A FREE TRADE AGREEMENT BETWEEN UKRAINE AND THE EUROPEAN UNION: POSSIBLE OUTCOMES FOR AGRICULTURAL PRODUCERS

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Україна та ЄС у 2014 році підписали значущу і всеосяжну угоду про вільну торгівлю (УВТ), яка збільшує можливості для розвитку, але й робить серйозні виклики, як для ЄС, так і для України, впливає на всю економіку, інші сфери життя. У матеріалі змодельовано і кількісно оцінено потенційний вплив УВТ на сільськогосподарське виробництво та доходи фермерів в ЄС і Україні. Із цією метою адаптовано і застосовано динамічну модель часткової рівноваги AGLINK-COSIMO. Аналіз зосереджений на двосторонніх торговельних позиціях, не беручи до уваги впливу інших країн. Механізм моделювання УВТ між Україною та ЄС полягає у ліквідації імпортних тарифів на основні сільськогосподарські товари. Результати моделювання показують позитивні зміни в доходах сільськогосподарських виробників: 393 млн € (+2,6 %) в Україні та в 860 млн € (+0,4 %) у країнах ЄС. УВТ дає вигоди для сільського господарства обох торгових партнерів. Однак доходи розподілені нерівномірно, істотно розрізняються серед виробників різних товарів. Зазначено, що українські сільгоспвиробники мають бути готові зустріти труднощі, пов'язані з необхідністю переходу на якісні й санітарні норми ЄС.

Ключові слова: світовий ринок, сільськогосподарський сектор, перехідний період, тарифи, модель торгівлі.

1. Introduction. The agricultural sector in Ukraine has undergone profound transformation since Ukraine became independent in 1991. During the transition period production of almost all main agricultural commodities declined, and especially the livestock sector collapsed. In the past 10 years agricultural production recovered, particularly in the crop sector. However, there is still large scope for productivity growth, and especially Ukraine's rich natural resources (soil, climate, and water) and its key geographical position give Ukraine huge agricultural export potential [4, 15]. On the other hand, Ukrainian government policies seem to mainly focus on the internal markets. Food security is one of the major objectives and in order to limit inflation of food prices, Ukrainian export regulation is characterized by restrictions (export quotas, export duties), which has adverse effects on the growth of agricultural exports in the Ukraine [11].

The accession of Ukraine to the World Trade Organization (WTO) in 2008 already pushes Ukraine in the direction of a more open trade policy [11]. Furthermore, negotiations on a deep and comprehensive free trade agreement (FTA) between Ukraine and the EU are concluded and its signature is expected at Eastern European Partnership meeting in Vilnius (Lithuania) on 28–29 November 2013. Such a FTA would bring a further liberalization of trade policies between the two trading partners, with corresponding opportunities as well as challenges for agricultural markets. This paper provides a model-based quantitative assessment of the potential impacts of a FTA on agricultural commodity markets in the Ukraine and the EU.

To simulate a potential FTA between Ukraine and the EU we assume the abolishment of import tariffs for 14 main agricultural products (wheat, coarse grains, rice, oil seeds, vegetable oils, protein meals, butter, cheese, skimmed milk powder (SMP), whole

milk powder (WMP), beef and veal, pork, poultry, sheep meat) and compare the results of this FTA scenario with the results of a baseline scenario (where import tariffs actually applied are kept in place). The projection period for both scenarios is 2010–2020.

The remaining of the paper is organized as follows. Section 2 provides background information on the current EU-Ukraine trade relationship. In Section 3 the general modelling approach is specified and the specific adaptations of the model for the purpose of this study are described. A summary of the simulation results is provided in Section 4. Section 6 concludes with a discussion and some conclusions.

2. Background on the current EU-Ukraine trade relationship. The EU is the major trade partner of Ukraine with a 29,3 % share of all trade, while Ukraine is ranked 24th among the major trading partners of the EU with a 0,9 % share of all trade [5].

Ukraine was granted the Generalized System of Preferences (GSP) for trade with the EU in 1993. In 2009 the GSP utilization rate reached 71 % of the eligible products with € 1,61 billion of preferential imports to the EU (number 11 in the ranking of the most effective users of the system). Trade between the EU and Ukraine reached € 39,6 billion in 2008 and € 21,8 billion in 2009, with the 2009 downturn caused by the economic crisis and general shrinking of the Ukrainian economy. In contrast, Ukrainian agriculture was the only sector demonstrating growth during 2009 crisis year. The agricultural output growth in 2009 was 0,1 % on a year-to-year basis [8] and the share of Ukrainian agricultural exports in overall exports to the EU also grew from 20 % in 2008 to 23 % in 2009.

