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Conquering the EU market with new comprehensive trade agreements – Simulating DCFTAs between the EU and neighbour countries

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Keywords:

International trade, regional trade agreements, trade liberalisation, tariff liberalisation, non-tariff measures, DCFTAs, EU, CGE

Abstract:

The EU has undertaken considerable efforts of establishing Deep and Comprehensive Trade Agreements (DCFTAs). The EU DCFTAs go beyond tariff liberalisation, specifically targeting “behind the border” measures, commonly referred to as non-tariff measures (NTMs). While offering benefits, the contents and implementation of the DCFTAs has been controversially discussed, and this paper investigates whether DCFTAs will actually help partner countries to sell their products on the EU market. For the analysis, the general equilibrium model MAGNET (Modular Applied General Equilibrium Tool) is applied in a recursive dynamic general equilibrium framework. In the simulation, DCFTAs are depicted in terms of a tariff liberalisation and the elimination of NTMs between the EU and DCFTA partners. The latter represents the regulatory orientation towards the EU, whereby the standard “ice-berg costs” approach is implemented in the simulation.

The simulation results show that the DCFTA partner countries will not equally benefit from increased trade with the EU. In particular small DCFTA partners do not seem to be able to tap into the potential of the improved trading relations without the DCFTA. Other DCFTA partners however will be able to considerably increase their export to the EU, and in this sense they will conquer the EU market.

1. Introduction

In recent years the European Union (EU) has concluded an increasing number of regional free trade agreements (FTAs) with partner countries. Within these agreements, the EU foresees engagement and partnership involvement at different levels of intensity, ranging from loose cooperation to integration attempts; in case of complete integration, the then partner countries would actually become member states. In the context of the EU policy for neighbour countries, the EU FTAs have recently taken the form of Deep and Comprehensive Trade Agreements (DCFTAs) since these agreements contain provisions for an enhanced trade liberalisation for products and services as well as cover more topics than other trade agreements. The EU DCFTAs go beyond tariff liberalisation, specifically targeting “behind the border” measures, commonly referred to as non-tariff measures (NTMs). For example, EU DCFTAs address sanitary and phyto-sanitary (SPS) requirements and technical barriers to trade (TBT) but also market conditions for capital investment and services. While offering benefits, the contents and implementation of the DCFTAs has been controversially discussed. In fact, the EU DCFTAs have been regarded as forcing European norms and standards on partner countries by aligning legislation to the EU.

The EU has undertaken considerable efforts of establishing DCFTAs, and this present paper investigates whether the EU DCFTAs will actually help partner countries to sell their products on the EU market. Does the EU DCFTA allow partner countries to conquer the EU market? Will their market access be improved and will they be able to tap the full potential of the trade liberalisation? What are the trade effects in terms of trade creation and diversion between the EU and DCFTA partner countries?

For the analysis of the aforementioned questions, the MAGNET (Modular Applied General Equilibrium Tool) model, which builds upon the GTAP (Global Trade Analysis Project) model, will be applied in a recursive dynamic general equilibrium framework. The MAGNET model follows a macro approach but the product aggregation will allow for

specific groups of agri-food products in order to provide some more detailed insights. In the simulation, the EU DCFTAs will be depicted in terms of a full tariff liberalisation and the elimination of NTMs between the EU and DCFTA partners. The latter represents the alignment and orientation towards EU regulations/requirements, whereby the standard “ice-berg cost” approach is implemented in the MAGNET model.

2. What are the DCFTAs between the EU and partner countries?

Recently, the EU has launched DCFTAs with Mediterranean (MED) countries (Egypt, Morocco and Tunisia), countries in the Southern Caucasus region (CAU) (Armenia, Georgia) and Eastern (EAST) partnership countries (Moldavia, Ukraine: signature postponed since November 2013). Table 1 provides an overview of the current trade relations as well as the current state of the DCFTAs.

Table 1. Overview of EU DCFTAs with neighbour countries (January 2014)

Region	Country	Agreements	DCFTAs
Mediterranean (MED)	Algeria	Euro-Med AA (2005)	No – as not a WTO member
	Egypt	Euro-Med AA (2004): Free trade for industrial products, concession for agri-food products (since June 2010), dispute settlement (November 2010)	EC authorized opening of negotiations in December 2011, not started yet
	Jordan	Euro-Med AA (2002): free trade for industrial products, concession up to free trade for agri-food products (since June 2005), dispute settlement (January 2011), conformity assessment agreement (2013)	EC authorized opening of negotiations in December 2011, not started yet
	Lebanon	Euro-Med AA (2006): free access for industrial and agri-food products, dispute settlement (November 2010)	No – as not a WTO member
	Morocco	Euro-Med AA (2000), free market access for agri-food products (October 2012), dispute settlement	Negotiations started in March 2013
	Tunisia	Euro-Med AA (1998), free trade with the EU	EC authorized opening of negotiations in December 2011, not started yet
South Caucasus (CAU)	Armenia	PCA (1999), negotiation on update towards AA started in July 2010	Negotiations completed in June 2013, not initialed as Armenia joined customs union with Russia in Sept 2013 and commitments are incompatible
	Georgia	PCA (1999), negotiation on update towards AA started in November 2006	Negotiations completed in July 2013, initialed in November 2013
	Azerbaijan	PCA (1999), negotiation on update towards AA started	No – as not a WTO member
Eastern partnership countries (EAST)	Moldova	PCA (1994), AA initialed in Nov 2013	Negotiations completed in June 2013, initialed in November 2013
	Belarus	PCA (1995), not ratified, suspended since 2007	No – as not a WTO member
	Ukraine	PCA (1998), AA agreed upon in December 2011	Negotiations started in 2008, agreement in July 2012, signature postponed since November 2013

