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**POTENTIAL IMPACTS OF WTO ACCESSION ON THE  
AGRIBUSINESS SECTOR  
IN BOSNIA AND HERZEGOVINA**

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## **Summary**

*Bosnia Herzegovina (BH) is in the process of joining the World Trade Organization in the near future and the European Union in the medium term. As a net agriculture and food importer, accession will require BH to expose some of its inefficient and sensitive agricultural industries, such as meat and dairy products, to international competition. A bilateral trade model is used to estimate the potentially negative impacts of accession on production and trade in several specific sectors. According to the research results, BH imports are estimated to increase, driven by the livestock products sector. Exports are only marginally affected. A drop in overall customs revenues is expected. BH is expected to experience a small reduction in agricultural sector welfare following accession to the EU or the WTO. The implications for poverty are likely to be negative, especially for meat producers. On the other hand the main beneficiaries will be the consumers. This presumes that lower border prices are passed through to domestic consumers.*

*Keywords: Bosnia Herzegovina, WTO accession, trade, agricultural tariffs*

## **1. Introduction**

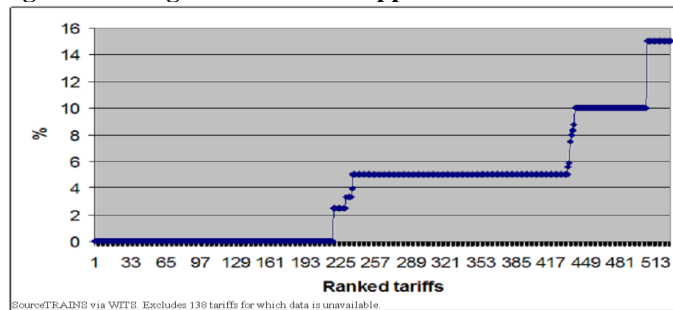
The agricultural sector of Bosnia and Herzegovina (BH) is continuing to undergo significant changes. These changes are shaped by requirements of integration into the European Union (EU), which has been proclaimed as an ultimate goal of BH development. The trade liberalization and stronger economic integration of SEE markets are an integral, mandatory part of the EU accession process. Trade liberalization can significantly affect comparative advantage, competitiveness (Utkulu & Seymen, 2004) and, consequently, the pattern of production and consumption and trade among countries (Balance et al., 1987). It creates new relationships between countries at the multilateral, regional and bilateral levels (Levy, 2007) as well as strong regional and international interdependence in wide range of economic sectors (Hallatt 2005). While the integration into the EU and global markets provides opportunities to potential exporters, it also provides a threat to domestic production, especially to the “sensitive sectors” such as agribusiness. So, trade policy induces wide spectrum of different direct and indirect effects (positive and negative). Therefore it is necessary to estimate the total “net effect” to be able to create trade policy which will boost socio-economic development. However, there is a real danger of developing inefficient public policies which could have negative long term impacts on development of BH agribusiness sector. Therefore, the general objective of this paper is to provide more articulated information about the potential impacts on the agricultural sector of further stronger integration into the EU and global markets in order to identify ways to overcome major constraints and boost development. The specific objectives of the paper are to develop two scenarios: BH accession to the WTO and the EU to assess its impacts on “sensitive agribusiness sub-sectors” (such as dairy, beef, pork, poultry meat, processed meat, fruit and vegetables, cereals and wine), then on consumers and overall wellbeing. To do so, first the current BH policy framework is examined including applied agricultural tariffs that are calculated from the specific and ad valorem components. Next, the recent agribusiness trade performances are described. Next, a framework of quantitative assessment of accession on selected sensitive products is explained in more detail. Finally, the potential impacts on production, trade and welfare are assessed using a bilateral trade model that captures the differential tariff changes between BH’s various trading partners.

## 2. Current trade policy framework

BH trade policy is based on assumption that sharp trade liberalization will improve market access and motivation to innovate (via increased competition) for producers and provide diversity for consumers, which in turn will boost economic development. Since 2000, set of bilateral trade agreements has been signed. Most of them are replaced by one single Central European Free Trade Agreement (CEFTA<sup>1</sup>), which entered into the force in 2006, forming free trade area with a common external tariff and zero tariffs on internal trade. These countries account for perhaps 40 per cent of BH trade.

