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# ECONOMIC INTEGRATIONS, COMPETITION AND COOPERATION

**Conference Proceedings**

Editors:

**Vinko Kandžija**  
**Andrej Kumar**



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Andrej Kumar**

**ECONOMIC INTEGRATIONS, COMPETITION AND COOPERATION  
Accession of the Western Balkan Countries to the European Union**

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## **STATIC AND DYNAMIC EFFECTS OF CUSTOMS UNION CREATION**

### ABSTRACT

*The benefits of free trade arrangements in regard to autarky were known from the time of classical economists. The process of regional and global economic integration started in the second half of the twentieth century. Regional economic integrations can be expressed in the form of free trade area, customs union, common market and economic (monetary and political union). There are benefits and costs of accession into these regional economic integrations. In this paper customs union as a form of regional economic integration is presented and explained. If the positive effect of customs union accession (trade creation) outweighs the negative one (trade diversion), country should join the custom union. The goal of this paper is to demonstrate and explain the benefits and costs of customs union creation using microeconomic apparatus and quantitative analysis. The anticipated accession of Croatia into European Union Customs Union (EUCU) is considered and presented using static and dynamic effects of customs union creation which are thoroughly analysed. The importance of CEFTA market for Croatia is specially highlighted and explained. The analysis has shown that the anticipated 2013. Croatia-EUCU accession will have small positive static and potentially positive dynamic effect on country's welfare.*

**Keywords:** *customs union, static and dynamic effects, Croatia-EUCU accession*

**JEL classification:** *F15*

### **1. INTRODUCTION**

The benefits of free trade arrangements in regard to autarky were known from the time of classical economists. The process of regional and global economic integration started in the second half of the twentieth century. Regional economic integrations can be expressed in the form of free trade area, customs union, common market and economic (monetary and political union). There are benefits and costs of accession into these regional economic integrations. Trade creation and trade diversion effects of customs union creation were firstly introduced by Jacob Viner (1950) in his classical work „*The Customs Union Issue*“ setting a corner stone in classic theory of international economic integration up-to-date. These are static effects of custom union

creation; trade creating effect has a positive effect while on the other side trade diverting effect has a negative effect on country's welfare. Bela Balassa (1961) in his paper „*The Theory of Economic Integration*“ was the first to introduce dynamic effects of customs union creation: increased competition between member countries, external economies of scale, rapid spread of technology, terms of trade, etc. Dynamic effect of customs union creation are less analysed in economic literature compared to static effects but have many times greater impact on country's welfare. If the positive effect of customs union creation outweighs the negative one, country should join the custom union. In this paper customs union as a form of regional economic integration will be presented and explained in the case of anticipated EU-CU customs union. In the second chapter is given empirical literature on the subject of customs union creation, in third chapter are presented types of regional economic integrations and explained customs union static and dynamic effects while in the fourth chapter are analysed static and dynamic effects of the anticipated Croatia-EUCU. At the end of the paper are given final considerations and concluding remarks.

## **2. EMPIRICAL LITERATURE ON THE SUBJECT OF CUSTOMS UNION CREATION**

The empirical literature on customs union formation is associated with the work of Viner (1950), Meade (1955) and Lipsey (1957). They have analysed the consequences of joining regional trade agreements from the viewpoint of welfare effects. The focus was especially on the difference between the free trade area (FTA) and customs union and the removal of tariffs and introduction of the common external tariff on trade. Jacob Viner was the first one to pointed out that regional trade agreements do not necessarily result in gains to member countries. He defined and analysed the static effects of customs union creation; trade creation and trade diversion effect. According to Viner customs union can postulate, either trade creation, or trade diversion which, raises or lowers the country's welfare accordingly, on the other hand, Lipsey argues that trade diversion can raise welfare, Androniki *et al* (2010). Bhagwati (1970) also examined the issue of the welfare impact of regional economic integrations and proved that trade-diverting customs union may lead to a net increase in welfare. According to the Kemp-Wan proposition (1976) there exists common tariff vector that leads to competitive equilibrium in which each individual country is not worse off than before the customs union creation. Although theoretically feasible compensation scheme through transfers lacks political approval due to the fact that not all countries would be willing to make trade concessions without reciprocity. Below is presented empirical literature in the last two decades on the subject of customs union creation.

