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SELECTED ISSUES

March 2017

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February 23, 2017

Approved By
European Department

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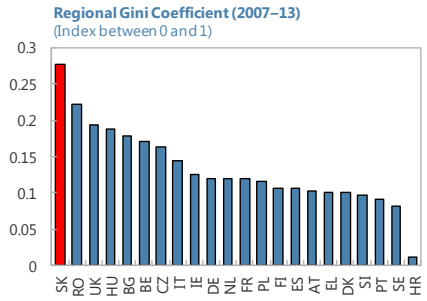
CONTENTS

EU FUNDS: ENHANCING ABSORPTION TO REDUCE REGIONAL DISPARITIES[1]

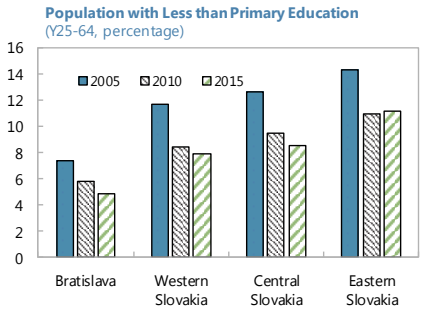
Slovakia has one of the highest regional disparities among European Union (EU) countries. At the same time, the country receives significant EU transfers, which are mainly devoted to foster regional convergence. However, the absorption of EU funds during the 2007–2013 programming period has been greatly delayed. This study investigates how countries can make optimal use of EU funds to reduce regional disparities. It finds that better institutions and a more educated population positively contribute to higher absorption. Moreover, a greater degree of fiscal decentralization helps increase the rate of absorption.

A. Overview of Regional Disparities in Slovakia

1. Regional disparities in Slovakia are among the highest in the OECD countries and very persistent. As measured by the regional Gini coefficient, Slovakia stands out as the country with the highest regional disparities in the European Union (EU). The regional Gini coefficient has been increasing significantly since the transition with acceleration after the crisis, resulting in the fastest growth among OECD countries (OECD 2015). More than half of the population lives in less-developed regions.

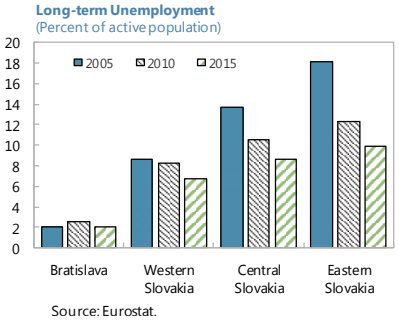


Sources: Eurostat; and IMF staff calculations.



Source: Eurostat.

2. Regional disparities in Slovakia are evident along a broad range of indicators. The average income in the East is less than half of that in Bratislava (OECD 2015), with two thirds of the unemployed living in the Eastern part of the country. The rate of participation in the labor market among the Roma, who mainly live in Central and Eastern Slovakia and often in segregated communities, is 20 percent for men and less than 10 percent for women (World Bank, 2012). Long-term unemployment is also disproportionately higher in Eastern Slovakia than in Bratislava. Education attainments show a

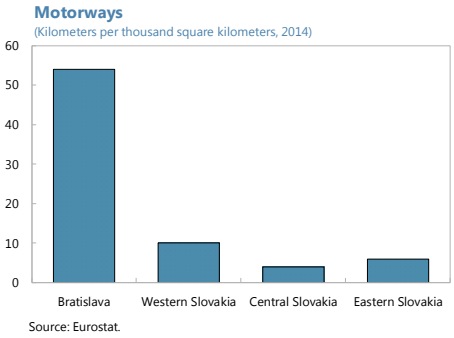


Source: Eurostat.

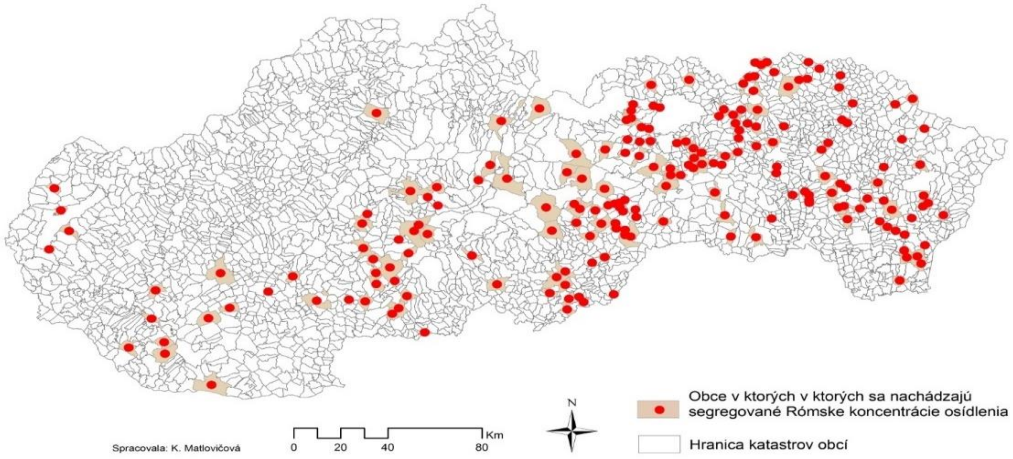
[1] Prepared by Francesca Caselli. We are grateful to the authorities, and in particular to Stefan Domonkos, for useful inputs and comments, and for sharing the Map based on the Atlas of Roma Communities. We thank the European Commission DC Regio, and in particular Violeta Piculescu, for guidance on the EU funds data.

similar pattern, given the share of population with less than a primary education being twice as high in Eastern Slovakia than in Bratislava.