Trade liberalization has been deepened by EU Stabilization and Association Agreement (2008), which implies gradual reduction of duties down to zero (in 2013) for goods originating from the EU. Currently EU 27 is the most important trade partner (accounts around 50% of BH trade).

**Figure 1. BH agricultural MFN applied tariffs**



The remainder of BH trade is with countries that are currently WTO members. It seems likely that liberalizing trade with WTO members outside Europe will have little impact on trade flows. In preparation for accession to the WTO BH has reduced the higher tariffs facing countries outside its preferential agreements. There are 2077 tariff line items covered by the Agreement on Agriculture. The most favorable nations (mfn) tariffs were set at zero, 5, 10 or 15 per cent in 2008. The simple average is 3.9 per cent and the trade weighted average 5.9 per cent. The tariff profile is fairly flat, with no domestic peaks, and only 93 international peaks. Some 33 per cent of tariffs are duty free, and a further 33 per cent are less than 10 per cent. This is illustrated in figure 1. The highest tariffs are for alcohol (HS Chapter 22) and tobacco (HS Chapter 24).

Of concern for negotiators may be the relatively high tariffs facing WTO members on processed agricultural goods exported to BH. The top ten BH agricultural imports are shown in table 1. The list is dominated by processed products, including tobacco, beer and chocolate. Unprocessed products in the top ten include wheat, maize and animal feeds, but these have relatively low tariffs. Outside the first ten, but important nonetheless, are tariffs on meat and processed meats, plus processed cereal products, as it is these items where production is significant and thus there is a sizeable domestic industry that is threatened by tariff reductions.

Some of agricultural products (cereals, grain, oilseed, tobacco, sugar, raw meat, live animals, seeds etc) are intermediate inputs for the food production and processing industry. Currently, the tariff rate for new machinery and equipment is 10 per cent. Tariffs on inputs are really a tax on production and possibly on exports as well.

<sup>1</sup> CEFTA members are: Albania, Croatia, Macedonia, Moldova, Serbia and Montenegro + Turkey

Additionally those tariffs could limit (slow down) the process of productivity growth within the primary production and processing sector.

**Table 1. BH top ten agricultural imports and mfn tariffs, 2008**

BH TOP TEN AGRICULTURAL IMPORTS, 2008*			BH TOP TARRFFS, 2008**		
HS Code	Product description	Tariffs	HS Code	Product description	Tariffs
1001	Wheat and meslin	5%	201	Meat of bovine animals, fresh or chilled	10%+2.5 KM/kg
2402	Cigars, cheroots, cigarillos and cigarettes,	15%	202	Meat of bovine animals, frozen	10%+2.5 KM/kg
2203	Beer made from malt	15%+0.3 KM/L	204	Meat of sheep or goats, fresh, chilled or frozen	10%+2.0 KM/kg
1806	Chocolate and other food preparations ...	10%+1.0 KM/L	207	Meat and edible offal of poultry, fresh, chilled or frozen	10%+2.0 KM/kg
2202	Waters, including mineral waters ...	10%+0.2 KM/L	209	Pig and poultry fat, fresh, chilled, frozen, salted... or smoked	10%+2.5 KM/kg
1905	Bread, pastry, cakes, biscuits ...	15%+0.2 KM/L	1101	Wheat or meslin flour	10%+0.2 KM/kg
2106	Food preparations not elsewhere specified ...	5%	1211	Plants and parts of plants, of a kind used in perfumer.....	0%+6.0 KM/kg
1005	Maize (corn)	10%	1601	Sausages and similar products;	10%+3.0 KM/kg
2309	Preparations of a kind used in animal feeding	5%	1602	Other prepared or preserved meat, meat offal or blood	10%+2.5 KM/kg
1512	Sunflower-seed, or cotton-seed oil ...	5%	1905	Bread, pastry, cakes, etc; communion wafers, rice paper, etc	15%+1.5 KM/kg

\*Source: UNCTAD TRAINS and Comtrade. Tariffs are applied mfn. These tariffs are not necessarily applied to all the imports, most of which enter under preferential arrangements. Trade data are from 2007. \*\*Source: WITS. Tariffs are applied mfn.