Note: Countries where trade relations have been interrupted due to conflict are excluded, (e.g. Syria, Libya); Turkey is not included as the EU established a Customs Union with Turkey in 1995. The EU established partnership agreements with countries in Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan), but these agreements do not entail the liberalisation of trade. There may be more engaged trade-related agreements in the future whereby WTO membership constitutes a pre-requisite. Kyrgyzstan is a WTO member since 1998, Tajikistan in 2013, while Kazakhstan (applied to become a WTP member), Uzbekistan and Turkmenistan are not.

Source: Own compilation using information provided on the website of DG Trade.

The EU DCFTAs are part of the EU neighbour policy, and thus the partner countries are located in the European neighbourhood; with countries further away, the EU maintains other types of agreements. The EU DCFTAs are reciprocal, i.e. that the EU will provide improved market access by trade liberalisation, but DCFTA partner countries will also open up their market for EU products. In addition to improving the trade conditions between the EU and neighbour countries, the main idea behind the DCFTAs is to achieve a closer economic integration, but not EU membership. In order to integrate the DCFTA partner countries into the EU market, DCFTAs clearly show an orientation towards EU practices and requirements relevant for production and trade, which are set in the so-called “*acquis communautaire*”. This means that establishing DCFTAs with neighbour countries the EU actually envisages the approximation of legislation of its neighbour countries, whereby the respective countries are required to align with about 80-90% of the “*acquis communautaire*” (Dreyer, 2012). The interest of partner countries in such DCFTAs seems to be trade liberalisation of course, but also economic development and competitiveness, for example by up-grading infrastructure and conformity assessment procedures with the help of the EU.

In summary, the EU DCFTAs cover the following elements of provisions:

- Market Access: Duty and quota free trade - Tariff liberalisation to reciprocally improve market access for the EU and trade partner countries
- Regulatory issues: Elimination of non-tariff measures (NTMs) “behind the border measures” - aligning regulatory difference by either harmonisation or mutual recognition, e.g. improvement of customs procedures, thereby bringing the partners' legislation closer to the EU in order to unify procedures for imports.
- Rules and cooperation: Dispute settlement mechanisms, dealing with intellectual property rights as well as technical support for the adoption of standards, for example.

The focus of this paper is on the elements of market access (tariff liberalisation) on the one hand and regulatory issues on the other hand. The latter encompasses the elimination of NTMs.

3. Modelling Approach

3.1. The MAGNET Model – country and sector aggregation

The MAGNET (Modular Applied General Equilibrium Tool) model is a general equilibrium model that builds upon the core of the GTAP (Global Trade Analysis Project) model. The main extension of the MAGNET model are a more sophisticated production and consumption structure, segmented factor markets as well as endogenous land supply. Like in other general equilibrium modelling frameworks, in the MAGNET model demand and supply are depicted in perfectly competitive markets that clear via price adjustments. Natural resources and land are assumed to adjust sluggishly between sectors.

Based on assumptions regarding labour, land and capital markets, the MAGNET modelling features extend the standard GTAP model as follows: more sophisticated production structure (to account for inherent differences in the degree of substitutability between land and non-land factors), a consumption structure that reflects changes in taste over time (preferences towards meats, dairy, fish, fruit and vegetables, and away from staple foods), segmented factor markets (agri-non, agri factors) and endogenous land supply (whereby land supplied to agriculture may respond to changes in the land rental rate). This extension makes the MAGNET model suitable for carrying out simulation analysis with a specific focus on agriculture and food-related topics.

For the simulation in this present paper, the MAGNET model is calibrated using the GTAP v8 with base year 2007. For our modelling, the 129 countries and/or regions and 57

sectors available in the GTAP database are aggregated to regions, sectors and factors of production, as shown in the appendix table A1, first column. Given the focus on DCFTAs, the partner countries are separated from other countries and grouped into the regions for the reporting, as follows: MED countries: Egypt (EGY), Morocco (MOR) and Tunisia (TUN), Note Jordan cannot be considered as the country data is not available; CAU countries: Armenia (ARM) and Georgia (GEO), EAST countries: Moldova (MOL) and Ukraine (UKR). The EU member states including Croatia (EU) are aggregated as one entity. Other countries are summarised as rest of the world (ROW).

The broad product categories are agri-food products, manufacturing (MFN) and services (SERV) (see table A1, second column). Natural resources are considered as a separate group. The more detailed disaggregation of agri-food products follows the general logic of differentiating between primary and processed products on the one hand and between plant and animal products on the other hand. With regard to factors of production, we retain the standard GTAP categories of five production factors, which include skilled and unskilled labour, capital, land and natural resources (see table A1, third column).

