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THE IMPACT OF CAP AND EU COHESION SUPPORT ON GROWTH AND CONVERGENCE OF THE EASTERN SLOVENIA REGION IN THE PERIOD 2007-2013

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Abstract

The paper investigates economic performance of the Eastern Slovenia region in the changed economic and policy environment after the accession to the EU. The likely impacts of public expenditure in the field of cohesion and agricultural policy in the period of the Community financial perspective 2007-2013 are analysed by the regional Input–Output model estimated with modified GRIT methodology. Results of the impact analysis carried out by application of various policy scenarios suggest that: (i) the analysed funds can significantly contribute to the overall output growth of the regional economy; (ii) EU budgetary inflows contribute to economic convergence of the region; (iii) differences between the projected impacts primarily depend on the regional division of Slovenia at the NUTS 2 level; (iv) favourable prospects can be impaired by various limiting factors. Concerning the impacts of CAP expenditure, the paper argues against the popular opinion about its low redistributive and short-term effects.

Key words*: regional Input-Output model, Slovenia, Common agricultural policy, EU cohesion policy*

JEL classification: R11, R15, R58, Q18

Introduction

Regional development disparities prevent the attainment of territorially balanced economic growth and a more equitable distribution of income and wealth. Taking into account the cumulative and self-perpetuating nature of these effects, they affect negatively economic efficiency of the entire national economy (Armstrong in Taylor, 2000). Apart from the economic aspects, there are also strong political and social arguments for of public support towards reduction of regional development disparities.

Despite its relative smallness, the problem of divergence in economic performance of its regions is present also in Slovenia. Differences in economic development have been deepening throughout the period of economic transition (IMAD, 2004). Development disparities are perceivable especially between core (mostly urbanised) regions with diversified economic structure and remote regions which are facing with economic and demographic stagnation. Geographically, development disparities in Slovenia are exhibited also in the East-West manner, where the eastern, predominantly rural part of the country is lagging behind. GDP per capita (in PPS) in Eastern Slovenia is about 16 percentage points under the national average (SORS, 2004). Increased competition due to the accession to the EU might cause further negative effects on the regional disparities, since the regions lagging behind have significantly weaker competitive capacity. Due to the poorer economic performance, Eastern Slovenia will also be eligible for the bulk of regional structural support after the accession to the EU.

To a great extent accelerated by the EU-accession, conditions and structures for faster economic convergence of lagging regions in Slovenia are gradually being created. The EU accession implies also inclusion to common financial mechanisms such as CAP and EU cohesion support. The focus of these financial mechanisms is given to sectors and regions lagging in economic development or facing with structural problems. In assessing efficiency of these policy mechanisms, it is necessary to address the following questions: (i) do the analysed funds contribute to a faster economic convergence of the country; (ii) are the expected impacts affected by different modalities of support; (iii) do the analysed funds contribute towards reduction of regional development disparities; (iv) which economic sectors are likely to be affected the most; and (v) are there differences in the scope and sectoral distribution of impacts among various policy mechanisms.

Motivation for the paper is therefore twofold. First, the paper intends to provide a quantitative insight to the characteristics of economic structure of Eastern Slovenia and to estimate linkages between various sectors in the region. This is done by estimating the regional Input-Output (I-O) table. Second, the paper attempts to assess the likely economic performance of the region in the changed economic and policy environment after the accession to the EU. In doing so, the focus is given to the

impacts of the above described EU financial mechanisms in the period of the Community financial perspective 2007-2013. The analysis is based on application of various policy scenarios to the I-O model.

The paper is organised as follows. It starts with a brief presentation of main socio-economic characteristics of the region and continues with a brief discourse to the methodology undertaken in derivation of the regional I-O table. This is followed by a systematic presentation of the various EU financial mechanisms and expected allocation of these funds to the region of Eastern Slovenia. This allows for a more detailed specification of policy scenarios and their application within the I-O modelling framework. In presentation of results, the emphasis is given to the likely impacts of analysed funds on output, employment and redistributive effects among economic sectors. The paper ends with commenting some of the most straightforward results and by discussing the implications for further research.

Geographical scope and policy context

Description of the region

Eastern Slovenia occupies about 55% of the country's territory and provides residence for about 54% of Slovene population. Over the last decade the number of inhabitants has been almost stagnating in Eastern Slovenia. The population is ageing quickly and ageing index is above national average. In terms of settlement distribution, the region is characterised by several villages and small towns, and only a few mid-size towns that are the main generators of economic exchange and entrepreneurship. The proportion of inhabitants living in rural municipalities (68%) is higher than national one (55.3%).