3. Regional disparities are exacerbated by the lack of infrastructure. Central and Eastern Slovakia show a severe shortage of road infrastructure. The D1 motorway that connects the two major metropolitan areas, Bratislava and Kosice (in the East) has yet to be completed. In addition, workers have very low mobility, as shown by internal migration flows. In 2011, 1.6 percent of the Slovaks aged between 15 and 64 years relocated, with only a quarter moving across regions (Vagac 2013). Intra-regional roads in the East are also severely underdeveloped, making workers' mobility and freight transportation more difficult.



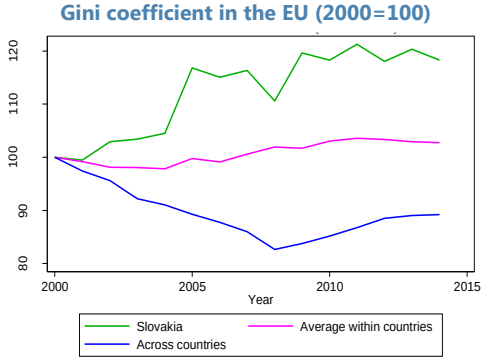
Segregated Roma Communities in Slovakia 1/



1/ Legend translation: municipalities with concentrations of segregated Roma settlements

B. EU Funds in Slovakia

4. Reducing economic, social and territorial disparities across European regions and countries is the main long-term goal of the EU Cohesion Policy. Regional disparities have increased with recent enlargements, but also as a consequence of the global financial crisis. Regional disparities in GDP per capita (text chart – blue line), but also in employment rates, narrowed between 2000 and 2007. However, since the onset of the crisis in 2008, regional disparities both within and



across countries have increased significantly. As noted by the EU, the crisis put a halt to the converge process across and within European countries.[2]

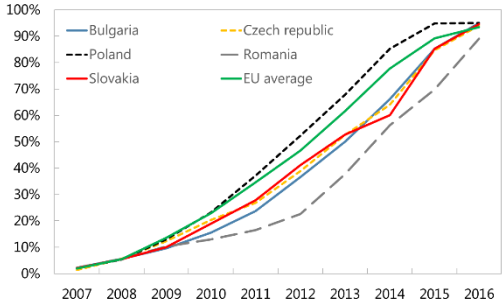
5. The 2007–2013 Cohesion Policy has been designed around three new objectives: 1) Convergence (former Objective 1): boost growth in the regions with a GDP per capita less than 75 percent of the EU average. 2) Competitiveness and employment (former Objective 2): address social challenges such as globalization and transition to the knowledge based society in the more developed countries. 3) Territorial cooperation: foster cross-border cooperation.[3] Member States set up 'National Strategic Reference Frameworks' and national and regional 'Operational Programmes' (OP). OPs can be seen as the priority targets and area of investments for each country or region.

Objectives, Structural Funds and instruments
2007–2013

Objectives	Structural Funds and instruments		
Convergence	ERDF	ESF	Cohesion Fund
Regional Competitiveness and Employment	ERDF	ESF	
European Territorial Cooperation	ERDF		

6. During 2007–2015[4], Slovakia received 12 billion euro in EU funds, equivalent to 15 percent of its GDP[5] and more than 2144 euro in per capita terms. Within the Convergence objective, the ERDF and ESF funds are targeted to the regions with a GDP per capita below 75 percent of the EU average. With the exception of Bratislava, the rest of the country has been eligible for these funds. Bratislava, instead, has received financial support to improve competitiveness, support innovations, employment and social inclusion. The whole country has also been eligible for transfers from the Cohesion Fund, available to those in the EU with GDP below the 90 percent of the EU average.[6] Slovakia has been participating in eleven OPs. Seven OPs are under the Convergence objectives, three OPs are multi-objective operational programs (Convergence, Regional competitiveness and Employment objective) and one operational program falls under the Regional Competitiveness and Employment objective.

EU funds absorption rates
(Percent)



Sources: European Commission and IMF Staff calculation

[2] Investment for jobs and growth. Promoting development and good governance in EU regions and cities. Sixth report on economic, social and territorial cohesion.
http://ec.europa.eu/regional_policy/sources/docoffic/official/reports/cohesion6/6cr_en.pdf

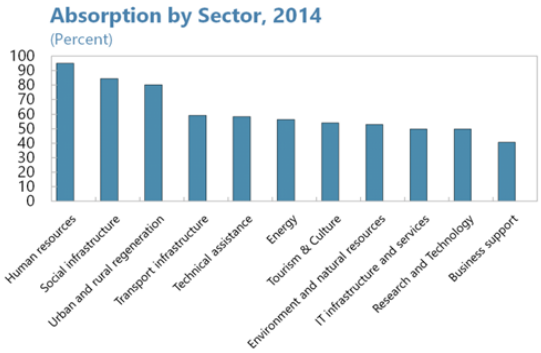
[3] Mohl (2016).

