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The Greater Arab Free Trade Area:
An ex-post appraisal within an imperfect
competition framework

Research n°FEM32-03
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List of Acronyms:

ACM:	Arab Common Market Agreement
AEUA:	Arab Economic Unity Agreement
AFDT :	Agreement on Facilitation and Development of Trade
AMU:	Arab Maghreb Union
APEC:	Asia-Pacific Economic Cooperation
ASEAN:	the Association of South-East Asian Nations
ATFRTT:	Agreement on Trade Facilitation and Regulating Transit Trade
CGE:	Computable General Equilibrium
COMESA:	Common Market for Eastern and Southern Africa
ESC:	Economic and Social Council
EU:	European Union
FDI:	Foreign Direct Investment
FTA:	Free Trade Area
GAFTA:	Greater Arab Free Trade Area
GCC:	Gulf Cooperation Council
LAN:	League of Arab Nations
MENA:	Middle-East and North Africa
NTBs:	Non Tariff Barriers
PTA:	Preferential Trading Arrangement
RTAs :	Regional Trade Agreements
TJDEC:	Treaty for Joint Defense and Economic Cooperation

Executive Summary

The aim of this research project is to provide some new and original insight concerning the GAFTA welfare and trade impact, 10 years after the implementation of this agreement. This project starts with the description and a critical analysis of economic integration and trade in the Arab world in the past decades. Particular emphasis is put on the provisions included in the GAFTA agreement. Its limitations are also discussed. Recent patterns in regional integration are also compared with the analysis of trade flows in Arab countries, especially since the implementation of the GAFTA agreement in 1998.

The next parts of the project are based on a twofold approach which relies on new theoretical developments in regional economic integration. The first approach involves a theoretical model of regional integration, followed by inquiries implemented in selected GAFTA countries and selected industries. This approach makes it possible to highlight several possible welfare effects of economic integration in the Arab region. It does not only include the gains related to the perfect competition framework (exploitation of comparative advantage, more efficient use of factors of production) but also the additional gains due to imperfect competition (terms of trade improvement, reduction in trade costs, existence of scale economies, greater product varieties for consumers) as well as dynamic effects (increase in foreign direct investment, growth effects) and the impact of economic distortions (taxes/subsidies).

This qualitative analysis is complemented by an empirical model (representing the second approach) which aims to quantify the trade effects of GAFTA. This model is an original combination of gravity models and supply-demand export models. Its main contribution is to simultaneously include gravity variables as well as export supply variables, especially scales economies and product differentiation. This model is subsequently estimated in order to calculate the effect of GAFTA on intra-regional trade, by using several appropriate estimators, of which Hausman and Taylor (which tackle endogeneity problems), GMM in dynamic models as well as transformed fixed and random effect models (for addressing multiple heterogeneity concerns).

The main results of this study are the following:

1. Although the first attempt for regional integration dates back to the 1950s, the **GAFTA agreement is certainly the most outreaching one**. Indeed, tariffs have been fully eliminated on 1.1.2005; currently, it covers 17 countries in the Arab region; it relies on a negative list approach; it includes agricultural products as well as an additional regional agreement concerning trade liberalization of services signed in 2003 in addition to research and technological cooperation.

2. However, the **GAFTA agreement shows some limitations**. First, although tariffs have been removed, some GAFTA members have introduced new trade barriers, which can be taxes or other NTBs. Secondly, the GAFTA agreement remains a perfect example of "shallow integration". It suffers a number of problems, including the absence of full fledge dispute settlement mechanism (although there are efforts to have one), the inability to reach a detailed rules of origin scheme[1], a weak system of harmonized standards, the lack of harmonization of competition rules as well as the lack of protection of intellectual property rights. In addition, there is no provision for labour movement. Finally, there is a lack of supra-national institutions or a strong leading Arab country to solve the problem of disputed matters. In other words, mainly all aspects of "deep" integration are absent from GAFTA.

3. **Intra-GAFTA trade has significantly increased** since GAFTA implementation in 1997 (+15% at a yearly average since 1997). This increase is greater than world exports (8%) and than extra-GAFTA exports (14%).

4. As a proportion of total trade, **intra-regional trade increased** from 9.8% in 1998, to 11.2% in 2005. When excluding oil products, this share rose from 13.5% to 18.0% over the same period. This intra-regional trade share is comparable to some other regional grouping such as COMESA or ASEAN. However, it remains much lower than intra-regional trade in the EU or the APEC.

5. More precisely, there are **differences across countries and commodities**. For example, some countries have strongly increased their intra-regional trade

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[1] Although a detailed system has finally been implemented in July 2008, it does not cover all goods; In addition, an assessment of this system is needed after its implementation.

(Egypt, Jordan, Lebanon, Syria, Tunisia) whereas some other have experienced a stability or even a decline (mainly Gulf countries). At industry-level, the most important increase in intra-regional trade concerns food, manufactured products as well as machinery and transport equipment. Conversely, crude material, oil and fats have not enjoyed such an increase.

6. Arab countries have succeeded to some extent in diversifying the products exported or imported. As a matter of fact, eight Arab countries have exported more than 200 products in 2005 (at 3-digit group level), against three countries only in 1995.

7. The extended theoretical model of regional integration in imperfect competition (presented in Part 2) makes it possible to state that **welfare effects** due to regional integration can be decomposed in different channels:

    a. Perfect competition effects (trade volume, trade costs)

    b. Terms of trade effects

    c. Imperfect competition effects (production, scale economies, product varieties)

    d. Dynamic effects (investment, growth, FDI)

    e. Economic distortion effects (wages, domestic taxes)

8. An application of this model to GAFTA countries through an appropriate inquiry reveals that:

    a. **GAFTA has a positive effect on the volume of intra-regional trade**. There are however some differences across countries and industries. As a matter of fact, almost all countries seem to have enjoyed positive trade effects, with the possible exception of Lebanon, for which the firms investigated complained about differences in energy prices due to subsidies in the other GAFTA countries. This has created an unfair competition situation where Lebanese firms are disadvantaged in the GAFTA regional market. Turning to industry-specific effects, the food industry and chemicals have taken advantage of GAFTA, whereas textile and clothing have not enjoyed intra-regional trade liberalization so much, for several reasons (increased NTB, dumping, absence of differences in production costs and consumer tastes across countries, etc…).

b. **The reduction in NTBs has a neutral effect**, since this reduction provided by the GAFTA agreement has been supplemented by the erection of new NTBs by some GAFTA members.

c. **Imperfect competition effects (production effect, scale economies, product varieties) are only slightly positive**. This result contrasts to the very positive effects recorded for North-North regional integration, especially the EU. Several reasons can explain this difference: the persistence of NTBs which impede strong production effects and scale economies, the lack of product differentiation which impedes product variety effects, the lack of taste differences. As a result, trade is mainly inter-industrial with small imperfect competition effects. Finally, the lack of deep integration is a brake for creating a real single market where production effects and scale economy can really occur.

d. **Distortion effects have a significant impact, especially differences in taxes/subsidies across countries**. Some countries take advantage of subsidizing their own production and exports (especially Saudi Arabia, the United Arab Emirates and Egypt) at the expense of the countries with the lowest subsidies (Lebanon).

e. **Terms of trade effects and dynamic effects have not been determined**. This is mainly due to the fact that the firms interviewed cannot identify the complex link between economic integration and its indirect effects on prices, investment, FDI or growth.

9. In part 3, an original trade model based on new developments in gravity models as well as export-demand model is proposed. It makes it possible to identify the following trade determinants

   a. The traditional gravity variables (GDP, distance, common language)
   b. Trade costs variables (border effects, regional economic integration)
   c. Imperfect competition variables (scale economies, product varieties)
   d. Expectations
   e. Hysteresis due to sunk costs

10. An application of this model to GAFTA countries through a set of appropriate econometric estimators (Hausman and Taylor, Arellano, Bond and Bover, Transformed fixed and random effects models, etc…) makes it possible to

quantify the impact of the above variables on intra-regional trade in GAFTA countries. This leads to the following results:

a. **Standard perfect competition trade effects significantly affect trade** (GDP and distance).

b. **The trade effect of the GAFTA agreement is positive.** In particular, the model exhibits a significant trade creation. Small trade diversion is highlighted for imports but not for exports. Overall, the net trade creation is positive. It is estimated to be about 26% of GAFTA trade.

c. However, most countries exhibit current trade levels which are below their fitted levels, as showed by the calculation of export potentials. This suggests that **the GAFTA agreement has not made it possible to increase regional trade above its "normal" level**, especially in Morocco, Tunisia, but also Egypt, Jordan and Syria.

d. **Imperfect competition effects are small**. In particular, although scale economies are significant in GAFTA countries, they hardly increase trade flows. These results correlate those already found qualitatively with the inquiry. Again, the main explanation may be found in market structures, where products are poorly differentiated, consumer tastes are similar and trade is mainly inter-industrial. In addition, the absence of deep integration impedes GAFTA countries to take advantage of existing scale economies, since the remaining NTBs makes it difficult to exploit the economies by producing for a large unified market.

11. The main **policy implications** which can be drawn from the results are the following. If the objective is to enhance the trade and welfare effects of regional integration in the GAFTA region, several policies can be undertaken:

a. All the loopholes in the current agreement should be fully addressed and **further step toward deep integration must be achieved**: In particular, progress must be made in favour of the adoption of clear and detailed rules of origin, the actual removal of new NTBs and trade frictions among GAFTA members, the adoption of common standards, the free movement of entrepreneurs, the protection of intellectual property, etc…Such a deep integration will not only increase direct trade effects of regional integration, but also increase indirect effects

(scale economies, and dynamic effects) through the establishment of solid foundations toward a more integrated area. In this regard, it is worth mentioning that liberalization of trade in services on a GATS+ approach will surely have a positive impact on deepening integration among GAFTA members.

b. Another mean to enhance GAFTA integration could be achieved through the **cumulation of rules of origin** among some of the GAFTA members in their other regional agreements as Agadir. The utilization of such cumulation schemes is likely to force GAFTA countries to cooperate and is likely to result in better allocation of resources.

c. There is a need to design a system which ensures that **domestic distortions do not yield negative spillovers** on GAFTA members. The case of different systems of energy pricing in GAFTA members has proved to have negative effects, especially for Lebanon. Hence, at least rules governing subsidies should be fully articulated and efficiently implemented within GAFTA.

d. GAFTA members should start cooperating on enhancing regional trade and investments in sectors that have proved to have benefited so far from GAFTA as food and some chemicals industries. Moreover, the NTBs that are affecting intra-regional trade in other sectors as textiles should be seriously tackled.

e. There is a need to start a serious program on building a comprehensive database and information system on intraregional trade and investment opportunities. In addition, since there is still a lack of knowledge of the GAFTA agreement and its provisions in many firms, more information should be provided concerning regional economic integration in the Arab world.

f. From a political point of view, it is also crucial that GAFTA countries can rely on a **closer political cooperation as well as** on **common institutions** that can make possible to control trade liberalisation in the region and solve trade disputes.

g. More generally, **conditions for economic growth should be developed**, such as the reform of the states, the development of cross-regional infrastructures, such as railway and highways, progress

toward more trade and FDI liberalisation not only within the GAFTA area but also with the other partners, etc..

Résumé

Le but de ce projet de recherche est d'établir une évaluation nouvelle et originale de la grande zone arabe de libre-échange (GAFTA), concernant ses effets sur le commerce et le bien-être. Cette recherche débute par une description et une analyse critique des échanges et de l'intégration régionale dans le monde arabe. Une attention particulière est portée sur les dispositions de l'accord GAFTA, ainsi que ses limites. L'analyse de l'intégration régionale est également reliée à l'analyse des échanges dans la zone, en particulier depuis la signature de l'accord GAFTA en 1998.

Les parties suivantes sont consacrées à une double approche, fondée sur des théories récentes de l'intégration régionale. La première approche consiste en des enquêtes mises en œuvre dans divers pays et diverses branches de la zone GAFTA. Ces enquêtes permettent de mettre en lumière plusieurs effets sur le bien-être, effets liés à l'intégration régionale dans la zone arabe. Ils incluent non seulement les gains en concurrence parfaite (exploitation des avantages comparatifs, utilisation plus efficace des facteurs de production) mais aussi les gains supplémentaires en concurrence imparfaite (amélioration des termes de l'échange, réduction des coûts à l'échange, existence d'économie d'échelle, élargissement du choix de variété des produits pour le consommateur) ainsi que les effets dynamiques (hausse des investissements directs étrangers, effets sur la croissance) et l'impact des distorsions économiques (impôts/subventions).

Cette analyse qualitative à l'échelle micro-économique est ensuite complétée par un modèle empirique, correspondant à la seconde approche, destinée à quantifier les effets de l'accord GAFTA sur les échanges. Ce modèle combine de façon originale les modèles de gravité ainsi que les modèles d'offre-demande à l'exportation. Sa contribution principale est d'inclure simultanément les variables gravitaires avec des variables d'offre, en particulier les économies d'échelle et la différenciation des produits. Ce modèle est ensuite estimé afin de calculer les effets du GAFTA sur les échanges intra-régionaux, à partir de plusieurs estimateurs choisis, comme Hausman et Taylor (qui tient compte du problème d'endogénéité), les GMM (modèles dynamiques) ainsi que les modèles à effets transformés (pour tenir compte de l'hétérogénéité multiple).

Les principaux résultats de la recherche sont les suivants :

1. Bien que les premières tentatives d'intégration régionale remontent aux années cinquante, **l'accord GAFTA est certainement le plus abouti**. En effet, les droits de douane ont été complètement éliminés le 1 janvier 2005 ; l'accord couvre actuellement 17 pays dans la zone arabe ; il s'appuie sur une liste « négative » ; il inclut les produits agricoles ainsi des accords supplémentaires sur la libéralisation des services (signés en 2003) et sur la coopération en matière de recherche et de technologie.

2. Cependant, **l'accord GAFTA présente un certain nombre de limites**. Premièrement, bien que les droits de douane aient été éliminés, certains pays membres ont introduit de nouvelles barrières, pouvant être des taxes ou d'autres barrières non tarifaires (BNTs). Deuxièmement, l'accord GAFTA reste un exemple parfait d'intégration « molle », et souffre d'un certain nombre de limites, comme l'absence d'un mécanisme de règlement de conflits (bien que certains efforts soient effectués en ce sens), l'absence de schéma détaillé de règles d'origine[2], la faiblesse du système d'harmonisation des normes, l'absence d'harmonisation des règles de concurrence ainsi que l'absence de protection des droits de propriété intellectuelle. De plus, il n'existe pas d'accord sur la libre circulation du travail. Enfin, l'accord ne prévoit pas la mise en place d'institutions communes ou la présence d'un Etat arabe leader, qui pourraient permettre de résoudre les problèmes concernant notamment les litiges commerciaux. Autrement dit, pratiquement tous les aspects de l'intégration « profonde » sont absents de l'accord.

3. **Le commerce intra-GAFTA a augmenté de façon importante** depuis la mise en place de l'accord en 1998 (+15% en moyenne annuelle depuis 1998). Cette hausse est plus élevée que celle des exportations mondiale (9%) et que celle des exportations extra-GAFTA (+14%).

4. En pourcentage des échanges totaux, le commerce intra-régional est passé de 9,8% en 1998 à 11,2% en 2005. En excluant les produits pétroliers, ce pourcentage est passé de 13,5% à 18,0% sur la même période. Cette part est

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[2] Bien qu'un système détaillé a finalement été mis en place en juillet 2008, il ne couvre pas tous les biens. De plus, il est encore trop tôt pour évaluer l'efficacité de ce système.

comparable à celle correspondant à d'autres groupements régionaux comme le COMESA ou l'ASEAN. Cependant, elle reste beaucoup plus faible que celle correspondant à l'UE et l'APEC.

5. Plus précisément, il existe des différences entre les pays et les produits. Par exemple, certains pays ont fortement augmenté leur part de commerce intra-régional (Egypte, Jordanie, Liban, Syrie, Tunisie), tandis que d'autres ont connu une stabilité ou même un déclin (certains pays du Golfe). Au niveau des branches d'activité, l'augmentation la plus forte du commerce intra-régional concerne les produits agro-alimentaires, les produits manufacturés ainsi que les machines et l'équipement de transport. A l'inverse, les produits non transformés, les produits pétroliers et les produits gras n'ont pas connu une telle croissance.

6. Les pays arabes ont réussi dans une certaine mesure à diversifier leurs échanges. Ainsi, huit pays ont exporté plus de 200 produits en 2005 (au niveau 3-digit de classification), au lieu de trois pays en 1995.

7. Le modèle théorique d'intégration régionale étendu en concurrence imparfaite (présenté dans la partie 2), permet d'identifier plusieurs canaux correspondant aux effets sur le bien-être de l'intégration régionale :

   a. Les effets en concurrence parfaite (volumes de commerce, coûts d'échange)

   b. Les effets liés aux termes de l'échange

   c. Les effets en concurrence imparfaite (production, économie d'échelle, variété des produits)

   d. Les effets dynamiques (investissement, croissance, IDE)

   e. Les effets liés aux distorsions (salaires, impôts)

8. Une application de ce modèle aux pays membres du GAFTA à partir d'une série d'enquêtes menées dans plusieurs pays arabes et auprès de plusieurs branches, révèle que :

   a. **L'accord GAFTA a un effet positif sur le volume du commerce intra-régional**. Il existe cependant des différences entre les pays et les produits. Par exemple, si presque tous les pays semblent avoir bénéficié d'effets positifs sur le commerce, le Liban fait figure d'exception. Dans ce pays, les firmes se plaignent en effet des différences de prix de l'énergie, dues aux subventions dans les autres

pays membres du GAFTA. Ceci a créé une situation de concurrence déloyale, dans laquelle les firmes libanaises sont désavantagées sur le marché régional. Concernant les effets par produits, l'agro-alimentaire et la chimie semblent avoir bénéficié de l'accord GAFTA, contrairement au textile et à l'habillement, pénalisés par plusieurs facteurs (hausse des BNTs, dumping, absence de différences de coûts de production et de goûts des consommateurs entre les pays, structures de marché, etc…).

b. **La réduction des BNTs a un effet neutre,** dans la mesure où les réductions prévues par l'accord ont été accompagnées par l'érection de nouvelles BNTs dans certains pays membres.

c. **Les effets en concurrence imparfaite (production, économies d'échelle et variétés de produits) sont faiblement positifs.** Ce résultat contraste avec les effets très positifs enregistrés pour l'intégration régionale nord-nord, en particulier dans l'UE. Plusieurs raisons expliquent cette différence : la persistance des BNTs qui freine les effets de production et d'économie d'échelle, l'absence de différenciation des produits qui pénalise l'effet « variétés », ou encore l'insuffisance des différences de goût des consommateurs. En conséquence, les échanges sont essentiellement de nature inter-branches avec de faibles effets en concurrence imparfaite. Enfin, l'absence de « deep integration » constitue un frein à la création d'un véritable marché unique qui permettrait de réels effets de production et d'économie d'échelle.

d. **Les effets de distorsions ont un impact significatif, notamment les différences de subventions entre les pays.** Ainsi, certains pays sont avantagés par les subventions de leurs propres productions et exportations (en particulier l'Arabie Saoudite, les EAU et l'Egypte), au détriment des pays avec les subventions les plus faibles (Liban, Maroc).

e. **Les effets concernant les termes de l'échange et les effets dynamiques n'ont pas pu être identifiés.** Ceci peut s'expliquer par le fait que les firmes interrogées ne peuvent identifier la relation

complexe entre l'intégration régionale d'une part, et ses effets indirects sur les prix, l'investissement, les IDE et la croissance d'autre part.

9. Dans la partie 3, nous proposons un modèle d'échange original, qui s'appuie sur des développements récents des modèles de gravité ainsi que des modèle offre-demande à l'exportation. Il permet d'identifier les déterminants suivants des échanges :

    a. Les variables gravitaires traditionnelles (PIB, distance, langue commune)

    b. Les variables liées au coût à l'échange (effets frontières, intégration régionale)

    c. Les variables de concurrence imparfaite (économies d'échelle, variétés de produits)

    d. Les anticipations

    e. L'hystérèse due aux coûts irrécupérables.

10. Une application de ce modèle aux pays membres du GAFTA à l'aide d'une série d'estimateurs économétriques appropriés (Hausman et Taylor, Arellano, Bond et Bover, modèles à effets transformés, etc…) rend possible de quantifier l'impact des variables décrites ci-dessus sur le commerce intra-régional des pays du GAFTA. Les principaux résultats sont les suivants :

    a. **Les effets standard de commerce en concurrence parfaite entraînent une hausse des échanges** (PIB et distance)

    b. **Les effets de l'accord GAFTA sur les échanges sont positifs**. En particulier, le modèle démontre une création d'échanges significative. En revanche, il y a peu de détournement d'échanges. Cette dernière se limite d'ailleurs aux importations mais est inexistante pour les exportations. Au total, **la création nette d'échanges est estimée à environ 26% des échanges** de la zone GAFTA.

    c. Cependant, la plupart des pays ont des niveaux actuels d'échanges en deçà de leurs niveaux potentiels. Ceci suggère que **l'accord GAFTA n'a pas permis d'augmenter les flux d'échanges régionaux à un niveau supérieur aux flux « normaux »**, particulièrement concernant le Maroc, la Tunisie, mais aussi l'Egypte, la Jordanie et la Syrie.

d. **Les effets en concurrence imparfaite sont limités**. En particulier, bien que les économies d'échelle soient significatives dans la plupart des pays du GAFTA, ces économies ne permettent pas d'augmenter les flux d'échanges dans cette zone. Ce résultat corrobore les résultats qualitatifs obtenus avec les enquêtes de terrain. La encore, la principale explication réside dans les structures de marché, caractérisées par une faible différenciation des produits, une similarité des goûts des consommateurs et un commerce essentiellement inter-branches. De plus d'absence d'intégration profonde empêche les pays du GAFTA de bénéficier de leurs économies d'échelle, dans la mesure où les BNTs existantes rendent difficile d'exploiter leurs économies d'échelle en profitant d'un grand marché unifié.

11. Les principales **implications en termes de politique économique** sont les suivantes. Si l'objectif est d'améliorer les effets de l'accord GAFTA sur le commerce et le bien-être, plusieurs politiques peuvent être mises en œuvre :

   a. Toutes les dispositions de l'accord actuel doivent être rigoureusement appliquées. Au-delà, **des efforts vers une intégration plus profonde doivent être engagés** : en particulier, de réels progrès doivent être accomplis en faveur de l'adoption de règles d'origine détaillées et transparentes, de la suppression des BNTs, de l'adoption de normes communes, de la libre circulation du travail (en particulier des entrepreneurs et du travail qualifié), etc… De tels progrès permettraient non seulement d'augmenter les effets commerciaux directs de l'intégration régionale, mais aussi de développer les effets indirects (économies d'échelle et effets dynamiques), grâce à la mise en place de fondations solides pour une zone plus intégrée. Sur ce point, il est important de souligner que la libéralisation des services selon l'approche GATS+ aura certainement un effet positif sur l'approfondissement de l'intégration entre les pays membres du GAFTA.

   b. Un autre moyen d'améliorer les effets de l'intégration régionale pourrait être atteint à partir du **cumul des règles d'origine** entre les pays GAFTA et les pays membres de l'accord d'Agadir. L'utilisation de ce système de cumul permettrait de contraindre les pays du GAFTA

à davantage coopérer ce qui permettrait d'atteindre une meilleure allocation des ressources.

c. Il y a aussi urgence à **mettre en place un système qui permettrait que les distorsions domestiques ne produisent pas d'effets d'entraînement négatifs** sur les pays membres du GAFTA. Le cas des différents systèmes de prix de l'énergie dans les pays membres a montré ses effets négatifs, en particulier pour le Liban (non subventionné). Ainsi, des règles claires et équitables régulant les subventions doivent-elles être mises en place rapidement.

d. Les pays de la zone GAFTA doivent **renforcer leur coopération** afin d'augmenter les effets positifs de l'accord sur les secteurs les plus perméables à ces effets comme l'agro-alimentaire et la chimie. De plus les BNTs affectant les autres secteurs comme le textile doivent être éliminés.

e. Les pays membres devraient aussi **mettre en place des programmes d'information et des bases de données** sur le commerce et l'investissement intra-régional. En effet, les acteurs économiques connaissent encore assez peu les dispositions de l'accord GAFTA. Ils ont besoin de plus d'information.

f. D'un point de vue politique, il est aussi crucial que les pays du GAFTA puissent s'appuyer sur une **coopération politique plus étroite** ainsi que sur des institutions communes qui permettraient de contrôler la libéralisation des échanges dans la région et de résoudre les litiges commerciaux.

g. Plus généralement, les Etats doivent tout mettre en œuvre pour générer des conditions optimales pour la croissance économique. Ces conditions incluent la **réforme des Etats**, le **développement d'infrastructures inter-pays**, comme les autoroutes ou les chemins de fer, une plus grande **libéralisation des échanges et des IDE**, pas seulement à l'intérieur de la zone GAFTA mais aussi avec les autres partenaires, etc…

Introduction

Trade integration in the Arab world is an old story. Starting with the creation of the Arab League in 1945, several attempts have been made to promote regional political and economic integration: the 1950 Treaty for Joint Defence and Economic Cooperation, the 1953 Convention for Facilitating and Regulating Transit Trade, the 1957 Arab Economic Unity Agreement, the 1964 Arab Common Market, the 1981 Gulf Cooperation Council, the 1989 Arab Cooperation Council and the 1989 Arab Maghreb Union (Neaime, 2005). However, these agreements have generally not been implemented. As a result, trade barriers remained high within the Arab region.

