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EU enlargement to Turkey: Potential impacts on agricultural markets and how they are shaped by changes in macroeconomic conditions

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Abstract

The potential accession of Turkey to the EU, and the related adoption of the CAP by Turkey, is expected to influence agricultural markets in both the EU and Turkey. The extent of the accession impacts depends on the one hand on the way the CAP will be implemented in Turkey, while on the other hand impacts are expected to be also shaped by macroeconomic conditions (like exchange rates, GDP growth and inflation levels).

In this paper we provide a comprehensive model-based assessment of the potential impacts on agricultural markets of a Turkish accession to the EU. We first assess the impacts under the assumption of standard macroeconomic projections, then we analyse how a different TL/Euro exchange rate, a doubling of the Turkish inflation rate or a doubling of the Turkish GDP growth rate would influence the accession impacts.

Results of the Turkish EU-membership simulation show that the impacts on agricultural markets in Turkey are significant, while effects on EU markets are rather limited. The main impact on Turkish agriculture is a reduction of producer prices. With market prices and produced quantities declining, and as the coupled Turkish direct payments and the input subsidies will be replaced by lower payments of the CAP, agricultural income is expected to be reduced especially for Turkish crop producers (except for tobacco). In contrast, accession effects on the Turkish livestock sector are projected to be positive, mainly due to lower feed costs. Furthermore, the demand levels of most commodities are projected to increase due to lower prices, thus Turkish consumers are expected to gain from an accession to the EU. The further analysis reveals that in particular a depreciation of the Turkish lira alters the results of the accession scenario.

Keywords

Turkey, EU enlargement, agricultural markets, macro economy, AGMEMOD

1 Background

Turkey is a candidate country for EU membership since December 1999 and formal accession negotiations started in October 2005, however, first request for an accession dated back to 1963. A Turkish accession would add about 41 million hectares to the agricultural area of the EU, and Turkey would account for one fifth of the agricultural area of a future EU28. In 2008, more than one quarter of the Turkish workforce was employed in agriculture, while the sector accounted for 9.2% of Turkish GDP. Vegetables and fruits (with tomatoes ranked first) account for the majority of Turkish crops output value. Cow milk is the most important product accounting for 36% of livestock product output value (TURKISH STATISTICAL INSTITUTE, 2009).

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Turkey's vast basic agricultural resources, namely fertile soil, access to sufficient water and varied climate, offer considerable potential for expansion and development. These conditions are reflected in Turkey's status as a major world producer of cereals, nuts, cotton, tobacco, fruits and vegetables. In contrast to its national importance in economic terms and even though Turkey is self-sufficient in most agricultural products, the Turkish agricultural sector is rather poorly structured and shows similarities with those of some of the Member States that acceded to the EU from May 2004 onwards. Most farms are family farms and only employ family labour. Turkish farm holdings are on average considerably smaller than those in the EU, with the size of the average holding in Turkey being 6.5 ha, compared to the EU average of 15.8 ha. Small scale farming, partly via subsistence and unspecialized production systems, is an important characteristic of Turkish agriculture.[4]

Given the importance of the agricultural sector in Turkey, a Turkish accession to the EU could be expected to impact the agricultural markets in both the EU27 and in Turkey. The extent of the accession impacts depends on the one hand on the way the Common Agricultural Policy (CAP) of the EU will be implemented in Turkey, while on the other hand impacts are expected to be also shaped by macroeconomic conditions like exchange rates, GDP growth and inflation levels. Regarding the latter considerable uncertainties remain with respect to their future development, especially in the light of the recent turbulences in the global financial system and the economic crisis. There are signs of a quicker-than-feared recovery of economy and demand, which would have implications for agricultural prices on a worldwide basis. Developments in the wider macroeconomic environment and ongoing policy responses will affect exchange rates between the Euro and other currencies.

Against this background we provide a comprehensive quantitative model-based assessment of the potential impacts on agricultural markets of a Turkish accession to the EU, under the assumption of standard macroeconomic projections. Projections are conducted with the AGMEMOD (AGricultural Member States MODelling) tool which is able to capture the diversity and heterogeneity of European agriculture via its multi-commodity approach. In addition, we also analyse how variations in the macroeconomic settings influence the simulated impacts on agricultural markets of a Turkish accession to the EU. Therefore we apply complementary scenarios with a different TL/Euro and TL/US dollar exchange rate, a doubling of the Turkish inflation rate and a doubling of the Turkish GDP growth rate.

