November 2001

The welfare implications of trade liberalisation between the Southern Mediterranean and the EU

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Abstract

This paper explores the impact on the Southern Mediterranean Countries (SMC) of the current process of trade liberalisation with the European Union. The methodology is that of computable general equilibrium modelling under imperfect competition and the model includes 10 countries and 11 sectors. This allows for both a cross-country and cross-sectoral analysis of the results. The experiments considered are the full liberalisation of tariffs, as well as changes in market access and trade induced changes in productivity. A further feature of the paper is that we allow for the phased introduction of tariff reductions as explicitly envisaged in the Agreeements. The results show that the process of liberalisation may have a substantial, though non monotonic, impact on the SMC economies in terms of both changes in production and through this on welfare. The welfare impact is potentially very high in particular for the high tariff economies. The sources of the welfare gain tend to derive from perfectly competitive explanations of trade for the high tariff economies, and from imperfectly competitive explanations of trade for the low tariff economies.

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Introduction

The European Union is engaged in liberalising trade and improving economic co-operation between various third countries and groups of countries. This liberalisation is in the form of accession agreements or negotiations for some countries (eg. Central & Eastern Europe), as well as Association Agreements for others. In particular the EU has signed, or is in the process of signing, Association Agreements with a diverse group of southern Mediterranean Countries (SMCs). As well as being committed under the WTO to further reductions in tariffs with third countries, many of the SMCs are also engaged in a range of bilateral and multilateral regional trade liberalisation negotiations.

There have been a number of studies exploring the Association Agreements, largely within a computable general equilibrium framework and usually focussed on a particular country. The aim of such studies is typically to investigate the impact on production, trade flows, factor markets and of course overall welfare. In this paper we focus explicitly on the welfare and factor market implications of the Association Agreements. We undertake a range of simulations which allow us to focus on different aspects of the integration process, and in each case we decompose the sources of welfare changes into their constituent parts.

The methodology is that of static computable general equilibrium modelling based on the modern theory of international trade, allowing for imperfect competition in product markets, and for increasing returns to scale in production. In comparison to other work, this paper does not look at a given country in isolation but provides a model with a number of SMC countries (or country groupings) represented. Specifically the model comprises 10 countries (of which 7 are SMC countries or country groupings) and 11 sectors of which 10 are manufacturing. By separately modelling a number of the SMC countries we are able to (a) provide a cross-country analysis and comparison of the impacts using a coherent and common methodology; (b) explore

the interactions not just between the SMCs and the EU but also between the SMCs themselves. A second innovative feature of the work presented here is that we explicitly allow for a phased process of trade liberalisation. Such a phased process is a key feature of the Association Agreements, and allows us to explore the changing impact and incentives arising from such a phasing. We do not only examine the impact of reductions in tariffs. The process of trade liberalisation is also expected to lead to improved access to EU markets, and also to (trade-induced) changes in productivity. We deal with each of these by reporting on the consequences first of tariff reduction, and then subsequently by introducing market access and productivity changes. Finally we also explore the implications of MFN trade liberalisation.

By proceeding in this fashion the paper provides, first, an indication of the possible orders of magnitude of the different scenarios examined; secondly, an assessment of the importance of the different factors (reductions in tariffs, market access, changes in productivity) on the possible impact; and, thirdly, a cross-country comparison. It is important to note that the paper should not be seen as providing precise predictions as to what will necessarily happen. This arises both from the complexity of the proposed liberalisation process, and because we simply do not have enough underlying information on the economies and hence on the ideal model formulation.

Previous work on the Association Agreements has largely focussed on either Turkey, Egypt, Tunisia or Morocco, and studies vary in their assumptions regarding the nature of competitive interactions, factor mobility, and on the extent to which changes other than the proposed tariff reductions are introduced. Typically welfare effects are fairly small, and in certain cases negative. Welfare tends to be higher in models with imperfect competition and when additional changes such as improved access to EU markets are introduced. Hence, Harrison, Rutherford and Tarr (1993, 1997, 1997) found that the welfare gain for Turkey ranges from 0.15% of GDP with a reduction in tariffs, to between 1-1.5% of GDP when allowing for improved access to EU

markets, exchange rate changes and harmonisation of standards. Mercenier & Yeldan (1997) use an inter-temporal CGE model with imperfect competition but also find a welfare gain of just under 1% of GDP for the Turkish economy of forming a customs union with the EU. Focussing on Egypt, Konan & Maskus (1997, 2000) investigate the interactions between trade liberalisation and changes in domestic fiscal policy and find welfare effects ranging between 0.2%-0.89% of GDP. In contrast Hoekman and Konan find tariff reduction alone would yield a small welfare loss for Egypt (0.14%) but if accompanied by an extension of the process to agriculture and services, as well as changes in markets access and improved harmonisation of standards, the welfare gains rise to between 13.5% and 20.6% of GDP. Dessus & Suwa Eisenmann (1998) find that a small welfare gain for Egypt of 0.49% of GDP, rises to a gain of 5.24% of GDP with the incorporation of changes in productivity. Similar ranges of results can be seen in the research carried out on Tunisia and Morocco. Cockburn et.al. (1998) compare a perfectly competitive, and an imperfectly competitive model and find a welfare gain for Tunisia in the former case of 0.7% of GDP, and in the latter of 2.27% of GDP. Brown, Deardorff & Stern (1996) in a model with imperfect competition for Tunisia show that the welfare gains range from between –0.2% to 3.3% of GDP. Rutherford, Rustrom and Tarr (1997) once again within a perfectly competitive framework show that the welfare gains arising from a reduction in tariffs only are low (1% of GDP) but could rise to 2.4% of GDP with multilateral trade liberalisation.

The conclusion would thus appear to be that the static welfare gains from the process of liberalisation may be small and the reasoning appears to be straightforward: the Agreements involve a large asymmetric reduction in tariffs which grant the EU access to SMC markets, while the SMCs already have such access to the EU. On the one hand this is likely to lead to a welfare gain for the SMCs as the price of their imports goes down. This arises both as a result of the direct effect of the reduction in tariffs themselves (leading to trade creation), but also because of the indirect effect on the degree of competitive interaction (and hence on price-cost margins) in

SMC markets. On the other hand the non-MFN elimination of tariffs is likely to lead to a welfare loss from trade diversion, largely reflected in the substantial loss of tariff revenue.

1) The SMC economies and integration into the world economy

In the upper panel of Table 1 we list the value added by ISIC industry for selected SMCs, and in the lower panel the share of each sector in manufacturing value added. From the table it can be seen that there are substantial differences, as well as similarities across the countries. The largest economy in terms of the size of the manufacturing sector is Turkey, followed by Israel and Egypt who are of very comparable size. The smallest economies are Cyprus, Jordan and Malta. Within each country the importance of each sector can be seen by looking at the share of value added. For each country the three largest sectors are given in bold italics.

Looking at the shares in valued added it can be readily seen that there a number of similarities across the countries. For all but one of the countries (Israel) Food, Beverages and Tobacco is one of the three most important sectors. Similarly both Textiles, Clothing, Leather and Footwear, and Chemicals, Rubber and Plastic are also one of the three most important sectors for most of these countries. In contrast for only two countries (Israel & Malta) does machinery figure as an important sector, and for only one country does Iron and Steel (Israel) appear as one the three most significant sectors. These figures suggest that many of the SMC economies tend to be highly specialised in certain common sectors, but that others and most notably Israel have a somewhat different industrial structure.