Things started changing in the 90s, when most Arab countries actually implemented a trade liberalization process, simultaneously at multilateral, bilateral and regional level. Indeed, a significant number of Arab countries signed the GATT agreement from 1990 onward, namely Tunisia (1990), the United Arab Emirates and Qatar (1996), Jordan and Oman (2000) as well as Saudi Arabia (2005). At the same time, there has been an increase in bilateral free trade agreements: for instance, Egypt concluded agreements with Libya and Syria in 1990, with Tunisia, Lebanon and Jordan in 1998 as well as with Iraq in 2001. At the same time, Morocco concluded similar agreements with Turkey (2005) and the USA (2006). Jordan also implemented a free trade arrangement with the USA (2002). Finally, at the regional level, GAFTA was signed in 1997 whereas the Agadir Agreement was concluded between Morocco, Egypt, Jordan and Tunisia in 2004.

Among these numerous agreements - which very often overlap each other as a kind of spaghetti regionalism - GAFTA is certainly the most far-reaching one. Indeed, this is the first regional agreement which has been actually applied in the Arab region; as a matter of fact, tariffs has been fully eliminated on 1.1.2005. Secondly, this agreement covers all countries in the Arab region. Moreover, the contents of the agreement are also far-reaching, first because it not only includes the removal of tariffs, but also monetary, administrative and quantitative NTBs (quotas). It also provides for trade liberalisation in agriculture (despite a transition period) as well as of rules of origins. Finally, inter-Arab consultation is also expected with regard to services, research and technological cooperation as well as intellectual property. Moreover, the agreement

encourages Arab countries to go quicker in the integration process, thanks to bilateral or sub-regional agreements (Arab League, 1999). In this regard, the Agadir agreement is considered to be in accordance with the GAFTA process and complementary to this process.

The expected economic benefits from this far-reaching agreement are numerous and well-known. GAFTA members are first expected to increase intra-regional trade, thanks to the removal of trade barriers. This first gain is due to increased production efficiency through the exploitation of comparative advantage. It is generally referred to as the gain in a perfect competition framework (Robson, 1998). However, additional gains must be taken into account. For example, the imperfect competition framework makes it possible to identify the increased production efficiency due to scale economies, the increased consumer utility due to product differentiation as well as the improvement of the terms of trade due to the enhancement of international competition and the decrease in import prices. Finally, GAFTA should help to increase economic growth and trade through the dynamic effects of regional integration. These dynamic effects especially include the role of FDI as well as sunk costs (Baldwin and Venables, 1995).

Although there is currently a significant number of studies which are dedicated to GAFTA, most of them remain very descriptive (Sekouti, 1999 ; Tahir, 1999; Zarrouk, 2000 ; Hadhri, 2001 ; Tovias, 2004; Kamrava, 2004; Bayar, 2005; CEUS, 2005; MINEFI, 2005; Momani, 2007, etc…)[3]. These studies very often describe trade within the Arab world and discuss the expected consequences of GAFTA or other regional agreements in the Arab area. They also identify the brakes and other problems which make it difficult to achieve actual economic integration and significant economic gains in this region. This description provides a first insight about the possible effects of GAFTA. However, the lack of analytical tools, especially theoretical or empirical modelling, makes it difficult to really quantify GAFTA effects.

There is however a small number of analytical studies. For example, Neaime (2005) considers the impact of monetary and financial integration, especially Foreign Direct

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[3] Refer to Part 1 for a detailed review of literature.

Investment (FDI) liberalisation across Arab countries. With regard to GAFTA trade provisions, CATT (2005) assesses the GAFTA welfare effect on specific countries, mainly Morocco and Tunisia. This assessment is achieved through computable general equilibrium (CGE) modelling. Results show positive or negative welfare effects, depending on the terms of trade. Bousseta (2004) also relies on CGE models applied to Maghreb countries. Results conclude to a moderate rise in intra-Maghreb trade due to GAFTA.

Dennis (2006) concentrates on trade facilitation within the MENA region. Indeed, it is generally recognized that non tariff barriers, such as customs procedures, port efficiency, standard and technical regulations, etc… must be reduced with tariffs in order to improve the efficiency of a PTA. Using the GTAP-6 model, this author shows that regional integration within the MENA area provides positive welfare gains. However, these gains are twice less than regional integration between MENA and the EU. He also shows that trade facilitation makes it possible to triple the welfare gains. This highlights the importance of reducing NTBs for optimizing the effects of PTAs. Similar results are found in Konan (2003) for Tunisia and Egypt.

Finally, Péridy (2005) focuses on the appraisal of the ex-ante trade effects of trade liberalisation between Morocco, Tunisia, Egypt and Jordan (Agadir Agreement). Thanks to a modified gravity model, this author shows limited trade effects, mainly because of the lack of trade complementarity between these countries.

These analytical studies present some common features: They all provide an ex-ante analysis of GAFTA effects; they all concern a limited number of countries within the GAFTA area (mainly Maghreb countries); they are all based on a perfect competition framework. As a result, they disregard some potential gains due to imperfect competition and market structure[4]; None of them includes dynamic effects, due to increasing growth or FDI. Finally, and surprisingly, very few studies focus on GAFTA trade effects with the exception of Bousseta (2004) and Péridy (2005).

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[4] This is a major drawback since the new theoretical literature on CGE suggest that introducing imperfect competition provides significant changes in terms of simulation results compared with traditional CGE with perfect competition (Willenbockel, 2004; Roson, 2006).

Consequently, the present research project is aimed at filling the lack of literature by providing additional analysis of GAFTA welfare and trade effects. Its contributions are the following. First, it provides an ex-post appraisal of GAFTA effects through the use of 1997-2005 data. These quantitative data are complemented by an original inquiry driven in GAFTA countries. Second, it covers all the GATFA members which have implemented the agreement as well as the countries which are expected to carry out the agreement in the coming years. Third and very importantly, it not only analyses the gains related to the perfect competition framework (exploitation of comparative advantage, more efficient use of factors of production) but also the additional gains due to imperfect competition (terms of trade improvement, reduction in trade costs, existence of scale economies, greater product varieties for consumers) as well as dynamic effects (and increase in foreign direct investment, growth effects) and the impact of economic distortions (taxes/subsidies).

The main questions this proposal aims to address are the following:
-        What is the qualitative and quantitative ex-post impact of GAFTA on welfare and trade flows?
-        Which countries and which industries have benefited the most (or the least) from this GAFTA agreement?
-        What is the trade potential of each GAFTA country with regard to the others?
-        What is the role of trade costs within the GAFTA area, especially NTBs?
-        What is the role of market structures (scale economies, product differentiation, terms of trade) in the magnitude of GAFTA's impact ?
-        What are the main bottlenecks which reduce the GAFTA economic impact?
-        Which policy recommendations can be driven from the results ?

A twofold methodological approach is carried out: as a first step, a microeconomic analysis is implemented at firm level in selected Arab countries and selected industries. The theoretical foundation of this analysis is based on new developments in regional economic integration theory (Baldwin and Krugman, 1995). In this regard, an extended theoretical model is first developed in order to identify the potential welfare effects of regional integration. From this model, an empirical analysis is carried out. It consists in inquiries aimed at obtaining opinions from the firms concerning: the direct GAFTA trade effects due to tariff removals; the specific

GAFTA effects due imperfect competition (scale economies, product varieties, prices and terms of trade), GAFTA dynamic effects (foreign direct investment, growth, etc…) as well as the role of economic distortions (wages, taxes/subsidies) ; the brakes and bottlenecks which impede more positive effects of GAFTA on production and trade; the needs and recommendations for future GAFTA trade negotiations. These inquiries are expected to provide a better understanding of the GAFTA effects at firm level. They have been conducted in selected GAFTA countries (Egypt, Lebanon, Jordan, Morocco, Saudi Arabia as well as Yemen) and in selected industries (textile, ready-made garments, food, chemicals, petrochemicals). The interviews involved firms, firm representatives, senior government officials or chambers of commerce.

A second aspect of the methodology is the development of a macroeconomic model aimed at quantifying the trade impact of GAFTA and the precise effects of imperfect competition factors. To that end, an original theoretical model is first developed, based on new developments of bilateral trade models, including gravity models. This makes it possible to take into account a coherent analytical framework which includes imperfect competition and dynamic components of trade gains due to GAFTA integration: reduction in trade costs (Anderson and van Wincoop 2004; Markusen and Venables, 2005), scale economies and product varieties (Péridy, 2005), terms of trade and price effects (Anderson and van Wincoop, 2003), sunk costs and expectations (Baldwin and Krugman, 1989; Abedini, 2006) as well as foreign direct investment (Baldwin and Venables, 1995).

From this theoretical background, an original econometric model is subsequently estimated. It aims to quantify the direct economic impact of GAFTA as well as the trade effects of each variable, including scale economies, product varieties, FDI, etc… Three dimensions are included: 56 exporting and importing countries (of which 19 Arab countries) as well as a time period of 18 years (1988-2005). The econometric analysis is based on the development of a large dataset which contains all the relevant variables. Then, specific econometric analysis is undertaken in order to calculate scale economies and product differentiation (Péridy, 2004). The whole model is subsequently estimated by using new techniques with regard to endogeneity and multiple heterogeneity (Abowd et al.1999; Wooldridge, 2001, Egger, 2004 and Wolff, 2006).

Given the methodological approach developed above, the outline of the present study is the following. The first part is devoted to the description and a critical analysis of economic integration and trade in the Arab world in the past decades. It includes a first section which provides an overview of regional integration in the Arab world. Particular emphasis is put on the provisions included in the GAFTA agreement. Its limitations are also discussed. A second section is dedicated to the analysis of trade flows in Arab countries, especially since the implementation of the GAFTA agreement in 1998.

The second part aims to highlight the welfare effects of regional integration on GAFTA countries. For that purpose, the various channels by which regional integration can influence welfare must be identified. This is why the analysis presented here starts from a short survey of the theory of PTA (section 1). In a second section, an original theoretical model of regional integration is proposed. This model includes four types of welfare effects due to regional integration: perfect competition, imperfect competition, dynamic and economic distortion effects. Once identified, these effects can be tested in section 3 in the case of GAFTA. This is achieved by the implementation of an inquiry in selected GAFTA countries and selected industries.

Finally, part 3 is dedicated to the quantitative assessment of the trade effects due to the GAFTA agreement. In a first section, a theoretical model is proposed as a theoretical foundation. This model is an original combination of gravity models and supply-demand export models. Its main contribution is to simultaneously include gravity variables as well as export supply variables, especially scales economies and product differentiation. In a second section, this model is applied to trade within GAFTA countries. The main objective is to calculate the trade impact of the GAFTA agreement on trade flows. For that purpose, the model is estimated in two steps. In the first step, the model is estimated with the full country sample, which includes 56 exporting and importing countries, of which developed and emerging countries as well as GAFTA countries. This makes it possible to test the significance of the parameter estimates on a large scale, i.e. with a large number of countries and observations. This also enables the comparison of the effects of several regional trade arrangement, including GAFTA.

In a second step, the country sample is limited to GAFTA countries only as exporters and importers. This makes it possible to highlight the trade specificities of these countries. In particular, the estimation of the parameter corresponding to the bilateral tariff variable gives a quantitative insight about the ex-post effects of the implementation of GAFTA. In the two country samples, estimations are made over the period 1988-2007. Finally, an estimation of trade creation and trade diversion is proposed, as well as an estimation of trade potentials across GAFTA members.

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1. Regional integration and trade patterns in the Arab world[5]

This first part is devoted to the description and also a critical analysis of the developments of economic integration and trade in the Arab world in the past decades. The first section provides an overview of regional integration in this area. Particular emphasis is put on the analysis of the provisions included in the GAFTA agreement. Its limitations are also discussed. The second section is dedicated to the analysis of trade flows in Arab countries, especially since the implementation of the GAFTA agreement in 1998.

1.1 Overview of Arab Integration Development and GAFTA Contents

This section is aimed at presenting the history of regional integration in the Arab world. This makes possible to assess more accurately the contents of the GAFTA agreement compared with the previous attempts of economic integration.

1.1.1 Short History of Arab Integration:

Arab regional integration dates back to the 1950s. The first initiative was the *Treaty for Joint Defense and Economic Cooperation (TJDEC)* signed by Egypt, Jordan, Lebanon, Saudi Arabia, Syria and Yemen. TJDEC dealt with several political and defense issues. However, it included an economic dimension as clarified in its second provision which identified the establishment of an Economic Council from ministers of the members who are concerned with economic issues. The agreement was highly modest in achieving regional integration. In fact, the word "integration" was not even stated, but rather "cooperation" was the word used. The agreement established the Economic Council which was then transformed to the Economic and Social Council (ESC), one of the most important bodies responsible for the Arab integration. Although, by today's standards TJDEC might be highly modest if evaluated by its trade integration objectives, it should be noted that in the 1950s trade liberalization and integration were not viewed as an important issue for development, especially in

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[5] The authors are grateful to Ms. Heba El Dikn and Mr. Ahmed Rostom for research assistance.

Arab countries which had merely gained their independence and where the developmental policy adopted was based on import substitution (Kheir-El-Din and Ghoneim, 2006a).

The first pragmatic initiative toward trade integration among the Arab countries was *The Agreement on Trade Facilitation and Regulating Transit Trade (ATFRTT)* which was signed in 1953 by a number of Arab countries. The 1953 ATFRTT was followed in 1957 by Arab Economic Unity Agreement (AEUA). Both agreements included at the beginning a limited set of countries which expanded gradually afterwards. They focused mainly on granting preferential tariff treatments for products of Arab origin, especially agricultural goods and minerals. ATFRTT and AEUA were politicized and captured by special interests of different member countries which was reflected in the amendments undertaken to serve such interests and changing the tariff scheduling. Efforts to lower tariffs on manufactures were largely thwarted by Iraq, Saudi Arabia and Yemen, which relied heavily on revenue on import duties. At the end, it was obvious that conflicting interests led the agreements no where (Sabry, 2001; Dervis et. al, 1998).

Ten years later, the failure of Arab countries in achieving regional trade integration led them to enter into a new agreement, namely *The Arab Common Market Agreement (ACM)* which was signed in 1964. The decree that announced the establishment of the ACM did not mean the technical word of a common market, as it left it to be achieved in the future whereas it dealt only with liberalization of intra-regional trade in the form of free trade area (FTA). Four members (Egypt, Syria, Iraq and Jordan) of the ACM which comprised around 13 countries focused on establishing a FTA following the schedule of the ATFRTT in 1953 and the rest of the commodities should have been liberalized with certain percentages each year to reach full liberalization of agricultural goods in 1969 and for manufactured goods in 1974. ACM failed to attract new members although it was flexible in its terms and had no binding commitments. A committee that focused on the reasons for the failure of the agreement that was established in 1972 ended up with pointing out several institutional failures which led to the failure of the agreement, namely: 1) The decision of establishing a common market was not the right decision in the right time; 2) There were no information on the products needed to be traded; 3) The heavy governmental control of the trading

process; 4) The high dependence on tariff revenue; and 5) The differences in costs structures because of the large differences in tariffs and surcharges on intermediate goods (Sabry, 2001; Dervis, et. al, 1998).

As a reaction to the failure of the ACM in 1971, the idea of establishing a common external tariff was abandoned. The Arab countries agreed to enter into a new agreement in 1981, namely the *Agreement on Facilitation and Development of Trade (AFDT)*. AFDT was signed by 19 countries. It entered into force in 1983 and aimed at reaching a FTA and establishing a customs union. The agreement was based on adopting a positive list approach for selected products chosen on yearly basis. AFDT in fact helped to resolve a number of obstacles as the settlement of payments and some financial issues related to governments. The agreement added a 40% value added as a rule for acquiring origin to be granted tariff exemptions. As with previous agreements, the 1981 effort had little effect on trade liberalization or actual trade. It lacked binding commitment to its terms and a timetable for implementation, and featured a "positive list" approach, which was captured by special interests' effects in different countries (ESCWA, 2001; Dervis, et. al, 1998).

By the mid 1980s, Arab countries started adopting sub-regional agreements to overcome the frequent failures of regional trials. The most important ones were the Gulf Cooperation Council (GCC) which was signed in 1981 and the Arab Maghreb Union (AMU) which was signed in 1989. By the early 1990s and as a result of the proliferation of Regional Trade Agreements (RTAs) worldwide, the project of the Arab trade integration was revived in the League of Arab Nations (LAN). However, the implementation mechanism differed this time, where room for flexibility was less, a negative list approach was adopted, and a strict time schedule was set, all featured in Greater Arab Free Trade Area (GAFTA) (Sabry, 2001; Kheir-El-Din and Ghoneim, 2006a).

GAFTA refers to the declaration made by the Heads of Arab States, in the Cairo 1996 Arab Summit, adopting an executive program of the 1981 *AFDT* to reach a FTA with zero-percent tariff rates in the year 2007. The Economic and Social Council (ESC) of LAN approved the executive program in 1997. Such an initiation for reaching a FTA was a trial to overcome the negative aspects of *AFDT* which was characterized by

vagueness in wording and limited positive list approach of liberalization. Initially, it was planned to reduce the tariffs by 10% on yearly basis to reach a FTA in 10 years (ending in 2007). However, a decision by the ESC in 2001 (based on the recommendation of the Arab Summit in Amman 2001) has accelerated the implementation period to reach zero-percent tariffs on 01/01/2005. AFDT was taken as the basic legal document establishing the rules and principles of implementation. In many ways, the 1981 agreement did not represent a free trade agreement per se. However the Arab States decided to take the agreement as it was and then added the missing components progressively. Table 1.1 depicts the main milestones in the history of Arab integration.

Table1.1: Major Milestones in Arab Integration History

Year	Agreement
1950	Treaty for Joint Defense and Economic Cooperation
1953	Agreement on Trade Facilitation and Regulating Transit Trade
1957	Arab Economic Unity Agreement
1964	Arab Common Market Agreement
1981	Agreement on Facilitation and Development of Trade
1981	Gulf Cooperation Council
1989	Arab Maghreb Union
1997	Greater Arab Free Trade Area
2003	Initiation of the Framework Agreement for Liberalizing Trade in Services
2005	Full entry into force of Greater Arab Free Trade Area

Initially, 14[6] out of the 22 Arab States joined the GAFTA and submitted their schedules of commitments to the Arab League Secretariat. Four[7] more member states joined later. Currently there are 17 countries which apply GAFTA (LAN, 2008a)[8].

GAFTA is only but one framework for Arab economic cooperation. GAFTA should be viewed as the framework that is solely concerned with the liberalization of trade in goods. To be able to understand the role of GAFTA properly, it should be noted that other aspects of economic cooperation are being followed under different legal frameworks than the GAFTA, but are also supervised by the ECS (Kheir-El-Din and Ghoneim, 2006a).

If we compare GAFTA with its predecessors, we find that GAFTA represents a significant improvement, and is by far the most outreaching agreement in terms of coverage. In fact it can be safely argued that it is the first RTA among Arab countries that has fixed dates with clear provisions. It adopts a negative list approach, versus its predecessors which mainly depended on a positive list approach. It allowed for exemptions to be in place for a specific time, and it set a specific deadline by which such exemptions should be eliminated, which took place regarding the agricultural as well as manufactured goods. It contained a specific schedule for tariff reductions starting from a certain identified base year, which took place, and was even accelerated. Its provisions were clear and flexible allowing its members to undertake their liberalization efforts flexibly but in a disciplined way. By all means, GAFTA represents a success when compared to its predecessors.

The economic benefits expected from this far-reaching regional integration are numerous. For example, GAFTA members are first expected to increase intraregional trade following the removal of trade barriers. Second, production efficiency should be enhanced by exploiting comparative advantage and scale economies. Third, competition within domestic markets is expected to increase with greater product

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[6] United Arab Emirates, Egypt, Kuwait, Saudi Arabia, Syria, Tunisia, Morocco, Sudan, Oman, Qatar, Lebanon, Iraq, Bahrain, and Libya.
[7] Jordan, Palestine, Yemen, and Algeria.
[8] United Arab Emirates, Egypt, Saudi Arabia, Palestine, Kuwait, Syria, Tunisia, Morocco, Jordan, Oman, Qatar, Lebanon, Iraq, Bahrain, Libya, Sudan, and Yemen. The countries that still did not join GAFTA include Algeria, Djibouti, Comoros, Somalia, and Mauritania. Algeria and Mauritania have already acceded but still did not started implementing GAFTA.

varieties for consumers as well as lower prices. Finally, GAFTA should help to increase economic growth through the dynamic effects of regional integration.

In 2003, Arab countries initiated a separate agreement accompanying GAFTA on liberalizing trade in services on a regional basis. The agreement is based on a GATS-plus approach. In the period starting November 2004 till December 2007, four rounds of negotiations were completed. The rounds were based on a request/offer approach. In general terms, Arab countries showed enthusiasm in liberalizing trade in services. However, it is too early to assess the outcomes of such negotiations as no concrete commitments have been made so far. A number of studies pointed out that services can play the role of the engine for enhancing integration among GAFTA members. The expanded mobility of investment and labor, especially when compared to merchandise goods could be the leading factor in the process of integration (Hoekman and Messerlin, 2002b; Saidi, 2003).

However, GAFTA remains a perfect example of "shallow integration". It suffers a number of problems including the absence of a full fledged dispute settlement mechanism, the inability to reach a detailed rules of origin scheme (which was partially overcome by adopting detailed rules of origin for around 30-40% of total list of traded goods since 1/1/2008)[9] based on the approval of the Economic and Social Council, a weak system of harmonized standards, no system of protection of intellectual property rights, no harmonization of competition rules, no provision of labor movement, and certainly the absence of a supranational power or a strong leading Arab country that can force the members of GAFTA to agree on disputed matters. In other words, mainly all aspects of "deep integration" are absent from GAFTA, which is a necessary condition for the success of any integration scheme in a globalized world. Hence, in a nutshell, despite the fact that GAFTA represents an unprecedented achievement in terms of institutional set-up if compared to previous trials of Arab trade integration, it still lacks the pillars of deep integration that ensure a well functioning and effective RTA. This does not imply that efforts have not been undertaken to deepen GAFTA. On the contrary, there are efforts undertaken to apply detailed rules of origin as well as creation of an effective dispute settlement

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[9] The first six months of 2008 were supposed to represent a transitory period for GAFTA members to start fully adopting the detailed rules of origin, after which they should start implementing them following the agreement reached in the committee of rules of origin for GAFTA.

mechanism. Nevertheless, the efforts undertaken currently remain progressing at a very slow pace which threaten the well-functioning of GAFTA.

GAFTA Current Status of Implementation

Information available on GAFTA points out that it has suffered problems which could have affected negatively intraregional trade. A recent survey by the League of Arab Nations (LAN) (2004) identified that most of trade frictions among GAFTA members arise from issues related to standards or border transaction procedures dealing with time and surcharges when crossing borders. LAN has started introducing several initiatives for overcoming the lack of deep aspects of integration in GAFTA. Several proposals have been put forward, including establishing a system for effective implementation of conformity assessment procedures, enhancing efforts to harmonize standards and establishing a system of Arab standards, overcoming problems associated with existing quantitative or regulatory barriers to trade as public sector exclusiveness of importation in some countries, and overcoming the overriding obstacles of rules of origin (LAN, 2007). However, as pointed out in a recent survey undertaken by LAN on the implementation status of GAFTA (LAN, 2008b) the implementation of GAFTA still faces problems associated with standards, detailed rules of origin, certificate of origin, trading costs, and movement of Arab entrepreneurs. In many cases, national treatment of goods' standards is not applied where discrimination in favor of domestic goods takes place. Moreover, and despite GAFTA members have eliminated tariffs completely in 2005, a number of GAFTA members have introduced new (sur)charges on traded goods on the borders. In addition, there are severe problems associated with inspection procedures which are viewed as lengthy and cumbersome. In other words, a large number of GAFTA provisions suffer from vagueness in implementation. Besides, the absence of deep aspects of economic integration as full unification of standards and the system of its implementation and institutions associated with market economy monitoring as competition rules imply that GAFTA has been relatively preempted.

1.1.2 A Short Literature Review on GAFTA:

Arab countries are always characterized by having low intraregional trade. The intraregional trade ranges around 10% of the total Arab world trade (see for example

LAN, 2006) whereas in the EU it ranges between 40 to 60%. Studies differ in assessing whether intra GAFTA trade is low given the general characteristics of their intra-regional trade, infrastructure, and level of development. However, most of the studies point out that in general intra-Arab regional trade is weak[10]. The picture looks differently if oil exports are excluded. In this case, the intra-regional exports show a higher (relative) level. However, it still remains lower than other regions, such as the EU.