Michalopolous and Tarr (1997) analyses the economic implications of the establishment of a customs union between four CIS members countries (Belarus, Kazakstan, the Kyrgyz Republic and Russia). The static effects would tend to be mixed but would be especially adverse for countries that had already established relatively liberal trade regimes with a lower average and less differentiated tariff structure than that under the common external tariff contemplated for the proposed customs union. They conclude that the dynamic effects of the customs union are likely to be negative because it would tend to lock the countries into the old technology of the Soviet Union.

Aksen and Tochitskaya (2001) also analyse the costs and benefits of the Belarus' participation in the customs union of the CIS countries based on the study of the static and dynamic economic effects and their impact on the nation's welfare, and the Belarus' economy growth rate. The results of the analysis have shown that prevalence of trade diversion effect and hence welfare losses were experienced in chemistry and petrochemistry, light, wood and wood-proceeding, machine-building and metal-working industries. Abrego and Riezman (2003) use computational techniques to assess whether or not various propositions that have been advanced as plausible in the literature on the theory of customs unions actually hold. Karaman and Lerzan Ozkale (2005) investigate Turkey's import demand function using an econometric panel data application. Findings show that Turkey's import demand is income elastic and price inelastic. The analysis was repeated for the main import sectors and empirical findings indicate that Customs Union Agreement has trade creation effects among some sectors and trade diversion effects among some others, while no effects at all could be calculated for the remaining. Cakmak and Eruygur (2008) investigate trade implications of the Turkey-EU customs union agreement to agricultural products. Their findings show that the winners of a possible Turkey-EU customs union enlargement are EU countries. Dalimov (2009) in his research develops dynamic tools to the analysis of trade creation and trade diversion effects under economic integration based on the model developed for interregional flow of the goods between member states of the union and the rest of the world. Analysis has shown that interregional flow of the goods as well as trade creation and trade diversion effects are correctly described by one-dimensional Navier-Stokes equation, with the method itself complementing static analysis of Viner's trade creation and diversion effects. Aydin, L. and Demirci, N. (2011). focuses on the effects of common external tariff to Turkey's trade. The simulation results has show that Turkey has been benefiting from the noticeable tariff liberalization as well as improved market conditions in line with EU since it ratified custom union with EU. Pala (2011) analyzes why the customs union between Turkey and the EU does not manifest the expected static effects, why the trade share of the EU decreased over four time in spite of the customs union agreement and what measures should be taken in order to increase the trade between Turkey and the EU.

### **3. TYPES OF REGIONAL ECONOMIC INTEGRATIONS AND CUSTOMS UNION STATIC AND DYNAMIC EFFECTS**

Regional economic integrations has become largely popular after the Second World War. Main characteristic of these integrations is that a group of countries abolish all trade barriers among the integrated countries in order to achieve free international trade on a regional rather than a global scale. It can be distinguished between following types of economic integration agreements (presented in table 1):

- Preferential trade agreement (PTA): In this form of agreement there is no general reduction on internal tariffs nor a common external tariff. Tariffs between the members of the agreement are reduced (or eliminated) only for some goods or services, sometimes unilaterally.
- Free trade area (FTA): Member countries eliminate internal tariffs on regional trade without any common trade policy relative to other countries. However it is possible for one country to import all of a certain good that the other country

previously imported, only to turn around and trade it to another country in its free trade area. That problem is called trade deflection and it requires the use of certificates of origin for goods crossing the border.

- Customs union: Like in a free trade area member countries abolish internal tariffs on free regional trade and adopt a common external tariff against the rest of the world.
- Common market: In this type of economic integration member countries allow not only for the free movement of goods and services but also for the free movement of factors of production such as labor and capital.
- Economic and Monetary/Political Union: An economic union can be considered as an economic integration comprising a common market and common economic policies along with asupranational power that makes binding decisions, lessening the power of member countries much further on making their own decisions, Krueger, (1995). The economic union provides grounds for creation of monetary union and adoption of one currency in integrated region.

A customs union (CU) is a form of trade agreement under which certain countries preferentially grant tariff-free market access to each other's imports and agree to apply a common set of external tariffs to imports from the rest of the world (Andriamananjara, 2011:111). Early examples of customs unions include the Zollverein, formed in 1834 by several German principalities and the 1847 customs union between Moldavian and Walachia, a precursor to the creation of Romania. Customs unions have two types of economic effects; static effects and dynamic effects. Static effects include *trade creation* effect and *trade diversion* effect.

