Box 1. Assessment of the impact of the EU structural and cohesion funds on economic growth

EU funds are non-repayable financing sources from the EU budget targeting mainly to reduce regional disparities and promote sustainable farming. Cohesion policy is the EU's major investment policy, aiming chiefly to support job creation, economic growth, sustainable development, and improve citizens' quality of life.

The objectives of cohesion policy are achieved via three main funds (Figure A), i.e. the European Regional Development Fund (ERDF), the Cohesion Fund (CF) and the European Social Fund (ESF). The ERDF finances investment in growth-enhancing sectors (in order to create jobs and improve competitiveness). At the same time, cross-border cooperation projects are targeted as well. The aim is to strengthen economic and social cohesion within the EU by correcting the disparities between its regions. The CF finances investment in green growth and sustainable development. Last but not least, the ESF focuses on improving employment and education opportunities, and aims also to help disadvantaged people at risk of poverty or social exclusion.

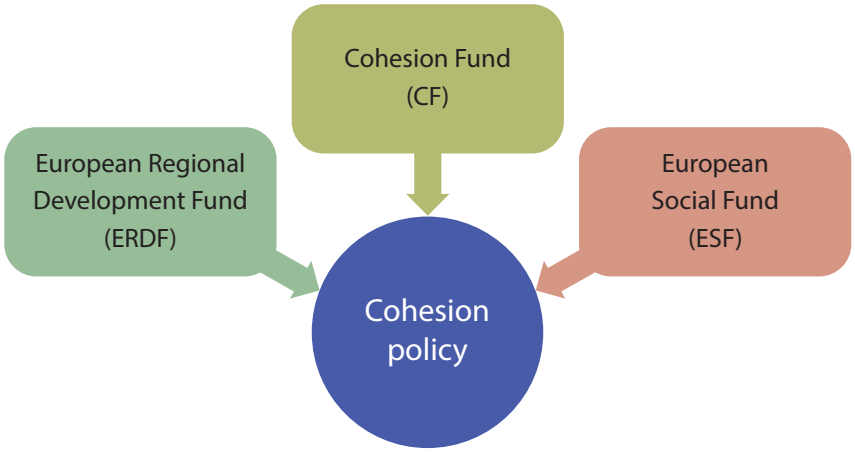

Figure A
Cohesion policy instruments

Source: European Commission

According to the net financial balance, from 2007 to 2018, Romania benefited from structural and cohesion funds (SCF) in the amount of approximately EUR 21.4 billion (including pre-financing), of which EUR 17.3 billion under the 2007-2013 Multiannual Financial Framework (MFF) and EUR 4.1 billion under the 2014-2020 MFF. As a share of GDP, annual SCF inflows follow an upward course, as the Multiannual Financial Framework nears completion[1] (Chart A). The relatively limited absorption of SCF under the current MFF also occurred against the background of the delay in fulfilling ex-ante conditionalities and in designating the managing authorities[2].

1 Under the 2007-2013 MFF, the cut-off date for submitting the underlying documentation was extended to end-2015, leading to reimbursements, albeit insignificant, being made also in 2017.

2 Designation of the managing authorities responsible for the Large Infrastructure Operational Programme, Competitiveness Operational Programme, Regional Operational Programme 2014-2020 and the Human Capital Operational Programme ended in August 2017, only half-way through the new MFF.

