2001, p. 111)*

Industries with the highest financial rate of return are: Industrial electric products (high economic rate of return as well), China and glass (negative economic rate of return), Consumer electronics (negative economic rate of return), and steel pipes (negative economic rate of return). On the other hand, industries with the highest economic rate of return are: Oil and essences (moderate positive financial rate of return) and industrial electric products (high financial rate of return).

Industries with high economic rate of return and low financial rate of return should be subsidized in order to encourage investors to invest in such industries, as these industries have high economic benefits to the economy in terms of foreign exchange, employment, and direct and indirect value added. This applies to industries like: Oil, soap and detergents; cotton textiles; food (which includes sugar, processed vegetables, starch and yeast, oil & essences); and industrial electric products. On the other hand, industries with low economic rate of return and high financial rate of return should be

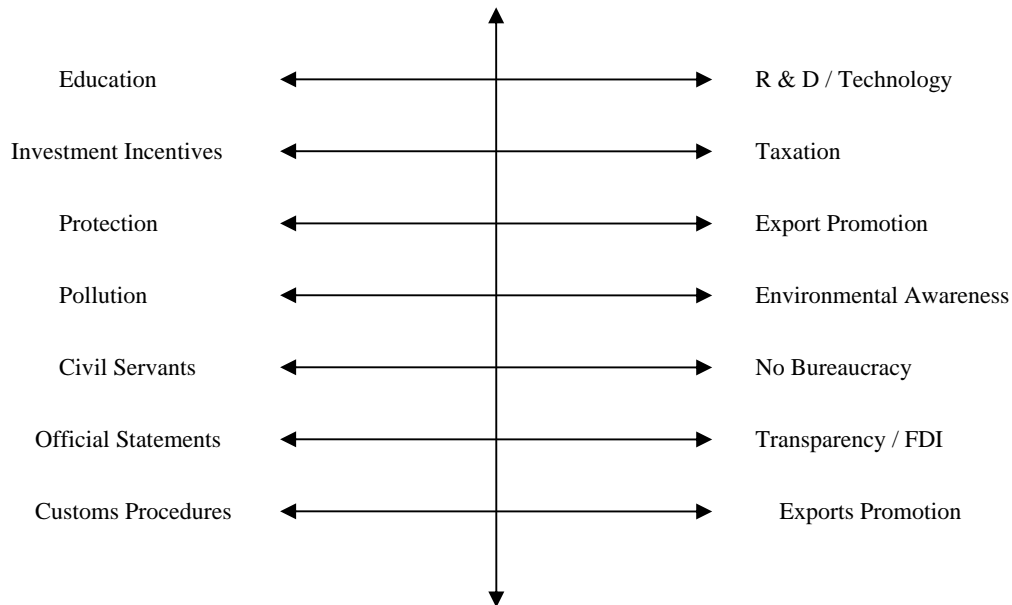
taxed. This applies to industries like: Aluminum, metal products (which includes steel pipes), china and glass, ceramics, and consumer electronics.

### **Constraints of Industrialization in Egypt:**

There are several constraints and obstacles in enhancing the contribution of industry to sustainable development. These constraints are (Mobarak, 2001, 17-19):

1. Human Resource Development Constraints: mainly the increasing rate of population which leads to poor quality of education whether in schools or public universities. Moreover, the technical education which is responsible for the labor force in industry is at a very poor level of quality due to the high number of students per class and the poor quality of workshops and laboratories. In addition, there is a lack of marketing and advertising skills and know-how among sales personnel. All this resulted in the decline of the productivity of the Egyptian labor.
2. Technical Constraints: related to limited technical knowledge, high price of conducting research, high price of imported pollution prevention technologies, lack of trained technical staff, and non-utilization of cleaner production technologies in manufacturing enterprises.
3. Legislative Constraints: such as the lack of technical capacities within the higher environmental authority in the country to monitor and execute the required environmental legislative duties and tasks.
4. Economic Constraints: such as hard currency limitations, fluctuations in raw materials market prices, governmental control over the exchange rate of foreign currency and lack of global market companies which enhances the exports and gives information about foreign markets and how Egyptian products can penetrate them. Moreover, government control of the manufacturing enterprises has contributed to the inefficient resource use for production, and to falling exports. The monopoly power since 1961 has been exercised in different forms in different forms including heavy protection through subsidization and tariffs, and fixing physical output targets to be met by each public enterprise, irrespective of quality, costs of production, and market demand. These forms of government intervention have widened the gap between domestic and international prices of manufactured goods that have become uncompetitive in most cases. However, the ERSAP aims at the gradual reduction of subsidies as a part of the price stabilization policy (Aglan 2003).

