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Online Annex – Economic Challenges of Lagging Regions: Annex II – Econometric Analysis and Supplemental Tables

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The Vienna Institute for International Economic Studies
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Online Annex – Economic Challenges of Lagging Regions:

Annex II – Econometric Analysis and Supplemental Tables

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Abstract

The report is an annex to wiiw Research Report 423, ‘Economic Challenges of Lagging Regions III: Recent Investment Trends and Needs’. Based on spatial econometric methods it provides estimates and simulations of the investment effects on economic development in the EU lagging regions. It also provides additional data related to the analysis in the wiiw Research Report 423.

Keywords: regional economic development, EU, lagging regions, regional policy, economic challenges, investment, foreign direct investment, structural funds

JEL classification: C15, C31, C80, R11, Y10

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1. Analysis of investment impacts on economic activity and opportunity costs

This annex to Task 3 focuses on the investments' impact on economic performance (measured in terms of productivity growth) in the lagging regions as well as on the opportunity costs of investment. As far as the impact is concerned, it is understood as the effects investments (National accounts, Structural Funds and FDI) have on regional productivity levels and growth (measured as GDP per employed), as well as on GDP per capita and on employment growth and levels. As far as opportunity costs are concerned, they are understood in two ways (both of them are going to be analysed):

A) Opportunity costs I: Would investment be more effective if it was allocated differently across sectors/activities of a region's economy?
B) Opportunity costs II: Would investment be more effective if it was concentrated in the most productive regions (core) instead of in the lagging regions (periphery)?

Question A) analyses the regions' investment pattern and explores whether the effects on economic growth would have been different if this pattern had been different, e.g. whether for a region it would have been better to invest in R&D than in infrastructure. Question B) addresses the question whether the concentration of investment in core agglomeration regions might be more effective (at an aggregate level) than supporting the peripheral lagging regions, as agglomeration externalities could be more fully exploited.

To analyse these issues (i.e. the effects of investment and both opportunity costs) the study uses spatial econometrics and undertake simple simulations. As far as the econometric set-up is concerned there is a large literature to draw upon. Some recent examples are OECD (2012[1]), Dall'erba and Le Gallo (2007[2]), Esposti and Bussoletti (2008[3]), Becker et al.(2010[4]) as well as Mohl and Hagen (2010[5]), the latter also provide a comprehensive overview of related previous literature.

The analysis in the study will follow the analysis of the OECD, Mohl and Hagen as well as Dall'erba and Le Gallo. That is, the study will estimate a model including elements from the neoclassical and endogenous growth theory and from new economic geography using a spatial cross section model identify regional factors of growth.

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1 OECD, 2012, 'Promoting Growth in All Regions', OECD.

2 Dall'erba, S., Le Gallo, J, 2007, 'Regional convergence and the impact of European structural funds over 1989–1999: A spatial econometric analysis', Papers in Regional Science, Volume 87 Number 2 June 2008.

3 Esposti, R., Bussoletti, S., 2008, 'Impact of Objective 1 Funds on Regional Growth Convergence in the European Union: A Panel-data Approach', Regional Studies, Vol. 42.2, pp. 159–173, March 2008.

4 Becker, S., Egger, P., von Ehrlich, P., 2010, 'Going NUTS: The effect of EU Structural Funds on regional performance', Journal of Public Economics 94 2010.

5 Mohl, P., Hagen, T., 2010, 'Do EU structural funds promote regional growth? New evidence from various panel data approaches', Regional Science and Urban Economics 40 2010.

The following parts include a) a description of the data used, b) the estimation methodology and c) the estimation results, d) simulations regarding the effects of a shift of investments between regions on aggregate productivity growth and finally conclusions.

1.1. DATA

The data three main types of variables, i.e. a) the dependent variables, i.e. regional productivity growth defined as the ratio of real GDP over employment, using the annual average growth rate, b) the main explanatory variables of interest, i.e. region national accounts, Structural Funds and foreign direct investment and c) additional explanatory variables.

As far as the dependent variables are concerned data has been collected for regional productivity growth and levels. All variables are based on Eurostat regional accounts data. To estimate real productivity growth rates for the regions, constant regional time series (base year = 2010) have been estimated, by adjusting current regional time series with constant national time series for GDP, using constant GDP at the country level and the regions' share in total country GDP.

For this the latest available data from Eurostat has been used, which for most countries provides full regional time series from 2000 to 2014. Exceptions are Belgium (no regional accounts data prior to 2003) and Hungary (no employment data prior to 2008). For both countries the missing data was backcast using older Eurostat time series, basically using the growth rates from the older time series to fill the holes in the most recent data set. Moreover, for Hungary and Finland only data up to 2013 was available. Because of this, the econometric analysis generally uses annual average growth rates (or changes) of productivity as dependent variables (assuming that the missing year for Hungary and Finland only has little effect on the overall growth trend).

The main explanatory variables are regional national accounts investment, Structural Funds (ERDF and Cohesion fund) investment as well as regional FDI. The data for these variables is identical to the data used in the descriptive analysis above.

Three explanatory variables have been defined from national accounts investment data: a) regional investment as percent of regional GDP, b) regional investment (in real terms) per capita and c) real growth of investment, in all cases for total investment as well as for investment in manufacturing industries. For all variants averages over the period 2000-2012 have been used in the analysis.

As far as FDI data is concerned the main explanatory variable is the number of FDI projects by inhabitants (both for total FDI as well as FDI by sectors).

As far as Structural Funds investments are concerned the main explanatory variables are total ERDF and CF investments (in sum) as well as "productive" ERDF and CF investments, i.e. containing only investment expenditures for R&D, Human resources and enterprise support, in percent of GDP and investment per capita.

As an additional explanatory variable the analysis also uses the spatially lagged investment shares or growth, i.e. the investment in neighbouring regions to account for potential spillover or clustering effects.

The additional explanatory variables include:

- Initial productivity levels, to capture convergence effects
- Low skilled labour supply: share of low skilled in active population
- High skilled labour supply: share of active highly skilled in population or employment
- Population density to adjust for urbanisation effects
- Initial capital endowment per capita, to adjust for regional differences in capital intensity
- Market potential: spatially weighted GDP levels, to adjust for potential agglomeration effects
- Sectoral structure: initial shares of sectors in employment to adjust for regional specialisation and also general regional characteristics (which are assumed to be highly correlated with the sectoral structure
- Regional Quality of Governance indicator from the Gothenburg regional quality of governance database
- Accessibility, i.e. accessibility of population by road (i.e. number of people that can be reached by car within 5 hours travel time) from the ESPON TRACC project.

These variables are used in the analysis (in logarithms), with most of them having been described above in the section on investment needs.

The expectations regarding the impact of these variables on the regions' economic performance are:

- Investment is expected to have positive effects on productivity, employment and GDP growth, because of technological, capacity and aggregate demand effects. Hence the estimated coefficients should be positive.
- The initial productivity level should have a negative impact on productivity growth if there is a (beta-) convergence in productivity levels across EU regions; i.e. the higher (lower) the initial productivity the lower (higher) the productivity growth.
- Ceteris paribus a high share of low skilled population should have negative effects on economic performance and vice versa for the share of highly skilled population.
- Population density is expected to have a positive effect on productivity and GDP growth, largely because of region specific agglomeration effects.
- The expected effects of the initial capital stock are unclear, as a high initial capital stock might indicate a higher technological capacity of the regions thus being favourable to productivity or GDP growth. On the other hand, if there are decreasing returns to the capital stock, less prosperous regions (with a lower initial capital stock) may find it easier to catch up in productivity or GDP.
- Regarding the sectoral structure expectations are that an advanced structure (high share of high and medium high technology intensive industry, high share of knowledge intensive services, low share of agriculture) should positively affects the economic performance of regions, while a less advanced structure should have dampening effects.
- Quality of governance is expected to be positively correlated with productivity growth, given that a stable governance environment has positive external effects on the economy.

› Accessibility is expected to be positively correlated with productivity growth due to the assumption of the existence of agglomeration externalities.

1.2. ECONOMETRIC SET-UP AND ESTIMATION MODEL

Prior to the estimations expectations are that all used forms of investment (national accounts, FDI, ERDF/CF) may have different impacts on the lagging regions depending on whether they are low growth regions in the South or low growth regions in the East. To test this hypothesis the analysis estimates three different types of models, a) a standard regression model without differentiating across regions, b) a model with one spatial regime, i.e. testing whether investment had a different impact in the lagging regions (as a whole) and the other regions and c) an model with two spatial regimes, testing whether investment impacts differed between low growth, low income and other regions.

As the analysis focuses on the EU regions and the respective data usually shows a significant spatial dependence of the regions, OLS estimation quite likely would lead to biased and inconsistent estimates. Moreover the spatial dependence of the EU regions or the size of regional spillovers is itself of interest, so that the analysis uses spatial econometric techniques. To examine the presence of spatial effects, the analysis starts with estimating OLS and using the residuals of the estimations for testing for (spatial) misspecification using Moran's I.

That is the following equations are estimated via OLS:

$$y = I\beta + X\gamma + \varepsilon$$

for the model with only one spatial regime, and

$$y = \begin{bmatrix} \beta_{LR} \\ \beta_{OR} \end{bmatrix} \begin{bmatrix} I_{LR} & 0 \\ 0 & I_{OR} \end{bmatrix} + \begin{bmatrix} \gamma_{LR} \\ \gamma_{OR} \end{bmatrix} \begin{bmatrix} X_{LR} & 0 \\ 0 & X_{OR} \end{bmatrix} + \varepsilon$$

for the model differentiating between lagging and other regions, i.e. two spatial regimes. Furthermore, two modified models with two spatial regimes are estimated as well, with the first of those models only considering the low growth lagging regions in the South, and the second uses low income lagging regions only (all other regions are put in the "other regions" group). All models use the assumption $\varepsilon \sim N(0, \sigma^2 I_n)$.

In the above equations y represents productivity growth, I represents investment (national accounts, FDI or ERDF/CF), β is the estimated coefficient for investment, and X are all other explanatory variables with the corresponding estimated coefficient γ. The subscripts denote the regional groups, whereby LR stands for lagging regions (as a whole or for low income or low growth lagging regions), OR for other regions.

In the analysis OLS estimation were run for all possible variants of models (52 in total). All of them show strong signs of spatial misspecification and the presence of spatial dependence. This is illustrated by the following example for national accounts investment and the two spatial regimes model (see Table 1.1; other OLS results are given in the Annex).

Table 1.1 / OLS results, national accounts investment, two spatial regimes.

Variables:	Investment as % of GDP	Investment per inhabitant	Investment growth
Initial productivity Lagging Regions (LR)	-2.540***	-3.735***	-3.070***
Initial productivity Other Regions (OR)	-2.056***	-2.609***	-2.013***
High skilled share LR	-0.758	-0.661	-0.51
High skilled share OR	0.797***	0.741***	0.680***
Low skilled share LR	0.112	-0.281	0.690*
Low skilled share OR	-0.384***	-0.292**	-0.275**
Population density LR	0.486**	0.411*	0.203
Population density OR	0.026	0.012	0.001
Initial capital stock LR	0.281	0.247	0.989*
Initial capital stock OR	0.12	-0.049	0.238
Market potential LR	0.012***	0.009**	0.008*
Market potential OR	0.001	0.002	0.0003
Initial industry share LR	-0.549*	-0.506	-0.45
Initial industry share OR	-0.124	-0.085	-0.093
Initial agriculture share LR	0.557**	0.327	0.450*
Initial agriculture share OR	0.061	0.024	0.042
Accessiblity population road LR	0.01	0.068	0.015
Accessiblity population road OR	-0.045	-0.028	-0.025
Quality of governance (2013) LR	0.073	0.044	-0.066
Quality of governance (2013) OR	0.184**	0.216**	0.154*
Investment LR	1.627**	1.713***	0.075**
Investment OR	0.163	0.696***	0.089***
Constant Lagging Regions	2.931	1.771	7.836**
Constant Other Regions	9.428***	8.059***	8.853***
Observations	259	259	259
Adjusted R-squared	0.876	0.885	0.888
Moran's I (p-value)	0.003	0.006	0.073
LMerror (p-value)	0.133	0.190	0.709
LMlag (p-value)	0.003	0.005	0.010
RLMerror (p-value)	0.719	0.693	0.142
RLMlag (p-value)	0.011	0.013	0.003

Robust standard errors (not shown); *** p<0.01, ** p<0.05, * p<0.1.

The presence of spatial effects necessitates the use of spatial econometric methods. The most general spatial model is the Manski model (see Elhorst[6], 2010). It identifies three different types of spatial interaction effects that could explain why one region may be dependent on the development in other regions. Firstly, there are endogenous interaction effects, where the development in one region depends on the development of other regions; secondly there are exogenous interaction effects, where the development in one region depends on independent explanatory variables of the other regions and thirdly there are correlated effects, where similar unobserved environmental characteristics result in similar developments across regions. The Manski model takes the form:

[6] Elhorst, J. P. (2010), 'Applied Spatial Econometrics: Raising the Bar', *Spatial Economic Analysis*, Vol. 5, No. 1, March 2010

$$y = \rho W y + X\beta + WX\theta + u$$

$$u = \lambda W u + \varepsilon$$

where the variable Wy denotes the endogenous interaction effects among the dependent variables, WX the exogenous interaction effects and Wu the interaction effects among the disturbance terms of the region. Thereby ρ is the spatial autoregressive coefficient, λ the spatial autocorrelation coefficient, while θ, represents vector of fixed but unknown parameters.

All other spatial models can be derived from the Manski model, by removing or relaxing one or more spatial interaction effects. Thus, the Spatial Durbin Model (SDM) is derived by assuming λ equals zero (no spatial autocorrelation), while the Spatial Durbin Error Model (SDEM) is derived by setting ρ to zero (no spillovers from developments in other regions). Other models (like the Spatial Error Model or the Spatial Autoregressive Model) follow by relaxing even more spatial interaction effects.

In this model, W is a spatial weights matrix basically describing the distance from each region to all other regions, and thus being the basis to estimate the spatial dependence across the regions. This analysis uses a distance (in km) based weight matrix, whereby the distances between each region have been calculated as the great circle distance between the centroids of the regions (based on information regarding the geographic coordinates of the regions). In detail matrix W is a is a row-normalised spatial weights matrix defined as W:

$$\begin{cases} w^*_{i,j} = 0 \; if \; i = j \\ w^*_{i,j} = {}^{1}/_{d^2} \; if \; d_{i,j} \leq D \; and \; w_{i,j} = w^*_{i,j} \Big/ \sum_j w^*_{i,j} \\ w^*_{i,j} = 0 \; if \; d_{i,j} > D \end{cases}$$

where $d_{i,j}$ is the great circle distance (in km) between the the regions i and j; w^*_{ij} is an element of the unstandardized weight matrix, and w_{ij} is a element of the row-standardized weight matrix, that is used in the analysis. Spatial weights are set to zero for the diagonal elements of W, i.e. the distance to the own region, as well as for regions that are further away than a certain distance cut-off point D, above which spatial dependence is expected to be negligible.

Regarding the choice of the appropriate estimation model it would be desirable to start from the most general model, i.e. the Manski model and to test down, which model is the most appropriate one. The major drawback of the Manski model however is that there are too many spatial interactions so that the parameter estimates from an estimation based on this model cannot be interpreted in a meaningful way since the endogenous and exogenous effects cannot be distinguished from each other (Elhorst, 2010).

Therefore, following Elhorst (2010[7]) and LeSage and Pace (2009[8]) the main workhorse model for the analysis is the Spatial Durbin Model (SDM). The authors suggest, as the Manski model cannot be estimated, excluding the spatially autocorrelated error term from this model (i.e. SDM) will produce more consistent estimation results than e.g. ignoring spatial dependence in the dependent variable (SDEM) as

[7] Elhorst, J. P. (2010), 'Applied Spatial Econometrics: Raising the Bar', *Spatial Economic Analysis*, Vol. 5, No. 1, March 2010

[8] LeSage, J. P.,Pace, R. K. (2009), 'Introduction to Spatial Econometrics', Boca Raton, Taylor & Francis

it may induce a high omitted variable bias. By contrast, ignoring spatial dependence in the disturbances will only cause a loss of efficiency, but result in unbiased coefficient estimates.