The reminder of the paper is structured as follows: Section 2 describes the model used for the analysis and the assumptions of the simulated scenarios. In Section 3 the scenario results are reported and analysed and Section 4 concludes.

2 Model description and scenario assumptions

To conduct the quantitative assessment of the potential impacts on agricultural commodity markets of an accession of Turkey to the EU under varying macroeconomic conditions the AGMEMOD (AGricultural Member States MODelling) tool has been used. AGMEMOD is an econometric, dynamic, partial equilibrium, multi-country, multi-market model for EU agriculture at the Member State level. Based on a set of commodity specific model templates, respective country models are developed to reflect the details of agriculture at Member State level and at the same time allow for their inclusion in a combined EU model.

Individual country models; by large, are econometrically estimated, except in the cases where estimations are neither feasible nor meaningful. In those cases, the model parameters are calibrated. All individual country models contain behavioural responses of economic agents on the agricultural markets due to changes in prices, policy instruments and other exogenous

[4] Detailed descriptions of Turkish agriculture in comparison to the EU are given in BURRELL and OSKAM (2005), BURRELL and KURZWEIL (2007) and PELIKAN et al. (2009).

variables. Commodity prices adjust so as to clear all the markets considered, while projections for supply, use and prices of commodities are projected and simulated to a 10 years time horizon. In general, projections are validated by standard econometric methods and through consultation with experts familiar with the agricultural markets in the regions under study. Both review types result in a revision of model structures, parameter estimates and underlying policy assumptions[5].

The close adherence to templates assures analytical consistency across the AGMEMOD country models, which is essential for aggregation towards an EU level. The adherence to model templates and a common modelling approach also facilitates the comparison of the impact of a policy change across different Member States. In order to include the EU Candidate Country Turkey in AGMEMOD, a detailed dataset and modelling structure for the main agricultural commodities in Turkey was developed. In principle, cereal and oilseeds as well as their derivates oils and cakes, sugar beet, cotton and tobacco, potatoes, livestock with cattle, beef, poultry, sheep and goats, dairy products with raw milk, on farm consumption of whole milk, drinking milk, other fresh products, butter, milk powder and cheese, tomatoes, olives, olive oil, oranges and apples were modelled. For each of these commodities, production as well as supply, demand, trade, stocks and domestic prices were simulated based on econometrically estimated or calibrated equations. The developed Turkish AGMEMOD country model comprises time series on Turkish agricultural production, market balances and prices, macroeconomic variables and policy variables such as direct payments, support prices and import tariffs up to 2010 and was integrated into the overall AGMEMOD modelling framework.[6] For the purpose of this paper separate baseline and accession scenarios are developed. The key assumption in the baseline scenario is that Turkey does not accede to the EU over the projection period to 2020 and, thus, the status quo ante is maintained. Following the general AGMEMOD approach, for future values of policy variables which are defined in monetary units, the status quo is used, however, not in national currencies but instead in Euro. In consequence, in national currency the values of the variables will increase during the projection period. In the accession scenarios Turkey is assumed to become an EU Member State in January 2015.[7] Consequently, Turkey is treated differently from the EU27 in that agricultural policy in the EU, as prevailing after the Health Check agreement of November 2008, is assumed to continue over the rest of the projection period in the EU under both the baseline and accession scenarios, while Turkish agricultural policy during the post-accession period in the accession scenarios differs from that in the pre-accession period and under the baseline.

In the Baseline and in the Standard Accession Scenario (SA) assumptions on macroeconomic projections are obtained from national statistical offices in the EU27 and Turkey. With a rate of 1.1% per year, Turkish population is expected to grow more than twice as fast as the EU27 population. For the 2013-2020 period, a 6% annual GDP growth rate has been assumed for Turkey, which is 0.5% below its average growth rate realised over the period 2002-2007. Assumptions on the development of exchange rates and world market prices are provided by FAPRI (2010). Table 1 gives an overview on the main macroeconomic assumptions for Turkey.

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[5] For further details on the AGMEMOD modelling approach see CHANTREUL and LE BARBENCHON (2007), ESPOSTI and CAMAIONI (2007), SALAMON et al. (2008), VAN LEEUWEN et al. (2008).