### ***Non-tariff market access measures***

Non-tariff barriers include various quantitative restrictions, import licensing, customs valuation procedures, rules of origins, trade-related investment measures, standards (i.e. technical barriers to trade) and SPS regulations. In the BH agricultural and food sector there are no quantitative restriction (quotas) on imports of any products. Only products that are considered as a public health, environment and economic risk (pharmaceutical, chemical, military products, antiques etc) are subjects to import and export licenses (BH Official Journal -Službeni glasnik BH, No 41/02).

The concept of rules of origin defines preferential and non-preferential status of goods imported from the country with such status. Implementation of this concept is defined by the BH Law on Custom Policy, and applied to imports from the nine countries with which BH has free trade agreements. Each of those agreements contains provisions in which contracting parties agreed to apply the harmonized European preferential rules of origin in their mutual trade (Efendić, 2004). This means, the countries are supposed to implement a sophisticated administrative system in order to issue certificates of origin and to verify<sup>2</sup>. According to Hadžiomerađić et al. (2007) "...Experts added that without diagonal cumulation of origin, at least among the other SEE countries, fewer BH products can qualify as of BH origin. Therefore, origin requirements in the present form create significant barrier for exports (CEFTA should improve the situation)...". However, implementing European standards is beyond the administrative capacity of many countries, including BH.

<sup>2</sup> With the proposal to integrate the bilateral CEFTAs into one regional FTA, the EU does envisage the so-called 'diagonal cumulation of origin'. This means that the products could move within the regional FTA for further processing, but the original product, e.g. the primary agricultural product, should originate from a country member of the FTA. If this product does not originate from a country member of the FTA, the export to the EU could not be based on the preferential trade provisions. When goods are claimed to have a preferential trade origin, this should be certified (Bajramović et al. 2006).

Additionally, each business export/import entity has to be registered within the Ministry of Foreign Trade and within the court of Entity where it is located and/or where goods are cleared. Consequently, procedure of registration is long and there are efforts to make it more simple (one registration number), shorter and cheaper.

SPS and TBT measures are clearly fields where different competencies between the State and the Entities as well as the removal of an outdated approach based on compulsory standards create a combination that is a serious obstacle to a quick integration of BH into the modern international trading system (BH MOFTER, 2010). The institutions established at the state level (eg. Veterinary Office, Agency for plant health protection and Food Agency) are not capable of providing the necessary services to facilitate imports of food and foodstuffs while insuring consumer protection. Therefore, there are problems in reaching Mutual Recognition Agreements (MRAs), which according to Chena et al. (2008) can help firms improve economies of scale and scope and fully benefit from the trade liberalization.

Customs control is recognized as the place with significant corruption, although a lot of improvements in this sector have been done in the past years. A further impediment to trade is the long waiting times on border crossings. Very often the waiting period at the borders, even for import of some simple things like ordinary car, is about one working day (Efendić, 2004). For perishable food items this is unacceptable. The foreign transporters need to have a CEMT certificate which is not available at the border. From this rule are excluded transporters from countries with which BH has bilateral agreements.

### ***Barriers to exports***

It has to be outline that adequate institutions and domestic policies are crucial to benefit fully from the trade liberalization (Mitra and Ural, 2008, Esterhuizen and van Rooyen, 2006, Romano, 2006) and to realize its potential to contribute to increasing global welfare and promote better employment (Jansen and Lee, 2007). Therefore, poor administrative and managerial capacities of BH to deal with food safety and quality issues as well as to deal with the rules of origin<sup>5</sup> are major obstacles to an increase in agricultural BH exports. Consequently, the largest barrier for BH animal product export to the EU is the inability of potential exporters to meet the SPS requirements (WB, 2005, MOFTER, 2010).

In addition, the lack of defined administrative structure and trained people constrain the efficient operation of international transport. The major part of international shipment has to be done by foreign companies because the TIR carnet system of international insurance is not fully operational. Consequently, the transaction costs of BH exporters are increased, undermining competitiveness of BH goods.

Furthermore, the following factors could be seen as barriers to BH exports: (i) the significant reduction of marketed agricultural production in BH; (ii) the limited existence of stable trade links between exporters from the region and importers in the EU; (iii) the problem of gathering enough produce of homogeneous quality to take advantage of economies of scale (Bajaramović et al.2006).