Thus, the two basic SDM models are estimated using Maximum Likelihood:

$$\ln\left(\frac{y_{r,t}}{y_{r,t-1}}\right) = \alpha + \rho W\left(\frac{y_{r,t}}{y_{r,t-1}}\right) + \beta_n X_r + \gamma_n W X_r + \varepsilon_r$$

and

$$\ln\left(\frac{y_{r,t}}{y_{r,t-1}}\right) = \alpha + \rho W\left(\frac{y_{r,t}}{y_{r,t-1}}\right) + \begin{bmatrix}\beta_{n,LR}\\ \beta_{n,OR}\end{bmatrix}\begin{bmatrix}X_r & 0\\ 0 & X_r\end{bmatrix} + \begin{bmatrix}\gamma_{n,LR}\\ \gamma_{n,OR}\end{bmatrix}\begin{bmatrix}WX_r & 0\\ 0 & WX_r\end{bmatrix} + \varepsilon_r$$

The first model is the baseline model, estimating the effects of the regions' investment decision and other explanatory variables (all in X) on their productivity growth over the period 2000-2014. As this model is estimated (separately) for national accounts investment, Structural Funds investment and FDI, I_r is defined as follows:

- National accounts investment: Gross fixed capital formation (total and by sectors) in % of GDP (average over the period 2000-2012), constant GFCF per capita (average over the period 2000-2012), and the 2000-2012 annual average GFCF growth rate. Thus there are three different investment measures for the national accounts investments estimations
- Structural funds: ERDF and Cohesion fund investment in total and spending priorities in % of GDP and per capita.
- FDI: FDI greenfield projects per capita (total and sectors)

Apart from investment, the matrix X_r contains additional independent variables, controlling for differences in the regions characteristics. The additional variables include:

- Initial productivity levels, to capture convergence effects
- Low and highly skilled labour supply:
- Population density
- Initial capital endowment per capita
- Market potential
- Sectoral structure: initial shares of agriculture and manufacturing in total employment
- Within region accessibility (number of cities with more than 50.000 inhabitants that can be reached within hour road travel)
- Across region accessibility (number of population that can be reached within 5 hours of car travel time)
- Quality of governance

The variable WX_r represents the spatially lagged explanatory variables, defined as the squared distance weighted variables (including investment) of the neighbouring regions.

The second model extends the basic model by including two spatial regimes. Thus, the regions own explanatory variables vector X_r is substituted by the matrix $\begin{bmatrix} X_{r,LR} & 0 \\ 0 & X_{r,OR} \end{bmatrix}$, which splits it regions into 'lagging' regions (denoted by LR) and the other regions (denoted by OR). Again, this second model is estimated firstly for all lagging regions, secondly for low growth lagging regions only and thirdly for low income regions only. Thus, it allows differentiating the effects of investment and the other explanatory variables on productivity growth by types of regions. The interpretation is similar for the spatially lagged explanatory variables WX_r.

A fundamental aspect in the SDM model is the presences of spatial feedback loops. To illustrate, a change in a region r's investment variable has effects on the region itself, yet, through spatial spillovers also affects developments in other regions. These developments in other regions (caused by the initial change of region r's investment) feed back again to the original region and so on. Thus, to estimate the effects of a change in investment on the regions' productivity correctly, these feedback loops have to be taken into account. Similar is the case of changes in other regions investment. Through spillovers the investment in other regions affects developments in the original region, and these developments feed back again to the other regions and so on.

The first feedback loop (emanating from changes in the original region) are usually understood as direct effects, while the second feedback loop (effects from other regions investment decisions) as indirect effects. Standard regression output (in Stata) does not report these direct and indirect effects, but rather only report the estimated coefficients (which correspond to feedback-free effect). Therefore these effects have been estimated separately (including inference) following the method proposed in LeSage and Pace (2009).

1.3. ESTIMATION RESULTS

All three models have been run for national accounts investment, FDI and Cohesion policy investment. Throughout all models the dependent variable is the growth of regional productivity in the period 2000-2014. Investment (total and manufacturing) has been defined in three different ways, as investment in % of GDP, investment per capita and investment growth. Estimations were separately run for all three investment variables.

The presentation of results are split by the models estimated, i.e. firstly the results for the regression with one spatial regime are described, secondly the results for the models with two spatial regimes using all lagging regions in the lagging regions sample, followed by the results for the model with two spatial regimes using only low-growth lagging regions and finally the results of the two spatial regimes model using only low-income lagging regions.

All results will be described on the basis of estimated direct and indirect effects. Furthermore, since the focus of the estimations is on the effects of the investment variables, only those will be presented in more detail, while the results for the other explanatory variables are given as an overview. The complete estimation output is included in a separate Annex.

Model with one spatial regime

The table below summarises the investment related variants of the estimated model with one spatial regime, showing the direct, indirect and total effects of the different types of investment on productivity growth in the region. As can be seen from the table:

- aggregate national accounts investment per capita and aggregate investment growth (but not for investment rates in % of GDP) have a significant direct positive effect on productivity growth, with investment growth also exerting positive significant indirect effects to neighbouring regions.
- Manufacturing investment has positive direct effects on growth
- Total FDI inflows have positive and significant direct effects on productivity growth. The same holds for services FDI, but not necessarily for manufacturing FDI.
- Cohesion policy investment from the ERDF and CF, both in total and for productive investment, tend be negatively associated with productivity growth (as direct effects).

Table 1.2 / Direct, indirect and total effects of investment variables, model with one spatial regime

	Direct effect	Indirect effect	Total effect
Investment as % of GDP	0.316	0.568	0.884
Investment per inhabitant	**1.14*** **	-0.253	0.887
Investment growth	**0.06*** **	**0.136*** **	**0.196*** **
Investment Manufacturing as % of GDP	**0.264** **	0.249	0.513
Investment Manufacturing per inhabitant	**0.489*** **	0.120	0.609
Investment Manufacturing growth	**0.018** **	0.050	**0.068** **
Number of FDI per capita total	**0.025*** **	0.017	0.042
Number of FDI per capita manufacturing	-0.032	0.172	0.140
Number of FDI per capita service	**0.038*** **	0.030	0.068*
CF/ERDF as % of GDP	**-0.11*** **	0.161	0.051
CF/ERDF per inhabitant	**-0.071* **	0.094	0.023
CF/ERDF productive as % of GDP	**-0.15*** **	0.198	0.048
CF/ERDF productive per inhabitant	**-0.119*** **	0.151	0.032

Models with two spatial regimes (All lagging regions – other regions)

Following the model with one spatial regime, the next model estimated was the model with two spatial regimes, whereby the first regime consists of all lagging regions (i.e. both low income and low growth lagging regions), while the second regime consists of all other regions. The table below again summarises the results of the estimated variants by showing the direct, indirect and total effects of the different types of investment on productivity growth in the lagging and the other regions.

As far the as investment variables are concerned they show the following:

- National accounts investments has significant positive effects on productivity growth in the lagging and the other regions. In the lagging regions all three national accounts variables are significant, while in the other regions only investment per capita and investment growth shows significant direct effects (investment in % of GDP shows positive indirect effects, though).
- Similar, manufacturing investment is positively associated with productivity growth in the lagging regions (all three variables) as the high and significant direct effects indicate. In the other regions only manufacturing investment growth shows significant direct effects on productivity growth.
- Total regional FDI as well as services have significant direct effects, while manufacturing FDI has indirect effects in the other regions. In the lagging FDI is generally not associated with productivity growth, except for services FDI that shows weakly significant positive indirect effects.
- Total Cohesion policy investment is significant and negatively associated (direct effects) both in the lagging as well as in the other regions. Similar holds for productive Cohesion policy investment

Further investigation suggest that the estimated negative effects from Cohesion policy investment on productivity growth may be mainly due to Romanian and Bulgarian regions (especially for the lagging regions group). In both countries the regions received a relatively small amount of Structural funds (compared to other Central and East European countries), yet had relatively good productivity growth performance over the last years. As such, the performance of these regions was, given the amount of Structural funds they received quite distinct from the performance of other regions.

Table 1.3 / Direct, indirect and total effects of investment variables, model with two spatial regimes (all lagging regions – other regions)

	Lagging regions			Other regions		
	direct effect	indirect effect	total effect	direct effect	indirect effect	total effect
Investment as % of GDP	**1.188****	-3.805	-2.617	-0.006	**1.321***	**1.315***
Investment per inhabitant	**1.415*****	-2.567	-1.152	**0.722*****	0.274	**0.996****
Investment growth	**0.069*****	**0.356*****	**0.425*****	**0.099*****	0.004	**0.103***
Investment Manufacturing as % of GDP	**0.707****	-1.507	-0.800	0.075	0.191	0.266
Investment Manufacturing per inhabitant	**0.860*****	-1.379	-0.519	**0.276*****	0.09	0.366
Investment Manufacturing growth	**0.026****	**0.19*****	**0.217*****	**0.022****	0.039	**0.061***
Number of FDI per capita total	-0.011	0.243	0.232	**0.025*****	0.015	**0.04*****
Number of FDI per capita manufacturing	-0.101	0.767	0.666	-0.02	**0.143****	**0.122***
Number of FDI per capita service	0.073	**1.019***	**1.092***	**0.037*****	0.015	**0.052*****
CF/ERDF as % of GDP	**-0.464****	-0.395	-0.859	**-0.113*****	0.046	-0.067
CF/ERDF per inhabitant	**-0.432****	-1.221	-1.653	**-0.095****	0.018	-0.077
CF/ERDF productive as % of GDP	**-0.637*****	0.757	0.120	**-0.145*****	0.02	-0.125
CF/ERDF productive per inhabitant	**-0.619*****	0.381	-0.238	**-0.134*****	-0.002	**-0.136***

Models with two spatial regimes (Low growth lagging regions – other regions)

As a variant to the model with two spatial regimes, a model was estimated that also contained two regimes. In contrast to the above model, though, the first regime was only made up by the low growth lagging regions, while the second regimes consisted of all other regions (including the low income lagging regions). The results of estimating this model are shown in the table below, where, again, only the effects of the respective investment variables are shown.

Table 1.4 / Direct, indirect and total effects of investment variables, model with two spatial regimes (low growth lagging regions – other regions)

	Low growth lagging regions			Other regions		
	direct effect	indirect effect	total effect	direct effect	indirect effect	total effect
Investment as % of GDP	-1.293	-5.148	-6.441	0.351	0.866	1.217
Investment per inhabitant	-1.432	-9.889	-11.320	**1.268*** **	-0.246	1.022*
Investment growth	-0.066	-0.305	-0.370	**0.061*** **	**0.174** **	**0.235*** **
Investment Manufacturing as % of GDP	0.391	-2.901	-2.511	**0.284** **	-0.302	-0.017
Investment Manufacturing per inhabitant	0.456	-2.965	-2.509	**0.568*** **	-0.144	0.424
Investment Manufacturing growth	0.057	-0.311	-0.254	**0.019* **	**0.115** **	**0.135*** **
Number of FDI per capita total	-0.438	-4.570	-5.007	**0.026*** **	0.012	0.038
Number of FDI per capita manufacturing	0.346	-7.498	-7.152	-0.028	0.116	0.088
Number of FDI per capita service	-0.585	**-6.197* **	-6.782*	**0.039*** **	0.024	**0.064* **
CF/ERDF as % of GDP	-0.247	6.614	6.367	**-0.113** **	0.037	-0.077
CF/ERDF per inhabitant	-0.197	6.239	6.043	-0.07	-0.025	-0.095
CF/ERDF productive as % of GDP	-0.826	1.152	0.326	**-0.152*** **	0.049	-0.102
CF/ERDF productive per inhabitant	-0.761	0.423	-0.338	**-0.118*** **	0.016	-0.102

The results of the estimations showed the following:

- As far as the low growth lagging regions are concerned, no type of investment showed any effects (direct or indirect) on productivity growth in the regions.
- With respect to the other regions, the effects are very similar to those of the other estimations. Hence, aggregate and manufacturing national account investment tend to have mostly direct positive effects on productivity growth; similar holds for total and services FDI. By contrast, Structural funds investment is negatively associated (i.e. negative direct effects) with regional productivity growth.

Models with two spatial regimes (Low income lagging regions – other regions)

The other variant of the two spatial regimes model includes only low income lagging regions in the first regime, while the low growth lagging regions as well as all other regions are grouped in the second regime. Estimating this variant for all investment variables shows the following results (see table below):

- Aggregate and manufacturing national account investment have strong direct, indirect and as a result total effects on productivity growth in the low income lagging regions.
- FDI has no direct effects in the low income lagging regions, but strong indirect effects.
- Structural funds investment effects are generally not significant, except for productive Structural investment if measured by capita. For the latter variable strong positive direct effects on the low income lagging regions were detected.
- As far as the other regions are concerned, the effects of the investment variables on productivity growth are again highly similar to those of the other models.

Table 1.5 / Direct, indirect and total effects of investment variables, model with two spatial regimes (low income lagging regions – other regions)

	Lagging regions			Other regions		
	direct effect	indirect effect	total effect	direct effect	indirect effect	total effect
Investment as % of GDP	**6.471*** **	**23.639** **	**30.11** **	0.095	**0.897* **	**0.992** **
Investment per inhabitant	**4.043*** **	**17.2** **	**21.244*** **	**0.706*** **	-0.072	0.634
Investment growth	0.010	**1.191*** **	**1.2*** **	**0.082*** **	0.044	**0.127*** **
Investment Manufacturing as % of GDP	**6.86*** **	**22.858** **	**29.718*** **	0.132	0.406	**0.538** **
Investment Manufacturing per inhabitant	**4.774*** **	**15.709** **	**20.483*** **	**0.307*** **	0.137	**0.444** **
Investment Manufacturing growth	0.017	**0.744*** **	**0.76*** **	**0.033*** **	0.007	**0.04** **
Number of FDI per capita total	0.035	**2.326** **	**2.361** **	**0.026*** **	0.016	**0.043*** **
Number of FDI per capita manufacturing	0.362	**14.736*** **	**15.099*** **	-0.023	**0.22*** **	**0.198*** **
Number of FDI per capita service	0.119	**3.972** **	**4.091** **	**0.038*** **	0.018	**0.056*** **
CF/ERDF as % of GDP	-0.501	-11.609	-12.109	**-0.106*** **	0.142	0.036
CF/ERDF per inhabitant	0.751	-4.195	-3.445	**-0.085* **	0.109	0.024
CF/ERDF productive as % of GDP	1.417	-2.096	-0.679	**-0.13*** **	0.134	0.003
CF/ERDF productive per inhabitant	**2.479** **	2.233	4.713	**-0.115*** **	0.103	-0.012

Effects of other explanatory variables, specification tests

As far as the other explanatory variables are concerned, their coefficients and effects are fairly robust over all estimations made. Summarising the effects of these variable shows:

- Most models show a strong (beta-) convergence of productivity across EU regions with the convergence coefficient (direct effect) being around -2.0, as far as direct effects are concerned. The initial productivity level also shows strong positive and significant indirect effects, indicating that regions neighbouring high productivity regions benefit from economic spillovers and potential spatial cluster and agglomeration effects.

- The share of highly educated in the labour force had no significant impact in the model with one spatial regime. However, in the models with two spatial regimes high skills have a positive direct effect in the other regions, but not in the lagging regions.
- The effects for market potential, the initial industry share, accessibility, and population density are generally insignificant across models.
- The direct effects for the initial capital stock per capita are positive and significant in the model with one spatial regime. However, the indirect effects from the capital stock are highly negative and significant, which may indicate the presence of competition across neighbouring regions. In the models with two regimes, the capital stock has significant effects almost only in the other regions.
- Quality of governance shows no significant direct effects, but the indirect effects are significant and positive, which most likely can be attributed to the fact that a stable country governance environment (as most neighbouring regions are from the same country) is conducive to productivity growth.

For all models a spatial Chow tests were done to test whether the estimated coefficients vary between the lagging and the other regions. For all estimated models, except the two regimes model defining the low-growth regions as lagging regions the Chow test was in favour of the split of regimes as the H0 was strongly rejected (see Annex results).