After the accession to the WTO the Ukrainian government simplified significantly its tariff system

in order to comply with the WTO rules. Among these simplifications are the elimination of specific tariffs, significant export and import tariff reductions for all products, elimination of all customs duties different from ordinary customs duties and standard safeguard measures, the commitment not to use export subsidies, elimination of the obligatory minimum export price, and the acceptance to keep trade distorting measures in the limit of 0,6 billion USD.

In the case of export measures Ukrainian policy is pointed to constrain food price inflation via the use of export quotas and export duties. After the WTO accession Ukraine eliminated all export duties except for oilseeds, live animals, hides and skins. Export quotas are normally used by Ukraine when the domestic harvest is low or/and international prices are high.

With regard to import measures before WTO accession, Ukraine had high tariff protection for some agricultural products like sunflower seeds (between 200–250 %), poultry (250–300 %), and sugar (about 150 %). After accession to the WTO Ukraine decreased considerably the import tariffs for all products and now they are in the range of 0–15 %. The exception is raw sugar which uses Tariff Rate Quotas (TRQ) with a 50 % tariff for out of quota imports. Among the other restriction measures Ukraine conserves licensing on the right to import and export different products. The import tariffs currently applied in Ukraine and the EU for agricultural products are presented in the Figure.

Around 42 % of all agricultural products can be sold duty-free by the Ukrainian exporters on the EU market as the Most Favored Nations (MFN) duty applied by the EU is already zero. In the EU the TRQ mechanism is applied for a number of agricultural
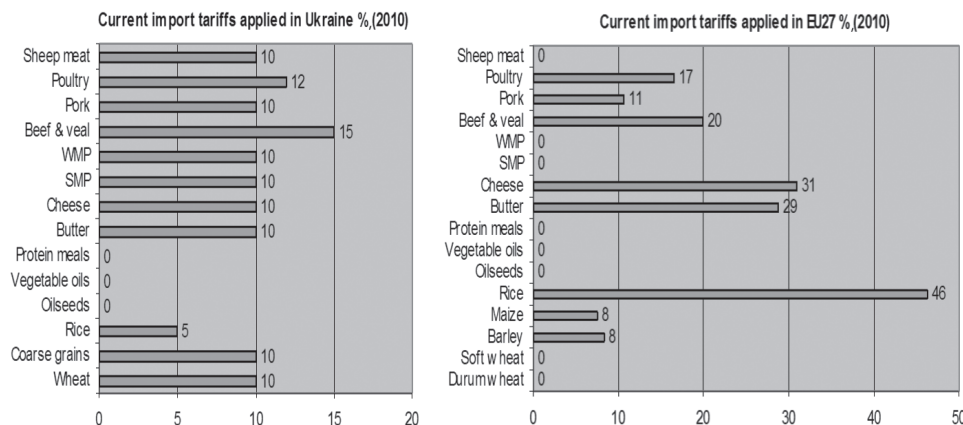

Figure. Import tariffs currently applied to selected agricultural products in Ukraine and the EU
Source: Ukraine custom duties code (Full document 2371a-14 from 01.01.2010); EU ad valorum tariffs
are taken from the AGLINK-COSIMO database

products including poultry, pork, beef & veal, cheese, butter, rice, maize, barley and wheat. The simplified presentation of EU import tariffs in the Figure represents 2010 import duties resulting after the application of TRQs. As can be seen in the Figure there are for example currently no or low import tariffs applied in the EU for wheat and coarse grains, which can be explained by high prices for these products as the applied tariff depend partly on the difference between the EU reference price (101,31 €/t) and the import price.

3. Specification of the modelling approach. The model used to simulate a FTA between the EU and Ukraine is AGLINK-COSIMO. AGLINK-COSIMO is a recursive-dynamic, partial equilibrium, supply-demand model covering the main agricultural products. AGLINK has been developed by the OECD Secretariat in close co-operation with OECD member countries and covers most OECD countries plus several non-OECD member countries (Brazil, Argentina, China, and Russia). The COSIMO model maintained by the FAO covers important agricultural producers of non-OECD member countries and aggregates for the remaining countries by region [10].