[4] Structural and Cohesion Funds (SCF) allocations are budgeted over 7-year program periods. Funds that are not drawn within the pertinent deadlines (two years (T+2) or three years (T+3)) are generally lost for recipients. EU Funds in Central and Eastern Europe,

[5] KPMG Progress Report 2007-2015, https://assets.kpmg.com/content/dam/kpmg/pdf/2016/06/EU-Funds-in-Central-and-Eastern-Europe.pdf

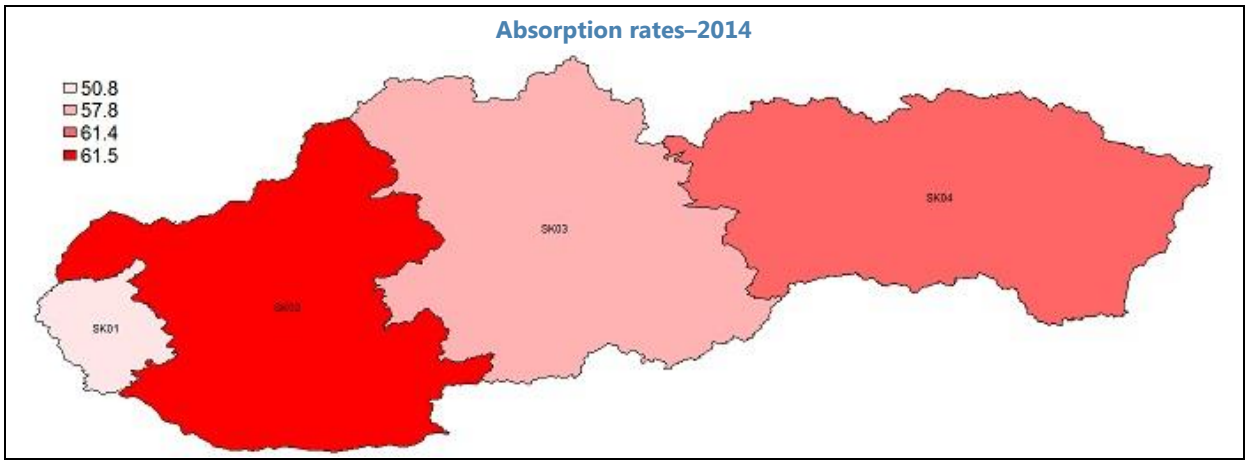
[6] http://www.nsrr.sk/en/narodny-strategicky-referencny-ramec-2007-2013/

7. Despite the large allocations, spending of EU funds at the beginning of the 2007–2013 programming period has been markedly delayed. Several factors contributed to the slow uptake of funds and therefore to the low absorption rates at the beginning of the last EU cycle. A lack of coordination in setting up the priorities across the OPs, insufficient transparency and verification of public procurement processes by the managing authorities and changes to the Public Procurement Act are among them. The Slovak authorities acknowledged that the slow uptake of EU funds at the beginning of the programming period has been the crucial factor explaining low absorption rates and that a more even spending path would amplify the growth effect of the transfers, contributing more substantially to the reduction of regional disparities.[7]



Sources: European Commission and IMF Staff estimation

8. The rate of absorption has scaled-up at the very end of the programming period. Only in recent years, and especially in 2015, Slovakia increased dramatically the uptake of EU funds. Absorption as of December 2016 was almost 96 percent.[8] Slovakia performed below the EU average until the very end of the EU funds cycle.



9. Absorption in Slovakia has been uneven not only across time, but also across OPs and regions. The regional and sectoral dimensions appear to be relevant when looking at absorption rates. In 2014, several infrastructure OPs show absorption rates below 60 percent, with only social infrastructure being the exception. A report by KPMG shows similar trends for OP Information Environment, OP Education and OP Bratislava Region, which present below-average absorption rates. The fragmentation across OPs has been mentioned as a possible barrier to faster absorption and this hypothesis will be tested in the empirical section of the paper.

[7] Assessment of Cohesion Policy Impacts on the Development of Slovakia Using a Suitable Econometric Model, Evaluation Report 2014, Slovak Government.

[8] https://cohesiondata.ec.europa.eu/dataset/2007-2013-Funds-Absoption-Rate/kk86-ceun/data

10. The uneven absorption of EU funds and the sharp scaling-up in 2015 generated inefficiencies, reducing the potential impact of EU transfers on growth. The aid literature underlines the importance of absorptive capacity for transfers to be used productively by recipient countries and shows that projects undertaken in periods of scaling up of public investment are less likely to be successful (Presbitero 2016 and Berg et al. 2013). Anecdotal evidence shows that, at the end of the programming period, projects were chosen by the urgency to spend the allocated funds, rather than by the quality of the projects. While EU funds supported growth in the short term, by focusing on "shovel-ready" projects, their impact on potential output could have been higher, with better prioritization.[9] For instance, the European Commission discusses how progress towards closing the road infrastructure gap have been slow. [10] While the motorway network improved only slightly between 2011 and 2014, the scale-up of EU funds absorption boosted construction with 56 km built in 2015 only.