3.2. *Modelling DCFTAs between the EU and partner countries*

In the simulations, DCFTAs are depicted by considering tariff liberalisation on the one hand and elimination of non-tariff measures (NTMs) on the other hand. As mentioned, the latter has been a major element of the DCFTAs. In detail, we simulate the liberalisation of trade flows from the EU to partner countries as well as from partner countries to the EU.

Tariff elimination: The tariff schedule provided by the GTAP database (GTAPv8) is presented as ad valorem tariff rates in percentages (see table 2).

Table 2. Ad valorem (%) import tariffs by the EU and DCFTA partner countries

2a. Import tariffs imposed by EU on products of DCFTA partners (EU protection)							
	MED partners			CAU partners		EAST partners	
	EGY	MOR	TUN	ARM	GEO	UKR	MOL
SERV	0	0	0	0	0	0	0
MFN	0	0	0	1	1	1	0
NATR	0	0	0	0	0	0	0
PlantPrim	1	0	1	0	0	2	5
Fruit and vegetables	7	10	5	2	0	4	1
PlantProc	18	10	42	0	9	2	7
AnimalPrim	1		0	0	6	1	0
AnimalProc	1	3	0	0	2	3	0
Dairy	2	3	4	0	0	2	0
Beverages & Tabaco	4	2	2	4	2	15	12
Others	7	2	2	5	3	10	4

Source: GTAPv8 database.

2b. Import tariffs imposed by DCFTA partners on EU products (DCFTA partner protection)

	MED partners			CAU partners		EAST partners	
	EGY	MOR	TUN	ARM	GEO	UKR	MOL
SERV	2	4	2	0	0	0	1
MFN	7	7	4	2	0	6	2
NATR	1	0	1	0	5	1	1
PlantPrim	7	28	63	4	5	5	6
Fruit and vegetables	1	26	73	1	11	15	11
PlantProc	10	29	23	10	1	29	7
AnimalPrim	3	21	74	8	7	12	15
AnimalProc	5	5	53	7	11	7	15
Dairy	7	33	62	10	3	18	9
Beverages & Tabaco	215	11	20	8	27	37	3
Others	70	27	39	8	5	7	6

Source: GTAPv8 database.

The EU imposes import tariffs on DCFTA plant and animal products, and also on beverages especially from the Ukraine and Moldavia (Eastern partners) (see table 2a). The highest EU import tariffs are reported for vegetable oil and fats as well as sugar, both product categories are part of processed plant products (abbreviated by PlantProc). The protection by DCFTA partner countries appears to be rather restrictive, with all agri-food products being subject to import tariffs and prevailing higher rates than the EU rates. By far, Egypt imposes the most restrictive tariff rate on EU products of food and beverages (215%). It is interesting to note that the MED partner countries, in particular Morocco and Tunisia, protect plant and animal products by rather high import tariffs. The import tariffs imposed on EU products by the other DCFTA partner countries are less pronounced, but more pronounced than the corresponding tariffs the EU imposes on products from the DCFTA partners. Note that the tariff rates also reflect trade flows between the EU and DCFTAs. Thus, higher rates can indicate more trade between the EU and MED countries than between the EU and the other DCFTA partners.

Concerning taxes/subsidies for exporting, DCFTA partner countries do not apply measures, except for a slight subsidy on exports of manufacturing and natural resources by the Ukraine and Moldova. Furthermore, EU exports to DCFTA partner countries are distorted for the aggregate of processed plant products, primary animal products (livestock) as well as dairy. The GTAP data implies a positive distortion with world prices lower than market prices, indicating export taxes.

In the analysis, both import and export taxes/subsidies are abolished in order to simulate trade liberalisation between the EU and DCFTA partner countries.

NTM elimination: There are several different types of NTMs; see for example UNCTAD (2007) for an up-date classification of NTMs. Tariff rate quotas (TRQs) are a relevant category of NTMs related to traditional trade policy measures; TRQs are captured in the estimation of equivalents of ad valorem tariffs. Requirements that exporters have to comply with in order to supply foreign markets are another important category of NTMs, and given the background of the DCFTAs, they are the focus of the NTM elimination in the analysis conducted in this paper. It is usually distinguished between SPS measures, which are implemented for human, animal and plant health reasons, and TBT measures, which specify technical and information requirements. In general, such requirements are behind the border

measures and cause trade costs in terms of compliance costs. The removal of such trade barriers depicted by the standard “iceberg cost” approach, for a stylized application of the “iceberg costs” approach see Fugazza and Maur (2008). “Iceberg costs” are considered real trade costs that use up resources of exporters. As such, “iceberg costs” melt away a fraction of the export value on the way from the exporting to the importing country, causing efficiency losses in the exporting country. Reducing iceberg costs means lower real trade costs, which boosts the efficiency of producing export products. Hence, exports increase and export prices decrease. In essence, the “iceberg cost” approach depicts the reduction of NTMs in terms of a positive technological change for producing for the world market.

