THE EFFECTS OF FOREIGN TRADE LIBERALIZATION AND FINANCIAL FLOWS BETWEEN SLOVENIA AND EU BUDGETS AFTER THE ACCESSION

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1. INTRODUCTION

On 13. of December 2002 Slovenia has, with the other nine candidate countries, successfully concluded accession negotiations with the EU. Results obtained on the financial issues for the period 2004-2006 point out to the following official conclusions: a) stated aims were fulfilled for the agriculture sector (possibility for direct payments from own budget; the same level of direct payments from the year 2007 on; production quotas are not below the level of current production; financial very attractive solution for the rural development, b) for the regional policy and structural funds Slovenia will get 404 millions of EUR; there is also a possibility for the further regionalization on the NUTS-2 level c) EU will partially cover the costs (45% - 107 millions EUR) for the construction and maintenance of the Schengen border, d) regarding the transfers and the net budget position Slovenia succeeded to raise budgetary compensation from 45 millions EUR in the year 2003 to 85 millions of EUR for each year with the 2004-2006 period, e) Slovenian net budgetary position will be a positive one and Slovenia will have also quite favorable position (retain its positive net budgetary position) in the period of the next financial perspective 2007-1013.

These conclusions should in fact demonstrate that for the financial part of negotiations Slovenia succeeded to achieve the best combination in order to fulfill two aims: a) agreement with EU should enable the continuation of the process of real convergence, and b) the agreement should not worsen budgetary position and thus provide difficulties with the fiscal part of Maastricht criteria.

But, are all these very favorable official conclusions reflecting reality? Were all effects of financial package taken into account and all the transfers between both budgets estimated correctly? Are there any other financial flows connected with the accession? And what will be the complex mutual effects of the continued foreign trade liberalization process, of the financial flows between the budgets and of structural funds interventions in particular at the aggregate and sector levels?

Within the paper we will try to answer to the above questions using a dynamic computable general equilibrium model as the only appropriate tool that can in fact simulate the complex interdependences between economic variables at the macroeconomic and sector level. Namely, given the lack of usable macroeconomic model of the Slovenian economy and the problems of too short time period to be able to estimate accurately the parameters of particluar model equations, a dynamic multi-sectoral CGE model of Slovenian economy (SloMod), which is able also to capture the main ways in which Structural funds interventions can have impacts, has been developed and used .

The outline of the paper is as follows. In Section 2 we present the model description. The data and assumptions used are presented in Section 3, whereby Section 4 presents the estimation results. Final Section summarizes the basic findings of the paper and set out some implications for further work.

2. MODEL DESCRIPTION

SloMod is designed to measure the direct, indirect and induced economic and impacts of policy changes on an economy in the short, medium and long run. The input-output core enables the model to trace the extent and the channels of changes in policy and international environment. The resulting price changes affect the demand for the sectoral outputs and alter the resource allocation of factors. The simulations explore the effects of external shocks (such as changes in the international prices, the fluctuations in the real exchange rate, foreign demand, etc) and domestic policy changes. Model simulations provide results regarding the impacts on the:

- sectoral production,
- sectoral trade flows,
- employment (skilled and unskilled labor),
- unemployment (skilled and unskilled),
- investment,
- macroeconomic variables,
- prices, wages and income,
- public finance outcomes,
- welfare.

This type of economic modeling is an important tool for analyzing a great number of economic issues. It is extremely useful to policy makers dealing with issues of multilateral liberalization of international trade, regional integration of economies and the consequent implications for energy and environmental standards. Applied general equilibrium models are now widely used in economic policy analyses by all the major international institutions such as the World Bank, the OECD, the European Commission, the World Trade Organization, the UNCTAD, etc. This widespread use is explained by the capability of these models to provide an elaborate and realistic representation of the economy including the linkages between all agents, sectors and other economies. This complete coverage allows a unique insight into the effects of changes in the economic environment throughout the whole economy. These models are very powerful and flexible. They can take into account human capital accumulation, intergenerational issues, environmental issues, and even health issues.

The model incorporates the economic behavior of four institutional sectors: firms, households, the government sector and the external sector. All economic agents are assumed to adopt an optimizing behavior under relevant budget constraints. The goods-producing sectors, consisting of both public and private enterprises, are aggregated into fifteen productive sectors (see Table 1). With regard to the external sector the economy is treated as a small open economy with no influence on the world prices. The model distinguishes Slovenia's trade with the current members of the European Union, with the other nine candidate countries, and with the rest of the world.

The use of the SAM and the underlying input-output table as the databases has some consequences for the outcome of the CGE model. The typical assumption for a CGE model, which is also adopted here, is that economy is initially at equilibrium with quantities normalized so that all prices are equal to one.

Table 1: Sectoral Disaggregation of SloMod

No	Sectors
1	Agriculture
2	Mining
3	Food
4	Textile and clothing
5	Chemical products
6	Metals
7	Machinery
8	Motor
9	Other manufacturing
10	Electricity
11	Construction
12	Transportation
13	Communications
14	Other services
15	Public services

2.1. Firms

Real output for each sector is determined from a nested production structure. Capital and labor are assumed to produce sectoral value added, VA_i, according to a constant elasticity of substitution (CES) function specified as:

$$VA_i = (gF_i \times K_i^{-rF_i} + (1 - gF_i) \times L_i^{-rF_i})^{-1/rF_i} \tag{1}$$

where K_i is capital used in sector i, L_i is labor used in sector i, gF_i is the share parameter for sector i, and the elasticity of substitution between capital and labor for sector i, sF_i is given by $1/(1+rF_i)$. The parameter sF_i is exogenous and is estimated outside the model. Value added is related to output XD_i through a Leontief production function[1], which assumes an optimal allocation of inputs:

$$XD_i = a_i \times VA_i = (1 - a_i) \times IO_i \tag{2}$$

where IO_i denotes the intermediate inputs of sector i, and $1/a_i$ is the well-known fixed coefficient relating value added to output. Real output of sector i can be rewritten as:

$$XD_i = a_i \times (gF_i \times K_i^{-rF_i} + (1 - gF_i) \times L_i^{-rF_i})^{-1/rF_i} \tag{3}$$

Minimizing the costs function:

$$Cost_i(K_i, L_i) = RK_i \times (1 + tk_i) \times K_i + PL \times (1 + tl_i) \times L_i \tag{4}$$

subject to (3) yields the demand equations for capital and labor:

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[1] The Leontief production function implies that sectoral output must be produced with fixed (minimum) quantities of intermediate inputs and factor composite per unit of output, i.e. with fixed coefficients.

$$K_i = \mathbf{gF}_i^{\,\mathbf{sF}_i} \times [(1 + \mathbf{tk}_i) \times \mathbf{RK}_i]^{-\mathbf{sF}_i} \times (\mathbf{gF}_i^{\,\mathbf{sF}_i} \times [(1 + \mathbf{tk}_i) \times \mathbf{RK}_i]^{1-\mathbf{sF}_i} +$$
$$+ (1 - \mathbf{gF}_i)^{\mathbf{sF}_i} \times [(1 + \mathbf{tl}_i) \times \mathbf{PL}]^{1-\mathbf{sF}_i})^{\mathbf{sF}_i/(1-\mathbf{sF}_i)} \times (\mathbf{XD}_i/\mathbf{a}_i) \tag{5}$$

$$L_i = (1 - \mathbf{gF}_i)^{\mathbf{sF}_i} \times [(1 + \mathbf{tl}_i) \times \mathbf{PL}]^{-\mathbf{sF}_i} \times (\mathbf{gF}_i^{\,\mathbf{sF}_i} \times [(1 + \mathbf{tk}_i) \times \mathbf{RK}_i]^{1-\mathbf{sF}_i} +$$
$$+ (1 - \mathbf{gF}_i)^{\mathbf{sF}_i} \times [(1 + \mathbf{tl}_i) \times \mathbf{PL}]^{1-\mathbf{sF}_i})^{\mathbf{sF}_i/(1-\mathbf{sF}_i)} \times (\mathbf{XD}_i/\mathbf{a}_i) \tag{6}$$

where $\mathbf{PL}$ is the economy-wide average wage rate, $\mathbf{RK}_i$ is the sectoral return to capital and $\mathbf{tk}_i, \mathbf{tl}_i$ are the tax rate on capital use for sector i, and the tax rate on labor use for sector i, respectively. The tax on labor use includes both the tax on wages and the social contributions.

Firms receive income from sales of goods and subsidies and transfers from the government, they purchase intermediate inputs, make wage payments, pay taxes on capital use, labor use and taxes on income.