1.4. SIMULATIONS – SCENARIO ANALYSIS

Based on the results of the econometric analysis this step analyses the spatial opportunity costs of investment, i.e. the question, "whether investment would be more effective if it was concentrated in the core regions instead of in the lagging regions?" For this, the analysis follows the ideas put forward in OECD (2012[9]) and in Dall'erba and Le Gallo (2008[10]) and simulates two scenarios using the regression results from above (i.e. the results for the models with two spatial regimes).

The two scenarios are defined as follows:

1. A 10% **increase** of **investment** in the **lagging** regions, keeping total country investment constant; i.e. investment in the **core** regions is **reduced** by the amount investment increases in the lagging regions. The reduction of investment in the core regions is assumed to be proportional to their share in aggregate investment (of the core regions).
2. A 10% **decrease** of **investment** in the **lagging** regions, keeping total country investment constant; i.e. investment in the **core** regions is **increased** by the amount investment decreases in the lagging regions. The increase of investment in the core regions is assumed to be proportional to their share in aggregate investment (of the core regions).

To define a baseline scenario the analysis uses the regression coefficients estimated by the model with two spatial regimes above to compute the predicted productivity growth rates by region (annual average over the period 2000-2014). These regional growth rates are then used to estimate the aggregate country productivity growth. This is the predicted baseline growth rate.

[9] OECD, 2012, 'Promoting Growth in All Regions', OECD.

[10] Dall'erba, S., Le Gallo, J, 2008, 'Regional convergence and the impact of European structural funds over 1989–1999: A spatial econometric analysis', Papers in Regional Science, Volume 87 Number 2 June 2008.

Given this, the analysis simulates a 10% increase of investment in the lagging regions and a correspondent decrease of investment in the core regions in order to estimate the predicted productivity growth rates for scenario 1. This scenario growth rates are then employed to estimate the aggregate country productivity growth. This country scenario growth is compared to the baseline growth rate. For scenario 2 the procedure is the same, except that investment is increased by 10% in the core regions and reduced in the lagging regions. This has been done for:

- **Aggregate national accounts investment**: in % of regional GDP, per capita and investment growth
- **Manufacturing investment**: in % of regional GDP, per capita and investment growth
- **Total ERDF and CF investment**: in % of regional GDP, per capita
- **Productive ERDF and CF investment**: in % of regional GDP, per capita

FDI are not taken into consideration, given the insignificant estimation results, especially for the lagging regions.

The simulations are based on the estimated two spatial regimes model. As three variants of this model have been estimated (i.e. all lagging regions, only low growth lagging regions, only low income lagging regions), simulations have also been made for each of these variants.

All estimations and simulations were done in R. The results of the analysis are presented below (showing the differences in productivity growth rates between the baseline and the scenarios in percentage points).

Aggregate national accounts investment

Starting with the simulations based on the two regimes model using all lagging regions as one regime (and the other regions as the second regime), the results are shown in the figure below. Hence, the simulations suggest that an increase of investment (in the simulations using investment in % of GDP and per capita) in the lagging regions (scenario 1) had negative effects on productivity growth in all lagging regions countries (compared to the baseline), as the negative effects of the reduced investment in the core regions and the spillovers from this were stronger than the positive effects from the increase of investment in the lagging regions. By contrast, scenario 2 resulted in aggregate productivity growth rates that were higher than in the baseline, as a shift of investment from the lagging regions to the core regions, generated strong direct effects in the core regions themselves but also had positive spillover effects on the lagging regions. These positive or negative effects for the simulations using investment as % of GDP and investment growth are mostly around 0.5 to 1 percentage points, except for Greece and Bulgaria (in the case of per capita investment), where the effects are larger (2 p.p. in Greece, and 1.4 p.p. in Bulgaria). In the case of investment growth variable, the simulation showed no sizeable effects.

As far as the simulations on the basis of the other variants of the two spatial regimes model are concerned the figure below shows a) in the left graph the simulations based on the model only using the low growth lagging regions and b) in the right graphs the simulations only using the low income lagging regions.

Figure 1.1 / Aggregate investment: Comparison of scenario effects on aggregate productivity growth; Spatial regimes: 1) all lagging regions, 2) other regions

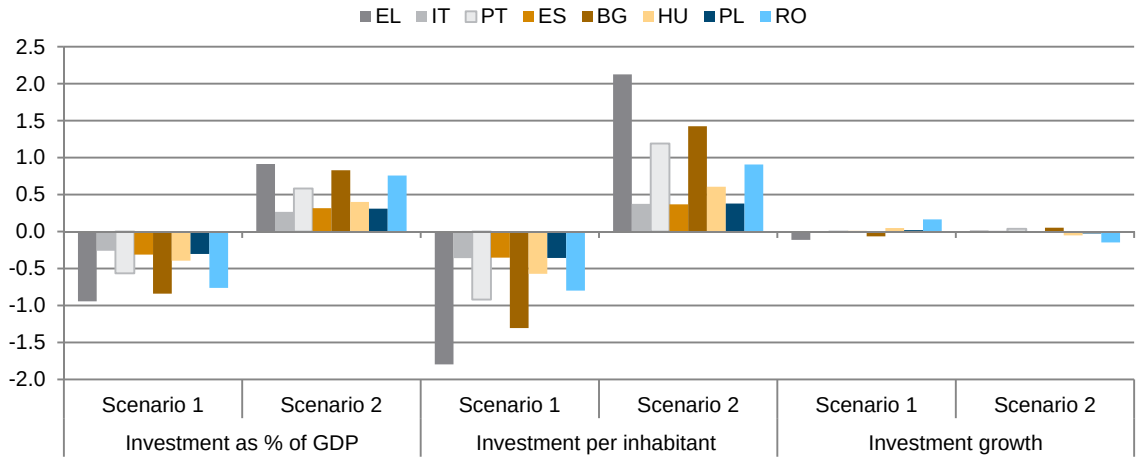
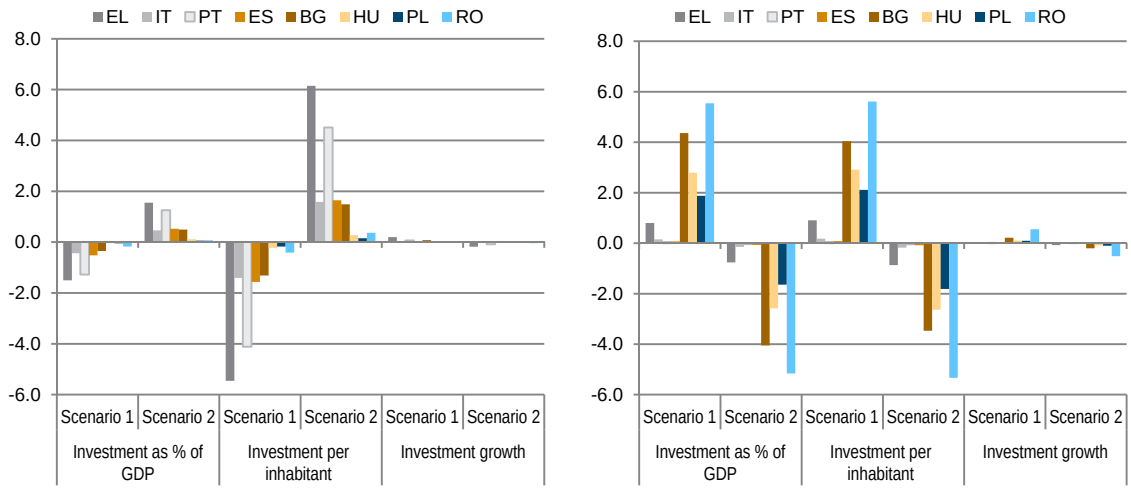


Figure 1.2 / Aggregate investment: Comparison of scenario effects on aggregate productivity growth

Left graph: spatial regimes: 1) low growth lagging regions, 2) other regions
Right graph: spatial regimes: 1) low income lagging regions, 2) other regions



As far as the low growth lagging regions variant is concerned (left graph), the simulations show a similar pattern as above. Hence an increase of investment in the low growth lagging regions tends to reduce aggregate country productivity growth, while an increase of investment in the core regions of the respective country has positive effects on aggregate growth. Notably, in contrast to the results above, the positive and negative effects are much more pronounced in these simulations (up to 6 p.p. in the case of Greece), indicating a quite strong differentiation between the core and the lagging regions in the Southern countries.

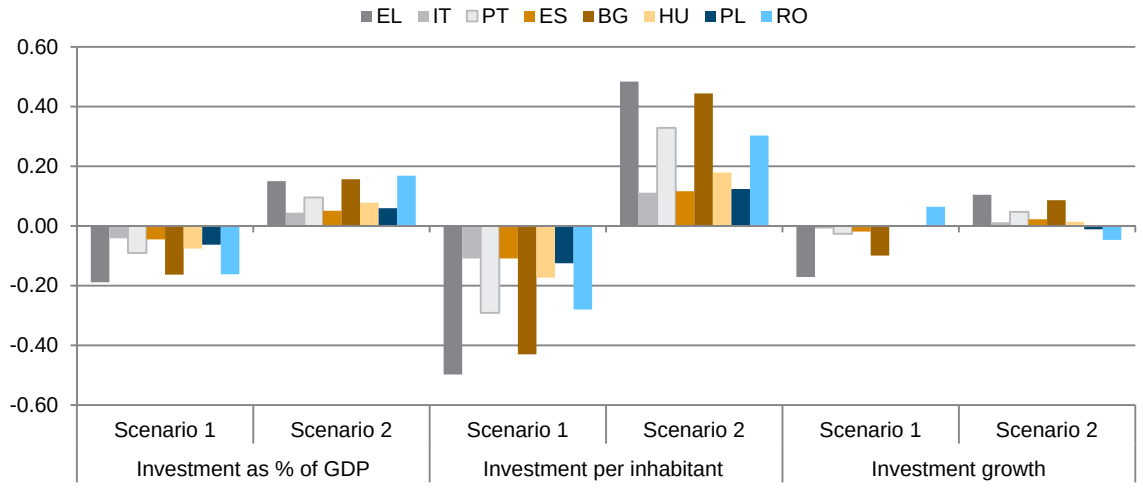
Considering the low income regions (right graph), the simulations deviate from the other findings so far, as they suggest that increasing investment in the lagging regions is conducive to aggregate country growth, while an increase of investment in the core regions, accompanied by a decrease in the lagging regions would reduce overall country productivity growth.

Manufacturing investment

Turning to the simulation regarding manufacturing investment, the structure of the analysis is the same as before. Hence, the first graph presents the data for the simulations based on the two spatial regimes model using all lagging regions. The second graph presents the results for the two additional variant of this model.

The simulation based on the model with all lagging regions (Figure 1.3) and using manufacturing investment as investment variable basically shows the same results as the simulations for aggregate investment. Hence an increase of investment in the lagging regions tends to reduce aggregate country growth and vice versa for an increase of investment in the core regions. However, compared to aggregate investment the effects of a shift in manufacturing investment are considerably smaller at around 0.1 to 0.4 p.p.

Figure 1.3 / Manufacturing investment: Comparison of scenario effects on aggregate productivity growth; spatial regimes: 1) all lagging regions, 2) other regions

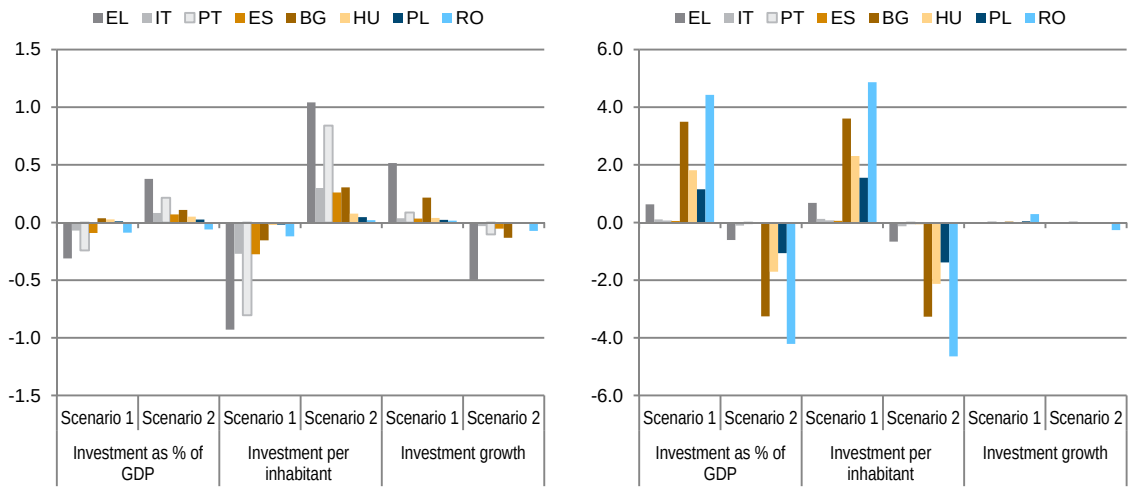


Also the simulations based on the two variants of the two regimes model and manufacturing investment (see Figure 1.4) yield similar results as it was the case for the respective simulations using aggregate investment. Hence, in the case of the low growth lagging regions variant, the simulations suggest that an increase of investment in the low-growth lagging regions tends to reduce aggregate country productivity growth. By contrast if manufacturing investment was increased in the core regions, country productivity would increase.

Oppositely, in the case of the low income lagging regions variant, the simulation show, that increasing investment in the lagging regions would have positive effects on aggregate country growth and vice versa for an increase of investment in the core regions.

Figure 1.4 / Manufacturing investment: Comparison of scenario effects on aggregate productivity growth

Left graph: spatial regimes: 1) low growth lagging regions, 2) other regions
Right graph: spatial regimes: 1) low income lagging regions, 2) other regions



ERDF and CF investments, total and productive

As for national accounts investment, similar simulations have been done using Structural funds investment, both total and productive investment, to analyse the effects of potential shifts therein on aggregate country productivity growth. Again, the basis for the simulations were the three variants of the two spatial regimes model estimated above; i.e. the first considering all lagging regions, the second only low growth lagging regions and the third only considering low income lagging regions. The results of the simulations are presented in the figures below.

Using the model considering all lagging regions, the simulations suggest that for total Structural funds investment (see Figure 1.5), a shift of investment from the lagging regions to the core regions would increase aggregate country productivity growth, while shifting investment to the lagging regions would lower it. Thereby the estimated effects are relatively small, if Structural funds investment is measured in % of GDP (i.e. aggregate productivity growth would increase or decrease by around 0.1 percentage points), and somewhat higher if measured in per capita terms (i.e. an average increase or decrease of country productivity growth of 0.4 percentage points).

