TEXTILE GLOBAL COMMODITY CHAINS: EFFICIENCY AND INDUSTRIAL UPGRADING IN EGYPT

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Abstract

The present study explores the implications of engagement in global commodity chains for the productive efficiency, industrial upgrading and exports of Egypt's textile and apparel (T&A) firms, particularly in view of Egypt's long standing Cooperation/Association Agreements with the European Economic Community/European Union spanning the period 1977 to date. Using a balanced panel of 116 T&A firms in Egypt for the period 2001-2004, a production function is estimated yielding firm-level total factor productivity (TFP) estimates. Subsequently, TFP estimates are regressed on a set of variables representing engagement in global commodity chains and ensuing industrial upgrading. Egypt's case is compared with that of Mexico, particularly in relation to the effect of the North American Free Trade Agreement's preferential treatment and rules of origin on textile and apparel firms' productivity and industrial upgrading.

ملخص

تبحث هذه الدراسة في تأثير مشاركة منشآت المنسوجات والملابس في مصر في السلاسل السلعية العالمية على الكفاءة الإنتاجية والارتقاء الصناعي والصادرات، وخاصة في إطار الاتفاقيات التي أبرمتها مصر مع أوروبا بداية من اتفاقية التعاون مع الجماعة الاقتصادية الأوروبية ثم اتفاقية المشاركة مع الاتحاد الأوروبي خلال الفترة الممتدة من ١٩٧٧ وحتى الآن. وباستخدام بيانات مقطعية-زمنية متوازنة لعينة مكونة من ١١٦ منشأة في قطاع المنسوجات والملابس للفترة ٢٠٠١-٢٠٠٤، تقوم الدراسة بتقدير دالة إنتاج بهدف الحصول على تقديرات الإنتاجية الكلية للعناصر على مستوى المنشآت، ثم تجري الدراسة معادلة انحدار لها لتقدير مساهمة مجموعة من المتغيرات التي تمثل المشاركة في السلاسل السلعية العالمية وما أعقبها من ارتقاء صناعي في الإنتاجية الكلية. ثم تعقد الدراسة مقارنة بين تجربتي مصر والمكسيك خاصة فيما يتعلق بتأثير المعاملة التفضيلية وقواعد المنشأ في إطار اتفاقية التجارة الحرة لأمريكا الشمالية على إنتاجية منشآت المنسوجات والملابس والارتقاء الصناعي في المكسيك.

INTRODUCTION

A commodity chain (CC) describes the sequence of activities ranging from securing raw materials to the various manufacturing processes yielding the final product, through to its marketing, distribution and after sale service. The slicing-up (Krugman 1995:4) and the geographic dispersion of activities both give a global character to the chain. However, such dispersion is far from haphazard, but is largely governed by the preferential treatment granted to nations through their engagement in preferential trading arrangements, thereby giving their firms access to various activities along the said chains.

Attention given to studying the implications of the engagement in global commodity chains (GCCs) for the performance of firms in developing countries has indeed been scant. As such, the present study explores the implications of such engagement for the productive efficiency, industrial upgrading and exports of Egypt's textile and apparel (T&A) firms. The chains of interest are those governed by European organizational buyers. These are among the global buyers classified as *large retailers*, *large department stores*, *branded marketers* and *branded manufacturers* (Gereffi 1999). Such classification bears upon the pattern of *chain governance* and, hence, the nodes (links) of the chain that Egyptian firms may access and their upgrading prospects. The relevance of the European organizational buyers is underscored by Egypt's being party to a Cooperation Agreement (CA) and an Association Agreement (AA) with the European Economic Community (EEC) / European Union (EU) spanning the period 1977 to date.

With an eye on drawing relevant lessons of experience, the study compares the case of Egypt with that of Mexico. The choice of Mexico was driven by a curiosity about the reasons behind the upsurge in Mexico's manufactured exports to the United States especially after joining the North American Free Trade Agreement (NAFTA) in 1994. For perspective, Mexico's share of U.S. apparel market exceeded 10 percent in 2000, up from 3-4 percent in 1990. Moreover, numerous Mexican apparel firms accessed CCs governed by U.S. organizational buyers and eventually achieved industrial upgrading in its various forms. NAFTA may also be comparable to the CA/AA not only in its contribution to increased T&A exports but also to a change in T&A export structure. Finally, both Egypt-EU/Mexico-NAFTA exemplify "North-South" cooperation.

Using a fixed effects model, and with a balanced panel of 116 T&A firms (of 100+

employees) in Egypt for the period 2001-2004, a production function is estimated to obtain firm-level total factor productivity (TFP) estimates. These are then regressed on various explanatory variables representing engagement in GCCs (either through foreign direct investment or subcontracting arrangements) and ensuing industrial upgrading which may be associated with the preferential treatment and rules of origin under CA/AA. Such treatment is then weighed against its NAFTA counterpart with the objective of identifying similarities, differences and implications of firms' engagement in GCCs for productivity and upgrading.

The study is organized as follows: Section 1 gives a brief review of the relevant literature; Section 2 highlights methodology, data sources and gives estimation results while deferring model specification and detailed description of variables to Appendices I and II; Section 3 highlights the main features of Egypt's T&A exports to the EEC and EU as well as the main features of the CA/AA together with their implications for firms' accession to GCCs; Section 4 highlights main features of Mexico's T&A exports to the U.S. and compares the CA/AA with NAFTA, Section 5 concludes the study drawing lessons of experience with relevance to Egypt's case.

1. REVIEW OF LITERATURE

The origin of GCC analysis can be traced back to the "filière approach,"[1] which focused on developing selected export commodities through contract farming in the ex-French colonies. Targeting to "map out the actual commodity flows and to identify agents and activities within a *filière,*" the latter was viewed as a physical flowchart of commodities and transformations (Raikes, Jensen and Ponte 2000:405). As such, the approach fell short of describing either the manner in which that flow is organized or the nature of the relation(s) between the various agents working along it. But the "subsector approach,"[2] using the *subsector map* as a basic tool of analysis, circumvented this shortcoming. Each subsector on the map described an alternative *channel* for various functions/activities of product transformation (from securing

[1] For a detailed discussion of this approach, see Raikes, Jensen and Ponte (2000).

[2] Like the *filière approach*, the subsector approach stemmed from agricultural research. It is worth noting that in the latter approach, the use of the term *subsector* is misleading because it describes a "subcomponent of an individual sector of the economy," which is different from its use in this context where it describes a channel of varied activities each belonging to a sector or subsector. Accordingly, as a descriptive term, the "trans-sector" or "cross-sector" would be more accurate (Boomgard et al. 1986:9).

raw material through distribution). At one end of the spectrum of possible channels, all such functions are undertaken by a vertically integrated firm, at the other by different firm(s) (input supplier, producer, wholesaler and retailer). Moreover, some agents may contractually undertake specific functions for others, e.g., the producers contracting for the wholesaler, who, in turn, stands to be either vertically or non-vertically integrated with the retailer (see Boomgard et al. 1986:5, Figure (1)).

In the value chain (VC) coinage, the same sequence is described by Porter as an interdependent system of linked activities rather than a set of separate parts. The efficient coordination of such activities helps reduce transaction costs. Moreover, reconfiguring the VC through relocating, reordering, regrouping, or even eliminating some activities is often at the root of major improvement(s) in a firm's competitive position (Porter 1990: 42). In a global context, competitive advantage may be gained either by spreading VC activities among nations or by their efficient coordination (Porter 1990: 54). However, the analysis was specific to multinational firms operating in the global economy rather than to the broad spectrum of contract-based operations. Such a spectrum was envisaged by the very eclectic[3] GCC approach which handled many facets of the CC: its characteristics; governance structure; relation to industrial upgrading. We briefly review such facets.

Gereffi distinguishes between buyer-driven (BD) and producer-driven (PD) types of GCCs (Gereffi 1999:5). BD GCCs operate in highly differentiated consumer non-durables,[4] with buyers being *large retailers*, *large department stores*, *branded marketers* or *branded manufacturers*. The first three create their own private label/brand name specifying all details of manufacturing contracted out to globally dispersed firms. In so doing, they act as *lead* or *flagship* firm(s) undertaking only those nodes generating the highest rent.[5] The branded manufacturers differ, however, in that they secure all components but contract out the

[3] It developed through the contributions of many scholars with varied specializations (between brackets): G. Gereffi, P. Knorringa, A. Sverisson (sociology); P. Gibbon, J. Humphrey, O. Morrissey, P. Morosini, K. Nadvi, P. Raikes, T. Sturgeon, H. Schmitz, A. Wood (economic development); J. Henderson, R. Kaplinsky, O. Memodovic, J. Readman (business administration); P. Dicken (economic geography); P. Krugman (international economics).

[4] Such as textiles and apparel, footwear, toys, wood products.

[5] Such arrangements are known as *specification contracting* or *original equipment manufacturing (OEM)*. In the context of T&A, they are termed *full package orders* since firms undertake most of the chain nodes except for the focal ones (e.g., design, marketing and distribution).

assembly node to globally dispersed manufacturers, thereby relying on special trading arrangements such as "production sharing"[6] and "outward processing trade."[7] PD GCCs, initially multinational corporations (MNCs) controlling design and manufacturing but contracting out assembly to their subsidiaries, operate in non-differentiated consumer durables.[8] Continuing to control design, MNCs subsequently began to contract out the production of components or subsystems (i.e., modules) to smaller subsidiaries, while assembling final products at their larger subsidiaries or at the mother company.[9]

In BD GCCs, product-related research and development, design, logistics, sales and marketing services, and financing constitute the lead firm's core competencies, consequently allowing it to maintain a grip on activities up- and downstream from manufacturing. Such competencies yield *relational*, *trade policy* and *brand name* types of rent. However, in PD GCCs, both product and process-related research and development, overall system design, assembly and organizational innovation constitute core competencies, allowing for control of manufacturing and activities upstream from it. Such competencies yield *technology* and *organizational* types of rent (Gereffi 1999).

In both types of GCCs, *governance* is exercised by the lead firm. Motivated by its eagerness to preempt risks (hence cost) of obtaining a product not conforming to specifications, the lead firm's governance plays a role in the distribution of activities among globally dispersed firms, in logistics and in marketing systems, thus prompting the development of "governance structures" (Gereffi, Humphrey and Sturgeon 2003:4). Governance types vary from *captive* to *relational* to *virtual/modular* and are determined by three factors: complexity of information and knowledge required to sustain the transactions undertaken throughout the chain; codifiability of information hence the efficiency with which it is transmitted; the capabilities of suppliers in relation to the requirements of the transactions.[10]

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[6] See footnote 48 for explanation.

[7] Initiated in 1969 by the European Economic Community.

[8] Such as automobiles, semiconductors, petrochemical products and pharmaceuticals.

[9] Smaller subsidiaries could, in turn, contract out some of the nodes of the component or subsystem chains to second and third-tier subcontractors.

[10] For a discussion of governance structures see Gereffi, Humphrey and Sturgeon (2003).

Captive and relational types of governance[11] mostly prevail in T&A GCCs. Under the captive type, the lead firm exercises organizational control over the chain firms obliging them to use specific production technology and employ quality management systems. In spite of the high complexity and codifiability of information, yet supplier capabilities may be relatively limited. This entails close monitoring by the lead firm thus raising the cost of substituting one firm for another. As such, firms may be captivated in low value added activities (e.g., assembly). Nonetheless, close monitoring often enhances their productive efficiency, and their guaranteed access to export markets buffers them against demand volatility and market fluctuations.