The main purpose for developing the AGLINK-COSIMO model was to lead medium-term agricultural outlook activities by providing a consistent analysis framework. The projection period used in AGLINK-COSIMO is 10 years on an annual basis. An outlook exercise for the development of agricultural markets is provided annually in order to update the key variables of the model and check the output. The final product of the outlook exercise reflects the evolution of the markets assuming current policy, normal weather conditions, given yield growth, assumption on world oil prices, etc [12].

AGLINK-COSIMO covers annual supply, demand and prices for the principal agricultural commodities produced, consumed and traded in each of the countries represented in the model. The overall design of the model focuses in particular on the potential influence of agricultural and trade policies on agricultural markets in the medium-term [10].

The model is based on several important assumptions:

• the world markets are competitive and neither buyers nor sellers have monopoly power on the market. The market price is determined via global or regional equilibrium in supply and demand;

• AGLINK-COSIMO is not a spatial model and due to this importers do not distinguish the origin of commodities (transportation costs are not included);

• AGLINK-COSIMO is a partial equilibrium model focused on agricultural commodities. Non-agricultural markets are not modeled.

All the variables used in the model can be divided in four different groups: endogenous exogenous, parameters and coefficients. Endogenous variables are those calculated in the model; exogenous variables are provided by external sources (for example oil prices and other macro-economic information). Parameters represent variables fixed at the specific value (for example supply and demand elasticities) to determine the reaction of equations; coefficients are used to adjust the level of the equation. The parameters and coefficients are reviewed regularly and come from published studies, econometric analysis undertaken by OECD or FAO or experts judgment.

Adaptation of the AGLINK-COSIMO model for the purpose of the study

AGLINK-COSIMO is a net trade model, which means destination and origin of the traded commodities are not included. Therefore we introduced some changes to the original model in order to be able to tackle the purpose of the study:

• the latest data of the European outlook for agricultural markets was used (European Commission, 2010b);

• the EU and Ukrainian modules were extracted from the AGLINK-COSIMO model. The EU module was derived from the European outlook for agricultural markets while the Ukrainian module was derived from the OECD-FAO agricultural outlook;

• the Ukrainian module was calibrated on the world market prices as given in the European outlook for agricultural markets and we introduced updated information on tariffs for the years 2008 onwards (after the Ukrainian accession to WTO);

• a third module was created to bridge between the EU and Ukrainian modules. In this new module three types of equations were introduced (for all 14 commodities under consideration):

– combined net trade of Ukraine and the EU equals the rest of world net trade, which is kept as exogenous;

– border prices in Ukraine and the EU are equal to the world market prices;

– world market prices are exogenous in the trade between the EU and Ukraine;

• for the FTA scenario we eliminated import tariffs for 14 commodities in the corresponding databases for Ukraine and the EU and run the adapted model. In the case of Ukraine we consider oilseeds export duty that is currently 12 %, but it is foreseen to decrease to 10 % in 2012. We kept the export tariff on oilseeds in both scenarios.

4. Summary of the simulation results. The results of the baseline scenario are model based projections of the future, assuming that the current (agreed and scheduled) policy remains unchanged over the projection period (i.e. no FTA). For the FTA scenario we assume that the FTA between the EU and Ukraine would be implemented as of 2010 and all import tar-

iffs for the 14 commodities under consideration are assumed to be abolished.

The simulation of a FTA produces changes in all important market variables under consideration such as export, import, net trade, quantity produced and producer revenue. The main results of the baseline and FTA scenarios are briefly presented below. The results presented are 3-year averages in order to avoid yearly oscillations that could bias the real picture. Thus, the current situation represents the 3-year average of 2007–2009 and for the baseline and FTA scenarios we present the 3-year average of the projections for 2018–2020.

Net trade

Net trade is one of the indicators used to calculate trade balances of a country. A positive trade balance is supposed to be a sign of high competitiveness in the sector. The net trade is calculated as a difference between export and import for corresponding commodities, i.e. a positive balance in the net trade position indicates that the country is a net exporter and a negative sign implies that a country is a net importer of the respective commodity. The net trade balances between Ukraine and EU for selected agricultural commodities are presented in Table 1. Net trade as presented in Table 1 is calculated as exports minus imports and negative (positive) values imply net imports (exports).