### ***Domestic support***

Domestic support to agriculture is very low in BH. According to Ministry of Foreign trade and economic relations, BH (MOFTER) only three commodities receive product

specific support in excess of the WTO *de minimus* limit of 5 per cent of the value of production. Support under the limit is exempt from reduction commitments<sup>3</sup>.

### 3. Current BH agribusiness trade performances

In the period 2004-2009 export, import and trade deficit of both, BH economy and agribusiness, have been increased each year. In that period BH economy export growth rate (83%) was higher than its import growth rate (30,8%). In the same time, agribusiness export growth was remarkable 152%, while its import growth was significantly lower (49,5%). Those data suggest that both, overall BH economy and agribusiness, have been able to improve its export performances and benefit from trade liberalization.

Agribusiness significantly contributes to the total BH import (above 19% in 2009) and total BH export (above 8% in 2009) as well to BH trade deficit (above 19% in 2009). Therefore any improvement in sector trade performance will be reflected on overall BH economy performances.

Huge trade deficit (€3,4 billions in 2009) fueled by permanent import growth is one the most important problems of BH economy<sup>4</sup>. Usually this fact is used to argument request to increase protection of economy, namely agribusiness. However, trade structure (export is driven by primary industries and import by food, energy, chemicals, machinery) suggest that import has been driven by economy development. Value of Index marginal propensity to export<sup>5</sup> for BH economy is 1,3 (2009) suggesting that if GDP grows for one unit, import will grow for 1.3 units. This trend is observed in other developing economies as well (Niemi and Huan-Niemi, 2002). Additionally, different values of Gruber-Loyd index of intra-industry trade (GLIIT)<sup>6</sup> for EU and CEFTA countries (GLIIT for EU was under 20%, and for Croatia and Serbia above 30%) suggest low capability of sector to satisfy requests of modern market and to increase its competitiveness (Nikolić et al., 2011).

The main BH agri-food export markets are CEFTA countries (around 70% in 2008), followed by the EU 25 (around 23% in 2008). This indicates that SPS and TBT requirements (stronger at EU market then on CEFTA market) constrain exports. However, this inability to meet SPS requirements is shaped by the limited capability of the national institutional framework (involving testing, verification, inspection and certification systems) to ensure SPS measures or other standards and technical regulations are satisfied. These BH institutions are too weak (Bajramović et al. 2006, MOFTER, 2010, Nikolić et al., 2011) to establish valid international cooperation, as a tool to develop confidence in the work of conformity of national assessment bodies and to facilitate mutual recognition between trading partners.

As it could be seen at Figure 2&3, in 2009 as a consequence of global crisis, export, import and trade deficit of BH economy decreased. Surprisingly, agribusiness export increased for 6.8%. In the same time almost all industry sectors experienced output decrease, while food industry output increase for 3,6% (BHAS, 2010). This confirms strong dependence between export performances and sector production improvements.

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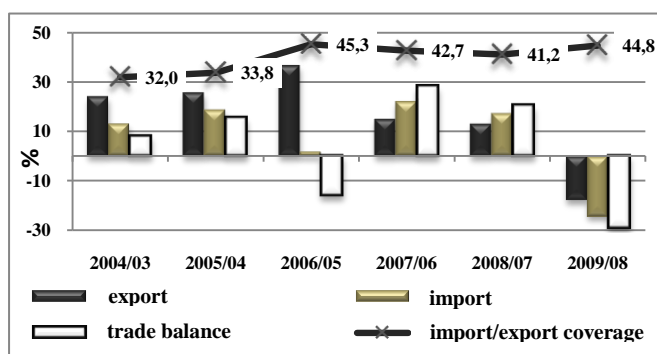
<sup>3</sup> Although BH is a lower middle income country, it is likely to be treated as a developed country following accession. This implies a *de minimus* of 5 rather than 10 per cent would apply.