11. Slovakia also incurred in financial corrections reflecting inefficiencies. In 2014, audits and control systems identified errors related to public procurement and project selection procedures. Payments for nine OPs were interrupted and only resumed in December 2015, after the application of financial corrections (169 euro million imposed by the EC and 41 euro million imposed by the Slovak authorities). [11]

12. The Government Office, in a report on the evaluation of structural funds, identified the main factors affecting absorption performance and overall management of EU funds in Slovakia.[12] A survey of EU transfers beneficiaries, including central public administration bodies, local and regional government bodies, entrepreneurs and NGOs, identified the following factors as affecting the implementation of Structural and Cohesion Policies:

- *Legislative framework:* Frequent legislative changes and amendments to the Public Procurement law have been perceived as a problematic element affecting the ability to access EU funds. Origination of new obligations, ambiguity in the interpretation of the legislation governing the EU transfers, and excessive administration burdens have also been mentioned as difficult factors by the survey respondents.

- *Socioeconomic conditions:* A lack of sufficient resources to apply for EU funds, to prepare, and co-finance the projects are considered important limitations to applications. Survey respondents mentioned lack of qualified workforce and poor transport accessibility as limiting elements. Finally, the global financial crisis negatively affected the financial capacity of transfers recipients.

[9] IMF Regional Economic Issues Fall 2015 and Assessment of Cohesion Policy Impacts on the Development of Slovakia Using a Suitable Econometric Model, Evaluation Report 2014.

[10] http://ec.europa.eu/europe2020/pdf/csr2016/cr2016_slovakia_en.pdf

[11] Communication from the Commission protection of the EU Budget to end 2014, http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52015DC0503

[12] "Evaluation of Contribution of implementing Structural Funds and Cohesion Fund to reduce Regional Disparities in Slovakia" Final Report, Government Office of the Slovak Republic, September 2015.

- *Implementation system:* Only certain types of expenditures are eligible to be financed through EU transfers. Consequently, according to some survey respondents, EU funded investments did not target the true needs of the Slovak regions.

- *Financial intensity:* The lag between the expenditures and their reimbursement has been mentioned as the most problematic factor in this category. Entities with limited own resources are required to use other financial instruments (loans/guarantees) to be able to finance projects.

- *Institutional aspects:* Unclear guidance and ambiguous communications on the part of the managing authority constituted a negative factor according to the survey respondents. Insufficient level of expertise and frequent changes in the staff of the managing authorities have been reported as a constraint.

- *Capacities:* A lack of experienced staff and overall shortage of staff have been mentioned as significant constraints. Inadequate knowledge of the legislative process and frequent staffing changes in the managing authorities have been negatively affecting the overall process.

C. Literature Review

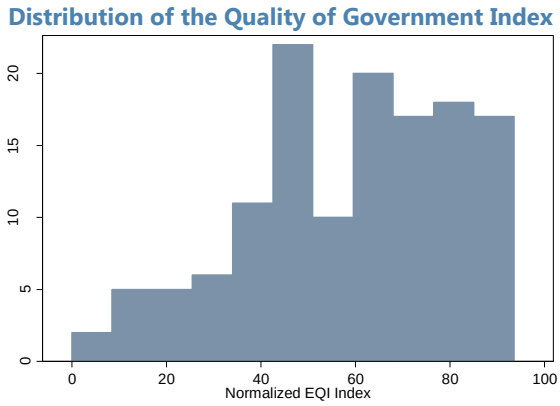
13. The literature on the effect of the EU transfers on growth show this impact to be modest. Sala-i-Martin (1996) started the debate showing that the regional growth and convergence pattern in the EU was not different from that observed in other federations, which lack a similarly extensive cohesion program. The subsequent papers find mixed evidence on the impact of EU transfers on growth.[13] Data limitations on EU transfers at the regional level and endogeneity issues, since poor regions are more likely to receive funds and they are expected to grow faster, are the most common issues in the early literature.

14. A series of recent papers by Becker et al. exploits program evaluations techniques to estimate the causal effect of Objective 1 status on per capita GDP growth of treated regions. They find that expenses through the structural and cohesion funds induced positive average effects on per-capita income growth in those subnational regions in the EU that lagged behind the EU average. But more expenses did not generally induce proportionately larger effects. Regions respond quite heterogeneously with smaller effects found where the institutions are of poor quality and where human capital is scarce (low absorptive capacity).