The capital stock is sector specific during each period and is initially fixed. It changes every year depending on the initial capital stock, the depreciation rate and new investment:

$$\mathbf{K}_{i,t} = (1 - \P)\mathbf{K}_{i,t-1} + \mathbf{INV}_{i,t} \tag{7}$$

2.2. Households

Households receive a fixed share of the capital income $\mathbf{aicf}$, labor income from firms and government in return for labor services and transfers from the government $(\mathbf{TRF})$:

$$\mathbf{Y} = \mathbf{aicf} \times \sum \mathbf{RK}_i \times \mathbf{K}_i + \mathbf{PLAV} \times (\mathbf{LS} - \mathbf{UNEMPSK} - \mathbf{UNEMPUSK}) + \mathbf{TRF} \tag{8}$$

where $\mathbf{LS}$ is the total labor supply, $\mathbf{UNEMPSK}$ is the number of unemployed skilled workers, and $\mathbf{UNEMPUSK}$ is the number of unemployed unskilled workers. The transfers from the government consist of unemployment benefits and other transfers. Labor supply is endogenously determined by the change in real wages.

Households pay taxes on income and social contributions to the government and save $(\mathbf{SH})$ a fixed fraction $(\mathbf{mps})$ of (money) income:

$$\mathbf{SH} = \mathbf{mps} \times (\mathbf{Y} - \mathbf{ty} \times \mathbf{Y}) \tag{9}$$

where $\mathbf{ty}$ is the tax rate on income. The households' budget devoted to consumption of commodities $(\mathbf{CBUD})$, is given by:

$$\mathbf{CBUD} = \mathbf{Y} - \mathbf{ty} \times \mathbf{Y} - \mathbf{SH} \tag{10}$$

The demand for commodities $(\mathbf{C}_i)$ of the composite commodity is given by maximizing another Stone-Geary utility function:

$$U(C_i) = \tilde{O}(C_i - \textbf{m}H_i)^{\textbf{a}H_i}$$ (11)

subject to the budget constraint:

$$CBUD = \dot{\textbf{a}}(1 + tc_i) \times P_i \times C_i$$ (12)

where: $\dot{\textbf{a}}\,\textbf{a}H_i = 1$

Consumption is valued at consumer prices $(1 + tc_i) \times P_i$, which also incorporate consumption taxes, tc_i.

After some rearrangements, the optimization generates the demand equations for the commodities (the Linear Expenditure System):

$$C_i = \textbf{m}H_i + \textbf{a}H_i \times [(1 + tc_i) \times P_i]^{-1} \times (CBUD - \dot{\textbf{a}}(1 + tc_j) \times P_j \times \textbf{m}H_j)$$ (13)

2.3. Government

The tax revenues of the government (**TAXR**) consist of consumption taxes, production taxes less subsidies, taxes on capital use, taxes on labor use, tariffs, taxes on households and firms income, social contributions:

$$TAXR = \dot{\textbf{a}}\,txd_i * PD_i * XD_i + tinv_i * P_i * INV_i + [tc_i \times P_i \times C_i + tk_i \times RK_i \times K_i + tl_i \times PL \times L_i$$

$$+ tmeu15_i * MEU15_i * PWMEU15Z_i * ER$$ (14)

$$+ tmeu9_i * MEU9_i * PWMEU9Z_i * ER$$

$$+ tmrow_i * MROW_i * PWMROWZ_i * ER] + ty \times Y$$

where **tmeu15**$_i$ is the tariff rate for sector i on imports from the EU15, **tmeu15**$_i$ is the tariff rate for sector i on imports from the EU15, **tmeu9**$_i$ is the tariff rate for sector i on imports from the EU candidate countries of the first wave enlargement, and **tmrow**$_i$ is the tariff rate for sector i on imports from the rest of the world.

PWMEU15$_i$ is the price of imports of product i from the EU15;
PWMEU9$_i$ is the price of imports of product i from the EU9;
PWMROW$_i$ is the price of imports of product i from the rest of the world.

The transfers of the government to the households are given by:

$$TRF = trep \times PLAV \times (UNEMPSK + UNEMPUSK) + INDEX \times TRO$$ (15)

and consist of unemployment benefits for skilled and unskilled unemployment workers, determined at the replacement rate (**trep**), and other transfers, such as pensions, translated into nominal terms by using the Laspeyres consumer price index (**INDEX**).

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The optimal consumption of commodities by the government is given by the maximization of a Cobb-Douglas utility function:

$$U(CG_i) = \tilde{O} \, CG_i^{aCG_i} \tag{16}$$

subject to the budget constraint:

$$GBUD = TAXR - TRF - SG \times INDEX - TRSLOZ \times INDEX \tag{17}$$

TRSLOZ is the transfer from the Slovenian government to the Fund, which will be managing the funds from the EU. **SG** is the government deficit or surplus in real terms.

with: $\dot{a} \, aCG_i = 1$

2.3. External sector

The specification of foreign trade is based on the small-country assumption, which means that the country is a price taker in both its imports and exports markets. As a result, both import prices and export prices are exogenously fixed on the international markets.
Following Armington (1969), we assume that domestically produced and imported goods are imperfect substitutes. This assumption implies that all domestic consumers use composite goods (X_i) of imported and domestically produced goods, according to a CES function:

$$X_i = aA_i \times (gA1_i \times MEU15_i^{-rA_i} + gA2_i \times MEU9_i^{-rA_i} + gA3_i \times MROW_i^{-rA_i}$$
$$+ gA4_i \times XDD_i^{-rA_i})^{-1/rA_i} \tag{18}$$

where

MEU15$_i$ are imports from the EU15;
MEU9$_i$ are imports from the 9 other EU candidate countries;
MROW$_i$ are imports from the rest of the world;
XDD$_i$ is the demand for domestically produced goods.

Minimizing the cost function:

$$Cost_i(M_i, XDD_i) = PMEU15_i \times MEU15_i + PMEU9_i \times MEU9_i +$$
$$PMROW_i \times MROW_i + PDD_i \times XDD_i \tag{19}$$

subject to (18), yields the demand equations for imports and domestically produced goods.
aA_i is a shift parameter, $gA1_i$, $gA2_i$, $gA3_i$, $gA4_i$ are a share parameter and the elasticity of substitution between imports and domestically produced goods (sA_i) is given by $1/(1 + rA_i)$. $PMEU15_i$ is the price of imports for sector I from the EU15, $PMEU9_i$ is the price of imports for sector i from the candidate countries, $PMROW_i$ is the price of imports for sector i from the rest of the world. The import prices are expressed in domestic currency and PDD_i is the price of domestically produced goods for sector i.

A limited substitution is also assumed to exist between goods produced for the domestic market (XDD_i) and for exports as captured by a constant elasticity of transformation (CET) function:

$$XD_i = aT_i \times (gT1_i \times EEU15_i^{-rT_i} + gT2_i \times EEU9_i^{-rT_i} + gT3_i \times EROW_i^{-rT_i} + gT4_i\, XDD_i^{-rT_i})^{-1/rT_i} \tag{20}$$

where aT_i is a shift parameter, $gT1_i$, $gT2_i$, $gT3_i$, and $gT4_i$ are share parameters, and the elasticity of substitution (sT_i) between exports and domestically produced goods delivered to domestic market is given by $1/(1 + rT_i)$. **EEU15$_i$** are exports to the **EU15$_i$**, **EEU9$_i$** are exports to the candidate countries, and **EROW$_i$** are exports to the rest of the world.

By maximizing the revenue function of the producer:

$$Re\,venue_i(E_i, XDD_i) = PEEU15_i \times EEU15_i + PEEU9_i \times EEU9_i + PEROW_i \times EROW_i + PDD_i \times XDD_i \tag{21}$$

subject to (20) we derive the demand equations for exports and domestically produced goods.

2.4. Investment demand

Investment demand (I_i) addressed to the producing sectors is provided by the maximization of the following Cobb-Douglas utility function of the investor:

$$U(I_i) = \tilde{O}\, I_i^{aI_i} \tag{22}$$

subject to the budget constraint:

$$S = \dot{a}\, I_i \times P_i \tag{23}$$

with $\dot{a}\, aI_i = 1$.

Total available savings (S) are determined as follows:

$$S = SH + SG * INDEX + SF + SROW * ER + SFUN \tag{24}$$

where

SH is the savings of the households
SG is government's real savings
SF is the savings of firms
SROW is foreign savings in foreign currency
SFUN are the savings of the Fund after subsidies.

The savings made available by the rest of the world (equivalent to net borrowing of the economy from the external sector) are expressed in domestic currency, by multiplying it with the exchange rate (ER). The maximization process yields the demand equations for investment by the sector of destination:

$$I_i = aI_i \times P_i^{-1} \times S \tag{25}$$

which are valued at the price (P_i) of composite good i, representing the aggregation of imports and domestic goods supplied to the domestic market.