<sup>4</sup> It blows out in the BH current account deficit which is one of the highest in region (about 18% in 2008)

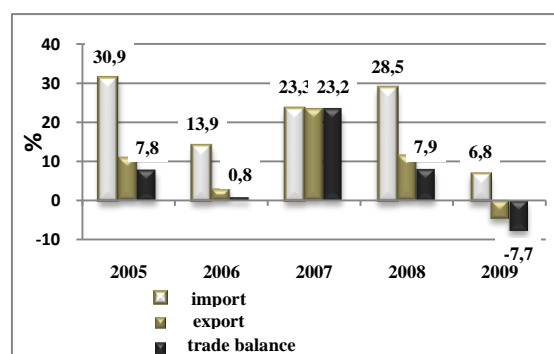
<sup>5</sup> Marginal propensity to import –  $MPM = \Delta \text{Import} / \Delta \text{GDP}$

<sup>6</sup> (GLIIT) is defined as:  $GLIIT_j = 1 - \frac{\sum_i |X_{ij} - M_{ij}|}{\sum_i |X_{ij} + M_{ij}|} * 100$  where  $X_{ij}$  and  $M_{ij}$  are values of exports and imports respectively of product  $j$  in product group  $i$  and it measures level of sector integration within certain market. 20% is threshold. GLIIT values above 20% suggest that sector is integrated/competitive and suggest higher sector capability to attract resource and to develop.

**Figure 2. BH economy trade (annual rates)**



**Figure 3. BH agribusiness trade (annual rates)**



Source: own calculation on the basis of BH Central Bank data

So, all mentioned leads to the conclusion that currently implemented trade policy opened windows of opportunity for BH economy and agribusiness sector, which has been used partly. In addition it suggests that low levels of production and other problems connected with size and scope of production, with product quality, poor institutional framework, and high transaction costs of trade are behind the weak BH trade position. However, trade liberalization had negative effect on government revenues. It has fallen slightly from 13 per cent in 2006 to 11 per cent in 2007 (OMA Bulletin, 2007), but full and more dramatic effects of the reduction in duty revenues were expected at the start of 2008, based on additional reduction of duty rates, imports and consumption (BH DEP, Ministry Council, 2009). Therefore it is important to see trade policy effects on income re-distribution within different socio-economic groups and on total welfare of BH society.

#### 4. A quantitative assessment of accession on selected sensitive products

To assess the impacts of accession on selected products we look at two scenarios. These are:

- (i) EU accession: Removal of tariffs on BH-EU trade, and change in BH tariffs on RoW imports to EU levels (For example, this implies the BH tariff on beef would fall from 83 to 23 per cent).
- (ii) WTO accession: Reduction in BH tariffs on imports from Rest of World to 5 per cent;

**Table 2. Initial tariffs**

Product	%							
	Beef	Pork	Poultry meat	Dairy products	Processed meat	Processed cereals	Processed fruit and vegetables	Wine
<i>BH tariffs on imports from RoW</i>	83	62	0	10	64	5	7	15
<i>EU tariffs on imports from RoW</i>	23	32	34	35	14	15	11	15

The analysis is restricted to looking at tariff reductions for sensitive products such as meat, dairy products wine and some processed foods, listed in table 2. There is no change in domestic support or export subsidies

#### The model

The quantitative analysis employs GSIM, a static, single commodity, bilateral trade model that distinguishes between imports from different sources (Armington

assumption)<sup>7</sup>. This is essential to capture the impacts on trade of the differential tariff changes in different countries, in this case due to the regional trade agreements.

GSIM is essentially a set of simultaneous equations in a spreadsheet in which export prices are varied to satisfy the requirement that global imports equals exports. As a static model it compares two situations at a point in time and does not attempt to show the transition from one state to another. In this particular case, the effect on trade is assessed with and without bilateral tariff reductions as may be required following accession. With lower tariffs, imports become relatively cheaper compared with domestically produced goods. This decrease in cost will reduce consumer prices and increase consumption, but there will be a decrease in demand for locally produced goods. The aim of this analysis is to estimate the final effects on total returns to farming and consumer expenditure (here called 'total welfare').

GSIM was designed as a single-commodity modelling framework (for example, beef). For this application linkages on the production side have been incorporated with cross-price elasticities. This implies for example that the price of beef effects the production of pork. Potential linkages between goods in consumption (for example, beef and poultry) are ignored<sup>8</sup>. A further simplifying assumption is no changes in stocks, nor is there growth in production or consumption over time. Thus, we are ignoring the phase-in period and merely assessing what the pattern of production and trade would have been had the tariff changes been applied to the economy as it was in 2007, the base period.