Figure 1.5 / Structural funds investment: Comparison of scenario effects on aggregate productivity growth; Spatial regimes: 1) all lagging regions, 2) other regions

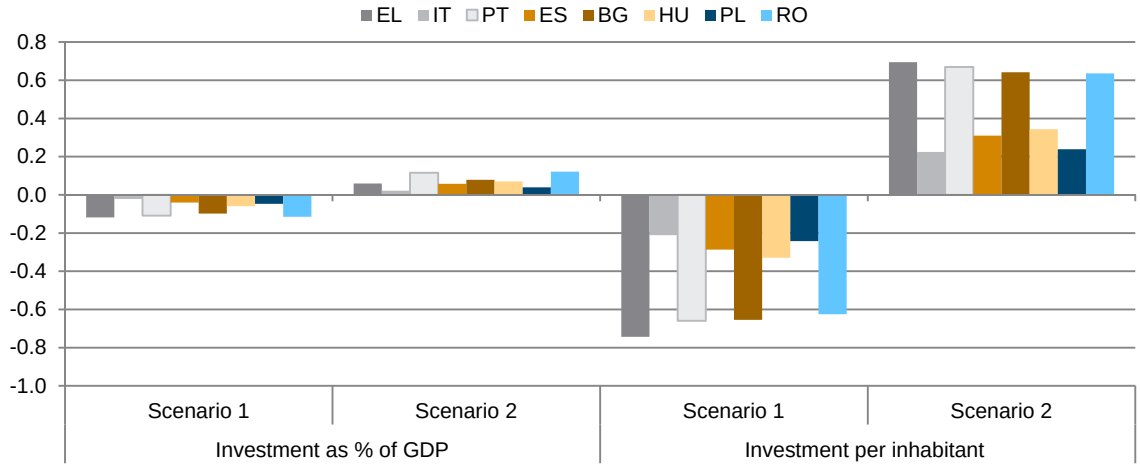
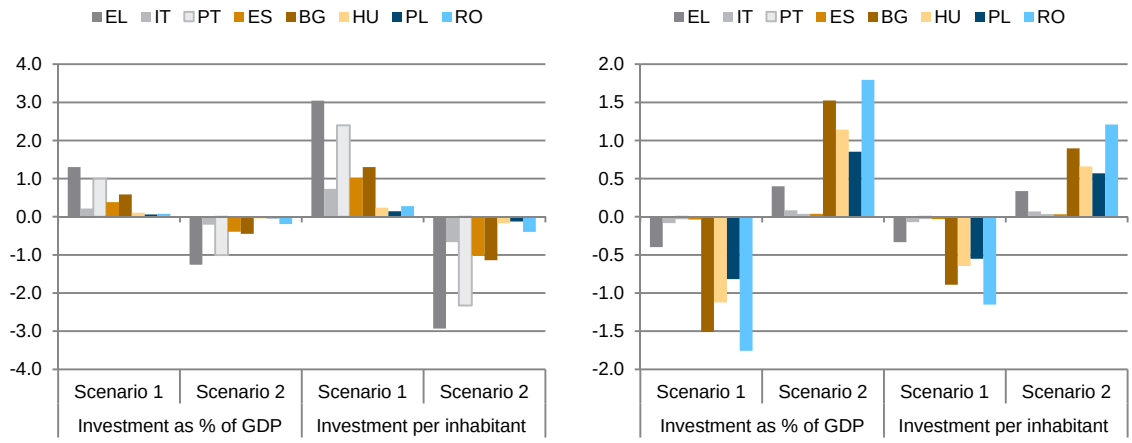


Figure 1.6 / Structural funds investment: Comparison of scenario effects on aggregate productivity growth

Left graph: spatial regimes: 1) low growth lagging regions, 2) other regions
Right graph: spatial regimes: 1) low income lagging regions, 2) other regions



However, if the simulations are based on the model only considering low growth lagging regions, the results show a different tendency. In these simulations a shift of investment from the core regions to the lagging regions would actually increase aggregate country productivity growth, mostly so in Greece and Portugal. On the other side, increasing Structural funds investment in the core regions at the cost of the low growth lagging regions would reduce country productivity growth.

The simulations based on the model only considering low income lagging regions suggest in turn, that country productivity growth could be increased if Structural funds investments are shifted to the core regions.

Figure 1.7 / Productive Structural funds investment: Comparison of scenario effects on aggregate productivity growth; Spatial regimes: 1) all lagging regions, 2) other regions

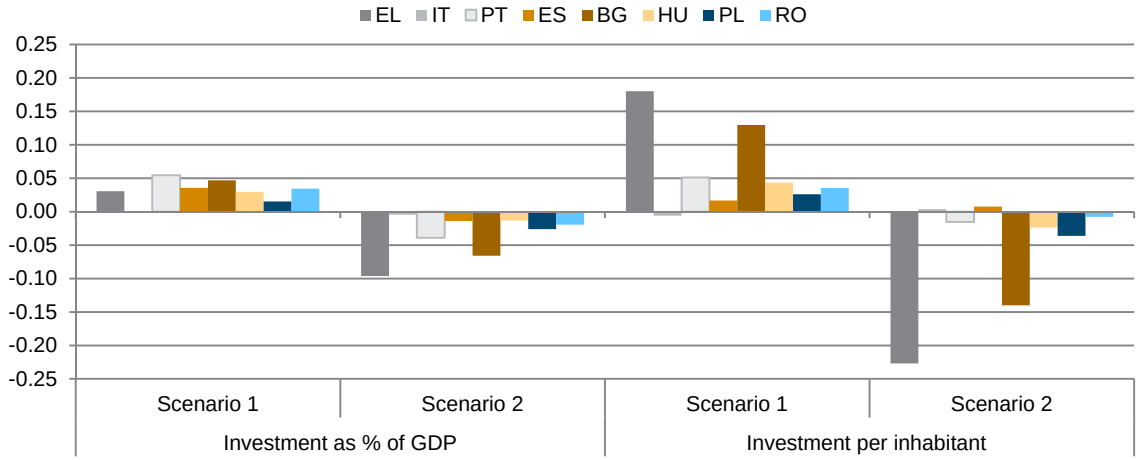
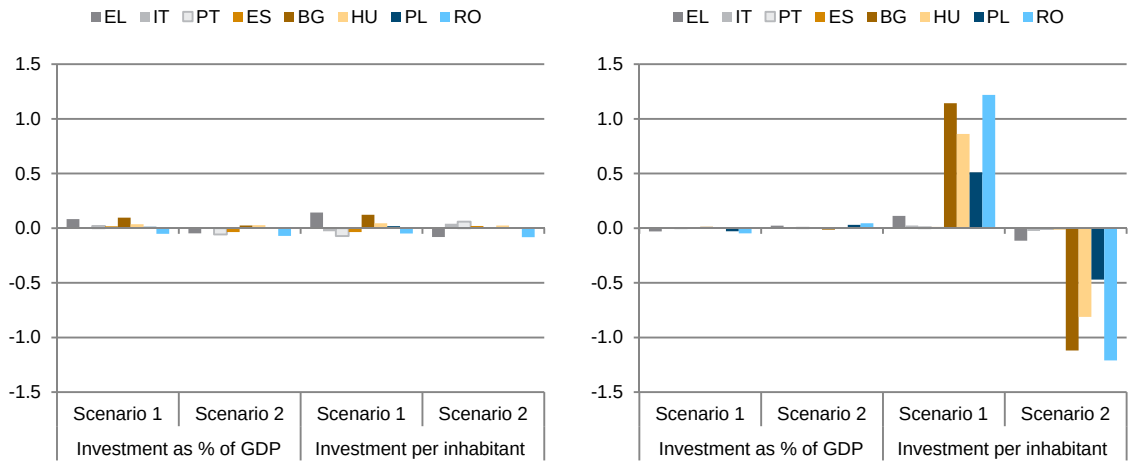


Figure 1.8 / Productive Structural funds investment: Comparison of scenario effects on aggregate productivity growth

Left graph: spatial regimes: 1) low growth lagging regions, 2) other regions
Right graph: spatial regimes: 1) low income lagging regions, 2) other regions



The simulations using productive Structural funds investment as main investment variable affecting productivity growth provide somewhat different results to the above simulations. The simulations based on the model variants using a) all lagging regions (Figure 1.7) and b) considering only low income lagging regions (Figure 1.8 right graph), suggest that a shift of investment from the core regions to the lagging regions could have positive effects on county productivity growth, although in most cases the effects are relatively small. The results of the simulations based on the model considering only low growth lagging regions (Figure 1.8 left graph) indicate that investment shifts from or to the lagging regions have only negligible small effects on aggregate productivity growth.

2. Additional tables for chapter 5 in part III[11] of the main report – Analysis of main investment trends

2.1. AGGREGATE INVESTMENT TABLES

Table 2.1 / Growth rates of GDP and GFCF, annual averages for periods

	Gross fixed capital formation				GDP			
	2000-2003	2004-2008	2009-2011	2012-2014	2000-2003	2004-2008	2009-2011	2012-2014
Greece	6.5	3.1	-18.0	-12.3	4.6	2.8	-6.3	-3.3
Spain	5.5	4.0	-9.7	-2.1	3.4	3.2	-1.5	-1.0
Italy	2.3	1.1	-4.2	-6.5	0.7	1.0	-1.1	-1.6
Portugal	-3.3	0.6	-7.1	-6.6	0.6	1.4	-1.0	-1.4
Bulgaria	13.5	17.6	-13.5	1.8	5.1	6.8	-0.9	1.0
Hungary	3.9	3.4	-6.4	4.5	4.1	2.9	-1.4	1.3
Poland	-5.3	11.2	2.1	2.2	2.3	5.2	3.8	2.0
Romania	9.5	22.0	-14.0	-1.0	5.4	7.2	-2.3	2.4
EU28	0.6	3.4	-3.5	-0.5	1.6	2.3	-0.2	0.4

Source: Eurostat.

[11] wiiw Research Report 423, Economic Challenges Lagging Regions III: Recent Investment Trends and Needs, December 2017.

Table 2.2 / Investment by asset types, shares in GDP, period averages; Southern 'lagging' regions countries

		2000-2003	2004-2008	2009-2011	2012-2014
Greece	Buildings	14.4	13.9	9.4	6.2
	Intellectual, biological	1.6	1.7	1.8	1.6
	Transport equipment	3.6	3.7	3.2	1.5
	Other machinery and ICT	5.0	4.5	3.5	2.8
	Total GFCF	24.6	23.7	17.9	12.1
Spain	Buildings	17.3	20.4	14.3	10.6
	Intellectual, biological	2.0	2.3	2.7	3.1
	Transport equipment	2.3	2.3	1.5	1.7
	Other machinery and ICT	5.1	4.9	4.4	4.3
	Total GFCF	26.7	29.9	22.9	19.6
Italy	Buildings	10.4	11.4	10.6	9.0
	Intellectual, biological	2.6	2.5	2.6	2.7
	Transport equipment	1.6	1.5	1.2	0.7
	Other machinery and ICT	6.1	5.9	5.4	4.9
	Total GFCF	20.7	21.3	19.9	17.4
Portugal	Buildings	16.1	13.7	11.6	8.0
	Intellectual, biological	2.0	2.3	2.9	2.9
	Transport equipment	2.5	1.9	1.2	0.9
	Other machinery and ICT	5.6	4.9	4.3	3.3
	Total GFCF	26.2	22.9	20.0	15.2
EU28	Buildings	11.0	11.9	10.7	10.0
	Intellectual, biological	3.4	3.4	3.6	3.8
	Transport equipment	1.7	1.8	1.5	1.4
	Other machinery and ICT	5.4	4.9	4.4	4.4
	Total GFCF	21.5	22.0	20.3	19.5

Source: Eurostat.

Table 2.3 / Contribution of asset types to total investment growth, in %, period averages; Southern 'lagging' regions countries

		2000-2003	2004-2008	2009-2011	2012-2014
Greece	Total GFCF	6.5	3.1	-18.0	-12.3
	Buildings	3.8	1.6	-9.5	-5.7
	Intellectual, biological	1.1	0.6	-3.2	-2.0
	Transport equipment	0.4	0.2	-1.9	-1.6
	Other machinery and ICT	1.1	0.7	-3.3	-3.0
Spain	Total GFCF	5.5	4.0	-9.7	-2.1
	Buildings	3.7	2.6	-5.7	-1.1
	Intellectual, biological	0.4	0.3	-0.7	-0.2
	Transport equipment	0.5	0.4	-1.3	-0.3
	Other machinery and ICT	0.9	0.7	-2.0	-0.5
Italy	Total GFCF	2.3	1.1	-4.2	-6.5
	Buildings	1.3	0.6	-2.2	-3.3
	Intellectual, biological	0.2	0.1	-0.3	-0.3
	Transport equipment	0.3	0.1	-0.6	-1.1
	Other machinery and ICT	0.6	0.3	-1.2	-1.8
Portugal	Total GFCF	-3.3	0.6	-7.1	-6.6
	Buildings	-2.3	0.3	-4.2	-3.2
	Intellectual, biological	-0.2	0.0	-0.4	-0.5
	Transport equipment	-0.3	0.1	-1.2	-1.3
	Other machinery and ICT	-0.5	0.1	-1.4	-1.7
EU28	Total GFCF	0.6	3.4	-3.5	-0.5
	Buildings	0.3	1.8	-1.8	-0.2
	Intellectual, biological	0.0	0.3	-0.3	0.0
	Transport equipment	0.1	0.5	-0.6	-0.1
	Other machinery and ICT	0.1	0.8	-0.8	-0.1

Source: Eurostat.

Table 2.4 / Contribution of asset types to total investment growth, in %, period averages; Eastern 'lagging' regions countries

		2000-2003	2004-2008	2009-2011	2012-2014
Bulgaria	Total GFCF	13.5	17.6	-13.5	1.8
	Buildings	5.4	9.5	-7.0	0.9
	Intellectual, biological	2.8	1.5	-0.6	0.1
	Transport equipment	1.1	0.7	-1.0	0.1
	Other machinery and ICT	4.2	5.9	-4.9	0.6
Hungary	Total GFCF	3.9	3.4	-6.4	4.5
	Buildings	2.1	1.7	-3.0	2.1
	Intellectual, biological	0.4	0.3	-0.5	0.5
	Transport equipment	0.4	0.4	-0.9	0.5
	Other machinery and ICT	1.0	1.0	-2.0	1.4
Poland	Total GFCF	-5.3	11.2	2.1	2.2
	Buildings	-3.0	5.9	1.2	1.2
	Intellectual, biological	-0.4	1.0	0.2	0.2
	Transport equipment	-0.4	0.7	0.1	0.1
	Other machinery and ICT	-1.5	3.5	0.6	0.6
Romania	Total GFCF	9.5	22.0	-14.0	-2.7
	Buildings	4.4	12.1	-7.2	-1.4
	Intellectual, biological	1.6	3.5	-2.1	-0.3
	Transport equipment	0.9	1.8	-1.2	-0.1
	Other machinery and ICT	2.5	4.5	-3.4	-0.9
EU28	Total GFCF	0.6	3.4	-3.5	-0.5
	Buildings	0.3	1.8	-1.8	-0.2
	Intellectual, biological	0.0	0.3	-0.3	0.0
	Transport equipment	0.1	0.5	-0.6	-0.1
	Other machinery and ICT	0.1	0.8	-0.8	-0.1

Source: Eurostat.

Table 2.5 / GFCF by economic sectors, in % of GDP, period averages; Southern 'lagging' regions countries

		Total	Agricul-ture	Mining, Energy	Manufacturing Industries					Construc-tion	Business market services	Other market & public services
					Total	High tech	Medium high tech	Medium low tech	Low tech			
Greece	2000-2003	24.6	0.9	0.6	1.5	0.1	0.2	0.6	0.6	0.5	11.3	9.8
	2004-2008	23.7	0.9	0.5	1.1	0.1	0.1	0.4	0.5	0.5	12.2	8.5
	2009-2011	17.9	0.8	0.5	1.2	0.1	0.1	0.7	0.4	0.2	7.8	7.4
	2012-2014	12.1	0.6	0.4	1.2	0.1	0.1	0.7	0.3	0.1	4.5	5.3
Spain	2000-2003	26.7	0.5	1.0	2.8					2.7	11.0	8.9
	2004-2008	29.9	0.4	1.2	2.3					4.0	12.8	9.2
	2009-2011	22.9	0.4	2.1	1.7					1.3	8.9	8.5
	2012-2014	19.6	0.4	2.4	1.9					0.8	7.4	6.4
Italy	2000-2003	20.7	0.8	1.4	3.8	0.3	1.2	1.2	1.1	0.6	7.9	6.2
	2004-2008	21.3	0.8	1.4	3.6	0.3	1.1	1.1	1.1	0.6	8.5	6.2
	2009-2011	19.9	0.7	1.2	3.5	0.3	1.1	1.0	1.0	0.5	8.1	5.9
	2012-2014	17.4	0.6	1.0	3.3	0.3	1.1	1.0	0.9	0.4	7.5	4.7
Portugal	2000-2003	26.2	0.7	1.1	3.0	0.2	0.6	0.9	1.2	1.2	11.1	9.2
	2004-2008	22.9	0.6	1.6	2.5	0.2	0.5	0.8	1.0	0.9	9.3	7.9
	2009-2011	20.0	0.5	1.9	2.5	0.2	0.6	0.8	0.9	0.7	6.9	7.6
	2012-2014	15.3	0.5	1.6	2.2	0.2	0.6	0.6	0.9	0.4	5.4	5.2

Source: Eurostat.