[6] Further details on the AGMEMOD-Turkey model are given in VAN LEEUWEN et al. (2010). However, results are not directly comparable due to model changes and updates for this paper.

[7] The assumed accession date of 2015 is neither a forecast nor an expectation that Turkey will accede to the EU in 2015. The year 2015 was chosen for technical reasons in order to allow the analytical model enough time to adjust to accession within its ten-year projection horizon.

Table 1: Macroeconomic assumptions for Turkey

	Unit	2000	2005	2008	2009	2010	2015	2020
Population	million	64	69	71	72	73	77	80
Real GDP	billion TL (1987)	118.8	146.8	166.7	152.5	157.9	205.3	274.8
GDP deflator	2000=1.00	1.00	3.12	4.04	4.28	4.50	5.31	6.43
Real GDP/cap	1987 prices	1,849	2,140	2,345	2,122	2,172	2,681	3,424
Exchange rate	TL/Euro	0.58	1.68	1.77	2.26	2.23	3.11	4.04
Exchange rate	TL/USD	0.62	1.34	1.29	1.55	1.60	2.10	2.57

Source: Turkish Statistical Institute (2009), FAPRI (2010)

In order to assess how changes in macroeconomic conditions influence the potential impacts on agricultural markets we also apply three complementary scenarios. While we keep all the basic assumptions of the Standard Accession Scenario, we change one assumption per additional scenario: one scenario with a 10% depreciation of TL versus Euro and US dollar, one scenario with a doubling of the Turkish GDP growth rates from 2009 and one scenario with a doubling of the Turkish inflation rates from 2009. An overview on the main scenario assumptions is given in Table 2.

Table 2: Overview on the main scenario assumptions

Scenario Name and Acronym	Main Assumptions
Baseline Scenario **Baseline**	•No accession of Turkey to the EU •Current (agreed and scheduled) policy (Health Check) remains unchanged over the projection period •Macroeconomic projections on GDP growth and inflation as obtained from national statistical offices in the EU27 and Turkey •Exchange rates and world market prices as provided by FAPRI (2010)
Standard Accession **SA**	•Accession of Turkey to the EU in 2015 •Current (agreed and scheduled) policy (Health Check) remains unchanged for the EU and Turkey adopts the CAP in 2015 •Macroeconomic projections on GDP growth and inflation as obtained from national statistical offices in the EU27 and Turkey •Exchange rates and world market prices as provided by FAPRI (2010)
Complementary Scenarios	
Depreciation of TL **DepTL**	• as in SA, but •10% depreciation of Turkish lira versus Euro and US dollar
Doubling Turkish GDP **DGDP**	• as in SA, but •doubling of Turkish GDP growth rates from 2009
Doubling Turkish Inflation **Dinf**	• as in SA, but •doubling of Turkish inflation rates from 2009

3 Scenario results and analysis

An overview on the projected impacts on agricultural commodity markets in the scenario simulations is given in Tables 3 and 4 for Turkey and in Tables 5 and 6 for the EU.

Results and analysis for Turkey

In the baseline scenario, Turkish agricultural commodity prices are mainly driven by world market prices, import tariff rates and non-import barriers as well as by some few support prices. The agricultural sector in Turkey is considerably protected and, hence, most Turkish prices for crops, meat and dairy products are projected to stay significantly above the EU and world market prices in the baseline. These high price levels imply relatively high feed costs for Turkish meat and dairy producers, as well as high prices and lower consumption for consumers.

In the Standard Accession Scenario, Turkish domestic prices are projected to converge towards their respective EU price levels over the period 2015-2020. This type of price development in the early years of EU membership was also observed in other countries that have acceded to the EU in past enlargements. As a consequence, the principal impact of the Turkish accession on agriculture in Turkey is the projected reduction of domestic producer prices, with crop prices declining between 20%-50%. Furthermore, with accession and thus adoption of the CAP, the level of support to Turkish agriculture decreases for almost all commodities between 20%-40%. The mostly decoupled CAP support payments generate smaller incentives to increase production than the coupled payments and input subsidies which Turkish farmers receive in the baseline.