2.5. Fund

In order to capture some specific needs a new special insitution (named FUND) has been introduced. Its aim is to collect transfers from both (Slovenian and EU) budgets and redistribute them accordingly to the stated uses: a part of the transfers goes to the EU budget, another one as transfers back to the Slovenian budget (cash flow lump-sum and budgetary compensation), and the rest in two different ways (as subsidies or investments) to different sectors of Slovenian economy split accordingly to different areas (Common Agricultural policy and rural development, Structural actions, internal policies) and particularly the SPD, taking into account also national public co-financing. In order to reproduce the reality, also the additional foreign trade liberalisation due to the adoption of EU Common Customs tariff has been taken into account. The impact of SPD has been modelled through the comparison of two simulations: one with and the other one without the financial allocations (estimated payments) within the SPD.

It should be stressed out that the introduction of special new institution (FUND) enabled us to model restructuring of the Slovenian budget using the assumption that the governemnt consumption does not change and that the complete impact goes into the changes of governemnt savings/deficit. Government in fact transfer estimated own resources to this new institution and also all expected co-financing sources. On the other way it receives some transfers (cash flow lump-sum and budgetary comensation) back. The remaining resources (after the transfer of own resources to the EU budget) are than redistributed directly from the FUND. The model thus capture allocation not only of, for instance, 0.33% of GDP in 2005 being the net budgetary balance, but of complete transfers from the EU budget and with national public co-financing (without of cash flow lump-sum and budgetary compensation).

The fund's resources (**YFUND**) are provided by the Slovenian government (**TRSLO**) and by the EU transfers (**TREU**):

$$YFUND = INDEX \cdot TRSLO + TREU \cdot ER \tag{26}$$

3. DATA AND ASSUMPTIONS USED

In this section a brief explanation of data preparation and assumptions used will be presented within three subsections covering: a) foreign trade liberalisation in the process of inclusion of the R of Slovenia into the EU, b) transfers between the Slovenian and EU budget, and c) EU funds split down accordingly to the agreed priorities within the SPD.

3.1. Foreign trade liberalization in the process of inclusion of the R of Slovenia into the EU

Estimation of the levels and changes of the rates of import duties due to continued foreign trade liberalisation process after the year 1998 in fact cover: a) full implementation of Free Trade Agreements (in the year 2001), b) the process of gradual adjusting of Slovenian Customs Tariff to the EU Common External Tariff for manufacturing products, c) complete liberalization of trade with EU and candidate countries after the accession, and d) adoption of EU External Customs Tariff and trade regime after the accession into the EU.

The results obtained certainly show quickly continued process of foreign trade liberalization with the adoption of new customs system, the entrance into the GATT/WTO, signement of several FTAs and particular of the Europe Agreement. High orientation of Slovenian economy towards foreign markets is revealed also in the low paid tariff rates for the imports from the third countries. Full implementation of almost all agreements was finished in the year 2001.

Analysis of the average rates of collected import duties in the year 2001 shows very low figures on the aggregate level (1,2%), as well as on the level of imports from the EU-15 (0,7%), candidate countries (1,2%) and third countries (2,5%). Outstanding results were found for the agricultural products - in case of Europe and other FTA agreements they reveal the fact that these products are subject of concessions only to the some extent. And these are products for which we can expect the greatest trade diversion/creation effects after the inclusion of Slovenia into the EU.

Theoretically, Europe and almost all other FTA should be fully implemented with the beginning of the year 2001. Nevertheless, more than 11 bill. SIT were collected on the imports from the EU countries. The main reason can be found in the imports of agricultural products that contribute 8,8 bill. SIT of import duties. Very interesting is also the group of products from other sectors that were imported without the use of preferential treatment within the Europe Agreement – for these products importers paid more than 2 bill. SIT of import duties. Obviously it was simpler (or even cheaper) to pay tariff according to the official Customs tariff than to use preferential treatment.

For the estimation of import duties after the inclusion of Slovenia into the EU, we used the following assumptions/steps:

a) We used official tariff rates of the EU Common External Tariff, applicable for the year 2001. Using the values of imports from the third countries in the year 2000 (the last complete year available from the COMEXT data base at the moment of calculations) we calculated the average official tariff rates and average ad-valorem levies. Specific tariffs and levies to be paid on the unit of particular product were transformed into the ad-valorem equivalents with the use of data on the net weight and the value of imports

from third countries. The most problematic items have been certainly products with seasonal duties or levies based on the content of starch, milk fat, sugar or alcohol – for these items we used some average values of the content and relevant levies. According to the relevance of these items in the Slovenian imports, the possible mistake made using the above assumptions regarding the content will not be of great importance. Namely, these items represented only 1,2% of the total Slovenian imports from the 'Rest of the World' in the year 2001 and their share in the estimated import duties were less than 2%.

b) We further assumed that estimated rates would not change in the analyzed period 2001-2006.

c) In the next step the average share of the collected import duties (source was EU budget for the year 2000) into the estimated official import duties were calculated - unfortunately, because of the lack of data, only for the two groups of products (agricultural and other industries products). With these two shares we tried to estimate the final outcome of the complicated system of EU foreign trade regime. Results show that EU on average collected only 49% of import duties if the official rates would be applied (68% for the other industries products and only 11% for the agricultural products).

d) With these two shares estimated official tariff rates and agricultural levies were corrected in the next step. Using this procedure we arrived to the estimated rates of collected import duties for each 8-digit item of EU Common External Tariff.

e) In the final step data on the values of imports separated from EU15, 'Laeken' Group and 'The rest of the World' were added to the database with the estimated rates of collected import duties and the value of collected import duties estimated for the year 2001 using the above stated assumptions regarding the rates of collected import duties. We thus obtained weighted average rates of collected import duties for imports from other countries for which we further assumed that they would remain the same also for the period 2004-2006 (see table 2).

Table 2: Tariffs on imports (in %) in the baseline year 2001 and 2004

	EU15		EU Candidates		ROW	
	2001	2004	2001	2004	2001	2004
Agriculture	4.593	0.000	1.963	0.000	1.530	1.367
Mining	0.027	0.000	0.024	0.000	0.394	0.618
Food	8.119	0.000	7.357	0.000	4.795	1.150
Textile and clothing	0.127	0.000	0.218	0.000	4.098	3.318
Chemical products	0.158	0.000	0.054	0.000	1.318	2.862
Metals	0.117	0.000	0.069	0.000	1.667	2.516
Machinery	0.224	0.000	0.418	0.000	2.404	1.233
Motor	0.148	0.000	0.165	0.000	10.248	8.537
Other manufacturing	0.169	0.000	0.499	0.000	4.536	2.104
Electricity	0.000	0.000	0.000	0.000	0.000	0.000

In the year 2001 almost half of total import duties were collected on imports of products from EU15 and candidate countries. With the entrance into the EU Slovenia will loose these import duties. On the other hand Slovenia collected 14,7 bill. SIT on products imported from other countries with the average rate of 2,5%.

The use of the estimated rates of collected import duties on the imports of the EU from the Rest of the World on the Slovenian structure of imports from the Rest of the World did not change the average rate of import duties on the aggregate level by high margin (from

2,50% to 2,37%). Collected import duties would thus amount to 13,9 bill. SIT. Comparison of rates on the sector level reveal the most important changes in the sectors of food, beverages and tobacco industries, furniture and other non-covered products of manufacturing, for which rates will substantially decrease.

These, estimated rates of collected import duties for Slovenian imports from 'the Rest of the World' countries, together with assumption of the null rates for the imports from the EU15 and 'Leaken' group countries, estimated trade creation/diversion effect and growth of imports were than used for the estimation of the values of traditional own resources Slovenia will pay to the EU budget after the inclusion into the EU.[2]

Taking into account that in fact all 10-candidate countries will enter into the EU in the year 2004, it can be concluded that Slovenian traditional own resources payments in the period 2004-2006 will be between 10,3 and 11,8 bill. SIT (1999 prices) or 54,6 and 60,6 mio. EUR (1999 exchange rate).[3]

It can be concluded that continued process of foreign trade liberalization will cause substantial reduction of budget revenues based on import duties. Remained revenues based on import duties will represent 25% of import duties collected on the imports from 'The rest of the World' countries. In the year 1998 budget revenues from import duties amounted to almost 48 bill. SIT (1999 prices), and in the year 2001 represented only a half of the 1998 amount (23,2 bill. SIT). With the entrance into the EU we will loose additional 9,5 bill. SIT because of the complete liberalization of imports from the EU and 'Laeken' group countries, and also additional 10,2 bill. SIT transferred into the EU budget. Only 3,4 bill. SIT will be left for covering the costs of collection of import duties.