Table 2.6 / GFCF by economic sectors, in % of GDP, period averages; Eastern 'lagging' regions countries

		Total	Agriculture	Mining, Energy	Manufacturing industries					Construc-tion	Business market services	Other market & public services
					Total	High tech	Medium high tech	Medium low tech	Low tech			
Bulgaria	2000-2003	18.8	1.0	1.4	3.7	0.2	0.6	1.2	1.7	2.1	2.7	7.9
	2004-2008	27.0	1.0	3.4	4.4	0.2	0.6	1.6	1.9	4.3	4.7	9.2
	2009-2011	23.8	1.0	3.7	3.0	0.1	0.5	1.2	1.1	3.6	4.6	7.9
	2012-2014	21.2	1.4	4.3	3.2	0.2	0.6	1.2	1.2	2.3	3.5	6.6
Hungary	2000-2003	24.7	1.3	1.5	5.6	1.0	2.1	1.2	1.3	0.6	8.3	7.5
	2004-2008	23.7	0.8	1.2	5.3	0.9	1.9	1.4	1.0	0.7	7.8	7.9
	2009-2011	21.0	0.9	1.3	4.9	0.9	2.1	1.1	0.9	0.4	6.4	7.1
	2012-2014	20.5	0.9	1.0	6.1	0.8	3.0	1.2	1.1	0.3	4.9	7.3
Poland	2000-2003	20.2	1.1	1.9	4.0					0.7	6.4	6.1
	2004-2008	20.2	1.1	1.9	4.4					0.7	5.2	6.8
	2009-2011	20.7	1.1	2.4	3.6					0.8	4.8	8.0
	2012-2014	19.4	1.1	2.4	3.4					0.7	4.6	7.2
Romania	2000-2003	21.1	0.1	0.0	10.1	1.8	7.5	0.3	0.5	9.2	1.6	0.0
	2004-2008	29.5	0.1	0.0	12.8	2.2	9.2	0.7	0.7	14.5	2.1	0.0
	2009-2011	26.3	0.1	0.1	9.8	1.5	7.4	0.3	0.6	13.9	2.5	0.0
	2012-2014	26.0	0.1	0.2	11.1	1.8	7.7	1.2	0.4	12.1	2.1	0.0

Source: Eurostat.

Table 2.7 / GFCF by institutional sectors, in % of GDP, period averages

		2000-2003	2004-2008	2009-2011	2012-2014
Greece	Enterprises		7.2	6.2	4.7
	Government		5.4	4.0	3.2
	Households		11.9	7.7	4.1
	Total GFCF	24.6	24.5	17.9	12.1
Spain	Enterprises	15.0	16.6	12.7	13.9
	Government	3.9	4.3	4.5	2.3
	Households	7.8	9.0	5.8	3.4
	Total GFCF	26.7	29.9	22.9	19.6
Italy	Enterprises	10.9	10.8	9.7	8.9
	Government	2.8	3.0	3.0	2.4
	Households	7.0	7.5	7.1	6.1
	Total GFCF	20.7	21.3	19.9	17.4
Portugal	Enterprises	13.3	12.9	11.3	9.6
	Government	4.7	3.8	4.3	2.2
	Households	8.3	6.2	4.5	3.3
	Total GFCF	26.2	22.9	20.0	15.2
Bulgaria	Enterprises	14.6	21.5	17.2	16.5
	Government	3.6	4.4	4.4	3.8
	Households	0.5	1.1	2.2	1.0
	Total GFCF	18.8	27.0	23.8	21.3
Hungary	Enterprises	14.7	14.2	13.4	13.0
	Government	4.1	4.1	3.5	4.6
	Households	5.9	5.3	4.1	2.9
	Total GFCF	24.7	23.7	21.0	20.5
Poland	Enterprises	12.8	11.3	10.3	10.3
	Government	2.6	3.9	5.5	4.4
	Households	4.9	4.9	4.8	4.7
	Total GFCF	20.2	20.2	20.7	19.4
Romania	Enterprises	16.3	22.6	15.9	15.5
	Government	3.3	5.4	5.9	4.5
	Households	1.4	1.5	4.5	5.4
	Total GFCF	21.1	29.5	26.3	25.4
EU28	Enterprises	11.9	12.3	11.4	11.5
	Government	3.0	3.1	3.4	2.9
	Households	6.2	6.5	5.5	5.1
	Total GFCF	21.1	22.0	20.3	19.5

Source: Eurostat.

Table 2.8 / Contribution of institutional sectors to total GFCF growth, in %, period averages

		2000-2003	2004-2008	2009-2011	2012-2014
Greece	Enterprises		1.2	-6.9	-5.1
	Government		0.9	-2.9	-4.1
	Households		1.6	-8.2	-3.1
	Total GFCF		3.7	-18.0	-12.3
Spain	Enterprises	3.0	2.2	-5.8	-1.6
	Government	0.8	0.6	-1.7	-0.2
	Households	1.7	1.1	-2.2	-0.3
	Total GFCF	5.5	4.0	-9.7	-2.1
Italy	Enterprises	1.2	0.5	-2.2	-3.3
	Government	0.3	0.2	-0.6	-0.9
	Households	0.8	0.4	-1.5	-2.3
	Total GFCF	2.3	1.1	-4.2	-6.5
Portugal	Enterprises	-1.7	0.3	-4.2	-4.4
	Government	-0.6	0.1	-1.4	-0.9
	Households	-1.0	0.1	-1.6	-1.4
	Total GFCF	-3.3	0.6	-7.1	-6.6
Bulgaria	Enterprises	10.9	13.7	-10.2	0.8
	Government	2.2	3.0	-2.2	0.2
	Households	0.3	0.9	-1.1	0.1
	Total GFCF	13.5	17.6	-13.5	1.0
Hungary	Enterprises	2.2	2.2	-4.3	2.7
	Government	0.6	0.5	-1.1	1.1
	Households	1.0	0.8	-1.0	0.6
	Total GFCF	3.9	3.4	-6.4	4.5
Poland	Enterprises	-3.0	6.2	1.0	1.2
	Government	-0.8	2.4	0.6	0.5
	Households	-1.5	2.5	0.5	0.5
	Total GFCF	-5.3	11.2	2.1	2.2
Romania	Enterprises	7.5	16.1	-8.3	-0.6
	Government	1.6	4.6	-2.8	-0.2
	Households	0.4	1.3	-2.8	-0.2
	Total GFCF	9.5	22.0	-14.0	-1.0
EU28	Enterprises	0.9	1.9	-2.0	-0.3
	Government	0.2	0.5	-0.6	-0.1
	Households	0.5	1.0	-0.9	-0.1
	Total GFCF	1.6	3.4	-3.5	-0.5

Source: Eurostat.

2.2. REGIONAL INVESTMENT TABLES

Table 2.9 / Shares of total and sector GFCF in regional GDP in %, period averages, population weighted averages of regions; Southern 'lagging' regions countries

		2000-2003			2004-2008			2009-2012		
		Country	Lagging regions	Other regions	Country	Lagging regions	Other regions	Country	Lagging regions	Other regions
Greece	Agriculture	1.0	1.7	0.2	0.8	1.5	0.1	0.5	1.0	0.1
	Industry	2.9	3.4	2.4	1.4	1.7	1.1	0.3	0.4	0.3
	Services	20.7	26.0	15.1	21.5	25.1	18.0	15.7	18.2	13.2
	Total GFCF	**24.6**	**31.2**	**17.7**	**23.7**	**28.3**	**19.3**	**16.6**	**19.6**	**13.6**
Spain	Agriculture	0.5	1.0	0.4	0.4	0.8	0.3	0.2	0.4	0.2
	Industry	4.9	4.0	5.1	4.8	4.6	4.8	2.7	2.5	2.8
	Services	21.3	22.0	21.2	24.8	28.9	23.9	19.3	23.8	18.4
	Total GFCF	**26.7**	**27.0**	**26.7**	**29.9**	**34.3**	**29.1**	**22.2**	**26.6**	**21.4**
Italy	Agriculture	0.8	1.0	0.8	0.7	0.9	0.7	0.7	0.8	0.7
	Industry	6.4	6.0	6.5	6.4	6.1	6.5	5.5	5.0	5.6
	Services	13.5	15.0	13.0	14.1	15.1	13.7	13.3	13.9	13.1
	Total GFCF	**20.7**	**22.0**	**20.3**	**21.2**	**22.2**	**20.9**	**19.5**	**19.7**	**19.4**
Portugal	Agriculture	0.7	1.0	0.3	0.6	0.8	0.3	0.5	0.6	0.3
	Industry	5.5	6.6	4.0	4.7	5.8	3.3	3.4	4.4	2.2
	Services	20.1	17.6	24.0	17.6	16.7	19.6	15.1	14.6	16.9
	Total GFCF	**26.2**	**25.2**	**28.3**	**22.9**	**23.3**	**23.1**	**19.0**	**19.7**	**19.4**
EU28	Agriculture	0.6			0.5			0.5		
	Industry	4.6			4.3			3.7		
	Services	16.3			17.1			16.0		
	Total GFCF	**21.5**			**21.9**			**20.2**		

Source: Cambridge Econometric, Eurostat, own calculations.

Table 2.10 / Shares of total and sector GFCF in regional GDP in %, period averages, population weighted averages of regions; Eastern 'lagging' regions countries

		2000-2003			2004-2008			2009-2012		
		Country	Lagging regions	Other regions	Country	Lagging regions	Other regions	Country	Lagging regions	Other regions
Bulgaria	Agriculture	0.1	0.2	0.0	0.6	1.0	0.2	1.3	2.5	0.1
	Industry	15.0	11.4	21.2	15.5	14.2	17.1	7.4	10.0	4.2
	Services	3.6	4.4	2.3	10.9	8.1	14.2	14.5	8.2	21.1
	Total GFCF	**18.8**	**16.0**	**23.6**	**27.0**	**23.3**	**31.5**	**23.2**	**20.7**	**25.4**
Hungary	Agriculture	1.4	2.5	1.0	0.8	1.6	0.6	0.8	1.6	0.6
	Industry	7.9	8.7	8.5	7.5	8.6	8.1	6.4	7.6	7.3
	Services	15.4	14.7	15.4	15.4	16.8	14.5	13.4	16.1	12.6
	Total GFCF	**24.7**	**25.8**	**24.8**	**23.7**	**27.0**	**23.2**	**20.6**	**25.3**	**20.4**
Poland	Agriculture	1.0	1.6	1.0	1.2	2.1	1.1	1.4	2.6	1.2
	Industry	6.5	5.6	6.7	6.6	6.2	6.9	6.7	6.1	7.0
	Services	12.7	9.6	12.6	12.4	11.1	12.3	12.4	10.9	12.6
	Total GFCF	**20.2**	**16.7**	**20.2**	**20.2**	**19.4**	**20.3**	**20.5**	**19.7**	**20.8**
Romania	Agriculture	1.5	1.5	1.6	1.1	1.2	1.3	0.8	0.8	1.3
	Industry	10.9	10.7	11.1	16.7	14.7	18.9	15.0	11.9	18.9
	Services	8.6	5.1	14.1	11.7	9.0	14.8	10.7	9.8	11.6
	Total GFCF	**21.1**	**17.4**	**26.8**	**29.5**	**24.9**	**35.0**	**26.6**	**22.4**	**31.8**
EU28	Agriculture	0.6			0.5			0.5		
	Industry	4.6			4.3			3.7		
	Services	16.3			17.1			16.0		
	Total GFCF	**21.5**			**21.9**			**20.2**		

Source: Cambridge Econometric, Eurostat, own calculations.

Table 2.11 / Share of regions in total country investment, total and by sectors, in %, period averages, population weighted averages over regions Southern 'lagging' regions countries

		2000-2003		2004-2008		2009-2012	
		Lagging regions	Other regions	Lagging regions	Other regions	Lagging regions	Other regions
Greece	Agriculture	91.1	8.9	91.3	8.7	93.3	6.7
	Industry	60.9	39.1	60.2	39.8	57.7	42.3
	Services	64.4	35.6	57.2	42.8	56.0	44.0
	Total GFCF	**64.9**	**35.1**	**58.5**	**41.5**	**57.2**	**42.8**
	GDP	51.0	49.0	49.0	51.0	48.1	51.9
Spain	Agriculture	38.2	61.8	39.4	60.6	40.0	60.0
	Industry	17.4	82.6	20.9	79.1	19.5	80.5
	Services	21.6	78.4	25.1	74.9	26.4	73.6
	Total GFCF	**21.2**	**78.8**	**24.6**	**75.4**	**25.7**	**74.3**
	GDP	21.0	79.0	21.5	78.5	21.4	78.6
Italy	Agriculture	29.3	70.7	29.1	70.9	27.8	72.2
	Industry	23.1	76.9	22.8	77.2	21.6	78.4
	Services	26.7	73.3	25.5	74.5	24.4	75.6
	Total GFCF	**25.7**	**74.3**	**24.8**	**75.2**	**23.7**	**76.3**
	GDP	24.2	75.8	23.8	76.2	23.4	76.6
Portugal	Agriculture	87.9	12.1	83.2	16.8	78.9	21.1
	Industry	70.4	29.6	72.2	27.8	74.8	25.2
	Services	52.1	47.9	55.4	44.6	56.4	43.6
	Total GFCF	**56.9**	**43.1**	**59.6**	**40.4**	**60.3**	**39.7**
	GDP	58.8	41.2	58.0	42.0	57.9	42.1

Source: Cambridge Econometric, Eurostat, own calculations.

Table 2.12 / Share of regions in total country investment, total and by sectors, in %, period averages, population weighted averages over regions; Eastern 'lagging' regions countries

		2000-2003		2004-2008		2009-2012	
		Lagging regions	Other regions	Lagging regions	Other regions	Lagging regions	Other regions
Bulgaria	Agriculture	88.2	11.8	87.3	12.7	96.9	3.1
	Industry	47.0	53.0	52.7	47.3	75.1	24.9
	Services	76.5	23.5	45.9	54.1	30.5	69.5
	Total GFCF	**52.8**	**47.2**	**49.7**	**50.3**	**47.9**	**52.1**
	GDP	62.4	37.6	56.9	43.1	52.3	47.7
Hungary	Agriculture	63.0	37.0	64.4	35.6	64.6	35.4
	Industry	38.3	61.7	37.9	62.1	37.9	62.1
	Services	33.5	66.5	36.3	63.7	38.4	61.6
	Total GFCF	**36.7**	**63.3**	**37.8**	**62.2**	**39.3**	**60.7**
	GDP	35.2	64.8	33.3	66.7	32.0	68.0
Poland	Agriculture	24.9	75.1	27.9	72.1	29.5	70.5
	Industry	13.9	86.1	14.8	85.2	14.1	85.9
	Services	12.4	87.6	14.1	85.9	13.4	86.6
	Total GFCF	**13.5**	**86.5**	**15.1**	**84.9**	**14.7**	**85.3**
	GDP	16.1	83.9	15.7	84.3	15.3	84.7
Romania	Agriculture	68.6	31.4	68.3	31.7	58.0	42.0
	Industry	67.1	32.9	60.5	39.5	50.8	49.2
	Services	41.8	58.2	52.0	48.0	58.9	41.1
	Total GFCF	**56.7**	**43.3**	**57.1**	**42.9**	**54.4**	**45.6**
	GDP	68.9	31.1	66.2	33.8	63.9	36.1

Source: Cambridge Econometric, Eurostat, own calculations.