In Tables 2 and 3 we indicate the pattern of trade for selected country groupings. As discussed in the data section below these are the country groupings that the model works with. These groupings are: Cyprus + Malta; Egypt; Israel; Jordan + Syria; Morocco; Tunisia; Turkey; EUMed (France, Italy, Greece & Spain); EU (the rest of the EU15). In Table 2 we show for each economy for the manufacturing sector the shares of apparent consumption. Hence looking down

the first column (Cyprus + Malta) it can be seen that of total consumption 40.5% derives from domestically produced goods, 22% from imports from the EUMed countries, and 16% from the rest of the EU.

Several interesting features emerge from this table. The first is that except for Cyprus and Malta each of the SMC economies have a very high share in apparent consumption of manufactured goods produced domestically. The domestic share in apparent consumption ranges from 40% for Cyprus + Malta to 79% for Jordan + Syria. Looking at the source of imports it is clear that the SMC economies import very little from each other and that for all but one, Egypt, the primary source of manufacturing imports is the EU; though for each of the economies the ROW remains an import source of imports. For three of the SMC economies (Cyprus+Malta, Morocco, and Tunisia) it is the EUmed countries which are the primary source of imports.

Table 3 is analogous to the above, except here we are looking at the distribution of sales across countries. Hence, looking along the first row it can be seen that Cyprus+Malta sell 69.6% of their production domestically, 12.8% to the EUmed countries, and 7.7% to the rest of the EU.

In many respects this reinforces the message from Table 2 – SMC economies tend to sell most of their production domestically, they export very little to each other, and for all but one of the economies (Israel) the principal source of their exports are all the EU countries, with the EuMed countries being the principal export market for five of the seven SMC country groupings.

1.2) Details of the Trade Liberalisation process

The SMCs are currently engaged in trade liberalisation with the EU, trade liberalisation under the auspices of the WTO, as well as regionally focussed trade liberalisation - either bilateral or multilateral. Table 4 provides a summary of this process for the countries in our model. It is clear from the table that there are a number of attempts at regional, bilateral and multilateral trade liberalisation, but that a number of these agreements while signed, are not yet implemented. For

example with respect to the EU-SMC Association Agreements, the only two currently implemented are those with Morocco and Tunisia, those with Egypt, Jordan are not yet implemented, and negotiations are still continuing with Lebanon and Syria.

Table 5 gives the MFN unweighted average tariff rates for each of the relevant SMC economies, as well as for the EU, Japan and the US. What is immediately striking is both the disparities in tariffs across countries, and related to this the very high levels of tariffs in certain of the countries. Hence, there is a group of SMC economies whose tariff rates are very high – Egypt, Jordan, Morocco, and Tunisia – and by and large this is true across all industries. The remaining economies have substantially lower tariffs, and again this is largely true across all industries though with one or two exceptions. The sectors with the highest tariffs tend to be ISIC 311:314 (food, beverages & tobacco), and ISIC 321:324 (textiles, clothing, leather and footwear.

Both the high level of tariffs and the disparities across countries are important in understanding the empirical results reported later.. It is also important also to consider some of the details of the liberalisation process. The first aspect to note with regard to the EU-SMC agreements is that the SMCs already experience largely tariff-free access to the EU market under the EU's Generalised System of Preferences. The principal feature of the Association Agreements is thus that the SMCs will lower tariff (and non-tariff) barriers on imports from the EU. Nevertheless the agreements also involve provisions for aid to SMC economies, as well as provisions for improving SMC's access to EU markets in particular for certain agricultural commodities, and through the harmonisation of standards and regulations ("deeper" integration).

The second aspect to note concerning these agreements is that the implementation is, not surprisingly, one of a phased reduction in tariff barriers. While there are some differences within each agreement the tariff reductions largely follow the following pattern. First, an immediate elimination of tariffs on intermediate goods. Secondly, a progressive elimination of tariffs over

five years for products not produced locally. Thirdly, an even more progressive elimination of tariffs over 10-12 years, but only commencing 3-4 years after the implementation of the agreement, for all other industrial products.

The remainder of the paper proceeds in the following manner. Section 2 outlines the main features of the CGE model employed and of the underlying data requirements. In Section 3 we allow for the full process of trade liberalisation and explore the importance of the factors identified earlier (tariffs, market access etc). In Section 4 we focuses on the path of changes over time by introducing a phased set of reductions and look at the overall welfare changes as well as the decomposition of the welfare changes for certain countries. In Section 5 we look at the implications of the process of trade liberalisation for factor prices, and Section 6 concludes.

2) CGE model and data

The underlying theoretical model is based on imperfect competition and increasing returns to scale. The base year on which the data are based is 1995, which is the latest year for which a complete set of data was available. The model has 10 countries, 7 of which are Southern Mediterranean Countries (SMCs), or country groupings, plus the Mediterranean EU countries (EuMed), the rest of the EU (EU), and the rest of the world (ROW). The SMCs modelled here are Cyprus+Malta (treated as a single country), Egypt, Israel, Jordon+Syria (treated as a single country), Morocco, Tunisia and Turkey. The remaining SMCs are not modelled here due to the paucity of available data. The EuMed countries are France, Spain, Italy and Greece. Each country is endowed with three primary factors of production - capital, and manual and non-manual labour. Capital is assumed to be perfectly mobile internationally, and available at a constant price. Other factors are internationally immobile, so in the long run their prices adjust to equate demands to endowments.

The commodity structure is defined at the ISIC 3-digit level. In practice, largely for pragmatic reasons associated with the data, we work with the 10 industry aggregates given earlier in Table 1, with the rest of each economy aggregated into a single perfectly competitive composite. The perfectly competitive sector composite is treated as tradeable and is taken as the numeraire. Each of the manufacturing industries is assumed to be imperfectly competitive, with a number of firms producing differentiated products, production being subject to increasing returns to scale.

Demand for differentiated products is modelled as a two-stage process, where the demand for a product aggregate depends on a price index for that aggregate, while demand for an individual variety depends on the price of the variety relative to that of the product aggregate. We assume that firms act as quantity competitors in segmented markets. Each firm chooses sales in each country market, taking as constant the sales of all its rivals in each market. Optimisation requires the equation of marginal revenue to marginal cost in each market, where the slope of each firm's perceived demand curve depends on the extent of product differentiation, and on the share of the firm in that market. A key feature of the model is that price-cost margins depend on firms' market shares, and increased import penetration causes firms to behave more competitively, hence lowering their price-cost margins.

In all of the experiments we allow for the free entry and exit of firms, and for flexible factor prices. We also assume that there is no net change in government revenue, and that therefore any reductions in tariff revenue are compensated by lump-sum taxes. Finally, all but the last of the experiments reported here there is no change in the nominal exchange rate. Trade balance is thus maintained by changes in trade in the perfectly competitive sector.

2.1) Calibration

Numerical specification of the model is undertaken first by setting some key parameters and variables, notably those describing concentration and returns to scale on the basis of literature

estimates, and then calculating the values of remaining parameters and endogenous variables so that the 1995 base year observations support an equilibrium.