15. Less is known about what factors determine the absorption of EU funds, which is the focus of this empirical study. Absorptive capacity is a well-investigated concept in the aid

[13] Boldrin and Canova (2001) reach similar conclusions comparing regions receiving and not-receiving the funds. On the contrary, Midelfart-Knarvik and Overnman (2002) and Beugelsdijk and Eijffinger (2005) find a positive effect of EU transfers at the country level on industry agglomeration and on GDP per capita, respectively. At the regional level Cappelan, Castellacci, Fagerberb and Verspagen (2003) and Ederveen, Gorter, de Mooij and Hahuis (2002) estimate a positive effect of structural funds on regional growth, whereas Dall'Erba and Gallo (2008) do not support this conclusion.

literature. For instance, Presbitero (2016) underlines the importance of absorptive capacity for transfers to be used productively by recipients. The paper shows that projects undertaken in periods of scaling up of public investment are less likely to be successful. As underlined by Berg et al. (2013), when investment is scaled up quickly (as often observed during a windfall), absorptive capacity constraints generated by supply bottlenecks or poor planning—can generate inefficiencies and increase costs further. [14] The aid literature generally finds that several types of bottlenecks limit the absorptive capacity, implying that there are diminishing returns to aid (Rajan and Subramanian 2008, Clemens et al. 2012). Moreover, donors' fragmentation correlates with a lower impact of aid on growth because of higher transaction costs and increased corruption (Easterly (2007) and Djankov et al. (2009)).



D. Data and Empirical Analysis

16. The scope of this section is to investigate the determinants of regional absorptive capacity, building on the analysis by Becker et al. (2013). The empirical analysis will test first the assumption that better quality of government and a more educated population correlate with higher absorption. Furthermore, different aspects of the quality of government index will be considered, controlling for the level of fiscal decentralization as well.

17. The study gathers data from different sources. Data on the allocations and expenditures at the regional level (NUTS2)[15] are available from the European Commission for the 28 EU countries.[16] Data for NUTS2 covariates are from the Quality of Government Database[17], which collects data from different sources and computes the European Quality of Government Index (EQI). The latter is the result of a survey conducted in 2013 on corruption and governance at the regional level within the EU. The survey focuses on both perceptions and experiences with public sector corruption, along with the extent to which citizens believe various public sector services are impartially allocated. The EQI data are built on 16 survey questions, aggregated from the individual to the regional level. There are three main concepts around which the questions are framed: quality, impartiality and corruption.[18]

[14] See also Collier and others (2010), van der Ploeg (2012), and Buffie and others (2012).

[15] Nomenclature of Territorial Units for Statistics.

[16] http://ec.europa.eu/regional_policy/en/policy/evaluations/data-for-research/. Expenditures are European Commission payouts.

[17] Charron et al. (2015) and Charron et al. (2016), http://qog.pol.gu.se/.

[18] http://www.qogdata.pol.gu.se/data/qog_eureg_sep16.pdf.

18. Regional absorptive capacity is defined as the percentage of funds paid compared to total available budget during the original programming period. Expenditures and allocations are the cumulative sum from 2007 to 2013 for country *i*, region *r* and sector *s*. [19]

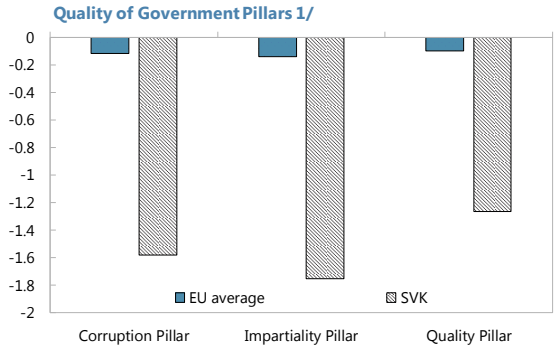
$$Abs_{irs2007-2013} = \frac{Expenditures_{irs2007-2013}}{Allocations_{irs2007-2013}}$$

Higher values of the ratio will identify sector/region where spending has been relatively more front-loaded, while lower values of the ratio indicates the presence of absorptive capacity constraints, as spending is strongly back-loaded, and even done the year after the end of the allocation period.

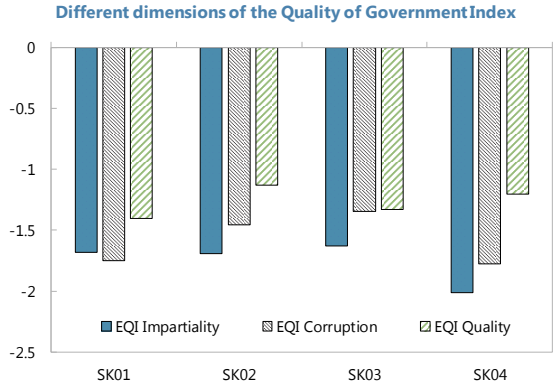
19. A panel regression with fixed effects is estimated.

$$Abs_{irs2013} = \alpha + \beta X_{ir} + \lambda_s + \phi_i + u_{irs}$$

where X_{ir} is a vector of regional institutional and macroeconomic characteristics (including economic performance, quality of regional government, human capital endowment, etc.), while country ϕ_i and sector λ_{rs} fixed effect control for unobserved heterogeneity in the absorptive capacity at the country level and sectoral level.[20] Therefore, the relationship between absorption and the covariates is identified by exploiting the variation across regions within a country controlling for each sector's absorptive capacity. To decide which is the best proxy for human capital, a number of alternatives were considered. The population between 25 and 64 with upper secondary and post-secondary non-tertiary education (ISCED level 3 and 4) showed up as the variable with the best explanatory power among the "human capital" proxies.