Table 1: Eastern Slovenia: some main socio-economic characteristics

	Slovenia	**Eastern Slovenia**
Area (km^2)	20,273	11,227
Population (thousands)	1,992	1,081
Share of population living in rural areas (%)	55.5	68.8
Structure of GVA by sectors (%)		
- agriculture	3.1	4.9
- manufacturing	35.4	43.0
- services	61.4	51.8
GDP (Million €, current prices)	21,829	9,937
GDP per capita (€ PPS)	16,829	14,132
Unemployment rate (%)	6.7	7.9

Source: Pečar (2003)

According to data for the year 2000, the region contributed around 46% to the national GDP. The region's GDP per capita was lagging behind the national average by 16% and amounting to 61% of the Community average, respectively. The taxable earnings per capita in the region have been weaker than national ones for a number of past years - they reached 13% of national average in 2000.

Although the registered annual unemployment rate is gradually reducing, it still remains higher than national one (by 1.2 percentage points in 2001) and differences at the sub-regional level in unemployment growth have not been increasing with the same intensity lately. The ratio between the sub-region with lowest and the highest registered unemployment rate was 1:1.8 in the year 2001.

Despite the region's relatively successful economic recovery after the transition shocks, the divergence in level of economic growth compared to the capital is continuous. This can be attributed to various reasons, e.g. less favourable sectoral structure (additionally impaired by harsh market conditions), uncompetitive firm structure, out-migration and consecutive languishment of human capital. The period has been also characterised with growing disparities among individual sub-regions (NUTS 3 level) in the region in respect to economic infrastructure available and even more so with respect to their labour and employment indicators. Most of the socio-economic indicators of the region reveal worse results than the country average. There can still be found highly agriculture-dependent or declining industrial areas with the lack of working places and low educational level of population. The jobs in the industry prevail and the number of working places is falling.

EU policies affecting regional convergence and economic growth in Slovenia

EU membership has brought significant changes in policy environment. This applies also for policies that intrinsically affect economic growth by supporting faster convergence of lagging regions or by stabilising markets and promoting restructuring within chosen sectors (e.g. agriculture). The corresponding EU policy mechanisms can be broadly divided into two groups: the Common agricultural policy (CAP) and the Community Cohesion policy. Description of these policy mechanisms is focused to the period of new financial perspective (NFP) of the EU, i.e. to the period 2007-2013. It takes into account the proposed EU budgetary appropriations for the as outlined in the Communication from the Commission to the Council and the European Parliament (COM/2004/487 final) from July 2004.[1]

With regard to the actual programming period (2001-2006), the NFP brings some modifications to the operating rules of its financial mechanisms. In the field of Cohesion policy, the structural actions will focus around three priorities: (i) Convergence and Competitiveness; (ii) Regional competitiveness and Employment and (iii) European territorial cooperation. Another important change will be separation of the FIFG and the CAP Rural Development activities from the Structural Funds, which implies reduction of the Structural fund actions to those eligible under ESF and ERDF. The FIFG and the CAP Rural Development activities (which will entail a more extensive set of measures destined for management of forests and Natura 2000 sites) are planned to be carried out within a separate European Agricultural Fund for Rural Development (EAFRD).

The CAP support too is likely to see some significant changes. A further aggregate decrease of market support can be envisaged (reforms are envisaged especially in the sugar, fruit and vegetables and perhaps also wine sectors). In the policy domain of CAP direct payments, the CAP reform agreed between Member States in 2003 and 2004, gradual decoupling of these payments will be carried out, but at a varying form and degree of decoupling between the Member States.[2]

Slovenia is likely to surpass the 75% threshold of the average GDP/capita (PPS) of EU-25. It is therefore likely to lose full eligibility for support under the 'Convergence' objective, which accounts for the largest part of EU cohesion expenditure. Nevertheless, due to a so called 'statistical effect' (i.e. country's GDP is likely to amount to less than 75% of EU-15 GDP/head but more than 75% of EU-25), Slovenia is likely to remain eligible for EU structural expenditure, but on a gradually decreasing scale. While Slovenia will remain eligible for Cohesion fund actions for the whole programming period, its eligibility status for Structural funds is not yet defined. There are two options at stake:

- temporary 'phasing out' support destined for regions whose per capita GDP exceeds 75% of the Community average solely due to statistical effect or

- temporary (and less lucrative) 'phasing in' support designed to consolidate the process of catching up in regions which have surpassed the 75% GDP/capita threshold only due to the economic progress achieved.

Estimated financial implications for Slovenia from the NFP are presented in the table below. It is assumed that Slovenia will remain treated as one single region also in the forthcoming financial perspective. As already indicated, figures relating to cohesion expenditure are presented in both, 'phasing-in' (p-i) and 'phasing-out' (p-o) versions.