The overall utility function is Cobb-Douglas. The price elasticities of demand for individual varieties depend on the elasticities of substitution in the CES aggregators. For final products we assume that the base data set represents a long run equilibrium with zero profits. Technology and firm scale imply a relationship between average and marginal cost, and, with the assumption of long run equilibrium, this also gives a relationship between price and marginal cost. This price cost margin is supported at equilibrium by two considerations; product differentiation and market power stemming from the degree of concentration in the industry and the form of interaction between firms. We assume that the base case is a segmented market Cournot equilibrium. The number of varieties and the elasticity of demand for an individual variety are then chosen so that the price cost mark-up is consistent with the assumed scale economies. In the calibration we assume that firms in the SMC economies produce with lower scale economies than firms in the EU or the rest of the world. In the absence of detailed information on this, we have assumed that EU firms' scale economies are twice those of firms in the SMC economies. The final stage of calibration involves positioning demand curves so that consumption of products in each country is consistent with the matrix of production and consumption.

2.2 Data

Trade data was obtained from the COMTRADE data bank, and production data from the UNIDO industrial database. Data on returns to scale derive from the survey by Pratten (1988). Data on numbers of firms in each industry and country, or more accurately data on the number of equivalent firms is extremely hard to come by. Ideally one would like data on the number of firms by different size classes in order to calculate a Herfindahl index, the reciprocal of which gives the number of equivalent sized firms. For the EU we used data based on Davis and Lyons (1996) who have calculated such indices themselves. These numbers were then used to calculate

output per firm for each industry in the EU, and on the basis of that to interpolate the equivalent number of firms in the SMC economies. Consistent with our assumption regarding economies of scale, the process of interpolation also involved some scaling to ensure that output per firm is smaller for SMC firms than for EU firms.

Other industry specific data required include the share of value added in production; the share of each factor in value added; the elasticity of substitution between different factors of production; and the share of final demand in the output of each industry. A wide variety of both national and international statistical sources were used for these data. For the share of value added in production and the share of capital and labour in value added we used the UNIDO industrial database. The elasticity of substitution between different factors of production was taken from secondary sources (eg. Whalley, 1988). For the share of manual and non-manual labour in value added the following procedure was employed. For the EU countries data is available from the Chronos database, SES: Statistics on the Structure and Distribution of Earnings, 1995. For our category "EU" we used the average shares for Belgium, Denmark, the Netherlands, Sweden, and the United Kingdom; for our category "EuMed" we used the average for France, Italy & Spain; for the SMCs as no data was available from the SMC countries themselves we used the Greek share, except for the case of Israel for which we took the EuMed share. The Chronos database enabled us to calculate the shares of manual and non-manual labour for both the imperfectly and the perfectly competitive sector. Finally the data on tariffs was obtained from the TRAINS database. The tariff rates used are those discussed earlier in Table 5.

3) Trade liberalisation and welfare

In this section we analyse in some detail the welfare implications of the proposed EU-SMC process of trade liberalisation. The analysis proceeds in stages – first we provide a benchmark experiment which reduces tariffs with the EU by 100%. This experiment should be seen, in many ways, as 'unrealistic' but one which acts as a useful benchmark against which to assess the

implications of changes in productivity and market access, as well as multilateral liberalisation. The subsequent experiments allow for this, and thus enable a detailed consideration of the welfare implications of each. In analysing the welfare implications we do not simply look at the overall numbers, but decompose these into the changes in the distortions which ultimately drive them. The first section below, therefore, summarises the underlying theoretical framework, and the following sections report on the welfare effects themselves.

3.1. Decomposing welfare changes

Following Baldwin & Venables (1995) or Feenstra (1995) the total impact on welfare can be decomposed into different elements. Assume that welfare of the representative consumer in the economy can be represented by an indirect utility function, $V(p+t, n, E)$ with p representing producer prices, t tariffs (or the tariff equivalent of any other trade barriers), n, the number of firms or product varieties available for consumption in each industry. E is equal to total consumption spending, and is given by:

$$1) \qquad E = (wL + rK) + X[(p+t) - AC(w, r, x)] + \alpha tM$$

where the first term in brackets gives total factor income with w and r being the factor prices for labour (L) and capital (K) respectively, the term in square brackets gives total profits, with X being the vector of production by industry and AC giving average costs by industry. The final term gives tariff revenue, where M is the vector of net imports, and α gives the proportion of the wedge (difference between the border price and the import price) which is captured by the domestic economy. In the case of a tariff α=1. In the case of a quota where the domestic economy captures none of the rent, or in the case of a voluntary export restraint α=0.

Totally differentiating the indirect utility function and dividing through by the marginal utility of expenditure the change in welfare, dW, can be expressed as:

2) $$dW = t.dm - m.d[t - \alpha t] - m.dp + [(p + t) - AC].dX - n.dx.[AC - MC] + dn.(V_n / V_E)$$

The first three terms give the welfare impact of trade liberalisation arising from perfectly competitive models of trade. Tariffs create a wedge between producer and consumer prices, and the first term gives the change in welfare arising from a change in trade volumes subject to that wedge. Hence an increase in imports from a "partner" country - *trade creation* - yields a positive welfare impact, and a decline in imports from non-partner countries - *trade diversion* - gives a negative welfare impact. The second term, gives the change in welfare arising from changes in non-domestically appropriated changes in the costs of trade barriers. Baldwin & Venables call this the *trade cost* effect. In terms of the standard partial equilibrium diagrammatic representation of tariff liberalisation the first term is represented by the Harberger triangles, and where α=1, the second term by the loss of government revenue. The third term evaluates the impact on the *terms of trade.*

The second three terms of the equation give the welfare impact arising from models of trade which allow for imperfect competition. The first of these term, gives the *profit* effect which is simply the change in profits arising from changes in the industry output. Note that with free entry and exit this term goes to zero. The second term gives the *competition* effect which is the changes in welfare associated with the distortions arising from firms setting prices above marginal cost. Finally, the last term gives the *variety* effect. Since firms are unable to capture the entire consumer surplus associated with the introduction of a new product, there is then a welfare gain from the introduction of any new products.

In the reporting on the welfare impact of the EU-SMC process of trade liberalisation we numerically decompose the overall welfare impact into each of the above effect italicised effects. We identify each of the above by first order approximations. Consider the first term, *t.dm*, this can be evaluated either at the base *t*, or at the new (simulated) *t*. The former is likely to overstate

the welfare gains, and the latter to understate. In the welfare numbers reported in this paper we calculate the first order approximation at both the base and the simulated equilibrium, and then report on the average of the two. Given the nature of the approximations the welfare numbers reported here do not replicate exactly the precise welfare effect given by the compensating variation. In the welfare decomposition we also report on the *trade cost* effect (ie. α=0) despite the fact that we are principally modelling tariff reductions. The reason for this is twofold. Primarily this is because in the simulations while there is a loss in tariff revenue, this is compensated for by changes in lump-sum taxes elsewhere. The trade cost effect thus approximates for this change. Secondly, part of the reductions we consider are changes in market access, which are clearly non-domestically appropriated rents, which are thus correctly captured by this term.