Several studies have analyzed the reasons behind such weak trade integration among Arab countries. Among such studies are Fischer, (1993), Fawzy (2003), Havrylyshyn, 1997, Sabry (2001), Sekouti (1999), Hadhri (2001), Kamrava (2004), Bayar (2005), El-Any (2006), Galal (1996), Galal (2000), Al Atrash and Youssef (2000), Sekouti (1999), Tahir (1999), Zarrouk (2000), Hadhri (2001), Bayar (2005), Momani (2007), MINEFI (2005), Neaime (2005), CATT (2005), Boussetta (2004), Tovias (2004), and Kheir-El-Din and Ghoneim (2006a). The aforementioned studies have identified the trade trends among GAFTA members and the different economic, political, and institutional reasons for such weak integration. Despite the importance of the descriptive analysis of a large number of the aforementioned study, the majority of those studies still lack the theoretical underpinning and empirical modeling, which this study tries to provide.

Among the economic reasons identified for the weak integration are high similarity in production and exports structure of Arab countries, i.e. the mismatch between exports of the Arab countries and their imports (lack of complementarity), the dominating ideology of import substitution, large size of public sector, relatively high tariff protection, and low intra-industry trade (Havrylyshyn and Kunzel,1997) implying a modest industrial base. Hoekman and Messerlin (2002a) identified that the small size of GAFTA members' economies (which are together less than that of Spain alone) could have been a deterring factor in enhancing trade integration among GAFTA countries. This implies that GAFTA if properly implemented could play a significant role in enhancing economies of scale.

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[10] Al-Atrash and Youssef (2000) pointed out that intra GCC trade and intra Maghreb Union trade are relatively low whereas intra Mashrek trade is relatively high.

Among the political reasons were the absence of sincere political leadership willingness to integrate, lack of credibility and feasibility among some Arab countries to undertake the integration process, and absence of a regional leader and a federal approach (including institutions with supra-national powers) to the process of integration. All these factors created an atmosphere of mistrust among Arabs concerning RTAs (Fawzy, 2003; Hoekman and Messerlin, 2002a; Dervis et. al, 1998).

As for the institutional reasons, the lack of good transport roads, vagueness of rules and regulations governing trade at the borders, and the lack of an effective supranational institutional setup governing GAFTA were the main reasons behind the failure of several trials for regional integration (Kheir-El-Din and Ghoneim, 2006a). Weak trade facilitation aspects reflected in customs procedures, port efficiency, technical regulations were among such reasons explaining weak intra-regional trade (Dennis, 2006).

Another body of literature argued that the perspectives for Arab integration are more promising than what the conventional trade measures show. For example, Devlin and Page (2001) argue that since the late 1980s there has been a trend of increasing trade intensity among Mashreq countries as well as in the Mashreq exports directed to Maghreb countries. Moreover, there is high concentration of non-traditional exports such as processed agricultural products and basic manufactures in non-oil goods traded regionally as compared with exports directed to the EU and the rest of the world. Moreover, trade among Arab countries demonstrates significant levels of complementarity and competitiveness compared with trade with the EU, with some exceptions in the exports of Morocco and Tunisia demonstrating higher levels of competitiveness in exports directed to EU than in intra-Arab trade. Havrylyshyn and Kunzel(1997) and Dervis et. al (1998) found that despite the fact that intra-industry trade is rather modest among Arab countries, the potential for its increase on intra-regional basis is prosperous. Moreover, intra-industry trade among Arab countries is relatively higher than the existing intra- industry trade pattern existing between Arab countries and the EU. Zarrouk (2001) undertook a comparative analysis of dynamic exports of the Arab countries. He reached the conclusion that in most Arab countries the number of dynamic products is higher for intra-regional trade than for Arab exports to the EU suggesting that opportunities for intra-regional trade in processing

activities have expanded. His findings also showed that the dynamic Arab products maintain differentiated export niches in intra-regional trade suggesting a greater room for developing export capacity and enhancing the success of regional trade agreements. Limam and Abdalla (1998) reached similar conclusions. The aforementioned studies have provided ex-ante analysis. Abdeini and Peridy (2008) applied the first ex-post quantitative analysis to GAFTA and their results showed that GAFTA had a positive impact on intra-regional trade (about 20% additional trade within the region).

The studies surveyed pointed out that there are two main problems with Arab trade integration; first, the existing economic, political, and institutional environment are not helping to provide the right environment for Arab trade integration to flourish; second, Arab integration suffers from structural problems associated with the similarity in production and trade structures. The last few years that have elapsed marked a change in the two aforementioned problems. Arab countries have experienced significant changes in their economic environments through opening up, adopting export oriented strategies (even among the major oil exporters as United Arab Emirates), and working on improving their business environment (World Bank, 2007). As for the production and trade structures, Arab countries have experienced a higher degree of diversification in the number of products exported and imported over the last period, as showh in the following section.

As seen from the above short literature survey, the debate on whether the Arab countries have the right credentials for having a successful integration is still ongoing and nothing concrete has been reached. However, what remains clear is that Arabs have not adopted among themselves aspects of deep integration, as depicted by GAFTA's provisions. It is worth mentioning that studies undertaken to assess the benefits expected to accrue to Arab countries if they have pursued deep integration are far larger than those if they only follow shallow integration, reaching in some cases to double the amount of benefits, (Konan, 2003).

The aforementioned studies have two main limitations, namely they have focused on GAFTA while ignoring the dynamics of economic environment in general and trade policy in specific GAFTA members as well as the world, which could have a

significant effect on GAFTA performance; and they have not included in their analysis neither economies of scale and product differentiation nor the link with economic growth. In other words, all existing studies disregard the economic benefits due to imperfect competition as well as dynamic effects.

Regarding the limitation of ignoring economic and trade policy, we observe that GAFTA members are experiencing unprecedented high growth rates of their GDP, exports and inflows of FDI, thanks for the skyrocketing oil prices (World Bank, 2007). Such flourishing of economic conditions coincided with GAFTA full implementation, but it is difficult to establish a strong correlation between the favorable economic environment and GAFTA implementation. Moreover, inter-Arab relations have changed dramatically where a large number of GAFTA members have joined RTAs with other major trading partners as the United States of America (US) and the European Union (EU). Since the year 2000, a number of GAFTA members joined the US in FTAs including Jordan, Morocco, Oman, Bahrain whereas negotiations are taking place with other Gulf countries. With the EU, a number of FTAs have been signed with a larger set of GAFTA members as identified earlier. Such changes in trade relations are likely to affect intra-GAFTA trade. However, the direction and degree of this impact cannot be easily determined due to the entanglement of effects likely to arise from such changes in trade policy.

Some of the GAFTA members have also joined other regional groupings (as COMESA and EFTA) or individual countries (as Turkey) in FTAs, or have deepened their sub-regional RTAs as GCC which has moved to a customs union in 2003 and completed it in 2005 before announcing the entry into force of a common market by the beginning of 2008. Finally, GAFTA members themselves have started undertaking sub-regional FTAs (Agadir among Egypt, Jordan, Morocco, and Tunisia) or deepening their trade relations within the existing RTAs (Gulf Cooperation Council moving to a full customs union in 2005 with further future aspects of deepening the integration by announcing the move to a common market and adoption of a unified currency). Moreover, starting in the early 1990s, GAFTA members have signed preferential trade agreements (less than FTAs) with other GAFTA members on bilateral basis. The web of such bilateral preferential agreements has widened significantly in the mid 1990s and despite the fact that LAN has undertaken a decision

to replace such agreements by GAFTA, the practice shows that they are still utilized (Kheir-El-Din and Ghoneim, 2006b). The dynamic changes that occurred in Arab countries starting the mid 1990s imply drastic shifts in trade policy of GAFTA members leaning towards being open economies (El-Erian, 1997; Dervis et. al, 1998).

In this regard, the studies reviewed are unable to capture the specific role of GAFTA in enhancing trade among Arab countries. In other words, are the positive signals identified by the body of literature viewing GAFTA to have positive effect related to GAFTA per se or are rather related to the prospects of trade among GAFTA members?

Regarding the second limitation related to assumptions used, we observe that quantitative studies have either used simple quantitative indicators, or applied general and partial equilibrium models based on perfect competition assumptions for assessing GAFTA (Konan, 2003; Abedini and Peridy, 2008, etc..). More realistic assumptions including economies of scale, product differentiation, terms of trade effects, economic distortions as well as dynamic effects have been disregarded till now. Such limitations identified in the existing body of literature are overcome in this study.

1.2. Trade patterns in the GAFTA.

This sections aims to provide an overview of recent trade patterns within the Arab world, especially since the conclusion of the GAFTA agreement in 1997. The overall trends are first analyzed before a more detailed analysis at country and industry level.

1.2.1 Overall Trends in Intraregional Arab Trade

Data on intraregional Arab trade point out that there has been a significant increase in both exports and imports levels over the period 1990-2003 as shown in Figures 1.1 and 1.2.

Figure 1.1 : Intra-Arab Exports (1990-2003)

Billions US$
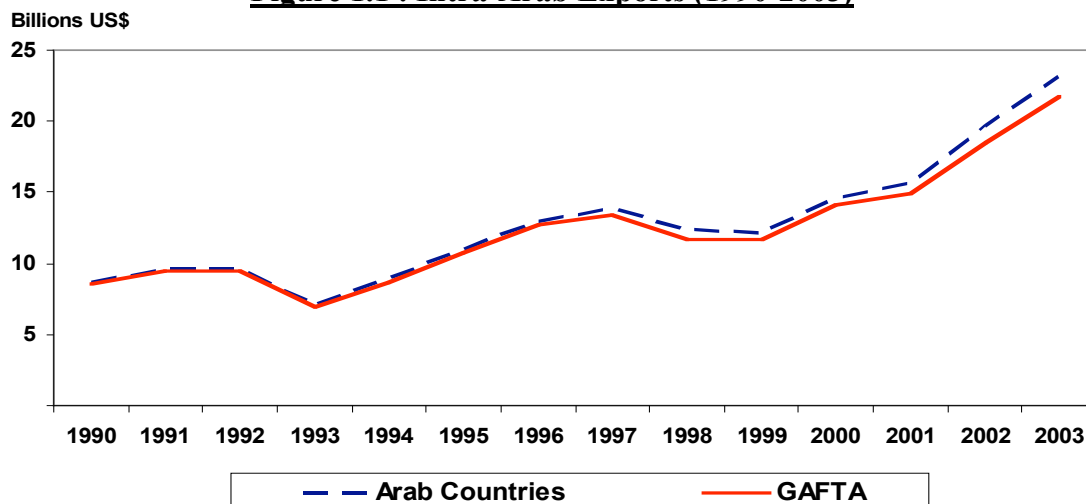
Source: Arab League Database (2007)
Note: Data on Oman, Qatar and United Arab Emirates do not include crude oil exports.
GATA members include: Jordan, United Arab Emirates, Bahrain, Saudi Arabia, Syria, Iraq, Oman, Palestine, Qatar, Kuwait, Lebanon, Egypt, and Yemen.
Arab Countries include: Mauritania, Comoros, Somalia, Djibouti, and Algeria in addition to GAFTA members.

Figure 1.2: Intra-Arab Imports (1990-2003)
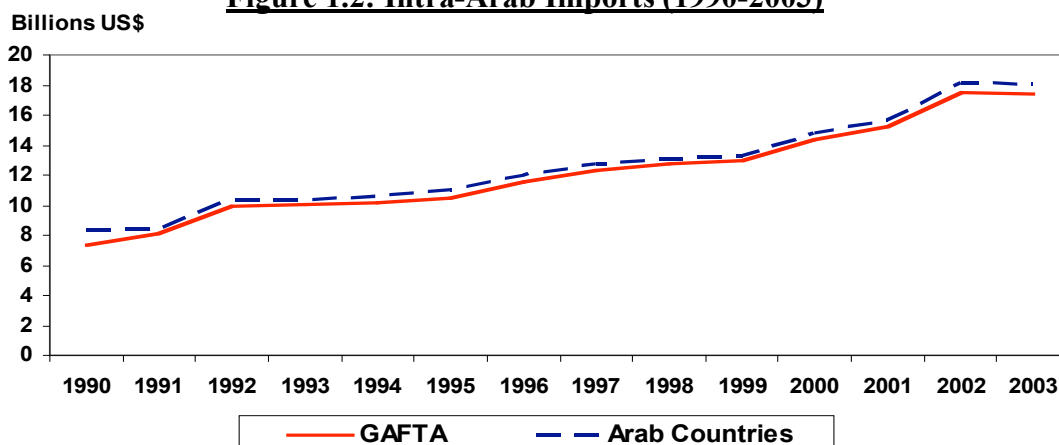
Billions US$

Source: Arab League Database (2007).
Note: Data on Bahrain do not include crude oil imports from 1995 to 2003.
GATA members include: Jordan, United Arab Emirates, Bahrain, Saudi Arabia, Syria, Iraq, Oman, Palestine, Qatar, Kuwait, Lebanon, Egypt, and Yemen.
Arab Countries include: Mauritania, Comoros, Somalia, Djibouti, and Algeria in addition to GAFTA members.

Figure 1.3 points out that the trade balance of the GAFTA and Arab countries in general with the rest of the world has experienced a positive trend. As a matter of fact, starting from the year 2000, the deficit has been narrowed down and the trade balance has turned into a surplus from 2002 onward. This implies that the general trade conditions for GAFTA have been improving. This could be a main factor for the improved intraregional trade among Arab countries and GAFTA members as depicted in Figures 1.1 and 1.2. Such favorable trade conditions are largely attributed to the

high oil world prices. Other databases as UNCTAD (2007) revealed the same positive trend of GAFTA trade balance with the rest of the world.

Figure 1.3.: GAFTA and Total Arab Trade Balance with the Rest of the World (1990-2003)
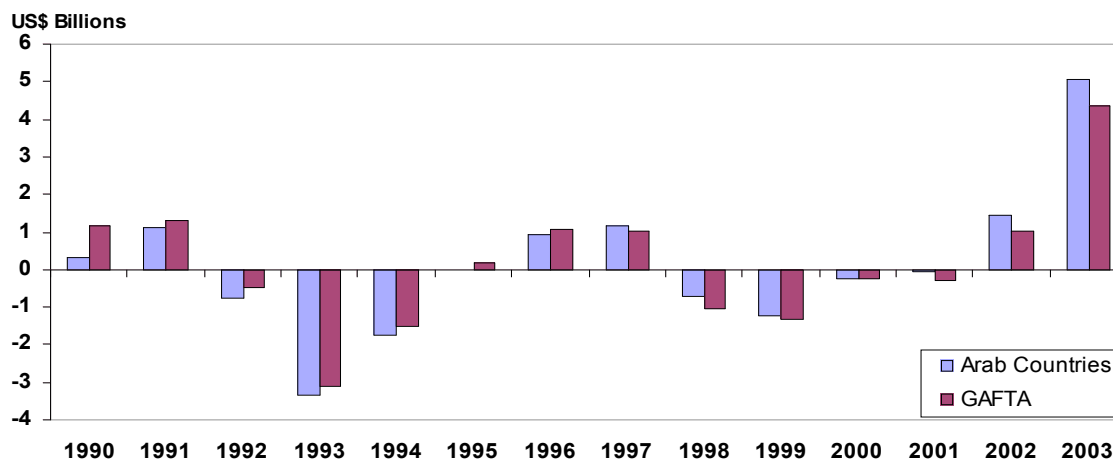
Source: Author's calculations based on Arab League Database (2007).
Note: Data on Bahrain do not include crude oil imports from 1995 to 2003.
    GATA members include: Jordan, United Arab Emirates, Bahrain, Saudi Arabia, Syria, Iraq, Oman, Palestine, Qatar, Kuwait, Lebanon, Egypt, and Yemen.
    Arab Countries include: Mauritania, Comoros, Somalia, Djibouti, and Algeria in addition to GAFTA members.

Table 1.2 points out that 2005, the year which represents the full implementation of GAFTA experienced a significant increase in absolute and relative terms regarding the overall merchandise trade and trade excluding oil. Such an increase cannot be attributed to GAFTA alone, as argued above, as there are other factors which could have been behind such an increase. These include the sharp increase in world oil prices as well as the existence of bilateral Arab trade agreements whether with other Arab countries or non-Arab trading partners, mainly the European Union (EU) which has signed association agreements following the Barcelona process with Egypt, Morocco, Tunisia, Jordan, Lebanon, Algeria, Syria (initiated), Palestine (interim agreement), besides being in an advanced stage of negotiations on an FTA with GCC countries (ESCWA, 2007).

Table 1.2: Foreign and Intraregional Trade in the Arab World

(including and excluding oil), 1998-2005

(million of current US $ and percentages)

	1998	1999	2000	2001	2002	2003	2004	2005
Overall foreign trade	279890	322760	400988	400577	418934	505163	684463	872891
Arab Intraregional trade	27526	29129	33266	37145	40671	46322	75437	98081
Ratio of intraregional trade to overall foreign trade	9.83	9.03	8.30	9.27	9.71	9.17	11.02	11.24
Ratio of intraregional trade to overall foreign trade excluding oil	13.55	13.67	14.87	14.74	14.69	13.50	16.53	17.98

Source: ESCWA (2007)

Despite the relative and absolute increase in intraregional trade among Arab countries in general and GAFTA members in particular, Arab countries remain characterized by having low intraregional trade. The intraregional trade ranges around 10% of the total Arab world trade (see Table 1.2 as well as LAN, 2006) whereas in the EU it ranges between 53 to 60%. Studies differ in assessing whether intra GAFTA trade is low given the general characteristics of their intraregional trade infrastructure. However, most of the studies pointed out that in general intra-Arab regional trade is weak[11]. The picture looks differently if oil exports are excluded. In this case, the intraregional exports show a higher level (18% in 2005). Although it still remains lower than other regions as the EU and APEC, it is comparable to other regional groupings including developing countries as COMESA and ASEAN (see Figures 1.4 and 1.5).

In addition, intra-GAFTA exports increased at a faster rate than world exports, especially in the recent period (Figures 1.6 and 1.7). Over the period 1997-2005, intra GAFTA exports have increased by 15.1% at yearly average, whereas world exports have risen by 7.9% only. It is also worth mentioning that intra-GAFTA exports have increased slightly more than inter-GAFTA exports (14% in the most recent period).

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[11] Al Atrash and Youssef (2000) pointed out that intra GCC trade and intra Maghreb Union trade are relatively low whereas intra Mashrek trade is relatively high.

Figure 1.4: Share of Regional Exports as a Percentage of Total World (1948-2006)
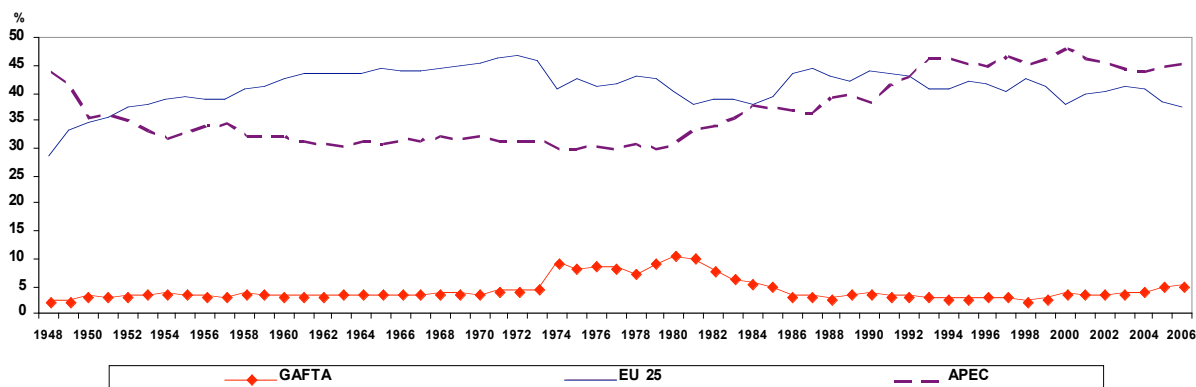
Source: UN, Handbook of Statistics, 2007, online version.

GAFTA members: Egypt, Libyan Arab Jamahiriya, Morocco, Sudan, Tunisia, Bahrain, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates, and Yemen.

Figure 1. 5.: Share of Regional Exports as a Percentage of Total World (1948-2006)
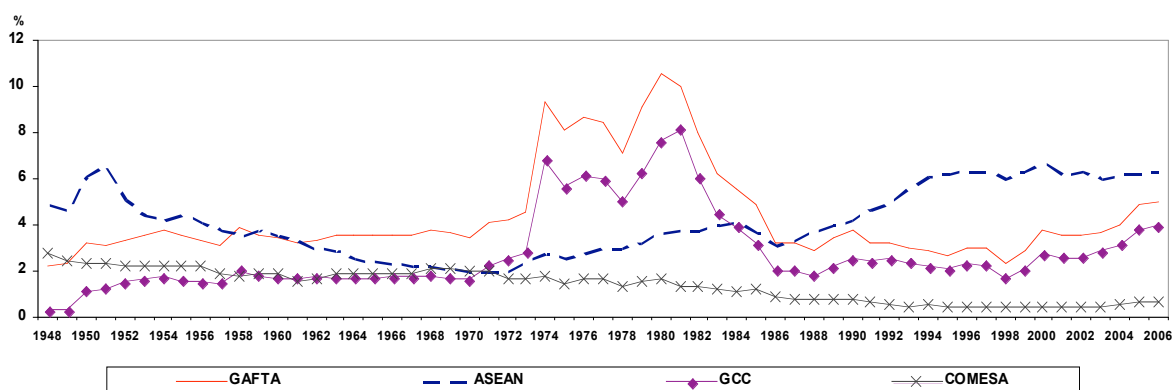
Source: UN, Handbook of Statistics, 2007, online version.
GAFTA members: Egypt, Libyan Arab Jamahiriya, Morocco, Sudan, Tunisia, Bahrain, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates, and Yemen.

Figure 1.6.: GAFTA and World Trade Growth (1993-2005, %)
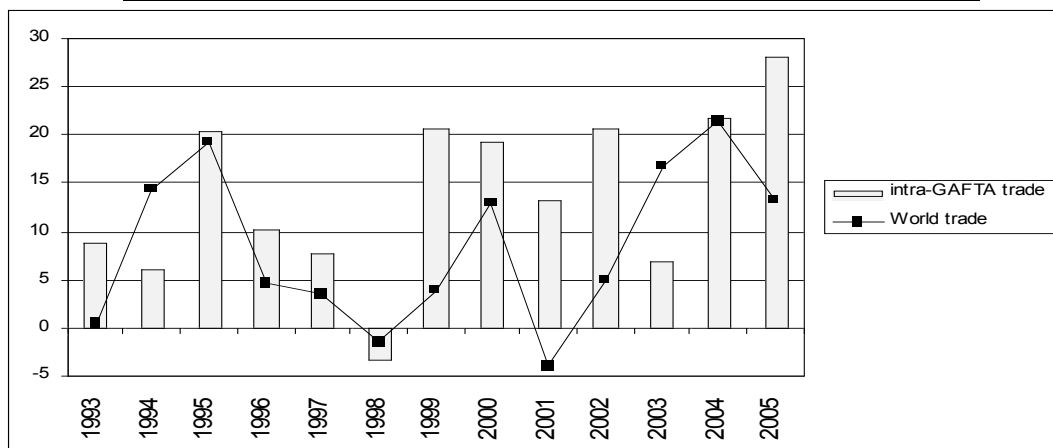
Source: United Nations (2007) and WTO (2007), based on Abedini and Peridy (2008)
Note: intra-GAFTA exports are estimated according to data available by keeping the same country sample for inter-annual comparisons.