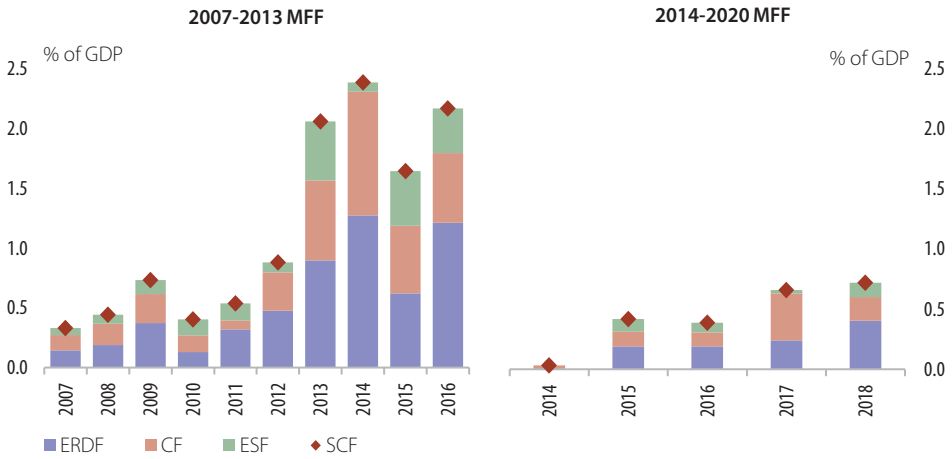

Chart A
Inflows of EU structural and cohesion funds in the period 2007-2018

Source: MPF, Net Financial Balance

A vast majority of the existing studies on the impact of transfers of EU funds identify a significant positive effect on economic growth. The European Commission (2016) concludes, after examining the period 1994-2011, that the SCF exerted a positive impact on economic growth at development region level. The International Monetary Fund (IMF, 2017) confirms this outcome for a sample of countries in Central, Eastern and Southeastern Europe (CESEE). Becker, Egger and Ehrlich (2012) identify a positive effect of the SCF on growth for the EU regions that, under the 1994-1999 and 2000-2006 MFFs, benefited from average annual SCF of up to 1.3 percent of the regional GDP during an MFF. However, they mention that the SCF effects on economic growth become insignificant for those regions where transfers exceed this threshold. Farrell (2004) also estimates a favourable impact of structural funds on regional economic growth in Ireland and Spain. Lolos (2009) came to similar results in the case of Greece. On the other hand, estimates by Albulescu and Goyeau (2013) point to an insignificant impact of the absorption rate of EU funds on the Member States' economic growth.

In order to measure the impact of the EU structural and cohesion funds on economic growth, this study uses a panel of annual data comprising 11 CESEE countries, similarly to the IMF study (2017). The countries included in the analysis are: Bulgaria, Czechia, Croatia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia, covering the period 2008-2017[3]. The choice of a panel database containing both inter- and intra-temporal variability (i.e. between the units under review, namely the 11 CESEE countries) is warranted by the need to enlarge the analysis so as to render estimates more robust. Besides economic growth and SCF dynamics, the model also considers the impact of public and private investment, as SCF and other investment in the economy have the potential to exert similar effects on economic growth and need to be disaggregated to identify the SCF effect alone. Moreover, account is taken of the possibility that

3 No data were used for 2018, as the public-sector variables employed in the model were not available when the research was carried out.

the variables exert effects on economic growth with a certain lag[4]. The estimated equation reads as follows:

$$y_{i,t} = \alpha + \beta y_{i,t-1} + \sum_{j=0}^{2} \gamma_j SCF_{i,t-j} + \sum_{j=0}^{2} \delta_j z_{i,t-j} + \lambda_t + e_{i,t}$$

where *i* is the country ($i = 1, \dots, 11$), it are the years included in the analysis, *y* is the annual dynamics of real GDP, *SCF* is the dynamics (Δ) of the EU structural and cohesion funds (flows) expressed as a share of nominal GDP, and *z* captures control variables (including, depending on specification, the dynamics of gross fixed capital formation, as a share of GDP, for the whole economy, general government sector and private sector, respectively)[5].

Explanatory variables / Dependent variable: Δ real GDP	(1)	(2)	(3)	(4)	(5)
Δ real GDP (t-1)	0.32*** [0.04]	0.20** [0.08]	0.27*** [0.08]	0.29*** [0.04]	0.22*** [0.08]
Δ SCF	0.68*** [0.13]	0.41** [0.20]	0.60*** [0.08]	0.47*** [0.17]	0.41*** [0.10]
Δ SCF (t-1)	0.55*** [0.19]	0.25 [0.22]	0.43*** [0.16]	0.48** [0.24]	0.45*** [0.16]
Δ SCF (t-2)	0.85*** [0.27]	0.61*** [0.18]	0.68*** [0.14]	0.87*** [0.28]	0.72*** [0.17]
Δ GFCF – private sector		0.42*** [0.13]	0.39*** [0.11]		
Δ GFCF – private sector (t-1)		0.25** [0.12]	0.22* [0.13]		
Δ GFCF – private sector (t-2)		-0.15 [0.09]	-0.17* [0.09]		
Δ GFCF – public sector		0.3 [0.22]		0.39* [0.24]	
Δ GFCF – public sector (t-1)		0.50* [0.26]		0.46 [0.31]	
Δ GFCF – public sector (t-2)		0.4 [0.27]		0.04 [0.33]	
Δ Total GFCF					0.38** [0.15]
Δ Total GFCF (t-1)					0.27** [0.11]
Δ Total GFCF (t-2)					-0.08 [0.09]
Constant	3.60*** [0.49]	1.86** [0.80]	4.03*** [0.56]	4.44*** [0.75]	2.03** [0.79]
Observations	77	77	77	77	77
Number of countries	11	11	11	11	11

Robust standard errors are shown in brackets.
* p<0.10, ** p<0.05, *** p<0.01
Note: Δ is the dynamics of a particular variable.
Source: NBR estimates based on Eurostat data, European Commission (2019)

Table A
Results of the estimates for the impact of EU structural funds on economic growth

4 An *Arellano-Bond dynamic panel generalized method of moments* estimation was employed to capture the dynamic nature of the model.