In order to better understand the changes in the net trade position of the EU and Ukraine induced by a FTA, it is worthwhile to first have a look on the results of the baseline scenario (i.e. no FTA in place). In the baseline scenario both the EU and Ukraine are projected to keep their net trade positions for most of the 14 modeled commodities in the projection year compared to the current situation. The only exception of this development is projected for butter in Ukraine, where Ukraine changes from a net export to a (albeit only slight) net import position. For wheat, baseline projections indicate a further increase of Ukrainian net exports by more than 31 % (from about 7,6 million t to almost 10 million t), while in the EU wheat net exports decrease by –9,5 %. Ukraine also strengthens its net export trading position in coarse grains by +60 % (from about 8,1 million t to 13,1 million t), while the EU net trade position is projected to further deteriorate, i.e. imports of coarse grains increase in the EU by 53 %. Strong increases are also projected for the Ukrainian exports of oilseeds (+95 %, from about 2,3 million t to 4,4 million t), vegetable oils (+69 %, from about 1,5 million t to 2,5 million t) and protein meals (+55 %, from about 1,5 million t to 2,4 million t).

When looking at the baseline results in the dairy and livestock sector it has to be kept in mind that the respective absolute amounts in net trade between Ukraine and the EU are rather small, thus relative changes tend to appear rather big, while in absolute terms they might not be that significant. However, particularly for beef & veal both trading partners are projected to increase imports considerably, with Ukraine increasing its imports from 4,4 thousand t to 57,3 thousand t (+1100 %) and the EU from 266 thousand t to 452 thousand t (+70 %). While Ukraine is projected to decrease its net import position in poultry (–87 %), net imports in pork do further increase (+90 %).

In the FTA scenario it is projected that the implementation of a FTA between the EU and Ukraine induces generally no structural changes in the net trade positions of the EU and Ukraine, i.e. if they are projected to be a net exporter or respectively a net importer in the baseline scenario, they also keep this position in the FTA scenario. The only exception is poultry, where the EU is a net importer in the baseline and achieves a net export position in the FTA scenario. However, while there are no changes in the direction of the net trade positions, the FTA induces several significant changes in the absolute amounts traded between the EU and Ukraine. Compared to the baseline scenario Ukrainian net exports of wheat, coarse grains and SMP are projected to decrease by 13 %, 13 % and 15 % respectively. On the contrary, the EU is projected to increase its net exports of wheat by almost 12 % and to decrease net imports of coarse grains by more than 52 %.

Further significant changes compared to the baseline are projected for beef & veal where Ukraine decreases its net imports by 78 %, while on the other hand Ukrainian net imports further increase for pork (16 %) and poultry (102 %). The EU is projected to increase its net exports in pork (15 %) and in poultry the EU reverses its net trade position from net imports to net exports (a change of +272 %).

Producer revenues

In order to quantify the effects of a FTA in monetary terms we calculated the changes in producer revenue per sector in the FTA scenario relative to the baseline scenario by multiplying quantity produced by producer prices. The changes in producer revenues in Ukraine and the EU for selected agricultural commodities are given in Table 2.

In comparison to the baseline scenario, producer revenue decreases for wheat producers in Ukraine (–4,7 %) as well as EU (–1,9 %), a decrease that is attributable to a drop in producer prices that outweighs the positive quantity effect induced by the FTA. Remarkable increases in producer revenue in Ukraine are projected for beef & veal (+13,6 %), coarse grains (+11,2 %) and also for rice (+36,4 %, mainly due to higher prices), however the latter does not play a significant role in economic terms.

Table 1: Change in net trade of Ukraine and the EU for selected agricultural commodities