Figure 1.7. : Intra and extra GAFTA trade in the periods 1993-1996 and 1997-2005 (average annual percentage change)
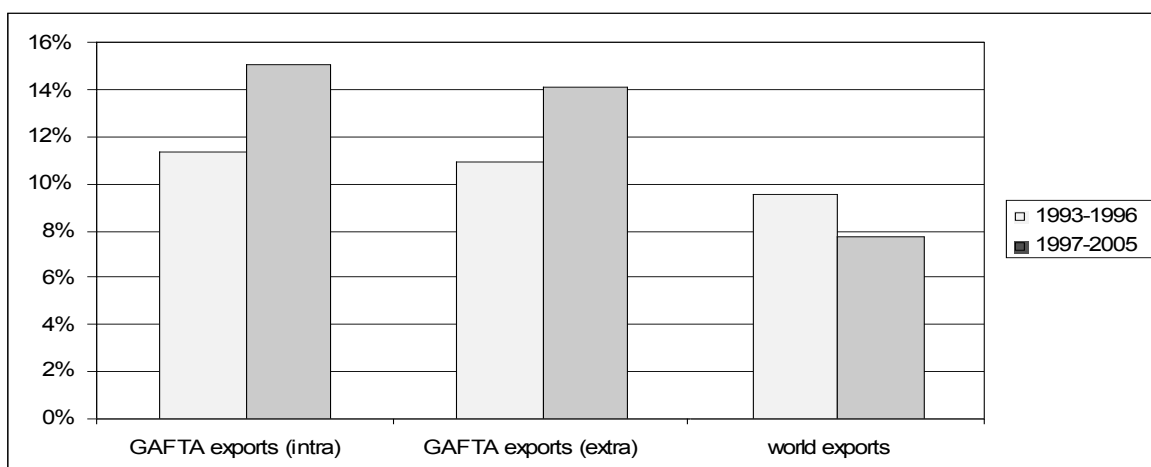
Source: United Nations (2007) and WTO (2007) based on Abedini and Peridy (2008)

As argued in section 1.1, the studies surveyed pointed out that there are two main problems with Arab trade integration, namely the existing economic, political, and institutional environment are not helping to provide a favourable environment for Arab trade integration to flourish; and that Arab integration suffers from structural problems associated with the similarity in production and trade structures. The last

few years that have elapsed marked a change in the two aforementioned problems with GAFTA members experiencing a positive change in their economic, business, and investment environments and adopting export oriented strategies. As for the production and trade structures, Arab countries have experienced a high degree of diversification in the number of products exported and imported over the last period as revealed in Table 1.3, which points out the change in their traditional problem associated with similar export profiles. This table reveals that at least ten GAFTA members experienced an increase in the number of products exported, while only one experienced a decrease. On the imports side, eleven GAFTA members experienced an increase in the number of products imported and no country experienced a decline.

Table 1.3: Number of Merchandise Exports and Imports of GAFTA Members*

Country	Number of merchandise products exported in 1995 (maximum 261)	Number of merchandise products exported in 2005 (maximum 260)	Number of merchandise products imported in 1995 (maximum 261)	Number of merchandise products imported in 2005 (maximum 260)
Bahrain	138	138	208	226
Egypt	164	240	237	253
Iraq	29	..	76	..
Jordan	221	200	247	247
Kuwait	135	..	205	..
Lebanon	180	240	236	238
Libya	29	..	188	207
Morocco	169	198	236	248
Oman	189	202	244	257
Palestine	..	..	..	..
Qatar	102	227	212	249
Saudi Arabia	220	..	251	249
Sudan	19	41	185	243
Syria	131	161	..	..
Tunisia	193	200	242	242
United Arab Emirates	242	254	249	257
Yemen	70	109	180	215

*Number of products (at SITC, Revision 3, 3-digit group level) exported or imported by country. This figure includes only those products that are greater than 100,000 dollars or more than 0.3% of the country's total exports or imports.
Source: UNCTAD (2007), UNCTAD Handbook of Statistics 2006-07, Geneva: UNCTAD

The above analysis points out that the developments of intraregional trade among Arab countries are experiencing a positive trend. Trade in absolute and relative terms is increasing accompanied by a better conducive business environment in Arab countries which have opted for an export oriented strategy. Moreover, the structure of exports and imports has shifted to being more diversified. All such factors have contributed positively to enhance trade among GAFTA members. It is worth

mentioning that GAFTA itself and its proper implementation can be regarded as one of the mechanisms of adopting an export oriented strategy and adhering to it. However, based on the available data we cannot fully attribute the increase in the intraregional trade to GAFTA alone, since the other factors at stake (income, prices, etc…) have not been isolated (refer to part 3 for addressing this problem)

1.2.2 Analysis at Country Level:

The extent or level of importance of GAFTA members in intraregional trade differs significantly. For example, in 2005 Saudi Arabia accounted for the lion's share of total intra Arab regional trade with a percentage of 21%, followed by Syria (14%) and UAE (13%). The other countries continue to have modest shares (less than 10% of their total trade) as shown in Figure 1.8.

However, this picture is not likely to remain the same, as the trends in countries are changing significantly. Data of intraregional trade over the period 1998-2005 for countries taken individually show different patterns (Figure 1.9.). There is a group of countries where intraregional trade as percentage of their total trade increased, whereas there are other groups where intra-regional trade as percentage of total trade has either stagnated or even decreased. Among the group of countries which experienced a continuous increase in the percentage of intraregional trade, we find Bahrain, Egypt, Iraq, Jordan, Lebanon, Syria, Tunisia and Yemen. Syria and Lebanon are among the countries which experienced the highest increase. Tunisia experienced as well very high increasing rates, especially because this country started from a very low level.

The group of countries where the percentage stagnated or experienced insignificant changes includes Saudi Arabia, Kuwait, and Qatar. The third group of countries which experienced a decrease include UAE, Oman, and Libya. Other Arab non-GAFTA members have rather experienced a stagnating or declining trends (including Algeria, Comoros, Mauritania, Somalia, and Sudan). The only exception of non-GAFTA members which has experienced an increase has been Djibouti.

Figure 1.8.: Distribution of Arab intraregional Trade, Exports

2005
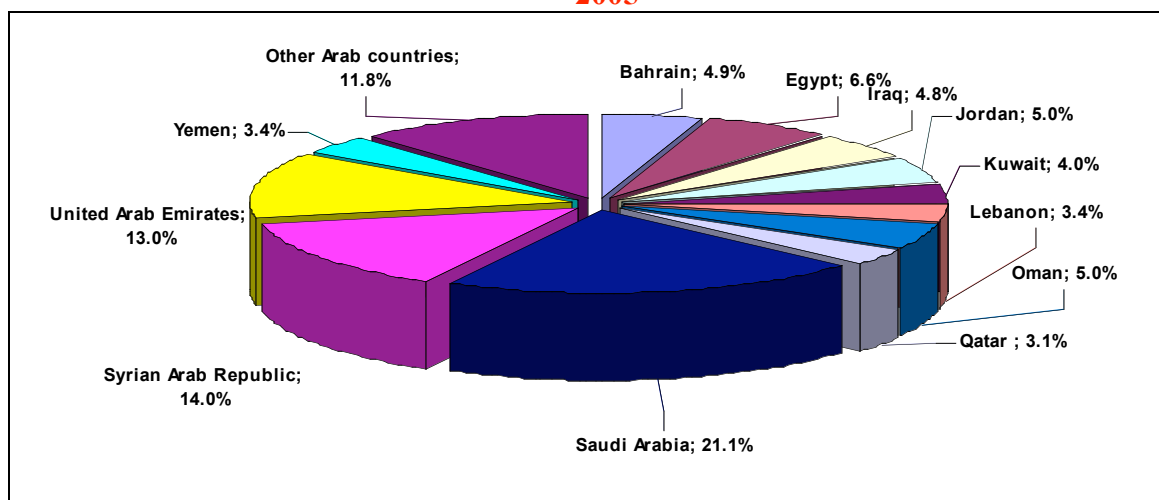
1995
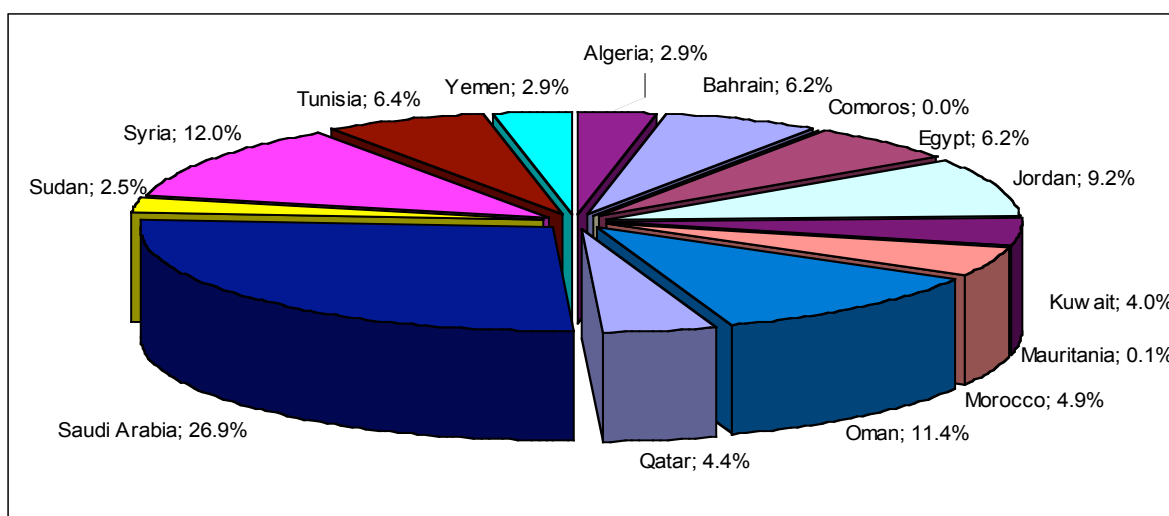
Source: Author's calculations based on data extracted for UN ComTrade Database, online version.

Figure 1.9.: Ratio of Intraregional Trade to Foreign Trade in the Arab Countries (1998-2005)
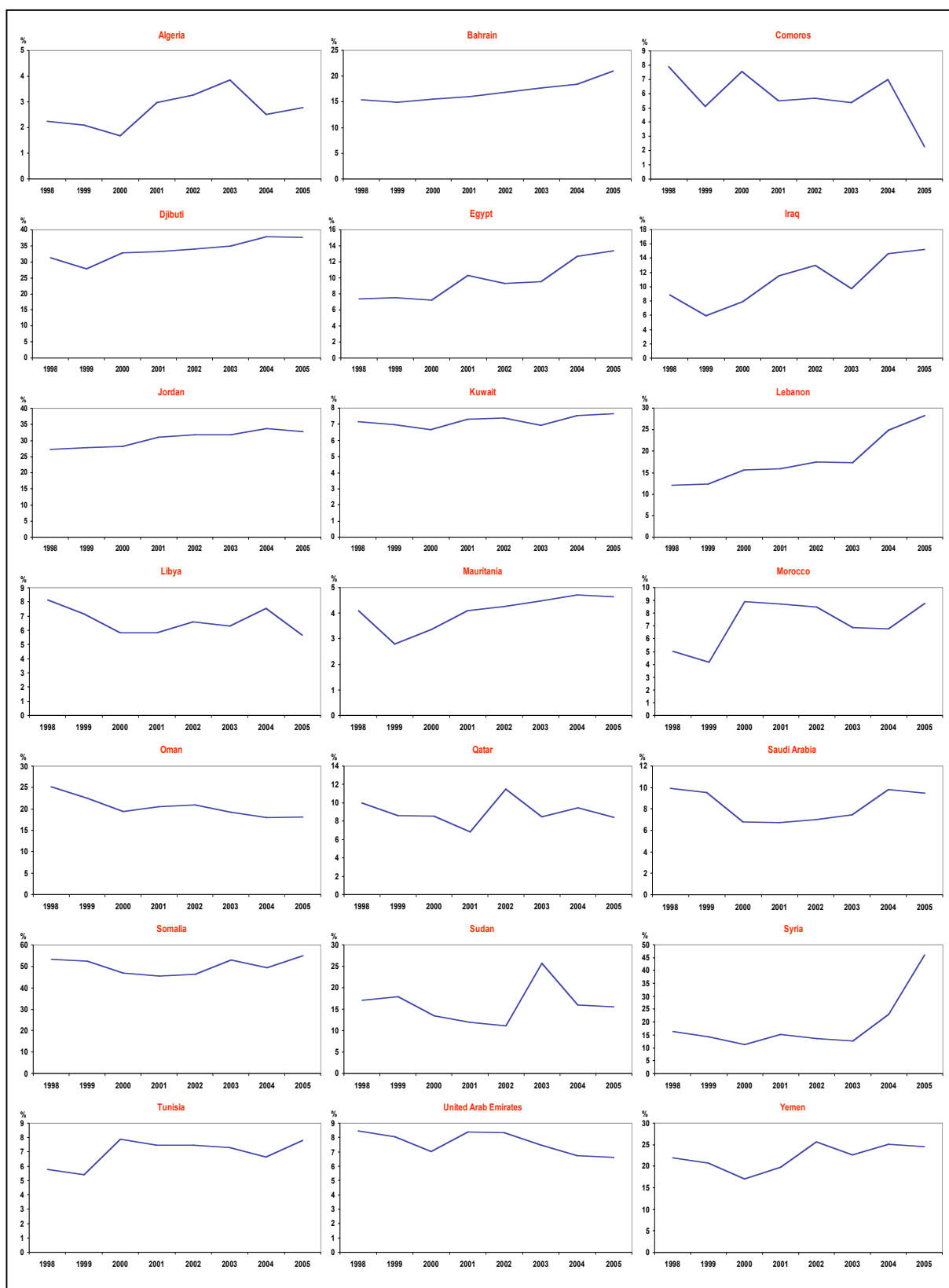
Source: ESCWA, 2007.

Such data analysis reveals that at the outset it is rather difficult to assess the impact of GAFTA collectively, as the trends differ from one country to another with some countries being heavily engaged in GAFTA whereas others have stabilized their level of integration in GAFTA.

1.2.3 Analysis at commodity Level

To follow the trends in GAFTA commodity trade, we avoided the aggregation of countries together as it leads to misleading results due to the absence of some GAFTA members in some years. Hence, we decided to follow the analysis country by country for which the data existed and we try to derive general results (Figure 1.10.). We used the ComTrade database for this analysis utilizing the first level of disaggregation for SITC[12].

Algeria, though still did not apply GAFTA seems to be suffering from weak intra-GAFTA exports, with the exception of mineral fuels, lubricants , and related materials (3), which experienced a significant increase in 2005. There has been some insignificant improvement in exporting chemicals (5), and to a lesser extent manufactured goods (6) in 2005 compared to 1995 and 2000.

Bahrain has enjoyed a significant increase of its intra-GAFTA exports in a number of commodities including crude material, inedible except fuel (2), manufactured goods (6), and machinery and transport equipment (7). There has been as well some slight improvement in exporting chemicals (5) and miscellaneous manufactured goods (8).

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[12]
0	Food and live animals
1	Beverages and tobacco
2	Crude materials, inedible, except fuels
3	Mineral fuels, lubricants and related materials
4	Animal and vegetable oils and fats
5	Chemicals
6	Manufactured goods classified chiefly by material
7	Machinery and transport equipment
8	Miscellaneous manufactured articles
9	Commodities & transactions. Not classified according to kind

Egypt is among the countries which has experienced a significant increase in its intra GAFTA exports in a large number of commodities over time. This has been the case for food and live animals (0), crude material, inedible except fuel (2), mineral fuels, lubricants and related materials (3), chemicals (5), manufactured goods (6) , machinery and transport equipment (7), and miscellaneous manufactured goods (8).

Jordan exhibits similar trends as Egypt, since it has experienced as well a significant increase in its intra GAFTA exports in different commodity groups including food and live animals (0), beverages and tobacco (1), crude material, inedible except fuel (2), chemicals (5), manufactured goods (6), machinery and transport equipment (7), as well as miscellaneous manufactured goods (8). Conversely, this country has experienced a decline in exports of animal and vegetable oil and fats (4).

Data for Kuwait was available for 1995 and 2000 only. Kuwait has experienced a significant increase in its intra GAFTA-exports in three commodity groups including food and live animals (0), chemicals (5), and miscellaneous manufactured goods (8), and a decrease in two commodity groupings, namely manufactured goods (6), machinery and transport equipment (7).

Morocco does not seem to have expanded its intra-GAFTA exports significantly with the exception of food and live animals (0). Manufactured goods (6) seems to have stagnated in 2005 at their 1995 level after facing a significant decline in 2000, whereas mineral fuels, lubricants and related materials (3) have increased slightly. Other intra-GAFTA exports have experienced a significant decline including crude material, inedible except fuel (2), chemicals (5), machinery and transport equipment (7), and miscellaneous manufactured goods (8).

Oman is among GAFTA members which seem to have enjoyed high intra-GAFTA exports growth rate for some products and at the same time a significant decline in other products exports. It enjoyed a significant increase in food and live animals (0), chemicals (5), manufactured goods (6), and not classified commodities (9) and to a lesser extent animal and vegetable oil and fats (4). At the same time it faced a significant decrease in mineral fuels, lubricants and related materials (3), and

machinery and transport equipment (7), and to a lesser extent miscellaneous manufactured goods (8).

Qatar enjoyed a significant increase in its intra-GAFTA exports in two commodity groupings namely chemicals (5) and machinery and transport equipment (7). On the other hand, it experienced a significant decline in mineral fuels, lubricants and related materials (3) as well as manufactured goods (6).

Data for Saudi Arabia exists only for 1995 and 2000. Saudi Arabia seems to have been expanding its intra-GAFTA exports in several commodity groupings including food and live animals (0), fuels, lubricants , and related materials (3), chemicals (5), manufactured goods (6), machinery and transport equipment (7), and miscellaneous manufactured goods (8).

Sudan seems to be expanding its intra-GAFTA exports as well in a number of commodity groupings including food and live animals (0), crude material, inedible except fuel (2), and fuels, lubricants and related materials (3), whereas animal and vegetable oil and fats (4) seem to have been reduced significantly.

With regards to Syria, intra-GAFTA exports have increased in some commodity groupings and declined in others. It has increased in food and live animals (0), beverages and tobaccos (1), chemicals (5), and manufactured goods (6). On the other hand, it has declined in crude material, inedible except fuel (2), fuels, lubricants , and related materials (3), and miscellaneous manufactured goods (8).

Tunisia seems to be increasing its intra-GAFTA exports in 2005 in a significant manner for a large number of commodity groupings after a decrease observed in 2000 including food and live animals (0), animal and vegetable oil and fats (4), chemicals (5), manufactured goods (6), machinery and transport equipment (7), and miscellaneous manufactured goods (8).

Data for United Arab Emirates (UAE) does not exist for 2005. UAE's intra GAFTA exports seem to have experienced an increase in a large number of commodity

groupings including food and live animals (0), chemicals (5), manufactured goods (6), machinery and transport equipment (7), and miscellaneous manufactured goods (8).

Finally, Yemen has also experienced a significant increase in a wide array of commodity groupings in its intra-GAFTA exports including food and live animals (0), beverages and tobacco (1), fuels, lubricants , and related materials (3), chemicals (5), and machinery and transport equipment (7).

To sum up, the above analysis suggests that there are a number of commodity groupings which seem to have enjoyed an increase in exports among a large number of GAFTA members in their intra-GAFTA trade including food and live animals (0), chemicals (5), manufactured goods (6), and machinery and transport equipment (7). Fuels, lubricants, and related materials (3) and miscellaneous manufactured goods (8) did enjoy some increase but not as significant as the first set of commodities. Beverages and tobacco (1), crude material, inedible except fuel (2), and animal and vegetable oil and fats (4), and not classified good (9) did not enjoy any significant change in intra GAFTA exports over the period 1995-2005.

It seems that the majority of countries have increased their intra-GAFTA exports though with different degree of variation among countries and when focusing on commodities. The three countries that have least expanded their intra-GAFTA exports include Morocco, Algeria and Qatar.

It is worth noting that the analysis on the commodity level in general is in line with analysis on the country level. However, they are not identical. Reasons for divergence in results include using different database, and the application of an aggregate approach in the country level whereas on the commodity level, a more disaggregated approach is utilized. Hence, for a country which has experienced for example, a decrease in its intraregional trade in a number of commodities with an exception of an increase in one or two commodity groupings, it might experience an overall increase in the country analysis and appears modest in the commodity analysis.

Figure 1.10.: Intra-GAFTA Exports by Commodity (1995-2005)
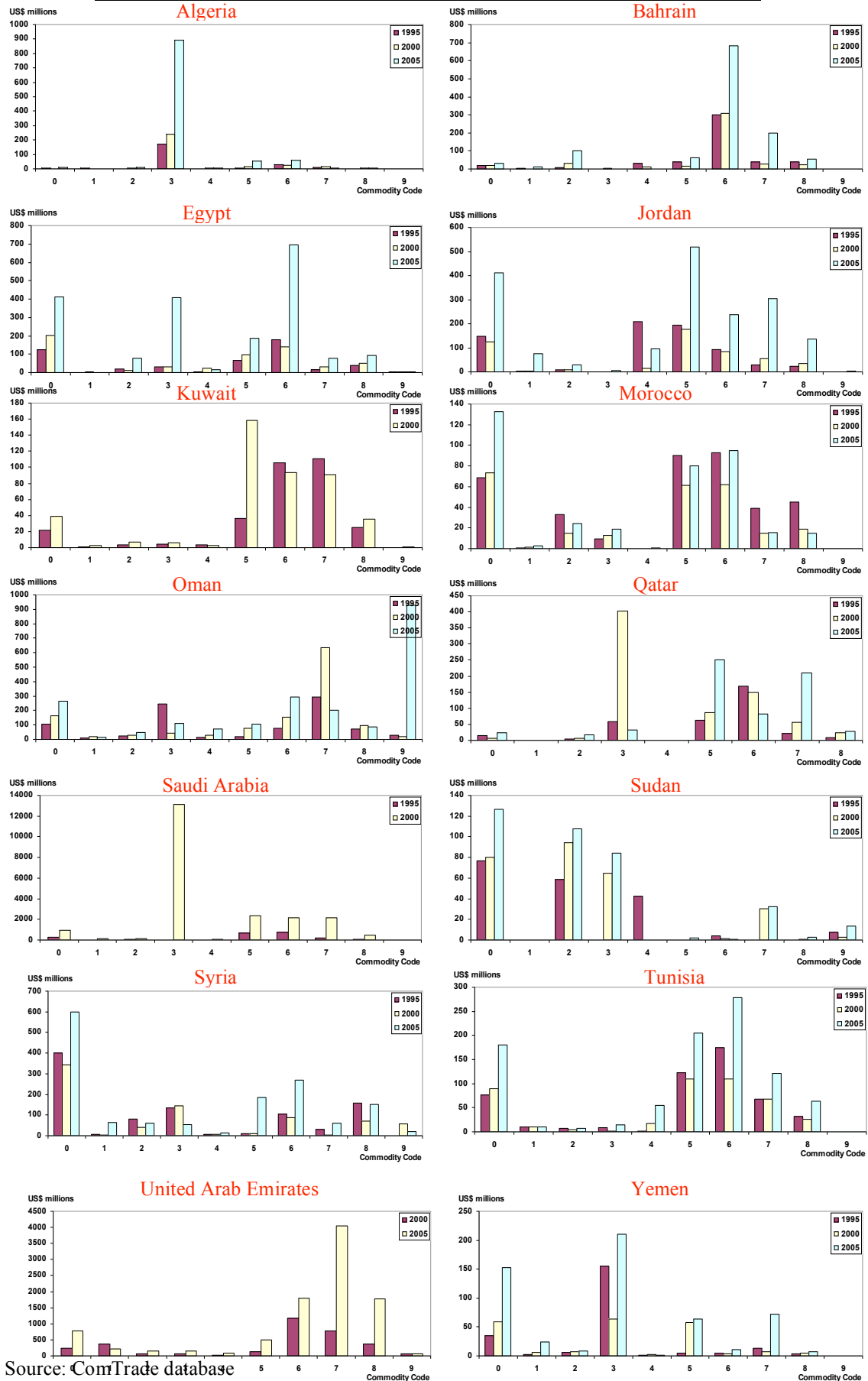
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2. Welfare effects of GAFTA: From theory to inquiries

This section aims to highlight the effects of regional integration on GAFTA countries' economies. For that purpose, the various channels by which regional integration can influence welfare must be identified. This is why the analysis presented here starts from a short survey of the theory of PTA (section 1). In a second section, an original theoretical model of regional integration is proposed. This model includes four types of welfare effects due to regional integration: perfect competition, imperfect competition, dynamic and economic distortion effects. Once identified, these effects can be tested in section 3 in the case of GAFTA. This can be achieved by the implementation of an inquiry in various GAFTA countries.

2.1 A short survey of the theory of PTAs

The traditional theory of customs union, developed by Viner (1950), provides a first understanding about the effects of regional economic integration. In particular, this author shows that the net welfare impact of a customs union depends on the magnitude of trade creation, in comparison with trade diversion. Kemp and Wan (1976) go further by showing that a customs union improves the welfare of its members without reducing that of the rest of the world. This can be achieved by choosing an appropriate common external tariff (CET). However, until recently, this Kemp-Van Pareto-improving customs union could not be extended to free trade areas. This is due to the fact that member-specific tariff vectors imply that the domestic-price vectors differ across member countries. As a result, the FTA generally fails to equalize marginal rates of substitutions across its members. Some extensions of this model take into account intermediate inputs (Krishna, 2005). They do not significantly change the results obtained previously, but make it possible to discuss more in detail the impact of trade deflection.

Given the difficulties to obtain a clear predictable welfare impact of a PTA, many attempts have been made to refine the theory in order to identify member-country characteristics that would ensure welfare improvement. In this regard, the mainstream theory of customs unions and FTAs provides the following conditions for increasing

welfare (McMillan and McCann, 1981; Robson, 1998: Bhagwati et al., 1999, Jovanovic, 2006).

