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The impact of the diagonal cumulation of Rules of Origin in the context of Euro-Med integration

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Contents

1. Introduction

The aim of this research project is to focus on the impact of Rules of Origin (ROOs) on trade flows. The theoretical and empirical literature indicates that ROOs can and do impact on patterns of trade and production. There is very good reason then for supposing that the nature of the rules of origin regimes in place are likely to significantly impact on South-South Mediterranean trade, as well as on EU-Southern Mediterranean trade. In essence ROOs typically provide some limit on the amount of intermediate inputs which a country can import from a non-PTA partner country. Diagonal cumulation makes it easier to import such goods and still satisfy the rules of origin.

At Palermo Trade Ministerial Conference, July 2003, it was agreed that any of the Barcelona countries could in principle take advantage of diagonal cumulation arrangements with any other EU, or EU partner country with whom they had a preferential trade agreement, and In considering the role and importance of rules of origin within the framework of the Barcelona process, there are then three issues which need to be identified:

In 1997 the EU introduced a common set of rules of origin, known as the Pan-European rules of origin which in principle the EU wished to apply in its preferential trade agreements. With regard to EU-Southern Mediterranean trade the Pan-European rules apply in most cases, though for some countries such as Egypt and Jordan the applicable rules are slightly different for certain industries. Diagonal cumulation is an important part of the Pan-European rules, and potentially makes it easier to import intermediate goods and still satisfy the rules of origin. Hence, if the Southern Mediterranean countries sign free trade agreements among themselves and which allow them to take advantage of the Pan-European cumulation arrangements then this is more likely to encourage South-South trade. It is for these reasons that there was considerable debate over the formulation of the Agadir Agreement and the ROOs therein.

For the Southern Mediterranean countries then discussion of rules of origin has to take place in the context of: the Pan-European rules of origin, the possibility of diagonal cumulation therein, the presence/absence of bilateral preferential trading agreements among the countries themselves, and the possible changes in the ROO regimes which are likely to be announced by the EU in the summer of 2006.

Theoretically, therefore, the potential distortionary impact of ROOs has been clearly identified, however empirically there is little formal evidence. In part this arises because of the technical opaqueness surrounding the rules. For example where the main text of a typical Association Agreement between the EU and a Barcelona process country is between 20-30 pages long, the annex covering the rules of origin (applicable to each product) at the 4 or 6-digit HS level of aggregation, is close to 100 pages long. In part, also, this arises because of the empirical difficulties of isolating the impact of rules of origin. ROOs are formulated and come into force concurrently with the preferential trading agreements themselves. It is therefore virtually impossible to separate out any ROO effect, from the impact of the PTA itself. Nevertheless, there is also small but growing formal empirical literature which seeks

to identify whether ROOs are indeed impacting upon trade flows. The formal empirical literature is also supplemented by a plethora of anecdotal evidence and case studies. It is also well known that these rules are frequently a contentious issue in PTA negotiations - and indeed this was the case with regard to the Agadir Agreement. The strong picture which emerges from this literature is that ROOs do appear to be significantly impacting upon patterns of production and on trade flows. In particular ROOs tend to increase trade between PTA partner countries at the expense of trade between the PTA countries and third countries. In the context of the EU-Southern Mediterranean partnership ROOs are likely to impact negatively on South-South Mediterranean trade at the expense of (hub-and-spoke) EU-Southern Med trade.

It is important to point out that the formal empirical literature tends to focus on the impact of ROOs on aggregate trade flows, and the more informal literature tends to focus on specific industries and/or countries. There is very little work then on identifying the potential restrictiveness of ROOs across a range of sectors, nor on the underlying explanatory factors for the restrictiveness.

The aim of this research is therefore to focus on the change in cumulation arrangements which occurred in 1996 to directly identify and differentiate between the restrictiveness of rules of origin across a range of sectors, secondly to analyse the determinants of the restrictiveness of rules of origin, and thirdly to assess the validity of the formal empirical results with reference to the case study of Egypt

This part of the report is divided into three principal sections. The first section provides a conceptual discussion of the importance of rules of origin, and of the role and importance of cumulation provisions in regional trade agreements. This discussion draws heavily on earlier work by Augier, Gasiorek and Lai-Tong (Economic Policy, 2005). In that earlier work we identified the potential importance of the cumulation of rules of origin on trade flows in the context of the EU's Pan-European Rules of Origin for total trade, intermediate trade and manufacturing trade. However, to the extent that rules of origin impact upon trade flows, one would expect that impact to differ across sectors. Hence, in the second section of this report we provide new estimates of the potential impact of cumulation, but this time at the sectoral level. The third part of this section of the report considers what are the principal explanatory variables which help in identifying the circumstances under which rules of origin are more likely to be constraining.

2. Conceptual Background

Recent years have seen an explosion in the formation of preferential trading agreements, and this has also been true of the countries of the Southern Mediterranean. Under the Barcelona process the countries of the region have each signed Association Agreements with the EU, and have also been signing free trade agreements among themselves. Examples include the Agadir Agreement (between Egypt, Jordan, Tunisia and Morocco), and the recent free trade agreements between Morocco and Turkey, and Tunisia and Turkey. Rules of origin (ROOs) are an extremely detailed and key feature of *all* preferential trading agreements. By their very nature PTAs grant member countries reductions or exemptions on tariffs. Rules of origin are thus needed and used in order to establish whether a given good is genuinely eligible for the preferential reduction or exemption from customs duties conferred by the PTA arrangements. Hence, the rules serve to prevent third country

imports from taking advantage of the concessions which have been made by the parties to the preferential agreement – commonly known as trade deflection.

2.1 Determining originating status

The principal for determining originating status is that *substantial transformation* needs to have occurred. Typically one or more of three criteria are used in determining whether there has been substantial transformation:

(a) The *change in tariff classification rule*: whether the transformation of the good results in a different tariff classification line between the inputs and the manufactured product;

(b) The *value content rule*: whether or not the value of the imported intermediate(s) exceed(s) a certain percentage of domestic value;

(c) The *specific production process rule:* whether a particular specified production process has been employed or not. These criteria are often given singly for a given product category, but can also be employed together.

2.2 The impact of constraining ROOs on trade

As rules of origin are formulated in the context of trade liberalising preferential agreements they are therefore, in principle, intended to support a process of (regional) trade liberalisation. Nevertheless, de facto, rules of origin may result in a far less substantial degree of trade liberalisation than might be, on the face it, implied by the preferences, which have been granted. There are two principal reasons for this. The first reason concerns the administrative and bureaucratic costs and difficulties involved with administering rules of origin regimes, and the second concerns the possible trade diverting or trade supressing properties of rules of origin.

With regard to the former for a good to be granted originating status the exporting firm needs to be able to provide detailed documentary evidence in order to obtain the relevant certification. This requires firms to operate detailed and precise records of their use of intermediate inputs as well as requiring knowledge of the certification procedures. There is anecdotal evidence though not much formal empirical evidence to suggest that due to reasons of both costs or simply lack of organisational capacity certification may not be acquired even where there may be eligibility.

With regard to the latter, the classical analysis of the impact of a preferential trading agreement focuses, of course, on the possibilities of trade creation and trade diversion. These impacts arise because of the asymmetric preferences being granted to countries as part of the regional agreement. There is a small but growing theoretical literature which shows that the ROOs underlying these agreements can also materially impact on trade flows - and thus can also be used for protectionist purposes. Hence in addition to the "classical" effects, there may be further significant trade diversion and/or trade suppression arising from the nature of the rules of origin, which are put in place.

- Rules of origin provide a way of determining whether a good truly originates from the country exporting the good, as opposed to being re-routed via another country. In so doing the rules provide limits either on the amount of imported intermediates

that can be use, or on the imported products which can be used in the process of production, or on the nature of the production process itself. In each of these cases the rules can be established such that there is a direct impact on the choices that firms make in terms of their sources of supply of intermediates and / or the production process they use. Consider the extreme case where a good in order to be originating has to be produced entirely from material originating in the exporting country (wholly obtained). In that case if the firms wish to export the good duty free to the EU, then they cannot use any imported intermediates whatsoever.

The nature of the rules, therefore, can easily impact on patterns of trade. In effect where rules of origin are constraining or restrictive, their effect is to establish barriers to trade between the PTA countries and the non-PTA countries. Formally, constraining rules of origin can be seen as equivalent to simultaneously imposing an import tariff between partner and non-partner countries, as well as granting domestic partner country producers a production subsidy (Krishna & Krueger, 1995, Krishna 2005)[1].

Constraining rules of origin are thus likely to either:

- Encourage the exporting producer to source more intermediates domestically - in which case trade suppression has occurred.
- Encourage the exporting producer to source more intermediates from the partner country – in which case trade diversion has occurred. In this case the rules of origin are likely to negatively impact on trade between the spokes, while encouraging hub-spoke trade.
- Result in the exporting producer deciding to continue to source the intermediates from the most competitive supplier in the knowledge that the rules of origin will not be satisfied, and that tariffs will then be applicable on exports to the EU. Whether the firm choose this or not will depend on the trade off between lower costs arising from cheaper intermediates, and the tariff which is then imposed; or the higher cost from using domestic or partner country intermediates but with tariff free access to the export market.

What is important is to that the rules may serve to protect certain sectors from the degree of liberalisation that might otherwise be implied by the free trade agreement (see also. Brenton & Machin (2003), Falvey & Reed (2002), Burfisher, Robinson & Thierfelder (2001), Hoekman (1993))[2] The extent of any such impact will then depend on a number of further factors, such as the nature of the underlying market structure [eg. Vousden (1987), Krishna & Krueger (1995)], or on how "sufficient working or processing is defined" [Krishna & Itoh (1988)], and of course of the costs of not being able to fulfill the originating requirement, and in particular the height of the importers' tariff [Hoekman (1993), Gasiorek et.al. (2002)].

It is also worth underlining that for any given PTA the rules of origin are perceived as being very technical. This appears to arise largely from high level of disaggregation at which they are defined (eg HS 4 or 6 digit) and from the criteria combinations

[1] Examples that are often cited here concern the role of the US automobile industry in drawing up the relevant NAFTA rules of orgin, or the role of textile producers in both the EU and the US rules.

[2] There is also a literature which examines the welfare impact of rules origin and considers issues such as the circumstances under which restrictive rules of origin may be welfare increasing [eg. Mussa (1984), Falvey & Reed (1998), Panagariya & Krishna (2002)], the interaction between the wefare effects and the political viability of a given FTA [Duttagupta & Panagariya (2007)], as well as the impact on firm behaviour [Ju & Krishna (2005)].

employed. The perception that rules of origin are an issue of "technical detail", coupled with and perhaps driven by their technical opaqueness, has meant that less attention has focussed on their use as protectionist tools and it has perhaps also made it easier for firms/industries to influence the fomulation of those rules [see eg. Hoekman (1993), LaNassa (1995), Grossman & Helpman (1995), Duttagupta & Panagariya (2007)]. Unlike tariffs or quotas, which have a much higher profile, rules of origin are less well understood and hence potentially can be used more easily for protectionist purposes. Hence certain sectors may end up being afforded protection via the underlying rules of origin. Classic examples that arise in the literature in this context are textiles, and automobiles. The rules of origin in all the EU agreement, and those of the US applying to, for example, textiles are highly restrictive because as opposed to allowing a single change in the tariff classification line, the transformed good must have move at least two tariff classification lines in order to be considered originating. However, it is also worth pointing out that, in turn, the possibility for industries to isolate themselves from the process of liberalisation can serve to make FTA more viable. For example, it is unlikely that the NAFTA agreement would have been signed without the support of the automobile and the textile industries.

2.3 Cumulation and its impact on trade

A further important issue which arises when considering ROOs, is that of the impact of the *cumulation* of rules of origin. Bilateral cumulation applies to trade between two trading partners. Bilateral cumulation means that materials originating in one country can be considered as materials originating in the other partner country (and vice versa). All PTAs allow for bilateral cumulation. Hence, Morocco can use EU intermediates and then export the final good back to the EU. Note however, that even though Egypt may be able to export a given product duty free to the EU, if the same product is used by Morocco as an intermediate, than that intermediate is not counted as originating. Diagonal cumulation is way of overcoming this anomaly.

Diagonal cumulation applies to trade between three or more trading partners normally linked by FTAs with identical rules of origin. Under diagonal cumulation the participating countries bilaterally agree, in all the FTAs concluded among each other, that materials originating in one country can be considered as materials originating in all the other countries. Hence, now Morocco could use the Egyptian intermediate and *cumulate* the value of that intermediate with its own value added in determining originating status on the export of the final product to the EU.

It was precisely in recognition of the problem which can arise where there are overlapping FTAs that the EU moved to the Pan-European system of diagonal cumulation. The Pan-European cumulation system (PECS) came into force in 1997 and includes the EFTA countries (Norway, Iceland, Lichtenstein, Switzerland), the Czech and Slovak Republics, Hungary, Poland, Slovenia, Romania, Bulgaria, Estonia, Latvia and Lithuania, as well as Turkey (since 1999)[3]. As part of the Barcelona process the EU has also signed Association Agreements with a number of Southern

[3] For a detailed discussion of the pan-European system see Driessen & Graafsma (1999). Diagonal cumulation is also allowed for in the EU-South Africa agreement, and with regard to EU-ACP trade. It is also allowed as part of the Canada-Israel agreement which allows for diagonal cumulation with the US.

Mediterranean countries, which include Morocco, Tunisia, Algeria, Egypt, Jordan, Syria, Israel, the Palestinian Authority, Lebanon, Cyprus and Malta.

Diagonal cumulation therefore encourages the use of materials and processing within the preferential area(s) while maintaining a common standard for treating third country non-preferential inputs. Note that in order for diagonal cumulation to be operational it is essential that all participating countries have signed identical free trade agreements, and that all of these trade agreements have identical rules of origin. If these conditions are not met, than once again trade deflection can result.