Relational governance is more prevalent where the lead firm contracts out most nodes of the chain (through specification contracting), either to firms bound together by ethnic/family ties[12] or to geographically clustered ones.[13] The lead firm tends to exercise control over product and process specifications as well as organizational control over the firms bound together by ethnic/family ties, while only exercising control over product and process specifications in the case of geographically clustered firms. Although the information required to sustain transactions is also complex but its tacit nature renders it less readily codifiable, thus calling for an explicit coordination by the lead firm. This often entails personal interaction with the firms undertaking the orders, allowing them to build knowledge especially as they develop their own network of local suppliers.

As governance determines the nodes for possible entry of firms in GCCs and the ensuing implications for their development, it is important to define productive efficiency and to identify types of industrial upgrading. Productive efficiency is defined as the contribution of factors of production (other than labour, capital and intermediates) to output. Given its association with the development of production-related processes, such contribution is also defined as technological change, hence measured as "total factor productivity."[14]

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[11] Virtual/modular governance mostly prevails in PD CCs.

[12] As in the case of Chinese families residing in South East Asian countries and subcontracting for China.

[13] As in the case of Los Angeles firms or Mexican "maquiladoras" undertaking T&A orders for U.S. buyers.

[14] See Section 2 for details of TFP estimation.

Types of industrial upgrading vary from *product* to *process* to *functional* to *chain* upgrading. Product upgrading simply relates to the firm's ability to develop its product and to move from a relatively simple low-value-added product to a more sophisticated one. Process upgrading entails implementing the technological innovations that enhance the flexibility of production, speed the process and reduce material waste (Tokatli and Kizilgün 2004:227). Functional upgrading results from engaging in additional nodes of the chain and in the gradual overtake of some high rent-generating ones (e.g., design). It may also be seen in the move from assembly to OEM to own design manufacturing (ODM) to own brand manufacturing (OBM) (Gereffi 1999:17). Finally, chain upgrading entails an inter-sectoral shift[15] from chains of products intensive in low-skilled labour to ones intensive in high-skilled labour and capital, exemplified in a move from apparel to personal computers.

Industrial upgrading is often assessed both qualitatively and quantitatively. Qualitative assessment is based on case studies exploring the nature of industrial upgrading undertaken by individual firms. Such studies often rely on interviews with firm management.[16] Quantitative assessment may be done through the use of proxies such as: the ratio of skilled labour (specialized and technical staff) to total employees; ratio of expenditure on research and development to total sales; ratio of domestic to total intermediates; producing for global buyers while taking part in the design node; ratio of exports to total sales; ratio of employees with university degree high education to total employees (Nhu Van and Thanh Huong 2005:9).

2. METHODOLOGY

With the objective of obtaining TFP estimates at the level of the firm, we model output in Egypt's T&A firms according to a Cobb-Douglas production function. These estimates are subsequently regressed on yearly measures of trade policy affecting firms in Egypt in their relation to the EU, on variables representing engagement in GCCs (either through foreign direct investment or through subcontracting arrangements), and on industrial upgrading proxies, while controlling, to the extent possible, for firm, industry and geographic

[15] While the other three forms of upgrading entail an intra-sectoral shift (Gereffi 1999:16).

[16] Key contributions in this area are Gereffi and Bair (2001) and Bair and Gereffi (2002).

characteristics which may affect firm productivity. For details of model specification and variable description, see Appendices I and II, respectively.

Firm-level data for the period 2001-2004 were obtained from the electronic database of the annual industrial survey issued by Egypt's "Central Agency for Public Mobilization and Statistics" (CAPMAS). The study originally targeted working with data as of 1998 that being a date marking the effective engagement of Egypt's T&A firms in GCCs.[17] However, CAPMAS discarded hard copies of the survey questionnaires three years after the survey's issuance,[18] thus hindering our inclusion of pre-2001 data. Moreover, bound by its commitment to firm confidentiality, CAPMAS could not disclose firm identity. This issue was further aggravated by the agency's failure to give the same identity number to each firm year after year. We, therefore, resorted to recalling additional identifiers[19] to help track down data for each firm across time. The process of data assimilation thus proved to be long and hefty, hindering the use of data for a longer period of time. We report production function[20] estimation results in Table 1.

[17] As was confirmed by a leading figure in the Chamber of Textile Industries (member of the Egyptian Federation of Industries) in a personal interview conducted by the researcher in April 2003.

[18] And the respective years were not included in the electronic database at the time of conducting the study.

[19] Such identifiers included firm geographic location, industrial and commercial registers.

[20] Table 1 only shows the value of the estimated "α." It does not show estimated α_{it} calculated as estimated α plus/(minus) deviations from the intercept term for each firm (i.e., firm fixed effects) at each point in time (i.e., time fixed effects). These are the firm-level productivity estimates (TFP_{it} or α_{it}) used in equation (4) of Appendix I.

Table 1. Production Function Estimation Results

Dependent variable: ln (Output)	
Method: Panel least squares	
Sample: 2001-2004	
Cross-sections included: 116	
Total panel (balanced) observations: 464	
Intercept term (α)	6.8643*** (0.9578)
ln (Intermediates)	0.4652*** (0.0350)
ln (Capital)	0.0737** (0.0339)
ln (Labour)	0.2037** (0.0833)
Effects specification: cross section and time fixed (dummy variables)	
R^2	0.9356
Standard error of regression	0.4294
Sum squared residuals	63.0699
F-statistic	41.0857
Durbin-Watson statistic	2.2015

Source: Estimation carried out by the researcher.

Notes: * Statistically significant at the 10 percent level; ** statistically significant at the 5 percent level; *** statistically significant at the 1 percent level. Standard errors of estimates between brackets.

Results for regression of TFP estimates on measures of trade policy affecting firms in Egypt in their relation to the EU, variables reflecting the engagement in GCCs, industrial upgrading proxies and control variables (equation 4 of Appendix I) are presented in Table 2. We note that upon estimation, we encountered the problem of multicollinearity due to high correlation between foreign direct investment (FDI) in activities upstream from T&A and those downstream from it (variables X_5 and X_6).[21] We chose to retain only the latter in the model on grounds that FDI in industries downstream from T&A tends to play a more prominent role in raising the efficiency of the T&A firms than does FDI in those upstream

[21] The value of the correlation coefficient was calculated to be 0.98. However, it does not suffice to conclude that multicollinearity exists on grounds of the correlation coefficient only (Pindyck and Rubinfeld 1998:97). One may be more confident to conclude that independence of two variables is violated if the value of the standard error of the estimated parameters is found to increase when both variables are included in the same model (under the impact of high correlation between the respective variables). Such was the case when both X_5 and X_6 were included in equation 4.

from it.[22]

Table 2. TFP and EU CA/AA: Regression Results

Dependent variable: ln (TFP)	
Intercept term	7.0008*** (6.05E-06)
Control variables:	
Firm age	
Firm age squared	-9.05E-09* (5.16E-09)
Firm size	
Average industry capacity utilization	8.34E-06*** (2.64E-06)
Industry concentration	
Geographic concentration	
Industry output less firm's own	
Exchange rate of the euro to the Egyptian pound multiplied by the producer price index for T&A manufacturers in the EU	
Apparent consumption of textiles and apparel in the EU	
Explanatory variables:	
Weighted average tariffs on Egypt's T&A imports from the world	0.4794*** (1.00E-06)
Egypt's T&A import penetration ratio	1.07E-05*** (3.90E-06)
Preference margin of EU T&A imports from Egypt vs. the Rest of World (ROW)	-3.16E-07** (1.55E-07)
Intra-industry FDI	63.994*** (9.46E-05)
FDI in activities "downstream" from T&A	-58.4182*** (6.20E-05)
Ratio of imported to total intermediates	
Ratio of exports to total sales	
Export dummy	
Ratio of R&D expenditure to total sales	8.41E-07* (4.66E-07)
Ratio of skilled and specialized labour to total labour	
R^2	0.99
F-statistic	9.22E+10
Durbin-Watson statistic	2.2

Source: Estimation carried out by the researcher

Notes: * Statistically significant at the 10 percent level; ** statistically significant at the 5 percent level; *** statistically significant at the 1 percent level. Standard errors of estimates between brackets.

[22] Such a role may come about through direct knowledge transfer from the foreign investors to their supplier T&A firms, with the objective of ensuring their delivery of high quality products, or through encouraging them to undertake product and process innovation. It may also come about through providing direct aid in labour training and skill enhancement. Moreover, the foreign investor's stringent quality and delivery-time requisites may prompt T&A firms to either upgrade production technology or to manage it more efficiently. Foreign investors have also been known to provide direct financial help to firms which they consider to be "prospective suppliers." Such help is often geared towards starting up new productive facilities or to technical help intended to aid the suppliers in meeting quality and delivery-time requirements.

We note from Table 2 that both Egypt's import weighted tariff[23] and import penetration ratio have a positive effect on productivity. As for Egypt-EU relation, a widening preference margin bears a similar positive effect. With relevance to engagement in GCCs, intra-industry FDI yields positive productivity effects, while FDI in activities upstream from T&A yield an opposite effect. Neither variables reflecting engagement in GCCs through contractual arrangements nor ones related to export performance have been found to be statistically significant. Finally, among industrial upgrading proxies, only R&D expenditure has been found to be statistically significant and of a positive effect.

Import weighted tariff for the period of study have been found to take the values 35.6 percent in 2001, and 36.5 percent, 37.6 percent and 12.6 percent in the years 2002-2004, respectively (see Table 3 for further details on tariff reduction undertaken by Egypt in 2004). In view of the positive relation between protection and productivity, a visible reduction in tariffs is expected to have a negative effect on productivity. This should prompt firms in question to raise their efficiency.

Import penetration ratio has been found to positively affect productivity, implying that rising competition faced by Egyptian firms does indeed seem to prompt higher productivity. The import penetration ratio for the activities included in the study were as follows: 0.24 (preparation and spinning of textile fibres; weaving and finishing of textiles); 0.038 (manufacture of made-up articles except wearing apparel); 0.011 (manufacture of carpets and rugs); 0.006 (manufacture of knitted and crocheted fabrics and articles); 0.006 (manufacture of wearing apparel, except fur apparel). These ratios are particularly relevant to engagement in GCCs because the highest ratio is clearly evident in the spinning, weaving and finishing of textiles.[24] The range of activities included here covers various nodes of the textile and apparel

[23]Results indicate a positive effect of protection on productivity (thus its gradual removal via trade liberalization (evident in substantial lowering of tariffs as shown in Table (3)) is expected to have a negative effect on productivity. We note that empirical literature on the impact of the removal of protection on productivity shows no definitive effect. In some cases, removal of protection, through the expansion of imports, may prompt domestic firms to eliminate X-inefficiency (or slack) and use inputs more efficiently, thus having a positive effect on their productivity. In contrast, if domestic firms are benefitting from protection (infant industry argument), then its removal may negatively affect their productivity (Fernandes 2007:53). The latter effect seems to be more evident in the case of Egypt. For this reason, we indicate the expected sign on the parameter estimate in equation (4) of Appendix I with a "?".