For analysing NTMs, the trade cost reduction is usually assumed since data information is missing. Focusing on the EU DCFTAs, the Trade Sustainable Impact Assessments studies commissioned by the EU Commission, for example, assume an NTM trade cost reduction between 10 and 15 % between the EU and the respective partner countries, (see Ecorys/Case, 2013, Ecorys, 2013, Ecorys/Case, 2012, Ecorys, 2007). For the analysis in the present paper, the estimates of tariff equivalents by Kee et al. (2009) are used as an approximation of the trade barrier. In a gravity estimation, Kee et al. estimated the quantity effects of NTMs, which are subsequently transferred into price effects expressed in terms of average value equivalents.

Table 3 presents the equivalent estimates of NTMs that the countries under review impose on agri-food products and manufacturing products, respectively. With these estimates, the export perspective is taken, thereby reflecting the export potential of the respective countries. The estimates for the EU only capture barriers between the EU member states and third countries outside the EU (extra-EU trade). Note that the estimates refer to supplying all foreign countries. Depending on the restrictiveness of the barrier when either supplying the EU market or supplying the DCFTA market, the estimates may generate an underestimated or overestimated picture. Furthermore, lacking information for specific disaggregated products also requires a careful interpretation of results. As shown in table 3, the NTM tariff equivalent estimates used in this present paper are considerable larger than the usually assumed values in some cases, for example those for MED countries. For all estimates, barriers are higher for agri-food products than for manufacturing, which reflects the heightened importance of NTMs for trade of agri-food products.

Table 3. Ad valorem tariff equivalents of NTMs by imposing country [%], 2009.

Region	Country	Agri-food products	Manufacturing products
Mediterranean (MED)	Egypt	19.7	8.7
	Morocco	32.5	10.1
	Tunisia*	25.1	9.1
South Caucasus (CAU)	Armenia	9.6	2.8
	Georgia	15.3	0.9
Eastern partnership countries (EAST)	Moldova	19.2	8.3
	Ukraine	11.8	3.2
European Union (EU)	EU member states	13.6	4.0

Note: * The estimate refers to 2006.

Source: Calculated using estimates by Kee et al. (2009).

3.3. Scenarios and simulation shocks

In the simulation analysis, we consider three scenarios in order to investigate the impact of the DCFTAs between the EU and the respective partner countries under review. The scenarios and corresponding shocks are summarized in table 4. We quantify the impact of DCFTAs, both the element of tariff liberalisation and the element of NTM elimination. In detail, the tariff liberalisation (S1) scenario assumes the elimination of import tariffs and export tariffs (or rather subsidies) for trade flows from EU into the DCFTA partner countries as well as from the DCFTA partner countries into the EU. In addition to tariff liberalisation, NTMs that can hamper trade and are specifically addressed in main provisions in the DCFTAs, are eliminated, too (S2). Scenario S3 combines the tariff liberalisation and the NTM elimination. The reasoning about the NTM elimination by applying the “iceberg cost” approach is explained in section 3.2.

Table 4. Overview of the simulation scenarios.

Scenarios	Shocks applied in the simulation
Scenario 1 (S1): Tariff liberalisation Tariff liberalisation between the EU and DCFTA partner countries	Baseline and full implementation of tariff liberalisation (import tariffs and export tax/subsidies) between the EU and DCFTA partner countries (reciprocal)
Scenario 2 (S2): NTM elimination Elimination of non-tariff barriers between the EU and DCFTA partner countries (reciprocal)	Baseline and reduction of “iceberg costs” of trade between the EU and DCFTA partner countries (reciprocal)
Scenario 3 (S3): Combined DCFTA liberalisation Combined tariff and NTM liberalisation	Baseline and full implementation of tariff liberalisation and elimination of non-tariff barriers between the EU and DCFTA partner countries (reciprocal) (combination of S1 and S2)

Source: own illustration.

Comparing the results of S1 and S2, insights of the differentiated effects of these elements in the DCFTAs can be provided. The results of S3 will reveal the overall effects of the full DCFTA implementation.

In the analysis, the results of the aforementioned scenarios are compared to a baseline, which constitutes the business-as-usual situation (BaU scenario). In MAGNET, the BaU scenario covers the period 2007-2014 to project the model towards the current year, and then up to 2030. The baseline is generated by using information on the expected growth path of the economy (GDP) (IMF, 2012; World Bank, 2012) and endowments (capital, labour, land and natural resources) over time for all countries and/or regions in the world, and the productivity of these endowments, most notably that of land productivity in terms of yields (FAO, 2003). For details, including the info on the data used for the baseline, see Woltjer and Kuiper (2013). Furthermore, in the baseline, the WTO membership of the Ukraine in 2008 and of Russia in 2012 is depicting by applying the following tariff reductions. For the WTO membership of Russia, we apply an average tariff cut by 50% in the accession year, as Tarr (2007) suggested. For the WTO membership of the Ukraine, we assume a tariff cut by 15% in the accession year, with tariffs being already considerably reduced under a specific programme since 2001.