Earlier we identified that constraining ROOs are likely to lead to some combination of trade suppression and trade diversion. In a similar fashion we can identify the possible impact of diagonal cumulation on the EU (the hub) and its partner countries (the spokes):

- ***Spoke-spoke trade***: As diagonal cumulation makes it easier to source intermediates from other EU partner countries (ie from other spokes), than was previously the case, the introduction of the PECS should positively impact on spoke-spoke trade. This is likely to be a combination of *trade creation* and *trade reorientation.* Trade creation occurs as the spokes source more intermediates from each other instead of supplying the good itself domestically, and reverses the trade suppression caused by the original ROO. Trade reorientation occurs as the spokes switches sources of supply away from the EU and towards other spokes. This reverses some of the trade diversion arising from the original ROO.
- ***Hub-Spoke trade:*** Here it is important to distinguish between flows from the hub to the spoke, and from the spoke to the hub. With regard to hub-spoke trade, to the extent that the spoke reorients its' sourcing of intermediates away from the EU to other spokes, than there may be a negative impact. With regard to spoke-hub trade, it is possible that the EU could now choose to sourcing more intermediates from the spokes, hence there could be some increase of spoke-hub trade flows.
- ***Spoke-ROW trade:*** Here there are two possible effects. First, there may be trade diversion as the spokes source more from each other at the expense of the rest of the world. This would result in a lowering of spoke-row trade. Secondly, as the spokes increases the proportion of originating materials by sourcing from each other, this also enables them to import more intermediates from the ROW while still being granted originating status on export to the EU. This would result in an increase in spoke-row trade. The net effect will therefore be ambiguous.
- ***Hub-ROW trade:*** This case is analogous to the case of spoke-row trade. There could be some trade diversion away from EU imports from the ROW if the EU switches to spoke suppliers. However, there could also be some trade creation or trade reorientation.

Our empirical strategy in the next section of this paper is to take the PECS and it's introduction in 1997 as a natural experiment for identifying the possible impact of rules of origin. If the rules of origin were constraining, than the introduction of diagonal cumulation should have impacted on patterns of trade.

3. Sectoral gravity modeling of Rules of Origin

The introduction of the PECS system in 1997 gives us a natural experiment, which enables to directly focus on the possible impact of rules of origin. The empirical methodology we employ is based on the gravity modelling framework. We take five years worth of data as a panel and examine the impact of the introduction of the PECS on the newly cumulating countries over time, using what is known as a difference-in-difference analysis. The purpose is to investigate, at the sectoral level whether there is any evidence that the introduction of the Pan-European system materially impacted on trade flows.

The methodology we use here follow closely that of Augier, Gasiorek and Lai-Tong (2004, 2005). In the former the impact of rules of origin and the lack of cumulation was examined at the sectoral level but just for the textile industry. The result suggested that rules of origin do indeed serve to restrict trade flows between countries and that trade between non-cumulating countries could be lower by up to 50%-70%. In Augier, Gasiorek and Lai-Tong (2005), we focussed on trade in all goods, trade in intermediate goods, and trade in manufactured goods and significantly improved upon the methodology. The results suggested that the introduction of cumulation served to increase trade between spokes by between 7% - 22%, and that trade was potentially lower between those countries, which were not part of the PECS system by up to 70%.

In this paper we apply the methodology of Augier et.al. (2005), but apply it at the sectoral level. Our estimations are based on trade flows between 38 countries - all of the EU countries, 3 EFTA countries (Iceland, Norway and Switzerland), the CEFTA countries, the Baltic States, 6 countries taking part in the Barcelona process (Turkey, Jordan, Israel, Egypt, Tunisia, Morocco), as well as the US, Canada, China, Japan and Australia.

3.1 The gravity model

Gravity modelling, and theoretical justification for gravity modelling has a long and varied history (eg. Anderson 1979; Bergstrand 1985, 1989; Helpman & Krugman 1985; Deardorff 1998, Frankel, 1997, Anderson & Wincoop 2003). At least partial theoretical justification can be found via both Heckscher-Ohlin models of trade, as well as imperfectly competitive trade models. In its' simplest forms the principle underlying the gravity methodology is that bilateral trade flows are a function of: the level of economic activity in both the exporting and the importing country, and trade costs between the two countries. Hence the larger is the exporting country the more it is likely to export. Similarly the larger is the importing country the more it is likely to import. Clearly those flows will also be affected by trade costs – be these tariffs, quotas or distance between the countries.

The resulting equation which is then estimated typically describes bilateral aggregate trade flows between two countries, *i* and *j*, as a function of: the levels of GDP in countries *i* and *j*, and the distance and/or trade costs between *i* and *j*. Typically, the standard model is then augmented in one or more of several ways. As well as using GDP to capture activity levels, usually the respective populations of countries *i* and *j* are included. This serves to capture not simply economic size, but also per capita income levels. Gravity models are usually also supplemented with dummy variables in order to try and capture other factors, and in particular institutional arrangements

between countries which are typically expected to impact upon trade flows (eg. regional trading arrangements), or dummies to capture cultural affinities between countries such as a common language[4].

A typical equation derived from the gravity literature takes the form:

$$1) \qquad X_{ij} = \frac{Y_i Y_j}{Y_w}\Phi(\cdot)$$

Where X_{ij} represents the value of exports by i to j (in 1000s of $); Y_i, Y_j and Y_w levels of production in countries i and j, and the world; and $\Phi(\cdot)$ is a term capturing trade costs between countries. The estimating equation describes bilateral aggregate trade flows between two countries, as a function of their respective levels of GDP, and the distance and/or trade costs between them. Typically, the model is then augmented with the respective populations each country as well as a range of dummy variables e.g. to capture common language, or membership of a PTA. Hence imports by country i from country j, are typically expressed as:

$$2) \qquad \begin{aligned} Ln(X_{ij}) = \alpha_0 + \alpha_1 Ln(GDP_i) + \alpha_2 Ln(Pop_i) + \alpha_3 Ln(GDP_j) + \\ \alpha_4 Ln(Pop_j) + \quad \alpha_5 Ln(Dist_{ij}) + \alpha_6 Z + e_{ij} \end{aligned}$$

Where:

X_{ij}: value of exports by country j to country i
GDP_k: GDP of country k, $(k = i,j)$
Pop_k: Population of country k $(k=i,j)$
$Dist_{ij}$: Distance between the economic centres of gravity.
Z: the set of dummy variables
e_{ij} is the error term and where the standard assumptions apply

Following Anderson & Wincoop (2003) more recent work has included country specific fixed effects [e.g. Matyas (1997); Hummels (1999), Redding and Venables (2004)]. These are designed to capture what Anderson & Wincoop term multilateral trade resistance. In a cross-section framework the introduction of importing and exporting country dummies results in collinearity with the GDP and population variables. In practice therefore, researchers tend to rewrite equation 1, by taking the activity variables to the left hand side resulting in:

$$3) \qquad \frac{X_{ij}}{Y_i Y_j} = \Phi(\cdot)$$

In terms of equation 2, the logarithmic version of equation 3 implies unitary restrictions on the parameters α_1 and α_2.

In our work we have added to the standard gravity model in order to evaluate the potential impact of the cumulation of rules of origin as well as allowing for the inclusion of a tariff term. Hence the extended version of the gravity model equation used is:

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[4] It is worth noting that Estevadeordal & Suominen (2004) also use a gravity model in their estimates of the impact of rules of origin. Unlike our work however, they construct a restrictiveness index which ranges between 1-7 designed to capture differing degrees of restrictiveness across a range of different PTA. Their results also suggest that rules of origin restrict trade flows.

$$Ln(X_{ij}) = \alpha_0 + \alpha_1 Ln(GDP_i) + \alpha_2 Ln(Pop_i) + \alpha_3 Ln(GDP_j) + \alpha_4 Ln(Pop_j) + \alpha_5 Ln(Dist_{ij}) + \alpha_6 PTA_{ij} + \alpha_7 Border_{ij} + \alpha_8 Language_{ij} + \alpha_9 Tariff_{ij} + \alpha_{10} ROO_{ij} + e_{ij} \quad (4)$$

where the following are the relevant dummy variables :

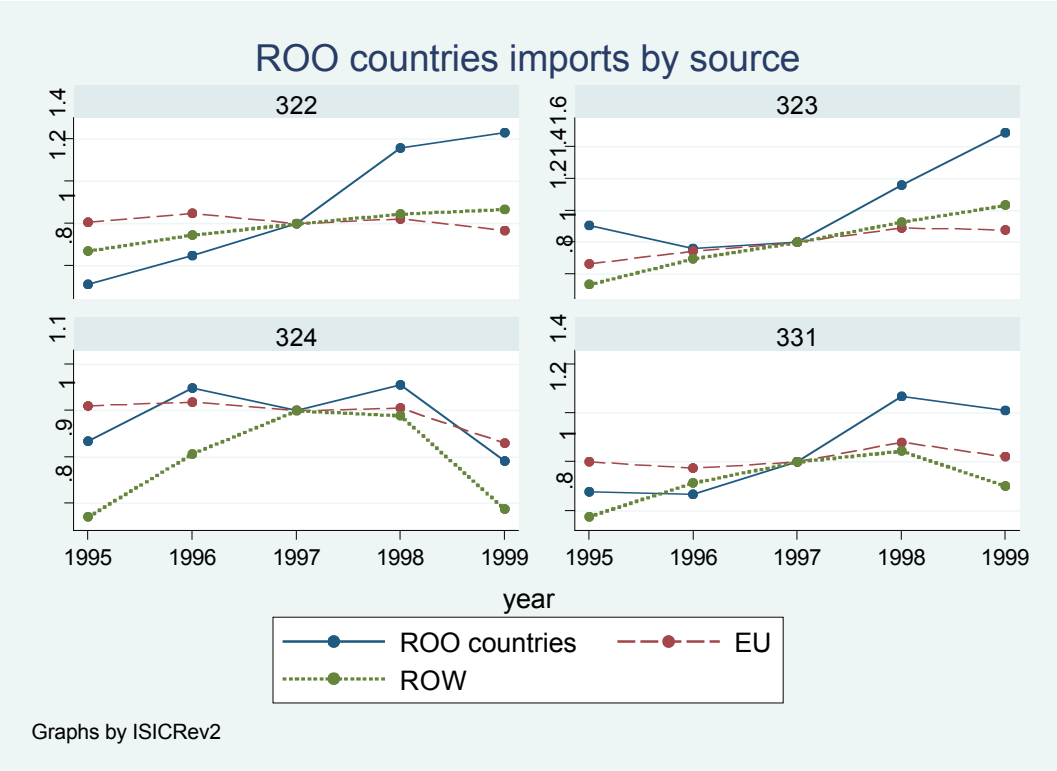
PTA_{ij}:	represents the relevant free trade agreements (EU, CEFTA & EFTA).
$Border_{ij}$:	assesses the potential role of a common border between countries
$Language_{ij}$:	assesses the potential role of a common language between countries
$Tariff_{ij}$:	gives the average tariffs between countries
ROO_{ij}:	gives the rules of origin dummy variable whose formulation is discussed in more detail below.

And where X_{ijt} is the real bilateral export from i to j in period t, and GDP_{it} and GDP_{jt} are the real GDP's of i and j and γ_t are year dummies.

3.2 Panel Estimation: difference in difference

The statistical analysis we use to establish a lower bound on the impact of ROOs is a technique called difference-in-difference analysis. This compares the behaviour of two groups of bilateral trade flows. The 'treatment' group includes all the bilateral trade flows that should have been boosted by the PECS. The 'control' group is made up of the bilateral trade flows that should not have been affected by the PECS. In essence, the procedure is to compare how much treatment-group trade flows rose as a result of cumulation (this is the first difference) and compare this with the change in flows for the control group (the second difference) - hence the term difference-in-differences.

Consider the graphs below. Here we are plotting the imports relative to imports in 1997 between those countries, which could have been directly affected by the cumulation of rules of origin, and their imports from other sources. We do this for four sample industries. If the cumulation of rules of origin indeed had an impact than we would expect trade between newly cumulating countries to rise by more that trade between these countries and third countries. The graph is quite striking as it suggest that in at least 3 cases – 322, 323, and 331 that there was indeed a difference in the evolution of trade between the newly cumulating countries.



Of course, the introduction of cumulation was not the only thing that changed between the pre-1997 and post-1997 periods, hence we use the gravity model to control for other factors. Additionally, we control for all sorts of unobservable pair-specific factors (e.g. historical ties, business networks, etc.) by employing a statistical technique called fixed effects at the country-pair level. We also hope that this goes some way to correcting for the issue of reverse-causality (namely, the idea that membership in PECS may have been more likely for nations with high spoke-spoke trade flows, so trade is influencing PECS membership rather than vice versa).

The ROO and ROO+TD dummies. In order to pick up on the effect of cumulation we therefore introduce a dummy variable which switches from zero to 1, when the PECS is introduced between any pair of countries. We then consider the change in trade over that time period and compare it to the change in trade for those countries who were not part of the PECS system.

However, the introduction of preferences via a FTA, and the impact of rules of origin will tend to affect trade flows in the same direction. The classical analysis of an FTA suggests that granting preferential access leads to both trade diversion (with respect to the rest of the world) and trade creation (with respect to partner countries). Diagonal cumulation may also lead to increased trade diversion and trade creation. However, the impact of preferences on trade diversion will only apply when the spokes offer preferential access to the EU and not to the other spokes. If the spokes also have a free trade agreement between themselves, than the issue of trade diversion should not apply. Similarly if a spoke has an asymmetric trade agreement with the EU, where it is the EU which is offering tariff free access to its market but not vica versa, then again trade diversion should not be an issue (this is because the spoke levies the same tariff on imports from all sources so no trade diversion arises with respect to its trade with third nations).

This applies principally when considering the impact of the introduction of a preferential trading arrangement – where one would expect both effects to be present – and therefore also when comparing trade between cumulating and non-cumulating partners at any given point in time. The conflation of the ROO impact with trade diversion is less of an issue when considering the impact of the introduction of the PECS system as this occurred (largely) in the presence of existing trade agreements. Nevertheless, from this perspective, the natural experiment was purer for some spoke-spoke trade flows than it was for others. For example, Hungary and Poland had a free trade agreement between themselves and each had free trade agreement with the EU. Thus, the PECS made rules of origin less restrictive in a setting of zero tariffs. For other spoke-spoke flows directly affected by PECS, the experiment was rather less pure. Turkey and Estonia, for instance, did not have a bilateral FTA, but each had free trade with the EU. In this case, it is possible that Turkey-Estonia trade could be affected both because of ROO supply-switching considerations and because of changes in the degree of trade diversion. However, as there is little direct reason to suppose any change in the degree of trade diversion in reality this is unlikely to be significant.[5]

Nevertheless, as the possibility does exist, in order distinguish these two cases, we specify two ROO dummies. ROO_{IMPACT} is the dummy for PECS-affected spoke-spoke trade flows where trade preferences are not an issue. $ROO_{IMPACT+TD}$ is the dummy for PECS-affected spoke-spoke trade flows where trade diversion may also be an issue.

Control Groups. The control group should consist of bilateral trade flows that were unaffected by the PECS, but this group should also be as large as possible to boost statistical precision. We use three different groupings.

The first group comprises all bilateral trade flows in our sample that are not in the treatment group. Note that this includes exports by the rest of the world (RW) to the spokes, as well as trade between PECS and non-PECS spokes (e.g. between Morocco and Poland). As discussed earlier in the context of the impact on RW-Spoke trade, the net effect on these flows of improved cumulation arrangements is ambiguous due to secondary effects, it is possible that these flows are indirectly affected by the PECS and so should not be viewed as proper controls.