Sources: The Quality of Government EU Regional Dataset.
1/ The Quality of Government Index is built on 16 survey questions. The questions are framed around three central concepts of corruption, impartiality and quality. See European Commission, Regional Governance Matters, 2012 for details on the construction of the Index.



Sources: Quality of Government Database

[19] The 12 sectors refer to the 12 OPs: Business Support, Energy, Environment and natural resources. Human resources, IT infrastructure and services, Research and Technology, Social Infrastructure, Technical assistance, Tourism and Culture, Transport infrastructure, Urban and rural regeneration and Other.

[20] Standard errors are clustered at the country level. The RHS variables are as of 2010, since the QOG index at the NUTS2 level is not available before.

Baseline results

VARIABLES	(1) Absorption	(2) Absorption	(3) Absorption	(4) Absorption	(5) Absorption
Log of GDP per capita	-3.52	1.17	-0.91	0.55	-8.88**
	(3.90)	(3.35)	(3.19)	(2.78)	(3.35)
Log of area	-0.89	-0.70	-1.03	-1.22	-3.25***
	(1.05)	(0.61)	(1.11)	(1.16)	(0.97)
Pop.25-64y.o by ed.at.lev.,%, Up-sec and post-sec non-ter educ (lev 3 and 4)		0.69**	0.65*	0.35	-0.15
		(0.27)	(0.33)	(0.28)	(0.11)
Corruption Pillar of EQI Index				8.36***	
				(2.45)	
Impartiality Pillar of EQI Index				-8.20***	
				(2.90)	
Quality Pillar of EQI Index				4.44**	
				(1.85)	
Normalized EQI Index	0.31***		0.24***		0.28**
	(0.11)		(0.07)		(0.10)
Fiscal decentralization					0.39**
					(0.15)
Observations	1,128	1,955	1,128	999	998
COUNTRY FE	YES	YES	YES	YES	NO
SECTOR FE	YES	YES	YES	YES	YES

Clustered standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

20. Results show that better institutions and higher education improve absorption. This result confirms the hypothesis of Becker et al. (2013) that only those regions with sufficient human capital and good-enough institutions—are able to turn transfers into faster per capita income growth and per capita investment. The lack of qualified staff was also mentioned in the Government survey as one of the constraints towards better absorption of EU funds. More specifically, if Eastern Slovakia were to improve its Quality of Government Index to the level of EU average (from 47 to 58), absorption would increase by 2.64 percentage points.[21]

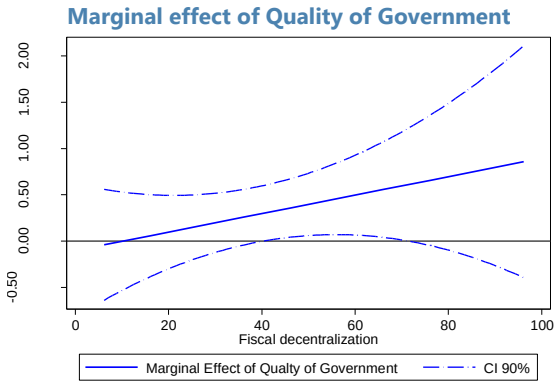
21. The quality of institutions plays a strong explanatory role. The European Quality of Government Index (EQI) is opened-up along its three dimensions: Corruption, Impartiality and Quality. While the Corruption and Quality pillars are relatively straightforward to interpret, the Impartiality pillar need some clarifications. The index of impartiality (Impartial Public Administration) measures to what extent government institutions exercise their power impartially. The definition of impartiality is the following: "when implementing policies, public sector employees should not take anything about the citizen/case into consideration that is not stipulated in the policy". The empirical results show that the corruption pillar is negatively correlated with absorption (a higher index means lower corruption), whereas the quality pillar displays a positive correlation. Interestingly, the impartiality pillar shows a strong negative correlation. This suggests that if public sector employees do not allow exceptions about procedures or legal processes, this could result in lower absorption. This finding might raise the issue of the administrative burden associated with EU transfer implementation.[22] As stressed by the authorities, origination of new obligations, ambiguity in the interpretation of the legislation governing the EU transfers, and excessive administrative burdens constituted barriers to higher absorption.

[21] From specification in column 3.

[22] Calculated with the sample available, not all the EU countries are included.

22. Fiscal decentralization is also an important factor. The ratio of local-to-central government expenditure enters the regression with a positive sign, suggesting that higher fiscal decentralization helps achieve a more efficient spending. Moreover, there is some evidence that a higher degree of fiscal decentralization reinforces the positive effect of good institutions on the absorptive capacity.