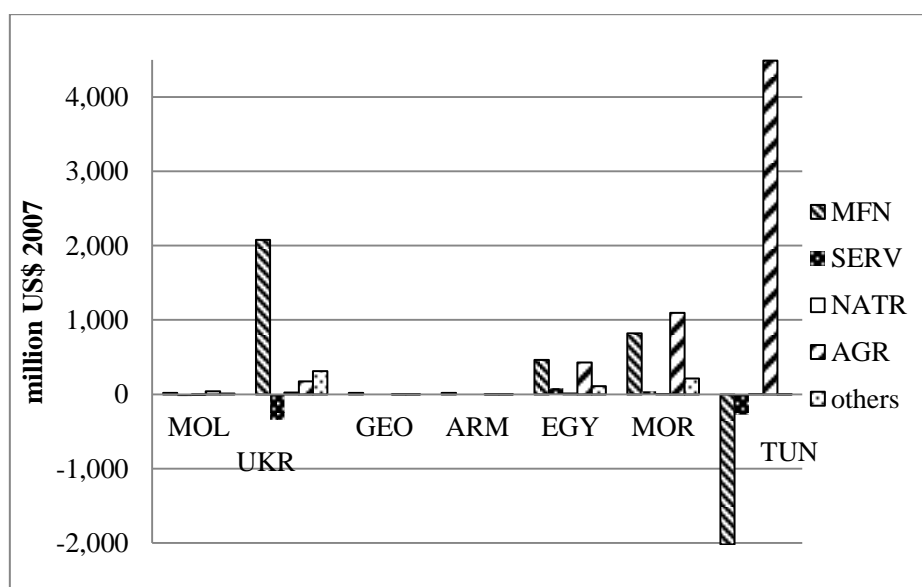
In practise, this means that the simulation first generates a baseline (BaU scenario) in order to reflect the situation in the year 2030 without policy shocks. The year 2030 was chosen because the DCFTAs, which have already been established or for which negotiations have started, can be expected to be implemented by then. While negotiating and eventually agreeing on the provisions takes time, transition periods are usually allowed for, and a period of 15 years until full implementation seems to be realistic. The full implementation of agreements will be attained only after a certain period of time. As mentioned, the situation of

the full implementation of the DCFTAs in 2030 serves as reference for the DCFTA scenarios. More specifically, the results of the DCFTA scenarios are compared with the baseline in the year 2030. This is a comparative static approach for interpreting the simulation results, while accounting for dynamics.

4. Model results

The focus of the modelling results presented is on the effects of the DCFTAs on trade. Note however, that the final paper will also provide results on other indicators, in particular GDP, prices and welfare. First, the results of a (reciprocal) tariff liberalisation between the EU and DCFTA partner countries (S1) are presented. The trade effects are reported as changes between S1 with the BaU scenario in 2030. Figure 1 illustrates the change in EU imports from the DCFTA partners under review, following a tariff liberalisation (both tariffs/subsidy on imports and exports). Figure 2 illustrates the change in DCFTA partners' imports from the EU, indicating the improved market access for EU exporters.

Figure 1. Tariff liberalisation: absolute change in EU imports from the respective DCFTA partners, value at world prices (Difference between Baseline and S1 in 2030).



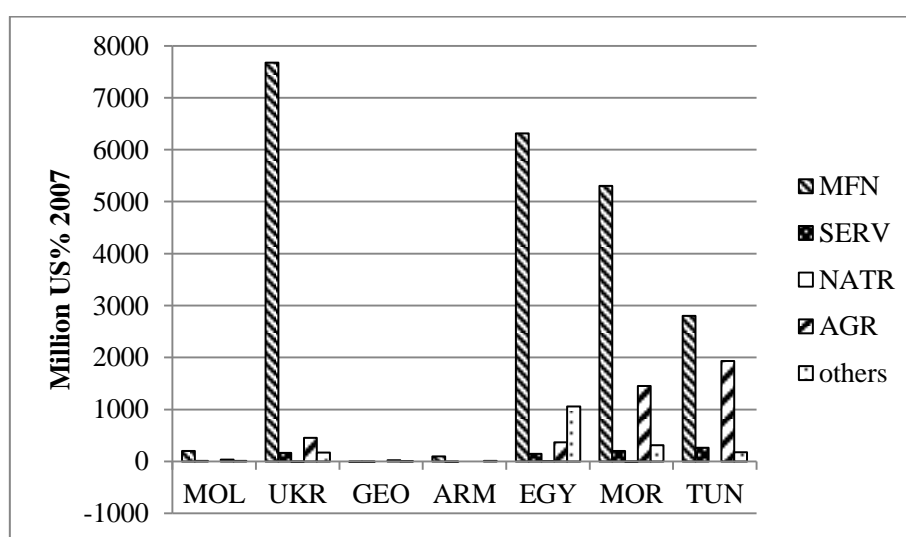
Note: MFN = manufacturing, SERV = services, NATR = natural resources, AGR= agri-food products
Source: MAGNET simulation results.