Commodity	Country	Current situation (1000 tons)	Baseline vs. current situation (% change)	FTA scenario vs. current situation (% change)	Policy effect: FTA scenario vs. baseline (% change)
Wheat	Ukraine	7586,0	31,2	13,7	−13,4
	EU	12753,3	−9,5	0,9	11,5
Coarse grains	Ukraine	8179,1	60,2	38,3	−13,6
	EU	−2225,9	−52,8	27,5	52,5
Rice	Ukraine	−93,3	−33,0	−14,7	13,8
	EU	−1390,9	−44,9	−46,1	−0,9
Oilseeds	Ukraine	2274,9	95,3	95,7	0,2
	EU	−16402,2	1,5	1,5	−0,1
Vegetable oils	Ukraine	1459,3	68,6	72,5	2,4
	EU	−8710,8	−25,7	−26,4	−0,5
Protein meals	Ukraine	1526,7	54,6	59,9	3,5
	EU	−27863,5	−2,3	−2,6	−0,3
Butter	Ukraine	5,4	−121,4	−123,9	−11,7
	EU	98,8	−60,5	−60,3	0,4
Cheese	Ukraine	57,8	123,0	139,4	7,4
	EU	488,2	10,0	8,0	−1,8
Skim milk powder	Ukraine	42,0	169,0	129,1	−14,9
	EU	195,9	−3,8	4,8	8,9
Whole milk powder	Ukraine	17,9	−17,7	−20,6	−3,5
	EU	433,2	3,0	3,1	0,1
Beef & Veal	Ukraine	−4,4	−1196,8	−187,5	77,9
	EU	−266,5	−69,7	−86,4	−9,9
Pork	Ukraine	−143,6	−89,9	−120,7	−15,9
	EU	1614,7	−11,1	2,0	14,7
Poultry	Ukraine	−177,2	86,5	72,7	−101,6
	EU	36,6	−124,5	−57,8	272,0
Sheep meat	Ukraine	0,1	68,9	73,5	2,7
	EU	−261,0	8,0	8,0	0,0
Note: current situation: 3-year average 2007–2009; baseline and FTA scenario: 3-year average 2018–2020.					

The most considerable decrease in Ukrainian producer revenue in relative terms occurs for SMP with (−21,3 %), mainly attributable to a deterioration of producer prices. In the EU producer revenue is projected to increase under a FTA especially in protein meals (+9,5 %), sheep meat (+6,8 %), beef & veal (+2,0) and pork (+3,2 %), all due to a positive development in producer prices.

In the case of coarse grains it is interesting to point out that even though Ukrainian net exports are projected to decrease compared to the baseline scenario (Table 2), producer revenue of Ukrainian coarse grain producers would increase under a FTA. This is due to projected increases in producer prices as well as in quantity produced (while at the same time domestic consumption is expected to also increase). The

Table 2: Change in producer revenue in Ukraine and the EU for selected agricultural commodities

Commodity	Country	Current situation (1000 €)	Baseline vs. current situation (% change)	Policy effect: FTA scenario vs. Baseline (% change)		
				Total effect	Price effect	Quantity effect
Wheat	Ukraine	1026,1	75,3	−4,7	−5,7	1,0
	EU	23715,2	1,0	−1,9	−3,0	1,1
Coarse grains	Ukraine	1224,1	75,9	11,2	6,5	4,5
	EU	24689,9	−3,1	−0,7	−1,8	1,0
Rice	Ukraine	8,8	88,6	36,4	33,2	2,3
	EU	618,1	29,6	0,6	1,8	−1,1
Oilseeds	Ukraine	1072,0	180,3	1,7	−0,1	1,8
	EU	9004,4	24,5	0,8	−0,2	1,0
Vegetable oils	Ukraine	741,9	202,9	0,6	−1,4	2,0
	EU	9755,4	56,7	−0,9	−1,7	0,8
Protein meals	Ukraine	290,5	134,6	6,9	4,8	2,0
	EU	5275,4	−8,1	9,5	9,0	0,4
Butter	Ukraine	104,7	79,6	8,1	11,2	−2,8
	EU	6013,1	−11,1	−1,3	−1,9	0,6
Cheese	Ukraine	399,1	197,1	4,9	5,0	−0,2
	EU	28615,1	−2,3	−1,7	−2,0	0,3
Skim milk powder	Ukraine	141,9	120,9	−21,3	−17,4	−4,8
	EU	2202,5	−26,2	0,7	−1,6	2,4
Whole milk powder	Ukraine	46,2	77,0	−6,2	−2,1	−4,2
	EU	2196,7	−13,6	−1,5	−1,8	0,3
Beef & Veal	Ukraine	474,8	105,2	13,6	5,4	7,7
	EU	25463,3	3,0	2,0	3,4	−1,3
Pork	Ukraine	614,8	50,8	−5,1	−0,4	−4,7
	EU	32410,0	9,6	3,2	4,2	−0,9
Poultry	Ukraine	584,4	190,3	1,8	5,2	−3,1
	EU	20324,7	10,7	−1,2	−1,8	0,6
Sheep meat	Ukraine	18,9	199,1	1,7	1,7	0,0
	EU	4267,2	−15,2	6,8	7,1	−0,3
Note: current situation: 3-year average 2007–2009; baseline and FTA scenario: 3-year average 2018–2020						

respective situation is somehow reversed for coarse grain producers in the EU; while they are projected to improve their net export position in the FTA scenario, producer revenue is expected to be decreased, because the positive quantity effect is outweighed by the decrease in producer prices.