- The demand for third countries' exports must be low and that for partner countries' exports must be high.
- Trade barriers in third countries must be high.
- The initial tariff should be high and the common external tariff should be low (this condition depends however on the elasticity of trade flows to the change in tariffs)
- Member countries' supply and demand should be strongly elastic to price changes.
- The number of countries that participate in the customs union should be high in order to reduce trade diversion.
- Partner countries should be competitive while offering similar production structure. This makes easier the possibility of reallocation, which is source of trade creation. In other words, partner countries should not be complementary.
- When the production overlap is significant, unit costs for the same product should be different so as to maximize trade creation.
- The less developed the economies prior to integration, the higher the potential opportunities for the benefits from specialization through regional integration.
- More recently, it has been increasingly recognized that geographic proximity is an additional key predictor of trade creation and welfare improvement in PTAs (Wonnacott and Lutz, 1987; Krugman, 1991; Summers (1991).

Although the mainstream theory provides interesting insights about the effects of regional economic integration, it is based on very restrictive and sometimes irrelevant assumptions (Pomfret 1997, 2003; Robson 1998; Jovanovic 2006). First of all, terms of trade effects are neglected, as the demand for imports from the rest of the world is assumed to be unchanged after the formation of a customs union. Second, competition is assumed to be perfect. This implies that scale economies are disregarded as well as product differentiation, imperfect information and trade costs (except tariffs). Third, economies are static with constant expectations. As a result, economic growth, technology, productivity as well as tastes and propensities to consume, invest and import are given and fixed. In addition, there is no depreciation of the capital stock.

Factor mobility is also assumed to be perfect within a country, but is not allowed across countries. This is to say that trade alone can ensure factor price equalization. Thus, foreign direct investment (FDI) is disregarded. Finally, domestic distortions are generally neglected in the standard mainstream theory.

Given these restrictive assumptions, the mainstream PTA model has been significantly extended, especially in the past two decades.

One major recent improvement concerns the *welfare impact fo FTAs*. As already said, the Kemp-Wan approach failed to show the conditions by which FTAs can be welfare enhancing. However, Panagariya and Krishna (2002) solved this problem by showing that FTAs necessarily increase welfare so long as the rules of origins are appropriately selected. In other words, the external tariff can vary across countries as long as they are selected to induce the same external trade flows for the member country with non union members that initially prevailed. Grinols and Silva (2007) reached the same finding within a simplified framework.

A second extension includes *terms of trade effects*. Mundell (1968) has shown first that if the formation of a customs union affects the demand for imports from the rest of the world, the union's terms of trade will improve. This effect operates to reduce the loss related to trade diversion, and it may suffice to eliminate this loss if the fall in the price of the imported product is significant. Extending this analysis to FTAs gives less clear results (Robson, 1998). As a matter of fact, it can be shown that the terms of trade improvement will be smaller in the FTA than in the customs union.

Another channel by which the union can improve its terms of trade is related to its size. Indeed, the greater the economic area of the tariff-levying unit, the more likely the improvement in the union's terms of trade. Moreover, the larger the customs union, the greater its bargaining power related to tariff negotiations, and the more likely terms of trade are favourable to the union (Wonnacott and Wonnacott, 1981).

A second extension introduces *imperfect competition*, especially economies of scale. A first attempt is made by Corden (1972) within the Vinerian framework. It shows that scale economies lead to two additional effects. The first is the "cost reduction

effect of realizing scale economies, which yields additional gains. The second effect is "trade suppression", which occurs when a partner increases its exports to the other partner thanks to scale economies, at the expense of the rest of the world. This effect increases the loss from trade diversion. Thus, this extension does not provide a clear result about the overall effect of scale economies.

However, more recent studies clearly stress the gains from imperfect competition, especially scale economies (Cox and Harris, 1985; Smith and Venables, 1988; Baldwin and Venables, 1995). Starting with a general equilibrium framework with imperfect competition, these authors use assumptions derived from the new trade theory of international trade (Helpman and Krugman, 1985; Waples, 2004) with scale economies and product differentiation. It must also be stressed that gains from scale economies can occur when these economies are internal or external to the firm (El Agraa, 1999).

The specification of trade costs, especially *non tariff barriers* (NTBs) is an additional extension to the mainstream theory. In this regard, Baldwin (1994) shows in a Vinerian framework that in principle, trade diversion vanishes when trade barriers are made of NTBs only, because there is generally no tariff revenue. However, two cases must be distinguished. If NTBs are purely cost-increasing (like customs formalities), then any reduction in this cost is welfare increasing. However, if the NTBs are not purely cost increasing (like rent-generating quotas), the reduction in trade cost can still give rise to welfare-reducing trade diversion. In this last case however, trade diversion remains less important with NTBs that with tariffs.

Dynamic effects of PTAs have also been increasingly investigated in recent years. They relate to numerous means by which regional integration may influence the rate of growth of GDP of the participating nations (Haveman et al., 2001). In particular, the effects of technical efficiency have been explored in Baldwin (1992). In this article, factor accumulation is taken into account and it is assumed that trade policy can affect the steady state levels. This gives rise to dynamic investment and growth effects, which impact on the production and the welfare of the economies. Measuring this effect suggests that the size of this dynamic gain from trade can be significant, depending on the wedge between social and private returns to capital. Another

popular dynamic effect concerns the reduction of monopoly power due to increased competition within the PTA (Harris, 1997). In this case, prices fall and consumption increases, suggesting a rise in welfare.

The final extension concerns *domestic distortions*, such as the presence of trade unions which negotiate wage rates in excess of the equilibrium rates. Such distortions can also be due to the role of government which introduces minimum wage legislation. This results in a social average cost which lies below the private one. Jones (1980) and El-Agraa (1999) show that the formation of a customs union in the presence of domestic distortion in the home country leads to a fall in the cost-reducing gain in the home country and a rise in the gains in the partner country, due notably to an increase in its sales to the home country.

To sum up, the traditional economic gains from PTAs identified by the mainstream theory must be supplemented by the additional gains mentioned above, especially within an imperfect competition framework. One problem with recent theories of customs unions is that they generally concentrate on one particular extension only, i.e. scale economies, or technical efficiency or terms of trade. One exception is Baldwin and Venables (1995) which include most of the extensions developed before in a single framework. As a result, the formation of a PTA is assumed to affect welfare through the various channels identified above, like trade creation and trade diversion, NTBs, terms of trade, scale economies, product differentiation, etc… However, this model is still limited by some restrictive assumptions. For example, labour is assumed to be constant, technology and technical progress are disregarded as well as economic growth, FDI as well as domestic distortions.

The next section goes further by proposing an original theoretical model which incorporates these extensions.

2.2 Welfare effects of free trade area: A generalized model in imperfect competition

This section proposes an extended version of Baldwin and Venables (1995). This extension includes labour as a variable, technical progress, foreign direct investment (FDI) as well as economic distortions.

Welfare of a representative consumer in a country can be represented by an indirect utility function V(p+t, n, E), where p is the vector of border prices, t is the vector of trade costs (including tariffs), n is the vector which accounts for the number of product varieties available and E is the total spending on consumption.

Expenditure is the sum of factor revenue, profit and rent from trade barriers minus investment I.

$$E = wL + (w_m - w)L + rK + \Pi + X\big[(p+t) - a(w,r,x) - T\big] + \alpha tm - I + FDI \qquad (1)$$

The reward accruing to labor is made of the equilibrium wages (w) as well as a supplement corresponding to the domestic distortion due to wage negotiation at higher price that equilibrium wages (such as a minimum wage). As a result, the actual wage received by workers is w_m. Capital K is rewarded according to the interest rate r. It is also assumed that the two factors L and K are supplemented by exogenous technical progress Π, in line with the Solow growth model.

Denoting X as the economy's production vector, "a" the average costs at sector level (which in turn depend on factor prices (r and w) and production per firm (x) in each sector) and T taxes for each unit produced, then profits can be written as the difference between total receipt (X(p+t)), and total costs (Xa(w,r,x)+XT).

The domestic trade rent is captured by αtm, where m is the net import vector. α is a diagonal matrix that measures the nature of trade protection ($\alpha=1$ means that the trade protection is made of tariffs or other rent-making policy; $\alpha=0$ means that no trade rent is captured domestically, like in the case of quotas or other NTBs). As a result, if

trade protection is only made of tariffs, the rent is equal to tm. If it is made of quotas only, then the rent is null.

Net foreign direct investment (FDI) is also added to the expenditure function since foreign firms make it possible to increase the capital domestically available.

Totally differentiating the indirect utility function gives:

$$dV = \frac{\partial V}{\partial(p+t)}d(p+t) + \frac{\partial V}{\partial n}dn + \frac{\partial V}{\partial E}dE \qquad (2)$$

Denoting V_{p+t} the marginal utility of prices, V_n the marginal utility of varieties and V_E the marginal utility of expenses, dV can be rewritten as:

$$\Rightarrow dV = V_{p+t}d(P+t) + V_n dn + V_E dE \qquad (2')$$

Dividing by V_E, it comes:

$$\frac{dV}{V_E} = \frac{V_{p+t}}{V_E}d(P+t) + \frac{V_n}{V_E}dn + dE \qquad (3)$$

From (1) and (2), we get:

$$dE = Ldw_m + w_m dL + rdK + Kdr + d\Pi + Xd(p+t) - Xa_w dw - Xa_r dr - Xa_x dx +$$
$$(p+t-a-T)dX + \alpha tdm + md(\alpha t) - dI + dFDI \qquad (4)$$

Replacing into (3) gives:

$$\frac{dV}{V_E} = \frac{V_{p+t}}{V_E}d(P+t) + \frac{V_n}{V_E}dn + Ldw_m + w_m dL + rdK + Kdr + d\Pi + Xd(p+t)$$
$$- Xa_w dw - Xa_r dr - Xa_x dx + (p+t-a-T)dX + \alpha tdm + md(\alpha t) - dI + dFDI \qquad (5)$$

This equation can be simplified by the use of four assumptions. The first is the Roy identity:

$$\frac{V_p}{V_E} + X = -m \qquad (6)$$

The second is the Shephard's lemma and factor clearing equation:

$$L = Xa_w$$
$$K = Xa_r \qquad (7)$$

Thirdly, it is assumed that dI generates a permanent change in the capital stock yielding to a social rate of return r_s discounted at rate ρ. This makes it possible to write:

$$rdK = \frac{r_s}{\rho} dI \quad (8)$$

Finally, using the Solow model, it can easily be shown that in case of demographical change and technical progress, the steady state equilibrium of the economy gives:

$$dY = dL + d\Pi \quad (9)$$

In other words, the economy' rate of growth (dY) is equal to the growth rate of the population and the technical progress.

Using these assumptions and rearranging equation (5) provides:

$$\frac{dV}{V_E} = \alpha t dm - md(t - \alpha t) - mdp \qquad (10)\ (a)$$

$$+ (P + t - m)dX - Xa_x dx + \frac{V_n}{V_E} dn \qquad (b)$$

$$+ \left(\frac{r_s}{\rho} - 1\right) dI + dFDI + dY \qquad (c)$$

$$+ (w_m - w)dL - TdX \qquad (d)$$

Equation (10) summarizes the potential effects of PTAs on welfare since we have shown previously that PTA can have an impact on all the components included in this equation.

More precisely, line (a) of equation (8) provides the welfare effects of PTAs in **_perfect competition_**. Indeed, αtdm is the **_trade volume effect_**. If trade barriers are only made of tariffs, any rise in imports due to the fall in tariffs leads to a change in welfare by tdm. This change will be positive if imports increase after the formation of the customs union. As noted by Baldwin and Venables (1995), this first term is equivalent to the standard Vinerian theory.

The second terms in line (a) is given by md(t-αt). This is a **_trade cost effect_**. It measures the welfare impact of the changes in the trade barriers which do not lead to a rent. For instance, if all barriers are made of tariffs (α=1), then, this cost is zero, whereas if all barriers are NTBs without rent, then a reduction in these barriers gives rise to an increase in welfare by mdt. This term was initially neglected by Viner and this model clearly indicates that the reduction in NTBs within a PTA is an additional source of welfare gain.

The third term in line (a) corresponds to **_terms of trade effect_**. As already mentioned in the previous section, the formation of a PTA is expected to increase the terms of trade of the union. As a result, the fall in the import price is an additional gain for a PTA. However, as mentioned in the previous section, this gain is likely to be greater the larger the PTA and the more significant its bargaining power. Moreover, such a gain is higher if the PTA is a customs union rather than a free trade area.

Line (b) of equation provides welfare effects in **_imperfect competition_**. The first term (p+t-a)dX is a **_production effect_**. This effect arises if there is a change in output in industries where prices differ from average cost. The second term (Xa_xdx) accounts for the **_scale economies effect_**. It measures the value of changes in average costs induced by changes in firm scale. The last term is a **_variety effect_**. It arises because the number of product varieties available for the consumer is greater after the formation of the PTA than before. Indeed, the number of product varieties originating from the

partner country increase in the domestic country. This increases the domestic welfare, as shown by the new theory of international trade and PTAs.

Line (c) highlights the ***dynamic effects*** of PTAs. The first is the ***investment effect***. This effect can be negative because it reduces expenditures in the short run. As a result, investment is instantaneously costly. In the long run however, it makes it possible to increase capital accumulation. Overall, investment increases welfare provided that the social rate of return exceeds depreciation.

The second dynamic effect is a ***growth effect***, especially due to technical progress and improved efficiency. As already mentioned in the previous section, this effect can be potentially important.

A final dynamic component is related to ***FDI effects***. If the formation of a PTA makes it possible to increase FDI, from both the partners and third countries, this can lead to additional gains.

Finally, line (d) in equation (8) highlight the impact of **economic distortion**s. For example, ***above equilibrium wages*** can lead to an additional welfare gain, since it increases expenditures. However, the formation of a PTA doe not itself introduces this distortion. In fact, in the domestic country, it has been shown that given this distortion, a PTA leads to a reduction in the cost reduction effect (negative welfare effect). Moreover, the ***tax effects*** may also be negative on the overall welfare. As a result, if the formation of a PTA leads to increased taxes, welfare is likely to decline.

The theoretical model developed above makes it possible to identify the potential effects of the formation of a PTA on welfare. These effects are summarized in Table 2.1.

Table 2.1: Expected Welfare effects of the formation of a PTA

	welfare effects	Comments
Perfect competition effects		
trade volume effect	+ / -	positive effect if imports rise (net trade creation)
trade cost effect	+	reduction in NTBs
terms of trade effects	+	greater effects for large PTAs and in the case of CUs
Imperfect competition effects		
production effect	+	only if prices are greater than average costs
economies of scale	+	
product varieties	+	rise in the number of product varieties available
Dynamic effects		
investment	"+/-"	positive especially in the long run
growth	+	in case of technical progress and production efficiency
FDI	+	
Distortion effects		
high wages	+/-	- in the domestic country; + in the partner country
taxes	0/-	negative only if the PTA leads to an increase in taxes.

It clearly appears from this Table that most of the effects of PTAs are provided outside the perfect competition framework. The following section is aimed at testing whether the welfare effects identified above have actually been positive

2.3 An application to GAFTA countries: Results from a regional inquiry[13].

This inquiry investigates the effects of GAFTA on a number of selected countries and industries. The selected countries include Egypt, Lebanon, Saudi Arabia, Yemen, Jordan and Morocco. The sample of the six countries takes into account the diversity of GAFTA countries where Saudi Arabia represents the Gulf countries, Egypt, Jordan, and Lebanon represent the Mashreq whereas Morocco represents the Maghreb and Yemen is a representative of least developed countries. Moreover, such a sample of countries represents as well the diversity in terms of structures of production including heavily oil producing countries as Saudi Arabia and Yemen, diversified economies as Egypt and Morocco, semi-diversified economies as Lebanon and Jordan.

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[13] The authors would like to thank Mohsen Helal, Achy Lahcen, Ibrahim Seif, and Hammoud El Naggar for helping to conduct the interviews.

The selected industries account for the majority of the non-oil GAFTA trade. They include textiles and ready made garments, chemicals, food (processed agriculture), as well as petrochemicals. In each country, a number of interviews based on the designed inquiry was undertaken with firms' representatives as well as at least one interview with a GAFTA- related senior government official and/or a representative of the federation of industry or chamber of commerce. The number of interviews reached 39, as specified in Table 2.2 below.

Table 2.2: The Number of Interviews Undertaken

	Egypt	Lebanon	Saudi Arabia	Yemen	Morocco	Jordan	Total
Textiles and ready made garments	1	1		1	1		4
Chemicals	2	1	1	3	1	3	11
Food	2	1		1	2	3	9
Petrochemicals	2		1				3
Others			1			2	3
Gov. Officials and/or Federation or Chamber	1	2	2	1	2	1	9
Total	8	5	5	6	6	9	39

The questions in the inquiry targets several aspects of GAFTA effects, following the theoretical model presented in section 2.2. These questions relate to perfect competition effects (trade volume, and trade costs), imperfect competition effects (production effects, economies of scale, and product varieties), dynamic effects (domestic and foreign direct investment as well as growth effects) as well as distortion effects (taxes and wage effects). The overall results of the inquiry are summarized in Tables 2.3, 2.4, and 2.5.

Table 2.3: Expected Welfare effects of the formation of GAFTA (General Effect)

	Welfare Effects
<u>Perfect Competition Effects:</u>	
- Trade volume effect	+
- Trade cost effect	Neutral
- Terms of trade effect	Cannot be determined
<u>Imperfect Competition Effects:</u>	
- Production effect	(+ Small) or Neutral, depending on the industry investigated
- Economies of scale	(+ Small) or Neutral, depending on the industry investigated
- Variety effect	(+ Small) or Neutral, depending on the industry investigated
<u>Dynamic Effects:</u>	
- Investment	Cannot be determined
- Growth	Cannot be determined
- FDI	Cannot be determined
<u>Distortion Effects:</u>	
- High wages	Neutral
- Taxes	+/-

Table 2.4: Expected Welfare effects of the formation of GAFTA (Country Specific)

	Egypt	Lebanon	Saudi Arabia	Yemen	Morocco	Jordan
Perfect Competition Effects :						
- Trade volume effect	+ (exports and imports)	+ (imports)	+ (exports and imports)	+ (imports)	+ (exports and imports)	+ (exports and imports)
- Trade cost effect	Neutral	-	Neutral	Neutral	-	Neutral
- Terms of trade effect	Cannot be determined	Cannot be determined	Cannot be determined	Cannot be determined	Cannot be determined	Cannot be determined
Imperfect Competition Effects :						
- Production effect	(+ Small) or Neutral, depending on the industry investigated	(+ Small) or Neutral, depending on the industry investigated	(+ Small) or Neutral, depending on the industry investigated	(+ Small) or Neutral, depending on the industry investigated	(+ Small) or Neutral, depending on the industry investigated	(+ Small) or Neutral, depending on the industry investigated
- Economies of scale	(+ Small) or Neutral, depending on the industry investigated	(+ Small) or Neutral, depending on the industry investigated	(+ Small) or Neutral, depending on the industry investigated	(+ Small) or Neutral, depending on the industry investigated	(+ Small) or Neutral, depending on the industry investigated	(+ Small) or Neutral, depending on the industry investigated
- Variety effect	(+ Small) or Neutral, depending on the industry investigated	(+ Small) or Neutral, depending on the industry investigated	(+ Small) or Neutral, depending on the industry investigated	(+ Small) or Neutral, depending on the industry investigated	(+ Small) or Neutral, depending on the industry investigated	(+ Small) or Neutral, depending on the industry investigated
Dynamic Effects :						
- Investment	Cannot be determined	Cannot be determined	Cannot be determined	Cannot be determined	Cannot be determined	Cannot be determined
- Growth	Cannot be determined	Cannot be determined	Cannot be determined	Cannot be determined	Cannot be determined	Cannot be determined
- FDI	Cannot be determined	Cannot be determined	Cannot be determined	Cannot be determined	Cannot be determined	Cannot be determined
Distortion Effects:						
- High wages	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
- Taxes	+	-	+	Neutral	-	Neutral

Table 2.5: Expected Welfare effects of the formation of GAFTA (Industry Specific)

	Textiles and Ready-made Garments	Food	Chemicals	Petrochemicals
<u>**Perfect Competition Effects :**</u>				
- Trade volume effect	-	+ (exports and imports)	+ (exports and imports)	Neutral
- Trade cost effect	Neutral	+ and -	+	Neutral
- Terms of trade effect	Cannot be determined	Cannot be determined	Cannot be determined	Cannot be determined
<u>**Imperfect Competition Effects :**</u>				
- Production effect	Neutral	+	+	Neutral
- Economies of scale	Neutral	+ or Neutral	+ or Neutral	Neutral
- Variety effect	Neutral	+	+ or Neutral	Neutral
<u>**Dynamic Effects :**</u>				
- Investment	Cannot be determined	Cannot be determined	Cannot be determined	Cannot be determined
- Growth	Cannot be determined	Cannot be determined	Cannot be determined	Cannot be determined
- FDI	Cannot be determined	Cannot be determined	Cannot be determined	Cannot be determined
<u>**Distortion Effects :**</u>				
- High wages	Neutral	Neutral	Neutral	Neutral
- Taxes	-	+ / − (depending on country)	+ / − (depending on country)	Neutral

Looking first at perfect competition effects, the **trade volume effect** of GAFTA is generally positive. However, the inquiry is not able to capture whether this positive trade volume effect is rather a trade creation or trade diversion effect. A large number of industries in the selected countries experienced an increase in exports. However, there has been a high degree of variation among the different industries and countries

investigated. Regarding the countries, the inquiry identified that the increase in trade volume was regarded as significant by the majority of countries whereas in some countries as Lebanon, the increase in trade volume was not viewed as so positive. The reason for this is unfair competition due to higher costs incurred by Lebanese manufacturers. This resulted in enhancing imports values and import prices, and not exports. This in turn negatively affected the domestic industries. In addition, the trade volume effect mainly arises, as the inquiry revealed, from the increased amount of trade with the *existing* GAFTA partners but not from having new partners as a result of the GAFTA.

Regarding the industries, the trade volume effect differs significantly. For example, in the case of textiles and ready made garments, manufacturers in leading countries in this industry, such as Egypt and Morocco argue that GAFTA did not help to enhance their exports. Several reasons are behind such a conclusion. The first is related to the significant geographical orientation towards non-Arab markets whether for exporting (as the case of Egyptian exporters who focus more on the EU and US markets and Moroccans who primarily focus on the EU market) or for importing, as the case of Yemeni who essentially import from China and Pakistan. Moreover, the sensitivity of the industry has led many Arab countries to impose non-tariff barriers at the borders which negatively affect the flow of exports. This may be due either to problems associated with rules of origin or extra charges or complicated customs' procedures. Finally, the lack of effective institutions has led some GAFTA countries to a dumping in their exports without GAFTA being able to undertake any effective measures to control such actions. Political interventions to stop the antidumping cases have led traders to loose confidence in the functioning mechanisms of GAFTA. Finally, the fact that GAFTA countries compete rather than complement together in the textile industries with similar production costs makes it difficult to take advantage of regional trade liberalization within the GAFTA area. In other words, the absence of significant labor and capital cost differences among countries that produce and export textiles and/or the existence of the complete value chain in such industries in each country implied that additional trade among Arab countries is rather limited.

The situation is different in other industries, especially food. In this regard, GAFTA seems to have a positive effect since food exports in all the countries investigated experienced either an increase or a neutral effect. In the case of Egypt and Jordan, the positive effect is reflected in terms of increasing exports to the existing markets and opening new markets for the firms that deal with GAFTA countries. The abolishment of tariff duties was the sole variable responsible for this positive effect. The firms that did not previously deal with GAFTA countries viewed GAFTA as neutral as the incentives provided in terms of GAFTA effects were not sufficient to divert them to export to GAFTA. In the case of Yemen and Lebanon, GAFTA was perceived to be neutral from the exporting point of view. In the case of Morocco, GAFTA helped the firms to export to new markets but was neutral in terms of increasing exports to existing markets.

The chemical industry is rather a largely diversified industry and hence the GAFTA effect differed significantly. In Egypt, Lebanon and Morocco, most of the chemical industries benefited from GAFTA whether in terms of opening new markets or increasing exports to existing markets. In worst case scenarios, GAFTA has had a neutral effect. This has been the case especially for chemical firms in Yemen that have been heavily domestically oriented. In some other cases, this can also be due to the nature of some specific industries, as cement in Saudi Arabia where geographical aspects play an important role in terms of export destination. In particular, Saudi firms have always been heavily oriented to GCC markets and hence GAFTA had a neutral role. The effect of GAFTA on Jordanian chemical industries is mixed: as in Egypt and Morocco, some firms benefited from GAFTA in terms of enhancing exports to the existing markets or increasing the number of markets. It may also have been neutral due to the specific nature of some chemical industries, such as pharmaceuticals where trade is governed by other means rather than tariffs.

Petrochemicals is the industry which benefited the least from GAFTA. This is a priori expected due to the nature of the industry which is heavily energy intensive, highly domestic oriented, already liberalized and which suffers from high transport costs. Hence, the specific nature of the petrochemical industry in terms of its characteristics implied that GAFTA or any other trade agreement is not likely to benefit this industry in terms of trade effects. In other industries as steel industry in Egypt, Saudi Arabia

and Jordan, GAFTA has had a positive effect in terms of increasing exports to existing markets as well as opening new markets.