The model is simple, in that it does not include land, labour and capital, or other sectors of the economy. Nor does it include constraints that may limit production, such as the availability of water for irrigation, or demand side constraints such as SPS requirements. Notwithstanding the limitations, the advantage of simplicity is that the model is transparent, and the driving factors determining changes in trade flows can be readily identified.

### **Data sources**

As with most models, the data available determines the quality of the output. In this case the data required includes:

- bilateral trade flows between the main countries are obtained from Comtrade via WITS, a World Bank data integration package.
- Production estimate at world prices are obtained from FAOSTAT and supplemented by local data.
- Bilateral tariffs - applied tariffs on an ad valorem equivalent basis. Many of the agricultural tariffs of the European Union and BH contain a specific element and need to be converted. There are several methods for converting specific to ad valorem equivalents. These differ on the appropriate price to use, and can generate markedly different results. The method used here is the so-called WTO method, which was agreed upon by WTO members in May 2005.
- Export subsidies - notified to the WTO and obtained from the AMAD database. BH pays no export subsidies, but it imports subsidized exports from the European Union.

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<sup>7</sup> GSIM was developed by Joseph Francois of the Tinbergen Institute and H. Keith Hall of the U.S. International Trade Commission. The model is briefly described in the Appendix and more fully documented in a memo by these authors entitled 'Global Simulation Analysis of Industry-Level Trade Policy', October 2002. See also Francois, J.F. and H.K. Hall, "Partial Equilibrium Modeling," in J.F. Francois and K. Reinert, eds., *Applied Methods for Trade Policy Analysis: A Handbook*, Cambridge University Press: Cambridge, 1997.

<sup>8</sup> The inclusion of demand side cross elasticities is non-trivial because of the Armington structure under which imports from different sources are considered a separate but substitutable product. This simplification is supported, if not justified, by the low cross elasticities commonly observed

- Domestic support. BH pays limited domestic support. This amounts to less than five per cent of the value of production for most products and would be allowed under the *de minimus* provisions. However, BH may have to change the nature of its support away from market based measures to income support.
- Responsiveness of production and consumption to changes in prices. There are three types of elasticities in the model, demand, supply and Armington elasticities. Demand and supply elasticities are obtained from UNCTAD's ATPSM model where possible. Where this is not possible, estimates are obtained from a similar country (Croatia), or based on a lower level of processing. For example, in the absence of estimates for processed meat, estimates for beef are used. Armington elasticities, which measure the responsive of consumers to change in relative prices of imports from alternative sources, are obtained from the GTAP database. Bosnia is not included as a separate country in the database, so estimates for Slovenia are used.

This analysis is applied to eight specific products: beef (HS 0201 – 0202), pork (HS 0203), poultry meat (HS 0207), dairy products (HS 0402 – 0406), processed meat (HS 1601 – 1602), processed cereals (HS 1901 – 1902), processed fruit and vegetables (HS 2001 – 2009), wine beef (HS 2204 – 2205). These products are considered sensitive and of particular interest to policy makers. Analysis covers regions: BH, EU25, CEFTA, RoW (rest of the World).

## 5. The results

The accession of BH to both the EU and the WTO are estimated to lead to falls in tariff revenue and returns to producers for the products examined here. Exporters and consumers benefit but the net effects are negative. Changes in BH's exports, imports, tariff revenues, producer surplus and welfare are presented in this section.

### *Exports*

The changes in exports following accession are shown in table 3. The dominant effects are increases in exports of beef processed meats and dairy products, but these are modest because there is no additional opening of export markets in either the EU or CEFTA, with which BH currently has trade agreements, nor with the RoW countries which already impose mfn rates on imports from BH.

**Table 3. BH change in exports relative to base**

Products	Initial exports \$000	EU ACCESSION		WTO ACCESSION	
		Change in Value \$000	Change in value %	Change in Value \$000	Change in Value %
Beef	21	91	437	44	211
Pork	4	0	0.00	0	0.00
Poultry	111	-4	-3.58	0	-0.36
Meats	5820	38	0.65	28	0.47
Dairy	7116	9	0.12	2	0.02
CER	16213	-5	-0.03	0	0.00
VFN	11864	0	0.00	0	0.00
Wine	2073	4	0.19	8	0.39

Source: GSIM simulations

### *Imports*

The EU accession scenario involves a switch in imports from CEFTA and RoW to the EU. This is driven by a significant reduction in BH bilateral tariffs on beef, pork and processed meat imports from the EU. Furthermore, tariffs on imports of poultry and dairy products from RoW would rise to match EU levels, contributing further to the trade diversion. So, significant fall of export of pork, poultry, dairy from RoW is predicted.