Table 2: Estimated total public funds (both EU and national sources) committed to Slovenia in the period 2007-2013 (in billion Slovenian Tolars - prices 2000)

	Status: 'Reg. compet. and employment', *'phasing in'*		**Status: 'Convergence', *'phasing out'* (stat. effect)**	
Source	**Total**	**Annuity**	**Total**	**Annuity**
Structural funds	136.90	19.56	375.85	53.69
Cohesion Fund	311.42	44.49	309.49	44.21
Territorial integration	29.74	4.25	44.11	6.30
EAGGF - direct payments	176.85	25.26	176.85	25.26
European Agricultural Rur. Dev. Fund	225.79	32.26	225.79	32.26
Total	**928.13**	**132.59**	**1.209.26**	**172.75**

Source of data: own calculations, based on estimates by Mrak and Rant (2004), KAEPP (2004)

Assumptions, attributed to individual financial mechanisms (Structural funds, Cohesion fund, Territorial integration, CAP and Rural development), are further outlined below.

The heading 'Structural Funds' is seen as the policy instrument dealing with promotion of regional competitiveness (ERDF) and active labour market policy (ESF). The total amount of committed funds for this policy instrument was estimated at a level, proportional to the Structural Fund appropriations in the 2004-06 structural expenditure.[3] The structure of priorities and corresponding measures are assumed to be identical to those described in the first (ERDF) and second (ESF) priority of the Single Programming Document 2004-2006.

The legislative proposal laying down general provisions on the Structural funds and Cohesion fund (COM(2004)492 final) puts a 90% of EU 25 average GNI/head as an eligibility threshold for Community support under the heading 'Convergence and Competitiveness'. These include activities in the areas of transport and environment under the Cohesion Fund. With regard to the current macroeconomic situation and underlying trends for Slovenia (IMAD, 2004), Slovenia is likely to fit within this threshold in the New Financial Perspective 2007-2013 (NFP) of the EU. The structure of Cohesion fund expenditure in the NFP is assumed to follow a similar logic as in the period 2004-2006. Half of funds are assumed to be destined to transport and the other half to the environmental investments.

The New Financial Perspective is expected to grant a status of a new policy priority to the principle of inter-regional and cross border co-operation (including external cross-border co-operation) entitled 'Territorial Integration'. Estimated allocation of public funds for territorial integration in the programming period 2007-13 corresponds proportionally to the funds allocated to the Interreg Community Initiative within the EU structural expenditure Slovenia for the period 2004-2006.

In 2007, the level of CAP direct payments (comprising of the EAGGF Guarantee and national top-up payments) in Slovenia could reach 100 % of the corresponding EU-level. The aggregate yearly allocations for direct payments are therefore expected to remain at the same level throughout the programming period. As implied in the text above, programming and financing of Rural Development measures within the CAP and FIFG measures will be simplified by their inclusion to a European Agricultural Rural Development Fund. The rise of budgetary appropriations for Rural Development policy reflects the trends outlined in the Commission proposal (COM /2004/490 final). It is assumed that the list of eligible measures and the corresponding financial allocations have remained the same as in the 2004-2006 programming period.

Methodology

Regional Input-output model

A wide set of analytical tools have been developed for the purpose of quantitative economic evaluation of public expenditures. One of the well established strains of modelling approaches used is based on the input-output paradigm (Sadoulet and de Janvry, 1995). With the development of more capable modelling tools (e.g. computable general equilibrium model, econometric short-term forecasting macro-models) relevance of the linear deterministic models has certainly decreased. Nevertheless, the input-output modelling approach remains widely used for the analysis at the regional level (Armstrong and Taylor, 2000). The main reason for popularity is robustness of the technique that can be implemented empirically despite data shortages (Thirlwall, 2003). Provided that regional I-O table is estimated accurately enough, theoretically implausible assumptions of the model[4] are in some respects overshadowed by its empirical realism and simplicity. With this in mind we can state that this approach towards modelling of policy expenditures gives at least approximate information about the expected changes in sectoral output and employment.

In the paper a regional I-O model was constructed to evaluate economic effects of various EU policies carried out in the period 2007-13. Datasets used and procedures employed in construction of the regional I-O model are briefly presented in the text below.

Due to lack of primary survey data the regional I-O table was derived from the national one. The starting point in estimation of the regional I-O model was therefore the national 60 sector I-O table for the year 2000, estimated by the Statistical Office of Slovenia (SORS, 2003), comprising of two symmetric, commodity-commodity tables in current basic prices with total and domestic flows. In addition to this, some other statistical data was employed in subsequent steps of disaggregation and estimation of the regional I-O table: (i) data on employment by sectors aggregated identically with the national input-output table; (ii) regional data about agricultural sector (SORS, 2004) and (iii) additional socio-economic indicators (e.g. income tax base, percentage of the regional national value added).