Table 2.13 / Growth of GDP and GFCF (total and by sectors) in %, period averages, population weighted averages over regions; Southern 'lagging' regions countries

		2000-2003			2004-2008			2009-2012		
		Country	Lagging regions	Other regions	Country	Lagging regions	Other regions	Country	Lagging regions	Other regions
Greece	GDP	4.6	4.3	5.0	2.8	1.9	3.8	-6.6	-6.6	-6.6
	Total GFCF	6.5	3.7	10.7	3.1	2.0	4.5	-19.4	-20.4	-19.4
	Agriculture	4.7	1.9	1.3	-4.1	-0.7	-5.6	-15.4	-16.3	-24.2
	Industry	-7.4	-4.9	-8.8	-15.7	-18.9	-13.4	-34.3	-37.1	-33.6
	Services	8.7	5.1	13.6	4.8	4.1	5.7	-19.1	-20.4	-19.0
Spain	GDP	3.4	4.1	3.1	3.2	3.4	3.1	-1.8	-2.1	-1.8
	Total GFCF	5.5	7.5	5.1	4.0	7.1	3.1	-9.1	-8.9	-9.2
	Agriculture	0.3	1.9	-0.3	-6.1	-5.7	-6.4	-13.6	-13.3	-14.4
	Industry	0.3	0.8	0.6	1.8	5.0	1.8	-16.4	-18.2	-16.4
	Services	6.8	9.0	6.5	4.6	7.9	3.6	-7.9	-7.8	-7.9
Italy	GDP	0.7	0.4	0.8	1.0	0.5	1.1	-1.5	-1.8	-1.5
	Total GFCF	2.3	1.6	2.3	1.1	0.1	1.1	-5.5	-6.7	-5.5
	Agriculture	1.2	2.0	0.9	-1.5	-3.4	-1.2	-2.3	-2.3	-2.5
	Industry	0.8	1.8	0.6	1.2	0.6	1.3	-7.8	-9.9	-7.6
	Services	3.0	1.5	3.1	1.2	0.0	0.9	-4.7	-5.7	-4.9
Portugal	GDP	0.6	0.3	1.2	1.4	1.1	1.7	-1.8	-1.4	-2.2
	Total GFCF	-3.3	-0.9	-6.3	0.6	1.2	-0.7	-9.6	-9.3	-11.0
	Agriculture	-0.2	0.9	4.5	-1.7	-4.9	10.2	-6.7	-9.1	-3.2
	Industry	-10.7	-12.7	-5.7	1.9	3.6	-3.4	-13.2	-14.0	-14.7
	Services	-1.3	4.2	-6.5	0.3	0.5	-0.4	-8.8	-8.1	-10.6

Source: Cambridge Econometric, Eurostat, own calculations.

Table 2.14 / Growth of GDP and GFCF (total and by sectors) in %, period averages, population weighted averages over regions; Eastern 'lagging' regions countries

		2000-2003			2004-2008			20092012		
		Country	Lagging regions	Other regions	Country	Lagging regions	Other regions	Country	Lagging regions	Other regions
Bulgaria	GDP	5.1	3.0	9.0	6.8	4.1	10.3	-0.6	-1.3	0.1
	Total GFCF	13.5	12.8	15.9	17.6	15.6	19.5	-9.9	-10.6	-10.1
	Agriculture	55.8	65.7	59.4	44.3	48.1	25.5	11.8	12.3	-26.2
	Industry	8.5	8.9	11.7	6.0	14.8	-0.6	-22.9	-19.8	-36.5
	Services	35.4	32.1	60.2	37.0	19.7	60.1	-3.6	-5.8	-2.4
Hungary	GDP	4.1	3.2	4.3	2.9	1.4	3.3	-1.5	-1.7	-1.4
	Total GFCF	3.9	7.6	1.8	3.4	2.3	4.1	-5.9	-4.2	-7.1
	Agriculture	14.9	18.8	6.6	-7.3	-7.8	-4.5	-0.1	-0.5	0.1
	Industry	-0.4	0.6	-0.4	3.0	1.9	3.4	-5.7	-4.2	-9.1
	Services	5.4	10.1	3.9	4.4	4.8	4.7	-6.4	-4.8	-6.6
Poland	GDP	2.3	2.8	2.2	5.2	4.6	5.3	3.2	2.3	3.2
	Total GFCF	-5.3	1.8	-4.7	11.2	10.8	11.6	1.1	0.2	1.2
	Agriculture	-4.1	2.9	-5.2	13.0	15.0	12.7	7.9	8.2	6.5
	Industry	-1.7	0.6	-2.2	10.2	10.1	10.2	0.5	-2.8	0.3
	Services	-7.2	2.8	-5.8	11.5	10.7	12.1	0.8	-0.3	1.0
Romania	GDP	5.4	5.8	5.3	7.2	5.4	9.8	-1.6	-1.6	-1.8
	Total GFCF	9.5	19.0	7.7	22.0	18.3	24.9	-10.7	-10.2	-10.8
	Agriculture	-0.6	1.4	-4.5	10.8	6.6	23.7	-14.4	-16.8	-11.7
	Industry	8.9	30.2	-9.1	25.6	16.9	40.6	-14.4	-16.2	-13.4
	Services	11.9	11.8	28.7	18.3	23.7	11.2	-5.0	-2.1	-6.7

Source: Cambridge Econometric, Eurostat, own calculations.

2.3. ERDF AND COHESION FUND INVESTMENT TABLES

Table 2.15 / Aggregation scheme

Aggregated groups	Broad topics	2000-2006 Priorities	2007-2013 Priorities
Productive investment	RTD	18	01, 02, 03, 04, 07, 09
	Business support	11, 14, 15, 16, 0.5*12, 0.5*13	05, 06, 08, 63
	Human resources	21, 22, 23, 24, 25	62, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 80
Infrastructure	Transport Infrastructure	31, (1/14)*13	16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 52
	IT Infrastructure and services	32	10, 11, 12, 13, 14, 15
	Energy	33	33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43
	Social Infrastructure	36	75, 76, 77, 78, 79
Environment	Environment and natural resources	34, 0.5*12, (4/14) *13	44, 45, 46, 47, 48, 49, 50, 51, 53, 54, 55, 56
	Tourism and Culture	17, (2/14)*13	57, 58, 59, 60
	Urban and rural regeneration	35	61
Other	Technical Assistance	41	85, 86, 81
	Outermost regions assistance		82, 83, 84

Source: own grouping based on DG Regio (2015), 'Geography of Expenditure' Final Report, Work Package 13 - Ex post evaluation of Cohesion Policy programmes 2007-2013, focusing on the European Regional Development Fund (ERDF) and the Cohesion Fund (CF).

Table 2.16 / ERDF/CF expenditures 2007-2013, per capita and in % of GDP (period average), population weighted averages over regions, Southern 'lagging' regions countries

		Country total		Lagging regions		Other regions	
		Per capita	As % of GDP	Per capita	As % of GDP	Per capita	As % of GDP
Greece	Environment	222.2	1.2	286.2	1.9	129.7	0.5
	Infrastructure	680.0	3.5	981.0	6.6	244.6	1.0
	Productive investment	279.8	1.5	324.7	2.2	214.7	0.8
	Other	41.6	0.2	63.4	0.4	10.1	0.0
	TOTAL	**1,223.6**	**6.3**	**1,655.3**	**11.1**	**599.0**	**2.3**
Spain	Environment	120.0	0.5	223.4	1.3	80.1	0.3
	Infrastructure	237.3	1.0	471.6	2.7	146.9	0.6
	Productive investment	125.1	0.5	203.5	1.2	94.9	0.4
	Other	8.8	0.0	4.9	0.0	10.3	0.0
	TOTAL	**491.1**	**2.1**	**903.3**	**5.1**	**332.1**	**1.3**
Italy	Environment	54.1	0.2	133.1	0.7	12.0	0.0
	Infrastructure	96.5	0.4	255.0	1.4	12.0	0.0
	Productive investment	89.1	0.3	210.4	1.2	24.6	0.1
	Other	8.0	0.0	20.5	0.1	1.4	0.0
	TOTAL	**247.8**	**0.9**	**619.0**	**3.4**	**50.1**	**0.2**
Portugal	Environment	288.4	1.7	334.2	2.4	189.0	0.9
	Infrastructure	453.4	2.7	514.4	3.7	320.9	1.5
	Productive investment	375.4	2.3	498.2	3.5	108.5	0.5
	Other	35.3	0.2	28.3	0.2	50.4	0.2
	TOTAL	**1,152.5**	**6.9**	**1,375.1**	**9.8**	**668.8**	**3.0**
EU28	Environment	93.6	0.4				
	Infrastructure	198.5	0.8				
	Productive investment	108.0	0.4				
	Other	11.8	0.0				
	TOTAL	**412.0**	**1.6**				

Source: DG Regio, Eurostat, own calculations.

Table 2.17 / ERDF/CF expenditures 2007-2013, per capita and in % of GDP (period average), population weighted averages over regions, Eastern 'lagging' regions countries

		Country total		Lagging regions		Other regions	
		Per capita	As % of GDP	Per capita	As % of GDP	Per capita	As % of GDP
Bulgaria	Environment	201.1	3.8	207.8	5.4	184.2	2.1
	Infrastructure	284.8	5.4	249.7	6.5	372.8	4.3
	Productive investment	87.8	1.7	80.6	2.1	105.8	1.2
	Other	30.0	0.6	23.7	0.6	45.6	0.5
	TOTAL	**603.6**	**11.5**	**561.9**	**14.5**	**708.3**	**8.2**
Hungary	Environment	511.8	5.1	642.2	9.8	383.4	2.8
	Infrastructure	954.0	9.4	1,048.7	16.0	860.8	6.3
	Productive investment	307.9	3.0	346.1	5.3	270.3	2.0
	Other	63.9	0.6	69.9	1.1	58.1	0.4
	TOTAL	**1,837.5**	**18.2**	**2,106.8**	**32.2**	**1,572.6**	**11.6**
Poland	Environment	191.7	2.0	198.1	2.9	189.9	1.8
	Infrastructure	709.9	7.4	878.9	12.8	663.9	6.5
	Productive investment	230.3	2.4	261.5	3.8	221.8	2.2
	Other	32.2	0.3	28.0	0.4	33.4	0.3
	TOTAL	**1,164.1**	**12.2**	**1,366.5**	**19.9**	**1,109.1**	**10.8**
Romania	Environment	106.7	1.6	112.8	2.1	82.0	0.7
	Infrastructure	189.2	2.9	154.5	2.9	329.5	2.7
	Productive investment	59.2	0.9	49.2	0.9	99.5	0.8
	Other	20.8	0.3	12.0	0.2	56.4	0.5
	TOTAL	**375.9**	**5.7**	**328.5**	**6.2**	**567.4**	**4.7**
EU28	Environment	93.6	0.4				
	Infrastructure	198.5	0.8				
	Productive investment	108.0	0.4				
	Other	11.8	0.0				
	TOTAL	**412.0**	**1.6**				

Source: DG Regio, Eurostat, own calculations.

Table 2.18 / Total country ERDF/CF expenditures 2000-2006 and 2007-2013, in mio. € and shares in total EU expenditures

	2000-2006		2007-2013		Difference	
	Expenditures (in mio. €)	Shares on total EU expenditures	Expenditures (in mio. €)	Shares on total EU expenditures	Expenditures (in mio. €)	Shares on total EU expenditures
EL	16,642.8	11.5	12,835.8	6.3	-3,807.0	-5.2
ES	39,804.8	27.4	22,759.6	11.2	-17,045.1	-16.2
IT	18,306.2	12.6	14,844.6	7.3	-3,461.6	-5.3
PT	16,289.2	11.2	12,126.7	6.0	-4,162.5	-5.3
BG	0.0	0.0	4,494.4	2.2	4,494.4	2.2
HU	2,450.1	1.7	18,321.1	9.0	15,871.0	7.3
PL	9,853.6	6.8	44,666.5	22.0	34,812.9	15.2
RO	0.0	0.0	7,618.2	3.7	7,618.2	3.7
EU28	145,036.2	100.0	203,161.6	100.0	58,125.5	0.0

Source: DG Regio, own calculations.

Table 2.19 / Change in spending structure 2000-2006 to 2007-2013

		Productive investment	Environment	Infrastructure	Other
Greece	Lagging regions	7.7	-7.1	-1.2	0.6
	Other regions	25.0	0.9	-25.4	-0.5
	TOTAL	**10.5**	**-5.9**	**-5.2**	**0.6**
Spain	Lagging regions	-0.1	-22.0	21.8	0.3
	Other regions	14.3	-13.0	-4.2	3.0
	TOTAL	**4.9**	**-17.3**	**10.8**	**1.6**
Italy	Lagging regions	-0.5	-7.5	7.3	0.8
	Other regions	12.9	-17.9	5.4	-0.5
	TOTAL	**-0.9**	**-9.2**	**9.2**	**0.8**
Portugal	Lagging regions	8.7	-3.4	-6.7	1.5
	Other regions	-9.2	10.6	-5.1	3.7
	TOTAL	**6.3**	**-1.0**	**-7.4**	**2.0**
Bulgaria	Lagging regions	.	.	.	.
	Other regions	.	.	.	.
	TOTAL	**.**	**.**	**.**	**.**
Hungary	Lagging regions	2.0	-9.0	3.7	3.3
	Other regions	-1.9	-11.9	14.0	-0.2
	TOTAL	**0.4**	**-9.3**	**7.9**	**0.9**
Poland	Lagging regions	5.2	-14.3	8.8	0.3
	Other regions	8.2	-18.4	9.1	1.0
	TOTAL	**8.1**	**-17.1**	**8.2**	**0.9**
Romania	Lagging regions	.	.	.	.
	Other regions	.	.	.	.
	TOTAL	**.**	**.**	**.**	**.**
EU28	**TOTAL**	**-1.5**	**-9.8**	**10.0**	**1.3**

Source: DG Regio, Eurostat, own calculations.

Table 2.20 / Change in ERDF/CF expenditures 2000-2006 to 2007-2013, per capita (in €) and in % of GDP, Southern 'lagging' regions countries

		Country		Lagging Regions		Other regions	
		Per capita	As % of GDP	Per capita	As % of GDP	Per capita	As % of GDP
Greece	Environment	-174.0	-1.3	-168.9	-1.5	-181.7	-1.0
	Infrastructure	-300.0	-2.5	-35.1	-1.2	-683.3	-3.5
	Productive investment	92.1	0.3	107.7	0.5	69.5	0.1
	Other	-0.1	0.0	13.8	0.0	-20.3	-0.1
	TOTAL	**-382.0**	**-3.5**	**-82.5**	**-2.2**	**-815.9**	**-4.4**
Spain	Environment	-272.8	-1.5	-349.9	-2.6	-243.4	-1.2
	Infrastructure	-115.9	-0.8	83.0	0.0	-192.6	-1.0
	Productive investment	-69.0	-0.5	-84.7	-0.8	-63.1	-0.4
	Other	6.9	0.0	2.0	0.0	8.8	0.0
	TOTAL	**-450.7**	**-2.8**	**-349.6**	**-3.4**	**-490.4**	**-2.6**
Italy	Environment	-44.5	-0.2	-94.0	-0.7	-15.0	-0.1
	Infrastructure	1.9	0.0	10.5	-0.1	0.9	0.0
	Productive investment	-28.1	-0.2	-65.9	-0.5	-4.2	0.0
	Other	0.4	0.0	2.3	0.0	-0.4	0.0
	TOTAL	**-70.3**	**-0.4**	**-147.1**	**-1.3**	**-18.7**	**-0.1**
Portugal	Environment	-117.4	-1.1	-131.2	-1.5	-82.0	-0.6
	Infrastructure	-275.7	-2.4	-234.0	-2.6	-364.8	-2.1
	Productive investment	-35.0	-0.7	37.8	-0.3	-188.9	-1.1
	Other	19.5	0.1	12.7	0.1	34.1	0.1
	TOTAL	**-408.6**	**-4.1**	**-314.6**	**-4.5**	**-601.6**	**-3.6**
EU28	Environment	-6.8	-0.1	-8.5	-0.6	-4.9	-0.1
	Infrastructure	81.7	0.2	184.2	0.9	63.2	0.2
	Productive investment	22.4	0.0	45.3	0.0	18.9	0.0
	Other	7.2	0.0	13.9	0.1	5.9	0.0
	TOTAL	**104.4**	**0.1**	**234.9**	**0.4**	**83.1**	**0.1**

Source: DG Regio, Eurostat, own calculations.