There is an estimated fall in imports of processed cereals as tariffs on imports from RoW are raised to EU levels. The fall reflects the significant share of imports of processed cereals in the base period. Anyhow, total import value for pork, beef, processed meats, dairy will increase for 37, 31, 25 and 13 per cent respectively.

The WTO accession scenario modeled here involves the reduction in bilateral tariffs on imports from RoW which leads to an increase in imports from RoW by 13, 5 and 17 per cent for beef, pork and processed meats respectively. At the same time, the reduction of imports from the CEFTA and EU-25 occurs as consumers switch to the relatively cheaper products. The overall import value for the selected products increases-There is little change in imports of poultry, dairy products, processed cereals and vegetables and wine, as tariffs on these items are relatively low.

**Table 4. BH change in imports**

	Initial value \$m	EU accession		WTO accession	
		Change in value \$m	Change in value %	Change in value \$m	Change in value %
EU25 Beef	1811	1731	96	-467	-26
CEFTA Beef	1545	-937	-61	-398	-26
RoW Beef	1214	632	52	1471	121
<b>Total</b>	<b>4570</b>	<b>1426</b>	<b>31</b>	<b>606</b>	<b>13</b>
EU25 Pork	6462	5295	82	-3209	-50
CEFTA Pork	659	-659	-100	-327	-50
RoW Pork	1538	-1410	-92	3971	258
<b>Total</b>	<b>8658</b>	<b>3227</b>	<b>37</b>	<b>435</b>	<b>5</b>
EU25 Poultry	2541	168	7	22	1
CEFTA Poultry	7514	489	7	63	1
RoW Poultry	397	-397	-100	-171	-43
<b>Total</b>	<b>10452</b>	<b>260</b>	<b>2</b>	<b>-87</b>	<b>-1</b>
EU25 Meats	7561	9599	127	-3521	-47
CEFTA Meats	18108	-11172	-62	-7772	-43
RoW Meats	13686	11421	83	18102	132
<b>Total</b>	<b>39356</b>	<b>9849</b>	<b>25</b>	<b>6809</b>	<b>17</b>
EU25 Dairy	32380	17367	54	-845	-3
CEFTA Dairy	22704	-2798	-12	-577	-3
RoW Dairy	6736	-6729	-100	2059	31
<b>Total</b>	<b>61820</b>	<b>7840</b>	<b>13</b>	<b>636</b>	<b>1</b>
EU25 CER	20741	4710	23	-50	0
CEFTA CER	30786	2336	8	-74	0
RoW CER	38519	-10731	-28	243	1
<b>Total</b>	<b>90046</b>	<b>-3686</b>	<b>-4</b>	<b>118</b>	<b>0</b>
EU25 VFN	12160	3528	29	-297	-2
CEFTA VFN	9800	-8	0	-239	-2
RoW VFN	22114	-3517	-16	1259	6
<b>Total</b>	<b>44074</b>	<b>3</b>	<b>0</b>	<b>723</b>	<b>2</b>
EU25 Wine	2572	1484	58	-404	-16
CEFTA Wine	7740	-570	-7	-1191	-15
RoW Wine	7407	-697	-9	2050	28
<b>Total</b>	<b>17719</b>	<b>216</b>	<b>1</b>	<b>455</b>	<b>3</b>

Source: GSIM simulations

### **Government revenues**

Under the WTO scenario the government revenues from agricultural tariffs for the listed products will fall for by US\$14 million from an initial value of \$25 million. Under the EU accession scenario the fall in tariff revenues is US\$20 million. The major difference between the scenarios is the loss in revenue in the dairy sector under the EU scenario compared with little change under the WTO scenario (see table 5). Both scenarios will have negative impact on government revenues which have to be offset by other tax policies. Having in mind that only 11 per cent of government revenue is coming from

total tariff revenue, this contraction will not have dramatic impact on fiscal stability. At the same time under both scenarios a modest increase of exports is likely to occur, which will boost business activities within the sector and the revenues from other tax sources.