Figure 1 above shows that imports to the EU increase for some but not all DCFTA partner countries. In particular, the EU imports from Georgia, Armenia and Moldova virtually do not change. Hence, for those countries the improved market access within the DCFTAs does not really help to increase their exports to the EU. However, the percentage changes appear to be quite substantial: The tariff liberalisation increases the EU imports by up to 60% for some agri-food products. Note that Georgia, Armenia and Moldova are only small exporters to the EU market and remain small exporters with the DCFTA implementation. This reflects the well-known issue of small values in simulation modelling. In contrast, EU imports from the other DCFTA partner countries, in particular from the MED countries, increase. The EU imports from the Ukraine also increase, especially manufacturing products but also agri-food products to a certain degree. It is interesting to note that the Ukraine increases its exports of primary plant products, i.e. wheat and other crops (compare table A1 in the appendix), to the EU, while its exports of processed plant products to the EU fall (not shown in the figure). Focusing on agri-food products, Tunisia sells much more plant products, specifically processed plant products (including vegetable oil) and fruit & vegetables, on the EU market since the high EU protection is abolished within the DCFTA. The considerable increase of

agri-food products captures this important effect of the DCFTA for Tunisia (see figure 1). At the same time, EU imports of manufacturing products and services from Tunisia fall, indicating changes in production patterns and competitiveness due to improved trade opportunities for agri-food products.

Figure 2 shows that tariff liberalisation leads to a much more pronounced increase of EU exports to the DCFTA partners, in particular for manufacturing. Concerning agri-food products, the EU for example sells considerably more primary plant and dairy products to the MED countries after the tariff liberalisation with the DCFTAs. Given these trading opportunities, the improved market access conditions negotiated for the DCFTAs will be of special interest to the EU in order to expand exports to the respective partner countries that maintain rather high tariffs on EU exports before the DCFTAs are established.

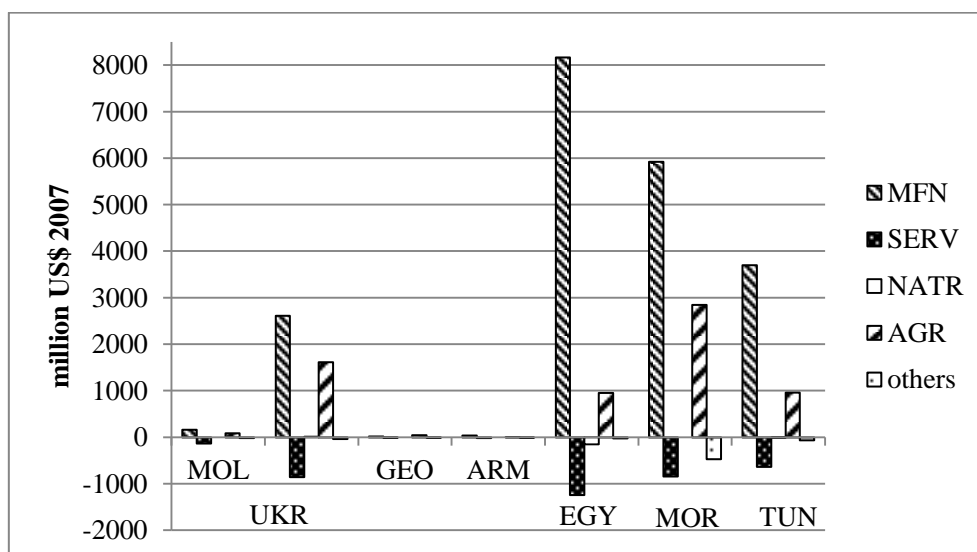
Figure 2. Tariff liberalisation: absolute change in the respective DCFTA imports from the EU, value at world prices (Difference between Baseline and S1 in 2030).



Note: MFN = manufacturing, SERV = services, NATR = natural resources, AGR= agri-food products
Source: MAGNET simulation results.