To sum up, the inquiry undertaken in GAFTA countries generally suggest a positive trade volume effect, as expected theoretically in section 2.2. Further investigation will be conducted in part 3, through a quantitative assessment of GAFTA trade effects.

Trade costs were investigated in the inquiry by several questions regarding the costs of inputs, the transaction costs on the borders related to the trading process and role of GAFTA in reducing NTBs. In general, the trade costs effect was considered as neutral from the inquiry. The reasons include the low dependence of manufacturers on sourcing inputs from Arab partners on the one hand, and the neutral effect of related transaction costs on the other hand. In fact, the GAFTA agreement was able to dismantle a large number of non-tariff barriers. However, enforcing transparency remained relatively weak. This gave the room for some countries to apply non-transparent measures on the borders which increased trading costs. As a result, the effects of the reduction in NTBs has been neutralized by this increase in trading costs, leaving the overall trade cost effects unchanged. In other words, GAFTA was successful in dismantling some NTBs, but other new NTBs were erected by some GAFTA members. This resulted in an overall no significant effect felt by traders in the GAFTA region.

Though the results differ from one country to another as well as from one industry to another, the general conclusion is that GAFTA *did not play* an important role in reducing trading costs. Some countries view GAFTA to have more an effect on the export side, but not on the imports side. Most of the firms and industries surveyed argued that GAFTA has a neutral effect on the costs of inputs with the exception of some firms in the field of food and chemicals industries. This is expected due to the low level of trade prevailing among Arab countries. The degree of vertical integration among Arab countries in the industries surveyed seems to be weak. This affected the low level of sourcing inputs among firms. As a result, most of the firms did not perceive GAFTA to have a positive effect on lowering the costs of imported inputs. This has been the case of textiles and ready made garments, petrochemicals, and food industries.

The exception of the food industry has been that prevailing in Morocco where firms argued that GAFTA has had a positive effect on reducing prices of inputs but such effect was diluted due to the cumbersome customs procedures' prevailing in a number of countries and the lack of transparency on standards which increased their transaction costs.

The chemicals industry experienced the most positive attitude towards GAFTA's effect on reducing prices of inputs whenever relevant. The fact that some chemical industries rarely depends on imported inputs (cement for example) affected the generalization of that conclusion. However, chemical industries seem generally to be the type of industries that have experienced some kind of reduced input prices due to GAFTA across all GAFTA countries. The same remark applies to the food industry, though to a lesser extent.

The inquiry was unable to test **the terms of trade effect** as it has dealt with firms on an individual basis in the selected countries surveyed. Terms of trade are rather assessed on the level of GAFTA members collectively vis-a-vis the non-GAFTA, which has not been the case in the inquiry applied. More generally, the firms interviewed individually can hardly know whether GAFTA may have influenced the world price.

Turning to imperfect competition effects, **the production effect** in general has been either positive or neutral. To a large extent production effect is likely to follow the trade volume effect where increased exports of final products or imports of inputs are likely to be followed by increased production. However, the inquiry results pointed out that this is not necessarily the case. The increase in production did not always follow the increase in exports or imports. This is either due to the shift of traders from other non-GAFTA markets to GAFTA markets or due to the short time that has elapsed since GAFTA was fully implemented where non-tariff barriers still persist hence increasing the level of uncertainty. As a result of those two factors, the increase in exports or imports has not been necessarily translated into increase in production. Such a general conclusion applies to all countries investigated.

However, there has been variation in the results across industries. In the case of chemicals and food products, a significant number of firms indicate that GAFTA has resulted in an increase in their production. This has been the case with some of the chemical industries in Egypt which are export oriented and some of the chemical industries in Yemen where imported GAFTA inputs increased. This made it possible to increase production. The positive production effect has also been revealed in Morocco in both the chemicals and food industry and in Jordan in the case of food industry. The production effect has either been a result of increased exporting of the final product if the firm was export oriented or increased low priced imported inputs if the firm was domestically oriented.

The inquiry pointed out that the **scale economies effect** is generally small or neutral. The reason is similar to the one identified in the production effect where increased exports or imports did not necessarily implied a rise in production and increased production did not always lead to economies of scale. In the cases where increased production occurred as a result of GAFTA, this production increase has not always led to economies of scale. This is merely due to the relatively small size of increased imports or exports whether in absolute or relative terms, and the small or medium size of firms which did not allow the firms to experience significant economies of scale effect. Moreover, the geographical diversification of imported inputs renders the calculation of the exact effect of GAFTA on the firms' production costs rather difficult to determine.

A final explanation may be found is the fact that the firms do not know exactly the relationship between the different effects of the GAFTA concerning, trade, production and costs. As a result, they may not be aware of the precise impact of GAFTA on scale economies. We will get back to this point in the next part of this study, when measuring scale economies and assessing quantitatively their impact on trade within the GAFTA area.

The variety effect in the inquiry implied two aspects, namely imported inputs and exported output. In the case of exported output, GAFTA has a neutral role in terms of product varieties and more generally product diversification. This is an expected

result given the lack of complementarity in consumption between Arab countries (small taste differences) and the nature of the firms investigated. There were three type of firms: i) firms that are heavily domestic oriented and here GAFTA did not play a role to change their orientation, ii) firms that have been exporting to non-GAFTA members and shifted part of their production to GAFTA and here they have already experienced diversification by dealing with EU and US markets, iii) firms that have been exporting to GAFTA members and again here diversification is likely to be limited as GAFTA helped only to increase the exports to the existing GAFTA markets.

More generally, a crucial explanation for small variety effects may also be found in the fact that trade across GAFTA countries is mainly of inter-industry type. As a result, there is still a lack of differentiation in most of the goods produced and exchanged, with the possible exception of food products, mainly driven by multinational firms (sodas, biscuits, yoghourts, etc…). This is a key difference with trade between Northern countries, which greatly relies on product differentiation and differences in tastes.

Looking at country-specific results, there is no significant variation among the different countries investigated. However, results differ depending on the industry taken into consideration. As a matter of fact, in the food industry, some of the firms emphasized that they have experienced some type of diversification of their products. However, this conclusion needs to be dealt with caution as these firms have always emphasized that they suffered from different standards in Arab countries and hence part of the diversification could be a result of imposed changes of standards. For the other industries, no diversification effect is highlighted by the inquiry.

In the case of imported inputs, GAFTA seems to play a more positive role than exported output. However, these effects are small and limited. The variety of imported inputs was not heavily emphasized by the firms interviewed as inputs of their products are likely to be the same and variety is likely to appear in terms of quality or price but not in the imported input per se. Industries differed in terms of their assessment of GAFTA effects on the variety of imported inputs. The industries that emphasized that GAFTA has a role in terms of diversifying their inputs have been

some of the chemical industries. Moreover, some of the food industries emphasize that they have experienced diversification of imported inputs. There is no significant variation among the different countries investigated.

Again, the low level of intra-industry trade implied that such result has been expected. Hence, the level of differentiation is expected to be low due to the nature of trade itself .

The dynamic effects (investment, FDI, and growth effects) are the most difficult effects to be investigated in the inquiry. The reason is that such effects are not directly felt by the firms, and even if they are felt by the firms, it is very difficult for firms to correlate them with GAFTA. For example, it is difficult for a firm working in the field of textiles and ready made garments in Egypt, Jordan or Morocco to assess whether the increase in domestic or foreign investment in their industry has been a result of GAFTA or any other regional trade agreement they have joined or as a result of the better domestic business environment. The growth effect is rather more difficult for firms to assess since the focus of the firms is micro and not macro oriented. As a result, the inquiry failed to assess the dynamic effects of GAFTA.

However, the general inquiries undertaken with officials or federations of industries or commerce identified that the prospects of GAFTA in terms of enhancing domestic and foreign investments as well as growth of their countries fall in two categories. Some countries perceive GAFTA to have had and will have positive dynamic effects as Egypt, Saudi Arabia, and Jordan. Other countries have skeptical views on GAFTA's dynamic effects as Morocco and Lebanon where the perception is rather pessimistic. The reason for that negative perception is that export and production subsidies as well as energy subsidies in other GAFTA countries are likely to imply a competitive disadvantage for producers and exporters in Morocco and Lebanon. As perceived by interviewees, these domestic distortions imply that investments are likely to be diverted away from their countries to other GAFTA members since they are not able to compete on regional basis, hence resulting in negative growth prospects**.**

In this regard, the inquiry pointed out that the **distortion effects** play a rather important role after the implementation of GAFTA. The firms, officials or industry representative interviewed argue that there is a need for deep integration in GAFTA. In particular, shallow integration, which is currently prevailing among GAFTA members is not sufficient. Wages do no seem to play a significant role as a distortion factor for firms. In fact, wages are rather perceived as part of the comparative advantage enjoyed by different GAFTA members.

However, tax effects seem to cause a major threat for GAFTA. For instance, energy prices substantially differ among GAFTA members: Countries as Saudi Arabia has the lowest price of oil in the world compared to Lebanon which is an importer of oil. As a result, oil prices in Lebanon are leaning towards world prices. This implies that the tax (negative subsidy) effect is rather significant. This has been emphasized by the majority of Lebanese firms interviewed. Indeed, they felt that they cannot compete in GAFTA due to the volatility in energy prices which affect their competitiveness not only in the GAFTA markets but also within their own domestic market where. Moreover, GAFTA has worsened the situation as they were before shielded by tariffs which GAFTA abolished. The same concern was raised by officials and firms in Morocco who identified that they cannot compete in GAFTA effectively as their own government does not provide generous subsidies as it is the case of Egyptian, Tunisia, U.A.E. and Saudi governments to their exporters.

Moreover, the inquiry points out that some industries are more sensitive to distortions than others. This mainly concerns the food industry where firms have been among the most affected by lack of transparency in GAFTA, and by the lack of harmonization.

All the countries investigated pointed out that other GAFTA members very often do not apply GAFTA rules and introduce some sort of non-tariff barriers whether related to custom procedures or authentication of certificates of origin. For example, by imposing extra charges, manipulating rules of origin or not applying standards in a transparent manner, GAFTA effects are considerably lessened. More generally, distortions can be viewed as a symptom of weak integration, which are threatening GAFTA potential benefits.

Paradoxically, it cannot be emphasized that the distortions effect is not always negative. For instance, Lebanon is suffering from higher energy costs than in other GAFTA members. But there are other GAFTA members which take advantage of these high costs in Lebanon and GAFTA helped them to export more to Lebanon. Indeed, some firms took can increase their exports to Lebanon both because of tariff reduction in Lebanon (due to GAFTA) and the existing subsidies in their home market (asymmetric distorsion effect on a geographical basis). This in turn affects the different industries located in the country that suffers from the distortion whether domestically or abroad in other GAFTA members.

However, the magnitude of the distortion effect differs from one industry to another. For example, some petrochemicals industries are not likely to be significantly affected as by its nature, this industry needs to be close to sources of oil production. Hence they are not spread all over GAFTA countries. The same remark applies for example to the chemical industry like pharmaceutical which does not necessarily depend on energy subsidies and work according to a different set of trade rules where licensing is a major determinant. As a result, it seems to be less sensitive to taxes and subsidies as an economic distortion.

On the other hand, industries like food, textiles and ready made garments as well as some chemical industries are likely to be heavily affected by such distortions. This is mainly due to the fact that they are considered as industries that can easily reallocate themselves. Moreover, these industries are less concerned with sunk costs that can prevent its moving from one country to another.

To sum up, the inquiry highlights that the most important effects concern the direct trade effects, i.e. increase in trade volumes. Imperfect competition effects are much smaller or even neutral. As already explained, this result is not really surprising since most intra-GAFTA trade involves inter-industry trade where perfect competition is prevailing. This result greatly differ from that concerning North-North economic integration, for which imperfect competition benefits are much larger. Finally, domestic distortion may significantly affect welfare in GAFTA countries, especially taxes and subsidies.

However, it must also be said that the inquiry reveals that there is a general lack of awareness of the GAFTA agreement, its provisions, and it procedures both by the firms and business associations. This is why further investigation is needed, especially a quantitative assessment. This is the main objective of Part 3.

Finally, the inquiry did not reach an affirmative conclusion regarding two issues namely, whether GAFTA is better than the existing preferential bilateral agreements between GAFTA members, and whether exporting to GAFTA is better than exporting to the EU and the USA. Regarding the first issue of comparing GAFTA with bilateral agreements, the inquiry pointed out that firms do not really recognize major differences. This is due either to a lack of awareness or to the fact that their products are treated equally in both GAFTA and bilateral agreements. However, some firms pointed out that they prefer GAFTA as it is more comprehensive whereas other prefers bilateral agreements as there is a clear transparent system for solving disputes if they arise. Moreover, there is no significant difference across countries or firms regarding their preference for a certain agreement.

Regarding exporting to GAFTA members and comparing it to exporting to the EU and the USA, the inquiry revealed useful insights. For example, it was stated that rules of origin in GAFTA are more lenient than rules of origin with the EU or the US, and that the standards applied might be as well more lenient. However the lack of transparency in applying standards as well customs cumbersome procedures prevailing in GAFTA render it to be more difficult in dealing with. Hence, the preference of a trader in dealing with GAFTA versus the EU or US depends on his cost-benefit analysis for the advantages and disadvantages of GAFTA characteristics identified above. Moreover, the price differences, which are not related to such characteristics, play a major role in determining the markets which traders deal with. Price differences can be related to exchange rate differentials, or to level of per capita income. Moreover, the lack of effective institutions dealing with the existing non-tariff barriers and the politicization of GAFTA procedures are major concerns for the future of GAFTA as they are undermining the trust of traders in GAFTA and hence are lowering the potential for increasing intra-GAFTA trade.

Finally, the historical and geographical orientation of some countries and industries play a major role in determining which markets to deal with. Such issues heavily affect the decision of traders in terms of dealing with GAFTA versus non-GAFTA countries. For example, Moroccans are more heavily oriented towards Europe and Saudis are more heavily oriented towards Gulf countries, whereas Yemenis have special trade ties with South Asian countries. This has not been the case with Egyptians and Lebanese as the inquiry revealed. Moreover, the nature of the industry itself determines its geographic orientation. For example, the high food prices prevailing in Europe affected the decision of the majority of food industries to direct their exports to Europe if they had the chance to making use of the appreciating euro. This is not the case for some of the petrochemical industries where the domestic orientation prevent them from expanding exports to GAFTA members especially in the presence of high transport costs and the need to be located near to energy sources. Price differences as an appreciating euro can make a change in the decision of directing exports to Europe, which is not the case with the USA.

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3. Trade effects of GAFTA: A quantitative assessment[14]

This part is dedicated to the quantitative assessment of the trade effects due to the GAFTA agreement. In a first section, a theoretical model is proposed as a theoretical foundation. This model is an original combination of gravity models and supply-demand export models. Its main contribution is to simultaneously include gravity variables as well as export supply variables, especially scales economies and product differentiation. In a second section, this model is applied to trade within GAFTA countries. The main objective is to calculate the trade impact of the GAFTA agreement on trade flows. In particular, an estimation of trade creation and trade diversion will be presented, as well as the calculation of trade potentials across GAFTA countries.

3.1 The model

The model proposed here combines new developments in gravity equations as well as in supply-demand export equations. Starting with gravity models, it has been recently considerably renewed, especially with regard to its theoretical foundations. Indeed, it has been increasingly recognized that this equation can be derived from various international trade theories, notably Ricardian, Heckscher-Ohlin and monopolistic competition models (Helpman and Krugman 1985, Bergstrand 1989, Markusen and Wigle 1990, Evenett and Keller 2002, Shelburne 2002), but also the reciprocal-dumping model (Feenstra, Markusen and Rose, 2001).

More recently, two crucial factors have been included in the gravity model. The first related to trade costs, as shown by Anderson and van Wincoop (2003). This framework makes it possible to take into account not only distance as a traditional proxy for transport costs, but also border effects, tariffs and non tariff barriers (NTBs). As a second factor, expectations have also been recently included in the gravity model, as developed by Abedini (2008). Indeed, when a firm enters the world export market, it can face significant sunk costs. As a result, before deciding to

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export, a firm must ensure that sunk costs can be amortized in the future. This justifies the introduction of expectations into the gravity equation.

The advantage of gravity models is that it simultaneously takes into account mass variables (GDPs) and trade costs. However, it does not include some crucial variables which are specific to the imperfect competition framework, especially product varieties and scale economies. However, these variables are included in the supply-demand export model, developed first by Goldstein and Khan (1978, 1985) as well as Harrigan (1994). In turn, supply-demand models exclude gravity variables, notably distance and other trade costs.

The model proposed here is an original combination of gravity models and supply-demand export models. Its main contribution is to simultaneously include gravity variables as well as export supply variables, especially scales economies and product differentiation. It can be written as follows:

$$\log X_{ijt}^{s} = a_0 + a_1 \log Y_{it} + a_2 \log \theta_i + a_3 \log A_{jt} \tag{1}$$

$$\log X_{ijt}^{d} = b_0 + b_1 \log Y_{jt} + b_2 \log N_{it} - b_3 \log D_{ij} - b_4 \log T_{ijt} - b_5 \log L_{ij} - b_6 \log B_{ij}$$
$$+ b_7 \log\left(\frac{P_i}{P_j E_{ij}}\right) \tag{2}$$

$$\Delta \log X_{ijt} = \gamma \left(\log X_{ijt}^{d} - \log X_{ijt-1}\right) \qquad 0 < \gamma < 1 \tag{3}$$

$$\Delta \log P_{it} = \lambda \left(\log X_{ijt} - \log X_{ijt}^{s}\right) \qquad 0 < \lambda < 1 \tag{4}$$

$$X_{ijt}^{d} = X_{ijt}^{s} = X_{ijt} \tag{5}$$

Equation (1) is an export supply equation, which states that exports from country i to country j depend on country i's capacity to produce at year t (Y_{it}), scale economies (θ_i) as well as expectations of suppliers with regards to the importing country j (A_{jt}). Indeed, as mentioned earlier, the better exporters' expectations vis-à-vis the import market, the more exporters are confident to export toward this market.

Equation (2) reflects the export demand equation. It depends on country j's GDP (Y_{jt}), the number of varieties offered by the exporting country (N_{it}), the various trade costs, proxied by distance (D_{ij}), tariffs (T_{ij}), the differences in languages (L_{ij}) as well as

border effects (B_{ij}). The latter measures the specific cost of crossing a frontier (McCallum, 1995, Anderson and Van Wincoop, 2003). Finally, (P_i/P_jE_{ij}) captures the relative competitiveness of country j. Indeed, if prices (P_j) increase or if exchange rates (E_{ij}) appreciate, country j's competitiveness is reduced relative to country i. As a result, there is a rise in export demand for country i's exports.

Equations (3) and (4) respectively correspond to volume and price adjustment of international trade. Exports increase as export demand is greater than observed exports at the previous period (equation 4). In the same way, prices must rise if actual exports are greater than export supply. The final equation (5) reflects the equilibrium where export supply is equal to export demand.

The system (1) to (5) can be solved by substituting first equation (1) into (4) and then equation (2) into (3). This leads to the following reduced form:

$$\log X_{ijt} = \alpha_0 + \alpha_0 \log Y_{it} + \alpha_2 \log Y_j + \alpha_3 \log \theta_i + \alpha_4 \log N_i$$
$$- \alpha_5 \log D_{ij} - \alpha_6 \log T_{ijt} - \alpha_7 \log L_{ij} - \alpha_8 \log B_{ij}$$
$$+ \alpha_9 \log X_{ijt-1} + \alpha_{10} \log A_{jt} + \alpha_{11} \log P_{jt}E_{ijt} + \alpha_{12} \log P_{it-1} \qquad (6)$$

With:

$$\alpha_0 = \frac{\gamma b_0 + \gamma \lambda b_7 a_0}{1 + \gamma \lambda b_7}; \alpha_1 = \frac{\gamma \lambda b_7 a_1}{1 + \gamma \lambda b_7}; \alpha_2 = \frac{\gamma b_1}{1 + \gamma \lambda b_7}; \alpha_3 = \frac{\gamma \lambda b_7 a_2}{1 + \gamma \lambda b_7}; \alpha_4 = \frac{\gamma b_2}{1 + \gamma \lambda b_7}$$

$$\alpha_5 = \frac{\gamma b_3}{1 + \gamma \lambda b_7}; \alpha_6 = \frac{\gamma b_4}{1 + \gamma \lambda b_7}; \alpha_7 = \frac{\gamma b_5}{1 + \gamma \lambda b_7}; \alpha_8 = \frac{\gamma b_6}{1 + \gamma \lambda b_7}; \alpha_9 = \frac{1 - \gamma}{1 + \gamma \lambda b_7}$$

$$\alpha_{10} = \frac{\gamma \lambda b_7 a_3}{1 + \gamma \lambda b_7}; \alpha_{11} = \frac{\gamma b_7}{1 + \gamma \lambda b_7}; \alpha_{12} = \frac{\gamma b_7}{1 + \gamma \lambda b_7} \text{ with all } \alpha_k > 0, \forall k=1,\ldots,12.$$

In order to render equation (6) estimable, it is rewritten as:

$$\log X_{ijt} = \alpha_0 + \alpha_0 \log Y_{it} + \alpha_2 \log Y_j + \alpha_3 \log \theta_i + \alpha_4 \log N_i$$
$$- \alpha_5 \log D_{ij} - \alpha_6 \log T_{ijt} - \alpha_7 \log L_{ij} - \alpha_8 \log B_{ij}$$
$$+ \alpha_9 \log X_{ijt-1} + \alpha_{10} \log A_{jt} + \beta_i + \delta_j + \mu_{ij} + \varphi_t + \varepsilon_{ijt} \qquad (6')$$

As compared to the theoretical equation (6), equation (6') exhibits specific effects, in particular β_i and δ_j. In line with Anderson and Van Wincoop (2003), these effects are assumed to account for price effects, which are not possible to estimate directly, especially for developing countries. A time effect φ_t is also included to capture business cycles. More generally, these effects make it possible to take into account the heterogeneity of the data. They also capture the effects of potential omitted variables (Egger, 2004). They can be considered as fixed or random depending on the specification of the model.

The other variables are tentatively measured or estimated as follows: GDPs are measured at 1995 price in purchasing power parity (PPP). The statistical source used is Cepii (Chelem Database).

The number of varieties (N_i) is proxied by the difference in GDP per capita between the exporting and the importing country. Indeed, according to the new trade theory (Krugman, 1995), inter-industry trade prevails when this difference (which measures the economic distance between two countries) is great. In this case, all products are homogenous. There is no differentiation and thus no different varieties offered to the consumer. On the other hand, when the incomes per capita are identical, trade is of intra-industry type only. In this case, all the products are differentiated and the number of varieties available for the consumer is maximum. Calculations are carried out from the United Nations database (Comtrade).

The geographical distance is calculated as a weighted index, which takes into account the spatial distribution of population within each country (Clair et al, 2004; source: Cepii, 2007).

Two alternative variables are used for measuring tariffs. The first is a direct measure of average bilateral tariffs (source: TRAINS), which will be applied to the country sample restricted to GAFTA countries only. As a second proxy, we use dummy variables which correspond to regional economic integration. These dummies will be used in the enlarged country sample, which covers the European Union (EU), the North American Free Trade Area (NAFTA), the Latin American customs union (MERCOSUR), the Euro-Mediterranean agreement (EUROMED) as well as GAFTA.

All these variables are expected to exhibit a positive coefficient, as in all cases, regional integration has led to significant tariff cuts. However, these tariff cuts are limited in the EUROMED area, because agricultural products have been excluded from this agreement.

L_{ij} is a dummy variable which takes the value 1 if a common language is spoken by at least 10% of the population in each country pair (exporter and importer) and 0 otherwise (source: Cepii, 2007).

Border effects are measured by a dummy which is equal to zero for trade within a country and one for trade across countries. This variable requires data on internal exports, which are calculated as the difference between production and total exports (this method is now standard in the empirical literature). Internal distance is measured in the same way as international distance (Cepii, 2007).

A_{jt} denotes the degree of confidence of economic agents with regard to justice and law in country j. This variable is a proxy for expectations. The higher confidence in the importing country, the lower expected trade costs in this market. Therefore, a positive value of a_6 is expected. Data come from Kaufman et al. (2006).

The lagged export variable measures hysteresis in international trade. Indeed, due to the presence of sunk costs, the firm which is willing to export must ensure before exporting that she will be able to amortize these sunk costs. This requires that exporting firms remains in the exporting market for a very long time (Baldwin and Krugman, 1989).