### ***Producer surplus***

As outlined earlier, the agricultural sector plays an important role in income generating possibilities for the vulnerable rural population in BH. That is why is important to assess the impact of policy changes on agricultural producers. This impact is measured by producer surplus which is a measure of the profits in the industry, that is, returns minus costs of production. Reducing tariffs tends to reduce domestic prices and returns to producers, and that happens across all sectors under both scenarios, as shown in figure 7. The greatest losses are in processed meats, where tariffs averaging 64 per cent are removed (EU) or reduced (RoW). Losses amount to \$18 million and \$12 million under the EU and WTO scenarios respectively. This reflects a fall in producer prices of 12 per cent. Losses to beef and pork producers appear of lesser magnitude, but in fact the price changes are greater, 17 per cent and 28 per cent respectively.

**Table 5. BH change in Tariff revenue, producer surplus and welfare US\$000**

	Tariff revenue		Producer surplus		Welfare	
	EU	WTO	EU	WTO	EU	WTO
Beef	-2082	-1260	-3818	-1633	473	-255
Pork	-4880	-2644	-1466	-297	260	-1748
Poultry	0	11	98	10	-135	-9
Meats	-9926	-9340	-17708	-12351	2541	-996
Dairy	-3909	-318	-1493	-285	-2455	1
CER	1226	0	2243	-71	-1338	2
VFN	-419	0	-14	-431	-404	-18
Wine	-461	0	-81	-168	-124	9
<b>Total</b>	<b>-20451</b>	<b>-13552</b>	<b>-22239</b>	<b>-15227</b>	<b>-1182</b>	<b>-3014</b>

Source: GSIM simulations

On the positive side, the negative effects on producers, where they occur, lead to lower prices for consumers. Indeed, consumers benefit from producer losses and also government revenue losses. In order to judge overall effects of implemented policies and its benefits to economy it is important to aggregate those various effects, which is done in the next section.

### ***Welfare***

Any policy change generates winner and losers. The major effects of a tariff reduction are transfers from taxpayers and producers to consumers. Welfare measures the net effects in each sector. Most of gains from removing deadweight losses are the results of increased efficiency of resource utilization. There may also be the terms of trade effects, such as the rise in prices of wheat that comes from policy reform elsewhere. These effects may be positive or negative depending on whether the country is an importer or exporter of the product. BH is net importer of almost all food products. The effects of WTO and EU accession scenario on BH welfare are presented on the figure 8. There are gains to the beef, pork and processed meats sectors from EU accession, but losses when these sectors are open to competition from the rest of the world.

The welfare gains estimated here highlights the observation that policies which provide a negative outcome for some producers could have a quite positive impact on overall society well-being. That is why the policy decision should be based on the overall effects on society. The assumption underlying this calculation of benefits and losses is that

producers, consumers and taxpayers are equally weighted. In reality, policy makers may regard producers as somehow more worthy than consumers or taxpayers.

## 6. Implications and conclusions

Bosnia and Herzegovina is expected to experience a small reduction in agricultural sector welfare following accession to the EU or the WTO. The implications for poverty are likely to be negative, especially for meat producers. Many poor farmers depend on livestock production and a drop in prices will make their situation more complex. In the same time further integration will have little or no impact on producer surplus in vegetable and fruit, wine and cereals production, while poultry and processed cereal producers could expect a small surplus. On the other hand the main beneficiaries will be the consumers. This presumes that lower border prices are passed through to domestic consumers. Some recent research (Lubura and Apotekar, 2007) shows that current reductions in tariffs were not passed on to consumers because of a weak trading sector that lacks competition. Consequently, the improvement of trade sector performance and decrease of transport costs are preconditions to see real tariff reductions lead to a positive impact on consumers.

This study identifies the likely impacts from liberalization in specific sectors. Further studies could usefully focus on the adjustment process and the impacts on poverty. While liberalization should enhance growth and alleviate poverty, the distributional effects will dominate the allocative efficiency effects. Analysis of the distributional effects requires modeling of the markets for capital, land and labor as well as commodities. The problem for future research is the lack of reliable input/output/trade data set as well as a household survey data which are not available in BH.

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