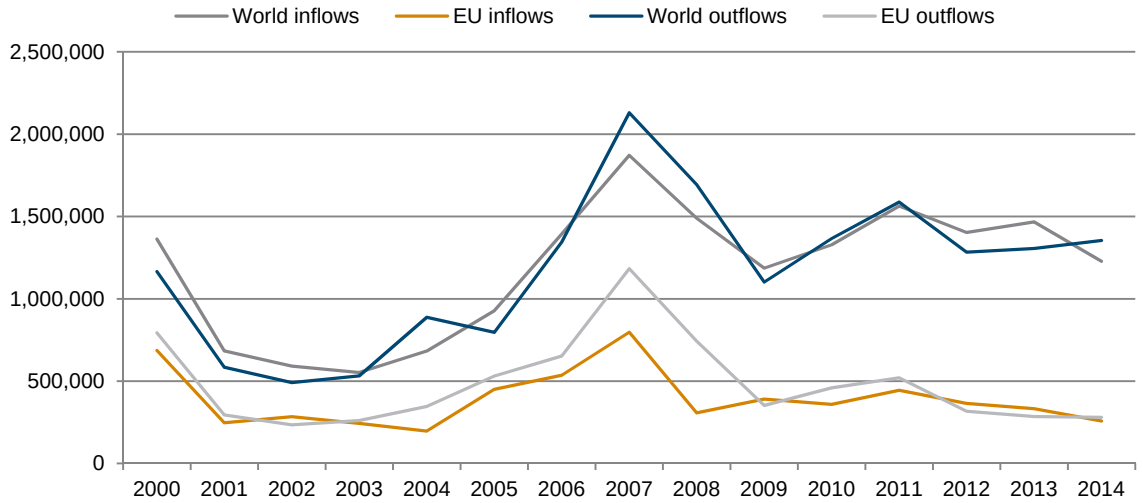
Table 2.21 / Change in ERDF/CF expenditures 2000-2006 to 2007-2013, per capita (in €) and in % of GDP, Eastern 'lagging' regions countries

		Country		Lagging Regions		Other regions	
		Per capita	As % of GDP	Per capita	As % of GDP	Per capita	As % of GDP
Bulgaria	Environment	.	.	.	.	.	.
	Infrastructure	.	.	.	.	.	.
	Productive investment	.	.	.	.	.	.
	Other	.	.	.	.	.	.
	TOTAL	**.**	**.**	**.**	**.**	**.**	**.**
Hungary	Environment	422.0	3.8	552.9	8.0	293.1	1.9
	Infrastructure	847.6	8.0	945.3	13.9	751.4	5.2
	Productive investment	268.5	2.5	312.8	4.6	224.4	1.5
	Other	57.7	0.5	69.5	1.1	45.8	0.3
	TOTAL	**1,595.8**	**14.9**	**1,880.6**	**27.6**	**1,314.7**	**8.9**
Poland	Environment	105.1	0.5	152.3	1.8	92.2	0.2
	Infrastructure	573.6	5.0	790.7	10.7	514.5	4.0
	Productive investment	200.1	1.9	239.1	3.3	189.5	1.6
	Other	27.3	0.3	25.1	0.3	28.0	0.2
	TOTAL	**906.2**	**7.7**	**1,207.3**	**16.1**	**824.1**	**6.1**
Romania	Environment	.	.	.	.	.	.
	Infrastructure	.	.	.	.	.	.
	Productive investment	.	.	.	.	.	.
	Other	.	.	.	.	.	.
	TOTAL	**.**	**.**	**.**	**.**	**.**	**.**
EU28	Environment	-6.8	-0.1	-8.5	-0.6	-4.9	-0.1
	Infrastructure	81.7	0.2	184.2	0.9	63.2	0.2
	Productive investment	22.4	0.0	45.3	0.0	18.9	0.0
	Other	7.2	0.0	13.9	0.1	5.9	0.0
	TOTAL	**104.4**	**0.1**	**234.9**	**0.4**	**83.1**	**0.1**

Source: DG Regio, Eurostat, own calculations.

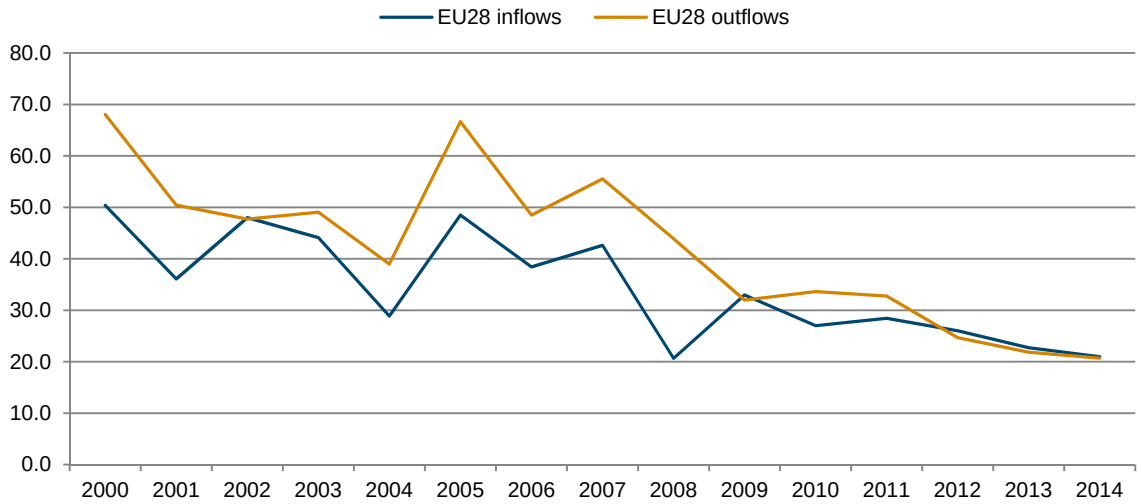
2.4. FOREIGN DIRECT INVESTMENT TABLES

Figure 2.1 / FDI in- and outflows, World and EU, in mio. US$



Source: UNCTAD, WIR 2015 Annex tables.

Figure 2.2 / EU FDI in- and outflows in % of total World FDI in- and outflows



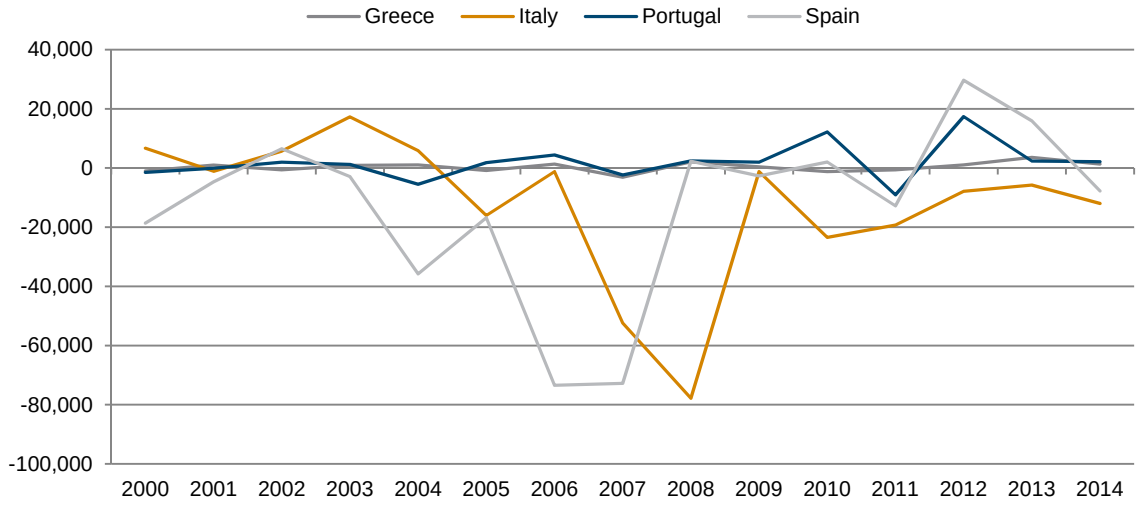
Source: UNCTAD, WIR 2015 Annex tables.

Table 2.22 / Merger & Acquisition inflows (net), in % of total FDI inflows, accumulated over periods

	2000-2003	2004-2008	2009-2011	2012-2014	2000-2014
EU28	58.9	70.7	35.4	42.9	56.1
Greece	93.7	121.4	91.1	59.0	99.3
Italy	42.3	74.8	37.4	72.1	58.6
Portugal	20.7	16.1	36.5	94.1	40.5
Spain	27.7	55.3	76.2	37.2	48.3
Bulgaria	22.1	15.5	1.8	4.9	13.3
Hungary	19.0	30.0	36.1	-6.0	18.5
Poland	55.8	5.5	27.5	10.2	19.0
Romania	24.7	22.5	5.6	3.2	17.6

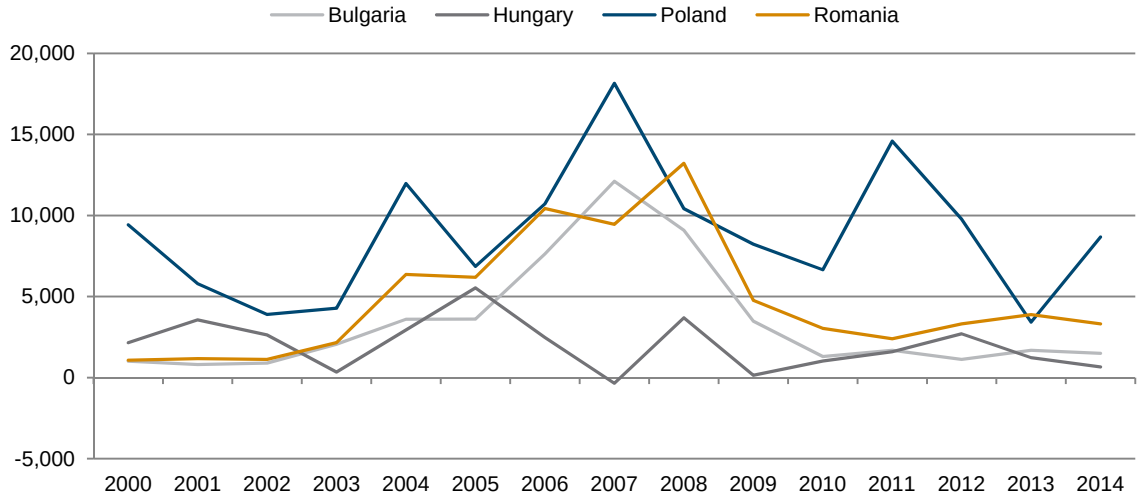
Source: UNCTAD, WIR 2015 Annex tables, own calculations.

Figure 2.3 / Net FDI inflows, in mio.US$, 4 Southern EU lagging regions countries



Source: UNCTAD, WIR 2015 Annex tables.

Figure 2.4 / Net FDI inflows, in mio.US$, 4 Eastern EU lagging regions countries



Source: UNCTAD, WIR 2015 Annex tables.

Table 2.23 / Net FDI inflows in % of GFCF, period averages

	2000-2003	2004-2008	2009-2011	2012-2014
EU28	-1.7	-6.2	-1.3	0.7
Greece	0.0	0.2	-1.1	7.2
Italy	2.4	-5.8	-3.4	-2.3
Portugal	1.0	0.1	2.9	21.4
Spain	-3.1	-10.1	-1.4	4.8
Bulgaria	38.4	68.4	16.6	12.4
Hungary	15.5	10.2	3.4	6.0
Poland	15.0	16.4	9.9	7.2
Romania	14.0	25.3	7.5	7.7

Source: UNCTAD, WIR 2015 Annex tables.

Table 2.24 / Main investment destinations of 'lagging' regions countries, total investment in mio.US$, country shares in % of total investment abroad

Spain				Greece			
2005		2012		2005		2012	
World (mio.US$)	**305426.6**	**World**	**636731.4**	**World**	**13601.9**	**World**	**44965.2**
Luxembourg	12.1	UK	13.9	Cyprus	31.2	Cyprus	26.0
Argentina	10.1	Brazil	10.6	Romania	17.7	Netherlands	15.9
UK	9.5	Netherlands	10.1	United States	9.0	Turkey	10.9
Netherlands	8.2	United States	9.3	Bulgaria	6.5	Romania	8.2
Mexico	7.2	Mexico	7.5	Luxembourg	5.7	United States	5.7
France	6.5	Portugal	5.0	Germany	2.9	Bulgaria	5.7
Portugal	6.4	France	4.5	Austria	2.1	Cayman Islands	4.9
Brazil	6.2	Germany	3.2	Spain	1.2	Serbia	4.4
United States	4.1	Argentina	3.0	Netherlands	1.1	Hong Kong	2.3
Chile	4.0	Switzerland	2.9	Hong Kong	0.9	Egypt	2.2

Italy				Portugal			
2005		2012		2005		2012	
World (mio.US$)	**244550.7**	**World**	**526941.0**	**World**	**40926.5**	**World**	**59991.5**
Netherlands	22.3	Netherlands	19.6	Netherlands	23.2	Netherlands	43.7
Germany	11.1	Germany	8.7	Spain	17.4	Spain	12.7
Luxembourg	10.9	Spain	8.5	Denmark	13.1	Angola	6.9
France	10.2	Austria	6.3	Brazil	5.8	Brazil	6.5
UK	8.3	France	6.3	Ireland	4.2	Germany	3.7
United States	7.3	United States	6.1	Poland	1.8	Luxembourg	3.0
Switzerland	4.0	UK	3.0	Greece	1.5	Poland	2.0
Spain	3.6	Poland	3.0	France	1.4	Italy	2.0
Ireland	2.3	Belgium	3.0	United States	1.3	Ireland	1.9
Belgium	1.8	Ireland	2.8	Luxembourg	1.0	UK	1.8

Hungary				Poland			
2005		2012		2005		2012	
World (mio.US$)	**8636.5**	**World**	**37682.3**	**World**	**3616.1**	**World**	**30898.8**
Slovakia	31.3	Curacao	25.2	Switzerland	31.2	Luxembourg	21.8
Netherlands	16.8	Belgium	10.8	Czech Republic	11.4	Cyprus	10.2
South Korea	9.6	Croatia	10.2	Netherlands	7.5	UK	10.1
Croatia	7.9	Cyprus	9.2	Sweden	4.8	Netherlands	7.4
Macedonia	6.0	Switzerland	6.1	Ukraine	4.7	Switzerland	7.2
Romania	4.7	Luxembourg	5.9	Germany	4.7	Belgium	5.2
Bulgaria	4.6	Slovakia	4.2	UK	4.5	Czech Republic	4.5
Poland	2.8	Israel	3.8	Russia	3.1	Germany	4.5
Cyprus	1.6	Bulgaria	3.1	Luxembourg	3.0	Lithuania	4.3
Czech Republic	1.5	Romania	2.3	France	2.5	United States	3.5

Source: UNCTAD (absolute FDI stock in US$), Eurostat (destination countries).

FDI stocks

Table 2.25 / FDI inward and outward stock, in % of GDP, period averages

	FDI inward stock				FDI outward stock			
	2000-2003	2004-2008	2009-2011	2012-2014	2000-2003	2004-2008	2009-2011	2012-2014
EU28	25.9	33.5	41.4	49.3	34.5	40.0	51.3	56.8
Greece	10.5	13.2	11.5	9.4	5.4	8.0	14.3	15.9
Italy	10.8	14.5	15.9	17.4	13.9	15.9	22.7	25.1
Portugal	33.1	40.8	46.3	51.9	17.7	24.1	26.6	26.9
Spain	32.0	36.6	42.6	52.2	23.0	32.5	43.7	48.8
Bulgaria	24.0	65.0	93.2	90.4	0.3	1.1	3.0	3.9
Hungary	52.6	61.9	69.2	78.3	3.7	10.6	17.6	29.1
Poland	22.6	33.5	38.3	45.8	0.2	2.3	5.2	10.5
Romania	19.1	31.0	39.8	41.6	0.3	0.5	0.8	0.5

Source: UNCTAD, WIR 2015 Annex tables.

Table 2.26 / Net FDI stock, in % of GDP, period averages

	2000-2003	2004-2008	2009-2011	2012-2014
EU28	-8.6	-6.6	-9.9	-7.5
Greece	5.1	5.3	-2.8	-6.5
Italy	-3.1	-1.4	-6.8	-7.6
Portugal	15.4	16.7	19.6	25.0
Spain	9.0	4.1	-1.0	3.3
Bulgaria	23.7	63.8	90.2	86.4
Hungary	48.9	51.3	51.6	49.1
Poland	22.4	31.2	33.1	35.3
Romania	18.8	30.5	39.0	41.1

Source: UNCTAD, WIR 2015 Annex tables.