All of the above constraints can be summarized in statement INCONSISTENT INDUSTRIAL POLICIES:



*Source: Industrial Modernization Center (IMC), The Ministry of Industry and Technology*

There is a package of industrial policies that are assumed to involve incentives to investors and exporters. However, these policies tend to be ineffective or even have a negative impact on the industrial development because of being inconsistent (IMC, 2003).

- The present quality of education in Egypt does not give any indication that there might be an effective innovation, R&D, or technological improvement.
- Incentives to investors are given with one hand while extra taxes, complicated procedures and macroeconomic ambiguity discourage investors on the other hand.
- Protection on the domestic industries in terms of tariff and non-tariff barriers is inconsistent with the claims that Egypt tends to adopt an export promotion strategy.
- The high pollution in Egypt does not indicate that Egypt has environmental awareness in its production process.
- Calls for less bureaucracy and simplified procedures cannot be realized with the present characteristics of the civil servants especially the ones directly associated with the execution of laws and the interaction with people.
- The unrealistic official statements announced by governments do not indicate the existence of transparency which discourages foreign direct investment.
- The complicated customs procedures manufacturers suffer may never promote Egyptian exports.

## **SWOT Analysis:**

### **Strengths:**

1. Egypt's competitive advantage in having abundant labor.
2. The privatization strategy of Egypt is contributing to sustainable development in industry since governments have other jobs rather than management of industrial production. The privatization procedure is progressing; however, other countries (e.g. Germany) have closed this file in much shorter time.
3. The establishment of new industrial cities has been a practical alternative to curb the pollution problems of the old cities. This not only decreases problems in the over crowded areas but also helps to spread urbanization in the new cities that have enough land space. The idea of industrial cities aims at boosting the initiatives of cleaner production in the industrial establishments.
4. The International agreements signed by Egypt, especially that with the EU.
5. Egypt's special geographic location which gives it a comparative advantage in exporting.
6. The relative abundance of natural gas, which constitutes a source of energy for industrialization despite its high costs.
7. Egyptians have always been creative and all they need is motivation.
8. Labor-intensive textiles in which Egypt has had rich experience and the comparative advantage of cotton cultivation length of staple and skilled cheap labor.

### **Weaknesses:**

1. Narrow export product and market base.
2. Limited domestic production of intermediate inputs and components.
3. Limited Contribution of the FDI.
4. Weak capital goods industry.
5. No technological deepening.
6. Limited natural resources.
7. High number of population.
8. Low quality of education and low R&D.
9. Lack of marketing and advertising skills.
10. Non-clean industrial techniques.

### **Opportunities:**

1. Gradual decrease of the protectionism and subsidies according to the ERSAP, which implies the specialization in only the efficient products.
2. International agreements Egypt has signed with other countries especially the EU.

3. Egypt tends to better understand the concept of marketing and sales and has recently introduced it in its universities, which provides the domestic products the opportunity to be better marketed abroad.

**Threats:**

1. Competition in the export markets from lower cost manufacturers.
2. Threat of de-industrialization because of rapid import liberalization.
3. Persistent trade deficit in the manufactures sector which constitutes pressure of the Balance of Payments.
4. Current extensive import prohibitions may encourage inefficient, high-cost production in manufacturing industries.

**POLICY RECOMMENDATIONS:**

- **Strategy One: Better Human Resource Development:**

**Objectives:**

1. Better quality of Education in Schools and Universities.
2. Better quality of technical education which is responsible for the labor force in industry.
3. The development of the marketing and advertising skills and know-how among sales personnel.

**Measures:**

1. Class density should decrease from 42 to 30.
2. Government spending on technical education should increase by 30% at least.
3. Each faculty should impose a course or two to develop the marketing and sales skills of its students.

- **Strategy Two: Developing the Capabilities of the Private Sector "Capability Building":**

**Objectives:**

1. Higher Spending on R & D.
2. Specializing in Industries where Egypt has a comparative advantage (labor-intensive industries)
3. The better use of pollution prevention technologies
4. The bureaucratic attitudes that constitute a serious impediment to future investment in industrial expansion and increasing manufactured exports must be fundamentally changed.
5. Improve the Investment climate to encourage more domestic and foreign investments by having more macroeconomic stability.

**Measures:**

1. Big efforts should be focused on implementing applied research and development to industry. This can be done by increasing the share of funding R & D and technology transfer from the meager value of 0.6% of GDP to 2.5% of GDP. Note: it reaches 3 to 5% in industrial countries.
2. Temporarily subsidize industries with higher economic rate of return and tax those with lower economic rate of return.
3. Charge financial punishments on bureaucrats that do not efficiently handle their jobs (100 LE per complaint).
4. Environmental aspects should be considered a key incentive criterion in taxation exemption and impose very high fines on those not respecting the environmental standards.