[24] As per CAPMAS annual industrial survey, this includes the following activities: preparatory operations on textile fibres; spinning and weaving of cotton; spinning and weaving of wool; spinning and weaving of flax; spinning and weaving of synthetic fibres; spinning and weaving of artificial silk and nylon; manufacture of sewing thread; manufacture of pile fabrics.

chains. Increased imports across all these activities indicate an increased use as imported intermediates, thus serving as an indicator of engagement in GCCs. Upon examining firm-level data from our data set, it was also possible to see that all firms, except for those involved in spinning and weaving of woolen fabrics, did indeed use imported intermediates.

As for *preference margin granted by EU to its T&A imports from Egypt vs. ROW*, we note that a negative relationship indicates that a widening of the preference margin (where it decreases and becomes more negative)[25] should positively affect productivity. Comparing the margins calculated from both the CA and AA,[26] we conclude that the margin has widened from -10 percent to -11 percent in the "manufacture of wearing apparel," while it has narrowed in all other activities covered in this study.[27] This has been found to be closely in line with the dominance of Egypt's exports of wearing apparel over all other T&A exports to EU over the period of study (see Section 3 for a profile of Egypt's T&A exports to the EU).

Intra-industry FDI has a positive effect on the productivity[28] of T&A firms in Egypt perhaps owing to the so-called "demonstration effect." The presence of foreign firms may expose domestic firms to new products or to the potential use of new technology in a way that prompts them either to imitate the products of foreign firms (through reverse engineering) or to seek the same technology they use (provided the foreign firms do not restrict its use to themselves). Fierce competition from foreign firms may also prompt domestic firms to implement new management techniques[29] in order to increase their productivity.[30]

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[25] See Appendix II for details of this variable's calculation.

[26] Over the period 2001-2003 and 2004 respectively. See Appendix II for details of this variable's calculation.

[27] From -8.5 percent to -6.2 percent in "preparation and spinning of textile fibres; weaving and finishing of textiles"; -9.2 percent to -8.6 percent in "manufacture of made-up articles except wearing apparel"; -11.5 percent to -9.7 percent in "carpets and rugs"; -10 percent to -8 percent in "manufacture of knitted and crocheted fabrics and articles."

[28] These findings are in line with those of Damijan et al. (2003) based on an estimation using 1100 transition economy manufacturing firms. However, unanimity on that effect among empirical studies is far from established. Seminal works such as Aitken and Harrison (1999) performed on Venezuelan manufacturing firms have found this effect to be negative perhaps owing to the fact that competition from foreign firms often cuts domestic firms' market share or weakens them financially to the extent of driving them out of business. Moreover, although foreign firms often work with advanced technology, they tend to limit it to their own use and are reluctant to license it to others. As for the potential positive spillover often associated with labour mobility (from foreign to domestic firms), this tends to be limited since foreign firms offer remunerative compensations and fringe benefits in order to retain their employees (UNECE 2001:2).

[29] Such as lean manufacturing in which inputs are fed to the production line upon need without stocking up raw materials or intermediates. This system also relies on producing only upon market needs.

[30] This effect is known as the "competition effect."

FDI in industries downstream from T&A has been found to have a negative impact[31] on the productivity of T&A firms. Foreign firms, whether coming into existence *do novo*, or coming into being as a result of the firm acquisition, often work with developed production facilities requiring higher quality inputs than domestic firms are capable of supplying. As such, they often resort to importing required intermediates instead of sourcing them domestically.

Although both the *ratio of imported to total intermediates* and the *ratio of exports to total sales* were not statistically significant in the estimated model, they remained focal to our interest in accession to GCCs. We therefore proceeded to count the total number of firms in the data set which relied on imports for more than 30 percent, 60 percent and 90 percent of their total intermediate inputs, and then classified them into five different categories according to their export performance. As such, firms which exported for all four years of the study period were classified as "consistent exporters," those which exported for three, two, one or none as "quasi-consistent," "inconsistent," "sporadic" or "non-exporters," respectively. We concluded that a total of 16 firms (constituting 13 percent of the firms in the data set) relied on imports for more than 30 percent of their intermediate input requirements and were classified as either "consistent" or "quasi-consistent" exporters. Of these firms, about 40 percent and 25 percent used imported intermediates in excess of 60 percent and 90 percent, respectively. Classification results thus indicate some relation between reliance on imported intermediates and export performance.

The results above reveal continued reliance on imported intermediates despite the increased cost of imports resulting from the $/LE exchange rate liberalization undertaken by Egypt in January 2003.[32] On the one hand, this result may be partly explained by an enhancement of the competitiveness of Egyptian exports as a result of such liberalization, hence an increased reliance on imported intermediates, furthering our belief in a more pronounced engagement in GCCs. On the other hand, it may also be partly explained by the tariff reforms undertaken by Egypt in 2004 which resulted in considerable reductions in tariffs

[31] This result conforms to Javorcik and Spatareanu (2003) performed on Romanian manufacturing firms over the period 1998-2002. However, again, unanimity on that effect among empirical studies is far from established. Some find it positive for some of the reasons mentioned in footnote 22.

[32] As a result of which the Egyptian pound depreciated by 30 percent of its value vis-à-vis the U.S. $.

on imported intermediates of which we cite tariffs on yarns and fabrics of various types of fibre in Table 3.

Table 3. Average Tariff Rate (%) Levied by Egypt on Imported Intermediates Before and After 2004

Intermediates	Average tariff rate (%)	
	Before 2004	After 2004
Fibres, yarns and textile of silk	13	12
Fibres, yarns and textiles of wool	33	6
Fibres, yarns and textiles of cotton	31	12
Fibres, yarns and textiles of vegetable fibres	22	17
Fibres, yarns and textiles of artificial or synthetic fibres	38	12
Wadding of textile materials, felt and non-wovens	18	12

Sources: Compiled by the researcher from the Official Gazette (2000), Cultural Institute for Tariffs (2002), and Ministry of Trade and Industry (2004).

Ratio of R&D expenditure to total sales has been found to have a positive effect on productivity, perhaps reflecting conscious seeking by T&A firms to undertake additional nodes of the chain in a way that fosters "product," "process" and "functional" forms of industrial upgrading.[33]

3. THE CA/AA AND IMPLICATIONS FOR EGYPT'S T&A FIRMS

In this section we present a profile of the size and structure of Egypt's T&A exports to the EEC and the EU from the mid-1970s to date, a period marking a long history of export relations with this bloc. We also highlight the main features of both the CA[34] and AA[35] with reference to tariff treatment and rules of origin, and implications on GCC accession.

3.1. Profile of Egypt's T&A Exports to European Markets

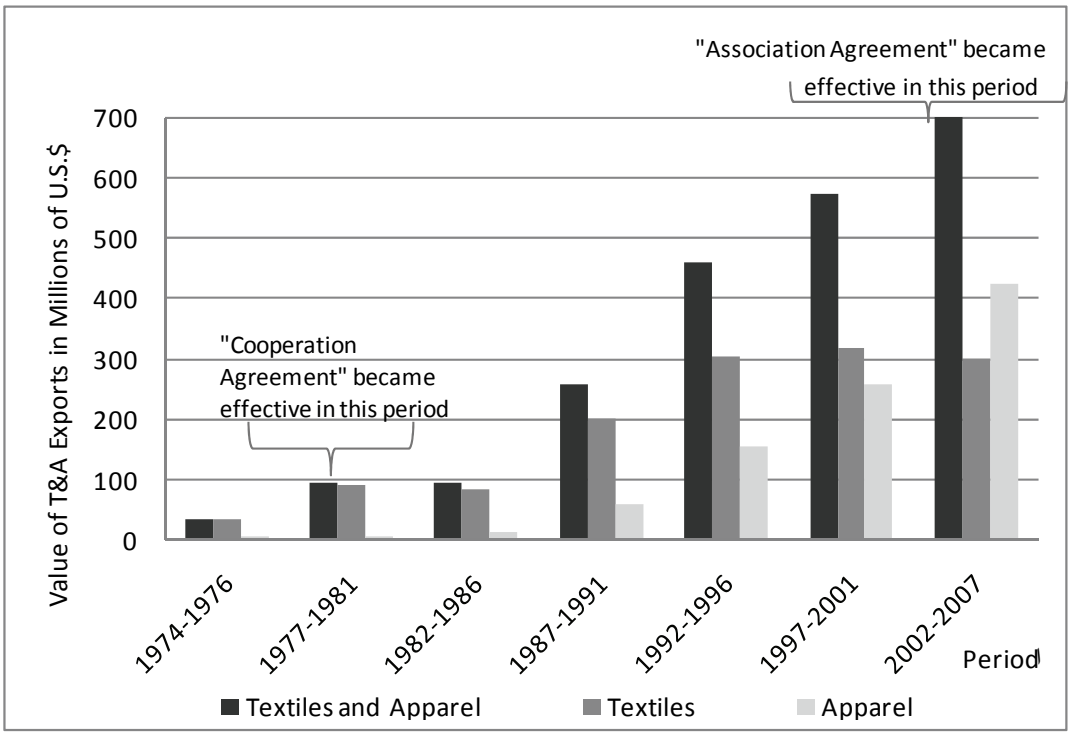
Over the period 1974-2007, Egypt's T&A exports to the EEC and the EU markets have progressively increased and have leaned more towards apparel, as shown in Figure 1.

[33] These findings are in line with Nhu Van and Thanh Huong (2005) who employed the same proxies.

[34] Signed January 1977 and became effective in the same year.

[35] Signed in 2001 and became effective in June 2004.

Figure 1. Egypt's T&A Exports to EEC and EU, 1974-2007

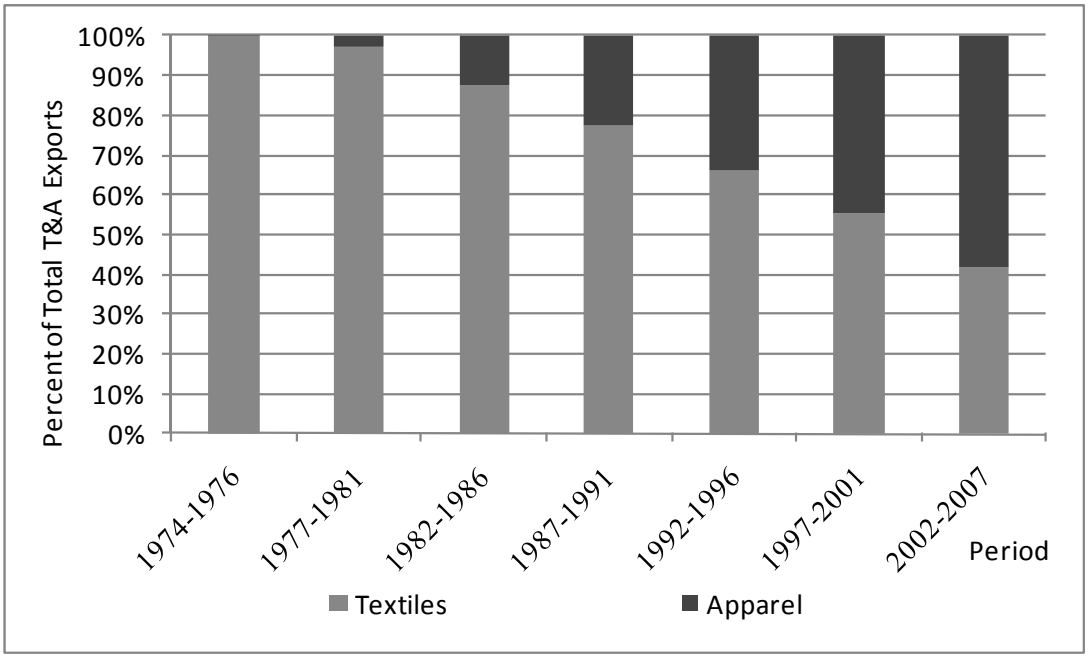


Sources: Compiled by the researcher for the period 1974-1980 from the UN Comtrade Database, and for the period 1981-2007 from the OECD International Trade by Commodity Statistics.