**Table 1: Types and characteristics of economic integrations**

Strength of integration ↓	Level of integration	The elimination of tariff on intraregional trade	Adoption of external tariff against the ROW	Free trade of labor and capital	Coordination of economic policies and harmonisation of standards
	PTA	✓	-	-	-
	Free Trade Area (FTA)	✓	-	-	-
	Customs Union	✓	✓	-	-
	Common market	✓	✓	✓	-
	Economic and Monetary Union	✓	✓	✓	✓
	Political Union	✓	✓	✓	✓

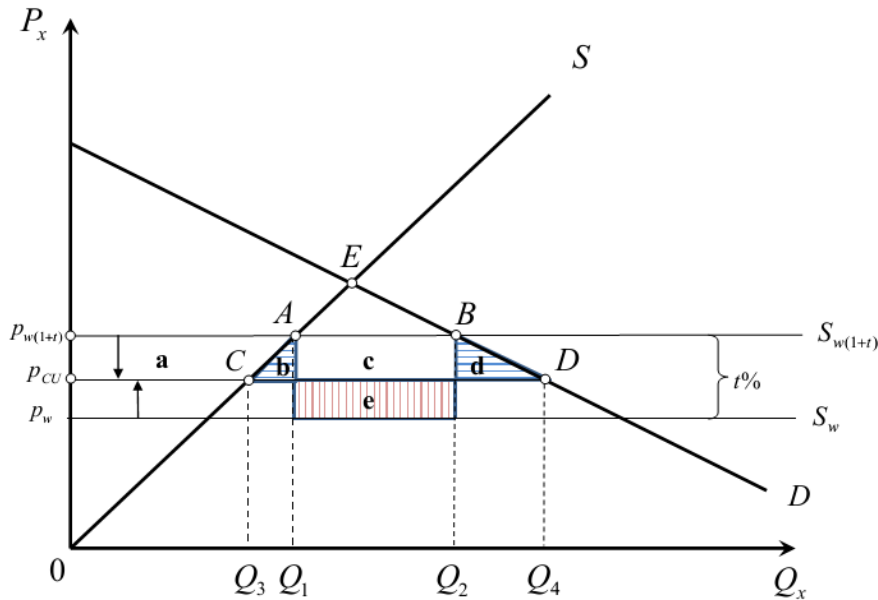
Source: Authors

Trade creation occurs when the domestic production of a good in a member country is replaced by the imports of the same good from another member country within the customs union because of the lower cost production. Trade diversion occurs when the imports from a non-member country are replaced by the imports of a member country

because of the removal of tariffs between members and the application of common customs tariffs to non-member countries.

Static and dynamic effects of customs union creation are presented on the partial equilibrium framework (microeconomic model) in the figure 1. Let us assume this is a microeconomic model of a small country. In the point  $E$  there is an equilibrium level (autarky) of domestic supply  $S$  and demand  $D$ . Price of good  $X$  on the international free market is equal to  $p_w$  with perfectly elastic supply curve  $S_w$  for the good  $X$  in the small country. Small country now imposes an *ad valorem* tariff in the amount of  $t\%$ . New price of good  $X$  in a small country is now  $p_{w(1+t)}$  with perfectly elastic supply curve  $S_{w(1+t)}$ . Excess demand over supply  $\overline{AB}$  is equal to the quantity of imports  $\overline{Q_1Q_2}$  into small country. Small country is now entering into regional customs union eliminating the tariff on intraregional trade and adopting the common external tariff<sup>7</sup>.

**Figure 1: Static effects of customs union creation**



Source: Marrewijk, C. (2012) and authors' illustration

After the formation of the customs union the tariff  $t$  is eliminated, price of good  $X$  falls to  $p_{cu}$ , demand increases from  $Q_2$  to  $Q_4$ , supply decreases from  $Q_1$  to  $Q_3$  while imports from customs union rise from  $\overline{Q_1Q_2}$  to  $\overline{Q_3Q_4}$ . Lets see what has happened to the welfare of producers, consumers and government in the small country. Welfare for producers falls measured by the area  $a$ , consumers gain areas  $a$ ,  $b$ ,  $c$  and  $d$  while the government

<sup>7</sup> In this case small country is entering into customs union with an inefficient producer: therefore will be trade creation and trade diversion effect.



loses revenues from the tariff (areas *c* and *e*). The positive welfare effect of customs union accession for small country is equal to the areas *b* and *d* and is called trade creation effect (the so called Harberger triangle, Harberger (1954)). On the other side negative welfare effect represents the area *e*. Net welfare effect of customs union accession is equal to  $b + d - e$ . If the trade creation effect is larger than trade diversion effect small country should enter the customs union.