The estimates we arrived to, using as real assumptions and data as possible, are significantly higher from the first and also the last EU estimates where they used revised volume of Slovenian GNP (28-29 mil. EUR per year). Both EU estimates are using some very simplifying assumptions – the same share of import duties in the GNP as is the average share for the EU countries, the same average rate of collected import duties as was the average rate of import duties for the imports from 'The rest of the World' countries in the year 2001, further decrease in this average rate because of the future new preferential agreements is fully compensated with the future growth of imports (all candidate countries have the same import structure and the same rate of growth), there is no trade creation/diversion effect.

On the other hand we based our estimations on the 8-digit CN levels taking into the account our import structure from 'The rest of the World' countries, using the share of collected/official rates of import duties for two groups of products (agriculture and other products). We further estimated also the possible trade creation/diversion effects using the general equilibrium model of Slovenian economy. The possible mistake because of the assumed unchanged rates of import duties depends on the importance of the future preferential agreements of the EU with third countries for the Slovenian imports. We do

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[2]   *For complete presentation of the estimation of traditional own resources Slovenia will have to pay to the EU budget see Majcen (2002).*

[3]   *Assumption that Croatia and FYR of Macedonia completely take the advantages of the signed Stabilization and Association Agreement (SAA) with the EU, would decrease the estimated traditional own resources payments to 8,2 - 9,8 bill. SIT or 44,3- 50,7 mio. EUR. In reality Croatian exporters could take the advantage of preferential treatment for the minor part of their exports to the EU. It can be thus concluded that the estimated value would be closer to the higher numbers in the Table 4 that did not take into account SAA.*

believe that, taking all considerations into account, real TOR for the period 2004-2006 will be much closer to our estimates than to the EU ones.

It can be concluded that all direct effects of continued process of foreign trade liberalization have not been taken into account when the net budget position of Slovenian budget has been calculated. On one hand Slovenian budget revenues will decrease for additional 41.5 – 65.7 mil. EUR in 1999 prices and on the other hand we will not pay only 29 mil. EUR of traditional own resources into the EU budget each year, but from 52.9 to 60.9 mil. EUR (see Table 3).

Table 3: Corrections of the Slovenian net budget position due to the complete liberalization of foreign trade with EU and candidate countries and adoption of EU Common External Tariff (mill. EUR, 1999 prices)

Correction	2004	2005	2006
1. Budget revenues	-41.5*	-63.6	-65.7
2. Transfers to EU budget	-15.9*	-18.5	-21.3
3. Total	-57.4*	-82.1	-87.0

* Only for the eight months period due to the date of
  accession of 1.5. 2004
Source: Majcen (2002), own calculations

3.2. Transfers between Slovenian and EU budget

Considering the negotiation process, which has been concluded on 13. of December 2002 in Copenhagen, it has to be stated that the real levels of transfers from both sides are not so obvious as it may one believe. Namely, there are many different factors that will influence the final outcome in reality: a) real growth rates of production and imports after the inclusion of Slovenia into the EU, b) inflation rates, c) exchange rate changes, and d) absorption capacity of Slovenian economy.

On the other hand we should take into the account also some additional "costs" – Slovenia will have to pay to different EU institutions and funds and it will loose significant amount of VAT because of decreased efficiency of gathering the tax. One should also take into account additional budget sources that will be used to compensate the difference to complete volume of direct payments, as well as the additional costs of establishing the external Schengen border.

It is obvious that when speaking about the Slovenian net budgetary position after the accession we should distinguish two "positions". The first one, which is strictly considering only the flows between the two budgets (see table 4). And the second one, which takes into the account also additional changes in Slovenian budget due to the accession. Considering both figures, we can arrive to the estimate of direct impact of transfers on Slovenian budget. Of course, we should also have in mind that the accession into the EU (with increased market, lowered costs and increased competition) will have also favorable positive effects on Slovenian economy. Final, direct and indirect, effects will be estimated with the use of the CGE model.

TABLE 4: ESTIMATED NET BUDGETARY POSITION AFTER ENLARGEMENT - SLOVENIA

The calculations are based on revised GDP; 1999 prices, € millions, SIT billions: Planned date of accession: 1 May 2004

	2004				2005				2006			
	EUR	SIT	% GDP	%GNI	EUR	SIT	% GDP	%GNI	EUR	SIT	% GDP	%GNI
Pre-accession aid	51.0	9.9	0.22	0.22	43.0	8.3	0.17	0.17	27.0	5.2	0.10	0.10
1. Agriculture.	43.4	8.4	0.18	0.18	124.6	24.1	0.50	0.51	158.2	30.6	0.61	0.61
1a - Common Agricultural Policy	14.9	2.9	0.06	0.06	65.2	12.6	0.26	0.27	71.6	13.9	0.28	0.28
Market measures	14.9	2.9	0.06	0.06	38.3	7.4	0.15	0.16	38.8	7.5	0.15	0.15
Direct payments	0.0	0.0			26.8	5.2	0.11	0.11	32.8	6.4	0.13	0.13
1b - Rural development	28.5	5.5	0.12	0.12	59.4	11.5	0.24	0.24	86.6	16.8	0.33	0.34
2. Structural actions after capping	27.0	5.2	0.11	0.11	59.2	11.5	0.24	0.24	72.8	14.1	0.28	0.28
Structural Fund	25.9	5.0	0.11	0.11	45.9	8.9	0.19	0.19	48.9	9.5	0.19	0.19
Cohesion Fund	1.2	0.2	0.01	0.01	13.3	2.6	0.05	0.05	23.9	4.6	0.09	0.09
3. Internal Policies	49.7	9.6	0.21	0.21	59	11.4	0.24	0.24	66.3	12.8	0.26	0.26
Existing policies	12.1	2.3	0.05	0.05	20.9	4.0	0.08	0.09	28.2	5.5	0.11	0.11
Institution building	2.0	0.4	0.01	0.01	2.5	0.5	0.01	0.01	2.5	0.5	0.01	0.01
Schengen	35.6	6.9	0.15	0.15	35.6	6.9	0.14	0.14	35.6	6.9	0.14	0.14
Sub-total (1 + 2 + 3)	120.1	23.3	0.51	0.51	242.9	47.0	0.98	0.99	297.3	57.6	1.15	1.15
Cash flow lump-sum	65.0	12.6	0.27	0.28	18.0	3.5			18.0	3.5		
Total allocated expenditure	**236.1**	**45.7**	**1.00**	**1.00**	**303.8**	**58.8**	**1.23**	**1.24**	**342.3**	**66.3**	**1.32**	**1.33**
Traditional own resources	18.0	3.5	0.08	0.08	29.0	5.6	0.12	0.12	29.0	5.6	0.11	0.11
VAT resource	22.0	4.3	0.09	0.09	35.0	6.8	0.14	0.14	36.0	7.0	0.14	0.14
GNP resource	129.0	25.0	0.55	0.55	198.0	38.3	0.80	0.81	203.0	39.3	0.78	0.79
UK rebate	17.0	3.3	0.07	0.07	27.0	5.2	0.11	0.11	28.0	5.4	0.11	0.11
Total own resources	**186**	**36.0**	**0.79**	**0.79**	**289.0**	**56.0**	**1.17**	**1.18**	**296.0**	**57.3**	**1.14**	**1.15**
Net balance before budgetary compensation	50.1	9.7	0.21	0.21	14.8	2.9			46.3	9.0	0.18	0.18
Budgetary compensation	30.0	5.8	0.13	0.13	66.0	12.8	0.27	0.27	36.0	7.0	0.14	0.14
Net balance after budgetary compensation	**80.1**	**15.5**	**0.34**	**0.34**	**80.8**	**15.6**	**0.33**	**0.33**	**82.3**	**15.9**	**0.32**	**0.32**

Data sources: The final negotiation results - Copenhagen, December 2002; Institute of Macroeconomic Analysis and Development (IMAD) and

   Statistical Office of the Republic of Slovenia (SORS); calculations by Ministry of Finance, Budget Department, December 2002

Regarding the flows between two budgets it could be concluded that at the end of negotiations Slovenia succeeded to improve its positive net budgetary position from the one in the year 2003 (45 mill. EUR) to the 81 mill. EUR for each year of the period 2004-2006 (see Table 6). With the added lump-sum cash flow and budgetary compensations Slovenian net budgetary position would be positive one arising to 0.32-0.34% of GDP. This outcome has been realized due to the finally accepted corrections of the future GDP growth rates and revised volumes of GDP. Such a result certainly gives us some additional space in the (very possible) situation of lower absorption capacity than assumed of the resources from structural funds and rural development. We should also be aware of the fact that EU did not accept our estimations of traditional own resources Slovenia will have to pay to EU budget. With the revenues lost due to the complete liberalization of foreign trade with the EU and other accession countries (see Table 3), quite favorable positive net budgetary position disappears!