Notes: For the period 1974-1980, we used UN Comtrade Database export data expressed as sum of total imports of each of the EEC countries from Egypt in c.i.f. prices in order to ensure consistency with data from OECD International Trade by Commodity Statistics for the period 1981-2007, which are reported in the respective prices. It is worth noting that export data from Egypt to each of the EEC countries expressed in f.o.b. prices were not available for the early 1970s in the UN Comtrade Database. For this reason, we resorted to collecting data from these two sources after verifying consistency in the data reported. For the purpose of verification, we compared OECD International Trade by Commodity Statistics data for imports of each of the EEC countries from Egypt with their UN Comtrade Database counterpart for the year 1981. The exercise confirmed that both sources reported the same figures. Finally, we could not include data for the year 2008 since they were not reported in the OECD International Trade by Commodity Statistics.

In terms of growth, T&A exports grew by 172 percent on average during the period 1987-1991 compared to 1977-1981 (in which the CA became effective). Such a growth pattern continued at 180 percent in 2002-2007 (in which the AA became effective) compared to 1987-1991 (*Source*: calculated from data compiled for Figure 1). We further note from Figure 1, there was evident change in the structure of exports from heavy reliance on yarns and textiles to an increased reliance on apparel, especially as of the period 1987-1991. This is all-the-more evident in Figure 2.

Figure 2. Average Share of Textiles and Apparel in Total T&A Exports of Egypt to EEC and EU, 1974-2007



Sources: Compiled by the researcher for the period 1974-1980 from the UN Comtrade Database, and for the period 1981-2007 from the OECD International Trade by Commodity Statistics.

On average, the share of apparel in total T&A exports increased from 3 percent in 1977-1981 to 23 percent in 1987-1991 to 58 percent in 2002-2007. On the one hand, one could view this structural change as signaling a move to higher value added exports especially since the bulk of textile exports reported by UN Comtrade Database and OECD International Trade by Commodity Statistics was of low value added yarns (cotton, woolen, and synthetic fibres) and fabrics (especially knitted), while the share of made-up articles and floor coverings in textile exports remained fairly humble. On the other hand, one could also attribute such a structural change to both the fleeing of European apparel industries from their homeland[36] and the relative loss of competitiveness of textile exports to which the deterioration of Egyptian public sector firms' performance may well have contributed.[37]

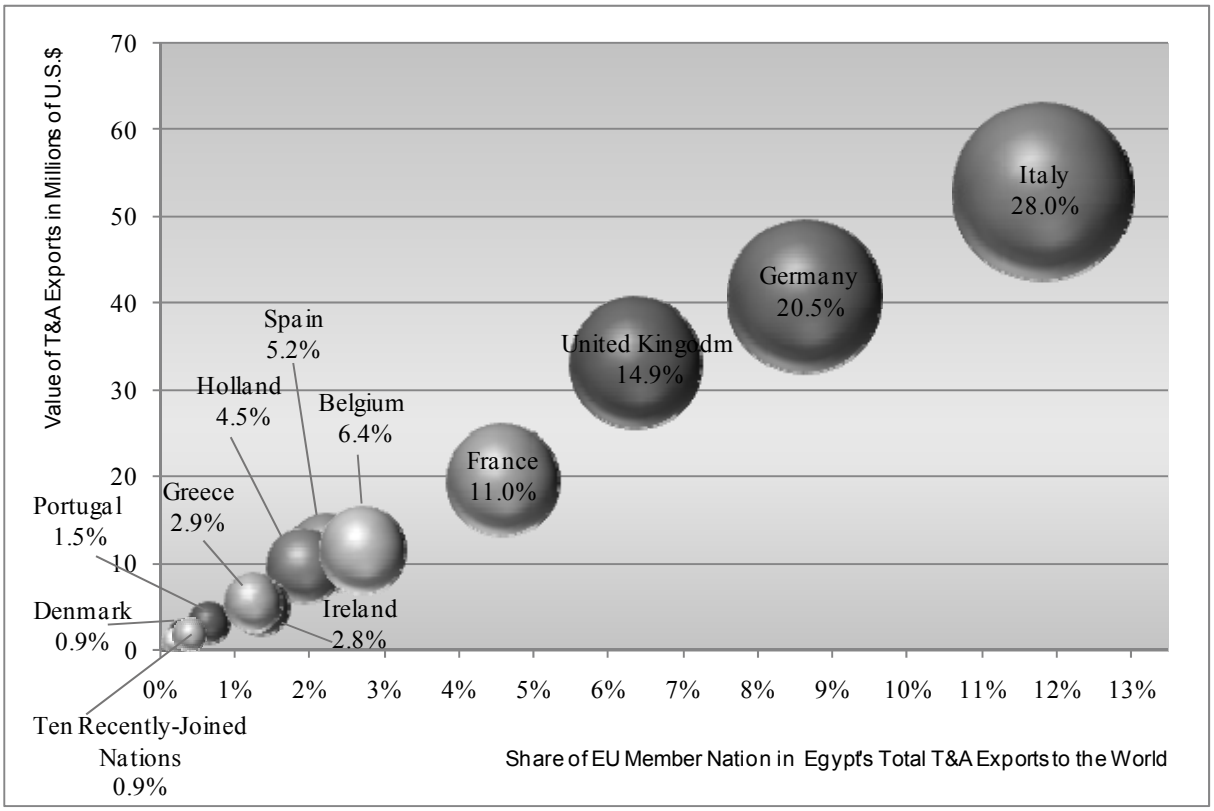
In relation to GCCs, we explore the geographic distribution of Egypt's T&A exports

[36] A trend manifested in an increase in outward processing trade arrangements which relied on contracting out apparel manufacturing to various North African and transition economies.

[37] Public sector firms being the main contributor to yarn and fabric manufacturing.

within the EU since the effective engagement of Egypt's T&A firms in GCCs (around the year 1998) via a 3-D bubble chart shown in Figure 3.

Figure 3. Average Share of Egypt's T&A Exports to Each EU Member Nation in Total T&A Exports to the EU and to the World, 1998-2008[38]



Source: Calculated by the researcher from data obtained from the UN Comtrade Database.

Notes: Each bubble expresses the following: the EU member nation's share in the Egypt's total T&A exports to the EU which gives the bubble its size (%'s shown inside or next to the bubble); the EU member nation's share in Egypt's total T&A exports to the world (%'s determine the bubble's position relative to the horizontal axis); value of T&A exports shown on the vertical axis.

On average, Italy and Germany constitute 28 percent and 20.5 percent of Egypt's T&A exports to the EU, 12 percent and 9 percent of the respective exports to the world. The United Kingdom, France, Belgium, Spain and Holland follow with shares of T&A exports to the EU ranging from 15 percent to 6.5 percent, and to the world ranging from 6 percent to 2 percent. Detailed composition of T&A exports to each nation reveals that the bulk of exports to Italy was in textiles which were composed mostly of yarns and fabrics, with made-up articles and

[38] We note that the share of each EU member nation in Egypt's total T&A exports to the bloc has been found to be robust over time. We carried out the same exercise for two sub-periods 1998-2004 and 2005-2008, then compared to the entire 1998-2008 period and found nations to assume practically the same ranks over the two sub-periods compared to the entire period, thus suggesting stability and robustness of the member nation shares over the entire period in question

floor coverings having a humble 1 percent and 7 percent share in total textile exports on average for the period 1998-2008. Exports to Germany, United Kingdom, France, Holland and Ireland tended heavily towards apparel, albeit with a diversified composition of textile exports (yarns, fabrics, made-up articles[39] of synthetic fibres and floor coverings). It is worth noting that floor coverings constitute 13 percent and 27 percent of textile exports to the United Kingdom and Germany, on average, respectively, indicating that these two markets stand out as significant EU markets for floor coverings. Exports to Spain, Greece and Portugal, however, like Italy, tended more towards textiles but with made-up articles and floor coverings (particularly in the cases of Spain and Greece) playing a more prominent role in textile exports than in the case of Italy.[40] Finally, T&A exports to transition economies tended heavily towards textiles (mostly yarns and fabrics), which may, perhaps, be in line with their use in apparel manufactured for European buyers in the context of outward processing trade.

It is thus evident that Egypt's T&A firms seem to be more actively engaged in the GCCs of apparel than those of textiles. However, this does not undermine European demand for made-up articles and floor coverings. Egypt's textile firms need to capitalize on the existence of some promising markets so as to further their engagement in the European textile CCs. Hence, we turn to how the terms of the CA/AA may have fostered the current pattern of engagement, and what terms Egypt yet stands to benefit from in order to further it.

3.2. Main Features of the CA and AA and Accession to GCCs

Both the CA and AA levied zero tariffs on EEC and EU imports of industrial products from Egypt. No reciprocal treatment was requested of Egypt under the CA, although the AA obliged Egypt to phase out tariffs levied on imports from EU subject to specific time schedules. The CA abolished quantitative restrictions imposed by the EEC on imports from Egypt, except for some textile and apparel products. Egypt was however permitted to impose such restrictions on imports from EEC as called for by the needs of the nation's industrialization. On the same pretext, AA, again, permitted Egypt the use of such

[39] Namely, terry towels, table cloths, curtains, upholstery and blankets.

[40] The respective share of made-up articles and floor coverings in textile exports were as follows: 2 percent and 9 percent for Spain; 6 percent and 20 percent for Greece; 1 percent and 6 percent for Portugal (*Source*: calculated by the researcher from UN Comtrade Database).

restrictions, in addition to ad valorem tariffs but on the condition that they are bound by a 25 percent ceiling and that they constitute a preference margin for imports from the EU vs. ROW.

With regard to rules of origin, both agreements relied mainly on the change in tariff heading as a rule for origin conference, on the same processing/manufacturing operations considered insufficient for such conference, and on the use of the general tolerance rule and the *de minimis* principle. However, the AA stands unique in its application of both bilateral and diagonal cumulation of origin. With regard to T&A products, the rule for *yarn spun of non-blended fibres* allowed for the importation of fibres from various sources, on the condition that spinning be undertaken in Egypt.[41] For *yarn spun of blended fibres*, the agreements were more restrictive in implementing the *de minimis* principle which allowed for the use of imported fibres only up to 10 percent of the total weight of the fibres used in the product.

With respect to *fabrics,* both agreements were fairly restrictive in their application of the yarn-forward rule *on fabrics made of yarn of non-blended fibres* coupled with a condition that manufacturing start from non-plied yarn.[42] For *fabrics made of yarn of blended fibres*, the CA's application of the *de minimis* principle restricted the use of non-originating yarns. However, the AA further allowed for a technical requirement which permitted origin to be conferred if fabric were printed, and if two additional finishing operations were undertaken in Egypt on the condition that the value of printed fabric does not exceed 47 percent of the ex-works price. As for *knitted and woven apparel made of yarn of non-blended fibres*, both agreements used the yarn-forward rule, with the allowance of the importation of non-plied yarns for some items. For those made of *yarn of blended fibres*, they used the *de minimis* principle, in addition to the possibility of using non-originating embroidered fabric in ladies/girls/children's apparel on the condition that its value does not exceed 40 percent of the ex-works price.