3.2 EU-SMC trade liberalisation

Experiment 1: Full Tariff Reductions: Table 6 gives the welfare changes by country for the full tariff reductions as given by the Agreements. These changes are decomposed by distortion and by industry. In each case the number reported gives the percentage change in welfare as a proportion of total manufacturing value added in the base year. The overall welfare as a proportion of base manufacturing value added and compensating variation as a proportion of base GDP are given at the bottom of the first panel. From this latter measure it can be seen that all countries except for Jordan-Syria and Turkey gain from the reductions in tariffs. The gains are most pronounced for Tunisia (17.99%) and Morocco (13.18%) followed by Egypt (6.34%).

If we look at the decomposition by distortion for the high tariff countries a large proportion of the welfare gain derives from trade creation, and from the trade cost saving. This welfare gain, however, is offset to a large degree by the variety effect. This can be understood with reference to the final row of the table, which indicates the % change in manufacturing production and shows that almost all the SMCs experience a decline in production and which is substantial for the high tariff economies. That decline in production, in turn generates a decline in the numbers of

varieties produced domestically, which results in the welfare losses reported in the "Variety" column in the upper panel. There is also some trade diversion for most of the economies, though for Cyprus-Malta and Turkey, there is an increase in trade with the rest of the world yielding a welfare gain. That increase in trade with the rest of the world arises as these countries adopt the EU's common external tariff resulting in external trade creation.

The table also reports on changes in the terms of trade. As these are differentiated products which are both imported and exported, we report on both the changes in the export prices (where any increase leads to a welfare gain), and on the changes in the import prices (where any increase leads to a welfare loss). For most of the economies there is a decline in the export terms of trade. This is a combination of several effects – declines in factor prices arising from the decline in production, reductions in average costs, and reductions in price-cost markups. With regard to the import terms of trade import prices increase leading to a small welfare loss. This is the result of EU firms increasing their market share in the SMC economies, giving them more market power than heretofore. Finally for both the EU and the EuMed, there is a welfare gain, which largely derives from the expansion of manufacturing as given by the positive variety effect.

The pattern of changes for the competition effect is mixed with certain countries reporting a gain, and others a loss, although in all cases the effects are small. This arises as for certain countries the pro-competitive impact of the tariff reduction causes a sufficiently large contraction in domestic firms' output that they move up their average cost curves, whereas in the other cases firms are able to expand output and produce at lower average cost.

The lower panel of the table reports on the sum of the decomposition by distortion for each industry. From this panel it can be seen that the welfare impact varies considerably across industries and countries. Egypt, Morocco, Tunisia and Turkey all see a substantial proportion of the welfare gain arising from Food, Beverages and Tobacco (FBT), and to a slightly lesser extent

in Textiles (Tex). These are also the industries experiencing large declines in production arising from cheaper imports. Cyprus sees the primary welfare gain arising from Electrical Machinery (Elec) and Israel from Chemical, and Textiles. The pattern for Jordan-Syria is more mixed with large welfare gains and losses depending on the industry.

There are important ways in which the above experiment is 'unrealistic'. It is realistic in the sense that it models an actual set of 'negotiated' tariff reductions. Those projected tariff reductions involve a very substantial *asymmetric* set of reductions in tariffs by the SMCs. It is then not surprising that such a substantial opening up of the SMC markets to the EU has a large impact both in terms of production and welfare. It is unrealistic in the sense that the process of trade liberalisation is likely to engender other key changes in the economic environment which have not been included in the simulation. The subsequent simulations go some way to remedying this.

Experiment 2 : Tariff reductions, productivity changes & market access : Here we again allow for the full reductions in tariffs but now also allow for (trade induced) changes in productivity, as well as improved SMC access to EU markets. Information on the size of any productivity shocks is not available. However a substantial part of the underlying explanation for the possible changes in productivity derives from the pro-competitive impact of trade. We therefore allow for changes in productivity by country and by industry, where the size of these changes are driven by the size of the proposed tariff reduction. Hence, highly protected sectors are expected to experience greater productivity increases than relatively open sectors. The largest impact on productivity is thus for Morocco in Food, Beverages & Tobacco (FBT) which sees a 12% increase. However, for most countries and industries the size of the productivity changes is substantially smaller with an average change of approximately 5%. At the calibrated equilibrium it was assumed that in addition to tariffs, there are other barriers to trade with the EU. These were modelled as being equivalent to a 10% tariff, but treated as a real barrier to trade. For this

experiment we assume the SMC economies experience a 50% reduction in these real barriers.

The overall welfare gain for each SMC country rise, while that for the EU and the EuMed falls. The potential gains are substantial and this is particularly the case for Tunisia and Morocco as before. Once again the principal sources of gain are those deriving from trade creation and from the trade cost effect. However in contrast to earlier there is now also a welfare gain arising from the pro-competitive and variety effects. Both Morocco and Tunisia also see a worsening of the export terms of trade and this arises with the expansion of production (given in the last row of the table) which results in firms moving down their average cost curves.

The distribution of the welfare gains for the low tariff economies such as Cyprus-Malta, Israel and Turkey are somewhat different. The gains from trade creation are small, and the principal sources of gain come from the direct cost reduction (Cyprus-Malta), and from the expansion of production and hence the variety effect (Israel & Turkey). Once again there is also some trade diversion which is most pronounced for Egypt, and Jordan-Syria, and to some extent Morocco. These are the economies with the higher initial tariff rates, and also those traded (imported) proportionately more with the rest of the world. It is this combination of high tariffs and relatively high levels of external trade which thus explains the greater presence of trade diversion.

For most countries the distribution of gains by industry is similar to that reported earlier. The gains tend to be concentrated in certain industries and largely in the same industries across the experiments. The two exceptions to this are Jordan-Syria, and Turkey, who (for different reasons) in the benchmark experiment were those countries experiencing a small welfare loss. In the benchmark Jordan-Syria saw a substantial decline in manufacturing fairly uniformly distributed across the sectors. That decline resulted in a loss of welfare as firms exited the industry and the number of varieties declined. With the productivity and market access changes a number of sectors now see an expansion of production, and the decline is significantly smaller in the other

sectors, which thus impacts significantly on the overall welfare impact and the distribution of that impact across sectors. For Turkey, a considerable proportion of the welfare gain derives from the changes occurring in the Textile industry, and to a lesser degree in Food, Beverages and Tobacco.

Experiment 3: MFN tariff reductions : The simulations undertaken here are similar to the preceding, but this time we also allow for trade liberalisation between the SMCs and the Rest of the World. We do not assume a full reduction in SMC import tariffs (as with respect to the EU) but allow tariffs to decline to EU levels. Effectively we are assuming that the SMC economies are employing the equivalent of the EU's common external tariff. We also assume that there is a 50% reduction in tariffs by the rest of the world on imports from the SMCs. The results are given in Table 8.

First, where previously all but Turkey and Cyprus-Malta witnessed a welfare loss arising from trade diversion, this is no longer the case. All countries benefit from increased imports coming from the rest of the world and from the EU. The sole exception to this is Jordan-Syria, where thes is now some reverse trade diversion. Again for all countries except for Jordan-Syria the welfare effects of this experiment are higher than those reported earlier, and this derives from the changes in trade diversion, the changes in the trade cost element, and the variety effects.