Aggregation of sectors in the original I-O table was carried out with regard to the regional structure of economic activities. Size the region, its significance in national economic terms and diversified industry mix were the main reasons to remain at a relatively broad structure of 29 sectors. Agriculture and forestry were disaggregated into two sectors. Other sectors remained at the 1st level of the Standard Classification of Activities (SCA), with the sole exception of the manufacturing sector, which remained disaggregated at the 2nd level of SCA.

This indirect approach towards construction of a regional I-O table was undertaken by the GRIT methodology (Jensen et al., 1979), which was in some cases slightly modified. The modification was done by having in mind the objective of producing a satisfying level of accuracy of the regional I-O table and the availability and quality of superior statistical data.

A starting point for regionalisation was the **adjustment to the national I-O table** with total flows. The national flows matrix was converted to a technical coefficient matrix as follows:

$$A = Z\hat{X}^{-1} \qquad (1)$$

where A represents the matrix of technical coefficients, Z matrix of intersetoral transaction flows and X^{-1} the inverse of diagonal output matrix derived from output vector. Since the I-O table was expressed in total flows, no adjustment for international trade was needed. In contrast to the frequent practice of eliminating the elements on main diagonal (Morrison and Smith, 1974; Jensen et al., 1979; Johns and Leat, 1987), this was not carried out in our case, since the region is large compared to the national economy.

In the stage of the **adjustment for regional technical coefficients**, a non-survey method of Simple Location Quotients (SLQ) was used as follows.

$$A^R = \hat{q}\ A^N \qquad (2)$$

Regional technical coefficients are denoted by subscript R and national ones by N. The SLQ vector is denoted by q and they were derived from the relevant secondary statistical data (e.g. breakdown of employment data by sectors, E). Simple location quotient for sector *i* can therefore be calculated:

$$q_i = \frac{E_i^R / E^R}{E_i^N / E^N} \qquad (3)$$

The method used assumes that sectors whose relative importance at a regional level is equal or greater than at a national level ($q_i \geq 1$) are able to satisfy intermediate demand within the region and coefficients therefore remain the same as the national ones. Otherwise, the sector is supposed not to be self-sufficient and the corresponding national coefficient is multiplied by q_i.

In the next stage **aggregation of the sectors** has been conducted, hence first the regional matrix of technical coefficients was modified as follows:

$$A_{(1)}^R = A_{(0)}^R \, \hat{w} \qquad (4)$$

The original technical coefficients were adjusted by the vector of employment weights *w*, by which approximation towards the regional structure of economic activities is made.

The next step is the **derivation of a prototype transactions table** with an estimation of regional output. These estimates were determined by using employment ratios.

$$X_i^R = X_i^N \frac{E_i^R}{E_i^N} \qquad (5)$$

The next step in the prototype table derivation was the estimation of three components of final demand. The household consumption was calibrated by the share of regional income tax base in the total income tax base.

The remaining two components of the final demand, namely exports and other final demand categories (comprised of government expenditures, gross capital formation, expenditures by non-profit institutions and changes in inventories) were estimated simultaneously with balancing of intermediate consumption. The starting values were derived from the national tables and later adjusted downwards using employment and location quotient. All elements within the transaction matrix were treated equally and were thus reduced according to the value of output, final demand, share of imports in every cell of the national table and expert knowledge. Intermediate consumption rows of 12 sectors were reduced and 16 on-diagonal elements of primary and secondary sectors were reduced as well.

In the **final checks and balancing** stage some inconsistencies and errors were eliminated. Finally, the balanced input-output table was composed which was believed to result in the realistic regional multipliers.

Regionalisation of policy expenditure

Once the national budgetary appropriations were consolidated the annuities needed to be regionalised. The funds attributed to the Eastern Slovenia region have been estimated according to the selected regionalization weights: share of active population in the region, GDP contribution of the region, share of population in the region, size of farm sector (expressed in European size units, ESU). These were applied according to the characteristics of each policy instrument.

Envisaged public expenditure for the Eastern Slovenia region by the main policy instruments is presented in the table 3.

Table 3: National and EU funds available for the Peripheral Slovenia in the period 2007-2013 (annuities, in billion Slovenian Tolars – prices 2000)

	Annuity (billion SIT, prices 2000)	
Policy instrument	***"Phasing out"***	***"Phasing in"***
Structural funds	9.33	25.61
ERDF-type measures	5.80	15.92
ESF-type measures	3.53	9.69
Cohesion fund	24.11	23.96
Territorial Integration	2.30	3.42
EAGGF - direct payments	14.05	14.05
Eur. Agricultural Rural development fund	13.11	13.11
EARDF – rural development	13.07	13.07
EARDF – fisheries	0.04	0.04
Total	**62.90**	**80.15**

Source: Own compilation based on various national and EU sources

To evaluate the economic impacts of the formulated budgetary appropriations with the constructed I-O model the funds had to be distributed according to the expected effects they will have on the final demand for the economy's outputs. This external shock is aggregated within the vector of final demand changes. The structure of investment demand from the national I-O table was taken as a basis for the distribution of funds.