The AA was unique in its prohibition of duty drawback on imports of non-originating components that go into producing export goods destined for EU markets. The objective was

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[41] Thereby resulting in a change in tariff heading in order to confer origin.

[42] Meaning that Egypt could import yarn provided it is non-plied, thus calling for plying to be carried out domestically.

to prevent non-members of the agreement from using Egypt as an export base to access the EU market and enjoy preferential treatment. However, the AA gave leeway up till 2010 permitting duty drawback on imports of non-originating components.

3.2.1. Implications of EU's tariff treatment of imports from Egypt

As discussed earlier, both the CA and AA granted EEC/EU T&A imports from Egypt a preference margin vis-à-vis the rest of the world. Compared with the CA, "manufacturing of apparel" enjoyed a wider margin under the AA, while all other T&A activities enjoyed a narrower one. This may well have fostered the engagement of Egyptian firms in GCCs of apparel. Given that the main form of subcontracting undertaken by Egypt's T&A firms for European buyers has been through full package orders",[43] such an engagement is also expected to be associated with an increased reliance on Egyptian yarns and textiles.

3.2.2. Implications of Egypt's tariff treatment of imports from EU

With the lowering of tariffs in 2004, Egypt's average tariffs weighted by T&A imports from the world dropped from around 37 percent before 2004 to 13 percent afterwards (*Source*: calculated by the researcher). This was coupled with the phasing out of tariffs levied on imports from the EU. The implications of such phasing out on engagement in GCCs are two-fold:

i. Rapid phasing-out of tariffs on activities associated with "yarn production" in the *textile CC* is bound to expose Egypt's firms to increased competition from EU yarn imports. Such speed may well promote an increase in the assembly of EU-originating fabrics imported into Egypt. However, the AA's rules of origin may preempt such incidence since they consider "assembly" insufficient for origin conference. This possibility is also less imminent because

[43] As was confirmed by a leading figure in the Chamber of Textile Industries (member of the Egyptian Federation of Industries) in a personal interview conducted by the researcher in April 2003. Moreover, the Chamber provided us with information on a sample of European buyers dealing with Egyptian T&A firms over the period of study. Upon classifying them (as per classification presented in section 1) we concluded that they were mostly of the large retailers, large department stores and branded marketers types, with some of them specializing in both apparel and made-up articles. They thus contracted out full package orders to Egypt's T&A firms. The relation of T&A firms to these types of buyers bears directly on the former firms' prospects for industrial upgrading.

Egypt's firms have not been found to source yarn from EU partners.[44]

ii. Slower phasing-out of tariffs associated with the activities of: "textile manufacturing," "processing," "dying and printing," and "finishing" in the textile CC; "weaving," "cutting and washing" and "finishing" in the floor coverings CC; "cutting," "sewing" and "finishing" in the apparel CC imply that the firms specializing in any of these activities will enjoy a longer protection period than ones engaged in yarn production. Such protection may be used to their advantage[45] in trying to gain access to a larger number of nodes along the above chains through specification contracting, or through only subcontracting some of the above activities for European buyers.

3.2.3. Implications of rules of origin

In considering "assembly" insufficient as a processing operation for origin conference, both agreements may promote forms of engagement in various chains through higher value added activities than mere assembly. The AA's unique application of bilateral cumulation of origin may allow Egypt to use European originating components while conferring Egyptian origin on them. Diagonal cumulation may further allow Egypt to cumulate origin with various nations who are themselves members of association agreements with the EU, on the condition that the respective nations also be members of free trade agreements among themselves and that they apply the same rules of origin. Accordingly, Egypt may cumulate origin with Turkey (partner in a free trade agreement as of May 2007), and with Jordan, Tunisia and Morocco (partners in Aghardir Agreement as of March 2004). This may foster access to additional nodes of various chains and perhaps undertaking more specification contracting for European buyers.

In their use of yarn-forward rule, both agreements allowed room for the importation of fibres from multiple sources (currently include a number of Asian countries) (*Sources*: Ministry of Trade and Industry, various issues), and, hence, for the creation of domestic value added through spinning. Although the *de minimis* principle in application to yarns, fabrics,

[44] Except for some jute yarn imports from Spain in 2004, Comtrade database revealed no other yarn imports from EU member nations.

[45] In view of the above estimation results, a positive relation between tariff protection and productivity implies that firms may benefit from protection in enhancing productivity and, thus, accessing more chain nodes.

knitted and woven apparel tends to be restricting, yet, again, it does allow for the creation of domestic value added. Moreover, the use of technical requirement in case of fabric made of blended yarns may allow for access to the activities of "dying and printing," and "finishing" in the *textile CC*, which may, in turn, promote the ability of Egyptian firms to undertake more specification contracting of made-up articles for European buyers. Moreover, the possibility of using non-originating embroidered fabric in ladies/girls/children's apparel may also promote more full-package orders of apparel for European buyers.

3.2.4. Implications of no duty drawback

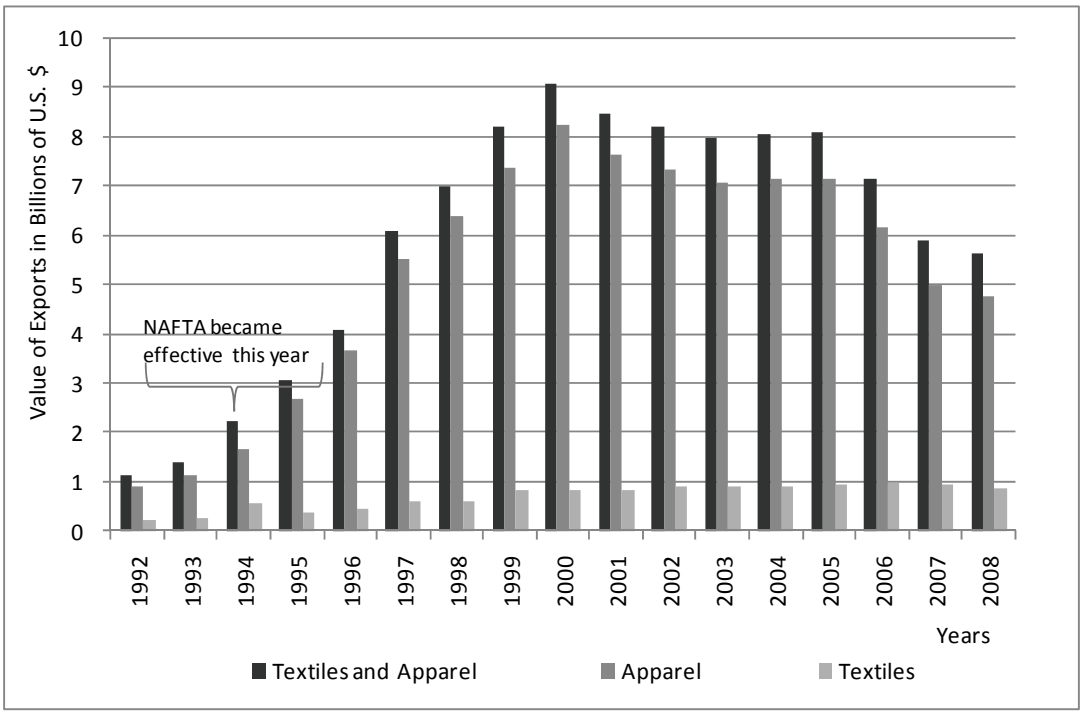
The period till the prohibition of duty drawback on imports of non-originating components, hence the use of imported intermediates with the possibility of a duty drawback, may allow Egyptian firms to access greater links of the various commodity chains above.

4. AA VERSUS NAFTA

NAFTA is comparable to the CA/AA in its contribution to increased T&A exports and to the change in T&A export structure. We note that there is an evident upsurge in Mexico's T&A exports to the U.S. post-1994[46] and that apparel exports evidently tip the scale, as shown in Figure 4.

[46] NAFTA became effective in January 1994.

Figure 4. Mexico's T&A Exports to the United States, 1992-2008



Source: Calculated by the researcher from data obtained from the UN Comtrade Database**.**

Moreover, as an export partner of the United States, Mexico increased in importance such that the country's share of the U.S. apparel market alone rose from a 2-4 percent range in 1990 to 10 percent+ in 2000 (Gereffi and Memodovic 2003:8). In 2000, Mexico was at par with China only to be partially displaced by her later on. This was, in fact, reflected in a decline in total T&A exports of Mexico to the U.S. which started in 2001 and became more acute from 2005 onwards.[47] We review below the key NAFTA features which contributed, in particular, to the upsurge witnessed in T&A exports up to 2000.

[47] A number of factors contributed to such a decline: an appreciation of the real exchange rate of the Mexican currency to the U.S. $ and a depreciation of real exchange rate of the Chinese currency to the U.S. $ resulting in a deterioration in Mexico's price competitiveness vis-à-vis China; a deterioration of Mexican investment in infrastructure which negatively affected the productivity of many private endeavours; despite an increase in foreign direct investment in Mexico post-NAFTA, it remained highly concentrated in large-scale projects as opposed to small and medium enterprises; a rise in average real wage rate in Mexico compared to China; lack of a Mexican industrial policy addressed to specific industries/sectors as opposed to China (Gallagher, Morino-Brid and Porzecanski 2008:1377-1378).

4.1. Implications of the U.S. Tariff Treatment of Imports from Mexico

Upon becoming effective, NAFTA removed the tariffs levied on apparel assembled in Mexico from U.S. manufactured fabric,[48] as well as those levied on certain finishing operations carried out on knitted and woven apparel and on some made-up articles assembled in Mexico. The removal of tariffs on assembled apparel and textile products is partly responsible for the upsurge in exports seen above. The removal of tariffs on finishing operations implies access to the "finishing" nodes of both the apparel and made-up articles chains, hence more nodes that Mexican firms could access. This reflected on their increased ability to undertake specification contracting.

NAFTA obliged the U.S. to phase out tariffs levied on imports from Mexico according to staging categories each subject to a specific time schedule. Upon counting the various T&A lines falling under these categories,[49] we concluded that the bulk of fibres, except for cotton, was liberalized within four years of the implementation of NAFTA, while fabrics were mostly liberalized over a longer period extending till 2000, this time frame yet extending till 2003 for made-up articles and floor coverings. Finally, knitted and woven apparel fell in the intermediate category which brought about their full liberalization by 2000. Such a pattern of liberalization also had its implication for the preference margin of imports from Mexico vs. ROW. We further counted the number of tariff lines which enjoyed particular tariff margins[50] concluding that apparel enjoyed the widest preference margin across all T&A activities. We thus note that the overall pattern of liberalization and the preference margin help explain the

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[48] Subject to the 807 assembly provision (effective 1963), the U.S. was to export components to a number of trading partners, including Mexico, and to import the finished product with duties levied only on value added abroad. This was replaced in 1993 by the tariff line number 9802.00.90 of the U.S. harmonized tariff schedule. Accordingly, U.S. imports under this provision came to be known as "807/9802" imports, or "production sharing arrangements".