With decreased market prices and production support also produced quantities are projected to decrease in the Turkish crop sector, in particular for the crops where policy support is projected to decrease most, i.e. potatoes (-52%), rice (-25%), sugar (-25%) and maize (-15%). Exceptions from the general projected results in the crop sector are durum wheat and tomatoes. Prior to EU accession, the Turkish durum wheat price is projected to remain already at a level roughly equal to its respective EU key price. With a price increase of 17% during the process of accession the relative profitability of durum wheat increases and results in an increase of production of 5%. In the case of tomatoes, Turkish prices prior to accession are below EU prices, but exports from Turkey to the EU are impeded by an applied entry price system in the EU. Thus, with accession Turkish tomato exports switch to the EU market and Turkish prices are projected to increase by more than 5% and production by about 4%.

In contrast to the crop sector, scenario results for the Turkish animal sector indicate that despite a reduction in support for production, production levels will nevertheless increase, especially for sheep meat (26%) and poultry (9%). In general the effect of the accession on Turkish livestock production is projected to be positive, mainly because the negative impact of the scenario on Turkish cereal prices results in lower feeding costs in Turkey.

Table 3: Accession impacts on prices and self-sufficiency rate on main Turkish agricultural markets according to the different scenarios, 2020 (% changes)

	Price				Self-sufficiency rate			
	SA vs. baseline	DepTL vs. SA	DGDP vs. SA	DInf vs. SA	SA vs. baseline	DepTL vs. SA	DGDP vs. SA	DInf vs. SA
Soft wheat	-30.6	7.0	0.0	0.0	-12.9	-0.8	-1.5	-1.3
Barley	-32.3	6.9	0.0	0.0	-11.1	0.8	-0.5	-0.2
Maize	-25.2	7.5	0.0	0.0	-21.2	0.2	-0.3	-1.9
Rice	-6.1	9.3	0.6	0.2	-25.4	0.1	-1.6	-0.6
Sunflower	-21.2	7.5	0.0	0.0	-3.0	0.1	-0.4	0.2
Potatoes	-29.3	5.7	-0.1	0.4	-54.2	-1.2	0.4	-1.4
Sugar	-50.7	4.9	0.0	0.2	-32.1	0.0	-0.5	-2.9
Tobacco	-49.8	5.5	0.1	0.0	-44.7	-1.0	0.0	2.3
Cotton	-33.7	7.3	5.1	1.0	20.6	-0.9	-11.1	-2.3
Tomatoes	5.6	6.1	5.8	-1.9	4.1	1.4	-6.6	2.1
Oranges	-19.6	8.0	0.0	0.0	-4.4	0.0	0.0	-1.7
Apples	-9.2	9.1	0.0	0.0	0.9	-0.2	0.0	-0.3
Beef	-23.1	7.6	0.2	0.0	-15.4	0.0	-2.8	-0.5
Poultry	46.4	14.7	0.9	0.3	23.3	0.0	-4.5	-1.4
Sheep meat	2.6	9.9	0.0	-0.2	-4.0	6.3	0.0	0.8
Milk	-5.9	9.3	0.5	0.0	-	-	-	-
Butter	-2.5	9.7	0.2	0.0	2.7	0.3	-2.3	-0.1
Cheese	-7.1	9.2	0.6	0.0	4.8	0.6	-4.0	0.0
Other fresh products	-6.4	5.8	1.9	0.5	3.2	-0.3	-1.7	-0.6

The complementary scenarios reveal that compared to the Standard Accession Scenario especially an additional 10% depreciation of the TL versus the Euro and US dollar alters the Turkish accession results, particularly with regard to prices. Exchange rates are among the key variables that determine domestic prices for agricultural commodities, and consequently affect the quantities of goods domestically produced, consumed, and traded (cf. LIEFERT and PERSAUD, 2010). In general, the exchange rate between the Turkish lira and the US dollar is an important factor in determining the influence of world prices of agricultural commodities on Turkish agricultural markets and the competitiveness of Turkish agricultural exports to world markets. Similarly, the exchange rate between the Turkish lira and the Euro is an important factor in determining the influence of EU prices of agricultural commodities on Turkish agricultural markets and the competitiveness of Turkish agricultural exports to EU markets in the case that Turkey would accede to the EU. With a depreciation of the Turkish lira imports become relatively more expensive for Turkey due to higher import prices compared to domestic prices while on the contrary exports of Turkish commodities become relatively more attractive. Consequently, the 10 % depreciation of the Turkish lira versus the Euro and US dollar is projected to lead to higher Turkish agricultural commodity prices (i.e. lower price reductions) than under the Standard Accession Scenario from 2010 onwards. The higher prices especially induce further production increases in sheep meat (+9%) and tomatoes (+2%) which also increases the Turkish self-sufficiency rates in these products.