As apposed to static effects of customs union creation the less known but much more important are dynamic effects. The first systematic investigation of dynamic effects of economic integration was carried out by Balassa (1961). According to Balassa dynamic effects of customs union creation are:

- *Effects on competition*: Accessing the customs union enlarges the market in comparison to protected trade and makes a producer subject to new forms of competition. The increase in competition among business firms forces the economic subjects to be efficient as possible in order to gain a new market share.
- *Effects on economies of scale*: As the economic subjects are obliged to be optimal efficient, the economies of scale will overwhelm the diseconomies of production. Scale economies are associated with the use of expensive and specialised equipment.
- *Effects on capital formation and investment*: Customs union could enhance the investment from outside investors and provide stimulus to economic growth. Investments are attracted to the most productive and competitive sectors which are able to survive on the market.
- *Effects on technological advances (innovations)*: Customs union can improve technological innovations and progress through research and development programmes.
- *Effects on terms of trade*: Terms of trade of member countries may improve because they can now have greater bargaining power.

#### **4. STATIC AND DYNAMIC EFFECTS OF CUSTOMS UNION CREATION: THE ANTICIPATED CROATIA-EUCU ACCESSION**

Croatia is anticipated to access the European Union by 1th July 2013. Membership in the EU also means the establishment of a customs union between Croatia and EU. New member countries adopt a common external tariffs against third countries (Common External Tariff, CET) while removing remaining non-tariff barriers to international trade. Weighted average common external tariff (measured based on the share of each product in total imports) is 3,2% which is less than the current average tariff protection in Croatia of 4,5%<sup>8</sup>. The lowering and elimination of tariffs on mutual trade between Croatia and EU was realized under the Stabilisation and Association Agreement signed on 29th October 2001. Transitional period commencing upon the entry into force was six years. Entering the full membership the remaining non-tariff barriers to international trade, such as discriminatory technical regulations or incentives to buy local (national) products will be removed. Entering the EUCU Croatia will assume the rights and obligations under EU agreements with Albania, Bosnia and Herzegovina,

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<sup>8</sup> Not including imports of duty-free products.

Montenegro, Macedonia and Serbia. It also means that it will continue duty-free Croatian trade with these countries and there will be no major negative consequences of placing outside forces agreements with CEFTA (Central European Free Trade Agreement) countries. The exception are exports of some agricultural and food products in CEFTA countries for which the government will retain tariff protection or have a quantitative restriction (quota) on preferential imports (IIR (2012)).<sup>9</sup>

Size of static effects of a customs union formation between Croatian and EU can be estimated by formulas that can be derived directly from the partial equilibrium model of traditional theories of the customs union (Cline *et al.*, 1978). Using these formulas the Institute for International Relations (IIR) has calculated in 1998 the static effects of Croatian integration into the EU (Samardžija *et al.*, 1998). Vizjak (2001) analyses and calculates static and dynamic effects of Croatia's potential accession to the European Union. Trade creation effect on imports amounted at 7,4% while on the other hand trade diversion effect on imports amounted at 0,7%. Using gravity model dynamic effects were estimated on 37% increase in Croatian imports from the EU. Đukec *et al* (2003) also quantifies static and dynamic effects of customs union creation between Croatia and EU. Trade creation effect on imports equaled 7,14% while the trade diversion effect equalled 0,49%. Total net welfare effect on Croatia was estimated to be positive with 0,357%.