To deal with this, we set up a second, more narrowly defined control group by taking out these bilateral trade flows. This second control group almost certainly captures the impact of cumulation more accurately. Finally, it is also possible that cumulation may have impacted upon sales from the EU (the hub) to the spokes, again due to secondary effects. To address this possibility, we created a third, even narrower control group that excludes all Hub-Spoke flows as well as all RW-to-Spokes flows. Thus it includes only intra-EU flows, intra-RW flows and flows between the EU and the rest of the world. As with the second control group, this is more likely to correctly capture the impact of cumulation on intra-Spoke trade – which is precisely where the theory predicts the most unambiguous results. The three sets of regressions are respectively labelled Control 1, Control 2, and Control 3 in the Tables below.

[5] Likewise, when the EU-spoke preferential trade agreement is asymmetric as it is with developing nations (the EU offers tariff reductions without receiving reciprocal tariff preferences), than there would be no spoke-spoke trade diversion, and thus no possibility of conflation of trade diversion and ROOs effects.

3.3 Results

The principal results for the impact of cumulation can be seen in Tables 1 and 2, where we provide the estimated coefficients for the ROO and the ROO+TD dummies. Recall that earlier we discussed that we run two variants of the model – one where the activity variables are production and consumption of the exporting and importing country respectively (we call this Experiment 1), and one where the activity variables are given by production in the exporting country, and GDP and population of the importing country (which we call Experiment 2). The full set of results can be found in the appendix to this paper.

Consider the first three columns of Table 1. Here we give the estimated impact on spoke-spoke trade directly as a result of the introduction of diagonal cumulation via the PECS system for Experiment 1. We report on the results across the three control groups explained earlier. We see here that for 12 out of the 27 industries there is an estimated positive impact on spoke-spoke trade with all the control groups, and across the control groups there is a total of 18 out of 27 industries where we find a positive and statistically significant coefficient.

Table 1: The impact of cumulation (Experiment 1)

ISIC	Industry	Pure ROO effect			ROO + Trade Diversion effect		
		Control 1	Control 2	Control 3	Control 1	Control 2	Control 3
311	**Food**	0.315***	0.381***	0.330***	-0.020	0.033	-0.020
313	**Beverages**	0.013	0.059	0.007	0.037	0.053	-0.018
314	**Tobacco**	0.380	0.418	0.483	0.311	0.336	0.369
321	**Textiles**	0.389***	0.377***	0.348***	0.534***	0.531***	0.509***
322	**Clothing**	0.482***	0.500***	0.443***	0.869***	0.876***	0.829***
323	**Leather**	0.454***	0.461***	0.545***	-0.139	-0.135	-0.069
324	**Footwear**	0.132	0.135	0.158	0.532***	0.553***	0.603***
331	**Wood and cork**	0.190	0.203*	0.217**	0.558***	0.573***	0.602***
332	**Furniture**	0.213*	0.224**	0.244***	0.178	0.190	0.207**
341	**Paper**	-0.010	0.040	0.143	0.178	0.217	0.297**
342	**Printing**	0.052	0.072	0.110	0.139	0.155	0.180**
351	**Industrial chemicals**	0.039	0.066	0.064	0.000	0.019	0.015
352	**Other chemicals**	0.267***	0.257***	0.273***	0.507***	0.497***	0.514***
353	**Petroleum refineries**	0.104	0.127	0.136	0.013	0.023	0.021
355	**Rubber products**	0.263**	0.305***	0.405***	0.386***	0.430***	0.523***
356	**Plastic products**	0.360***	0.393***	0.349***	0.601***	0.631***	0.599***
361	**Pottery, china…**	0.035	0.040	0.211*	0.217	0.217	0.321***
362	**Glass products**	0.222*	0.243**	0.152	0.664***	0.669***	0.622***
369	**Non-met minerals**	-0.048	-0.040	0.030	0.390***	0.403***	0.461***
371	**Iron and steel**	0.204	0.160	0.354***	0.085	0.052	0.208
372	**Non-ferrous metals**	0.258*	0.274**	0.360***	-0.006	0.016	0.112
381	**Fabricated metals**	0.434***	0.465***	0.471***	0.624***	0.654***	0.663***
382	**Machinery**	0.037	0.021	0.031	0.468***	0.454***	0.460***
383	**Electrical machinery**	0.481***	0.470***	0.522***	0.486***	0.481***	0.526***
384	**Transport equipment**	0.434***	0.441***	0.449***	-0.339**	-0.343***	-0.371***
385	**Prof. & scientific**	0.108	0.111	0.133*	0.098	0.102	0.121
390	**Other manufacturing**	0.125	0.137	0.177**	0.273**	0.282***	0.308***

Note: *, **, and *** denote statistical significance at the 10%, 5% and 1% levels respectively

The industries where the coefficient is consistently positive are: Food manufacturing, Textiles, Clothing, Leather, Furniture, Other Chemicals, Rubber products, Plastic products, Non-ferrous metals, Fabricated metals, Electrical Machinery and Transport Equipment.The percentage equivalent of these dummies can be found by taking [exp(dummy)-1]*100. Applying this suggests that cumulation served to increase trade by between 14% - 72% across the different industries and control groups. The biggest impact of cumulation is clearly on Clothing, Leather, Electrical Machinery and Transport Equipment – and these are all industries where anecdotal evidence suggests that rules of origin are often perceived as being constraining.

In the left-hand three panels we report on the results where there is some possibility (albeit unlikely) of a degree of conflation between the impact of the introduction of cumulation arrangements, and the impact arising from classical preferentially induced trade diversion. Here we see that in 14 cases (out of 27) the coefficient is statistically significant and positive across all three control groups, and across the control groups we see an impact in 18 industries. The impact is now the largest for Clothing where the coefficient suggests that trade could have increased by over 140%, and is also substantial for Footwear, Rubber products, and Pottery and china goods. If we take into account both the ROO and the ROO+TD dummies we find that cumulation appears to have positively impacted on spoke-spoke trade in 21 out of the 27 industries.

It is also important to note, that a priori one would not expect ROOs to be constraining in all sectors, and we should not therefore expect a positive coefficient for all sectors. Consider an industry where the EU's MFN tariff rates is zero – there is then no need for a rule of origin (as there is no "penalty" for failing to meet that rule), and hence one would not expect the ROO to be then constraining. By extension therefore where EU MFN tariffs are "low" one would expect the impact of cumulation to be lower. This issue is taken up again in section 4 of this paper.

Table 2, should be directly compared to Table 1. Here we are again reporting on the ROO and the ROO+TD dummies, but this time where the activity variables are production in the exporting country, and GDP and population in the importing country. Once again we see that there was a positive impact of cumulation in total for 21 out of the 27 industries, and that the pattern of results both in terms of the industries identified and the size of the coefficients is highly comparable to that reported in the preceding table. The increase in trade arising from cumulation ranges as suggested by the coefficients ranges from just under 20% (for Footwear), to over 150% for Clothing.

Table 2: ROO+TD dummy by industry – Experiment 1

ISIC	Industry	Pure ROO effect			ROO + Trade Diversion effect		
		Control 1	Control 2	Control 3	Control 1	Control 2	Control 3
311	**Food**	0.345***	0.381***	0.307***	0.032	0.046	-0.043
313	**Beverages**	-0.070	-0.046	-0.078	0.012	0.030	0.052
314	**Tobacco**	0.159	0.162	0.177	0.151	0.109	0.076
321	**Textiles**	0.380***	0.408***	0.389***	0.504***	0.544***	0.547***
322	**Clothing**	0.478***	0.480***	0.488***	0.867***	0.857***	0.930***
323	**Leather**	0.444***	0.445***	0.532***	-0.024	-0.038	0.057
324	**Footwear**	0.183	0.171	0.174*	0.603***	0.577***	0.621***
331	**Wood and cork**	0.079	0.102	0.204**	0.383***	0.407***	0.570***
332	**Furniture**	0.128	0.140	0.222**	0.223*	0.241**	0.366***
341	**Paper**	-0.099	-0.050	0.138	0.053	0.088	0.275**
342	**Printing**	0.063	0.111	0.175**	0.153	0.197*	0.242***
351	**Industrial chemicals**	0.006	0.024	0.057	-0.028	-0.019	0.044
352	**Other chemicals**	0.256***	0.290***	0.329***	0.308***	0.349***	0.403***
353	**Petroleum refineries**	0.134	0.171	0.225	0.133	0.173	0.251
355	**Rubber products**	0.274**	0.287***	0.430***	0.272**	0.267**	0.491***
356	**Plastic products**	0.236**	0.247***	0.304***	0.444***	0.447***	0.527***
361	**Pottery, china…**	0.070	0.056	0.187*	0.192	0.172	0.225**
362	**Glass products**	0.077	0.090	0.102	0.443***	0.436***	0.482***
369	**Non-met minerals**	-0.102	-0.104	0.012	0.293**	0.283**	0.407***
371	**Iron and steel**	0.109	0.056	0.282**	0.043	-0.018	0.210
372	**Non-ferrous metals**	0.201	0.194	0.295**	0.043	0.014	0.100
381	**Fabricated metals**	0.233**	0.254***	0.314***	0.383***	0.393***	0.473***
382	**Machinery**	0.019	0.021	0.080	0.360***	0.348***	0.426***
383	**Electrical machinery**	0.298***	0.320***	0.428***	0.221*	0.259**	0.377***
384	**Transport equipment**	0.432***	0.418***	0.490***	-0.380***	-0.419***	-0.346***
385	**Prof. & scientific**	0.092	0.078	0.129	0.033	0.029	0.089
390	**Other manufacturing**	0.016	0.051	0.120	0.121	0.156	0.224**

3.4 Cumulation and external trade diversion

As discussed earlier the impact of cumulation is likely to be to encourage greater trade between the countries who are part of the system of diagonal cumulation – in the case of the EU the PECS system. If cumulation encourages greater trade, than it is important to address the question of what that trade is replacing. If the greater trade occurs instead of domestic production than we have trade creation which we consider to be welfare increasing. If there is switch in intermediate import supply away from the EU, towards the newly cumulating countries, than we have trade reorientation to the more efficient supplier, and again this is welfare increasing.

The final possibility is that the there is supply-switching which is taking place towards newly cumulating countries but away from the rest of the world. In other words, we would then have trade diversion taking place. Not only would this be welfare reducing for the cumulating countries, but also could be a source of concern for those third countries not part of the system of cumulation. However, as discussed in section 2.3, it is also possible that by being able to cumulate with the partner countries, the spokes now have more flexibility to include intermediates from the rest

of the world, and as opposed to having a negative impact on exports of the ROW to the spokes there could be a positive impact.

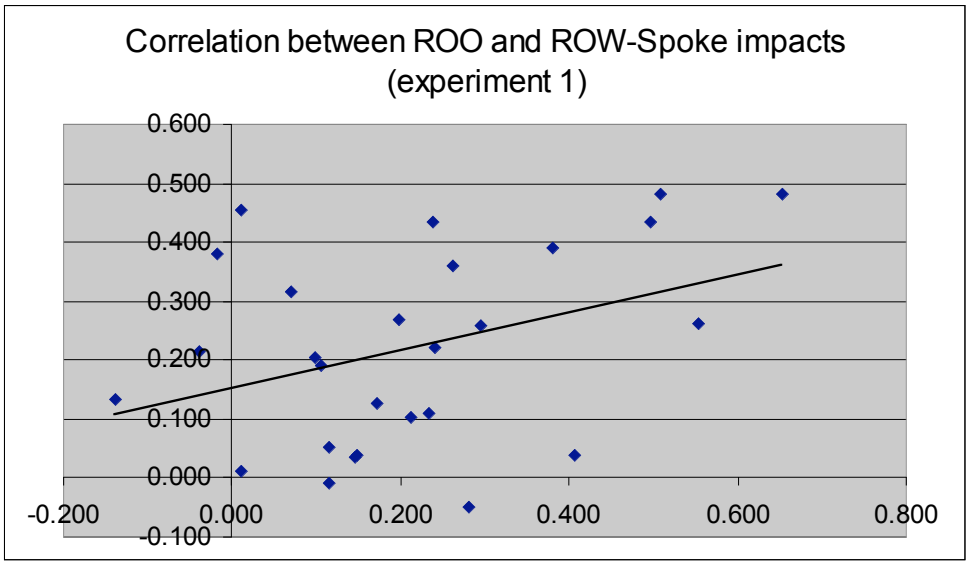
Ultimately then this is an empirical issue, and is one which are modelling strategy can capture. Hence, one of the dummy coefficients we included in our estimations is precisely a RoW-Spoke dummy in order to investigate this. The results for this coefficient are given in Table 3. The results are very interesting. For no industry is there a statistically significant negative impact on Row-Spoke trade arising from the introduction of the PECS system. Conversely, for experiment one, for 15 of the 27 industries is there statistically significant and positive impact, and for experiment 2, this is true for 12 out of the 27 cases.