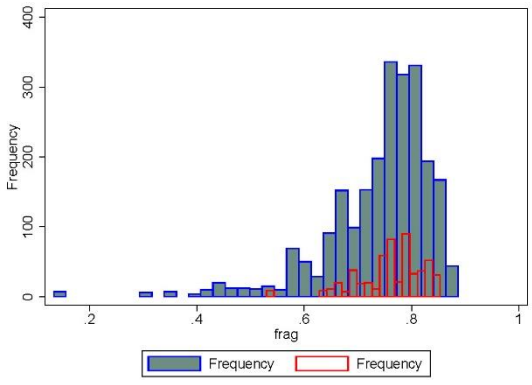
23. EU funds fragmentation across operational programs might give rise to coordination issues reducing the efficiency of absorption. Easterly (2007) and Djankov et al. (2009) use a similar strategy to study the effect of aid donors' fragmentation on growth. These latter argue that when multiple donors are involved, coordination problems might arise increasing corruption. These considerations regarding aid fragmentation across several donors are relevant for the management of EU funds through different OPs. Slovakia has in fact reduced the number of OPs for the 2014-2020 programming period, with respect to the 2007–2013 one. To test for the inefficiencies posed by the dispersion of funds across too many OPs, the baseline specification is augmented with the variable $FRAG_{ir}$, an index of OPs fragmentation at the regional level is constructed as:



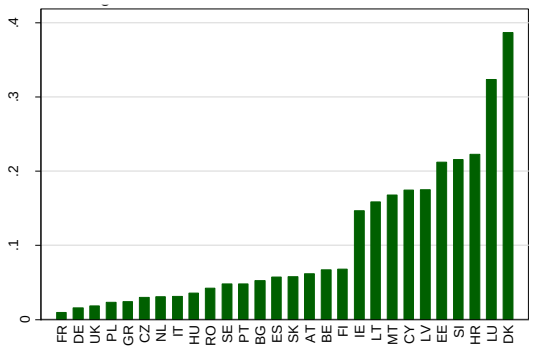
$$FRAG_{ir} = 1 - \sum_{s=1}^{N} s_s^2$$

Where $\sum_{s=1}^{N} s_s^2$ is the Herfindal-Hirschman index of OPs fragmentation. s_s is the share of allocation to a certain OPs with respect to the total allocations in a certain NUTS2 region (see chart below). The same variable is computed at the country level (see chart below). The rate of fragmentation in Slovakia is comparable to peers.

Fragmentation by Operational Program at the NUTS2 level



Fragmentation of EU funds Allocations across OPs



24. The empirical analysis does not find strong support for the hypothesis that more fragmented funds leads to lower absorption. Several specifications, augmented with the rate of fragmentation of EU allocations and expenditures across EU funds at the NUTS2 level, did not

produce significant results. This is also true when restricting the sample to new member states only. This non-results might be explained by the relatively low variation in the fragmentation variable.

E. Conclusion

25. This paper attempts to estimate the determinants of absorptive capacity of EU transfers at the regional level. It finds that higher quality of government and a more educated population lead to better absorption of EU funds. In addition, there is evidence that more decentralized spending has a positive impact on the level of absorption. This finding has important implications for the strategies that Slovakia should adopt in order to accelerate fund absorption during the 2014–2020 programming period. Regions with a sufficient level of human capital and with good-enough institutions are more likely to spend the allocated funds in an efficient way and to transform them into growth. Putting in place the appropriate administrative and governance capacities, fighting corruption should therefore be the priority in order to absorb faster, but also to choose higher quality projects. The econometric analysis also tested the role of allocations and expenditures fragmentation, but does not find strong support for the hypothesis that higher OPs fragmentation leads to lower absorption.

26. The empirical results are in line with the findings of the survey conducted by the authorities. Lack of qualified staff, insufficient level of expertise and frequent changes in the staff of the managing authorities, and changes in public procurement law have been mentioned by the Slovak authorities as the most problematic elements in affecting EU funds spending across the country. Moreover, anecdotal evidence suggests that financial and legal illiteracy in some segments of the population might constitute a barrier to apply for EU funds and comply with implementation rules. Technical support for small entrepreneurs could mitigate this issue.

27. The authorities took some measures to improve EU funds management, but challenges remain for the current programming period. The Slovak authorities successfully negotiated thematic areas for the 2014–2020 cycle very early on in the programing period. However, the absorption rates are currently very low (below 5 percent at the end of 2016) and the authorities are still in the process to meet ex-ante conditionality requirements imposed by the European Commission. These requirements are key prerequisite for efficient drawing of funds and when they are not fulfilled, payments can be suspended. Nonetheless, some concrete steps have been taken to improve project implementation. For instance, an electronic system to exchange data between managing authorities and EU funds beneficiaries has been put in place to monitor and evaluate the whole process. The managing authorities started to collaborate with regional offices to offer technical assistance and free consultations to help applicants with the application process. The recently adopted National Public Procurement Package is supposed to facilitate the application and disbursement process. Finally, the number of OPs has been reduced.[23]

[23] KPMG (2016).