As well as the differences by distortion, the sectoral breakdown of the welfare effects shows that for most countries there are important sectoral differences between the MFN and non-MFN experiments. Hence, with the MFN reductions Cyprus-Malta see a much more substantial change in Electrical Machinery, and to some extent Chemicals. Similarly all the high tariff countries as well as Jordan-Syria see much larger welfare effects originating in the Food, Beverages and Tobacco industry.

4) Welfare with a phased process of liberalisation

In the preceding we explored the impact on welfare of the full process of trade liberalisation – total tariff reductions, total changes in market access and productivity. Those results, should thus be seen as, in some sense, representing the end point of the process. In reality the process is one which is being phased over a number of years. In this section we explicitly allow for this phasing and look at how the overall welfare impact evolves through the phases. For certain countries we then examine the evolution of the welfare decomposition. This gives a better understanding of the sources of gain, and crucially how they might evolve over the process of trade liberalisation.

The Agreements typically call for a process of liberalisation which involves certain sectors witnessing an immediate reduction in tariffs (rapid liberalisation), other sectors experiencing a slower elimination of barriers over 4-5 years (medium paced liberalisation), and the remaining sectors a gradual elimination which could take between 10-15 years (slow paced liberalisation).

We have detailed information on this phasing for the Moroccan economy, and on the share of each of our composite sectors which are affected by the rapid, medium and slow-paced liberalisations. We have used this information to inform our experiments for each of the other SMC economies[1]. The results are presented graphically (the detailed numbers are available on request). Figure 1, shows the impact over time on welfare measured as the change in compensating variation as a proportion of GDP for each of the SMC economies modelled here of our first, benchmark, experiment.

The end-point of each of the series represents the information presented earlier in Table 6 and as before show that Egypt, Tunisia and Morocco experience the largest overall increases in welfare, while Jordan-Syria experiences a welfare loss. What is clear from the figure is that the path of

[1] In the simulations the rapid liberalisation involves the immediate removal of tariffs, the medium paced liberalisation involves a reduction in tariffs over 5 ‘years’ (or time-periods); and the slow paced liberalisation the removal of remaining tariffs over 10 ‘years’, but only starting this process after 3 ‘years’. The simulations are thus run over a total of 13 time periods.

welfare changes is non linear, with the initial process of trade liberalisation for the high tariff economies involving small (negative) welfare changes with this being most pronounced for Egypt. Welfare rises more rapidly the greater are the tariff reductions over time. Figures 2 and 3 give the welfare decomposition over time for Egypt and Israel, where the welfare figures reported are as before welfare for each element of the decomposition as a proportion of total manufacturing value added in that country. Turning first to Figure 2 it can be seen that the main components of the welfare change are trade creation, the trade cost effect, and the change in welfare arising from the changes in numbers of firms and hence output. It is the interplay of these effect which generates the overall non-monotonicity seen in Figure 1. A second feature that emerges from Figure 2 is that the gains from trade creation decline as trade barriers are reduced which confirms what one would expect from perfectly competitive trade theory.

If we contrast this with Figure 3, we see that the principal source of gain derives from the changes in output and numbers of firms as captured by the variety effect. There is little welfare gain and little change in welfare arising from the perfectly competitive part of the decomposition. This is as expected as tariffs were initially low for Israel, the process of trade liberalisation involves Israel adopting the EU tariff at the beginning of the liberalisation process with no change thereafter. The rise in the welfare gain arising from the imperfectly competitive part (variety) is then interesting because it suggests, that as the other SMC economies liberalise with the EU, Israel benefits (though the numbers are very small), with the expansion of domestic production.

Finally, Figure 4 shows the changes for Experiment 2 – where we have allowed for tariff reductions as well as productivity and market access changes. Figure 4 shows the overall changes in welfare for each of the SMCs, and shows welfare rising monotonically as trade is liberalised,

with a constant distribution of changes across countries. This monotonicity of changes is largely repeated for Experiment 3, hence the graphs are not given here.

Figure 5 reports on the results for Tunisia. This illustrates that although the overall welfare effect may be monotonic this is not necessarily the case for the component parts. The gains from trade creation flatten out, the welfare loss from the changes in the export terms of trade worsens, and that the gains arising from changes in the numbers of firms is non-monotonic. At higher levels of trade costs there is a welfare loss arising from changes in the numbers of firms, which at lower levels, turns into a welfare gain.

5) Trade liberalisation and factor prices

The discussion so far has focussed on either overall welfare changes, or on the welfare impact decomposed either by distortion, or by industry. We now explore the impact on factors of production, and in particular on the changes in wages for manual and non-manual labour. Once again the results are presented graphically. Figure 6 gives the % change in wages for each labour type as trade is liberalised for the benchmark experiment (Exp.1), and also where we allow for changes in productivity and market access (Exp.2). The first three panels of the table give the factor price effects for the "lower" tariff economies – Cyprus-Malta, Israel and Turkey; and the subsequent panels give the effects for the "higher" tariff economies.

For the lower tariff economies there is a distinct pattern of changes. For the benchmark experiment there is little variation in factor prices which arises because these economies liberalise their trade at the beginning of the process. For Turkey and Cyprus-Malta wages rise slightly for manual labour (Man), but fall for non-manual labour (NonM). The reverse is true for Israel. Allowing for market access and productivity changes impacts upon these changes. As the tariff liberalisation occurs at the beginning, so do any productivity changes. Each of these now see an improvement in their access to EU markets; and for each of these economies wages for non-

manual workers rise by more than the wages of manual workers (where for Israel manual workers wages fall).

For the high tariff economies there is also a common pattern of results. In the benchmark it is non-manual labour which sees a decline in wages in each country, whereas wages for manual workers rise. For all economies, except Egypt these positions are reversed as we allow for the productivity and market access changes. Now, it is non-manual workers whose see a larger rise in their wages, than do manual workers. These changes can be explained with reference to the changes in manufacturing detailed earlier. In the benchmark there is a decline in manufacturing for all the high tariff SMCs. With the manufacturing sector being non-manual labour intensive these changes in production result in a decline in the price of the factor used intensively in that sector. Conversely, in the second experiment there is now an expansion of manufacturing for all economies except Egypt, and this is translated into the factor price changes detailed above.

5) Conclusions

In this paper we have explored the welfare and factor price implications of trade liberalisation between the Southern Mediterranean countries, and the European Union based on a computable general equilibrium model of international trade. The results show that there is indeed potential for a substantial positive welfare impact of this process of trade liberalisation. The nature of that impact, and the source of the welfare gains arising from this process varies both across countries, and depending on the actual nature of the liberalisation process. The results also show that for economies with initially high tariffs a large proportion of the welfare gain arises from traditional perfectly competitive explanations of international trade; this is less so for the lower tariff economies where the distortions arising from imperfect competition become relatively more important.