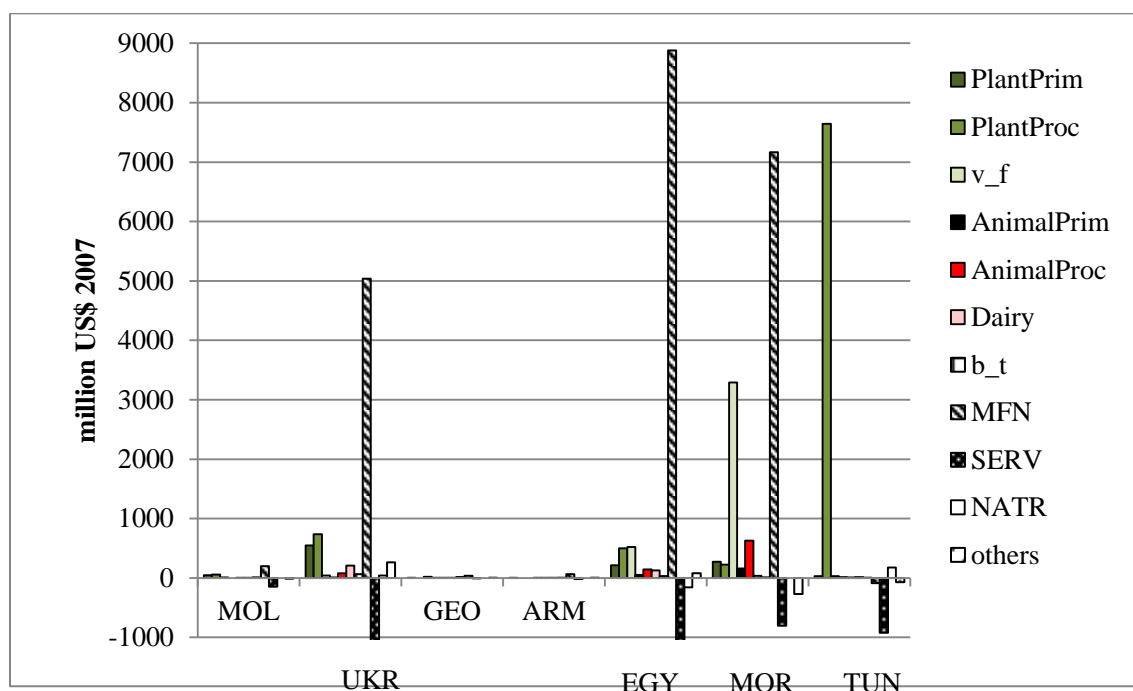
Figure 3 presents the changes due to the NTM elimination (S2), which constitutes a central element in the DCFTAs. In comparison to the tariff liberalisation (S1), the changes in EU imports from the DCFTA partners are much more pronounced and thus the NTM elimination should be particularly important for the DCFTA partner countries. Without the NTM barriers by the EU the exports of the DCFTA partner countries to the EU more than double in comparison with the increase of the tariff liberalisation only. This is due to the simulated productivity effects that depict the NTM elimination. This holds for all products, except for services for which NTMs are not eliminated in the simulation. Note that EU imports of services decrease from these countries, with other products becoming more attractive and using up more production factors due to increased production. Looking at Tunisia, the EU imports of manufacturing products from Tunisia increases in S2 and the decrease of EU imports of manufacturing products can be offset, when combining S1 and S2. While the NTM elimination leads to more EU imports of agri-food products, especially from Morocco, Egypt and Ukraine, EU imports of agri-food products from Tunisia do not increase. That means that the productivity boost modelled in the NTM elimination does not foster Tunisia's agri-food exports, and it would be interesting to further investigate the reasons. Like in S1, the trade effect for Moldavia, Georgia and Armenia as small exporters is rather limited in size.

Figure 3. NTM elimination: absolute change in EU imports from the respective DCFTA partners, value at world prices (Difference between Baseline and S2 in 2030).



Note: MFN = manufacturing, SERV = services, NATR = natural resources, AGR= agri-food products
Source: MAGNET simulation results.

Figure 4. Total effect of tariff liberalisation and NTM elimination: absolute change in EU imports from respective DCFTA partners, value at world prices (Difference between Baseline and S3 in 2030) (DCFTA partners ‘exports’).



Note: MFN = manufacturing, SERV = services, NATR = natural resources, AGR= agri-food products, further abbreviations see table A1 in the appendix.
Source: MAGNET simulation results.

In Figure 4 (above), the combined effect of tariff liberalisation and NTM elimination (S3) is illustrated for a more detailed aggregation of agri-food products. As in the other scenarios, the increase in EU imports dominates the picture for the Ukraine, Egypt and Morocco. For Tunisia, exports of processed plant products (such as vegetable oil) to the EU increase most in S3. In addition, Morocco also exports considerably more fruit & vegetables to the EU. These

effects can be explained by the generally high tariff and non-tariff barriers of the EU towards MED countries (compare table 2). EU imports of other agri-food products also increase but the increase is much lower. Like in S1 and S2, the trade effect for Moldavia, Georgia and Armenia as small exporters is rather limited in size.

Overall, it is intriguing to ask which countries will actually benefit most in terms of scoring the highest increase of exports, thereby realising the best result out of the improved market access and the elimination of the NTM barriers, as foreseen in the DCFTAs. Looking at the result of S3 for agri-food exports in total, table 5 compares the increase of EU imports from the respective DCFTA partners (DCFTA exports) and the DCFTA partners' imports from the EU (EU exports) in 2030. The percentage share of the total increase of trade is also presented.

Table 5. Distribution of trade benefits for agri-food products in 2030, due to DCFTAs between the EU and partners (S3), million US \$ 2007.

	DCFTA partner countries						
	UKR	MOL	GEO	ARM	EGY	MOR	TUN
DCFTA exports to the EU	1,694	132	50	6	1,586	4,625	7,756
EU exports to DCFTA partners	1,017	96	79	28	957	3,064	2,757
Total	2,711	228	129	34	2,543	7,689	10,513
Percentage share of total increase							
DCFTA exports to the EU	62%	58%	39%	18%	62%	60%	74%
EU exports to DCFTA partners	38%	42%	61%	82%	38%	40%	26%

Source: MAGNET simulation results.

As shown, DCFTA partners seem to overall book a high percentage share of the total trade increase following the full DCFTA implementation. However, Georgia and Armenia seem to benefit comparatively little from the improved trading conditions (tariff and NTM liberalisation) due to the DCFTA: The EU exporters export much more to these DCFTA partner countries, than the other way round. Moldavia, for which not much increase in agri-food exports are reported according to the model results, appears to achieve a higher share in the total trade benefit. For the Ukraine, Tunisia, Egypt and Morocco the improved market access and NTM elimination can be expected to be most crucial since these countries seems to be able to considerably expand their exports and use the improved trading opportunities created by the agreements with the EU. In this sense, they will be able to conquer the EU market with the DCFTAs.