If we look at the results of the past analysis it can be seen that in this way calculated consequences on the international trade and welfare in Croatia were relatively small. From today's perspective they are even much smaller because the tariffs rates in the recent years were lowered especially after the signing Stabilisation and Association Agreement in 2001 and joining CEFTA in 2003. It's one of the reasons why there has been a sharp increase in imports in Croatia in the last decade with the resulting growth of the external debt. The goal of this chapter is to calculate static and net-welfare effects of anticipated Croatia-EUCU accession on Croatian economy and explain the most important dynamic effects. In the figure 2 are presented static effects of the anticipated Croatia-EUCU accession. Figure 2 differentiates from the figure 1 (theoretical partial equilibrium model with one product) because it takes into account total imports of goods in Croatia. Customs union creation between Croatia and EU will not affect all government revenues, only part of trade between Croatia and EU. In this case government will lose only area *c* while domestic consumers would get areas *a + b + c + d* and producers would lose area *a*. Total net welfare effect on Croatia's welfare would be areas *b + d* which is positive effect on Croatia's welfare.<sup>10</sup> Before starting the quantitative analysis it is important to say that the magnitude of the effects of the elimination of tariffs on the trade and welfare following the establishment of a customs union will depend upon four major factors:

- (a) The height of the original tariff rates to be eliminated
- (b) The size of the fall in prices brought about by the abolition of tariffs

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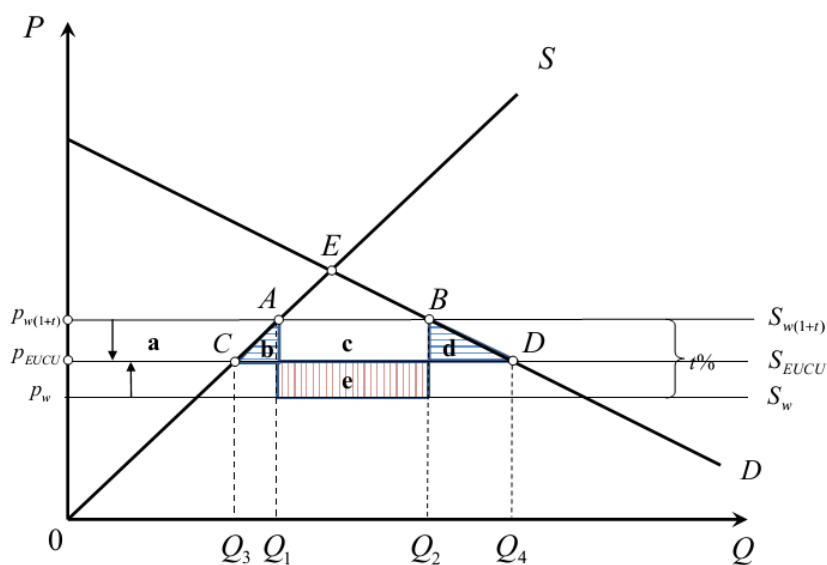
<sup>9</sup> Croatia's trade in non-agricultural goods with its largest trading partners is virtually duty free; for example, the average tariff on non- agricultural imports (WTO definition) from the EU is 0,1% (WTO, 2010).

<sup>10</sup> It can be said that the imports from the EU countries are from the most efficient producer so the negative effect on Croatia's welfare would not exist.

- (c) The responsiveness of the import demand to changes in price in the individual countries, i.e. the price elasticity of demand for imports
- (d) The initial volume of imports from the partners, i.e. before the formation of the union.

The greater the magnitude of each of the above factors, the greater will be the increase in the total volume as well as value of imports (Rahman *et al*, 1981:62).

**Figure 2: Static effects of the anticipated Croatia-EUCU accession**



Source: Authors' illustration

Using the Clein model earlier used by Samardžija *et al*, Vizjak and Đukec *et al*, trade creation and trade diversion effect of the anticipated Croatia-EUCU will be calculated<sup>11</sup>. In the relation 1 is presented and calculated trade creation effect:

$$TC = \eta * T * M_{EU} = -0,84 * -0,007 * 0,618 = 0,00363 = 0,363\% \quad (1)$$

$\eta$  – price elasticity of import demand for Croatia<sup>12</sup>

$T$  – percentage change of import prices due to tariff elimination in EUCU

$M_{EU}$  – relative value of imports from the EU countries in total imports for Croatia<sup>13</sup>

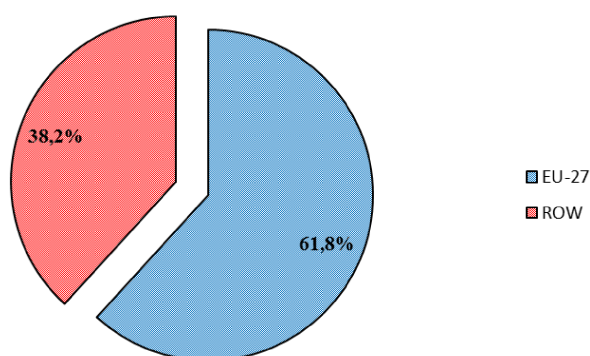
<sup>11</sup> Analysis will be conducted for the year 2011.