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Table 1: Value Added, and Share of Valued Added by Country & Sector

ISIC	Description	Value Added ($ billion)							
		Cyprus	**Egypt**	**Israel**	**Jordan**	**Malta**	**Maroc**	**Tunis**	**Turk**
		1996	**1995**	**1995**	**1995**	**1994**	**1995**	**1995**	**1996**
311:314	Food, beverages & tobacco	321.39	1665.12	1649.58	298.88	103.51	1806.18	927.15	5976
321:324	Textiles, clothing, leather & footwear	146.68	740.88	1155.04	65.27	96.81	942.04	1248.58	7802
331:342	Wood, furniture, paper & printing	174.19	206.17	1330.31	96.98	85.00	304.80	348.43	1930
351:356	Chemicals, petrol, rubber & plastic	104.57	2338.43	2260.98	225.33	56.90	895.32	1232.52	12082
361:369	Pottery, glass & other non-met. Min.	106.19	526.47	581.00	158.28	24.71	481.50	446.37	3264
371:381	Iron & steel, non ferr met, metals	72.44	635.92	1791.26	86.50	21.73	297.66	233.79	5255
382	Machinery, except electrical	28.40	153.56	406.54	20.32	11.24	67.80	19.05	2367
383	Machinery, electric	11.94	228.41	3004.47	20.23	88.10	137.94	178.11	2891
384	Transport equipment	11.37	161.00	808.46	11.77	12.78	172.13	95.06	3174
385:390	Prof., scientific & other n.e.s.	19.65	13.02	336.12	5.91	56.07	11.71	51.41	300
	Total manufacturing	996.82	13337.96	13323.75	989.47	556.85	5117.10	4780.47	45042
		Share in Value Added							
311:314	Food, beverages & tobacco	***0.32***	***0.25***	0.12	***0.30***	***0.19***	***0.35***	***0.19***	***0.13***
321:324	Textiles, clothing, leather & footwear	0.15	***0.11***	0.09	0.07	***0.17***	***0.18***	***0.26***	***0.17***
331:342	Wood, furniture, paper & printing	***0.17***	0.03	0.10	0.10	0.15	0.06	0.07	0.04
351:356	Chemicals, petrol, rubber & plastic	0.10	***0.35***	***0.17***	***0.23***	0.10	***0.17***	***0.26***	***0.27***
361:369	Pottery, glass & other non-met min.	***0.11***	0.08	0.04	***0.16***	0.04	0.09	0.09	0.07
371:381	Iron & steel, non ferr met, metals	0.07	0.10	***0.13***	0.09	0.04	0.06	0.05	0.12
382	Machinery, except electrical	0.03	0.02	0.03	0.02	0.02	0.01	0.00	0.05
383	Machinery, electric	0.01	0.03	***0.23***	0.02	***0.16***	0.03	0.04	0.06
384	Transport equipment	0.01	0.02	0.06	0.01	0.02	0.03	0.02	0.07
385:390	Prof., scientific & other n.e.s.	0.02	0.00	0.03	0.01	0.10	0.00	0.01	0.01

Source: Unido database.

Table 2: Shares in total apparent consumption - 1995

	Cyprus + Malta	Egypt	Israel	Jordon + Maroc Syria		Tunisia	Turkey	EU Med	EU
Cyprus+Malta	40.550	0.038	0.035	0.043	0.026	0.083	0.025	0.036	0.012
Egypt	0.092	67.006	0.022	0.331	0.149	0.118	0.129	0.027	0.010
Israel	0.518	0.054	69.807	0.002	0.034	0.002	0.134	0.071	0.102
Jordon + Syria	0.355	0.035	0.002	79.191	0.167	0.227	0.153	0.043	0.017
Morocco	0.033	0.009	0.001	0.051	65.050	0.269	0.045	0.055	0.013
Tunisia	0.039	0.041	0.000	0.107	0.161	64.050	0.033	0.086	0.021
Turkey	0.448	0.449	0.245	1.409	0.346	0.486	75.039	0.106	0.146
EU Med	22.112	5.024	4.359	4.179	13.904	17.068	4.658	59.908	8.329
EU	16.425	7.940	11.995	5.598	7.612	9.685	8.053	31.787	59.513
RDM	19.429	19.403	13.534	9.088	12.550	8.013	11.732	7.882	31.836
Total	100	100	100	100	100	100	100	100	100

Table 3: Distribution of sales across markets - 1995

	Cyprus + Malta	Egypt	Israel	Jordon + Syria	Maroc	Tunisia	Turkey	EU Med	EU	RDM	Total
Cyprus+Malta	69.613	0.199	0.490	0.186	0.088	0.264	0.479	12.778	7.731	8.172	100
Egypt	0.041	90.512	0.077	0.367	0.130	0.097	0.646	2.505	1.692	3.932	100
Israel	0.071	0.022	76.935	0.001	0.009	0.001	0.206	2.020	5.040	15.69	100
Jordon + Syria	0.162	0.048	0.007	90.191	0.149	0.192	0.786	4.103	2.825	1.536	100
Morocco	0.021	0.019	0.006	0.083	81.987	0.322	0.325	7.370	3.087	6.780	100
Tunisia	0.026	0.082	0.001	0.175	0.207	78.034	0.247	11.854	4.909	4.466	100
Turkey	0.045	0.137	0.199	0.352	0.068	0.090	84.882	2.211	5.334	6.683	100
EU Med	0.126	0.087	0.200	0.059	0.154	0.179	0.298	71.008	17.204	10.69	100
EU	0.054	0.079	0.318	0.046	0.049	0.059	0.298	21.798	71.117	6.182	100

Table 5: Tariffs by Industry and Country

	Malta	Egypt	Israel	Jordan	Maroc	Tunisia	Turkey	EU	USA	Japan
ISIC	2000	1995	1993	2000	1995	1995	1995	1995	1995	1995
311:314	3.8	30.7	5.5	25.8	47.5	36.4	17.3	7.2	2.6	8.9
321:324	9.2	54.4	18.3	26.7	30.1	37.4	11.5	9	10.3	8.9
331:342	5.5	33.9	8.7	23.2	26.7	35.4	7.6	4.5	2	2.2
351:356	7.4	16.7	3.3	17.5	12.2	21.4	7.4	5.5	3.6	3.1
361:369	8.3	36.7	6.7	27.5	22.4	32.1	7.3	3.8	4.9	1.6
371:381	7.7	24.2	4.6	19.3	15.3	26.1	8.6	3.3	4.1	2.4
382	6.0	13.4	4.2	8.1	17.1	24.5	5.2	2.7	2.8	0
383	8.5	32.4	6.3	23.3	16.7	30.3	7.8	4.3	4	0.3
384	8.1	24.8	3.5	12.5	19.7	26.2	6.9	4.5	4.3	0
385:390	7.5	30.6	8	24.2	22.8	29.7	8.3	4	4	1.8

Table 4: SMC Trade Liberalisation

	Cyprus	Malta	Egypt	Israel	Jordan	Syria	Morocco	Tunisia	Turkey	EU	ROW
Cyprus		CU -1998								AA CU - 1998	UR –1996 CET
Malta										CU - 1998	CET
Egypt					AL – 1998 FTA signed 1996, not implemented	AL - 1998	AL – 1998 FTA - 1999	AL – 1998 FTA - 1999	FTA under negotiation	AA: signed 2001 - not implemented	UR
Israel									FTA - 1997	FTA – 2000 (1989)	UR
Jordan						AL - 1998	AL – 1998 FTA - 1999	AL – 1998 FTA signed 1998, not implemented		AA: signed 1997 – not implemented	UR
Syria										Under negotiation	
Maroc								AL - 1998 AMU – not implemented	FTA under negotiation	AA - 2000	UR
Tunisia									FTA under negotiation	AA - 1996	UR
Turkey										CU – 1996	CET
EU											UR
ROW											UR - 1996

Notes:

AL = Arab League, in force from 1998; envisages reductions in industrial tariffs over a 10 year period. Includes Morocco, Tunisia, Egypt, Jordan, Libya, Syria, Iraq, Saudi Arabia, United Arab Emirates, Qatar, Bahrein, Omar, Kuwait, Libya.