On its part, the Mexican government initiated the so-called "Border Industrialization Program" in 1965with the objective of generating jobs for Mexican labour. The Program established a special tax and investment regime whereby companies in Mexico could import duty-free components, assemble them into final product and export the finished product to the United States paying only a minimal duty on the value added dictated by the 807 assembly provision of the United States (Bair 2002a:86).

[49] As per the NAFTA tariff schedules.

[50] Based on an electronic database provided by Romalis (2005) which gave the tariffs levied by USA through NAFTA and in the context of the "most favoured nation treatment" for the years 1994 and 1998<http://faculty.chicagogsb.edu/john.roma;is/research> (accessed June 05, 2007), we were able to calculate the preference margin for all T&A lines and, hence, count the lines across various activities in which preference margin fell in the ranges of: 0-10 percent; 11-20 percent; 21-30 percent; 31-40 percent.

overriding post-NAFTA predominance of apparel over textile exports of Mexico to the U.S.

Moreover, with respect to cotton which was already subject to slower liberalization than other fibres, the U.S. made exceptions for specific cotton fibre products from the relevant staging categories. These were to be liberalized over a period extending till 2003[51] which revealed that the U.S. gave high priority to a longer protection of its cotton products. This is also further underscored by the fact that Mexico's tariff treatment of imports from the U.S. did not include parallel exceptions.[52] Mexico does appear, however, to have benefitted from such a pattern of protection in not exporting raw cotton but rather in making use of it to feed more "full package" apparel orders undertaken for U.S. buyers.

We note from the above analysis that there is an overall similarity between the EU's treatment of imports from Egypt and the parallel U.S. treatment of imports from Mexico, perhaps with the slight difference of no widening of the preference margin of EU imports from Egypt[53] compared to its NAFTA counterpart. However, apparel, too, enjoyed the widest margin among all T&A activities. In both cases of Egypt and Mexico the pattern of trade liberalization appears to have nurtured the increase in specification contracting undertaken by either party for organizational buyers from the EU and the U.S., respectively, and to have favoured apparel exports over textiles. Literature does reveal, however, that some apparel firms belonging to an apparel industrial cluster in Aguascalientes state in Mexico succeeded in achieving functional upgrading through a movement from full package to ODM to OBM, albeit with its orientation towards the domestic market[54](Bair 2002b: 10).

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[51] Similar exceptions were made for some lines of woolen and synthetic-fibre-woven fabrics, albeit with a faster liberalization over a period extending till 1999.

[52] Although it did include the same exceptions on lines of woolen and synthetic-fibre-woven fabrics indicating mutual interest of both parties in protecting these products.

[53] Since there were zero tariffs levied on them, hence no phasing out.

[54] It is worth noting that Aguascalientes state initiated and funded the so-called "COCITEVA" (Spanish acronym for the *Aguascalientes Council for T&A Commodity Chain*), which was geared towards allowing cluster firms to cooperate and integrate among themselves in a way that allows them to move beyond full package orders, as well as aligning them with the terms of NAFTA in order to foster such a movement.

4.2. Implications of Rules of Origin

NAFTA, like the AA, applied the change in tariff heading rule for *yarns of non-blended fibres*. However, it also applied the *de minimis* principle[55] across all lines making it more restrictive than the AA which did so for specific lines only. For *yarns of non-blended fibres*, both NAFTA and the AA were comparable in their application of *de minimis* principle[56] thus aiming at generating greater domestic value added. Moreover, both allowed for the cumulation of origin,[57] which meant that part of the value added could be generated by the member of the respective agreements.

As for *fabrics of non-blended fibres,* both NAFTA and the AA used the yarn-forward rule. However, the former did not permit the use of non-originating non-plied yarn. Moreover, it was also more restrictive in its application of the *de minimis* principle across all lines. As for *fabrics of non-blended yarns,* both were comparable in their application of yarn forward rule and the *de-minimis* principle.[58] For *knitted and woven apparel*, both NAFTA and the AA used the yarn forward rule but with NAFTA being more restrictive in four respects: the *first* being its application of the *de minimis* principle across all line; and the *second* being the use of the so-called "fibre-forward rule" for certain items of knitted apparel made of synthetic fibres (like sweaters),[59] the *third* being the condition that apparel be cut and sewn in any of the three member nations,[60] the *fourth* being that it included nothing regarding the use of non-originating embroidered fabric in ladies/girls/children's apparel.

With respect to processing operations considered insufficient for conference of origin, NAFTA was more permissive than AA because it referred only to "diluting with water" and similar processes as being insufficient for origin conference. No explicit reference was made

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[55] Permitting non-originating component only up to 7 percent of the ex-works price of the product.

[56] NAFTA, with a range of up to 7 percent of the ex-works price, the AA, with a range of up to 10 percent of the weight of the fibres used in the yarn.

[57] NAFTA allowed for the cumulation among the three member nations, while AA allowed for both bilateral and diagonal cumulation as discussed above.

[58] Again with NAFTA's greater restrictiveness in applying the *de minimis* principle across all lines.

[59] Which restricted the use of fibres to those originating from any of the three member nation. This rule was also applied to floor coverings.

[60] This was also applied to made-up articles.

to assembly as was the case under the AA. With assembly being the lifeline of many maquiladoras, perhaps NAFTA aimed for the continuance of assembly operations undertaken by Mexico even after the agreement's implementation.

While giving some leeway,[61] both NAFTA and the AA included the prohibition of duty drawback on non-originating material. However, in order to preempt the negative effects of duty drawback on non-originating components used in exports destined for the U.S. market after the end of leeway, the Mexican government undertook the "Sectoral Promotion Program" in 2001. The program lowered tariffs across a large number of tariff lines to a range of 0-5 percent (versus some having reached a 35 percent tariff rate before that date), thus allowing a large number of firms (particularly ones which relied on using fabrics imported from EU) to continue to operate (Bair 2002a:107).

The overall implications of the NAFTA rules of origins (particularly the yarn forward rule) is its enhancement of textile manufacturing in Mexico. Benefitting from the possibility of importing U.S. or Canadian-originating yarn into Mexico, U.S. textile manufacturers heavily redirected textile manufacturing (via FDI) to Mexico post-NAFTA. This all-the-more fostered the possibility of Mexican firms undertaking specification contracting. With reference to apparel, this was itself furthered by the condition that the cutting and sewing of apparel be undertaken in any of the three member nations. Thus, Mexican firms had increased access to "textile manufacturing" node of the *textile CC*; and the "cutting" and "sewing" nodes of the *apparel CC*. Finally, we note that much of that increased access could also have been nurtured by the relational governance which prevailed in the GCCs controlled by the U.S. global buyers which brought about their close monitoring of the firms undertaking various nodes of the CC, thereby shouldering their efficiency enhancement and upgrading efforts. This reflects further similarity to the experience of Egypt's T&A firms with the European buyers.

[61] Which extended till 2001 under NAFTA.

5. CONCLUDING REMARKS

Egypt's relation with the EU, through CA/AA, given the types of European organizational buyers dealing with T&A firms in Egypt, has fostered increased participation in GCCs through specification contracting/full package orders. These firms stand to benefit from the pattern of EU liberalization of imports in enhancing their undertaking of such orders in two respects. *First*, fabric-producing firms may benefit from a relatively long period of protection in strengthening their presence in the following chains: *textile CC* through the "textile manufacturing," "processing," "dying and printing," and "finishing" nodes; *floor coverings CC* through "weaving," "cutting and washing" and "finishing" nodes; *apparel CC* through the "cutting," "sewing" and "finishing" nodes. *Second*, apparel firms may further their undertaking of full package orders through their exploitation of the preference margin granted by EU to apparel—this being the widest amongst various T&A activities. In both respects, the experience of Egypt's firms is closely aligned with their Mexican counterparts whose engagement in GCCs through full package orders was pronounced.

T&A policymakers may benefit from the experience of Mexico. For one, they may be keen on the specifics of how cluster-belonging T&A firms in Mexico succeeded in achieving functional upgrading, with special emphasis on the move to OBM. They may also appreciate that AA rules of origin have proven to be less restrictive than their NAFTA counterparts (particularly with respect to the latter's application of the *de minimis* principle across all T&A tariff lines), thus securing access to additional nodes of all T&A CCs dealt with in this study. Egypt's T&A firms also stand to benefit from AA's consideration of mere assembly as a processing operation insufficient for conference of origin, thereby fostering their engagement in GCCs through higher value added activities, which may help fuel further functional upgrading. Such type of upgrading is underscored by the fact that they mostly participate in GCCs through specification contracting. It may help jumpstart them especially when compared with their Mexican counterparts which mostly started off as assemblers.

With reference to model estimation, there may be a benefit associated with accessing GCCs via intra-industry FDI. Much of the policies undertaken by Egypt have, in fact, been geared towards betterment of the investment climate for increased FDI (establishment of one-

stop-shops under Egypt's General Authority for Investment for facilitating entry and establishment procedures,[62] establishment of various bilateral investment treaties with European and Asian nations, making almost all commercial activities open to domestic private investment also open to FDI, availability of a ministerial-level committee for the review of investor complaints, extending tax holidays to activities previously exempted from Law No. 8 of 1997 on investment guarantees and incentives, easing of the issuance of work and residence permits for non-Egyptian workers associated with foreign investment (UNCTAD 2006:2-10)). Perhaps more can be done with respect to upgrading the infrastructure in some of Egypt's special economic zones to allow them to evolve into industrial parks, or the lowering of corporate taxes as well as the streamlining of their assessment.[63] Moreover, although accessing GCCs through subcontracting has not been statistically significant in the estimated model, firm-level data analysis revealed the existence of some relation between the use of imported intermediates and export performance (pointing to some engagement through subcontracting). Perhaps the Chamber of Textile Industries may provide aid in the direction of matchmaking global buyers with domestic producers to allow for further engagement in GCCs.

The productivity of Egypt's T&A firms has also been found to be positively affected by the preference margin granted by EU via CA/AA (this being widest for apparel manufacturing), thus underscoring the importance of exploiting the margin granted to apparel, while working on furthering engagement in GCCs of textile, ready-made articles and floor coverings. Similarly, the protection granted by Egypt to the domestic industry has been found to positively affect productivity, implying that gradual liberalization may well have negative implications for productivity. This should prompt firms to undertake some efficiency-enhancing measures such as the implementation of knowledge management systems geared towards storing and disseminating information both intra- and inter-firm. From the perspective of firms undertaking full package order, this being the dominant mode of participation of Egypt's T&A firms in GCCs, knowledge dissemination has implications for

[62] In 2006, the average number of days for company registration was 3 days, down from an average of one to three months in 1998 (UNCTAD 2006:3).

[63] Many investors view the highly arbitrary corporate tax assessments as an 'administration problem' related to doing business in Egypt (UNCTAD 2006:7).

strengthening a host of backward linkages to upstream activities. Efficiency-enhancement may also call for firms to undertake operational and organizational restructuring (where called for). Finally, estimation results indicate there is evidence of product, process and functional types of industrial upgrading. However, much still remains to be desired on the functional front where Egypt's T&A firms do not appear to have successfully made it to ODM or OBM.

As with most empirical studies, the present one is not free of limitations. The data limitations highlighted earlier leave room for further estimation with data extending beyond the year 2004. Moreover, a number of social issues remain in need of further study particularly the implications of engagement in GCCs governed by European and U.S. buyers for gender-related employment and "sweatshop" conditions. On the one hand, the high intensity of female employment in the T&A industry gives special significance to studying how such an engagement may affect female skill enhancement. On the other hand, the avoidance of sweatshop conditions may have a bearing on the improvement of working conditions in a way that aids further acquisition of competitive advantage for Egypt's firms. In its adoption of the *decent work agenda*, the International Labour Organization has stressed that the avoidance of such conditions has become increasingly important in view of the globalization of production and the multilateral trading system, both being integral aspects of the present study.