Table 4: Accession impacts on production and domestic use on main Turkish agricultural markets according to the different scenarios, 2020 (% changes)

	Production				Domestic use			
	SA vs. baseline	DepTL vs. SA	DGDP vs. SA	DInf vs. SA	SA vs. baseline	DepTL vs. SA	DGDPv s. SA	DInf vs. SA
Soft wheat	-9.1	-0.9	0.0	-1.4	4.3	-0.1	1.8	0.0
Barley	-3.8	0.0	0.0	-0.3	8.3	-1.0	0.6	0.0
Maize	-14.7	-0.1	0.0	-2.0	8.2	-0.5	0.4	0.1
Rice	-24.8	0.1	0.1	0.1	0.8	0.0	2.4	1.0
Sunflower	0.5	0.1	0.0	0.2	3.6	0.0	0.4	0.0
Potatoes	-52.5	-1.2	-0.1	-2.0	3.7	0.0	-1.1	-1.2
Sugar	-25.2	0.0	0.0	-2.2	10.1	0.0	0.9	1.5
Tobacco	1.8	-2.1	0.0	1.0	-1.4	-0.1	1.4	0.5
Cotton	24.3	-1.0	0.0	-2.2	3.1	-0.1	10.5	0.1
Tomatoes	3.9	1.6	0.1	2.3	-0.2	0.1	6.9	0.2
Oranges	0.4	0.0	0.0	-0.3	5.1	0.0	0.0	1.6
Apples	1.2	-0.2	0.0	-0.1	0.3	0.0	0.0	0.2
Beef	0.1	0.0	0.0	0.0	18.3	0.1	4.0	0.6
Poultry	9.2	0.0	0.1	0.0	-11.4	0.0	3.5	1.0
Sheep meat	26.0	9.2	0.8	6.3	31.2	1.0	0.8	5.5
Milk	3.0	0.4	0.1	0.1	-	-	-	-
Butter	2.7	0.3	0.1	0.0	0.1	0.0	2.4	0.1
Cheese	4.8	0.6	0.2	0.0	0.0	0.0	4.2	0.0
Other fresh products	3.9	0.1	0.5	-0.3	0.7	0.3	2.2	0.3

With higher GDP growth rates in the Doubling Turkish GDP (DGDP) Scenario the levels of consumption per capita generally increase due to higher income levels. Consequently, a doubling of the Turkish real GDP growth rates over 2010-2020 is projected to lead to a higher domestic use of Turkish agricultural commodities. In comparison to the impacts in the Standard Accession Scenario an accession with a higher Turkish GDP growth rate leads to higher domestic uses and lower self-sufficiency rates of Turkish agricultural commodities with some few exceptions like potatoes. Higher incomes will also generate cross consumption effects, e.g. away from potatoes to rice. In general, prices are slightly higher than under the Standard Accession Scenario. Hence, bigger price impacts are revealed for cotton and tomatoes in the DGDP scenario while price impacts for the other products remain below 1% except for other fresh dairy products. In principle price reactions to the GDP shock are much lower than to the depreciation of the Turkish lira.

Projection results of the DInf Scenario indicate that a doubling of the Turkish inflation rates over 2010-2020 has considerably smaller effects compared to the other scenarios. Main impacts are on real prices, real income per head and real value of direct payments while no significant effects occur with regard to Turkish nominal prices. However, as real prices decline this leads to higher domestic use and to a lower production in Turkey. Increase in consumption is quite limited with figures between 1% and 2%. In contrast, production quantities are declining somewhat more, for most products around 2%. But changes are reflected in nominal prices which increase slightly and in general below 1%. The decrease in Turkish production can additionally be attributed to reduced amounts of real CAP supports, which will impact the Turkish agricultural sector from 2015 onwards when Turkey is assumed to enter the EU. Lower Turkish real prices are projected to lead to lower self-sufficiency rates in Turkish agricultural commodities.