AMU = Arab-Maghreb Union – signed 1989, envisages free trade between Algeria, Lybia, Mauritania, Morocco & Tunisia. Not implemented

UR = Uruguay Round
CET = EU common external tariff
AA = Association Agreement
FTA = free trade area
CU = Customs Union

Table 6: 100% reduction in SMC import tariffs

	Cyprus-Malta	Egypt	Israel	Jordan-Syria	Maroc	Tunisia	Turkey	EU Med	EU
	% change welfare as a proportion of base manufacturing value added – by distortion								
Creation	0.590	43.050	0.006	-10.276	37.530	38.405	0.131	-0.005	0.002
Diversion	0.706	-4.338	-0.012	-0.547	-3.165	-2.363	1.287	-0.037	-0.055
Trade cost	6.848	36.542	0.028	10.415	27.350	44.637	1.179	0.040	0.035
Comp.	0.345	-0.132	0.030	0.772	-0.823	0.205	0.047	0.049	0.002
Variety	-4.998	-46.440	0.250	-21.776	-25.759	-30.301	-2.029	1.362	0.608
X TofT	-0.389	-0.302	0.027	0.108	-0.830	-1.696	-0.030	0.041	0.011
M TofT	-0.050	-0.387	-0.002	-0.069	-0.308	-0.383	-0.013	0.015	-0.001
Total (VA)	3.053	27.991	0.327	-0.820	33.994	48.504	0.572	1.465	0.601
Total (CV)	1.62	6.34	0.11	-0.91	13.18	17.99	-0.01	0.27	0.13
	% change welfare as a proportion of base manufacturing value added – by industry								
FBT.	0.144	13.398	0.011	2.572	27.297	11.450	0.429	0.334	0.206
Tex.	0.080	15.035	0.072	-0.112	4.522	25.051	0.537	0.352	0.053
Wood.	-0.055	2.100	0.003	-0.589	0.218	2.130	-0.032	0.155	0.070
Chem.	-0.062	-1.828	0.140	-0.625	-0.086	0.720	-0.104	0.203	0.109
Pott.	0.118	-1.878	0.017	-1.129	-0.276	-0.590	-0.014	0.052	0.017
I&S.	-0.056	-3.151	-0.001	-2.676	-1.384	0.958	-0.137	0.158	0.055
Mach.	-0.073	0.005	0.022	0.384	1.785	2.376	-0.042	0.067	0.027
Elec.	2.109	2.221	0.038	0.727	0.427	2.851	-0.010	0.096	0.031
Transp.	0.591	1.318	0.002	0.240	0.944	2.366	-0.048	0.047	0.016
Prof	0.256	0.772	0.022	0.389	0.546	1.193	-0.008	0.003	0.018
	% change in manufacturing production								
Production	-7.49	-69.61	0.81	-29.61	-64.10	-65.00	-6.02	4.54	0.92

Table 7 : 100% tariff reduction + productivity increases and increased market access

	Cyprus-Malta	Egypt	Israel	Jordan-Syria	Maroc	Tunisia	Turkey	EU Med	EU
	% change welfare as a proportion of total welfare change – by distortion								
Creation	0.748	25.016	0.019	-4.570	27.451	25.541	0.171	0.116	0.040
Diversion	0.557	-7.806	-0.053	-1.795	-3.675	-2.897	0.632	-0.032	-0.107
Trade cost	6.682	28.369	0.025	7.215	23.490	40.131	0.925	0.555	0.244
Competion	1.053	2.426	0.126	1.927	4.393	4.593	0.233	0.006	-0.005
Variety	-2.062	-10.354	1.039	0.318	6.042	10.699	3.631	-0.355	0.179
X TofT	-0.233	-5.714	0.175	-3.147	-33.389	-24.809	-0.200	0.009	-0.024
M TofT	0.400	-0.150	0.022	0.186	-0.115	-0.108	0.105	0.728	0.104
Total (VA)	7.146	31.786	1.352	9.275	24.197	53.149	5.498	1.027	0.431
Total (CV)	3.44	17.89	0.54	9.40	23.95	32.78	2.54	0.10	0.09
	% change welfare as a proportion of base manufacturing value added – by industry								
FBT	1.339	11.548	0.426	3.492	10.952	-12.071	1.453	0.575	0.128
Tex	2.317	31.085	0.808	5.897	17.611	76.225	7.184	0.319	0.219
Wood	0.026	6.041	0.004	0.870	3.051	7.568	0.186	0.263	0.127
Chem	1.393	6.151	0.812	4.889	6.502	10.559	1.027	0.158	0.116
Pott	0.790	-0.707	0.080	-0.207	1.781	2.013	0.223	0.063	0.020
I&S	0.007	0.377	-0.035	-0.058	1.573	4.646	0.457	0.237	0.075
Mach	-0.644	0.834	0.089	2.854	9.286	17.901	0.061	0.175	0.060
Elec	8.365	6.306	0.143	5.580	2.026	9.277	0.186	0.210	0.053
Transp	2.235	4.148	0.048	3.248	3.401	9.914	0.245	0.068	0.041
Prof	3.907	7.161	0.455	2.987	9.277	6.780	0.048	-0.012	0.023
	% change in manufacturing production								
Production	19.08	-1.96	3.59	9.79	93.17	116.70	14.48	-1.40	-0.59

Table 8 : MFN reductions

	Cyprus-Malta	Egypt	Israel	Jordan-Syria	Maroc	Tunisia	Turkey	EU Med	EU
	% change welfare as a proportion of base manufacturing value added – by distortion								
Creation	0.898	15.530	0.131	-9.209	19.392	28.841	0.123	0.144	0.049
Diversion	0.526	27.628	0.300	5.062	14.640	5.206	0.567	-0.066	-0.171
Trade cost	6.697	43.580	0.526	14.243	31.676	47.698	0.879	0.660	0.276
Comp.	1.204	2.084	0.205	1.996	6.572	4.574	0.291	0.055	0.016
Variety	-1.026	-24.941	0.758	-15.291	18.577	8.456	6.553	0.338	0.569
X TofT	0.299	-8.666	0.345	-2.844	-68.173	-28.880	-0.239	0.037	-0.015
M TofT	0.516	0.081	0.032	1.383	0.665	1.264	0.085	0.953	0.142
Total (VA)	9.116	55.296	2.297	13.758	23.350	67.158	8.258	2.121	0.865
Total (CV)	3.47	21.73	0.82	7.04	30.85	35.21	3.42	0.24	0.17
	% change welfare as a proportion of base manufacturing value added – by industry								
FBT	1.798	41.163	0.487	15.741	-10.872	1.805	1.881	0.860	0.233
Tex	1.571	37.372	1.101	6.250	20.760	80.600	9.601	1.219	0.525
Wood	0.096	9.771	-0.060	0.104	6.461	9.936	0.421	0.294	0.117
Chem	2.690	5.906	1.170	4.074	11.525	12.621	1.787	0.459	0.271
Pott	0.696	-0.679	0.556	-1.191	4.295	2.489	0.436	0.127	0.043
I&S	0.228	1.573	-0.118	-2.808	4.323	7.918	1.658	0.374	0.149
Mach	-0.874	2.653	0.094	3.573	12.719	21.708	0.180	0.336	0.123
Elec	12.159	9.863	0.318	8.435	3.458	10.530	0.324	0.293	0.057
Transp	2.415	7.421	0.161	5.120	5.190	11.309	0.278	0.343	0.145
Prof	4.044	9.811	1.127	3.794	12.774	8.080	0.073	-0.059	0.068
	% change in manufacturing production								
Production	28.62	-23.76	3.19	-17.39	244.27	154.25	26.74	-0.80	0.18