Adding already stated other additional costs and decreased budget revenues, we arrive to the total direct impact of accession on the Slovenian budget position (Table 5). The figures were calculated in current prices using assumed 2% annual increase from the year 1999 on. The final outcome will be probably even less favorable if we take into account the fact that exchange rates are not following completely the inflation rates in Slovenia.

It can be concluded that estimated total direct impact of the Slovenian accession on its net budget position will be clearly a negative one. Slovenian budget deficit will increase by 155 millions of EUR in the first year of accession (if we take into account also one month of postponement of VAT payments, the result for the year 2004 would be even lees favorable) and will amount to 0.6% of GDP. The greatest increase of deficit is expected in the second year after the accession (0.77%).

Of course we should have in mind that all these estimates are only partial ones, without taking into account also the reactions of economic agents as well as the government. Further trade liberalization, increased domestic market and also competition, lowered collected VAT and also lowered transaction costs, will generate changes in domestic production, trade, employment, investment and consumption. What will be the final outcome is hard to conclude without an appropriate tool. In the next section we will thus try to prepare some simulations of possible complex effects of changes in Slovenian budgetary position after the accession into the EU using a static computable general equilibrium model of Slovenian economy.

Table 5: Estimated budget deficit of the Republic of Slovenia after the accession to EU (% of GDP)

(mil. Of EUR or bill. Of SIT in current prices)

	2004	2005	2006	2004	2005	2006
	mill. EUR			bill. SIT		
Expected budget revenues	5,634	5,844	6,088	1,500	1,622	1,752
Expected budget expenditures	5,852	6,023	6,199	1,559	1,671	1,784
Expected budget deficit	-219	-178	-112	-58	-49	-32
Expected budget deficit without the EU accession effect (%GDP)	*-0.97*	*-0.75*	*-0.45*	*-0.97*	*-0.75*	*-0.45*
1. Expected transfers from the EU budget	294	417	435	68.4	97.0	101.1
2. Expected transfers from the Slovenian budget	205	324	340	47.8	75.8	79.2
3. Expected additional change of the budgetary position after the accession (S (3a...3f))	243	309	303	57	72	71
3a Expected decreased amount of collected VAT 0.5% of GDP)	83	133	142	19.4	31.1	33.2
3b Obligations towards EU institutions	7	12	21	1.5	2.9	4.8
3c Expected decrease of revenues from import duties	46	72	75	10.7	16.7	17.6
3d "Top up" payments of direct payments	23	19	14	5.2	4.3	3.3
3e Schengen border	67	52	26	15.6	12.0	6.0
3f Estimated additional transfers of collected import duties	18	21	24	4.1	4.9	5.7
4. Increase of budget deficit due to EU accession (1-2-3)	-155	-216	-209	-36	-51	-49
Increase of budget deficit due to EU accession (% of GDP)	*-0.60*	*-0.77*	*-0.68*	*-0.60*	*-0.77*	*-0.68*
Total estimated budget deficit	-373	-395	-320	-94	-100	-81
Total estimated budget deficit (% of GDP)	*-1.56*	*-1.52*	*-1.13*	*-1.56*	*-1.52*	*-1.13*

Sources: Final results of negotiations - Copenhagen, December 2002 and Ministry of Finance; calculations made by the budget department and own calculations

3.3. Agreed priorities within the SPD

Assumptions on the year by year timing of planned expenditure are as shown in Table 6 where EU funds (with the sources for Interreg and Equal actions excluded) are split down accordingly to the agreed priorities within the SPD. It should be stressed out that the amounts of resources is quite low and accounts to 0.10-0.17% of GDP. Accordingly to the ex ante verification of additionality for Objective 1 national public co-financing will add on average 36% of additional resources. Regarding the amount of the resources we should expect a rather small macroeconomic impact.

As the aim of the exercise was to estimate macroeconomic impact of the SPD which is only a minor part of the transfers from the EU, we took the following steps. Firstly, we prepared data regarding the actual payments within the SPD with the national public co-financing added for the period 2004-2006. In the next step we split the resources as additional subsidies or investments to various sectors of CGE model accordingly to the prepared measures within each of the three priorities. For the splitting we used all the available information at the moment of preparation. With the modified version of the model the total amount of investments consists of two elements – the endogenously determined investment (which has less resources on disposal because of decreased government savings) and exogenously determined investments coming from the FUND accordingly to the national priorities within the SPD and National Development Plan (NDP). The model is therefore able to capture the realocation of governemnt budget for different uses compared to the initial/without transfers situation.

Secondly, we did the same for all other transfers coming from the EU and added also some additional transfers from the Slovenian budget going to the other EU institutions as well as additional payments for co-financing Schengen border and direct payments to farmers.

Thirdly, we prepared balance sheet for the new institution FUND with the resources from the SPD added (SIM1) or excluded (SIM2) in order to capture the complex macroeconomic and sector effects of the Slovenian accession into the EU, taking into the account further foreign trade liberalisation due to the adoption of the EU Common Customs Tariff and the transfers between both budgets, as well as the impact of the transfers from the SPD (see Table 7).

TABLE 6: STRUCTURAL ACTIVITIES in the period 2004-2006 (mil. EUR, bill. SIT, % of GDP) 99 constant prices

	EU FUND	%	EUR				SIT			
			2004	2005	2006	TOTAL	2004	2005	2006	TOTAL
STRUCTURAL FUND		**100**	**23.0**	**40.8**	**43.5**	**107.4**	**4.449**	**7.919**	**8.453**	**20.822**
			0.10%	0.17%	0.17%		0.10%	0.17%	0.17%	
I. PRIORITY	ERDF	37	8.5	15.1	16.1	39.7	1.646	2.930	3.128	7.704
	EAGGF	10	2.3	4.1	4.4	10.7	0.445	0.792	0.845	2.082
II. PRIORITY	ESF	33	7.6	13.5	14.4	35.4	1.468	2.613	2.790	6.871
III. PRIORITY	ERDF	20	4.6	8.2	8.7	21.5	0.890	1.584	1.691	4.164

Promoting the productive sector environment	Measures	%	EUR				SIT			
			2004	2005	2006	TOTAL	2004	2005	2006	TOTAL
I. PRIORITY		**100**	**10.8**	**19.2**	**20.5**	**50.5**	**2.1**	**3.7**	**4.0**	**9.8**
ERDF	1.Innovative Environment	38	3.2	5.7	6.1	15.1	0.626	1.113	1.189	2.928
	2.Dev. Of tourist destin.	42	3.6	6.3	6.8	16.7	0.691	1.231	1.314	3.236
	3. Improv. Ent.supp.env.	20	1.7	3.0	3.2	7.9	0.329	0.586	0.626	1.541
	Total		**8.5**	**15.1**	**16.1**	**39.7**	**1.646**	**2.930**	**3.128**	**7.704**
EAGGF	1. Invest. In agric. Economy	40	0.9	1.6	1.7	4.3	0.178	0.317	0.338	0.833
	2. Improv. Prod,and marketing	40	0.9	1.6	1.7	4.3	0.178	0.317	0.338	0.833
	3. Alternative sources of incom	15	0.3	0.6	0.7	1.6	0.067	0.119	0.127	0.312
	4. Market.quality agr.prod.	5	0.1	0.2	0.2	0.5	0.022	0.040	0.042	0.104
	Total		**2.3**	**4.1**	**4.4**	**10.7**	**0.445**	**0.792**	**0.845**	**2.082**

Knowledge, human res. Develop. And employm.	Measures	%	EUR				SIT			
			2004	2005	2006	TOTAL	2004	2005	2006	TOTAL
II. PRIORITY		**100**	**7.6**	**13.5**	**14.4**	**35.4**	**1.468**	**2.613**	**2.790**	**6.871**
ESF	1. Dev.and prom. Active m.pol	50	3.8	6.7	7.2	17.7	0.734	1.307	1.395	3.436
	2. Facil.social inclusion	10	0.8	1.3	1.4	3.5	0.147	0.261	0.279	0.687
	3. Lifelong learning and creat.	25	1.9	3.4	3.6	8.9	0.367	0.653	0.697	1.718
	4. Enterprise and adaptability	15	1.1	2.0	2.2	5.3	0.220	0.392	0.418	1.031
	Total		**7.6**	**13.5**	**14.4**	**35.4**	**1.468**	**2.613**	**2.790**	**6.871**