No additional weights or corrections were applied for assessing the structure of demand in the case of policies with general 'investment' patterns, whereas "objective-oriented policies" were treated specifically. Allocation of funds along the vector of final demand has been determined in accordance with the scope and "mechanism" of the policy as outlined in the programming documents. In the case of policies with an income support character (e.g. decoupled direct payments in agriculture) the effects were distributed according to the household final demand structure.

In the last stage of the vector definition the origin of demanded good has been taken into account. In the case of investment demand the share of domestic goods in investment from the national I-O table was applied, whereas for the correction of the household final demand the proportions of the domestic supply in total market supply was used.

Impact of projected funds on the final demand vector

Evaluation of economic impact of the projected funds is carried out by the I-O model. Public expenditure is treated as an external shock to the regional (or national, in the case of national I-O table) economy, regarded as increase of final demand. Vectors representing changes in the final demand are applied to the matrix of multipliers derived from the I-O table.

Due to the 'mechanical' procedure of policy impact analysis using the I-O model, quality of results is highly dependent from reliability and accuracy of estimates, how the projected funds are to affect the final demand for the economy's outputs. The stage of distributing the public expenditure along the 29 sectors representing the aggregated I-O table was therefore given a special attention. The most plausible and reasonable distribution of funds by sectors was estimated for each policy item separately. This entailed also division of funds being effectively spent within the region with these being spent on imported goods and services.

A distinction was also made with respect to the investment, intermediate demand or final demand character of analysed policy mechanisms. In the case of investment-related expenditure, the structure of investment demand from the national I-O table 2000 was taken as a basis for the distribution of funds. In the cases where public support was more objective-oriented, allocation of

funds along the vector of final demand has been determined as outlined in the programming documents.[5]

As for the CAP-related expenditure apart from rural development, only those funds and purposes were taken into account that were not existing in the agricultural policy expenditure for the year 2000. Distribution of the remaining inflows was carried out as follows. Inflows from market interventions were not included into the vector of final demand since they do not affect the quantity of agricultural goods demanded, but only stabilise price levels. In the case of direct payments, their partial decoupling is assumed to reflect in the following distribution of effects: 30 per cent of these funds will be spend along the structure of intermediate demand of agriculture, 60 per cent by the household final demand vector and 10 per cent along the structure of farm investments.

In the last stage of the vector definition the origin of demanded good has been taken into account. In the case of investment demand the share of domestic goods in investment from the national I-O table was applied, whereas for the correction of the household final demand the proportions of the domestic supply in total market supply was used.

Definition of policy scenarios

Policy scenarios should enable assessment of the impacts of analysed policy mechanisms on economic performance of the Eastern Slovenia region. They should be able to assess efficiency of public expenditure towards reduction of development disparities of the region with respect to the rest of the country. The approach undertaken should also be able to provide quantitative assessment of impacts with respect to the volume and territorial scope of policy support. In order to enable comparison of impacts with the national benchmark, scenario analysis was undertaken on both, regional and national level.

As described in the section about the likely inflows from CAP and Cohesion policy to the region, only some rough estimates can be given for the period 2007-2013. Similarly, not much is known also about the status of the region within the EU Cohesion policy rules. This additionally impairs a qualified estimation of the territorial scope and allocation of the corresponding public expenditure. In the definition of policy scenarios, we have therefore decided to grasp the pessimistic and optimistic estimates of EU budgetary inflows. These estimates differ with respect to the eligibility status of the region (Cohesion fund, Structural funds) or to the absorption rate of funds (CAP expenditure).

In this respect, two basic scenarios with tree sub-scenarios each were formulated:

I. Partial integration (PI):

This scenario was designed to provide conservative estimates of the Community budgetary inflows. Apart from the eligibility status, the sum of inflows is also highly dependent from the territorial scope of support.[6] With regard to the alternative options of regional division at the NUTS 2 level, three sets of estimates were taken into account:

1. entire Slovenia is treated as one NUTS 2 region;
2. Slovenia is divided in two NUTS 2 regions (Eastern and Western);
3. Slovenia is divided in three NUTS 2 regions (Eastern, Western and Central).

The Partial integration scenario departs from the assumption that eligible regions will qualify for Structural fund support under the objective 'regional competitiveness and employment *(Phasing in)*'. There are no significant differences between the estimated inflows of Cohesion fund support between the three alternative estimates, as the whole country is likely to remain eligible for support from the Cohesion fund.[7] The partial integration aspect in projected budgetary inflows from Common agricultural policy (CAP) is expressed as limited absorption of funds. The assumed absorption level for direct payments is 90 per cent and for rural development measures 80 per cent.