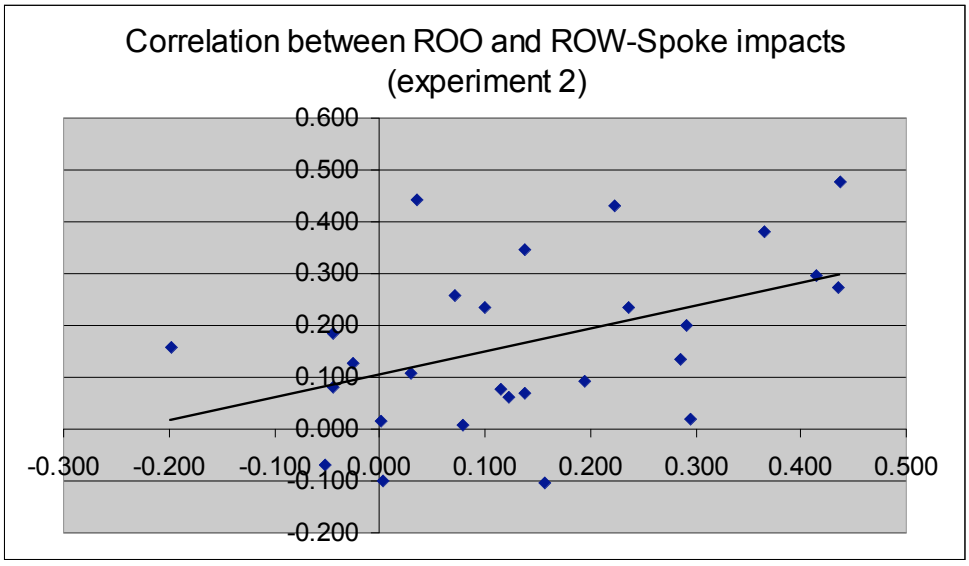
Table 3: Impact of cumulation on RoW–Spoke trade

ISIC	Industry	Experiment 1	Experiment 2
311	**Food**	0.071	0.137
313	**Beverages**	0.012	-0.052
314	**Tobacco**	-0.018	-0.197
321	**Textiles**	0.380***	0.365***
322	**Clothing**	0.509***	0.438***
323	**Leather**	0.010	0.035
324	**Footwear**	-0.139	-0.044
331	**Wood and cork**	0.105	-0.045
332	**Furniture**	-0.038	-0.026
341	**Paper**	0.114	0.004
342	**Printing**	0.115	0.122
351	**Industrial chemicals**	0.148*	0.080
352	**Other chemicals**	0.198**	0.072
353	**Petroleum refineries**	0.212	0.286*
355	**Rubber products**	0.553***	0.435***
356	**Plastic products**	0.262***	0.100
361	**Pottery, china…**	0.145	0.137*
362	**Glass products**	0.240***	0.115
369	**Non-met minerals**	0.281***	0.157*
371	**Iron and steel**	0.098	0.029
372	**Non-ferrous metals**	0.295***	0.292***
381	**Fabricated metals**	0.496***	0.237***
382	**Machinery**	0.407***	0.295***
383	**Electrical machinery**	0.652***	0.415***
384	**Transport equipment**	0.238**	0.224**
385	**Prof. & scientific**	0.233***	0.194**
390	**Other manufacturing**	0.171**	0.001

Note that this coefficient is also likely to be picking up on the on-going process of trade liberalisation by the cumulating spoke countries with the rest of the world, and is therefore not simply picking up the external impact of diagonal cumulation. However, the results do not suggest that there is any evidence that there was a negative impact. This can be explored a little further. Remember the hypothesis is that the greater cumulation possibilities for the PECS countries may have allowed them to source a greater quantity of intermediates therefore from the rest of the world, while

still satisfying the originating requirements. If this is correct, than one would also expect that the greater the impact of diagonal cumulation on spoke-spoke flows, the greater would be the impact of cumulation on RoW-Spoke flows. We explore this in the two figures below, where we plot the correlation between these two sets of coefficients for both Experiment 1 and Experiment 2. The results are again interesting. What we see, is that there is indeed a positive correlation, which again lends strong support to our interpretation that cumulation did not have a negative impact on RoW-Spoke trade, but a positive impact.





4. What drives the significance of ROOs?

The evidence above indicates that the introduction of diagonal cumulation significantly impacted on trade flows between the cumulating countries. This then provides direct evidence that the underlying rules of origin were indeed constraining, as discussed in Section 2.2 of this paper. For the EU's Southern Mediterranean partner countries this is an important conclusion – for it suggests that participation in the Pan-Euro-Mediterranean rules of origin is likely to increase the degree of intra-regional integration, and is likely to enhance the positive welfare effects of closer integration with themselves and with the EU.

In this part of the paper we build on the preceding analysis and examine whether any light can be shed on circumstances under which rules of origin are more likely to be constraining. This is an important empirical and policy question, as it can help to identify policies which are then likely to minimise the constraining impact of rules of origin.

4.1 Firm, sectoral, and country level characteristics

The factors which are likely to impact on the constraining nature of rules of origin will inevitably be related to firm level, sectoral level and country level characteristics. These are summarised below:

Firm level characteristics:

- The nature of the production processes employed. This is likely to be relevant both when the underlying ROO is based on a specific production processing criterion, but also when the criterion is value added base as the underlying production technology will determine the share of value added in production.
- The degree of the (vertical) integration of the firm in an international supply chain. For firms that are more closely integrated into international supply chains the sourcing of imported intermediates is likely to be more significant, and consequently changes in rules of origin are more likely to have an impact.
- The efficiency of the firm, where the underlying ROO is based on the value added criterion. The share of domestic value added to (imported) intermediates is likely to be higher for less as opposed to more efficient firms, hence making it more likely that less efficient firms would be able to satisfy the ROO criterion.
- The bigger the cost difference in intermediate supply between firms in cumulating (be this bilaterally or diagonally) and non-cumulating countries. If the cost of intermediates produced in non-cumulating countries were substantially lower, that this would make it more likely that firms in the cumulating countries would wish to use those intermediates in production.

Sectoral level characteristics:

- The more restrictive the ROO is in terms of either of the three criteria – change in tariff classification, value-added, specific production processes - identified earlier. Hence the higher the domestic value-added requirement the more difficult it will be for firms to achieve this. Similarly, the more constraining is the tariff transformation rule (determined by either the number of tariff classification line changes needed, or by the level of HS aggregation at which the rule is set), the more constraining will the rule be.
- The level of the applied MFN tariff in the country to which the final good is exported. Recall, that the tariff is effectively the penalty that must be paid if the rule of origin is not satisfied. If the MFN tariff were zero, there would be no incentive for firms to meet the ROO, as the effective penalty would thus also be zero. It is worth noting, therefore, that the simplest way of avoiding the distortions caused by rules of origin is by the reduction / elimination of MFN tariffs. However, this of course mitigates against the desire to offer certain countries / markets preferential access – or alternatively to maintain levels of protection against competing third markets.
- The higher the intermediate share in production. This applies in the case of the value content rules which stipulate the minimum amount of domestic value added required. Industries which have a low intermediate share in production will find this criterion easier to meet. Those with a high intermediate share may find it more difficult, and this will depend on the share of imported intermediates.
- The higher intermediate imports relative to final goods imports are in a given sector. This is closely linked to the preceding. Industries where the share of imported intermediates is already high, or those where there is considerable scope for switching to imported intermediates are likely to be significantly affected by changes in rules of origin. Take the case of clothing exports from Egypt for example. In order to be able to export duty free to the EU, Egyptian producers are required to use Egyptian cotton. While Egyptian cotton is traditionally seen as being of high quality, it is also more expensive. Allowing for the use of imported cotton is likely to greatly increase the competitiveness of Egyptian clothing exports. Indeed it is for this reason that the Egyptian (and Moroccan) clothing industry were keen on signing a free trade agreement with Turkey, in order to be able to diagonally cumulate Turkish fabrics.
- The lower the import tariffs between non-cumulating countries. Suppose the tariff on intermediates from non-cumulating countries were high. This would discourage the use of imported intermediates from these countries, and hence it is less likely that changes in the rules of origin would have as much of an impact.
- The higher the export share of the final good. In sectors where the goods are produced largely for the domestic market, access to partner country markets is less important, and hence rules of origin are less likely to be an issue. Note, however, that in industries which currently have a low export share this suggests that these are industries which are not competitive in the export market. That could be driven either by an inherent lack of comparative advantage / competitiveness in that sector, or because of the restrictiveness of the rule of origin. Relaxing the rule of original will not have much impact in the former case, but it will in the latter case.

- The higher the share of exports of the final good destined for free trade area. Where there is significant trade in the sector between partner countries than changes in rules of origin may be more significant. Clearly there could currently be high levels of trade between the partner countries in a given industry because the existing formulation of the rules of origin is not constraining. A further relaxation of those rules is then unlikely to have much impact. Conversely a tightening of those rules may well have a substantial impact. In the context then of the introduction of diagonal cumulation, we might not necessarily expect that a high share of exports to production would have much of an impact. Alternatively, to the extent that rules of origin are influence by protectionist political economy considerations, than the reverse might be the case. Industries which have a high share of exports to production are likely to be those where the partner countries have a comparative advantage, and thus may be sectors where there is greater pressure in the importing country for protection. In this circumstance, the rules of origin are more likely to be formulated in a constraining fashion.

Country level characteristics

- The smaller the country. As rules of origin act upon firms choices of supply for intermediates, in small countries it may be more difficult to competitively source intermediates domestically, and thus they are more dependent on imported intermediates.
- Closely related to this, are the possibilities for sourcing intermediates from within the free trade area or from other cumulating countries. Hence the larger the free trade area, or the larger the area which allows for diagonal cumulation the less likely it is that the underlying rules of origin are restricting firms choices and thus impacting on patterns of trade and production.

4.2 Estimating the importance of the key characteristics

From a policy perspective it is important to obtain a clearer picture as to which of the preceding are particularly important in determining the potential constraining nature of rules of origin. The strategy we employ here is to combine the information we have at the sectoral level from the preceding set of regressions on the impact of diagonal cumulation with, relevant information on the sectoral characteristics identified above.

Consider for example, the importance of partner country MFN tariffs, where as discussed earlier the higher the higher are these tariffs, the greater is the penalty for not meeting the rule of origin. The correlation coefficient between the height of the EU's MFN tariff, and the estimated impact of diagonal cumulation, for Experiments 1 and 2 respectively are 0.38 and 0.45 respectively. This indicates that there is a strongly positive correlation and that the height of the tariff materially impacts on the underlying degree of restrictiveness of the rule of origin.

In order to explore this more fully we econometrically estimate the relative importance of some of the key characteristics identified above. The variable we wish to explain is the underlying restrictiveness of the rule of origin. We do not have a direct estimate of this. Instead we have estimates of the impact of the PECS system of diagonal cumulation on trade between cumulating countries derived from the preceding regressions. As cumulation is only likely to have an impact in the face of

constraining rules of origin, we use these estimates of the impact of cumulation as proxies for the underlying degree of restrictiveness of the rules of origin. As these first stage regressions were carried out at the sectoral level, we therefore have a measure of the degree of restrictiveness of rules of origin at the sectoral level only. Hence, relating to this to our discussion in section 4.1 above, it is not possible for us to identify what is driving the significance of rules of origin at the firm, or the country level. Instead we focus on the sectoral level.

At the sectoral level the characteristics identified above include: the degree of restrictiveness of the underlying ROO in terms of the three criteria typically employed in formulating rules of origin, the level of EU tariff, the share of exports in production, the intermediate share in production, the level of MFN tariffs of the cumulating countries.

The variables for which we then have information are:

1. The EU import tariff: This is the penalty that is imposed if an exporter fails to meet the ROO requirements. If this penalty is very low (ie low tariff), the exporter will not care so much, and hence ROOs in that industry less likely to be important. In the regressions we would expect therefore a positive coefficient between the EU tariff and the underlying ROO.

2. The partner country import tariff: This is a bit more complex. In principle a high partner country tariff discourages imports and encourages domestic use of the relevant good. Hence high tariffs on the intermediates used in an industry are more likely to make ROOs less of an issue as the constraint is being imposed by the partner country itself in reducing its' imports of the intermediates as a result of its' own tariff structure. However, we do not have data on the intermediate imports by industry – we have data on the import tariff in the given industry itself. This will only capture the above therefore if the industry in question uses own-industry intermediates. If that is the case, than one would expect that the higher is the own country tariff the less restrictive would be the rules of origin.

   An alternative possibility is that rules of origin are likely to show up as being restrictive most in those sectors in which countries have a comparative advantage. These are the key sectors that they potentially can export. For political economy reasons it is quite possible that these are also the sectors that are then more likely to be protected in the partner countries, and therefore the sectors which have higher tariffs. In this case one would expect a positive correlation between the partner country tariff and the ROO coefficient. The expected sign on this coefficient is therefore ambiguous.

3. We also have information at the 6-digit level on which of the possible ROO criteria are being applied: VA, change in tariff classification, wholly obtained, and specific production process. On the basis of this, for the Pan-European Rules of Origin we have computed the share of each of these underlying criteria within each of the ISIC 2-digit industries used in our regressions. This is based on the numerical incidence of each type of criteria at the 6-digit level, and hence is not weighted by the share of trade or production for any given country. This can be seen in Table 4 below. Not surprisingly the table shows that in food, beverages and tobacco the most commonly used criterion is that of being wholly obtained, with a change of tariff classification rule also being commonly applied. In contrast, the value added rule is used in 50% of cases or more for Furniture and

fixtures, Plastic products, Machinery except electrical, Electrical machinery, Transport Equipment, and Professional and Scientific equipment.

Table 4: Proportional ROO criteria usage at the ISIC 3-digit level

ISIC	Description	VA	CTH	SPR	Wholly
311	Food manufacturing	0.14	0.44	0.01	0.41
313	Beverage industries	0.05	0.46	0.00	0.49
314	Tobacco	0.33	0.00	0.00	0.67
321	Textiles	0.01	0.98	0.00	0.01
322	Wearing apparel, except footwear	0.00	1.00	0.00	0.00
323	Leather and products of leather,	0.00	0.67	0.33	0.00
324	Footwear	0.00	1.00	0.00	0.00
331	Wood and wood and cork products	0.02	0.87	0.11	0.00
332	Furniture and fixtures, except prim	0.50	0.50	0.00	0.00
341	Paper and paper products	0.30	0.70	0.00	0.00
342	Printing, publishing	0.04	0.96	0.00	0.00
351	Industrial chemicals	0.43	0.37	0.20	0.00
352	Other chemical products	0.47	0.53	0.00	0.00
353	Petroleum refineries	0.08	0.50	0.42	0.00
354	Misc products of petroleum	0.33	0.67	0.00	0.00
355	Rubber products	0.08	0.91	0.02	0.00
356	Plastic products	0.75	0.08	0.18	0.00
361	Pottery, china and earthwear	0.14	0.86	0.00	0.00
362	Glass and glass products	0.08	0.76	0.15	0.00
369	Non-metallic mineral products	0.07	0.93	0.00	0.00
371	Iron and steel basic industries	0.00	0.97	0.03	0.00
372	Non-ferrous metal basic industries	0.01	0.95	0.04	0.00
381	Fabricated metal products	0.32	0.67	0.01	0.00
382	Machinery except electrical	0.63	0.37	0.00	0.00
383	Electrical machinery apparatus	0.65	0.35	0.00	0.00
384	Transport equipment	0.76	0.24	0.00	0.00
385	Professional and scientific	0.71	0.29	0.00	0.00
390	Other manufacturing	0.39	0.60	0.02	0.00

4. Exports / output: Where exports tend to be high in an industry relative to output than this is an industry which is more likely to have a comparative advantage, and therefore more likely (on political economy grounds) that the EU may wish to protect it. A positive coefficient here would suggest that this may be the case[6].
5. Exports to the EU as a share of total exports: Where the EU is a more important market for the partner countries, than it is more likely that ROOs of origin will be constraining. Once again, this is on the grounds of relative comparative advantage between the two countries.
6. Share of intermediates / output: Suppose the ROO requires a high domestic value added eg. 60%, this means that imported intermediates share can only be 40%.

[6] The data on exports and production come from alternative sources and are not always compatible. Hence, in a number of cases the reported ratio of exports/output was greater than one. In the regressions, therefore we have in the first instance included only those cases where the ratio was less than one, as well as running regressions withouth this variable.