Economic infrastructure	Measures	%	EUR				SIT			
			2004	2005	2006	TOTAL	2004	2005	2006	TOTAL
III. PRIORITY		**100**	**4.6**	**8.2**	**8.7**	**21.5**	**0.890**	**1.584**	**1.691**	**4.164**
ERDF	1. Dev.business and ind.zones	100	4.6	8.2	8.7	21.5	0.890	1.584	1.691	4.164

TABLE 7: Balance sheet of the new institution FUND (in bill. SIT, 99 prices)

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	2004	2005	2006
1. SLO BUDGET	36.0	56.0	57.3
Additional payments for:			
aa1) Direct payments from SLO	5.200	4.300	3.300
bf1) Schengen (sec 15)	15.600	12.000	6.000
bc1) Cohesion fund(co-financing)	0.030	0.390	0.690
ba1) Rural develop.(co-financing)	5.500	11.500	16.800
ad1) SPD (co-financing)	0.555	0.989	1.056
bi1) SPD (co-financing)	1.047	1.864	1.990
	27.933	31.043	29.836
Additional transfers to EU:			
obligations to EU inst.	1.500	2.900	4.800
2. EU BUDGET	51.5	71.6	73.4
Total	116.9	161.5	165.3

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	CGE model	2004	2005	2006
aa) Subsidies to agriculture	1	1.450	8.900	10.150
aa1) Direct payments from SLO	1	5.200	4.300	3.300
ab) Subsidies to food industry	3	1.450	3.700	3.750
ac) Equal	15	0.118	0.209	0.223
af) Internal policies (sec 14)	14	2.700	4.500	6.000
ad) SPD (subsidies EU)				
	1	0.022	0.040	0.042
	3	0.000	0.000	0.000
	4	0.055	0.097	0.104
	5	0.043	0.077	0.082
	6	0.034	0.061	0.065
	7	0.045	0.081	0.086
	8	0.024	0.043	0.046
	9	0.029	0.051	0.054
	10	0.000	0.000	0.000
	12	0.000	0.000	0.000
	13	0.000	0.000	0.000
	14	0.466	0.829	0.885
	15	0.881	1.568	1.674
ad1) SPD (co-financing)				
	1	0.007	0.013	0.014
	3	0.000	0.000	0.000
	4	0.023	0.041	0.044
	5	0.018	0.033	0.035
	6	0.014	0.026	0.028
	7	0.019	0.034	0.037
	8	0.010	0.018	0.020
	9	0.012	0.022	0.023
	10	0.000	0.000	0.000
	12	0.000	0.000	0.000
	13	0.000	0.000	0.000
	14	0.155	0.275	0.294
	15	0.296	0.526	0.562
ba) Rural development	1	5.500	11.500	16.800
ba1) Co-financing	1	5.500	11.500	16.800
bb) Investment in food industry	3	0.000	0.000	0.000
bc) cohesion funds:				
- transport	12	0.100	1.300	2.300
- Environment& water	10	0.100	1.300	2.300
bc1)cohesion funds (co-financing)				
- transport	12	0.015	0.195	0.345
- Environment& water	10	0.015	0.195	0.345
bf) Schengen (sec 15)	15	6.900	6.900	6.900
bf1) Schengen SLO	15	15.600	12.000	6.000
bg) Preaccession (sec 14)				
ISPA	12	1.360	2.464	2.106
ISPA	10	1.360	2.464	2.106
SAPPARD	1	0.992	1.521	0.000
PHARE	14	1.238	0.370	0.198
PHARE	15	4.951	1.481	0.791
bh) Interreg				
Text sec. 4	4	0.021	0.037	0.039
Chem sec. 5	5	0.016	0.029	0.031
Metal sec. 6	6	0.013	0.023	0.024
Mach sec. 7	7	0.017	0.030	0.032
Motorv sec 8	8	0.009	0.016	0.017
Othman sec9	9	0.011	0.019	0.020
Pserv sec 15	15	0.347	0.617	0.659

TABLE 3: Balance sheet of the new institution FUND (in bill. SIT, 99 prices) <u>continued</u>

+				_			2004	2005	2006
	2004	2005	2006		CGE model				
				bi) SPD (EU funds)					
					1		0.245	0.436	0.465
					3		0.178	0.317	0.338
					4		0.229	0.408	0.436
					5		0.182	0.324	0.346
					6		0.143	0.254	0.271
					7		0.191	0.339	0.362
					8		0.102	0.182	0.194
					9		0.120	0.214	0.228
					10		0.134	0.238	0.254
					12		0.134	0.238	0.254
					13		0.063	0.111	0.119
					14		1.130	2.013	2.148
					15		0.000	0.000	0.000
				bi1) SPD (co-financing)					
					1		0.082	0.145	0.155
					3		0.059	0.106	0.113
					4		0.095	0.169	0.180
					5		0.075	0.134	0.143
					6		0.059	0.105	0.112
					7		0.079	0.140	0.150
					8		0.042	0.075	0.080
					9		0.050	0.088	0.094
					10		0.061	0.108	0.115
					12		0.061	0.108	0.115
					13		0.025	0.045	0.048
					14		0.360	0.642	0.685
					15		0.000	0.000	0.000
				c) Transfers to the SLO budget			18.400	16.300	10.500
				d) Transfer to the EU budget			37.500	58.900	62.100
							116.933	161.544	165.337
				Balance			0.000	0.000	0.000

+				_			2004	2005	2006
	2004	2005	2006						
1. SLO BUDGET	47.0	73.6	81.4	**a) subsidies**					
				Agr	1		6.679	13.253	13.506
2. EU budget	14.0	12.7	11.3	Food	3		1.450	3.700	3.750
				text	4		0.078	0.139	0.148
				Chem	5		0.062	0.110	0.118
				Metal	6		0.048	0.086	0.092
				Mach	7		0.065	0.115	0.123
				Motorv	8		0.035	0.062	0.066
				Othman	9		0.041	0.073	0.078
				Elec	10		0.000	0.000	0.000
				transp	12		0.000	0.000	0.000
				Comm	13		0.000	0.000	0.000
				Otherserv	14		3.320	5.604	7.179
				Pubserv	15		1.294	2.303	2.459
				c) Investments					
				Agr	1		12.318	25.103	34.220
				Food	3		0.237	0.423	0.451
				text	4		0.345	0.613	0.655
				Chem	5		0.274	0.487	0.520
				Metal	6		0.215	0.382	0.408
				Mach	7		0.286	0.509	0.544
				Motorv	8		0.154	0.273	0.292
				Othman	9		0.181	0.321	0.343
				Elec	10		1.669	4.305	5.120
				transp	12		1.669	4.305	5.120
				Comm	13		0.088	0.156	0.166
				Otherserv	14		2.728	3.025	3.031
				Pubserv	15		27.797	20.998	14.349
	61.033	86.344	92.737				61.033	86.344	92.737
				Balance			0.00	0.00	0.00

4. POLICY SIMULATIONS

Two policy simulations have been carried with SloMod. However, before running the policy simulations, a new baseline has been generated by applying the tariff reduction as from 2001 compensated by change in government savings. The tariff rates introduced in 2001 to generate the new baseline scenario were:

Table 8: Slovenian tariffs on imports from (in %)

	EU15		EU Candidates		ROW	
	1997	2001	1997	2001	1997	2001
Agriculture	7.229	4.593	2.657	1.963	1.170	1.530
Mining	1.735	0.027	0.150	0.024	2.564	0.394
Food	9.383	8.119	9.169	7.357	7.206	4.795
Textile and clothing	2.482	0.127	0.997	0.218	5.392	4.098
Chemical products	2.390	0.158	0.600	0.054	3.303	1.318
Metals	2.376	0.117	0.273	0.069	3.630	1.667
Machinery	2.806	0.224	1.260	0.418	4.703	2.404
Motor	7.056	0.148	1.115	0.165	21.232	10.248
Other manufacturing	2.803	0.169	0.954	0.499	8.059	4.536
Electricity	1.386	0.000	0.000	0.000	1.386	0.000

Exercise 1 simulates the dynamic impacts of EU membership where all tariffs on imports from the EU15 and from the other candidate countries are removed. The external tariffs of Slovenia are aligned on the EU Common External Tariff rates (see table 2). In addition to the changes in the tariff rates, the Fund receives transfers from the government and transfers (including Structural funds) from the EU and pays subsidies and provides investment funds to several sectors and invests in infrastructure.

In order to isolate the effects of the structural and cohesion funds, we run Simulation 2 where we do not include the Structural Fund from the EU.

4.1. Results

The simulation results are provided in the Tables 9-16. All the results are presented in percentage change with respect to the new baseline. The major difference between the two scenarios is related to the SPD. The following tables show that most of the macroeconomic and sectoral results are very close, but indeed agreed use of the structural funds do generate a positive effect at the macroeconomic level.