The final variable to be estimated corresponds to scale economies. For that purpose, we start from a production function with three factors: labour (L), capital (K) as well as a time effect T which is supposed to capture technical change.

$$Y = f(K, L, T) \tag{7}$$

The production Y is assumed to be homogenous of degree θ:

$$f(kK, kL, T) = f(K, L, T)k^{\theta} \tag{8}$$

A translog approximation of Y is then used, following the method developed by Chan and Mountain (1983), Kim (1992), Graham (2001) or Péridy (2004).

$$\log Y = e_0 + e_1 \log L + e_2 \log K + e_3 T + \frac{1}{2} e_4 (\log L)^2 + \frac{1}{2} e_5 (\log K)^2$$
$$+ e_6 \log L \log K + e_7 T \log L + e_7 T \log K + \frac{1}{2} e_9 T^2 \tag{9}$$

This function is homogenous of degree θ if:

$$e_1 + e_2 = \theta$$

$$e_7 + e_8 = 0$$

$$e_4 + e_5 + 2e_6 = 0 \tag{10}$$

In the next step, we use first order conditions for output maximization subject to an expenditure constraint. These conditions lead to the derivation of factor cost shares, which represent the share of each factor expenditure in total cost[15]:

$$S_L = \frac{1}{\theta} \frac{\partial \log Y}{\partial \log L} \tag{11}$$

$$S_K = \frac{1}{\theta} \frac{\partial \log Y}{\partial \log K} \tag{12}$$

Normalizing the translog parameters by (1/θ) and differentiating the translog equation result in the following translog production system:

$$\log Y = \theta \left[\begin{array}{l} e_0^* + e_1^* \log L + e_2^* \log K + e_3^* T + \frac{1}{2} e_4^* (\log L)^2 + \frac{1}{2} e_5^* (\log K)^2 \\ + e_6^* \log L \log K + e_7^* T \log L + e_8^* T \log K + \frac{1}{2} e_9^* T^2 \end{array} \right] \tag{13}$$

$$S_L = e_1^* + e_4^* \log L + e_6^* \log K + e_7^* T \tag{14}$$

$$S_K = e_2^* + e_5^* \log K + e_6^* \log L + e_8^* T \tag{15}$$

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[15] For a complete derivation af the model, refer to Graham (2001).

With $e_i^* = e_i/\theta \; \forall i=1,\ldots,9$

And the following constraints:

$$e_1^* + e_2^* = 1$$

$$e_7^* + e_8^* = 0$$

$$e_4^* + e_5^* + 2e_6^* = 0 \qquad\qquad (16)$$

Although the above system can be estimated efficiently, the factor shares add up to one, which makes the system singular. The standard procedure for handling this problem is to drop an arbitrary share equation from the system and to impose this constraint (Greene, 2003). This makes it possible to produce the final non singular system:

$$\log \frac{Y}{K^\theta} = \theta \left[\begin{array}{l} e_0^* + e_1^* \log \dfrac{L}{K} + e_3^* T + \dfrac{1}{2} e_4^* (\log L)^2 + \dfrac{1}{2} e_5^* (\log K)^2 \\[2mm] + e_6^* \log L \log K + e_7^* T \log L + e_8^* T \log K + \dfrac{1}{2} e_9^* T^2 \end{array} \right] \qquad (17)$$

$$S_L = e_1^* + e_4^* \log L + e_6^* \log K + e_7^* T \qquad\qquad (18)$$

$$e_7^* + e_8^* = 0$$

$$e_4^* + e_5^* + 2e_6^* = 0 \qquad\qquad (19)$$

This system can be estimated using Full Information Maximum Likelihood (FIML), following for instance Tsionas and Loizides (2001). Data used are derived from the UNIDO industrial database (UNIDO, 2008). Production is measured by the value added in manufacturing industries. As proxies for production factors, we used the total number of employees as well as the cumulative growth fixed capital formation. For most countries, estimations have been run over the period 1963-2003 (41 years). However, for a significant number of GAFTA countries and other emerging countries, the period taken into consideration is shorter because of the lack of data.

Estimations of scale economies are displayed in Table 3.1. With regard to GAFTA members, it is striking to observe that most of them exhibit significant scale economies, especially Maghreb countries as well as most Gulf countries. This can be mainly explained by the fact that firms have still not reached their optimal size. Another explanation is related to the case of imperfect competition characteristics, especially concerning petroleum or chemical industries.

Table 3.1: Estimation of scale economies

GAFTA countries		EU and other OECD		Emerging countries	
Morocco	1.691	Bulgaria	1.589	Malaysia	1.602
Tunisia	1.562	Germany	1.401	Indonesia	1.587
Libya	1.558	Sweden	1.398	Thailand	1.499
Algeria	1.485	Iceland	1.388	China	1.381
Saudi Arabia	1.485	Austria	1.362	Ecuador	1.333
Qatar	1.455	Canada	1.339	Brazil	1.302
Jordan	1.441	Hungary	1.338	Argentina	1.122
Oman	1.408	Switzerland	1.333	Venezuela	1.109
UAE	1.355	USA	1.324	Chile	1.062
Syria	1.298	Netherlands	1.297	Colombia	0.701
Yemen	1.222	Poland	1.201		
Kuwait	1.155	Turkey	1.200		
Egypt	1.037	United Kingdom	1.169		
		France	1.163		
		Finland	1.150		
		Mexico	1.082		
		Spain	1.073		
		Italy	1.061		
		Israel	1.055		
		Ireland	1.025		
		Portugal	0.897		
		Greece	0.874		

Compared to the other countries in our database, GAFTA countries generally show higher scale economy levels that in OECD countries, which have generally reached their optimal size. In addition, these levels are of similar magnitude to Asian emerging countries (China, Indonesia, Malaysia, Thailand), but they are higher than those found in most Southern American countries.

These finding suggest that GAFTA countries could take advantage of GAFTA implementation in order to increase production efficiency as well as trade competitiveness. In this regard, the impact of scale economies on trade will be assessed quantitatively in the next section.

3.2 Estimation , results and Sensitivity Analysis

The model is estimated in two steps. In the first step, the full country sample is used. It includes 56 exporting and importing countries, of which most developed and emerging countries as well as GAFTA countries (see Table 2). This makes it possible to test the significance of the parameter estimates on a large scale, i.e. with a large number of countries and observations. This also enables the comparison of the effects of several regional trade arrangements, including GAFTA.

Table 3.2: The country sample

1	Argentina	21	Malaysia	41	Djibouti
2	Austria	22	Morocco	42	Egypt
3	Brazil	23	Mexico	43	Iraq
4	Bulgaria	24	Netherlands	44	Jordan
5	Canada	25	Peru	45	Kuwait
6	Chile	26	Philippines	46	Lebanon
7	China	27	Poland	47	Libya
8	Colombia	28	Portugal	48	Mauritania
9	Denmark	29	Spain	49	Oman
10	Ecuador	30	Sweden	50	Qatar
11	Finland	31	Switzerland	51	Saudi Arabia
12	France	32	Thailand	52	Somalia
13	Germany	33	Tunisia	53	Sudan
14	Greece	34	Turkey	54	Syria
15	Hungary	35	United Kingdom	55	UAE
16	Iceland	36	United States	56	Yemen
17	Indonesia	37	Venezuela		
18	Ireland	38	Algeria		
19	Israel	39	Bahrain		
20	Italy	40	Comoros		

In a second step, the country sample is limited to GAFTA countries only as exporters and importers. This makes it possible to highlight the trade specificities of these countries. In particular, the estimation of the parameter corresponding to the bilateral tariff variable gives a first insight about the ex-post effects of the implementation of GAFTA. In the two country samples, estimations are made over the period 1988-2007.

3.2.1 Econometric specification

Tables 3.3 to 3.5 show the parameter estimates corresponding to the trade equation (6'). As a sensitivity analysis, several estimators have been tested. The first two ones are the LSDV and GLS, which respectively correspond to the standard fixed effects and random effects models (FEM and REM). The Hausman test tends to favour the fixed effects model, since it shows that the GLS can be biased by the correlation between the residuals and some independent variables (endogeneity bias)[16]. However, the FEM cannot estimate the parameters related to the time invariant variables, such as distance, language, border effects, etc… In order to overcome the endogeneity bias, the Hausman and Taylor model (HTM) is also presented. This estimator has been increasingly used in panel data econometrics which include several time invariant variables, since Egger (2004). In the present paper, it has been implemented by taking GDP as the variable correlated with the residual. This makes it possible to increase the theta statistics to a value close to unity, which suggests that the remaining endogeneity bias is very small[17].

Transformed fixed and random effects models (TFEM, TREM) are also presented in the estimation results. They address the multiple heterogeneity of our dataset. Indeed, as mentioned previously, our data exhibit heterogeneity across exporting countries, importing countries, country pairs and time (quadruple heterogeneity). The TFEM and TREM reduce the number of specific effects without losing any information concerning the effect which has been removed. As a matter of fact, the specific time effect has been withdrawn first by calculating the group average of each variable. Secondly, the first difference of each variable has been computed. This makes it possible to remove the time effect in the model, which can then be re-estimated with the transformed variables without losing any information (for additional details, see Abowd et al.1999 and Wooldridge, 2001).

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[16] The relevance of the FEM is also highlighted by the Wald tests, which point out the significance of all the specific effects, i.e. the export countries' effects, the import countries' effects, the bilateral effects as well as the specific time effects.

[17] For additional details about this estimator, refer to Greene (2003).

The final estimator is the GMM proposed by Arellano, Bond and Bover (ABB)[18]. It can estimate a dynamic model while addressing the potential bias due to the correlation between the lagged dependent variable and any independent variable. Basically, the structure of the model is similar to the static HTM described previously. However, compared to HTM, the ABB approach provides additional efficiency gains through GMM, by using a larger set of moment conditions (Greene, 2003).

Whatever the estimator considered in the tables, it is striking to observe that the parameter estimates are remarkably stable across the various estimators. This is a first indication concerning the robustness of the results. As an additional sensitivity analysis, regressions have also been controlled and corrected for heteroskedasticity and autocorrelation. Finally, multicolinearity is checked through the calculation of the variance inflation factor. The latter remains at low levels (1.25), which is well below the upper limit which is generally admitted (10).

3.2.2 Estimation results

a) Results for the full country sample

Table 3.3 exhibits the estimation corresponding to all the countries including in our sample, i.e. 56 countries. Results are consistent with the theoretical expectations derived previously. As a matter of fact, exports increase with the GDP in the exporting or the importing countries. Similarly, exports decrease with the distance between partner countries, whereas they rise if these countries speak a common language. These results are commonly found in the traditional literature which applies gravity model.

Results are also consistent with new developments in the gravity equation. For example, border effects are always significant at the 1% level. This means that crossing a frontier strongly reduces trade as compared with commodities which are exchanged within a country, in accordance with McCallum (1995). Moreover, expectations also play a significant role, as shown by the significant and positive parameter estimates (Abedini, 2008).

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[18] Refer to Arellano and Bond (1998)

Table 3.3: Estimation Results (Full country sample)

	REM	FEM	HTM	Transformed models		Dynamic model (ABB)
				TREM	TFEM	
GDP_i	1.523*	1.553*	1.563*	1.408*	1.563*	.824*
	(.0181)	(.0345)	(.0336)	(.0212)	(.0453)	(.0294)
GDP_j	1.059*	1.212*	1.179*	.963*	1.195*	.596*
	(.0158)	(.0333)	(.0304)	(.0184)	(.0442)	(.0253)
$Ecale_i$	.87*		.915*	.808*		.524*
	(.198)		(.2265)	(.1957)		(.1293)
VAR_i	-.018***	-.044*	-.031*			-.014***
	(.0095)	(.01)	(.0096)			(.0076)
DIST	-1.359*		-1.326*	-1.329*		-.664*
	(.042)		(.0475)	(.0416)		(.0279)
LANG	.316*		.368*	.307*		.191*
	(.1123)		(.1274)	(.1108)		(.0726)
BORDER	(dropped)		-18.17*	-2.008*		-9.529*
			(.5060)	(.3066)		(.3421)
EXPlag						.465*
						(.0047)
LAW	.113*	.119*	.105*	.171*	.102**	.094*
	(.0257)	(.0369)	(.0291)	(.0272)	(.0396)	(.0214)
GAFTA	.503*	.446*	.471*	.451*		.154*
	(.0397)	(.04)	(.0399)	(.1592)		(.036)
EU	.4*	.374*	.361*	.415*	.459*	.191*
	(.0361)	(.0368)	(.0362)	(.0368)	(.038)	(.0287)
MERCOSUR	.984*	.985*	.939*	.332	.342	.393
	(.3517)	(.3609)	(.3516)	(.2535)	(.2605)	(.2906)
EUROMED	-.04	-.09**	-.09**	.045	.048	-.049
	(.0389)	(.0393)	(.0389)	(.0399)	(.0401)	(.0302)
NAFTA	.316	.355	.264	.171	.280	.085
	(.2172)	(.2238)	(.2174)	(.1958)	(.2041)	(.1712)
Constant	-16.183*	-29.118*		-1.354*	-1.142*	
	(.4381)	(.3266)		(.0591)	(.0334)	
Number of obs.	39234	39234	39234	40045	40045	
Number of groups	2404	2404	2404	2449	2449	
Adj R-squared	.6843	.5365		.7151	.4723	
Panel specification (rho)		.8647	.8164	.7691		.7024
VIF (in OLS reg.)	1.25					
F test for heteroskedasticity (all u_i=0)		45.22*			F(8,37588) = 254.77*	

Wald tests:				
Exporter effects (i);		398.3*		385.96*
Importer effects (j);		90.45*		82.66*
Bilateral effects (ij);				51.23*[1]
Time effects (t);		5.26*		
BIC (in OLS reg.)	155198.6			
LM test	130000*		130000*	
Hausman test (χ2)	158.43*		53.55*	

* significant at 1%,   ** significant at 5%,   *** significant at 10%

All the variables related to imperfect competition also exhibit the expected sign. Indeed, a rise in scale economies in country i increase its exports, whereas an increase in the number of varieties available improves the consumer utility and thus increases trade, as expected by the new trade theory (Helpman and Krugman, 1985, Krugman, 1995).

The lagged export variable is also significant. This highlights the role of hysteresis in international trade, due to sunk costs, as expected since Baldwin and Krugman (1989).

Finally, regional economic integration is generally very significant, especially in the case of the EU, MERCOSUR but also GAFTA. The parameter estimates corresponding to NAFTA are also positive, but insignificant, whereas the effects of the euro-mediterranean agreement, when significant, can be negative. This last result can be explained by the restricted access of the European market to the agricultural products originating from Southern Mediterranean countries. Another reason may be found in the decrease in Mediterranean countries' margin of preference on the EU market, due to the removal of the Multi-Fibre-Agreement after the Uruguay round (Abedini and Péridy, 2008).

More precisely, the positive coefficient corresponding to GAFTA indicates that the GAFTA agreement has increased intra-regional trade. However, Table 3.3 does not distinguish between trade creation and trade diversion. It only provides an indication about gross trade creation. More information is provided in Table 3.4. In this table, the variable NOGAFTA is introduced in the model. In the first column, this variable

is equal to one if the exporting and the importing countries are not GAFTA countries. This variable gives an indication about trade diversion. Results suggest that trade within the GAFTA area has led to both trade creation (0.435) and trade diversion (-0.126). As a result, the net trade creation coefficient is equal to the difference between the two above mentioned coefficient, i.e. 0.309 (see Trottignon, 2007 for additional details about this methodology). Consequently, the GAFTA agreement is more trade creating than trade diverting.

Table 3.4 : Parameter estimated for trade creation and trade diversion

	Trade Creation/diversion	Export Creation/Diversion	Import Creation/Diversion
GAFTA partnership	.435* (.0401)	.447* (.04)	.426* (.04)
Non GAFTA partnership	-.126* (.0168)	.11* (.0268)	-.224* (.0196)

* significant at 1%

Further investigations are presented in column 2 of Table 3.4, for which the NOGAFTA variable is equal to 1 when the exporting countries are GAFTA members but the importing countries are not. This gives an indication about trade diversion with regard to exports. The corresponding parameter estimate is slightly positive. This suggests that GAFTA has been trade creating without diverting exports from non GAFTA countries.

Finally, column 3 introduces the NOGAFTA variable which is equal to one when the importing countries are GAFTA members, but the exporting countries are not. In this case, the coefficient is negative. This shows that the GAFTA agreement has led to the replacement of some imports originating initially from non GAFTA members, by imports originating from the GAFTA area. In other words, trade diversion has concerned imports but not exports.

To sum up, both traditional and new variables in the gravity equation prove to be significant here. In particular, the GAFTA agreement seems to have significant trade effects, since the net trade creation is positive. This result is fully consistent with that

found in the inquiry presented in Part 2, where the firms inquired generally considered that GAFTA helped increase trade in the Arab region.

To go further in this analysis, we can calculate the net trade creation due to the GAFTA regional economic integration as a percentage of GAFTA countries' exports. To that end, equation (6) can be rewritten as:

$$\log X_{ijt} = \log HX_{ijt} + \alpha_6 \log GAFTA_{ijt} \alpha'_6 \log NOGAFTA_{ijt} \tag{20}$$

where $logHX_{ijt}$ reflects the hypothetical intra-GAFTA trade without the GAFTA agreement.

We then define the net trade creation (NTC) as the difference between actual and hypothetical intra-GAFTA exports:

$$NTC = X_{ijt} - HX_{ijt} \tag{21}$$

Replacing HX_{ijt} from equation (21) into equation (20) and giving $GAFTA_{ijt}$ and $NOGAFTA_{ijt}$ the value corresponding to the implementation of the GAFTA agreement case ($GAFTA_{ijt} = NOGAFTA_{ijt} =$e), we find:

$$\ln X_{ijt} = \ln(X_{ijt} - NTC) + (\alpha_6 + \alpha'_6)\ln e \tag{22}$$

This allows us to derive the net trade creation:

$$NTC = X_{ijt}\left(1 - \frac{1}{e^{\alpha_6 + \alpha'_6}}\right)$$
$$(13)$$

From this equation and the parameters α_6 and α'_6 estimated previously, we can calculate that over the period 1997-2005, the GAFTA regional arrangement increased intra-regional Arab trade by about 26.6% using the HTM estimator. This correspondsto a gross trade creation of about 35.2% which is more than that estimated in Abedini and Peridy (2008). The reason for this is that the present study takes into

account not only the traditional trade gains due to economic integration, but also gains due to imperfect competition.

b) Results for the restricted country sample (GAFTA countries only)

Restricting the exporting and importing countries to GAFTA members only makes it possible to highlight the specificities of these countries in terms of trade determinants (Table 3.5). GDP and distance are significant and of similar magnitude to the full country sample. The same remark also applies to the lagged dependent variable[19].

The tariff variable is also significant. This suggests that the reduction in tariff barriers in the GAFTA area have actually increased intra-GAFTA trade. Looking at the parameter estimates, it can be argued that 1% reduction in tariffs has led to a 0.2%/0.3% increase in trade within the GAFTA area. As a result, GAFTA trade effects are significant. This correlates the results found in the previous table, where the GAFTA dummy variable was significant.

However, compared with Table 3.4, there are some differences with the other variables. In particular, the variables related to imperfect competition are generally of lower magnitude (expectations and varieties) and sometimes become insignificant (scale economies). These results are consistent with those already found with the inquiry in Part 2. Indeed, we have concluded that imperfect competition effects of GAFTA were small or neutral, especially with regard to scale economies and the number of varieties. Such a conclusion is also valid here. The main explanation can be found in market structures, where products are poorly differentiated, consumer tastes are similar, and trade is mainly inter-industrial. As a result, trade or welfare gains due to imperfect competition are small compared to those found in Northern countries, especially the EU. Another explanation can be found in GAFTA provisions, which ignore deep integration, contrary to the European experience, especially since the implementation of the

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[19] The variable related to the common language has been dropped because all GAFTA countries speak the same language, i.e. Arabic.

European Single Market, which made it possible to take advantage of the gains in imperfect competition.

Table 3.5: Estimation Results (GAFTA countries only)

| | REM | FEM | HTM | Transformed models | | Dynamic model (ABB) |
				TREM	TFEM	
GDP_i	1.425*	2.153*	1.998*	1.056*	2.658*	1.228*
	(.1071)	(.2521)	(.2458)	(.1316)	(.2912)	(.2065)
GDP_j	1.09*	.993*	1.072*	.752*	1.167*	.418***
	(.0996)	(.2583)	(.2551)	(.1167)	(.3659)	(.2267)
$Ecale_i$	.369		.562	.534		.296
	(1.0638)		(1.6612)	(1.0531)		(1.2577)
VAR_i	-.127**	-.312*	-.235*			-.17*
	(.0575)	(.0661)	(.0612)			(.0523)
DIST	-1.894*		-1.827*	-1.856*		-.882*
	(.1983)		(.3087)	(.1954)		(.2392)
TAR	-.358*		-.323*	-.287*		-.168*
	(.074)		(.1063)	(.0746)		(.0774)
BORDER	(dropped)		(dropped)	(dropped)		(dropped)
EXPlag						.427*
						(.022)
LAW	-.122	.167	.041	.26***	.681*	-.0461
	(.1582)	(.2345)	(.1945)	(.1601)	(.2541)	(.159)
Constant	-9.683*	-29.084*		-1.905*	4.007*	
	(1.7735)	(1.4208)		(.4610)	(.7172)	
Number of obs.	1655	1655	1655	1655	1655	1353
Number of groups	121	121	121	121	121	119
Adj R-squared	.4148	.11		.426	.0915	
Panel specification (rho)		.8449	.8075	.6049	.8698	.8056
VIF (in OLS reg.)	1.23					
F test for heteroskedasticity (all u_i=0)		18.21*			F(120, 1530) = 16.59*	
Wald tests:						
Exporter effects (i);		33.59*			32.69*	
Importer effects (j);		22.65*			22.11*	
Bilateral effects (ij);					6.1*[1]	
Time effects (t);		1.14				
BIC (in OLS reg.)	6472.429					
LM test	2251.54*				2250.75*	

Hausman test (χ2)	44.59*	59.59*	⋮

* significant at 1%, ** significant at 5%, *** significant at 10%

c) An estimation of trade potentials

The model estimated previously can be used to calculate trade potentials across GAFTA countries, thanks to the estimation of the residuals. Table 3.6 shows the actual/fitted export ratio calculated for each country pairs at a yearly average (1997-2006).

Table 3.6: Actua/Fitted export ratios in GAFTA countries

importing\exporting	Morocco	Tunisia	Algeria	Egypt	Jordan	Kuwait	Lybia	Oman	Qatar	Saudi Arab	Syria	UAE	Yemen
Morocco	-	0.899	1.026	1.061	1.064	0.977	1.115	n.a.	2.096	1.060	0.895	2.155	0.984
Tunisia	0.857	-	0.883	0.841	0.855	0.788	1.257	1.155	1.525	0.964	0.729	3.166	n.a.
Algeria	0.787	0.887	-	0.877	1.232	n.a.	0.527	n.a.	3.666	1.007	0.976	1.273	n.a.
Bahrein	0.406	1.052	1.052	1.135	0.592	0.822	0.892	0.896	0.841	1.038	0.812	1.053	0.419
Egypt	1.207	1.009	1.137	-	0.888	1.032	1.154	1.111	1.048	1.082	0.977	1.668	0.868
Iraq	0.564	1.803	1.251	1.559	0.960	n.a.	n.a.	0.982	0.266	1.368	2.207	1.173	0.875
Jordan	0.982	0.743	1.365	0.896	-	0.947	0.640	1.401	0.826	1.094	0.939	1.532	0.849
Kuwait	0.869	0.595	n.a.	0.816	1.131	-	n.a.	0.952	0.812	0.951	0.957	1.078	1.395
Lebanon	1.018	0.827	1.313	0.975	0.928	0.944	0.642	0.925	0.957	1.022	0.891	1.907	1.250
Lybia	0.844	0.993	0.555	0.995	0.973	0.890	-	1.982	n.a.	1.423	0.945	2.084	n.a.
Mauritania	1.056	0.864	0.615	0.355	n.a.	n.a.	n.a	0.351	1.012	1.210	n.a.	1.421	n.a.
Oman	n.a.	n.a.	1.028	0.686	1.084	0.979	n.a	-	0.736	0.983	1.373	1.130	0.932
Qatar	0.477	0.411	0.825	0.670	0.879	0.946	0.842	0.952	-	0.961	0.850	1.011	n.a.
Saudi Arabia	0.910	0.942	n.a.	0.907	0.946	0.929	n.a	1.018	0.901	-	0.968	1.111	0.983
Somalia	n.a.	n.a.	n.a.	0.874	0.799	0.791	n.a	n.a.	n.a.	1.126	n.a.	0.485	1.009
Sudan	0.850	n.a.	n.a.	0.859	0.927	0.361	0.147	1.104	0.686	0.952	1.054	2.653	1.128
Syria	1.383	0.570	1.499	1.024	0.924	1.034	0.858	1.281	1.100	1.013	-	1.346	n.a.
UAE	1.279	0.949	1.198	0.957	0.936	0.914	1.399	0.946	0.931	1.016	1.012	-	0.996
Yemen	0.642	0.162	n.a.	0.871	0.894	3.450	n.a	0.911	0.859	1.059	1.015	1.024	-
ALL	**0.883**	**0.847**	**1.064**	**0.879**	**0.955**	**0.828**	**0.715**	**1.064**	**0.973**	**1.074**	**0.960**	**1.315**	**0.974**

Among the 13 exporting countries considered, nine of them exhibit a ratio which is lower than unity. This means that for most GAFTA countries, the GAFTA agreement has increased intra-regional trade, but this trade still remains lower than "normal" trade between two countries. This result correlates some previous findings in this strudy, which showed that intra-regional trade started at low levels before the implementation of GAFTA.