<sup>12</sup> Price elasticity of import demand for Croatia is taken from the Bobić (2010) and is calculated for the period between 2000 and 2007 under 1% significance.

<sup>13</sup> Presented in figure 3.

Percentage change of import prices due to tariff elimination in customs union is equal to the difference between the price change of imports before and after customs union creation ( $p_{w(1+t)} - p_{EUCU}$ ) presented in the figure 2. Price change due to tariff impose before customs union creation  $p_{w(1+t)}$  was calculated by dividing government tariff revenue (1,6 billion of kunas) with the value of imports in 2011 (118,363 billion of kunas) and equals 1,35% of price without any tariff rate  $p_w$ . On the other hand, price change after the customs union creation  $p_{EUCU}$  is calculated by dividing expected government tariff revenue after the customs union creation (770,1 million of kuna) with the import value and equals 0,65%. Expected government tariff revenue is calculated by multiplying expected non-preferential imports of goods after the customs union creation (20% of the market) with the average common external tariff in the EU which equals 3,2%. Difference between the two import price changes equals 0,7% of import price. Calculated trade creation effect from the anticipated Croatia-EUCU equals to 0,363% of total imports in Croatia.

**Figure 3: Imports in Croatia from EU-27 and ROW (2011)**



Source: DZS and authors' illustration

In the relation 2 is presented and calculated trade diversion effect of the anticipated Croatia-EUCU accession for the year 2011.

$$TD = (M_{ROW} * M_{EU} * s * T) / (1 + (M_{ROW} * s * T)) \quad (2)$$

$$TD = (M_{ROW} * M_{EU} * s * T) / (1 + (M_{ROW} * s * T)) = (0,382 * 0,618 * 0,3 * 0,007) / (1 + (0,382 * 0,3 * 0,007)) = 0,0005 = 0,05\%$$

$M_{ROW}$  – level of imports from rest of the world (outside the customs union)

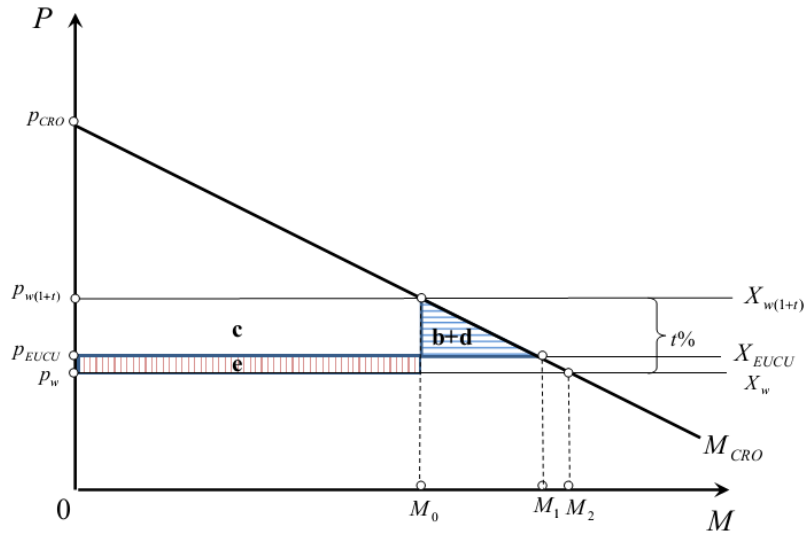
$s$  – coefficient of elasticity of substitution <sup>14</sup>

Calculated trade diversion effect from the anticipated Croatia-EUCU equals to 0,05% of total imports in Croatia. Net trade effect of the anticipated Croatia-EUCU creation is

<sup>14</sup> For the purposes of the analysis it is assumed that the value of coefficient is equal to 0,3 like in previous studies.

equal to the difference between the trade creation and trade diversion effect and equals 0,313%. In the figure 4 is presented net welfare static effect in Croatia of the anticipated Croatia-EUCU accession.