II. Full integration (FI)

Rather than a realistic scenario, projections of public expenditure in this case attempt to provide the financial projections which would serve for estimating maximum potential impacts of analysed funds. The optimistic scenario derives from an assumption that the eligible regions will be given higher rates of Structural funds support as they will be classified under the 'Convergence' objective. This entails full eligibility for the Cohesion fund support and transitional *(phasing out)* support from Structural funds for regions concerned by the 'statistical effect'. Similarly as in the previous case, also the full integration scenario distinguishes between three alternative options of regional division at the NUTS 2 level. As for the CAP-related expenditure, both direct payments and rural development measures are assumed to be absorbed at a 100 per cent level.

Results

Change in gross output

The most straightforward output of scenario analysis with the I-O model is the change in gross output by sectors. Main results presenting the percentage change of the gross output in comparison to the base year (2000) for the main sectoral aggregates (agriculture, industry, services) are presented in Table 4.

Impacts of financial transfers of the EU to the regional economy are compared with the national benchmark. As a general observation, the aggregate levels of output growth at the regional level tend to surpass the national ones. Higher rates of economic growth in Eastern Slovenia are significantly higher (above 2 percentage points) in the case of policy scenarios where Slovenia is divided in two or three regions at the NUTS 2 level. This is due to the fact that EU budgetary inflows to the region would be proportionally higher. Results suggest that there are no major differences in the structure of the effects from the national-regional comparisons. Somewhat higher impact on total output tends to appear in the construction and services sectors in the Eastern Slovenia region in the cases where higher rates of support are channelled to this region. Taking into account the structure of public expenditure channelled to the region studied this result is not surprising.

Table 4: Results of scenario analysis: percentage changes in total output by sectors

	I. Partial integration			**II. Full integration**		
	1 region	**2 regions**	**3 regions**	**1 region**	**2 regions**	**3 regions**
Eastern Slovenia						
Agriculture	3.76	4.47	4.49	4.61	5.20	5.21
Industry	1.94	4.39	4.42	2.58	4.72	4.71
- of which construction	7.03	16.94	17.04	9.35	18.13	18.06
Services	2.12	5.47	5.49	3.11	5.87	5.87
Total	2.08	4.78	4.81	2.85	5.16	5.15
Slovenia						
Agriculture	3.52	4.01	4.14	4.36	4.68	4.80
Industry	2.02	3.43	3.85	2.78	3.74	4.12
- of which construction	7.11	12.36	13.93	9.80	13.41	14.84
Services	1.42	2.80	3.15	2.16	3.03	3.38
Total	1.78	3.15	3.53	2.53	3.43	3.79

Taking into account more conservative estimates of EU public funds expenditure (Partial integration scenarios) the projected increase of overall regional output ranges from 2.1 to 4.8 per cent. No significant implications are expected in the manufacturing sector, where only sectors of production of non-metallic mineral products, mining and quarrying and to a certain extent food manufacturing, surpass the average levels of output increase. The highest increases are anticipated in the construction sector, whose output as a consequence of EU public expenditure is projected to grow by 7 and 17 per

cent. Most of this is due to infrastructural investments, and partly also due to investments in real estate, which form a significant part of Structural fund support. Model estimates for service sector in total reveal an increase by 2.1 to 5.5 per cent, which is slightly above the total average. The most positive prospects are projected for education, real estate, renting and business activities. The model results therefore a substantial role of EU funds for improvements in activities dealing with human capital.

Scenarios assuming full integration, hence favourable cohesion status and full absorption of funds, provide a benchmark for potential maximum impact. If this ”optimistic” scenario of EU budgetary inflows was realised, the gross regional output would increase by about 0.35 percentage points above the growth levels of more conservative scenarios. Rather comparable trends concerning output increase for sectors can be observed as described previously for the partial integration scenarios.

Employment effects

One can use the estimated changes in gross output also to make some preliminary assessments of the changes in regional employment. The reasoning behind this approach is based on the assumption that the change in output automatically implies the change in labour input (expressed in units of labour productivity, i.e. gross output per labour unit). Since labour productivity may differ between various sectors, it can be expected that the changes in labour input will act correspondingly. This assessment however contains some highly restrictive assumptions, such as no technical progress (implying constant labour productivity) and infinite elasticity of labour supply. Reader should therefore consider reported results with needed caution. Rather than projected change in employment, we interpret the results (presented in the Table 5) as change in labour requirements by the analysed sectors.