In particular, countries like Morocco and Tunisia show lower trade levels with GAFTA countries than they should be, especially after the GAFTA economic integration. The fact that these countries traditionally oriented their exports to Europe and took advantage of regional integration with European countries is certainly explaining this result to a large extent. However, other GAFTA countries like Egypt and even Jordan and Syria also show trade rations which are below

one. This means that GAFTA has not made it possible to increase trade above the "normal" level. In fact, Saudi Arabia, the UAE and Oman only exhibit a different picture, mainly thanks to oil trade.

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<u>Conclusion and policy recommendations</u>

This research project attempted to provide a first appraisal of welfare and trade effects of the GAFTA agreement. Two complementary methodologies have been implemented, i.e. an inquiry at firm level, which provides qualitative information, and a macro-econometric model, for quantitative results.

The main results suggest that GAFTA has significant trade effects. Indeed, it increases intra-regional trade (trade creation), without diverting too much trade from the other countries. In this regard, the net trade creation is estimated to amount to 26% of GAFTA trade.

However, effects due to imperfect competition, such as economies of scale and gains due to greater product varieties are small. Moreover, the level of trade reached in most countries is still below its normal level, as showed by the calculation of export potential. One crucial explanation for this result is the lack of deep integration within the Arab world, which impedes the creation of a genuine single market.

Finally, there are some negative distortion effects, which are mainly due to differences in subsidies, especially in the oil industry. This creates an unfair competition environment which is detrimental to specific countries, namely Lebanon.

The main policy implications which can be drawn from the results are the following. If the objective is to enhance the trade and welfare effects of regional integration in the GAFTA region, several policies can be undertaken:

- All the loopholes in the current agreement should be fully addressed and **further step toward deep integration must be achieved**: In particular, progress must be made in favour of the adoption of clear and detailed rules of origin, the actual removal of new NTBs and trade frictions among GAFTA members, the adoption of common standards, the free movement of entrepreneurs, the protection of intellectual property, etc…Such a deep integration will not only increase direct trade effects of regional integration, but also increase indirect effects (scale economies, and dynamic effects) through the establishment of solid foundation toward more integrated area. In this

regard, it is worth mentioning that liberalization of trade in services on a GATS+ approach will surely have a positive impact on deepening integration among GAFTA members.

- Another mean to enhance GAFTA integration could be achieved through the **cumulation of rules of origin** among some of the GAFTA members in their other regional agreements as Agadir. The utilization of such cumulation schemes is likely to force GAFTA countries to cooperate and is likely to result in better allocation of resources.

- There is a need to design a system which ensures that **domestic distortions do not yield negative spillovers** on GAFTA members. The case of different systems of energy pricing in GAFTA members has proved to have negative effects, especially for Lebanon. Hence, at least rules governing subsides should be fully articulated and efficiently implemented within GAFTA.

- GAFTA members should start cooperating on enhancing regional trade and investments in sectors that have proved to have benefited so far from GAFTA as food and some chemicals industries. Moreover, the NTBs that are affecting intra-regional trade in other sectors as textiles should be seriously tackled.

- There is a need to start a serious program on building a comprehensive database and information system on intraregional trade and investment opportunities. In addition, since there is still a lack of knowledge of the GAFTA agreement and its provisions in many firms, more information should be provided concerning regional economic integration in the Arab world.

- From a political point of view, it is also crucial that GAFTA countries can rely on a **closer political cooperation as well as** on **common institutions** that can make possible to control trade liberalisation in the region and solve trade disputes.

- More generally, **conditions for economic growth should be developed**, such as the reform of the states, the development of cross-regional infrastructures, such as railway

and highways, progress toward more trade and FDI liberalisation not only within the GAFTA area but also with the other partners, etc.

Annexes:

Annex 1a: Bilateral Intra-Arab Trade (2007, million US$; Source: Consolidated Arab report, 2008)

Annex 1b: Bilateral Intra-Arab Trade (2007, %; Source: Consolidated Arab report, 2008)

Annex 2: Bilateral tariffs (2001, source; TRAINS)

Intra-Arab trade matrix — exports / imports by country (values). Row = reporting (exporting) country with its "exports" and "imports" lines; columns = partner (importing) country.

(a) Export direction		Jordan	U.A.E.	Bahrain	Tunisia	Algeria	Djiputi	Saudi Arabia	Sudan	Syria	Somalia	Iraq	Oman	Qatar	Kuwait	Lebanon	Libya	Egypt	Morocco	Muritania	Yemen	Others	Total
Jordan	exports		243.5	58.3	11.3	91.6	28.7	367.5	71.4	0.7	0.7	530.8	22.6	68.0	75.1	98.3	25.7	64.2	6.9	0.1	43.9	38.3	1961.2
	imports		332.5	75.1	5.1	0.1	13.8	2847.8	7.1	0.5	0.5	12.4	15.9	8.1	136.6	104.7	0.9	590.7	26.5	0.2	53.8	0.0	4569.2
U.A.E.	exports	174.8		371.9	54.2	101.8	0.0	1823.5	1183.7	253.1	193.8	5.9	2525.7	587.1	566.8	471.7	555.5	335.3	127.7	1.0	1179.2	14.3	9887.4
	imports	287.3		656.5	28.0	1.6	0.0	2661.9	451.7	221.9	46.9	0.0	49.2	1153.6	347.8	436.2	193.2	444.9	510	0.0	376.3	0.0	7671.2
Bahrain	exports	261.2	371.9		54.2	34.3	0.4	924.9	436.7	9.5	6.4	0.0	51.9	171.6	155.7	55.5	55.5	87.0	172.9	15.2	6.9	3.1	1744.8
	imports	472.6	656.5		28.0	14.4	0.0	566.0	114.9	21.9	2.5	4.3	32.0	39.8	436.2	193.2	0.9	26.3	1.7	0.1	0.2	0.0	2040.7
Tunisia	exports	48.1	243.5	12.1		266.9	4.7	254.9	57.8	6.6	0.0	3.0	0.4	2.4	1.4	6.4	4.7	42.8	54.1	0.0	6.9	3.1	1390.8
	imports	9.0	332.5	15.5		299.6	6.7	435.6	5.9	49.3	0.2	0.5	3.4	17.1	13.0	155	0.0	26.3	1.7	0.1	0.2	0.0	849.3
Algeria	exports	6.0	4.2	0.0	327.0		0.0	148.8	1.1	7.1	0.0	3.0	0.7	0.5	2.2	1.0	52.8	405.2	561.2	6.3	2.0	0.0	1374.7
	imports	16.2	48.7	24.9	200.3		0.0	972.1	0.8	21.2	0.0	1.8	10.8	5.3	24.0	0.7	239.5	62.1	3.8	0.0	0.2	0.0	1110.1
Djiputi	exports	8.6	35.5	0.0	0.0	0.1		924.9	1.1	57.8	0.0	3.0	51.9	106.1	4.2	4.2	4.7	42.8	54.1	0.0	6.9	3.1	415
	imports	92.9	36.4	2.5	29.8	3.0		566.0	0.2	5.9	0.2	0.5	32.0	67.2	10.0	0.0	0.0	26.3	1.7	0.1	0.2	0.0	115.9
Saudi Arabia	exports	3494.7	7332.2	6535.1	100.6	94.6	1012.3		677.5	639.2	17.8	143.3	434.4	1153.5	1400.7	369.7	95.5	2968.8	1790.6	10.6	889.2	1.4	29161.5
	imports	330.1	22499	830.9	106.1	3.1	0.2		119.5	497.6	13.8	0.5	292.5	253.1	2259	2139	8.6	1110.1	952	0.0	292.9	1.4	6671.4
Sudan	exports	3.4	224.9	0.0	98.1	0.4	98.1	677.5		10.7	0.0	0.0	0.0	0.1	1.0	17.2	2.9	54.4	0.5	0.0	2.0	0.0	1266.8
	imports	330.1	480.4	59.8	654.6	2.9	0.0	119.5		42.8	0.2	0.0	14.4	31.0	17.2	26.8	23.7	493.0	0.3	0.0	0.0	1.4	11229.9
Syria	exports	495.1	253.1	9.5	33.1	224.1	2.0	1183.7	66.0		1.6	5.0	14.8	46.9	303.4	471.7	208.2	476.7	21.7	0.1	92.1	0.0	4667.0
	imports	134.0	221.9	21.9	7.2	6.9	0.0	451.7	49.3		1.2	0.1	9.3	35.0	110.1	157.0	39.9	597.8	69.2	0.1	3.8	0.0	1924.5
Somalia	exports	0.4	193.8	6.4	10.1	14.1	0.0	0.0	28.1	35.1		0.0	60.6	42.8	132.0	37.4	37.9	34.5	27.1	0.1	6.4	0.0	327.5
	imports	0.6	46.9	2.5	2.7	0.2	0.0	1.2	0.2	68.6		1.2	75.4	48.1	48.1	48.2	8.8	41.1	3.5	0.1	5.4	0.0	454.4
Iraq	exports	56.1	5.9	0.0	0.2	0.1	0.0	802.4	0.2	7993.1	0.0		93.3	0.1	0.0	4.6	0.0	4.6	81.8	0.0	1.7	0.0	1787.8
	imports	2164.9	0.0	0.4	17.8	0.0	293.5	208	0.0	0.2	0.0		49.8	0.0	0.0	0.0	0.0	507.4	0.6	0.0	62.3	0.0	2148.7
Oman	exports	18.8	1833.6	66.0	7.6	2.3	26.4	328.1	16.7	67.1	54.5	53.6		0.0	100.7	12.0	87.5	26.6	3.4	5.3	102.0	0.0	2801.5
	imports	25.2	2778.3	353.7	0.3	0.0	0.0	439.8	0.0	23.2	25.5	0.0		0.0	0.0	14.2	0.2	60.0	6.5	0.0	18.1	0.0	3864.3
Qatar	exports	7.4	1048.7	71.8	20.9	2.5	0.0	148.8	28.1	35.1	0.0	5.0	46.4		132.0	37.4	37.9	34.5	27.1	0.1	6.4	0.0	4232.2
	imports	64.7	645.8	162.6	36.7	4.2	0.0	972.1	0.2	68.6	1.2	0.1	75.4		48.1	48.2	8.8	41.1	3.5	0.1	5.4	0.0	1924.5
Kuwait	exports	80.9	309.5	50.4	20.9	19.4	2.0	254.9	21.5	288.7	0.0	0.0	60.6	148.8		53.2	0.0	154.6	25.0	0.0	422.0	0.0	1691.0
	imports	138.2	529.0	86.1	36.7	4.2	0.0	435.6	0.2	493.4	0.0	0.0	103.6	110.1		90.9	0.5	264.2	9.0	0.0	721.2	0.0	2148.7
Lebanon	exports	99.4	243.8	24.9	12.5	0.2	2.0	187.3	36.6	209.9	0.0	147.6	10.3	75.7	106.3		0.0	113.6	14.2	2.5	12.5	0.0	1322.7
	imports	82.1	218.3	23.3	13.2	0.0	0.0	282.4	19.7	206.5	1.0	1.2	5.9	16.1	269.9		0.0	523.7	38.9	1.7	3.2	0.0	1751.7
Libya	exports	0.8	175.6	0.0	663.8	3.5	4.7	7.8	21.5	291.4	0.0	0.0	0.2	8.0	0.0	31.7		119.8	90.7	0.0	12.5	0.0	1414.9
	imports	23.1	33.5	4.5	416.1	12.0	0.0	29.7	1.4	169.8	0.0	0.0	45.6	22.9	0.2	10.2		75.9	34.1	0.4	3.2	0.0	879.4
Egypt	exports	288.5	196.0	6.0	125.0	43.5	4.7	379.3	163.3	205.9	1.5	48.8	11.4	55.7	52.3	322.9	244.8		168.8	26.6	76.0	0.0	2389.0
	imports	65.2	188.8	114.4	15.1	365.7	6.7	2211.2	49.9	144.7	0.0	0.4	2.7	11.8	1228.0	100.8	195.6		22.9	31.1	22.5	0.0	4777.7
Morocco	exports	33.6	30.8	1.2	80.8	43.5	0.4	65.8	0.7	38.7	0.0	7.8	5.2	9.2	0.4	5.2	41.9	41.1		43.7	7.1	1.4	557.7
	imports	7.5	158.1	33.7	202.3	365.7	0.0	1744.0	0.5	25.2	0.1	7.7	3.6	31.5	0.0	240.0	97.0	341.5		1.3	0.5	0.0	3508.5
Muritania	exports	0.2	0.0	0.1	0.2	14.8	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.4	5.2	0.0	0.1	0.1		0.0	0.1	21.2
	imports	0.1	30.3	0.4	8.9	34.6	0.0	5.9	0.3	0.5	0.0	0.0	0.0	0.0	0.0	240.0	0.0	9.7	22.2		0.2	0.0	113.6
Yemen	exports	2.7	334.8	0.7	1.2	0.1	28.7	78.2	3.7	5.1	33.9	11.2	8.4	1.9	119.7	1.0	1.2	31.1	0.0	0.1		12.9	676.5
	imports	48.0	1623.3	11.6	1.0	0.8	13.8	683.5	3.1	33.3	73.2	0.2	118.8	10.2	340.0	39.8	0.0	132.7	4.2	0.0		75.6	3213.0

Export direction		Jordan	U.A.E.	Bahrain	Tunisia	Algeria	Djibuti	Saudi Arabia	Sudan	Syria	Somalia	Iraq	Oman	Qatar	Kuwait	Lebanon	Libya	Egypt	Morocco	Muritania	Yemen	Others	Total
Jordan	exports		8.91	2.97	0.57	4.67	0.05	18.74	3.64	10.75	0.03	27.06	1.15	3.47	3.83	5.01	1.31	3.27	0.35	0.00	2.24	1.96	100
	imports		6.33	1.66	0.11	0.00	0.00	62.77	0.16	8.02	0.01	0.27	0.35	0.18	3.01	2.31	0.02	13.02	0.58	0.00	1.19	0.00	100
U.A.E.	exports	2.65		3.77	0.30	1.03	0.35	18.50	4.43	12.01	0.43	0.00	25.62	5.96	5.74	1.58	0.56	3.40	1.30	0.01	11.96	0.14	100
	imports	6.16		8.56	5.74	0.02	0.19	34.70	1.50	5.89	2.78	0.06	0.64	15.04	4.53	5.69	2.52	5.80	0.67	0.00	4.91	0.00	100
Bahrain	exports	2.76	13.95		0.55	0.50	0.01	53.01	0.06	3.32	0.00	0.17	2.98	6.08	6.08	0.24	0.27	2.45	3.10	0.45	0.15	0.40	100
	imports	6.16	29.96		0.36	0.02	2.19	50.99	0.01	0.54	0.02	0.05	2.88	6.05	6.05	0.90	0.08	2.37	0.15	0.00	0.09	0.02	100
Tunisia	exports	0.44	0.30	1.24		1.77	0.26	0.97	1.77	2.32	1.88	1.17	0.78	0.56	7.80	2.97	8.12	8.59	6.41	1.07	0.95	—	100
	imports	0.81	5.74	1.13		0.42	0.16	9.29	0.42	1.59	0.66	1.18	0.34	0.92	2.24	1.16	2.77	9.73	2.22	0.00	0.18	—	100
Algeria	exports	0.62	2.59	0.50	1.03		0.08	2.36	0.09	2.19	0.43	0.00	0.01	0.03	0.24	4.07	0.69	0.92	0.12	0.19	0.46	0.27	100
	imports	10.94	2.35	0.02	0.02		0.02	9.29	0.64	5.89	2.78	0.06	0.75	1.10	0.89	1.39	1.23	1.55	0.17	0.10	0.00	0.00	100
Djibuti	exports	0.00	4.26	0.01	0.70	0.50		0.05	0.19	0.00	0.00	0.17	0.05	0.04	0.16	0.07	3.79	0.39	0.23	0.45	0.38	0.00	100
	imports	11.11	5.72	1.39	0.36	0.00		14.36	0.08	4.15	0.05	0.06	0.21	1.27	1.41	3.57	0.08	0.07	3.39	0.02	0.25	0.00	100
Saudi Arabia	exports	11.98	25.14	22.41	0.35	0.32	3.47		2.32	2.19	0.06	0.49	1.49	3.96	4.80	1.27	0.33	0.18	6.14	0.04	3.05	—	100
	imports	5.65	33.72	12.46	1.59	0.05	0.00		1.79	7.46	0.21	0.01	4.38	3.79	3.39	3.21	0.13	4.52	1.43	0.00	3.89	0.02	100
Sudan	exports	0.80	53.16	2.28	1.77	0.09	0.08	23.17		2.52	1.88	0.01	0.01	0.03	0.24	0.42	3.02	12.86	0.12	0.18	3.53	—	100
	imports	3.59	24.96	9.15	0.42	0.00	0.02	34.02		2.23	0.66	0.00	0.75	1.61	0.89	0.37	0.01	25.62	0.17	0.00	0.47	0.00	100
Syria	exports	10.61	5.42	0.20	0.71	4.80	0.00	23.50	1.66		0.04	17.19	0.32	1.00	6.50	10.11	4.46	10.21	0.47	0.23	1.97	0.00	100
	imports	6.57	10.88	1.07	0.35	0.34	0.00	28.97	0.01		0.00	1.02	0.45	1.71	5.39	7.69	1.95	29.29	0.02	0.02	0.19	0.00	100
Somalia	exports	0.13	59.16	1.95	0.60	0.83	0.00	0.05	0.58	0.00		0.30	2.75	0.32	2.87	0.36	0.02	0.39	1.60	0.00	0.38	0.00	100
	imports	0.12	10.32	1.07	0.13	0.01	0.00	0.00	0.00	0.05		0.00	3.51	0.00	0.00	0.00	0.41	0.07	0.16	0.00	0.25	0.00	100
Iraq	exports	4.43	0.46	0.01	0.01	0.14	0.00	3.84	0.09	87.71	0.00		7.09	0.01	0.00	0.36	0.00	0.36	0.00	0.00	0.13	—	100
	imports	19.28	0.00	0.00	0.00	0.00	64.59	3.44	0.00	71.18	0.00		10.97	0.00	0.00	0.00	0.03	0.07	0.02	0.00	10.41	0.00	100
Oman	exports	0.65	63.41	2.28	0.26	0.08	0.91	23.17	0.58	2.32	1.88	1.85		2.75	3.48	0.42	3.02	0.92	0.12	0.18	3.53	0.00	100
	imports	0.65	71.90	9.15	0.16	1.95	0.00	34.02	0.00	0.60	0.00	0.00		1.32	1.76	0.37	0.01	1.55	0.17	0.00	0.55	0.00	100
Qatar	exports	0.44	62.02	4.24	0.60	0.83	0.00	8.80	1.66	2.08	0.00	0.30	0.78		8.04	2.21	2.24	2.04	1.07	0.19	0.95	—	100
	imports	3.01	30.06	7.57	0.13	0.00	0.00	45.24	0.01	3.19	0.05	0.00	0.34		15.41	2.24	0.41	1.91	0.16	0.10	0.18	0.00	100
Kuwait	exports	4.52	17.31	2.82	1.17	0.14	0.00	14.26	1.20	16.15	0.00	0.00	3.39	2.40		2.97	2.24	8.65	1.40	0.00	23.61	—	100
	imports	4.58	17.51	2.85	1.18	0.14	0.00	14.42	1.21	16.33	0.00	0.00	3.43	2.42		3.01	0.02	8.75	0.30	0.00	23.87	0.00	100
Lebanon	exports	7.51	12.41	1.88	0.95	1.47	0.15	14.16	2.77	15.87	0.00	11.16	0.78	5.72	8.04		5.08	8.59	1.07	0.19	0.95	—	100
	imports	4.69	12.46	1.33	0.75	0.31	0.00	16.12	1.12	11.79	0.06	0.07	0.34	0.92	15.41		0.68	29.90	2.22	0.18	0.18	0.00	100
Libya	exports	0.06	18.43	1.88	46.92	0.25	0.00	0.55	1.52	20.60	0.00	0.00	0.02	0.56	0.00	2.24		8.47	6.41	0.00	0.00	—	100
	imports	2.63	12.46	1.33	0.75	1.37	0.00	3.38	0.16	19.31	0.00	0.00	5.18	2.60	0.02	1.16		8.64	3.87	0.00	0.05	0.00	100
Egypt	exports	12.50	8.20	0.25	5.23	1.82	0.20	15.88	6.83	8.62	0.06	2.04	0.48	0.65	2.19	13.52	10.25		6.98	1.11	3.18	—	100
	imports	1.36	3.95	0.51	0.32	7.65	0.14	46.28	1.04	3.03	0.00	0.01	0.06	0.25	0.02	2.11	4.09		0.48	0.65	0.47	0.00	100
Morocco	exports	6.62	5.98	0.23	15.67	14.67	0.07	12.75	0.13	7.51	0.00	1.52	1.01	0.83	1.79	5.08	8.12	7.98		8.48	1.39	0.27	100
	imports	0.21	4.51	0.96	5.77	22.50	0.14	49.71	0.01	0.72	0.00	0.22	0.10	1.16	0.90	0.68	2.77	9.73		0.04	0.01	0.00	100
Muritania	exports	0.86	0.00	0.25	0.73	69.67	0.00	0.00	0.00	1.19	0.00	0.00	0.00	0.00	1.83	24.79	0.00	0.35	0.48		0.00	—	100
	imports	0.09	26.63	0.37	7.81	22.50	5.20	0.00	0.26	0.44	0.00	0.00	0.02	0.00	0.03	0.43	0.00	8.52	19.56		0.19	0.00	100
Yemen	exports	0.40	49.49	0.10	0.17	0.02	4.24	11.56	0.54	0.76	5.01	1.65	1.24	0.29	17.69	0.14	0.18	4.59	0.00	0.01		1.91	100
	imports	1.50	50.52	0.36	0.03	0.03	0.43	21.27	0.10	1.04	2.28	0.01	3.70	0.32	10.58	1.24	0.00	4.13	0.13	0.00		2.35	100

2) bilateral tariffs, 2001, %

↓ exporter/importer →	Morocco	Algeria	Bahrein	Egypt	Jordan	Lebanon	Oman	Saudi Arabia	Sudan	Tunisia
Algeria	0,0	-	8,6	10,7	11,5	5,7	7,8	6,7	21,9	25,3
Bahrein	15,7	19,4	-	9,8	6,5	3,1	0,0	0,0	11,0	15,0
Iraq	0,0	16,8	5,0	7,1	7,6	2,8	4,1	6,1	9,3	15,4
Jordan	15,7	18,7	4,3	8,7	-	4,5	3,9	5,8	11,6	18,1
Kuwait	15,9	18,0	0,0	9,3	7,4	3,5	0,0	0,0	11,2	15,9
Lebanon	16,5	19,5	4,5	9,2	8,5	-	4,4	5,6	12,6	18,6
Lybia	0,0	13,9	4,4	5,4	4,1	2,5	3,7	4,2	12,1	15,2
Morocco	-	0,0	4,1	9,0	8,0	3,7	4,0	5,3	13,2	18,4
Oman	18,7	21,4	0,0	10,2	8,7	4,3	-	0,0	13,6	19,4
Qatar	14,7	17,4	0,0	7,7	6,9	2,5	0,0	0,0	11,3	15,2
Saudi Arabia	15,6	18,1	0,0	8,7	7,1	3,0	0,0	-	12,3	16,8
Sudan	16,1	15,2	4,1	0,0	5,5	2,1	3,3	5,4	-	19,0
Syria	17,9	21,5	4,4	9,6	8,3	3,2	4,1	5,4	13,2	21,2
Tunisia	15,6	18,7	4,4	8,3	8,1	3,6	3,9	5,8	13,8	-
Egypt	16,5	19,5	4,2	-	7,3	3,7	3,9	5,7	0,0	18,7
Yemen	14,7	19,3	4,2	6,3	6,9	3,5	4,2	5,6	12,2	18,4
UAE	13,9	18,5	0,0	7,9	7,1	3,0	0,0	0,0	12,7	16,2
Comoros	25,8	15,5	7,6	3,5	7,3	3,0	6,5	5,4	6,6	22,0
Djibouti	24,2	9,9	8,2	0,0	5,5	1,6	7,9	4,7	0,0	19,4
Mauritania	34,9	24,7	7,0	7,1	16,3	4,1	8,7	7,4	24,0	33,0
Somalia	22,2	11,7	8,5	5,4	9,3	3,2	9,8	4,7	20,5	21,2
WORLD	**25,0**	**18,4**	**7,4**	**11,2**	**13,2**	**5,7**	**7,3**	**6,5**	**18,4**	**24,5**