Ceteris paribus, if the share of intermediates in production is high eg. 80% than this may be harder to achieve, as it requires more use of domestic intermediates comprising domestic value added. Hence we would expect a positive correlation between ROO restrictiveness and the share of intermediates to output. However, it is important to not that this is only relevant for those industries in which the value added rule is applied, hence in the regressions we also include an interaction terms between this variable, and the proportion of 6-digit industries with the more aggregate industry class for which the VA rule is applied.

7. Share of intermediate imports out of total imports; Here we divide imports of each industry into intermediate and final goods (on the basis of the BEC classification, and then reaggregate up to the ISIC classification). If intermediate imports are high (and if they are then used in the same sector as the final goods exports) than once again, it may be difficult to meet the value added criterion. Hence high intermediate imports may be associated with a more restrictive ROO, and we would expect a positive coefficient. However this may not be the case if the intermediates are then used in other sectors. Once again principally applies to those industries where the VA criterion is used and therefore in the regressions we have interacted this term with our CA variable as in (5) above.

4.3 Results

For these regressions we have estimated the ROO and ROO+TD coefficients using the gravity model described earlier – however in this case our estimations are cross-section regression, and are undertaken for each year of the sample. In this case then the ROO and ROO+TD coefficients provide an estimate for any given year of the extent to which trade is lower between countries both of which have a free trade agreement with the EU, but which do not have the possibility of diagonal cumulation between themselves. We then take the estimated ROO and ROO+TD coefficients from these first stage regressions, as our dependent variables, and consider the role of the explanatory variables discussed above.

Table 5 below, summarises the expected sign on the coefficients on the basis of the preceding discussion:

Table 5: 2nd Stage variables and the expected coefficient sign

Variable	**Expected coefficient**
EU tariff	+
Partner tariff	+ or -
Exp / output	+
Exports to EU / total exports	+
Intermediates / output	+
Share of intermediate imports	+ or -
Type of ROO	na

From the first stage regressions we have estimated ROO and ROO+TD coefficients for five years for 28 industries. These variables reflect the degree of ROO restrictiveness for those countries identified by these dummies. This corresponds to 14 countries. For each industry, for each of these countries and for each of the years of our regressions we compiled the data for our explanatory variables. We then took averages of these variables. In the regressions which we report, we show the results using both weighted (by trade and output) and unweighted averages. The regressions are OLS regressions, and we report on two types. First, we run standard OLS regressions with robust standard errors. Secondly, we run weighted least squares regressions. In the latter we are using the information on the standard errors of our ROO and ROO+TD coefficients as weights in the second stage regression. In the regressions reported here we have excluded industries 313 and 314. This is because they appear to be outliers with regard to some of the explanatory variables (eg. tariffs).

Table 5a: The driving factors behind restrictive rules of origin with explanatory variables based on simple averages.

	1	2	3	4	5	6
	WLS	Robust	WLS	Robust	WLS	Robust
EU tariff	0.012	0.01	0.011	0.009	0.015	0.015*
	-0.3	*-0.24*	*-0.35*	*-0.29*	(0.18)	(0.07)
exports/output	0.58	0.589				
	-0.19	*-0.18*				
EU exports share	1.78***	1.85**	2.13***	2.20***	2.04***	2.07***
	-0.01	*-0.02*	*0*	*0*	(0.00)	(0.01)
Int/output_VA	6.463	5.079	5.429	4.294	7.110*	6.887**
	-0.12	*-0.15*	*-0.19*	*-0.21*	(0.06)	(0.03)
Intimp. Share_VA	-0.457	-0.389	-0.385	-0.326	-0.467	-0.419
	-0.29	*-0.16*	*-0.37*	*-0.23*	(0.26)	(0.12)
VA criterion	-4.879*	-4.219*	-4.159	-3.625*	-4.81*	-4.63**
	-0.07	*-0.06*	*-0.11*	*-0.09*	(0.05)	(0.03)
CTH criterion	-0.493	-0.802*	-0.506	-0.767*		
	-0.28	*-0.06*	*-0.27*	*-0.07*		
Constant	-0.007	0.226	-0.010	0.180	-0.604	-0.474
	-0.99	-0.71	(0.99)	(0.76)	(0.14)	(0.34)
Observations	125	125	125	125	125	125
R-squared	0.2	0.21	0.19	0.20	0.19	0.17

* significant at 10%; ** significant at 5%; *** significant at 1%
Standard errors are given in italics.
Year dummies omitted from the table; p and robust p values in italics

The results can be seen in Table 5a above, where we give the results where for the exports/output, EU export share, intermediates over output, and intermediate import share variables we have used simple averages. In the first two regressions we include all the variables of interest. In the second two regressions we drop the exports/output variable because we consider it to be unreliable. In the final pair of regressions we also drop the CTH criterion.

There are number of interesting features which emerge from this table. First, we note that while the coefficient on the EU tariff, and on the share of exports over output are

positive, as would be expected, in most cases these are not statistically significant. It is only in the last (and preferred regression), that we see a positive impact of tariffs on ROO restrictiveness. In the regressions we have not included the average partner country import tariff. The reason for this is that this variable and the EU variable are highly correlated. However, we have run all the regressions with the partner country tariff instead of the EU tariff. In those regressions we invariably find a positive coefficient on the partner country tariff suggesting that the partner countries themselves tend to have a higher tariff in those industries where rules of origin with regard to the EU are most restrictive. This might be explained on political economy grounds as in the earlier discussion.

The negative coefficient on the VA criterion would appear to suggest that where the incidence of the value added criterion within a given industry is higher, constraining impact of rules of origin (as reflected in the ROO cumulation coefficients) tends to be lower. This coefficient is highly statistically significant across all the regressions. Similarly, we see that where the incidence of the CTH criterion is higher than the constraining impact of rules of origin tends to be lower. However, the coefficient is considerably smaller than that obtained with regard to the VA criterion. The implication then is that use of the VA criterion is less restrictive than the CTH criterion which is in turn less restrictive than the determination of specific production processes.

However, we have interacted the value added criterion with the share of intermediates in total output, and with the share of intermediates in imports for each industry. Hence, the full marginal effect of the value added criterion, for example from the first column in the table can, in principle, be derived as follows:

$$\frac{\partial Coef}{\partial VA\_criteria} = -4.879 + 6.463 Int\_ratio - 0.457 Int\_imports$$

Hence, the marginal effect will depend on the share of intermediates in total output, and on the share of intermediates in the imports of each industry. To get a clearer picture of this we can take the two extreme cases where the intermediate import share ranges from 0 to 1. Suppose, the share is 0, we can then deduce that the value added criterion will then tend to increase the degree of restrictiveness of the underlying rules of origin if -4.879 + 6.463Int_ratio > 0, or rearranging when the share of intermediates in total output is over 76%. Suppose the share of intermediate imports in each industry were equal to 1, than the use of the value added criterion would tend to increase the degree of restrictiveness of the underlying rule of origin, when the share of intermediates in total output was greater than 83%. However we also need to take account of the degree of significance of our estimated coefficients. In the above example, both Int_ration and Int-imports were non significant and therefore, the marginal effects of the value added criterion is given by -4.879.

We also see a highly statistically significant and positive coefficient on the share of exports going to the EU. This suggests that the impact of cumulation was greatest (and hence the underlying restrictiveness of the rules of origin too) for those industries which constituted a significant share of the relevant countries' exports to the EU. One would normally expect that these countries' exports would tend to be highest in those industries in which they have a comparative advantage, and the EU a comparative disadvantage. Hence the results provide some evidence, that rules of origin tend to be strictest precisely in those industries where the EU is at a comparative disadvantage.

Table 5b then reports on the results for the same set of experiments but where for the exports/output, EU export share, intermediates over output, and intermediate import share variables we have used weighted averages. As before, in the first two regressions we include all the variables of interest. In the second two regressions we drop the exports/output variable because we consider it to be unreliable. In the final pair of regressions we also drop the CTH criterion.

The results are broadly highly comparable in terms of magnitude and sign to those reported on above. However, generally the statistical significance of the results is somewhat lower. The principle exception to this is with regard to the share of intermediate imports by industry. Here we find that the higher is the share of intermediate imports of a given industry typically the lower is the degree of restrictiveness of the rules of origin. It is important to note here that out measure is the share of intermediate imports *of* a given industry, and not *by* a given industry. For example, we measure the amount of intermediate import of Transport Equipment for each country, but we do not know in which industry those intermediates are then employed. The negative coefficient on this variable thus suggests that for industries where intermediate imports tend to be high, the degree of restrictiveness of rules of origin tends to be low. This might suggest that the key intermediate import industries are not those where the countries have a comparative advantage, and are thus not the industries which the countries principally export, and where then rules of origin are important.

Table 5b: The driving factors behind restrictive rules of origin with explanatory variables based on weighted averages.

	5	6	7	8	9	10
	WLS	Robust	WLS	Robust	WLS	Robust
EU tariff	0.011	0.009	0.012	0.01	0.016	0.015
	-0.37	*-0.4*	*-0.31*	*-0.38*	(0.18)	(0.16)
exports/output	0.346	0.42				
	-0.26	*-0.13*				
EU exports share	0.203	0.282	0.261	0.39	0.134	0.226
	-0.68	*-0.49*	*-0.59*	*-0.36*	(0.77)	(0.59)
Int/output_VA	2.39	1.568	2.68	1.816	3.630	3.153*
	-0.41	*-0.46*	*-0.35*	*-0.38*	(0.17)	(0.10)
Intimp. Share_VA	-0.518	-0.454*	-0.53	-0.471*	-0.607	-0.57**
	-0.26	*-0.09*	*-0.25*	*-0.06*	(0.18)	(0.02)
VA criterion	-2.312	-2.011	-2.383	-2.042	-2.598	-2.270*
	-0.22	*-0.14*	*-0.21*	*-0.12*	(0.15)	(0.09)
CTH criterion	-0.571	-0.841*	-0.453	-0.721		
	-0.23	*-0.05*	*-0.33*	*-0.1*		
Constant	0.909*	1.307**	1.089*	1.243**		
	-0.09	*-0.01*	*-0.05*	*-0.02*		
Observations	125	125	125	125		
R-squared	0.12	0.13	0.11	0.12		

* significant at 10%; ** significant at 5%; *** significant at 1%
Year dummies omitted from the table; p and robust p values in italics

4. Summary and Conclusion

In summary, in the first part of this paper we have shown the impact of diagonal cumulation at the sectoral level. This analysis clearly indicates that such cumulation appears to have had a substantial impact on a number of industries, with the impact being largest on industries such as clothing, leather, machinery, and electrical machinery. We also show, that there is little evidence of external trade diversion arising from this process.

In the second part of the paper we turn to considering what might be some of the determinants of the degree of restrictiveness of rules of origin, as proxied by our diagonal cumulation variables. What this analysis appears to suggest is that there is weak evidence that EU tariffs are important in determining the restrictiveness of rules of origin. This is perhaps surprising given that the tariff represents the penalty where rules of origin have not been satisfied. A possible explanation for this is that EU tariffs are generally very low, and with a low dispersion. Secondly, the analysis indicates that rules of origin do tend to be more restrictive the higher the share of exports in that industry being directed to the EU. This provides secondary evidence that the setting of rules of origin may be strongly determined by political economy considerations, where the ROOs are most restrictive in those areas were partner countries may be most competitive. This is also supported by the results with regard to the share of intermediate imports of each industry. Thirdly, the evidence suggests that greater use of the VA criterion tends to be associated with rules of origin being less restrictive, and that the value added criterion becomes more restrictive only where the intermediate share of output is quite high (approximately between 70%-80%). This is an interesting result which needs further research, as it has important policy implications.

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The role of Rules of Origin in Egypt?

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Contents

1 Introduction

The aim of this part of the report is to consider the possible significance of rules of origin in the context of Egypt. The examination is based partly upon a careful examination of the most recent trade, production and input-output statistics, and partly upon a series of interviews undertaken with key firms and sector representatives in Egypt. The first part of this report considers therefore the pattern of Egypt's trade, and the structure of production in Egypt in order to assess the extent to which, prima facie, one would expect rules of origin to be significant for Egyptian industry. The second part then details the conclusions which emerge from the interviews undertaken.

Before going into detail regarding trade and production it is useful to recall the principal trade agreements which Egypt is party to, and/or is hoping to sign and implement in the near future. These include the Egypt-EU Association agreement (date?); the Agadir Agreement, with Jordan, Tunisia and Morocco (date?); the Egypt-Turkey customs union; and the QIZ protocol with Israel and the USA. It is worth also noting that a key motivation for the Agadir Agreement, the Egypt-Turkey free trade agreement, and the QIZ protocol with Israel and the USA was to allow for more diagonal cumulation between the participating countries, and in so doing to improve their competitiveness in the EU and US markets.

2 Patterns of Egyptian manufacturing production and trade

We turn first to a consideration of the pattern of production in Egypt which is summarized in Table 1 below. The Table is based on production data from the Industrial Statistics Database, which is a new database recently established by CAPMAS. The information is based on survey of almost 10 thousand industrial firms in Egypt. The table presents the information by ISIC rev.3, 2-digit industries, where the industries are ordered by their share in production. From the table it can be rapidly seen that the structure of manufacturing production in Egypt is highly concentrated, with the first five industries (Food and Beverages, Chemicals, Textiles, Basic Metals, and Other Non-Metallic mineral products) accounting for over 62% of total manufacturing production. A useful measure of the degree of industrial concentration is the Herfindahl index, which ranges from 0 to 1. An index of 1 is where there is only industry. The Herfindahl index for Egypt is 0.11, which suggests that the number of equivalent sized ISIC 2-digit industries in Egypt is 8.5. This again indicates the relatively high degree of concentration of Egyptian industry.

Table 1: Value and relative share of manufacturing production in 2005

ISIC Rev. 3	Sector	Production	
		Value of in 000 LE	Share (%)
15	**Food and Beverages**	19,144,392	24.01
24	**Chemicals**	14,466,551	18.15
17	**Textiles**	7,723,109	9.69
27	**Basic Metals**	4,362,666	5.47
26	**Other Non-metallic Mineral Products**	4,233,183	5.31
25	**Rubber & Plastics**	4,108,586	5.15
21	**Paper and Products**	3,399,911	4.26
16	**Tobacco**	3,287,578	4.12
23	**Coke**	3,207,713	4.02
28	**Fabricated Metal Products**	2,586,391	3.24
29	**Machinery & Equipment**	2,500,871	3.14
18	**Wearing Apparel**	2,279,683	2.86
31	**Electrical Machinery**	2,194,412	2.75
32	**Radio, Television & Communications Equip.**	1,756,564	2.20
34	**Motor Vehicles, Trailers & Semi-trailers**	1,115,868	1.40
22	**Publishing and Printing**	1,013,073	1.27
35	**Other Transport Equipment**	616,800	0.77
36	**Furniture**	570,492	0.72
19	**Leather**	443,614	0.56
33	**Medical, precision, and Optical Equipment**	333,645	0.42
38	**Others**	286,050	0.36
20	**Wood Products**	89,632	0.11
30	**Office, Accounting &Computing Machinery**	80	0.00
37	**Recycling**	-	0.00
	Total	**79,720,864**	**100.00**

Source: Obtained from www.capmas.gov.eg.