**Figure 4: Net welfare static effect in Croatia of the anticipated Croatia-EUCU accession**



Source: Authors' illustration

In order to calculate net welfare static effects in Croatia of the anticipated Croatia-EUCU accession it is necessary to calculate revenue effect (loss of government revenue from tariff elimination) and welfare effect (change in welfare of domestic producers and consumers). Loss of government revenue equals area  $c$  while the net effect on domestic consumers and producers welfare are areas  $b + d + c$ . Total net welfare effect on Croatia's welfare equals areas  $(b + d)$ . It can be calculated using relation 3:

$$W = \frac{T * \Delta M}{2} \quad (3)$$

where  $W$  is total net welfare gain,  $T$  is percentage change of import prices due to tariff elimination in customs union and  $\Delta M$  is net trade effect  $\overline{M_0 M_1}$ .

$$W = \frac{T * \Delta M}{2} = \frac{0,007 * 0,00313 * 118363,1}{2} = 2,593 \text{ million of kunas}$$

Net welfare effect on Croatian economy would amount to 2,593 million of kunas which represents only 0,00076% of Croatian GDP, that is in the range of statistical error. The value of area  $e$  equals 770,1 million of kunas. Since the government is obligated to pay 75% of collected tariff revenues into common EU fund, revenue loss for Croatian

government would be additional 577,575 million of kunas while the government revenues would be only 192,525 million of kunas. Negative net welfare effect of customs union creation would be 574,982 million of kunas which represents 0,168 % of Croatian GDP.

As opposed to the static effects of abolishing tariffs in the Croatia-EU customs union there are dynamic effects of customs union creation that can not be measured using previously explained model. Two main effects that could cause the expansion of trade after the customs union creation are reduction of formalities at the border and the elimination of non-tariff barriers to trade. It can result in immediate time and cost savings for enterprises which can lead to lower prices and expansion of trade. Integration into the European Union will increase the market share and thus enable exploitation of returns to scale. Increased competition will led to closure of unprofitable enterprises and repeal of monopolistic and oligopolistic structures. Croatian economy will also benefit from a number of mechanisms that encourage export competitiveness, for example development of basic and business infrastructure, increasing and improving efficient investment in energy and telecommunications networks, better availability of business services and support mechanisms to improve the development of education, science and technology (IIR, 2012:54). From the point of investment activity particularly important would be foreign direct investment (FDI) from EU countries in order to boost domestic growth and facilitate structural changes.

## **5. CONCLUSION**

Regional economic integrations have become largely popular after the Second World War. Main characteristic of these integrations is that a group of countries abolish all trade barriers among the integrated countries in order to achieve free international trade on a regional rather than a global scale. A customs union (CU) is a form of trade agreement under which certain countries preferentially grant tariff-free market access to each other's imports and agree to apply a common set of external tariffs to imports from the rest of the world. Customs unions have two types of economic effects; static effects and dynamic effects. Static effects include trade creation effect and trade diversion effect. The goal of the paper was to calculate and explain static effects of the anticipated Croatia-EUCU creation and demonstrate the most important dynamic effects of customs union.

Analysis of static effects was conducted using Cline model and data for the year 2011. Results of the analysis have shown that net trade effect of the anticipated Croatia-EUCU creation is equal to 0,313% of total imports. Calculated consequences on the international trade are very small because the tariffs rates in the recent years were lowered especially after the Stabilisation and Association Agreement. Net welfare effect on Croatian economy would be positive but also very small, in the range of statistical error. Since the government is obligated to pay 75% of collected tariff revenues into common EU fond, in this case negative net welfare effect of customs union creation would represents 0,168 % of Croatian GDP.

As opposed to the static effects of anticipated Croatia-EUCU creation the most important dynamic effects are reduction of formalities at the border, elimination of non-tariff barriers to trade, increased competition and returns to scale, repeal of monopolistic and oligopolistic structures, development of basic and business infrastructure, increasing and improving efficient investment in energy and telecommunications networks, better availability of business services and support mechanisms to improve the development of education, science and technology. Another important dynamic effect would be foreign direct investment (FDI) from EU countries in order to boost economic domestic growth and facilitate structural changes.

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