Results and analysis for the EU

In the Standard Accession Scenario the EU includes 28 Member States from 2015 onwards when Turkey entered the EU. Regarding prices, the projected changes for the EU28 are rather moderate, with the most remarkable price increase projected for rice (16%), followed by barley (2%), soft wheat and maize (1% each). Biggest price decreases for the EU28 are projected for sheep meat (-6%), poultry (-3.5%) and oranges (-3%).

Table 5: Accession impacts on prices and self-sufficiency rate on main EU agricultural markets according to the different scenarios, 2020 (% changes)

	Price				Self-sufficiency rate			
	SA vs. baseline	DepTL vs. SA	DGDP vs. SA	DInf vs. SA	SA vs. baseline	DepTL vs. SA	DGDP vs. SA	DInf vs. SA
Soft wheat	0.9	0.0	0.0	0.0	-5.9	-0.1	-0.2	-0.1
Barley	2.0	0.0	0.0	0.0	-6.6	0.2	-0.1	0.0
Maize	0.9	0.0	0.0	0.0	-3.8	0.0	0.0	-0.1
Rice	16.5	-0.1	0.6	0.3	-9.5	0.0	-0.4	-0.1
Sunflower	0.0	0.0	0.0	0.0	-10.6	0.0	-0.1	0.0
Potatoes	-1.0	0.0	0.0	0.0	-3.5	-0.1	0.1	-0.1
Sugar	0.0	0.0	0.0	0.0	-3.6	0.0	-0.1	-0.4
Tobacco	-0.8	0.1	0.1	0.0	-35.1	-0.2	0.0	1.0
Cotton	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tomatoes	-1.4	-1.4	6.3	-2.1	0.8	0.4	-2.3	0.7
Oranges	-2.9	0.0	0.0	0.0	22.9	0.0	0.0	-0.3
Apples	-0.5	0.0	0.0	0.0	2.0	0.0	0.0	-0.1
Beef	-0.1	0.0	0.1	0.0	0.3	0.0	-0.2	0.0
Poultry	-3.5	0.0	0.5	0.1	2.3	0.0	-0.3	-0.1
Sheep meat	-5.8	-1.0	0.0	-0.3	2.9	0.5	0.0	0.2
Milk	0.1	0.0	0.0	0.0	-	-	-	-
Butter	0.2	0.0	0.1	0.0	-0.8	0.0	-0.2	0.0
Cheese	0.1	0.0	0.2	0.0	0.0	0.0	-0.2	0.0
Other fresh products	0.0	0.0	0.0	0.0	1.0	-0.1	-0.4	-0.1

The projected percentage changes between the EU27 (Baseline Scenario) and EU28 (Standard Accession Scenario) levels of production and domestic use of agricultural commodities give an indication of the size of the corresponding Turkish markets. In particular EU production and domestic use of wheat, barley, rice, tobacco, tomatoes, oranges, apples, poultry and sheep meat are projected to increase significantly if Turkey would join the EU. EU self-sufficiency rates will decrease remarkably in some crops (especially for tobacco, sunflower and rice), while they are projected to increase for vegetables and fruits (especially oranges) and most livestock products.

The complementary scenarios reveal that none of the changed Turkish macroeconomic variables has a considerable influence on the accession results for the EU28 markets. In each of the complementary scenarios almost all percentage changes are projected to be in a range between -1% and + 1% when compared to the Standard Accession Scenario. Remarkable differences are only projected for tomatoes in the DGDP Scenario where, compared to the standard scenario and following the Turkish situation and the importance of the Turkish tomato market in the EU28, the increased EU domestic use (+5%) would induce a lower EU self-sufficiency rate for tomatoes (-2%) and consequently a higher EU tomato price (+6%). Also noteworthy, in the DInf Scenario a doubling of the Turkish inflation rates would generate an increased EU production of tomatoes and sheep meat, which would induce a higher EU self-sufficiency and consequently lead to lower EU prices for both commodities.