Over the last few years, the Egyptian government has undertaken a number of measures to accelerate the process of trade liberalization and to increase exports through reforming the tariff structure, eliminating non-tariff barriers (NTBs) and adopting a more flexible foreign exchange regime. For example, in 2004, tariffs were cut to 9.1 percent on average, and the number of ad valorem tariff bands was reduced. In addition, services fees and import surcharges were removed (Ghanem, 2006). In February 2007, custom tariffs were reduced on 1114 articles, including raw materials, intermediate and consumer goods. The new amendments reduced the average tariffs by almost 25 percent. The underlying objectives of this trade policy and of the numerous trade agreements which Egypt has signed (with the EU, the US and other Arab countries are to stimulate trade, competition, investment and through this growth and employment.

Overall, Egyptian trade as a percentage of GDP was 63.2% in 2005 (see Table 2 below) is low compared to other, perhaps similar, emerging countries such as Tunisia (98.6%) and Morocco (79.3%). Jordan's trade share in GDP was 145%, which appears to reflect a positive and large impact of the QIZ protocol, compared to the very limited impact of the QIZ protocol on Egypt's trade. In addition, both Tunisia

and Morocco appear to have benefited from their partnership agreements with the EU (and the USA for Morocco), whereas the impact for Egypt may be lower.

Table 2: Trade in Egypt and other emerging countries

Country	Trade as a % of GDP in 2005
Malaysia	223.2
Jordan	145.3
Philippines	99.3
Tunisia	98.6
Morocco	79.3
Egypt	**63.2**
Indonesia	62.7
Turkey	61.4
South Africa	55.7
India	44.7
Brazil	29.2

Sources: World Bank. 2007. Word Development Indicators database.

Table 3 then gives information on the structure of trade for 2005 and 2006, where we give the total value of trade as well as the values and shares for the 10 principal traded sectors. If we consider first the data on exports we see that total exports reached US$ million 13,720 in 2006, with a growth rate of 28.9 percent from 2005. The principal export category was mineral fuels and oils which accounted for over 50% of all exports. The remaining nine export categories between them accounted for 25% or less of Egyptian trade. Exports of iron and steel increased by 46.9 percent, while exports of textiles and clothing, Egypt's traditional leading export commodity group, declined by 16.4 percent. This decline is interesting to note and is perhaps surprising for it sheds the light on the limited impact of the QIZ protocol signed with Israel and USA in December 2005.[1] Cotton exports also recorded a sharp decline during the same period, while plastics and products achieve a 39.6 percent increase during the same period. It is also interesting to note that out of the principal Egyptian manufacturing export industries for the majority of these the principal rule of origin criterion which is employed in the Pan-European rules, is the CTH criterion – that is to say the requirement for a change in tariff heading. This applies to iron and steel, salt, sulphur and cement, textiles and clothing, cotton, articles of iron and steel, and aluminium and articles.

[1] Several studies estimated the impact of the QIZ agreement on Egypt's exports of textiles and clothing. The results of these studies showed that the majority of exporting firms under QIZ were already exporting to the US and to other markets as well. However, these firms succeeded in increasing their exports to the US under the QIZ protocol (Refaat, 2006 and Ministry of Trade and Industry, 2006).

Table 3: Exports of goods in 2005 and 2006

	2005	2006	2005	2006	Change (%)
	Million US$		Share		
Total Exports of goods:	10,646	13,720			28.90
Mineral fuels and oils	5,485	7,643	0.52	0.56	39.30
Iron and steel	554	814	0.05	0.06	46.90
Salt, sulphur, and cement	464	440	0.04	0.03	-5.20
Textiles and clothing	323	270	0.03	0.02	-16.40
Cereals	313	306	0.03	0.02	-2.20
Cotton	294	243	0.03	0.02	-17.30
Plastics and products	280	391	0.03	0.03	39.60
Edible vegetables	210	197	0.02	0.01	-6.20
Articles of iron and steel	152	151	0.01	0.01	-0.70
Aluminium and articles	131	102	0.01	0.01	-22.10
Sub-Total	8,206	10,557	0.77	0.77	

Source: www.capmas.gov.eg.

Table 4 then considers the patter of exports for Egypt and several comparator countries by distinguishing by type of commodity and by the technological structure of trade. From this we see that Egypt's export structure remains heavily dominated by resource-based and low-tech exports, which account for nearly 90 percent of manufactured exports in both 1990 and 2004.[2] The share of medium-tech and high-tech exports rose slightly over the period from 7.3% to 11%. In contrast the share of medium tech and high tech industries for Morocco rose from 14.2% to 18%, for Tunisia from 17.5% to 25.3%, and for Turkey from 16.6% to 37.4%. There is clearly then the possibility that Egypt is not managing to diversify into higher value-added activities as some of its' neighbours and competitors.

Table 4: The technological structure of exports by country

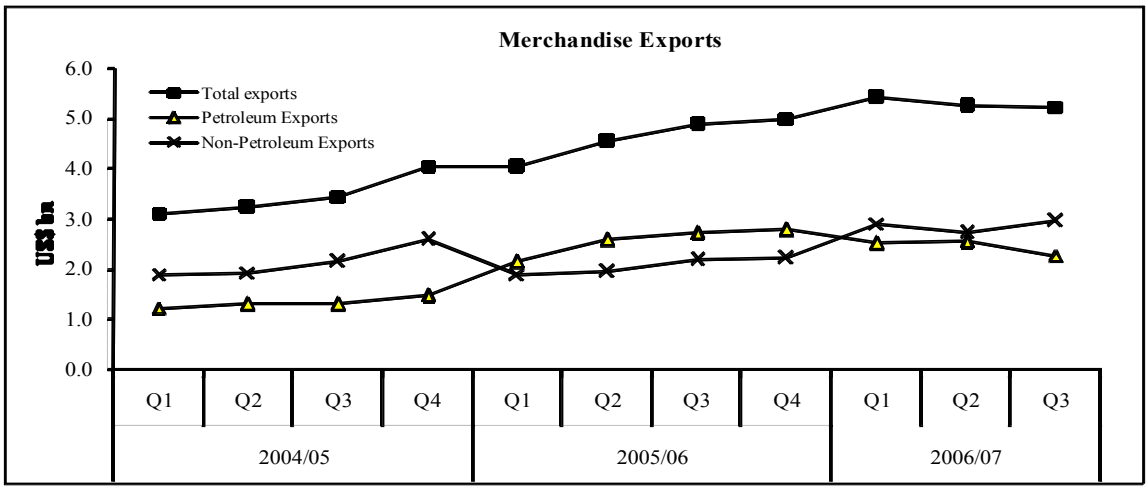
Country	Share in total exports (%)									
	1990					*2004*				
	PR	RB	LT	MT	HT	PR	RB	LT	MT	HT
Egypt	41.1	13.9	37.7	6.1	1.2	24.5	44.4	20.1	10.1	*0.9*
Jordan	38.7	11.3	15.0	23.4	11.6	17.8	15.8	38.4	17.1	*10.9*
Morocco	25.1	31.0	29.6	11.4	2.8	15.4	27.8	38.7	11.5	*6.5*

[2] Out of Egypt's most important 20 export groups (those with the highest average export value during the period 1990-2004), 8 product groups are primary exports. These include crude petroleum and natural gas, cotton, rice, aluminium, unprocessed vegetables and fruits, as well as stone, sand and gravel. The other 12 export groups are concentrated in the resource-based and low-tech export categories. A few exceptions are in the medium-tech export category, such as further-processed iron and steel; sanitary, heating, and lighting equipment; plastics, packaging material, automotive components, and some household appliances (Noureldin et al. 2006).

Tunisia	21.4	20.1	40.7	15.2	2.5	11.5	16.6	46.5	20.7	*4.6*
Turkey	20.3	11.7	51.5	13.6	3.0	7.3	11.4	43.9	30.5	*6.9*
Korea	3.4	8.7	37.8	29.9	20.3	2.1	10.6	12.1	38.8	*36.4*
Malaysia	24.8	23.7	11.3	14.7	25.4	12.5	14.7	9.0	17.9	*45.9*
India	18.1	27.0	36.1	14.8	4.1	11.4	33.8	33.0	16.6	*5.1*
World	**15.3**	**17.2**	**18.7**	**33.5**	**15.3**	**12.0**	**15.9**	**16.7**	**33.1**	**22.3**

Source: Noureldin et al, 2006.
PR=primary resources; RB=resource-based; LT=low-tech; MT=medium-tech; HT=high-tech

The change in exports over time can be seen in the Figure 1 below. According to the Central Bank of Egypt (CBE), preliminary estimates of the balance of payment for the first three quarters of fiscal year 2006/07, demonstrated a 42 percent increase in non-petroleum exports, a slight decline in petroleum exports, and a 17 percent rise in exports of services, compared to the corresponding period in 2005/06. Imports increased by 21 percent during the same period, reflecting domestic demand expansion.



Source: Obtained from www.cbe.org.eg

If we turn to Table 5, we see that imports increased by much less than exports over this short period (4%), but where once again the principal import category is that of mineral fuels, and where the value of these imports increased by just over 25%.[3] The second key import category is that of machinery and mechanical appliances which accounted for 9% of all imports, and which grew by just under 5%. The share and value of half of the most important categories in 2005 (cereals, iron and steel, plastics and products, wood and articles, and organic chemicals) declined in 2006. This is an interesting decline, though the time series is too short to indicate whether this indicates a longer term structural decline, or more short-run variations. To the extent that, in particular machinery and parts, and vehicles and parts might be used as

[3] Despite the fact that CAPMAS data is for calendar years and CBE data presents fiscal years, it should be noted that the discrepancy between the two sources of data is very large. In addition, data from both domestic sources are different from data in partner countries such as the EU and the USA.

intermediate inputs into production for export than these are intermediate input sectors that could then be affected by changes in rules of origin regimes.

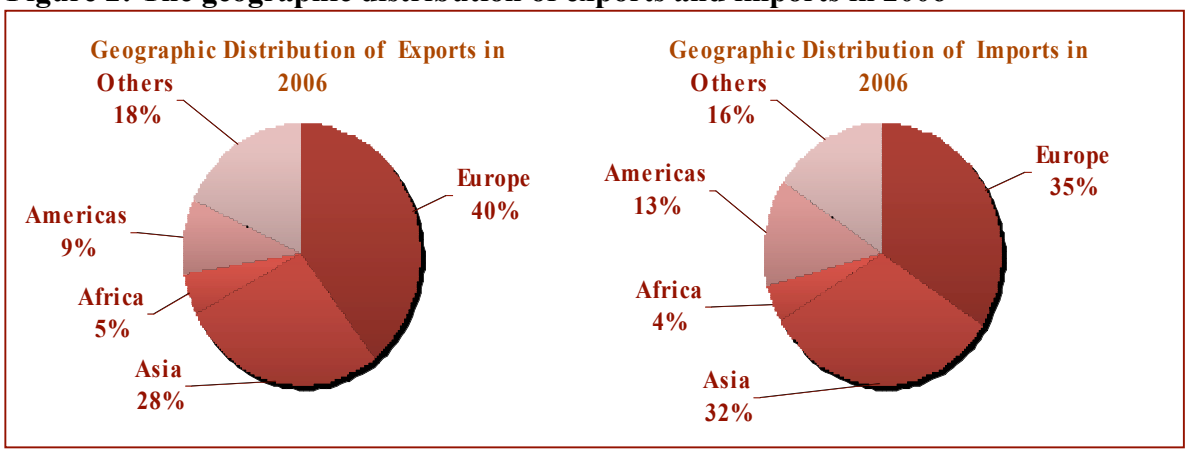
Table 5: Imports of goods in 2005 and 2006

	2005	2006	2005	2006	Change (%)
	Million US$		Share		4.00
Total Imports of goods:	19,812	20,613			28.90
Mineral fuels	2,675	3,367	0.14	0.16	25.90
Machinery & mechanical appliances	1,774	1,856	0.09	0.09	4.60
Cereals	1,624	1,513	0.08	0.07	-6.80
Iron and steel	1,208	1,013	0.06	0.05	-16.10
Electrical machinery and equipment	1,072	1,124	0.05	0.05	4.90
Vehicles and parts	801	923	0.04	0.04	15.20
Plastics and products	740	683	0.04	0.03	-7.70
Wood and articles	673	652	0.03	0.03	-3.10
Organic chemicals	525	508	0.03	0.02	-3.20
Animal or vegetable fats	452	480	0.02	0.02	6.20
Total	11,544	12,119	0.58	0.59	

Source: www.capmas.gov.eg.

In considering the structure of trade, it is also important to consider the geographical pattern of trade. Figure 2 demonstrates the geographic distribution of exports and imports in 2006. From this it can be seen that the EU is the principal destination markt for Egypt's exports which account for 40% of total exports, while exports to Asian countries and other countries (mainly Arab countries) amounted to 28% and 18% respectively. Exports to the Americas and African countries were very limited and did not exceed 9 and 5 percent respectively. With respect to the geographic distribution of imports, there is a similar pattern with the EU providing 35% of imports, followed by Asia (32%) and other countries (15%), while imports from the Americas and African countries are somewhat lower.

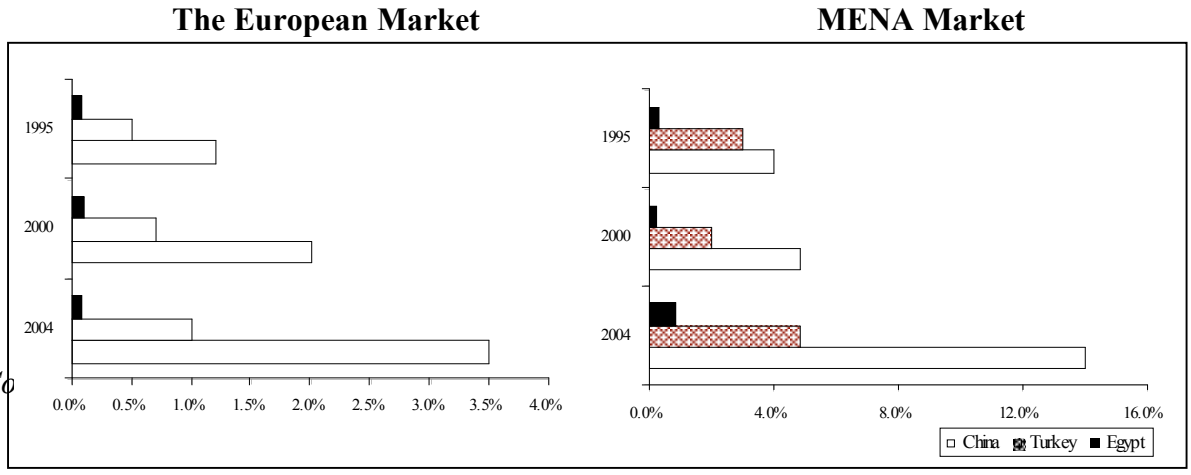
Figure 2: The geographic distribution of exports and imports in 2006



Source: Obtained from www.capmas.gov.eg.