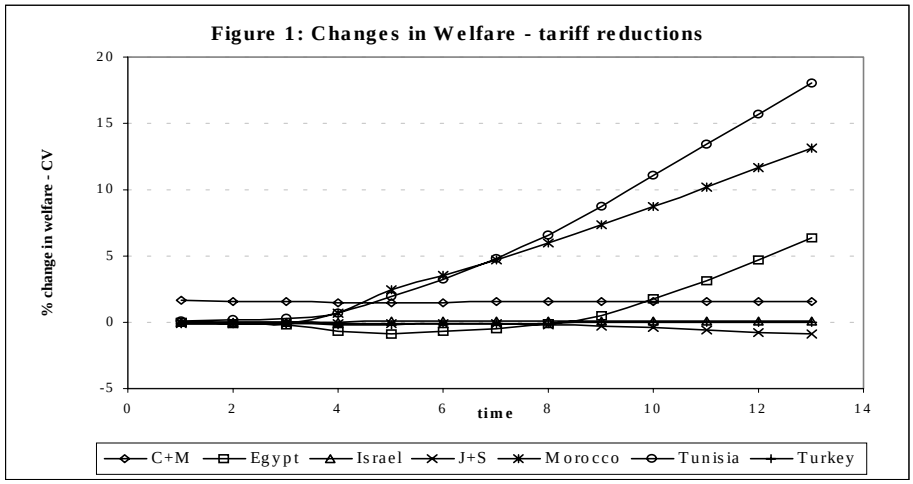
Figure 1: Changes in Welfare - tariff reductions
% change in welfare - CV
time
C+M
Egypt
Israel
J+S
Morocco
Tunisia
Turkey

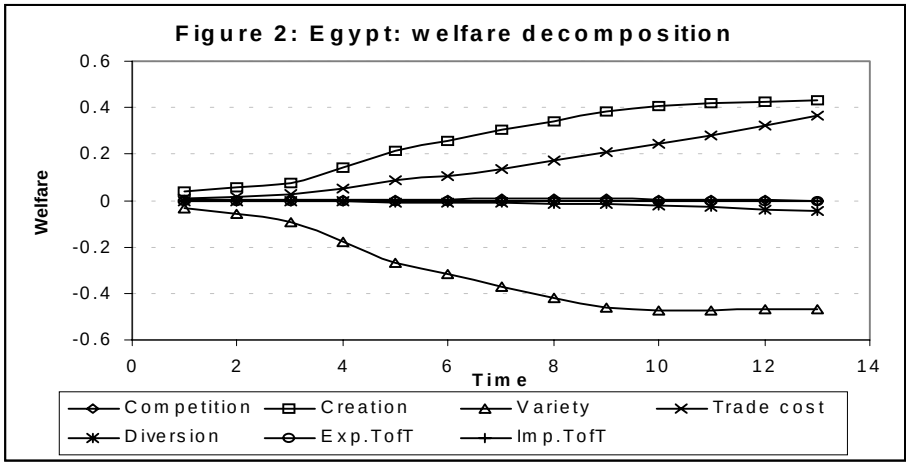
Figure 2: Egypt: welfare decomposition
Welfare
Time
Competition
Creation
Variety
Trade cost
Diversion
Exp.TofT
Imp.TofT

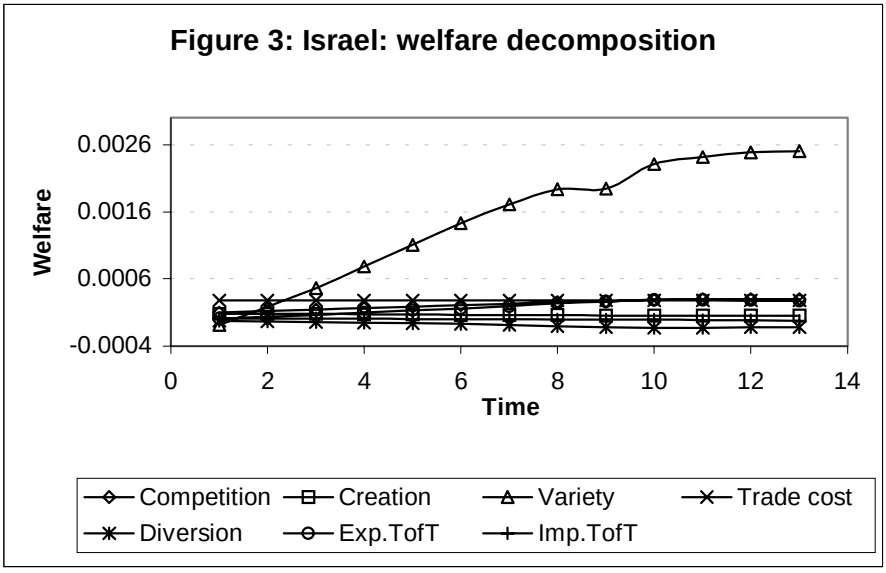
Figure 3: Israel: welfare decomposition
Welfare
Time
Competition
Creation
Variety
Trade cost
Diversion
Exp.TofT
Imp.TofT

Figure 4: Change in Welfare: tariffs + productivity + market access

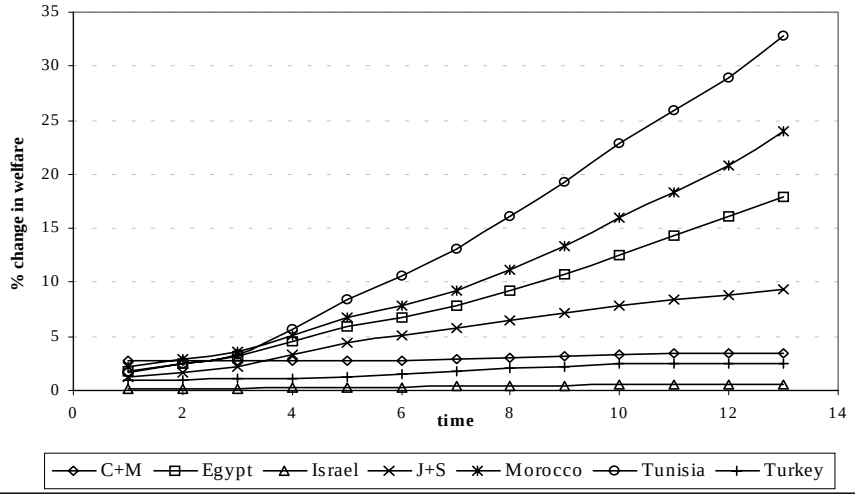

Figure 5: Tunisia: welfare decomposition (Exp.2)