Table 5: Results of scenario analysis: changes in labour demand by the sectors (in FTE equivalents)

	I. Partial integration			**II. Full integration**		
	1 region	**2 regions**	**3 regions**	**1 region**	**2 regions**	**3 regions**
Eastern Slovenia						
Agriculture	789	933	937	967	1.086	1.089
Industry	3.448	7.824	7.884	4.569	8.415	8.403
- of which construction	2.152	5.188	5.217	2.863	5.551	5.528
Services	4.231	11.142	11.177	6.263	11.928	11.926
Total	8.468	19.898	19.999	11.799	21.429	21.417
Slovenia						
Agriculture	1.033	1.172	1.209	1.277	1.368	1.403
Industry	6.760	11.502	12.905	9.278	12.525	13.812
- of which construction	4.525	7.869	8.867	6.237	8.537	9.448
Services	6.161	13.131	14.886	9.746	14.119	15.854
Total	13.954	25.805	29.000	20.302	28.012	31.069

Similarly as in the case of total outputs, the range of projected impacts is highly dependent from the territorial level of eligibility and, correspondingly, from the funds channelled to the region. If Slovenia continues to be treated as one region, increased total output due to EU public expenditure would yield in increased demand for labour at the range between 14 and 21 thousands full-time equivalents. Majority of this increase is concentrated within the Eastern Slovenia region. More than half of total employment effect is attributed to services.

Evidently, higher public expenditure implied by the policy scenarios assuming division of Slovenia to two or three NUTS 2 regions would boost labour requirements by additional one third.

Impacts of individual policy mechanisms

Besides the scenarios analysis, another relevant issue both from the scientific and policy view is to estimate the magnitude of effects and their distribution between economic sectors we have estimated impacts of individual financial mechanisms separately. This exercise is regarded useful especially in order to check multiplicative effects of individual commonly financed policies.

The analysed financial mechanisms have been merged into three distinctive groups:

i) Common agricultural policy (CAP), consisting of CAP market support, direct payments and rural development measures financed from the Guarantee section of EAGGF;

ii) Structural funds and Community initiatives, embracing measures financed by ERDF, ESF, FIFG, Guidance section of the EAGGF, and Community initiatives Equal and Interreg, and

iii) Cohesion funds.

The analysis departs from a simple assumption that the same amount of funds (10 billion of Slovene Tolars) is allocated to one group of financial mechanisms only. This sum is allocated between various financial mechanisms (such as e.g. expenditure on direct payments and rural development in CAP) in same proportions as this is the case in the 2004-2006 programming period. Vectors of final demand are adjusted accordingly. Results of this analysis are presented in Table 6.

Table 6: Distribution of effects by three distinctive groups of EU public expenditure (In million SIT, prices 2000)

	Effects on total output (million SIT, prices 2000)			**Effects on total labour requirements (FTE equivalents)**		
	Cohesion fund	**Structural funds**	**Agriculture and RD**	**Cohesion fund**	**Structural funds**	**Agriculture and RD**
Agriculture	120	195	2,445	15	20	319
Industry	12,181	8,222	4,357	889	596	292
- of which construction	9,071	5,753	1,212	645	409	86
Services	3,366	6,543	7,149	451	898	932
Total	**15,668**	**14,925**	**13,951**	**1,354**	**1,514**	**1,542**

Observing the overall magnitude of impacts towards output increase, results suggest that expenditure from Cohesion fund brings the most favourable effects. Taking into account the fact that virtually all expenditure from this fund is attributed to infrastructure, which is characterised by a widespread vector of intermediate consumption, this result is hardly surprising.

The magnitude of impacts on overall output increase between the CAP expenditure and Structural funds (including Community initiatives) appear to be fairly similar. There are however significant differences with regard to the sectors targeted by these two sources of EU expenditure. The structural expenditure brings the biggest impacts on output growth in the construction sector, whereas the prevailing part of output increase caused by agricultural expenditure (about 70%) is attributed to services (mainly on personal and household goods and in the real estate, renting and business activities).

Conclusions

Paper tries to quantify the effects of EU funds on the regional economy using Input–Output methodology. Additionally some analysis about the magnitude and distribution of effects of various sources of EU public expenditure were made. Policy relevance of the research undertaken can be argued by provision of a valuable insight into the pattern of policy expenditure through various sectors of the regional economy. The following conclusions can be derived.

Results suggest that the analysed funds can bring a significant contribution to the overall output growth of the regional economy. Nevertheless, projected impacts differ considerably with respect to the scope of public expenditure. The volume of budgetary appropriations primarily depends on the outcome of the negotiations about the regional division of Slovenia at the NUTS 2 level. With respect

to this issue, the range of potential impacts is between 2.9 and 5.2 per cent of total output growth. We leave it for the reader to judge whether this is a valid argument for regionalising the EU cohesion expenditure in Slovenia.

The favourable impacts of EU budgetary inflows on total output, suggested by the results of optimistic policy scenarios, should be regarded with some caution. There are various factors that can aggravate the optimistic view expressed with the benchmark results presented by the 'Full integration' scenarios. Factors reducing the positive impacts range from budgetary (status of Slovenian regions for EU cohesion expenditure in 2007-2013, limited co-financing capacities of national budget) to organisational ones (implementation structures, availability of matching private capital, lower absorption level). The abovementioned factors could significantly deteriorate favourable results. Our results suggest that these effects could result in about 0.35% percentage point lower growth in total output.