In addition, there is some evidence that Egypt is losing its share in both the European and MENA markets, largely at the expense competitors such as China and Turkey, especially in labour-intensive textiles and clothing industries. In contrast, it is worth noting that Egypt was able to increase its exports of textiles and clothing to the US and was not threatened by Chinese or Turkish exports. This is mainly due to the QIZ protocol (Pigato and Ghoneim, 2006) Figure 3, illustrates that Egypt's share of manufactured trade in the European market was almost stagnant during the period 1995-2004, and was less than 1 percent; while the share of Turkey and China doubled and tripled successively during the same period. Although Egypt enjoyed higher share in manufactured trade in MENA market compared to the European market, it is still very low despite the slight increase in 2000 and 2004.

Figure 3: The Share of Egyptian, Turkish and Chinese Manufactured Trade in European and MENA Markets, 1995-2004 (%)



So

Of course it is worth pointing out that many of Egypt's trade agreements, eg. with the EU, or Agadir are relatively new, and it is too early to assess their full impact. Moreover, in order to realise their expected benefits, with respect to exports, in the future, it will be important for Egyptian manufacturing industry to realised longer term productivity and hence competitiveness gains; and to mover from lower technology to medium and higher technology and to higher value added exports.

3 Assessing the significance of Rules of Origin for Egypt

In this part of the report we assess the potential importance of rules of origin, and therefore also the cumulation of rules of origin for the case of Egypt. In order to this we proceed on several fronts. First, we examine the available data on utilisation rates in order to establish if there is any prima facie evidence that Egyptian exporters are

underutilizing preferences to any significant degree. Secondly, we explore the data on the structure of production and the use of imported intermediates by sector in order to identify those sectors where the importing of intermediates is high / important. Thirdly, we summarise the conclusions which arise from the interview undertaken with leading firms / industrialists in Egypt.

3.1 Egyptian exports and utilisation rates

Table 6 gives more detailed information on Egyptian exports to the EU, and on the distribution of those exports by MFN and preferential status. In the top panel of this table we give the 10 most important sectors exporting to the EU in 2005, which together amounted to just over 80% of all exports. On the bottom row of the table we give the total of all exports.

Table 6: Egyptian Utilisation rates

			MFN		**Preferential**			
Chapter	**Description**	Share	Zero	Non-Zero	MFN non-zero	Zero	Non-Zero	Unknown
		Top 10 exporting sectors						
27	**Mineral Fuels**	48.44	76.65	0.00	8.82	12.33	0.00	2.17
72	**Iron and Steel**	5.53	93.99	0.00	0.62	4.77	0.00	0.62
61	**Apparel Knitted**	4.57	0.00	0.00	3.59	92.15	0.72	3.53
76	**Aluminium**	4.27	0.02	0.00	0.15	65.25	0.04	34.54
25	**Salt, Sulphur & Cement**	4.04	22.20	0.00	3.86	71.44	0.00	2.47
7	**Vegetables**	3.54	1.81	6.36	6.56	46.49	27.34	11.19
52	**Cotton**	2.65	27.27	0.00	0.95	55.38	0.44	15.01
8	**Fruit**	2.44	0.46	1.30	6.69	15.45	61.91	7.57
39	**Plastics**	2.41	3.19	0.00	8.91	54.88	0.39	32.64
62	**Apparel non-knitted**	2.26	0.00	0.00	6.16	80.87	0.45	12.52
		Top sectors not utilising preferential access rates						
37	**Photographic**	0.0015	17.20	0.00	82.20	0.00	0.00	0.07
93	**Arms and ammunition**	0.0001	0.00	0.00	79.25	0.00	0.00	0.00
59	**impregrnated / coated textiles**	0.0019	0.00	0.00	77.87	22.13	0.00	0.00
91	**clocks and watches**	0.0004	0.00	0.00	71.54	25.29	0.00	3.18
90	**optical / photographic**	0.4811	39.80	0.00	59.30	0.75	0.00	0.14
10	**Cereals**	0.1667	0.21	6.99	47.77	11.40	11.32	22.32
35	**starches, glues etc**	0.0047	1.64	0.00	47.62	35.93	0.00	14.81
82	**tools, spoons of base metal**	0.0204	0.00	0.00	46.35	51.42	0.00	2.24
92	**musical instruments**	0.0033	0.00	0.00	29.03	69.43	0.00	0.00
21	**misc. edible**	0.0404	0.00	0.04	24.55	38.88	32.87	3.55
42	**articles of leather**	0.0413	0.00	0.00	24.34	49.27	0.00	26.16
84	**Machinery**	0.8261	19.31	0.00	22.40	43.32	0.00	14.92
38	**Miscellaneous chemical**	0.1464	0.95	0.00	21.38	77.55	0.02	0.08
Total			50.25	0.29	6.53	32.90	3.06	5.86

Source: EU Utilisation rates database

Hence, if you consider that bottom row of the table we see that 50.25% of EU imports from Egypt were in products were the MFN tariff was zero and 0.29% where the MFN tariff was non-zero. A total of 48.4% of Egyptian exports to the EU were eligible for preferential tariff access. If we look at this we see that 32.9% of Egypt's trade entered with a zero preferential tariff, and 3.06% with a preferential tariff greater than zero; while 6.53% was eligible for preferential treatment, but paid MFN duties.

It is interesting to explore this latter statistic in a bit more detail by sector. Hence, focussing again on the top panel of the table we see that in both mineral fuels, and plastics over 8% of imports that in principle were eligible for preferential treatment, did not take advantage of those preferences and paid MFN duties on export to the EU. The bottom panel of the table provides the same information but this time we have selected all those industries where the preference utilisation rate was below 20%. Here we see for example that over 80% of exports to the EU paid MFN duties, where in principle preferential access is allowed. Here, then there are 13 industries which are not making use of the preferential access to which they are entitled – but of course the underlying reasons for this are unknown. It should also be noted that these industries only comprise a very small proportion of Egyptian exports to the EU. There cumulative share of exports amounts to just under 2% of all exports.

In addition to looking at the pattern of preference utilisation it is important to consider the principal industries which Egypt exports to the EU, and the possible importance of rules of origin for those industries. The key messages which emerge on doing this are:

- 48% of EU imports from Egypt are Petroleum products and these are wholly obtained.
- The second largest EU imports from Egypt are iron and steel (5.5%). These products are granted free access to the EU and under all tariff regimes. ROO implies a CTH. Therefore this sector can comply with ROO and be easily granted free access to the EU.
- 4.6% of EU imports from Egypt are articles of apparel and clothing accessories, knitted or crocheted. If we look more carefully at this sector we find that almost 76% of the imports of this sector are produced from cotton, therefore these goods originates and are granted free access to the EU.
- 4.3% of EU imports from Egypt are aluminum. EU ROO implies that these products are granted free access if they are manufactured from materials of any heading, except of the product and in which the value of all materials used does not exceed 50% of the ex-works price of the product. So ROO are CTH or VA. Again products can largely comply with these rules and are granted free access to the EU.
- As for salts and sulfurs, etc imports from Egypt, they represent 4% of total imports. 74% of this group are Portland cement which originates in Egypt and enjoys free access to the EU (in any case the third country tariff rate is very low at 1.7%)
- EU imports of vegetables ad fruits represent 3.5% and 2.4% of total imports from Egypt and are granted free access to the EU since they are by definition, wholly obtained.

- Cotton represents 2.7% of EU imports from Egypt. Of course these products are wholly obtained.
- Plastic products represent 2.4% of total EU imports from Egypt. ROO for these products imply 50% VA. Firms can easily achieve this domestic VA (raw material, labor and other costs).
- EU imports of articles of apparel and clothing accessories not knitted or crocheted from Egypt, they represent only 2.3% of total imports. Looking at the 6-digits HS classification, we find that they are mainly produced from cotton. In this case they are originating.
- EU imports of other made-up textile articles; sets; worn clothing and worn textile articles; rags represent 2.1% of total imports. Looking at the 6-digits imports we find that 80% of these articles are produced from cotton.
- EU imports of fertilizers represent 2% of total imports. These products comply with ROO and are granted free access to the EU.
- EU imports of electrical machinery and equipment from Egypt represent 1.8% of total imports. ROO imply a 40% domestic VA. 77% of the imports of this sector are "IGNITION WIRING SETS AND OTH//4.30.10". These products originate and are granted free access to the EU.
- EU imports of leather from Egypt represent 1.4% of total imports. ROO are applied and these goods are granted free access to the EU.
- EU imports of carpets from Egypt represent 3% of total imports and originates because they are produced from cotton.
- EU imports of machinery and mechanical appliances (part of the engineering sector) represent less than 1% of total imports. ROO imply a 30% domestic value added. But even if ROO are not applied, tariff rate imposed on these imports is very small (2.2%).

In conclusion then we note that our analysis does not imply that ROO do not matter in the case of Egypt. On the contrary ROO are applied for the largest EU imports from Egypt because these products are either wholly obtained or can comply with the CTH and the domestic VA. It is also important to note that the share of non-petroleum imports does not exceed 52% of total imports; in part this clearly reflects the structure of production in Egypt. However, it is also possible that non-petroleum imports of EU from Egypt might not be as large as they could be, with one of the possible explanatory factors being the difficulties of applying more restricted ROO such as those required for ready-made garments from man-made fibers or other products such as white goods for instance.

3.1 Intermediate input usage in Egypt

Information on the structure of production and intermediate input usage, both domestic and imported, is available from the recent CAPMAS survey of 10,000 industrial firms in Egypt discussed earlier. From that survey we can calculate the value and share of intermediate inputs, and it is also possible to distinguish between domestically supplied intermediates, and those which are imported. This information is given in Table 7 below, at the 2-digit level of the ISIC, Rev. 3 classification, for 2005. In the table we order the industries by the share of imported intermediates.

For the total of all manufacturing industries, we see that the share of imported intermediate inputs amounted to just under 33%. – however there is considerable sectoral variation. We see that there are three industries where the share of imported intermediates is high. These include "other transport equipment" (78%), "others" (68%) and "radio, television and communication equipment" (59%). There are then nine industries (out of 24) where the imported intermediate share is between 30-50%. Here we need to be very careful in interpreting the data, as these figures give us the share of imported intermediates out of total intermediate input usage – which is not the same as the share of imported intermediates in total value added. Nevertheless, where the share of imported intermediates out of total intermediate input usage is higher, one would expect the share of intermediates in value added to be higher.

It is then interesting to compare this information with the information we have on utilisation rates to see if there is any evidence that utilisation rates tend to be lower, in those industries where the share of imported intermediates is higher – and vica versa. This information is contained in the last column of the table where we have calculated the share of preferential exports in each sector but upon which MFN duties were in fact levied. Not surprisingly, generally there is no strong positive correlation (the correlation coefficient is 0.07). While there is no general pattern certain industries are worth highlighting here. For example, "medical precision and optical equipment", has a share of intermediate imports of just over 34%. This is an industry where the share of domestic intermediates in value-added is required to be between 60-70% for originating purposes; and in this industry nearly 60% of exports pay MFN duties even though they are eligible for preferential access. Indeed 98% of products which in principle were eligible for preferential access paid MFN duties in this sector. Similarly for "machinery and equipment" – this has a share of intermediate imports of just under 32%, and this is an industry where the domestic value-added criterion here is typically between 60-75%, and in this industry nearly 35% of exports pay MFN duties even though they are eligible for preferential access. This means that just under 40% of products which in principle were eligible for preferential access paid MFN duties in this sector. In this sector, the value-added rule is typically applied and where the domestic share of valued added is required to be between 60-70% for originating purposes. If we look at "motor vehicles", the vast majority of these exports were eligible for preferential access, yet MFN duties were paid on over 16% of these exports. "Other transport equipment" is an interesting sector, because it appears that only a small proportion of exports in this sector were eligible for preferential access, hence the share of total exports which fell into this category but then paid MFN duties is very low (0.68%); yet out of all the exports which were eligible for preferential access, MFN duties were paid on 65% of those exports.

This discussion indicates that although when looking at the aggregate data it is hard to discern the extent to which rules of origin may be impacting on access to EU markets for Egyptian firms, the picture is perhaps slightly different when one digs a little deeper. Above, we have identified a number of sectors which together may not amount to a significant proportion of Egyptian trade with the EU, but where a surprisingly significantly high proportion of exports which in principle are eligible for duty free access in fact pay MFN duties. Of course we do not know why this is the case – but at a minimum it does indicate that for a number of sectors, which apply the value added rule, and where the share of imported intermediate inputs is high, there is a significant amount

of preferential exports which pay MFN duties. It is highly likely, then, that rules of origin form part of the explanation.

Table 7: Value and relative share of domestic and intermediate inputs in 2005

ISIC	Sector	Intermediate Inputs					
		Values in LE 000			Shares (%)		
		Domestic	Imported	Total	Domestic	Imported	Share of preferential imports, paying MFN duties
35	Other Transport Equipment	103,520	373,830	477,350	21.69	78.31	0.68
38	Others	40,514	86,087	126,601	32.00	68.00	
32	Radio, Television & Comm. Equipment	517,509	749,593	1,267,102	40.84	59.16	6.16
24	Chemicals	2,778,226	2,175,325	4,953,551	56.09	43.91	4.95
23	Coke	1,463,344	1,145,514	2,608,858	56.09	43.91	19.87
27	Basic Metals	1,945,828	1,432,062	3,377,890	57.60	42.40	0.42
15	Food and Beverages	7,582,474	4,311,251	11,893,725	63.75	36.25	9.83
18	Wearing Apparel	769,552	421,966	1,191,518	64.59	35.41	5.72
33	Medical, precision, & Optical Equipment	6,862	3,584	10,446	65.69	34.31	59.21
20	Wood Products	34,677	17,846	52,523	66.02	33.98	8.86
29	Machinery & Equipment	884,983	414,538	1,299,521	68.10	31.90	34.88
25	Rubber & Plastics	1,274,655	594,136	1,868,791	68.21	31.79	3.88
36	Furniture	229,399	78,087	307,486	74.60	25.40	4.11
22	Publishing and Printing	411,468	128,867	540,335	76.15	23.85	0.70
17	Textiles	3,300,030	908,973	4,209,003	78.40	21.60	2.13
34	Motor Vehicles, Trailers etc	392,785	97,932	490,717	80.04	19.96	16.20
31	Electrical Machinery	1,076,535	249,300	1,325,835	81.20	18.80	4.48
21	Paper and Products	1,621,207	365,769	1,986,976	81.59	18.41	
28	Fabricated Metal Products	1,259,161	263,659	1,522,820	82.69	17.31	7.25
16	Tobacco	1,642,464	289,141	1,931,605	85.03	14.97	1.11
30	Office, Accounting & Computing Machy	41	7	48	85.42	14.58	0.65
26	Other Non-metallic Mineral Products	1,719,437	279,648	1,999,085	86.01	13.99	4.47
19	Leather	250,480	38,862	289,342	86.57	13.43	1.25
37	Recycling	-	-	-			

Total	**29,305,151**	**14,425,977**	**43,731,128**	**67.01**	**32.99**

Source: Obtained from www.capmas.gov.eg.