- **Strategy Three: There should be more enhancements for the small industries:**

**Objectives:**

1. Setting up several industrial schools for preparation of different skills and founding new training centers for the development of entrepreneurial abilities.
2. Offering soft loans without charging interest rates or at reduced rates and longer grace periods for borrowing from the state banks.
3. Establishing a number of technical service centers ready to give advice, and to solve problems faced by these small-scale establishments.
4. Provision of tax exemptions to the small industries depending on the activity and on the number of employees of each firm, as at present only large companies employing fifty workers or more enjoy five-year tax exemption.
5. Small industries should enjoy custom tariff reduction when importing capital equipment and exporting the goods they produce.

**Measures:**

1. Establishing training workshops in new industrial cities provided with the required equipment.
2. Providing small entrepreneurs with loans with 50% interest less than normal loans given to bigger businessmen.
3. Provision of tax exemptions to the small industries depending on the activity and on the number of employees of each firm, as at present only large companies employing fifty workers or more enjoy five-year tax exemption.

- **Strategy Four: Managing the Process of Integration in the World Economy:**

**Objectives:**

1. An initial stage of export promotion based on traditional labor-intensive industrialization while building industrial capability in more advanced industries is necessary.
2. A long-term perspective would necessitate continuous investment in human resources in pursuing an active policy of technology acquisition to create a comparative advantage in a number of 'new' and leading sectors which may be more skill and knowledge-intensive in the future.

**Measures:**

1. Promoting manufactures' exports with a traditional comparative advantage of labor-intensive as well as high economic value added products by providing them with tax holidays and technical support.
2. Enhance all the industrial firms to achieve certificates of international standards (e.g. ISO Certificates)

**Time Horizon for Industrialization Strategies:**

<b>Short-term Strategies</b>	<b>Medium-term Strategies</b>	<b>Long-term Strategies</b>
<ul style="list-style-type: none"> <li>• Strategy Three: More Enhancements for the small industries</li> </ul>	<ul style="list-style-type: none"> <li>• Strategy One: Better Human Resource Development.</li> <li>• Strategy Two: Developing the Private Sector Capabilities</li> </ul>	<ul style="list-style-type: none"> <li>• Strategy Four: Managing the Process of Integration in the World Economy</li> </ul>

**Conclusion:**

The government cannot release itself from all involvements in industries. As, new industries constantly emerge and governments need to intervene heavily in them by providing technology standards, co-coordinating investments, supporting cooperative R&D till the new industries mature. Afterwards, the government may reduce its involvements by gradually "phasing out" of that industry. So, the government will be releasing some of its old duties in order to take up new ones.

## List of References

- Abdel Khalek, G., 2001. *Stabilization and Adjustment in Egypt: Reform or De-Industrialization*. UK: Edward Elgar Publishing.
- Abdel Latif, L. M. & Selim, K. S. "Egyptian Industry and the Economy Speed of Global Integration", *A Policy Paper prepared for Economic Policy Initiative Consortium (EPIC)*.
- Aglan, S., 2003. "Industrial Development", in El-Ghonemy, M. R. (ed.) *Egypt in the Twenty-First Century: Challenges for Development*. London: RoutledgeCurzon.
- Chang, H., Said, M., and Sakr, K. 1995. "Industrial Policy and the Role of State in Egypt: The Relevance of the East-Asian Experience", *Economic Research Forum working paper no. 9514*, Cairo.
- Industrial Modernization Center (IMC), 2003. "Green Paper 2003". Cairo: The Ministry of Industry and Technology.
- Sachs, J., 1996. "Achieving Rapid Growth: The Road ahead for Egypt", *The Egyptian Center for Economic Studies (Distinguished Lectures)*. Cairo: The Egyptian Center for Economic Studies.
- Meier, G. M. & Rauch J. E., 2000. *Leading Issues in Economic Development*, 7<sup>th</sup> ed. New York: Oxford University Press.
- Mobarak, A., 2001. "The Challenges of Sustainable Industrial Development in Egypt. A Country Paper for the World Summit on Sustainable Development", United Nations Industrial Development Organization (UNIDO), Cairo, Egypt.
- Refaat, A. 2003. "Trade Induced Protectionism in Egypt". Working Paper No. 85. The Egyptian Center for Economic Studies.
- Todaro, M. P., 1997. *Economic Development*. 6<sup>th</sup> ed. Massachusetts: Addison-Wesley Reading.