Table 6: Accession impacts on production and domestic use on main EU agricultural markets according to the different scenarios, 2020 (% changes)

	Production				Domestic use			
	SA vs. baseline	DepTL vs. SA	DGDP vs. SA	DInf vs. SA	SA vs. baseline	DepTL vs. SA	DGDP vs. SA	DInf vs. SA
Soft wheat	10.8	-0.1	0.0	-0.2	17.8	0.0	0.3	0.0
Barley	15.0	0.0	0.0	0.0	23.1	-0.2	0.1	0.0
Maize	5.3	0.0	0.0	-0.1	9.5	0.0	0.1	0.0
Rice	13.0	0.0	0.1	0.0	24.9	0.0	0.6	0.2
Sunflower	11.9	0.0	0.0	0.0	25.2	0.0	0.1	0.0
Potatoes	3.8	-0.1	0.0	-0.2	7.6	0.0	-0.1	-0.1
Sugar	8.0	0.0	0.0	-0.2	12.0	0.0	0.1	0.2
Tobacco	23.0	-0.5	0.0	0.2	16.3	0.0	0.2	0.1
Cotton	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tomatoes	75.2	0.9	1.0	1.3	73.7	0.1	5.0	0.2
Oranges	34.1	0.0	0.0	-0.1	9.1	0.0	0.0	0.1
Apples	25.7	-0.1	0.0	0.0	23.3	0.0	0.0	0.0
Beef	7.56	0.0	0.0	0.0	7.2	0.0	0.3	0.0
Poultry	14.8	0.0	0.1	0.0	12.2	0.0	0.4	0.1
Sheep meat	14.1	0.9	0.1	0.7	10.8	0.3	0.1	0.5
Milk	9.2	0.0	0.0	0.0	-	-	-	-
Butter	10.9	0.0	0.0	0.0	11.7	0.0	0.3	0.0
Cheese	6.8	0.0	0.1	0.0	6.8	0.0	0.3	0.0
Other fresh products	28.3	0.0	0.1	-0.1	27.0	0.1	0.6	0.1

4 Concluding remarks

Turkey is a candidate country for EU membership and formal accession negotiations started in October 2005. Given the importance of the agricultural sector in Turkey, a Turkish accession to the EU is expected to impact the agricultural markets in both the EU27 and in Turkey. In this paper the potential impacts on agricultural markets of a Turkish accession to the EU are assessed under the assumption of standard macroeconomic projections. In addition, it is analysed how variations in the macroeconomic settings for Turkey influence the simulated accession impacts. Therefore we also analysed the accession impacts with a different TL/Euro and TL/USD exchange rate, a doubling of the Turkish inflation rate and a doubling of the Turkish GDP growth rate.

In the accession scenarios the EU includes 28 Member States from 2015 onwards when Turkey entered the EU. While the projected percentage changes between the EU27 (baseline scenario) and EU28 (accession scenario) are rather moderate for prices in the EU28 markets, changes in EU28 production levels and domestic use of agricultural commodities clearly reflect the size of the corresponding Turkish markets.

The principal impact of the Turkish accession on agriculture in Turkey is a projected reduction in domestic producer prices. The market effects of accession to the EU are projected to be mostly negative for the Turkish crop sectors because market prices and produced quantities are both projected to decline in the accession scenario when compared to the baseline. With the lower prices and quantities produced, agricultural producer income will be reduced for almost all crops in Turkey. However, Turkish producers of tobacco (more support compared to the baseline scenario), sheep meat, broiler and dairy milk (lower feed costs for livestock sectors compared to the baseline) could gain from an accession.

The complementary scenarios reveal that, compared to the Standard Accession Scenario, especially a 10% depreciation of the TL versus the Euro and US dollar alters and further shapes

the Turkish accession results, particularly with regard to prices. As producer prices decrease less in the scenario with the depreciation of the TL than in the standard accession scenario, this will also have a positive impact on producer incomes in Turkey. Hence, the impact of a potential Turkish EU accession is reflecting the general macro-economic environment. In contrast, none of the changed Turkish macroeconomic variables is projected to have a considerable influence on the accession results for the agricultural markets in the EU28.

When looking at the results of the accession scenarios some of the underlying assumptions have to be kept in mind. Firstly, the analysis presented does not cover possible efficiency gains in Turkish agriculture. Such gains may follow accession and can induce higher progress rates due to better access to knowledge and investments. In turn, such progress can be expected to generate higher yield increases and lower costs in the agricultural sector of Turkey. Secondly, it is assumed that Turkey enters the EU in 2015. This date is not regarded as a likely date but was chosen for technical reasons for the modelling exercise in order to allow AGMEMOD to adjust to accession within its ten-year projection period. Thus, the assumed accession date does not reflect any political decision and it would be meaningful to augment and improve the modelling approach once more detailed information about the terms of a possible accession of Turkey to the EU become available.

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