Table 2.27 / Aggregation scheme for sectoral FDI data

Aggregated sectors	NACE rev1.1		NACE rev2	
Agriculture	A	Agriculture, hunting and forestry	A	Agriculture, forestry and fishing
	B	Fishing		
Mining & Energy	C	Mining and quarrying	B	Mining And Quarrying
	E	Electricity, gas and water supply	D	Electricity, gas, steam and air conditioning supply
			E	Water supply; sewerage, waste management and remediation activities
Manufacturing	D	Manufacturing	C	Manufacturing
High tech	DL	Manufacture of electrical and optical equipment	C26	Manufacture of computer, electronic and optical products
Medium high tech	DG	Manufacture of chemicals, chemical products and man-made fibres	C20	Manufacture of chemicals and chemical products
	DK	Manufacture of machinery and equipment n.e.c.	C21	Manufacture of basic pharmaceutical products and pharmaceutical preparations
	DM	Manufacture of transport equipment	C28	Manufacture of machinery and equipment n.e.c.
			C29	Manufacture of motor vehicles, trailers and semi-trailers
			C30	Manufacture of other transport equipment
Medium low tech	DF	Manufacture of coke, refined petroleum products and nuclear fuel	C19	Manufacture of coke and refined petroleum products
	DH	Manufacture of rubber and plastic products	C22	Manufacture of rubber and plastic products
	DJ	Manufacture of basic metals and fabricated metal products	C24	Manufacture of basic metals
Low tech	DA	Manufacture of food products, beverages and tobacco	C25	Manufacture of fabricated metal products, except machinery and equipment
	DB	Manufacture of textiles and textile products	C10	Manufacture of food products
	DD	Manufacture of wood and wood products	C11	Manufacture of beverages
	DE	Manufacture of pulp, paper	C12	Manufacture of tobacco products
			C13	Manufacture of textiles
			C14	Manufacture of wearing apparel
			C16	Manufacture of wood and of products
			C17	Manufacture of paper and paper products
			C18	Printing and reproduction of recorded media
Other	DC	Manufacture of leather and leather products	C15	Manufacture of leather and related products
	DI	Manufacture of other non-metallic mineral products	C23	Manufacture of other non-metallic mineral products
	DN	Manufacturing n.e.c.	C27	Manufacture of electrical equipment
			C31	Manufacture of furniture
			C32	Other manufacturing
			C33	Repair and installation of machinery and equipment
Construction	F	Construction	F	Construction
Business Services	J	Financial intermediation	J	Information and communication
	K	Real estate, renting and business activities	K	Financial and insurance activities
			L	Real estate activities
			M	Professional, scientific and technical activities
Other Services	G	Wholesale and retail trade	G	Wholesale and retail trade
	H	Hotels and restaurants	H	Transportation and storage
	I	Transport, storage and communication	I	Accommodation and food service
	L	Public administration and defence; compulsory social security	N	Administrative and support service
	M	Education	O	Public administration and defence;
	N	Health and social work	P	Education
	O	Other community, social services	Q	Human health and social work activities
	P	Activities of households	R	Arts, entertainment and recreation
	Q	Extra-territorial organizations and bodies	S	Other service activities
			T	Activities of households as employers;
			U	Activities of extraterritorial organisations

Table 2.28 / Inward FDI stocks in manufacturing industry sectors, in % of Total manufacturing FDI (= 100), Southern EU lagging regions countries*

	Period	High tech	Medium high tech	Medium low tech	Low tech	Other
Greece	2000-2003	1.4	14.2	34.7	49.7	0.0
	2004-2008	0.9	12.1	38.5	38.6	9.9
	2009-2011	14.0	7.8	41.7	16.2	20.4
	2012-2014	9.4	11.2	26.2	44.6	8.5
Spain	2000-2003					
	2004-2008	4.4	37.3	23.9	12.3	22.1
	2009-2011	5.3	25.8	27.4	16.0	25.5
	2012-2014	5.9	29.4	16.0	13.1	35.6
Italy	2000-2003	0.0	56.7	10.1	33.3	0.0
	2004-2008	1.3	50.8	17.7	18.2	12.0
	2009-2011	14.5	34.5	21.2	15.9	13.8
	2012-2014	12.5	24.7	24.0	24.7	14.2
EU28	2000-2003	11.2	50.3	12.9	23.6	2.1
	2004-2008	8.8	43.0	16.1	20.9	11.1
	2009-2011	12.9	33.0	19.6	22.8	11.7
	2012-2014	12.3	31.3	20.6	24.4	11.4

*No data for Portugal.
Source: Eurostat, own calculations.

Table 2.29 / Inward FDI stocks in manufacturing industry sectors, in % of Total manufacturing FDI (= 100), Eastern EU lagging regions countries

	Period	High tech	Medium high tech	Medium low tech	Low tech	Other
Bulgaria	2000-2003	6.2	22.3	26.8	44.8	0.0
	2004-2008	3.9	16.2	36.2	30.5	13.1
	2009-2011	1.4	15.3	37.7	27.7	17.8
	2012-2014	2.8	14.8	42.5	21.2	18.7
Hungary	2000-2003	14.6	53.1	10.6	21.7	0.0
	2004-2008	12.6	41.6	16.8	16.1	12.9
	2009-2011	29.3	30.1	14.5	12.9	13.3
	2012-2014	25.1	27.6	12.1	17.5	17.8
Poland	2000-2003	4.7	37.9	14.9	42.5	0.0
	2004-2008	3.5	39.1	23.7	33.7	0.0
	2009-2011	7.2	24.4	23.1	27.7	17.6
	2012-2014	6.7	28.9	18.1	28.9	17.4
Romania	2000-2003	2.0	29.5	30.8	37.7	0.0
	2004-2008	1.3	22.3	32.1	29.5	14.8
	2009-2011	5.6	22.9	30.6	23.9	17.0
	2012-2014					
EU28	2000-2003	11.2	50.3	12.9	23.6	2.1
	2004-2008	8.8	43.0	16.1	20.9	11.1
	2009-2011	12.9	33.0	19.6	22.8	11.7
	2012-2014	12.3	31.3	20.6	24.4	11.4

Source: Eurostat, own calculations.

2.5. REGIONAL FDI

Table 2.30 / Number of greenfield FDI projects 2003-2015, by type of regions

		2003-2006	2007-2015
Greece	Other regions	72	137
	Lagging regions	47	37
	Not allocated	40	103
	Total	**159**	**277**
Spain	Other regions	714	2,324
	Lagging regions	110	404
	Not allocated	161	734
	Total	**985**	**3,462**
Italy	Other regions	423	927
	Lagging regions	43	83
	Not allocated	86	389
	Total	**552**	**1,399**
Portugal	Other regions	82	191
	Lagging regions	86	135
	Not allocated	69	125
	Total	**237**	**451**
Bulgaria	Other regions	228	321
	Lagging regions	256	289
	Not allocated	137	230
	Total	**621**	**840**
Hungary	Other regions	556	654
	Lagging regions	182	253
	Not allocated	138	237
	Total	**876**	**1,144**
Poland	Other regions	788	1,850
	Lagging regions	55	141
	Not allocated	178	553
	Total	**1,021**	**2,544**
Romania	Other regions	344	718
	Lagging regions	364	768
	Not allocated	230	566
	Total	**938**	**2,052**

Source: fdimarkets.com database, own calculations.

Table 2.31 / Inward greenfield FDI projects in manufacturing, Southern 'lagging' regions countries; FDI projects per 100thsd.inhabitants*

		Other regions		Lagging regions	
		2000-2006	2007-2013	2000-2006	2007-2013
Greece	High tech	0.0	0.0	0.0	0.0
	Medium high tech	0.0	0.0	0.0	0.0
	Medium low tech	0.0	0.0	0.0	0.0
	Low tech	0.0	0.0	0.1	0.0
	Total Manufacturing	**0.1**	**0.0**	**0.1**	**0.0**
Spain	High tech	0.1	0.1	0.1	0.1
	Medium high tech	0.3	0.4	0.1	0.2
	Medium low tech	0.1	0.1	0.1	0.0
	Low tech	0.1	0.2	0.1	0.3
	Total Manufacturing	**0.6**	**0.8**	**0.3**	**0.6**
Italy	High tech	0.0	0.0	0.0	0.0
	Medium high tech	0.1	0.1	0.0	0.0
	Medium low tech	0.0	0.0	0.0	0.0
	Low tech	0.0	0.0	0.0	0.0
	Total Manufacturing	**0.1**	**0.2**	**0.1**	**0.1**
Portugal	High tech	0.0	0.0	0.1	0.1
	Medium high tech	0.2	0.2	0.2	0.2
	Medium low tech	0.0	0.1	0.1	0.1
	Low tech	0.1	0.1	0.1	0.1
	Total Manufacturing	**0.3**	**0.3**	**0.4**	**0.5**

*average population of regions in the respective period.
Source: fdimarkets.com database, own calculations.

Table 2.32 / Inward greenfield FDI projects in manufacturing, Eastern 'lagging' regions countries; FDI projects per 100thsd.inhabitants*

		Other regions		Lagging regions	
		2000-2006	2007-2013	2000-2006	2007-2013
Bulgaria	High tech	0.3	0.2	0.2	0.2
	Medium high tech	0.4	0.5	0.3	0.7
	Medium low tech	0.1	0.3	0.4	0.4
	Low tech	0.7	0.7	1.0	0.6
	Total Manufacturing	**1.6**	**1.6**	**1.9**	**1.8**
Hungary	High tech	0.7	0.7	0.3	0.6
	Medium high tech	1.6	2.1	0.6	1.4
	Medium low tech	0.7	0.6	0.3	0.5
	Low tech	1.0	1.0	0.9	0.8
	Total Manufacturing	**4.1**	**4.4**	**2.0**	**3.3**
Poland	High tech	0.2	0.2	0.1	0.1
	Medium high tech	0.5	0.6	0.1	0.3
	Medium low tech	0.2	0.3	0.1	0.1
	Low tech	0.4	0.5	0.1	0.2
	Total Manufacturing	**1.2**	**1.6**	**0.4**	**0.6**
Romania	High tech	0.2	0.3	0.1	0.2
	Medium high tech	0.9	0.7	0.3	0.6
	Medium low tech	0.2	0.1	0.1	0.2
	Low tech	0.6	0.6	0.4	0.6
	Total Manufacturing	**1.8**	**1.7**	**0.9**	**1.6**

*average population of regions in the respective period.
Source: fdimarkets.com database, own calculations.

Table 2.33 / Inward greenfield FDI projects in services, Southern 'lagging' regions countries; FDI projects per 100thsd.inhabitants*

		Other regions		Lagging regions	
		2000-2006	2007-2013	2000-2006	2007-2013
Greece	Advanced services	0.4	1.0	0.2	0.2
	Other services	1.1	2.0	0.4	0.3
	R&D & ICT	0.0	0.0	0.0	0.0
	Total Services	**1.6**	**3.0**	**0.6**	**0.4**
Spain	Advanced services	0.4	1.7	0.1	0.5
	Other services	1.1	3.9	0.5	1.6
	R&D & ICT	0.1	0.2	0.0	0.1
	Total Services	**1.6**	**5.8**	**0.6**	**2.2**
Italy	Advanced services	0.2	0.6	0.0	0.0
	Other services	0.6	1.4	0.1	0.2
	R&D & ICT	0.0	0.1	0.0	0.0
	Total Services	**0.9**	**2.0**	**0.1**	**0.2**
Portugal	Advanced services	0.6	1.3	0.1	0.3
	Other services	1.3	3.5	0.5	0.8
	R&D & ICT	0.0	0.1	0.1	0.0
	Total Services	**2.0**	**4.9**	**0.6**	**1.1**

*average population of regions in the respective period.
Source: fdimarkets.com database, own calculations.

Table 2.34 / Inward greenfield FDI projects in services, Eastern 'lagging' regions countries; FDI projects per 100thsd.inhabitants*

		Other regions		Lagging regions	
		2000-2006	2007-2013	2000-2006	2007-2013
Bulgaria	Advanced services	1.3	3.0	0.1	0.5
	Other services	5.2	8.4	1.5	2.3
	R&D & ICT	0.3	0.2	0.0	0.0
	Total Services	**6.8**	**11.6**	**1.7**	**2.8**
Hungary	Advanced services	1.3	2.0	0.2	0.3
	Other services	4.2	5.3	1.1	1.2
	R&D & ICT	0.4	0.4	0.1	0.0
	Total Services	**5.8**	**7.7**	**1.3**	**1.5**
Poland	Advanced services	0.2	1.1	0.0	0.2
	Other services	0.9	2.7	0.2	0.6
	R&D & ICT	0.1	0.1	0.0	0.0
	Total Services	**1.2**	**3.8**	**0.2**	**0.8**
Romania	Advanced services	1.5	4.1	0.2	0.8
	Other services	3.4	9.2	0.8	1.9
	R&D & ICT	0.2	0.3	0.0	0.0
	Total Services	**5.0**	**13.6**	**1.0**	**2.6**

*average population of regions in the respective period.
Source: fdimarkets.com database, own calculations.

Table 2.35 / Net greenfield FDI projects by broad sectors, Southern 'lagging' regions countries; FDI projects per 100thsd.inhabitants*

		Other regions		Lagging regions	
		2000-2006	2007-2013	2000-2006	2007-2013
Greece	Services	-0.7	-1.4	0.4	0.2
	Manufacturing	-0.8	-0.8	-0.1	-0.2
	Construction	-0.2	-0.2	0.0	0.0
	Mining & energy	0.0	-0.1	0.0	0.0
	Total	**-1.6**	**-2.6**	**0.4**	**0.1**
Spain	Services	-0.1	-2.8	0.4	1.0
	Manufacturing	0.1	-0.6	0.2	0.1
	Construction	-0.2	-0.7	0.0	0.1
	Mining & energy	-0.1	-0.5	0.0	0.1
	Total	**-0.4**	**-4.6**	**0.7**	**1.3**
Italy	Services	-0.9	-2.6	0.0	-0.1
	Manufacturing	-0.7	-1.5	0.0	0.0
	Construction	0.0	0.0	0.0	0.0
	Mining & energy	0.0	-0.2	0.0	0.0
	Total	**-1.6**	**-4.3**	**0.1**	**0.0**
Portugal	Services	1.0	0.2	0.4	-1.4
	Manufacturing	0.0	-1.2	0.1	0.0
	Construction	0.2	0.3	-0.3	-0.1
	Mining & energy	-0.1	-0.8	0.0	0.0
	Total	**1.1**	**-1.4**	**0.3**	**-1.4**

*average population of regions in the respective period.
Source: fdimarkets.com database, own calculations.

Table 2.36 / Net greenfield FDI projects by broad sectors, Southern 'lagging' regions countries; FDI projects per 100thsd.inhabitants*

		Other regions		Lagging regions	
		2000-2006	2007-2013	2000-2006	2007-2013
Bulgaria	Services	6.4	10.2	1.5	2.6
	Manufacturing	1.4	1.4	1.8	1.7
	Construction	2.3	1.5	0.6	0.4
	Mining & energy	0.2	0.3	0.3	0.4
	Total	**10.2**	**13.3**	**4.3**	**5.1**
Hungary	Services	5.0	5.7	1.3	1.5
	Manufacturing	3.9	3.9	2.0	3.2
	Construction	1.1	0.3	0.1	0.2
	Mining & energy	0.0	0.0	0.1	0.1
	Total	**10.0**	**9.9**	**3.5**	**5.0**
Poland	Services	1.0	3.0	0.2	0.7
	Manufacturing	1.1	1.5	0.3	0.5
	Construction	0.2	0.6	0.0	0.2
	Mining & energy	0.0	0.0	0.0	0.0
	Total	**2.3**	**5.2**	**0.6**	**1.4**
Romania	Services	4.6	11.8	1.0	2.5
	Manufacturing	1.8	1.6	0.9	1.6
	Construction	1.4	2.3	0.1	0.4
	Mining & energy	0.0	0.1	0.0	0.1
	Total	**7.8**	**15.9**	**2.0**	**4.5**

*average population of regions in the respective period.
Source: fdimarkets.com database, own calculations.

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