3.1 Summary of interviews

Twenty-two firms belonging to seven main sectors were asked about their experience with EU rules of origin. The sectors covered by the interviews included: food and beverages, textiles and ready-made garments, leather and footwear, building materials, chemicals, furniture, and engineering industries. Although it is a small sample and does not reflect the size of the manufacturing sector or the exporting firms in Egypt, the interviewed firms are the largest private sector exporters to the EU. In many cases the owners of these firms are the head of the export councils of the sector to which these firms belong. Top management and export managers in these firms were interviewed. Annex 2 includes a listing of the name of interviewed firms together with some background information such as their size in terms of capital and number of employees.

A summary of the interviews follows:

Certification of Origin:

The majority of respondents claimed that they do not face any problem regarding certificates of origin. Several reasons could explain these responses, though it was not possible to distinguish between these:

- Firms are using 100 percent domestic inputs (unlikely).
- Firms do not export to the EU because they cannot access the EU market for other reasons than ROO. These reasons could include the difficulty to comply with sanitary requirements or due to price constraints or lack of knowledge about consumers' tastes.
- Some firms are approved exporters; consequently they do not worry much about certificates of origin.
- Proving origin is mainly the responsibility of the importers who benefit from the preferential treatment. Exporters are only responsible for issuing the certificate of origin, which is approved by GOEIC. GOEIC does not verify origin status; it takes what exporters certify as a fact, unless something looks very suspicious[4], or if it receives a complaint from the importing country's customs authorities.
- Tariff rates imposed on certain goods are low and therefore importers are not concerned about proving origin and are willing to pay import tariffs instead of imposing ROO requirement o exporters.
- In many cases, exporters are producing goods according to direct orders from EU importers and comply with their requirements. A good example could be exporters of ready-made garments, who receive designs, fabrics, accessories,

[4] In one case an exporter was trying to export imported apple to an Arab country as originating in Egypt. GOEIC was suspicious because Egypt does not export apples and it was off-season.

labels and packaging materials from the importers while they just provide labor. Hence, these exporters do not have to comply with ROO and importers are willing to pay tariffs instead of using low quality and more expensive domestic yarn and fabrics to benefit from preferential treatment.

Cumulation

For the majority of firms the issue of cumulation did not appear particularly important. This was either because they were not aware of the issue / possibilities for cumulation, or because there view was that they would not benefit from it. Those who reported limited or no use of cumulation arrangements were either utilizing 100 percent domestic inputs or are importing their intermediate inputs from countries, other than those with whom they can cumulate. The evidence from the interviews also suggested very limited benefits from cumulation between members of Aghadir Protocol. There was some expectation, albeit limited of possible benefits from cumulation with Turkey, especially for textiles and ready-made garments exports.

Cost of complying with ROO

The majority of firms reported that complying with ROO does not require extra cost. Again, this could be explained by a number of factors. Firms either use 100 percent domestic inputs, or are not concerned with proving origin or as was mentioned before, firms are producing according to importers' requirements, which may therefore not involve extra cost.

As for the cost of issuing a certificate of origin, firms also claimed that they do not particular incur extra costs for issuing the certificate. This could be explained by the fact that firms usually hire a مخلص , who is responsible for all paper work, certificates and other regulations related to exporting, therefore firms do not calculate a separate cost for issuing a certificate of origin. It was also the case that a number of firms reported that the issuing of the certificate of origin was very straightforward as it appears that the GOIEC simply accepts all applications with very little verification.

However, a number of firms reported verification of signatures as a major problem facing the process of issuing certificates of origin. In many cases, the customs authorities in the importing countries do not recognize the signatures of GOEIC officials on origin certificates. Consequently they refuse to accept these certificates and return them back to GOEIC. Firms complained about this problem, which costs them time and money. This problem would appear to reflect poor communication between customs authorities.

Other problems

Some of the firms reported other issues as the major impediments for exporting to the EU. These issues include eco-labeling, traceability, sanitary requirements.

The cost of different ROOs for different export markets

Most of the firms denied the existence of extra costs associated with applying different ROO. A number of reasons were reported including exporting wholly

obtained goods, exporting to only one market, and the similarity between EU and for example the AFTA ROOs. However, the most important reason that could be deduced from the interviews and the analysis is the modest concern that firms devote to ROO.

Some firms argued that complying with QIZ ROO is more difficult and costs more. According to the QIZ protocol (see Appendix 1), Egyptian exports will be granted free access to the US market, only if they use 11.7 percent of Israeli inputs. The main exports under the QIZ protocol include textiles and ready-made garments. Firms claimed that the cost of complying with QIZ ROO, i.e. using Israeli inputs with a value not less than 11.7 percent, is very high. Israeli inputs are more expensive than domestic ones and than those imported from other countries. In many cases, firms used Israeli fabrics, which are more expensive than East Asian fabrics, typically used by Egyptian exporters, just to comply with QIZ ROO. However, firms benefit from exporting under the QIZ protocol, because the US tariffs imposed on Egyptian exports are very high. In addition, customs authorities are more careful about reviewing QIZ certificates of origin compared to EUR1. Exporting firms to the US are responsible for proving origin, before they can issue QIZ certificate of origin; while it is not the case under EUR1. Moreover, inspections related to certificates of origin are carried out in Egypt on a quarterly basis.

To conclude, interviewed firms did not report major problems related to complying with EU ROO or issuing certificates of origin (EUR1.). This could be explained by the fact that proving originating status is the responsibility of importers, who are usually willing to pay imports tariff instead of asking exporters to comply with ROO. Customs authorities in Egypt are not responsible for proving origin; they are only in charge of signing EUR1. Firms typically also did not think that cumulation would have positive effects on their exports, nor would moving to a more widespread use of the value added criterion.

4 Conclusions:

Looking at the statistics with regard to the pattern of Egypt's trade we see the importance of the EU as a destination market for Egypt's exports, though we note that overall the share of Egypt's exports to the EU are declining. The available evidence indicates that much of what Egypt exports to the EU is in products where obtaining originating status is relatively easy. However, an examination of utilisation rates, suggests that in aggregate 48% of Egyptian exports are eligible for preferential access to the EU market, but that just over 13% of those exports in fact pay MFN duties. When we consider this by industry there is some evidence that there are certain industries where the take up of preferences is lower, and that these are sectors with higher shares of intermediate imports, and sectors where the value added criterion is typically applied.

From the interviews undertaken, in general we find that currently EU rules of origin are not perceived as a major problem or obstacle for Egyptian exporters, and that the lack of Pan-European cumulation in most cases is not perceived to constrain firms' choice of intermediate input supply. One exception to this is that of the textile industry where there is some evidence that the possibilities of cumulation in particular with Turkey, may impact of firms' incentives and improved ability to export to the EU. There are two principal explanations for the relative lack of significance of the

issue of rules of origin in Egypt. First, anecdotal evidence suggests that obtaining a proof of origin certificate from the Egyptian authorities is extremely straightforward with little or no verification checks being undertaken. Secondly a large proportion of Egypt's exports to the EU are in sectors where establishing proof of origin is relatively simple either because the goods are wholly obtained, or because of the high use of domestic intermediate inputs (eg. Egyptian cotton). In part this also reflects the overwhelming concentration of Egyptian exports in primary products, and in low-tech manufacturing products. In turn this suggests that although currently rules of origin may not be constraining, as Egyptian exporters attempt to diversify, move up the value-chain, and become more vertically integrated in world trade, that rules of origin may then prove to me of greater significance.

5 Appendix 1: Qualifying Industrial Zones

Egypt signed a Qualifying Industrial Zones (QIZ) protocol with the US and Israel in December 2004, to avoid the negative impact of the expiration of the ATC quotas and the threat it poses on the textile and clothing industry in Egypt. This signing came as a response to demands by producers and workers in the textile industry, which is considered one of the oldest industries in Egypt. Its assets are estimated to be 15 billion Egyptian pounds, it employees reach almost 1 million and its exports constitute almost 30 percent of manufactured exports.

QIZ are geographically designated areas in Egypt determined by the Egyptian government and approved by the US government where industrial products originated in Egypt and satisfying agreed-upon Israeli content are granted free entry into the U.S. customs territories.

Products must meet the value content requirements of 35 percent, where the sum of materials and direct costs of processing in QIZ and Israel must exceed 35 percent of the finished product's value (ex. factory price). QIZ factories and Israeli side each contribute and maintain at least one third (11.7 percent) of the minimum 35 percent of local content required, on a quarterly basis. Products must be exported to the US directly from QIZ.

Advantages of QIZ:

Duty free access to the US Market: This preferential treatment entails free access to all Egyptian products manufactured in QIZ to the US market without tariff or non-tariff barriers, as long as these products comply with ROO requirements.

Simple requirements to benefit from the free access: The required rules state that 35 percent of the commodity's value must be manufactured in an Egyptian QIZ, of which a minimum of 11.7 percent Israeli inputs. Although, it should be noted that a number of exporters are complaining from the increase in the prices of Israeli's inputs and are asking to reduce the 11.7 percent Israeli content to the 7 percent applied in Jordan.

Flexible application of the requirements: The protocol has established flexible rules such that the Israeli content is not revised for every single shipment of exports to the USA, provided that this factory's cumulative exports every quarter satisfy the agreed upon ratio.

No quotas on exported products: The free access of the products is not limited by any quotas on quantities nor seasons.

Open ended validity of the protocol: As can be seen from reading the actual protocol, it is not timed and has no preset end date.

The Geographic coverage area of QIZ includes some zones of Greater Cairo, Alexandria, Suez Canal area and four Middle Delta governorates. Industries that can benefit from QIZ include Textile/Apparel, food and beverage, leather products, footwear and glassware.

The number of listed companies in June 2007 reached 689 companies, of which about 54 percent are located in Greater Cairo, 24 percent in Alexandria.

About 15 percent of the companies listed in QIZ are small enterprises (less than 50 workers), 35.4 percent are large enterprises (300 and more workers).

Companies working in the field of textiles and articles constitute about 80 percent of the listed companies, followed by companies working in the field of prepared foodstuffs with a percentage about 5 percent of total listed companies.

The value of exports of QIZ increased from US$61.6 million in the second quarter of 2005 to US$182.5 million in the second quarter of 2007, by a growth rate of about 196.3 percent.

6 Appendix 2: Details of firms interviewed

#	Sector	Name of firm	Legal status	Year of establishment	Capital (LE 000)	Number of employees	Exporting countries	Exported goods
1	Food and Beverages	Al Ahram Beverages	Joint stock	1997	102,450	4,500	Saudi Arabia, Kuwait, Bahrain, Qatar, EU countries	Alcoholic and non-alcoholic beverages, soft drinks and water
2		Vitrac / Hero	Joint stock	1981	93,000	960	Japan, US, Canada, Arab countries, Germany, Italy, other western European countries	Jams, tomato pasta, fresh fruit juice and baby food
3		Juhaina Dairy Co. **(The Chairman is also the Chairman of the Food Export Council)**	Joint stock	1996		1,200	EU and other western European courtiers , Arab countries, Canada	Dairy products, fruit juices, concentrates
4		Massfood	Joint stock	1996	11,500	240	Netherland, Germany, Japan, Arab countries, US, Canada, Australia, COMESA	Corn flakes, rice, peanuts, fresh vegetables
5		Golden Foods	Joint stock	1994	3,000	200	European and Arab countries	Confectionary
6		Orouba Agrifoods Processing co.	Joint stock	1998	28,572	250	UK, Romania, Belgium, Netherland, US, Japan, Canada, Arab countries	Frozen vegetables

7		Sonac Société Nationale Du Commerce	Joint stock	1979	42,000	400	US, Arab countries, Hong Kong, Netherlands, Australia, Greece, Spain, other European and Arab countries	Fresh vegetables
8		Arcotrade	Individual Enterprise	1966	3,500	75	US, Germany, Italy, Canada, Finland, Austria, Netherlands	Medical herbs
9		Cairo Agro processing co. (Cairo Fresh) (Exporting fruit pulp)	Joint stock	1999	30,000	110	US, Germany, Netherlands, Arab countries, Canada	Fresh fruit, juices and concentrates
10	Chemicals	Kato Aromatic	Joint stock	1979	20,000	330	US, European and Arab countries	Medical and Nutrition products
11	Engineering	Traxx **(The Chairman is also the Chairman of the Engineering Export Council)**						
12	Building Materials	Ceramica Cleopatra	Joint stock	1987	402,000	7,000	US, Germany, Australia, Japan, Greece, Arab and Asian countries	Ceramic tiles, porcelain and granite tiles and sanitary products
13		Ezz Ceramics and Porcelain Co. “Gemma”	Joint stock	1996	182,305	1,250	Canada, US, Arab and European countries	Ceramic tiles, porcelain and granite tiles and sanitary

								products
14		Egyptian Group for Manufacturing Investments – Ceramica Prima	Joint stock	1996	37,343	883	Gulf and European countries	Ceramic tiles, porcelain and granite tiles and sanitary products
15		Pharos Group						Ceramic tiles, porcelain and granite tiles and sanitary products
16	Textiles	Giza Spinning and Weaving	Joint stock	1990	100,000	3,500	US, Canada, Germany, Russian Federation	Ready-made garments and textiles
17		Mardini Tex for Spinning & weaving	Joint stock	1937	15,503	250	EU, Central European and Arab countries	Curtains, bed linen sets, bed spreads
18		Dintex	Limited partnership	1991	NA	48	EU and Arab countries	Bed covers
19		El Saiad Tricot Co.						
20	Leather	Farag for Leather Products						
21	Furniture	Nadim **(The Chairman is also the Chairman of the Furniture Export Council)**	Joint stock	1978	30,000	550	US, France, Italy, Kuwait, Japan, Korea	Artistic, wooden furniture, doors and windows

Shaded cells will be completed.