The results show (Table 9) that EU membership will have a positive impact on the overall economic activity as the real GDP would be above the baseline level from 0.47-0.82 percent. Additional allocation of funds coming from SPD do generate some additional growth of GDP, but the change is quite small, but indeed expected one comparing with the amount of founds distributed through SPD.

Real household income and savings would increase from 1-1.7% with the even larger increase of firms' savings. We should stress that again the positive effects in the scenario 1 (with Structural Funds) are higher than those in scenario 2 (without the Structural Funds). Furthermore, the results show that the Structural Funds do make an important difference for some variables such as investment, foreign trade and public sector deficit. We observe that total real investment would increase by 1.5% in 2004 in scenario 1 whereas it would only increase by 1% in scenario 2. However, the model shows that as from 2005 there would be a

significant difference between the two scenarios. In scenario 1 total real investment would continue to be above the baseline (1.2% in 2005 and 1.4% in 2006), whereas in scenario 2, the real investment would increase by 0.3% in 2005 and by 0.4% in 2006 with respect to the baseline levels. The main difference in investment dynamics stems from government deficit. The increasing public deficit in scenario 2 would crowd-out private investment.

Table 9: Macroeconomic impacts (in % changes from the baseline)

	Simulation 1			Simulation 2		
	2004	2005	2006	2004	2005	2006
Gross domestic product	0.47	0.65	0.82	0.45	0.62	0.77
Household income (% change)	1.01	1.44	1.66	0.97	1.36	1.57
National savings	1.51	1.23	1.39	0.97	0.28	0.36
Unemployment rate	-3.92	-1.86	-1.37	-3.76	-1.71	-1.31
Unemployment rate (skilled)	-6.13	-2.86	-2.08	-5.86	-2.61	-1.98
Unemployment rate (unskilled)	-1.71	-0.91	-0.72	-1.66	-0.86	-0.69
Labor supply (skilled)	0.09	0.13	0.16	0.09	0.12	0.15
Labor supply (unskilled)	0.09	0.13	0.16	0.09	0.12	0.15
Total labor supply	0.09	0.13	0.16	0.09	0.12	0.15
Households' savings	1.01	1.44	1.66	0.97	1.36	1.57
Government deficit	56.20	78.93	82.03	56.39	79.36	82.70
Government deficit (funds)	39.64	64.24	69.26	45.09	73.83	79.48
Firms savings	1.63	2.32	2.32	1.58	2.22	2.20
Exchange rate	0.44	0.70	0.91	0.46	0.73	0.95
Government tax revenues	0.19	0.68	1.02	0.14	0.58	0.90
Wage of skilled labor	0.87	1.26	1.54	0.83	1.18	1.45
Wage of unskilled labor	0.23	0.35	0.44	0.22	0.33	0.42
Total exports	0.33	0.43	0.57	0.43	0.60	0.73
Total imports	0.96	0.99	1.05	0.86	0.81	0.84
Total investment	1.51	1.23	1.39	0.97	0.28	0.36

Source: simulations with the dynamic CGE model

Increased government deficit is the outcome of decreased earnings from the import duties as well as transfers to the EU budget and other EU institutions, and additional financing of the projects. With the correction for the particular part of transfers from the Slovenian budget to the new institution FUND (prepared to capture the restructuring of Slovenian budget) which in fact only change the structure of use of the budget (co-financing Cohesion and structural funds and rural development) and thus do not increase the deficit in reality, we arrive to the correct figure of government deficit (see variable Government deficit (funds) in the Table 9).

One, quite important outcome can be seen from the changes in the foreign trade. It can be concluded that, with the assumptions used regarding the sectoral allocation of structural funds (based on the three priorities), the increase in exports will be lower and increase of imports higher compared to the Scenario 2. Possible explanations for such outcome could be find the allocation of funds to the sectors with lower export orientation as well as in the fact that it was not possible to simulate all possible effects of particular measures within the agree priorities

Finally, we can observe that there is also a positive impact on the unemployment rate, which would decline in both scenarios. Higher decline can be observed for skilled labor as well as for the Scenario 1 with the structural funds included – once again, the differences between both scenarios exist but are quite low.

Table 10 shows that sectoral production would follow quite similar patterns for most sectors in both scenarios in 2004 given that for this year the shocks provided to the model are close in both scenarios. In any case it can also be seen that greatest increases can be find in agriculture, food industry, motor industry, construction and other services. Motor vehicles industry is quite specific sector with very high export share and thus very sensitive to changes in prices (further trade liberalization). Agriculture do show a positive reaction despite the abolishment of protection and increased foreign competition – we can expect that this is the outcome of substantial resources that will be allocated to this sector in the form of subsidies or investments. However, as from 2005 the impacts in the two scenarios are quite different for some sectors. Production declines much more in the construction sector in scenario 2 as well as the labor demand. Given that in the scenario 2, fewer resources are used for infrastructure investments, more is available for the private sector. This is why we observe a stronger expansion (or lower decrease) of output and employment for several sectors in scenario 2 such as textile and clothing, chemical products, metals, machinery, motor vehicles.

Table 10: Production (in % changes from the baseline)

	Simulation 1			Simulation 2		
	2004	2005	2006	2004	2005	2006
Agriculture	0.42	1.71	3.09	0.43	1.69	3.04
Mining	0.09	0.03	-0.01	0.13	0.10	0.06
Food	1.02	1.95	2.51	1.01	1.92	2.46
Textile and clothing	0.12	0.66	1.42	0.24	0.85	1.60
Chemical products	-0.18	-0.25	-0.26	-0.13	-0.18	-0.21
Metals	-0.16	-0.36	-0.48	-0.12	-0.31	-0.46
Machinery	-0.19	-0.44	-0.61	-0.12	-0.33	-0.52
Motor	2.32	2.37	2.22	2.53	2.75	2.63
Other manufacturing	-0.24	-0.41	-0.48	-0.25	-0.45	-0.56
Electricity	0.24	0.38	0.52	0.27	0.42	0.55
Construction	0.72	0.30	0.20	0.34	-0.37	-0.52
Transportation	0.09	0.11	0.21	0.14	0.19	0.28
Communications	0.25	0.33	0.40	0.26	0.34	0.39
Other services	0.54	0.70	0.79	0.55	0.72	0.80
Public services	0.20	0.38	0.43	0.01	0.06	0.09

Source: simulations with the dynamic CGE model

Private consumption follows very similar patterns in both scenarios. But, the expansion of consumption in scenario 1 with SPD included is stronger given that the increase in real income is higher in this scenario.

Table 11: Labor demand (in % changes from the baseline)

	Simulation 1			Simulation 2		
	2004	2005	2006	2004	2005	2006
Agriculture	1.89	3.47	3.28	1.86	3.43	3.24
Mining	0.14	0.12	0.14	0.17	0.19	0.21
Food	1.58	3.04	3.94	1.54	2.97	3.86
Textile and clothing	0.16	0.87	1.84	0.29	1.09	2.06
Chemical products	-0.29	-0.26	-0.16	-0.23	-0.16	-0.07
Metals	-0.23	-0.42	-0.53	-0.19	-0.37	-0.48
Machinery	-0.27	-0.53	-0.70	-0.18	-0.39	-0.57
Motor	2.53	2.59	2.45	2.76	2.99	2.88
Other manufacturing	-0.37	-0.52	-0.54	-0.41	-0.60	-0.64
Electricity	0.50	0.83	1.05	0.53	0.88	1.08
Construction	1.25	0.61	0.63	0.58	-0.53	-0.58
Transportation	0.17	0.33	0.52	0.24	0.44	0.62
Communications	0.68	1.15	1.58	0.67	1.12	1.54
Other services	0.87	1.20	1.44	0.87	1.20	1.44
Public services	0.22	0.30	0.27	0.01	-0.06	-0.10

Source: simulations with the dynamic CGE model

Table 12: Private consumption (in % changes from the baseline)

	Simulation 1			Simulation 2		
	2004	2005	2006	2004	2005	2006
Agriculture	0.51	0.95	1.40	0.50	0.92	1.36
Mining	0.77	1.11	1.26	0.73	1.03	1.17
Food	1.76	2.50	2.90	1.73	2.44	2.81
Textile and clothing	0.89	1.25	1.43	0.85	1.17	1.34
Chemical products	0.75	1.09	1.24	0.71	1.00	1.14
Metals	0.79	1.13	1.29	0.75	1.05	1.19
Machinery	1.00	1.35	1.51	0.95	1.26	1.41
Motor	1.00	1.37	1.53	0.96	1.28	1.43
Other manufacturing	0.90	1.24	1.39	0.87	1.17	1.31
Electricity	0.73	1.03	1.17	0.69	0.96	1.09
Construction	0.73	1.09	1.23	0.73	1.08	1.21
Transportation	0.89	1.26	1.43	0.85	1.18	1.34
Communications	0.79	1.08	1.17	0.76	1.02	1.10
Other services	0.92	1.32	1.51	0.87	1.24	1.40