The results of changes in producer revenue presented in Table 2 show that the gains from a FTA are not distributed homogeneously between Ukraine and the EU and vary significantly among commodities. Consequently, it could be possible that one or both countries are loosing from the FTA scenario. Howev-

Table 3: Overall change in producer revenue

Producer revenue	Current situation (million €)	Baseline vs. current situation (% change)	Policy effect: FTA scenario vs. baseline	
			Change in %	Change in million €
Ukraine	6748,3	127,1	2,6	392,7
EU27	194551,1	5,2	0,4	859,9
Total	201299,4	9,3	0,6	1252,5
Note: current situation: 3-year average 2007–2009; baseline and FTA scenario: 3-year average 2018–2020				

er, adding-up the changes in producer revenue reveals that in total the agricultural producers in both the EU and Ukraine would gain from a FTA (Table 3).

As can be seen in Table 3 increases in total producer revenue under a FTA are projected to be bigger in absolute terms for the agricultural producers in the EU (860 million €) than in Ukraine (393 million €); this is due to the relatively bigger size of the EU's economy compared to Ukraine. However, in relative terms the total increase in producer surplus is bigger in Ukraine (+2,6 %) than in the EU (+0,4 %).

6. Discussion and conclusions. *A close trade relationship and neighboring position between Ukraine and the EU create a fruitful background for general agreement on a deep and comprehensive FTA. In general a FTA is considered as important for both sides, not least with respect to agricultural markets, taking into account Ukraine's great potential for agricultural production and export and that the EU represents a market with 500 million potential consumers. The agricultural sector is an important part of the Ukrainian economy, and managed to grow even during the recent economic and financial crisis. However the EU is also an important producer of agricultural commodities, thus it is unavoidable that with an abolishment of import tariffs the competition among the producers would become tougher. The adaptation of agricultural producers to increased competition is an important issue as for example also experienced by Slovenia and Estonia in the light of EU accession [9, 14].*

When interpreting the results of the FTA scenario it is worthwhile to recall some constraints of the methodology and some assumptions taken. The AGLINK-COSIMO model allows a simulation on several important agricultural commodities but not the product lines which are traded in reality. The presence of some aspects of a deep and comprehensive FTA such as technical barriers and information facilitation is not simulated in AGLINK-COSIMO due to difficulties of its quantitative representation. Furthermore, AGLINK-COSIMO is a net trade model and does not allow distinguishing the origin of the

commodities. To overcome this limitation we provide some adaptations (described in section 3). While with these adaptations modeling of bilateral trade flows is possible, no reaction of other regions (trade diversion) is considered. Moreover it is important to bear in mind that all the results correspond to several explicit and implicit assumptions, e.g. regarding given oil prices, world prices for main agricultural commodities, population growth, exchange rates, etc. Any change with regard to these assumptions would also alter the results of the scenario simulations.

To simulate a potential FTA between Ukraine and the EU we assume the abolishment of import tariffs for 14 main agricultural products and compare the results of this FTA scenario with the results of a baseline scenario (where import tariffs actually applied are kept in place). The projection period for both scenarios is 2010–2020 and the results presented are 3-year averages in order to avoid yearly oscillations that could bias the real picture.

Results of the FTA scenario indicate that compared to the baseline scenario a FTA would in total induce an increase in agricultural producer revenue of 393 million € (+2,6 %) in Ukraine and of 860 million € (+0,4 %) in the EU. Thus this FTA entails opportunities for the agricultural sector of both trading partners. However, gains from a FTA are not distributed homogeneously and vary significantly among commodities. It is projected that some commodities (for example wheat in the EU and Ukraine, SMP, WMP, butter in Ukraine, etc.) would be penalized by a FTA scenario with regard to producer revenue. Depending on the commodity the penalization can be explained by decreases in producer prices (e.g. for wheat and coarse grains) or decreases in the quantity produced (e.g. SMP, WMP and pork). The changes in net trade of Ukraine to the EU are negative for wheat, coarse grains, butter, SMP, pork and poultry; and positive for rice, cheese and beef & veal. However, a precondition for Ukraine to fully realize the potential benefits of a FTA would be to comply with the SPS and quality standards of the EU.

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