One of the core research questions was of course whether the analysed funds will effectively do their job in reducing regional disparities. This question was tackled by comparison of model results of the regional I-O model with its national counterpart, where effects at the national level are used as a comparative benchmark. As a general observation, there are no major differences in the structure of effects between Slovenia and Peripheral Slovenia region. In both cases, high public investments are channelled into labour intensive sectors (construction, agriculture) with low labour productivity. Our results also show that the impacts of analysed funds on output are slightly higher in the region of Eastern Slovenia. However, these differences are rather moderate. For the actual financial perspective the projected growth in the region is about 1.5 percentage points higher in comparison to the national average. Our results therefore suggest that the analysed funds contribute towards reduction of development disparities in Slovenia, albeit the pace of this reduction is low.

The research brings some interesting results of the magnitude and redistribution effects of public expenditure items. The results suggest that expenditure from Cohesion fund yields the most favourable impacts of the three analysed financial mechanisms (cohesion, structural funds, agriculture and rural development). Difference between the projected impacts should be treated with some caution. In practice, lower differences can be expected to due to the differences in absorption rate and co-financing level between the analysed funds. Some interesting results can be pointed out also in the case of agricultural expenditure, where the results (expectedly) show a relatively low impact on the overall output increase, but on the other hand only about 6 % of this increase is attributed to agriculture. High multiplicative effects of agricultural expenditure bring some telling reservations to the popular opinion about low redistributive and short-term effects of agricultural expenditure (Rodriguez-Pose and Fratesi, 2004).

Limitations of the research undertaken have to be acknowledged. First of all, it has to be borne in mind that financial transfers from the EU budget represent only one dimension of the accession-related effects. The analysis does not deal with other important aspects of integration, such as increased competition, division of labour, specialisation and change in the system of relative prices.

Let us resume with a word of caution that goes to the danger of making strong and somewhat arbitrary conclusions. The I-O methodological framework is useful only for measuring 'hard', tangible impacts (which therefore inevitably results in their over-valuation against the impacts of 'soft' investments).[8] With this methodological approach also no aspects related to the flow of externalities (e.g. food safety, environmental management, rural development) can be taken into account. Issues dealing with externality and public good aspects are gaining on policy importance. This implies that also analytical tools for assessing efficiency of public expenditure will have to be upgraded accordingly.

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Notes

[1] The document only describes the overall financial framework by expenditure headings, while appropriations for commitments by Member States are not yet presented (November 2004). Qualified estimates of EU budgetary appropriations were obtained in consultation with the corresponding national working documents for the fields of cohesion (Rant and Mrak, 2004) and agricultural expenditure (MAFF, 2004).

[2] EU expenditure under another important segment of the Ist pillar of the CAP, i.e. market interventions is not discussed in the paper. This is due to the fact that funds attributed to CAP market interventions were not taken into account in the impact analysis. As a policy mechanism whose primary function is preservation of price stability, it does not directly affect the vector of final demand and is already contained in the original I-O table.

[3] Funds previously attributed to EAGGF Guidance and FIFG were proportionally allocated to ERDF-(about 65 per cent) and ESF-type measures (about 35 per cent).

[4] One should take a full account to the limitations of methodological character which derive from the assumptions of the static I-O analysis, such as: (i) Leontief production function which does not allow for substitution amongst factors of production and no choice of technique; (ii) constant import coefficients, and therefore no increasing import substitution; (iii) no capacity constraints are taken into account; (iv) not allowing for the repercussion effects from income generation to consumers demand (Keynesian multiplier effects).

[5] Programming documents for the previous programming period (2004-2006) were taken as a reference for the Structural funds and Rural development expenditure (i.e. Single programming document and its Programme complement, and Rural development programme). In the case of Cohesion fund expenditure, priority projects are outlined in the Cohesion strategy of Slovenia.

[6] This is due to the fact that the process of regionalisation in Slovenia is under way at the moment and there are various concepts of the territorial division at the NUTS 2 level at stake. Slovenia is currently treated as one NUTS 2 region, but is reopening negotiations with the European Commission at this issue before the start of the NFP. Various alternatives of territorial division inevitably affect eligibility status of NUTS 2 regions and thus yield significant differences in estimated inflows of EU funds (particularly cohesion policy expenditure).

[7] In estimating the likely inflows from the EU cohesion policy expenditure, we have departed from the budgetary projections carried out by Mrak and Rant (2004).

[8] Note that many of listed disadvantages attributed to I-O models cannot be solved with other economic models either.