Source: simulations with the dynamic CGE model

Table 13: Exports (in % changes from the baseline)

	Simulation 1			Simulation 2		
	2004	2005	2006	2004	2005	2006
Agriculture	0.80	3.69	7.20	0.86	3.74	7.19
Mining	-0.31	-0.54	-0.73	-0.22	-0.37	-0.54
Food	1.28	2.55	3.32	1.28	2.53	3.28
Textile and clothing	0.12	0.71	1.57	0.27	0.96	1.80
Chemical products	-0.39	-0.51	-0.56	-0.33	-0.42	-0.49
Metals	-0.36	-0.59	-0.74	-0.29	-0.50	-0.67
Machinery	-0.21	-0.45	-0.63	-0.12	-0.32	-0.51
Motor	2.38	2.43	2.27	2.61	2.85	2.72
Other manufacturing	-0.34	-0.54	-0.64	-0.30	-0.51	-0.65
Electricity	-0.26	-0.32	-0.25	-0.17	-0.18	-0.11
Construction	0.19	-0.12	-0.31	0.08	-0.34	-0.56
Transportation	-0.27	-0.38	-0.36	-0.16	-0.19	-0.17
Communications	-0.64	-1.11	-1.52	-0.51	-0.89	-1.30
Other services	0.33	0.51	0.60	0.38	0.59	0.68
Public services	0.61	1.45	1.62	-0.19	0.06	0.19

Source: simulations with the dynamic CGE model

Regarding the foreign trade there would be an increase in the imports after 2004. Different pattern of changes could be to a great part assigned to the complete abolishment of import duties imports from the EU15 and candidate countries as well as to the adoption of EU External customs tariff for the imports from the other countries.

Table 14: Imports from EU15 (in % changes from the baseline)

	Simulation 1			Simulation 2		
	2004	2005	2006	2004	2005	2006
Agriculture	3.63	3.09	2.11	3.58	3.01	2.03
Mining	0.73	0.90	1.08	0.69	0.83	0.98
Food	2.98	3.35	3.57	2.94	3.28	3.48
Textile and clothing	0.36	0.61	0.85	0.34	0.57	0.79
Chemical products	1.06	1.21	1.36	1.06	1.20	1.33
Metals	0.81	0.73	0.70	0.73	0.59	0.55
Machinery	0.69	0.41	0.38	0.38	-0.15	-0.23
Motor	1.38	1.38	1.39	1.29	1.22	1.21
Other manufacturing	0.47	0.41	0.48	0.28	0.08	0.11
Electricity	0.87	1.24	1.48	0.83	1.16	1.37
Construction	1.29	0.74	0.75	0.63	-0.40	-0.47
Transportation	0.74	1.01	1.26	0.69	0.89	1.12
Communications	1.26	1.98	2.61	1.13	1.75	2.33
Other services	0.78	0.91	1.01	0.75	0.86	0.94
Public services	-0.22	-0.69	-0.77	0.22	0.07	0.00

Source: simulations with the dynamic CGE model

Table 15: Imports from the EU candidate countries (in % changes from the baseline)

	Simulation 1			Simulation 2		
	2004	2005	2006	2004	2005	2006
Agriculture	1.54	1.01	0.05	1.49	0.93	-0.03
Mining	0.72	0.90	1.07	0.68	0.82	0.97
Food	2.76	3.13	3.35	2.72	3.06	3.26
Textile and clothing	0.54	0.80	1.04	0.52	0.75	0.97
Chemical products	0.85	1.00	1.14	0.85	0.99	1.12
Metals	0.71	0.63	0.61	0.64	0.50	0.45
Machinery	1.08	0.80	0.77	0.76	0.23	0.16
Motor	1.38	1.39	1.39	1.29	1.23	1.21
Other manufacturing	1.13	1.08	1.14	0.94	0.74	0.77
Electricity	0.74	1.01	1.26	0.69	0.89	1.12
Construction	1.26	1.98	2.61	1.13	1.75	2.33
Transportation	0.78	0.91	1.01	0.75	0.86	0.94
Communications	-0.22	-0.69	-0.77	0.22	0.07	0.00
Other services	1.54	1.01	0.05	1.49	0.93	-0.03
Public services	0.72	0.90	1.07	0.68	0.82	0.97

Source: simulations with the dynamic CGE model

Table 16: Imports from the rest of the world (in % changes from the baseline)

	Simulation 1			Simulation 2		
	2004	2005	2006	2004	2005	2006
Agriculture	0.11	-0.42	-1.37	0.05	-0.50	-1.45
Mining	0.22	0.40	0.58	0.19	0.33	0.48
Food	1.67	2.03	2.25	1.63	1.96	2.17
Textile and clothing	1.62	1.88	2.12	1.60	1.83	2.06
Chemical products	-2.26	-2.12	-1.97	-2.26	-2.12	-2.00
Metals	-1.09	-1.16	-1.19	-1.16	-1.30	-1.34
Machinery	2.58	2.28	2.25	2.25	1.72	1.64
Motor	1.66	1.67	1.67	1.57	1.51	1.50
Other manufacturing	4.95	4.90	4.96	4.76	4.55	4.58
Electricity	0.87	1.24	1.48	0.83	1.16	1.37
Construction	0.74	1.01	1.26	0.69	0.89	1.12
Transportation	1.26	1.98	2.61	1.13	1.75	2.33
Communications	0.78	0.91	1.01	0.75	0.86	0.94
Other services	-0.22	-0.69	-0.77	0.22	0.07	0.00
Public services	0.11	-0.42	-1.37	0.05	-0.50	-1.45

Source: simulations with the dynamic CGE model

5. CONCLUSIONS

For the estimation of the macroeconomic impact of the adoption of EU External Customs Tariff, financial flows between the budgets and of structural funds interventions in particular, a dynamic multi-sector CGE model of Slovenian economy has been used. A new additional institution introduced into the model enabled us to capture restructuring of the Slovenian budget due to the transfers to the EU budget and co-financing activities. The impact of SPD has been modelled through the comparison of two simulations: one with and the other one without the estimated payments within the SPD. Results were than compared to the new baseline scenario which took into the account foreign trade liberalisation between the years 1997 and 2001.

The results obtained with all the assumptions used show that EU membership will have a positive impact on the overall economic activity as the real GDP will be above the baseline levels from 0.47-0.82%. Additional allocation of funds coming from SPD do generate some additional growth of GDP, but the change is quite small, but indeed expected one comparing with the amount of founds distributed through SPD. There will be also an increase in household incomes and savings and firms savings.

Increased government deficit is the outcome of decreased earnings from the import duties as well as transfers to the EU budget and other EU institutions, and additional financing of the projects. With the correction for the particular part of transfers from the Slovenian budget to the new institution FUND (prepared to capture the restructuring of Slovenian budget) which in fact only change the structure of use of the budget (co-financing Cohesion and structural funds and rural development) and thus do not increase the deficit in reality, we arrive to the correct figure of government deficit which is expected to increase by 40-69%.

One, quite important outcome can be seen from the changes in the foreign trade. It can be concluded that, with the assumptions used regarding the sectoral allocation of structural funds (based on the three priorities), the increase in exports will be lower and increase of imports higher compared to the Scenario 2. Possible explanations for such outcome could be find the allocation of funds to the sectors with lower export orientation as well as in the fact that it was not possible to simulate all possible effects of particular measures within the agreed priorities

Finally, we can observe that there is also a positive impact on the unemployment rate, which would decline in both scenarios. Higher decline can be observed for skilled labor as well as for the Scenario 1 with the structural funds included – once again, the differences between both scenarios exist but are quite low.

We should be also aware of some limitations and deficiencies of the research activities done. Firstly, we did not take into account all possible effects of the Slovenian inclusion into the EU: decreased VAT collection rate, decreased transactions costs as well as decreased non-tariff barriers mainly in the service sectors. Secondly, we did not analyze the effects of other possible reactions of the government: maintenance of unchanged budget deficit through appropriate compensation with increased particular tax, introduction of new one or decreased government consumption. And thirdly, the model used was based on the 1997 SAM. It was not capable to capture all possible effects of particular measures within the agreed priorities and, with the assumed perfect competition and constant economies of scale, it was not able to come closer to reality at least for some sectors. We will certainly try to overcome all these deficiencies in our future research work on further development and use of dynamic general equilibrium model of Slovenian economy.