5. Concluding Remarks

The EU has undertaken considerable efforts of establishing DCFTA with its neighbour countries. The EU DCFTAs go beyond tariff liberalisation, specifically targeting “behind the border” measures, commonly referred to non-tariff measures (NTMs). This paper investigates whether DCFTAs will actually help partner countries to sell their products on the EU market, thereby focusing on the trade effect of the DCFTAs. For the analysis, the general equilibrium model MAGNET (Modular Applied General Equilibrium Tool) is applied in a recursive dynamic general equilibrium framework. In the simulation, DCFTAs are depicted in terms of a tariff liberalisation and the elimination of NTMs between the EU and DCFTA partners. The latter represents the regulatory orientation towards the EU, whereby the standard “ice-berg costs” approach is implemented in the simulation.

First the results of the tariff liberalisation (S1) are analysed. While the EU imports from DCFTA partners increase, the EU exporters considerably expand their export to the DCFTA partners. The elimination of NTMs (S2) reinforces the positive trade effect for some products,

most notably manufacturing but also agri-food products, and for some countries Ukraine, Egypt and Morocco. In a combined scenario of tariff liberalisation and NTM elimination (S3), the trade effects are presented for more detailed disaggregated agri-food products.

The simulation results show that the DCFTA partners do not equally benefit from increased trade possibilities with the EU. In particular small DCFTA partners do not seem to be able to tap into the potential of the improved trading relations within the DCFTA. Other DCFTA partners however will be able to considerably increase their export to the EU, and in this sense they will conquer the EU market. It is interesting to note that the EU also considerably benefits by expanding its exports to the respective DCFTA partners that maintain rather high tariffs on EU exports before the DCFTAs are established.

6. References

Dreyer, I. (2012). Trade Policy in the EU's Neighbourhood - Ways Forward for the Deep and Comprehensive Free Trade Agreements. Notre Europe Study.

Ecorys, Case (2012). Trade Sustainability Impact Assessment in support of negotiations of a DCFTA between the EU and Georgia and the Republic of Moldova. Final report, commissioned by the European Commission – Directorate General Trade.

Ecorys, Case (2013). Trade Sustainability Impact Assessment in support of negotiations of a DCFTA between the EU and Armenia. Final report, commissioned by the European Commission – Directorate General Trade.

Ecorys (2013). Trade SIA in support of negotiations to upgrade the Euro-Mediterranean Association Agreements and to establish Deep and Comprehensive Free Trade Area (DCFTA) between the EU and respectively Morocco and Tunisia. Final report, commissioned by the European Commission – Directorate General Trade.

Ecorys (2007). EU-Ukraine Free Trade Agreement (FTA). Final report, commissioned by the European Commission – Directorate General Trade.

Fugazza, M. and Maur, J.-C. (2008). Non-tariff barriers in CGE models: How useful for policy? *Journal of Policy Modelling*, 30(3): 475-490.

IMF (2012). World Economic Outlook October 2012, Coping with High Debt and Sluggish Growth, World Economic and Financial Services, International Monetary Fund, Washington.

Kee, H., Nicita, A. and M. Olarreaga (2009). "Estimating trade restrictiveness indices", *Economic Journal*, 119: 172-199.

UNCTAD (2013). Classification of non-tariff measures. United Nations Conference on Trade and Development (UNCTAD), UNCTAD/DITC/TAB/2012/2.

Woltjer, G. and M. Kuiper (2013). The MAGNET model – module description. Agricultural Economics Research Institute (LEI), part of WUR.

World Bank (2012). Global Economic Prospects, Managing Growth in a Volatile World, Volume 5, World Bank, Washington DC.

Appendix

Table A1 Region, sector and factor aggregation

Countries, Regions		Sectors		Production factors
egy	Egypt	PlantPrim	Paddy rice	Land
mor	Morocco		Wheat	Unskilled
tun	Tunisia		Cereal grains nec	Skilled labour
arm	Armenia		Oil seeds	Capital
geo	Georgia		Sugar cane, sugar beet	Natural resources
mol	Moldova		Plant-based fibres	
ukr	Ukraine		Crops nec	
EU	28 EU Member States (including Croatia)	PlantProc	Vegetable oils and fats Processed rice Sugar	
ROW	Rest of the World	v_f	fruit & veg	
		AnimalPrim	Cattle, sheep, goats, horses	
		AnimalProc	Animal products nec	
			Meat: cattle, sheep, goats, horse	
			Meat products nec	
		Dairy	Raw milk and processed milk	
		b_t	Beverages and Tabaco	
		Other	Forestry, wood, fish, cocoons...	
		Manufacturing (MFN)	Petroleum, coal products	
			Other manufacturing	
		Services (SERV)	Trade & transport (services)	
			Other services	
		Natural resources (NATR)	Coal, oil and gas	

Source: aggregation of GTAP, MAGNET data.