APPENDIX I

Model Specification

Output in Egypt's T&A firms is modelled according to a Cobb-Douglas production function:

(1) $Y_{it} = A\, L_{it}^{\beta l}\, K_{it}^{\beta k}\, M_{it}^{\beta m}\, e^{Uit}$

$i = 1, \ldots, 116$; t=1,..,4

Where:

A = technology/technological change parameter (i.e., total factor productivity)

Y_{it} = output valued at sales price of firm i at point t in time;

L_{it} = total number of employees in firm i at point t in time;

K_{it} = value of capital stock of firm i at point t in time;

M_{it} = value of intermediates used by firm i at point t in time;

u_{it} = random error variable assumed to be (*i.i.d*) and ~N (o,σ^2) and uncorrelated with the explanatory variables.

With all variables taken in their natural logs:

(2) $\ln Y_{it} = \alpha + \beta_l \ln L_{it} + \beta_k \ln K_{it} + \beta_m \ln M_{it} + u_{it}$

i= 1, …, 116 ; t = 1,..,4

The parameter "α" may reflect either "fixed" or "random" effects which stand to vary with respect to firm i (thereby α bears the subscript i only), or with respect to time (α bears the subscript t only), or with respect to both firm i and time t (α bears both subscripts i and t). Based on a Hausman's specification test,[64] α in equation (2) is modelled as fixed effects varying with respect to both firm i and time t, rendering the estimated model as follows:

(3) $\ln Y_{it} = \alpha_{it} + \beta_l \ln L_{it} + \beta_k \ln K_{it} + \beta_m \ln M_{it} + u_{it}$

i= 1, …, 116 ; t = 1,..,4

[64] The test is used to determine whether the parameter "α" in equation (2) reflects "fixed" or "random" effects, and whether these effects vary with respect to firm i only, with respect to t only, or with respect to both firm i and time t. For further details on Hausman's specification test see Greene (2003: 301).

TFP_{it} (i.e., α_{it}) estimates are regressed on yearly measures of trade policy affecting firms in Egypt in their relation to the EU, on variables representing accession to GCCs (either through foreign direct investment or through subcontracting arrangements), and on industrial upgrading proxies, while controlling, to the extent possible, for firm, industry and geographic characteristics which may affect firm productivity, as shown in equation (4):

$$\alpha_{it} = \beta_{0,it} + \beta_1 C_{it,1} + \beta_2 C_{it,2} + \beta_3 C_{it,3} + \beta_4 C_{it,4} + \beta_5 C_{it,5} + \beta_6 C_{it,6} + \beta_7 C_{it,7}$$

$$+ \quad + \quad + \quad + \quad + \quad + \quad + \quad +$$

$$+ \beta_8 C_{it,8} + \beta_9 C_{it,9} + \beta_{10} X_{it,1} + \beta_{11} X_{it,2} + \beta_{12} X_{it,3} + \beta_{13} X_{it,4} + \beta_{14} X_{it,5}$$

$$? \quad ? \quad ? \quad ? \quad ? \quad ? \quad ?$$

$$+ \beta_{15} X_{it,6} + \beta_{16} X_{it,7} + \beta_{17} X_{it,8} + \beta_{18} X_{it,9} + \beta_{19} X_{it,10} + \beta_{20} X_{it,11} + \nu_{it} \quad (4)$$

$$? \quad ? \quad ? \quad ? \quad ? \quad +$$

$i = 1, \ldots, 116; t = 1,..,4$

Where C denotes a control variable; X denotes an explanatory variable; ν_{it} is the random error variable assumed be (*i.i.d*) and ~ $N(o,\sigma^2)$ and uncorrelated with either the control or the explanatory variables. Signs below each parameter indicate the expected relation between each independent variable and TFP, with (+) indicating a positive relation, (-) negative, and (?) an indeterminate one (may be either positive or negative). The estimated parameters "$\beta_{10}\ldots\beta_{20}$" are the parameters of interest in this model.

In preparation for model estimation, we performed some diagnostics with the objective of ensuring that the variables used are normally distributed, hence in keeping with the assumptions underlying the method of least squares used in the estimation. Such diagnostics included the quantile-quantile (Q-Q) plot designed to test whether variables follow a distribution tending to normal, further corroborated by the use of descriptive statistics of the variables. We further examined the Q-Q plot of residuals from the estimated model to verify whether they, too, tended to a normal distribution. Results of both exercises indicated that both the variables and the residuals from the production function estimation tend to a normal distribution. We further conducted the Hausman's specification test, and reached the conclusion that "α" is modelled as fixed effects varying with respect to both firm *i* and time *t*.

APPENDIX II

Variable Description

Control variables (ignoring firm and time subscripts) and the rationale for their use:

$\mathbf{C_1}$: firm age defined as the number of years elapsing between firm start-up and each point in time. This variable reflects the effect of age on productivity whereby older firms are more experienced, have enjoyed the benefits of learning and are not prone to liabilities of newness (Stinchcombe (1965) in Majumdar (1997)). In its linear form, this variable reflects a linear relation between age and productivity.

$\mathbf{C_2}$: firm age squared defined as the square of the number of years elapsing between firm start-up and each point in time. In quadratic form, this variable controls for the possibility that the relation of firm age to productivity may be subject to diminishing returns (as believed by some empirical studies including Fernandes (2007)).

$\mathbf{C_3}$: firm size defined as the natural logarithm of sales (domestic and export). This variable controls for a possible positive effect of size on productivity, whereby larger firms are believed not only to be more diverse in their capabilities, but also more able to exploit economies of scale and scope and to formalize procedures in a way that makes them more efficient than smaller ones (Penrose (1959) in Majumdar (2007)).

$\mathbf{C_4}$: average industry capacity utilization defined as the ratio of used to available capacity at the level of the industry. This is believed to mirror the capacity utilization at firm level. This variable should help control for the positive effect of capacity utilization on productivity (Damijan and Kostevc 2005:25).

$\mathbf{C_5}$: Herfindahl industry concentration index in the T&A defined as the sum of the square of the ratio of each firm's sales to the sales of the industry at large. This index controls for the ability of heavily concentrated firms to control the market and determine prices in a way that may positively affect productivity (Blomstrom and Persson (1983) in Tong and Hu (2003)).

$\mathbf{C_6}$: geographic concentration index defined as the sum of the square of the difference between "the share of T&A industries in the value of total industrial output for each geographic region (each of Egypt's governorates)" and "the share of the respective governorate in total manufacturing output of the nation as a whole." This index controls for the effect of the geographically concentrated/clustered firms being able to share highly specialized labour and

knowledge, and to benefit from cluster firms working in upstream activities in a way that positively affects productivity.

C_7: natural logarithm of industry output (valued at sales price) less firm's own output is a variable controlling for the effect of industry size as a whole on firm productivity. It is believed that the economies of scale associated with growth at the level of the industry at large have a positive effect on growth in firm productivity. This variable may further control for the effect of competition (reflected in output of all other firms) on the respective firm's productivity.

C_8: natural logarithm of the exchange rate of the euro to the Egyptian pound multiplied by the producer price index for T&A manufacturers in the EU. This variable is believed to control for the exchange rate effects on EU demand for Egyptian exports which is itself partly affected by supply condition in the EU. An appreciation of the euro vis-à-vis the Egyptian pound, coupled with an increase in European producer prices, is expected to raise demand for Egyptian exports, both with a potential positive impact on firm productivity.

C_9: natural logarithm of apparent consumption of textiles and apparel in EU markets calculated as the value of T&A output in the EU plus the value of its imports less exports. This variable is, again, to control for the effect of external demand/exports on firm productivity.[65]

Explanatory variables (ignoring firm and time subscripts) and data sources:

X_1: weighted average of the tariffs Egypt levies on T&A imports from the world. We used tariffs from Egypt's schedule as per Presidential Decrees number 429 for the year 2000 and 469 for the year 2001. In 2000, the Egyptian government issued the harmonized tariff schedules, which were subsequently amended in 2001 to replace ad valorem by specific tariffs on apparel only (*Sources*: Official Gazette (2000) and Cultural Institute of Tariffs (2002)). In 2004, the Egyptian government undertook yet another amendment removing specific tariffs and undertaking reductions across all tariff lines. We used T&A import data from CAPMAS electronic database for weighting.

[65] It is worthy of note that several empirical studies probed the relation between exports and firm productivity, but their results were far from conclusive. Some found that highly productive firms are more prone to export, while others found that exporting raises firm productivity (Matthias and Hussinger 2004:7).

This variable reflects competition faced by T&A firms in Egypt. In view of increased competition, such firms may either lobby for raising tariffs or seek to raise their own productivity, or both.

$\mathbf{X_2}$: ratio of the value of Egypt's T&A imports to the respective industry's value of output (import penetration ratio). We used import data from CAPMAS electronic database, and output data from "annual industrial survey."

$\mathbf{X_3}$: preference margin of EU T&A imports from Egypt vs. ROW. This is defined as the difference between the tariffs levied by the EU on T&A imports from Egypt to those levied on T&A imports from ROW (most favoured nation (MFN)). We calculated a margin for the period 2001-2003 as the difference between EU tariffs prevailing under the CA and MFN tariffs listed the Commission of the European Communities (1991) known as TARIC. The margin for the year 2004 was calculated as the average of that which prevailed under the CA and corresponding one under the AA (since the latter became effective June 2004). Both tariff rates for 2004 were from the Commission of the European Communities (2004).

$\mathbf{X_4}$: Intra-industry foreign direct investment (FDI) – i.e., FDI in the T&A industry. Most empirical studies which used this variable in their estimation resorted to FDI data as reported by individual firms in their respective industrial survey questionnaires. Sectoral FDI was then calculated as the total value of output in all firms with a 50 percent foreign equity relative to the total industry output value (see Blalock (2002); Lopez-Cordova (2003) and Blyde, Kugler and Stein (2004)). However, questionnaires addressed to firms in Egypt in the context of the annual industrial survey do not include such data. We therefore used a proxy for this variable calculated using FDI data reported by sector (classified into primary, secondary and tertiary) in UNCTAD (2004) multiplied by the share of the respective industries in gross domestic product (GDP).

$\mathbf{X_5}$: FDI in activities "upstream" from T&A (in other words, those to which T&A industry is "backward" linked) reflecting inter-industry spillovers realized from FDI. As a proxy, we used the FDI data reported by sector (*Source*: UNCTAD (2004)) multiplied by its share in GDP and weighted by share of intermediates obtained from these industries relative to total intermediates used by T&A industry (reflecting how much T&A relies on these activities for its total intermediate usage). For the latter we used Egypt's input/output transactions matrix for the year 1998/99.

X_6: FDI in activities "downstream" from T&A (in other words, those to which T&A industry is "forward" linked) reflecting inter-industry spillovers realized from FDI. As a proxy, we used the FDI data reported by sector (*Source*: UNCTAD (2004)) multiplied by its share in GDP and weighted by the share of intermediates obtained from T&A relative to the total intermediates used by the respective activities (reflecting how much these activities rely on T&A industry for their total intermediate usage). For the latter we used Egypt's input/output transactions matrix for the year 1998/99.