5 Although the equation also includes fixed effects specific to each country, these are removed once the explanatory variables have been expressed as first-differences. This adjustment is necessary in order to correct the problem of the correlation between explanatory variables and fixed effects. Time fixed effects (λ_t) were included to take into account the particular features of each year.

Table A sets out the results of various specifications of the described model. Specifically, the contemporaneous effect on economic growth of a 1-percentage-point increase in flows of structural and cohesion funds, expressed as a share of GDP, moves inside a (0.4; 0.7) percentage point range[6]. As for the medium-term impact (3 years), this is assessed to run within a (1.6; 3.0) percentage point range.

In general, the coefficients related to structural and cohesion funds are statistically significant, and the fact that the SCF influence economic growth both contemporaneously and over the medium term is in line with the IMF's empirical evidence (2017), thus reflecting the multiannual nature of many projects funded via these resources (i.e. in infrastructure, environment, etc.).

Starting from the previously-estimated equation, Chart B shows the variation interval[7] of the economic growth response to a 1-percentage-point increase in SCF flows, expressed as a share of GDP, both for each year and cumulatively (in the medium term). The strongest impact occurs two years after the rise in attracted SCF[8].

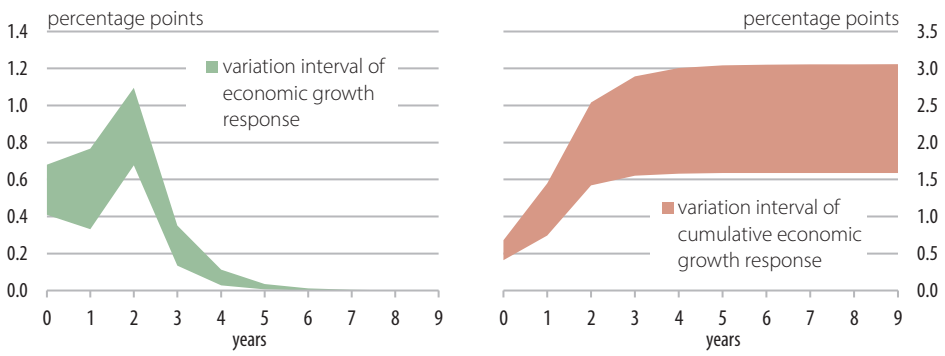

Chart B
Variation interval of the economic growth response

Notes: Flows of structural and cohesion funds are expressed as a percentage of GDP and the shock has a magnitude of 1 percentage point. The horizontal axis shows the number of years after the shock, occurring at t=0. The vertical axis shows the variation interval (consistent with the five models in Table A) of the economic growth response. The interval is assessed for each year, i.e. individually (left-hand side) and cumulatively (right-hand side).

Source: NBR estimates based on Eurostat data, European Commission (2019)

The ongoing improvement in EU funds absorption remains an exceedingly important line of action in light of the Member States' common policy – the development of the EU into an economy delivering smart, sustainable and inclusive growth. The favourable impact of EU funds on economic growth covers a longer timeframe[9], in line with the fact that many of the funded projects are implemented under a multiannual framework. In addition, the programmes dedicated to physical capital formation and human capital development are fundamental for enhancing the economic growth potential. In the case of an increase by 1 percentage point of GDP in flows of structural and cohesion funds, empirical evidence shows: (i) a contemporaneous effect of up to 0.7 percentage points on economic growth and

6 The average of flows of structural and cohesion funds (as a share of GDP) for all the countries covered by the analysis in the period from 2008 to 2017 stands at a mere 0.17 percentage points.

7 For the five specifications in Table A.

8 The quantification of the multiannual impact is conditional on the technical specifications of the model (the number of included lags, given the time dimension of the data set).

9 Results are robust in all five estimated specifications.

(ii) a medium-term effect of up to 3 percentage points. Under the circumstances, it is necessary to implement an adequate mix of measures for improving the selection of projects, their assessment, and the coordination with local authorities and those of the European Union.

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