X_7: ratio of imported to total intermediates which is an indicator of the engagement of Egyptian firms in GCCs. Such an indicator is commonly used in empirical studies (see Lopez-Cordova (2003) and Nhu Van and Thanh Huong (2005)). This variable was used to derive other indicators relevant to both engagement in GCCs and export performance whereby we calculated the total number of firms in the data set whose imported intermediate usage exceeded 30 percent, 60 percent and 90 percent respectively (i.e., those which obtained a third to around two or more of their intermediates from abroad).

X_8: ratio of exports to total sales (both valued in Egyptian pounds) as an indicator of export performance.

X_9: export dummy variable (taking the value "1" if the firm exported in a given year and "0"otherwise). Through data on this variable, we calculated yet another indicator reflecting the strength of export performance. This indicator took the values of: "1" if the firm was able to export over the entire period of study (consistent exporter); "0.75" (quasi-consistent); "0.50" (inconsistent); "0.25" (sporadic); "0" (non-exporter) if it exported for three, two, one or none of the years of study, respectively. We were further able to get a feel for overall export performance through the ratio of the number of firms which obtained either one of the above values to the total number of firms in the data set.

X_{10}: ratio of skilled (technical and specialized) labour to total labour employed by the firm.

X_{11}: ratio of expenditure on research and development (R&D) to total sales by the firm.

Both variables **X_{10}** and **X_{11}** are proxies for industrial upgrading where the rationale is that either of them reflects firm's conscious seeking to undertake additional nodes of the chain and hence attempt to upgrade in "product," "process" or in "function." Such proxies are commonly used in empirical studies (see Nhu Van and Thanh Huong 2005:9).

We obtained data for variables $\mathbf{X_8, \ldots, X_{11}}$ from the electronic database of the annual industrial survey issued by CAPMAS.

REFERENCES

Aitken, Brian J., and Anne E. Harrison. 1999. Do domestic firms benefit from direct foreign investment? Evidence from Venezuela. *The American Economic Review* 89(3):605-618.

Bair, Jennifer. 2002a. Is Mexico sewing-up development? NAFTA and the North American apparel industry. Ph.D. Dissertation, Duke University, U.S.A.

———. 2002b. Beyond the Maquila model? NAFTA and the Mexican apparel industry. *Industry and Innovation* 9(3):203-227.

Bair, Jennifer and Gary Gereffi. 2002. NAFTA and the apparel commodity chain: Corporate strategies, interfirm networks, and industrial upgrading. In Gary Gereffi, David Spener and Jennifer Bair (eds.) 2002. *Free trade and uneven development – The North American apparel industry after NAFTA*. Philadelphia: Temple University Press.

Blalock, Garrick. 2002. Technology adoption from foreign direct investment and exporting: Evidence from Indonesian manufacturing. Ph.D. Dissertation, University of California Berkeley, USA.

Blomstrom, M., and Persson, H. 1983. Foreign direct investment and spillover efficiency in an underdeveloped economy: Evidence from the Mexican manufacturing industry. *World Development* ,11(6), 493-501. In Tong Sarah Y. and Angela Youxin Hu. 2003. Do domestic firms benefit from foreign direct investment? Paper presented at the conference on China's Economic Geography and Regional Development, Faculty of Business and Economics, The University of Hong Kong. <http://www.hiebs.hku.hk/events_updates/pdf/tongyueting.pdf > (accessed September 08, 2007)

Blyde, Juan, Maurice Kugler and Ernesto Stein. 2004. Exporting versus outsourcing by MNC subsidiaries: What determines FDI spillovers? *Inter-American Development Bank.* <www.etsg.org/ETS2004/Papers/Kulger.pdf> *(*accessed June 10, 2004)

Boomgard, James J., Stephen P. Davies, Steven Haggblade and Donald C. Meade. 1986. Subsector analysis: Its nature, conduct and potential contribution to small enterprise development. Michigan State University International Development Papers (Department of Agricultural Economics) Working Paper Series, WP No. 26. <http://www.aec.msu.edu/egecon/fs2/papers/older/idwp26.pdf>(accessed October 22, 2005)

Commission of the European Communities. 1991. Taric: Integrated Tariff of the European Communities. Luxembourg: Office of Official Publications of the European Communities.

———. 2004. Official Journal of the European Union - Commission Regulation (EC) No 1810/2004 of 7 September 2004 Amending Annex I to Council Regulation (EEC) No 2658/87 on the tariff and statistical nomenclature and on the Common Customs Tariff. <http://europa.eu.int/eur-lex/LexUriServer/site/en/oj/2004/l_2371/l_32720041030en00010877.pdf> (accessed April 15, 2007)

Cultural Institute for Tariffs. 2002. Customs Magazine – Issue No. 372. Cairo: Cultural Institute for Tariffs.

Damijan, Jože P., Mark Knell, Boris Majcen and Matija Rojec 2003. *Technology transfer through FDI in top-10 transition countries: How important are direct effects, horizontal and vertical spillovers?* William Davidson Institute Working Paper Series No. 549.

Damijan, Jože P. and Črt Kostevc. 2005. *Performance on exports: Continuous productivity improvements or capacity utilization*. LICOS Centre for Transition Economics, LICOS Discussion Papers. < http://www.econ.kuleuven.be/licos/DP/DP2005/DP163.pdf> (accessed April 15, 2007)

Fernandes, Ana Margarida. 2007. Trade policy, trade volumes and plant-level productivity in Columbian manufacturing. *Journal of International Economics* 71(1):52-71.

Gallagher, Kevin P., Carlos Moreno-Brid and Roberto Porzecanski. 2008. The dynamism of Mexican exports: Lost in (Chinese) translation? *World Development* 36(8):1365-1380.

Gereffi, Gary. 1999. A commodity chains framework for analyzing global industries. < www.ids.ac.uk/ids/global/pdfs/gereffi.pdf > (accessed March 2, 2004)

Gereffi, Gary and Jennifer Bair. 2001. Local clusters in global chains: The causes and consequences of export dynamism in Torreon's blue jeans industry. *World Development* 29:1885-1903.

Gereffi, Gary, John Humphrey and Timothy J. Sturgeon. 2003. The governance of global value chains. <http://www.soc.duke.edu/sloan_2004/Papers/governance_of_gvcs_final.pdf > (accessed March 15, 2004)

Gereffi, Gary and Olga Memodovic. 2003. *The global apparel value chain: What prospects for upgrading by developing countries.* UNIDO Sectoral Studies Series. Vienna: UNIDO. <http://www.unido.org/file-storage/download/?file%5fid=11900> (accessed December 10, 2004)

Greene, William H. 2003. *Econometric analysis.* India: Dorling Kindersley Pvt. Ltd.

Javorcik, Beata K. Smarzynska and Mariana Spatareanu. 2003. *To share or not to share: Does local participation matter for spillovers from foreign direct investment?* World Bank Policy Research Working Paper Series, WP 3118. < http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2003/09/08/000160016_20030908135722/Rendered/PDF/wps3118.pdf> (accessed July 27, 2008).

Krugman, Paul. 1995. *Growing world trade: Causes and consequences*. Brookings Papers on Economic Activity. (Accessed July 21, 2003) <http://web13.epnet.com/citation.asp?tb=1&_ug=dbs+0%2c1+ln+en%2Dus+sid+08AO ...>.

Lopez-Cordova, Ernesto. 2003. NAFTA and manufacturing productivity in Mexico. *Economia (Journal of the Latin American and Caribbean Economics Association-LACEA)* 4(1): 55-98.

Majumdar, Sumit K. 1997. The impact of size and age on firm-level performance: Some evidence from India. *Review of Industrial Organization* 12:231-241.

Matthias, Jens Arnold and Katrin Hussinger. 2004. *Export behavior and firm productivity in German manufacturing: A firm-level analysis.* Discussion Paper No. 04-12 of the Center for European Economic Research. <http://www.schumpeter2004.uni-bocconi.it/dwload.php?download=download&id_pap=384 > (accessed September 08, 2007).

Ministry of Trade and Industry. 2004. Tariff effective as per Presidential Decree No. 300 and 410 for the year 2004. <http://www.mfti.gov.eg/laws/laws.htm> (accessed 11 April 2007).

———. Various issues. Quarterly foreign trade statistics report (Taqrir Al-Tigara Al-Kharigia Al-Mugamaa). Cairo, Egypt: Ministry of Trade and Industry.

Nhu Van, Dang and Hoang Thanh Huong. 2005. Vietnamese T&G firms in the global value chain: If and how higher value activities pay off? Final draft for comments presented as a sub-project of the Vietnam Economic Research Network. Unpublished.

Official Gazette. 2000. Presidential Decree No. 426 for the year 2000 for the issuance of the harmonized tariff. Issue no. 43 dated 31/10/2000. Cairo: The Official Gazette.

Penrose, E. T. 1959. *The theory of the growth of the firm.* In Majumdar, Sumit K. 1997. The impact of size and age on firm-level performance: Some evidence from India. *Review of Industrial Organization* 12:231-241.

Pindyck, Robert S. and Daniel L.Rubinfeld. 1998. *Econometric models and economic forecasts.* Singapore: Irwin/McGraw-Hill.

Porter, Michael. 1990. *The competitive advantage of nations*. New York: The Free Press.

Raikes, Phillip, Michael Friss Jensen, Stefano Ponte. 2000. Global commodity chain analysis and the French filiere approach: Comparison and critique. *Economy and Society* 29(3): 390-417.

Romalis, John. 2005. *NAFTA's and CUSFTA's impact on international trade.* National Bureau of Economic Research Working Paper, Working Paper 11059. <http://www.nber.org/papers/w11059> and <http://faculty.chicagogsb.edu/john.romalis/research/> (accessed May 24, 2007).

Stinchcombe, A. L. 1965. Social structure and organization. In Majumdar, Sumit K. 1997. The impact of size and age on firm-level performance: Some evidence from India. *Review of Industrial Organization* 12:231-241.

Tokatli, Nebahat and Ömür Kizilgün. 2004. Upgrading in the global clothing industry: Mavi Jeans and the transformation of a Turkish from full-package to brand-name manufacturing and retailing. *Economic Geography* 80(3):221-239.

Tong Sarah Y. and Angela Youxin Hu. 2003. Do domestic firms benefit from foreign direct investment? Initial evidence from Chinese manufacturing. Prepared for the conference on China's Economic Geography and Regional Development, Faculty of Business and Economics, The University of Hong Kong. <http://www.hiebs.hku.hk/events_updates/pdf/tongyueting.pdf > (accessed September 08, 2007).

UNCTAD (United Nations Conference on Trade and Development). 2004. World Investment Directory Country Profile: Egypt. (Accessed April 29, 2007) <http://www.blackwell-synergy.com/doi/pdf/10.1111/..1435-5597.2004.tb01934.x?> .

———. 2006. Report on the implementation of the investment policy review: Egypt. <http://www.globalcompetitionforum.org/regions/africa/Egypt/UNCTAD%20Report%202006.pdf> (accessed October 28, 2010).

UNECE (United Nations Economic Commission for Europe). 2001. The environment for FDI spillovers in the transition economies: Background paper. Paper prepared for the UNECE/EBRD Expert Meeting – Financing for Development, Geneva. http://www.unece.org/ead/misc/ffd2001/ead.pdf> (accessed June 14, 2008).