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PENSION AND HEALTH SPENDING: MANAGING RISKS[1]

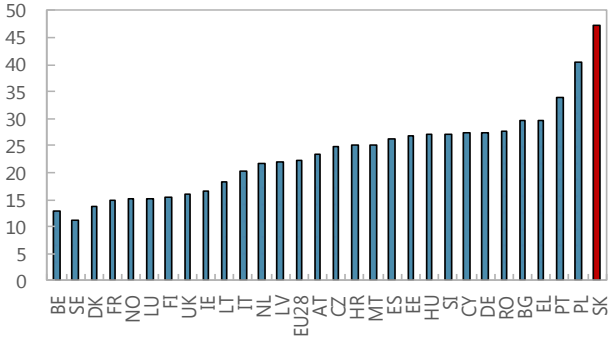
Slovakia has implemented a number of significant and welcome reforms to its pension system over the last five years. The government also undertook a review of health spending in 2016 to identify potential fiscal savings through efficiency gains. These measures, if implemented, are likely to generate material cost reductions. However, faced with a rapidly aging population, the reforms may fall short of securing sufficient savings to meet budget and debt obligations embedded in national legislation and other priority needs such as regional integration. This paper assesses the robustness of current long-term projections of age-related spending and aims to identify potential further savings that, if implemented, will create additional fiscal space to help meet Slovakia's societal needs in an equitable and efficient manner.

A. Introduction

1. The starting point for the analysis is the projections in the European Commission's (EC) 2015 Ageing Report (hereafter, Ageing Report) (EC, 2015)**.** The Ageing Report contains projections of population trends and age-related expenditures of Slovakia and other European Union member states. In the report, demographic projections are based on the most recent installment of the European Union's (EU) tri-annual population projections (Europop 2013). Commission staff, with guidance from various working groups composed of national authority experts, project health and long-term care, education, and unemployment expenditures for each member. Member states supply the projections for pension expenditures, typically the largest age-related expense, using their own models, which are subject to a peer review.

2. Slovakia faces the worst aging pressures in Europe. The EC projects Slovakia's old age-dependency ratio will reach 66 percent by 2060. An increase in life expectancy and a sharp reduction in the working age population, due to low projected fertility rates that remain below the natural replacement rate, drive this dynamic. The elderly (individuals 65 and older) will comprise more about a third of population by 2050. Inward migration, which could ease demographic pressures, has not fully offset out migration since 2000, based on a recent study by the

Old-age dependency ratios, 15-64
(Percentage point change, 2013-60)

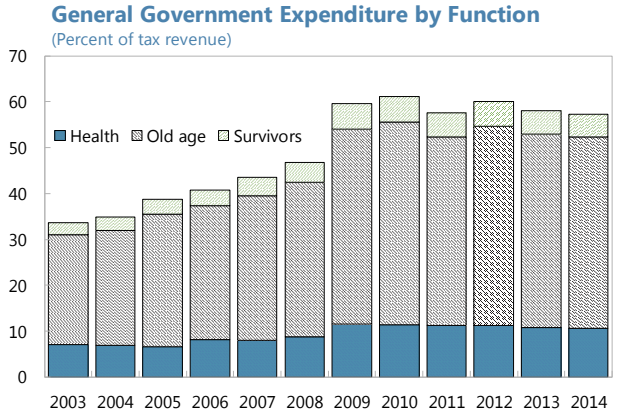


[1] Prepared by John Ralyea with assistance from Luisa Calixto and Dustin Smith. Thanks to the authorities and European Commission staff for their insightful comments.

Slovak authorities, suggesting that under current policies, migration will continue to be a drag on population dynamics.[2] However, these demographic projections are moderated somewhat by recent pension reforms leaving Slovakia with the sixth highest projected growth in age-related public expenditures in the European Union.

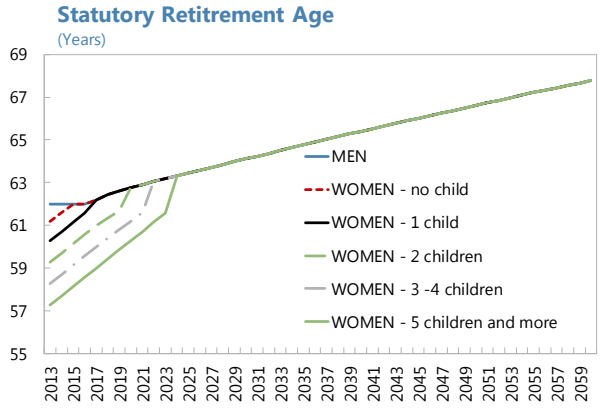
B. Age-related Spending: Yesterday, Today, and Tomorrow?

3. Age-related spending consumed about 59 percent of general government tax revenue, on average, over the last five years (see figure). This elevated level reflects a sharp drop in tax revenues during the recession, which have gradually recovered, and an increase in old-age and disability benefits, which have remained elevated. Projected health and pension expenditure in 2017 is 13.7 percent of GDP. Over the medium- to long-term, health and long-term care and pension spending is projected to reach 18.5 percent of GDP in 2060, according to the Ageing Report.



Source: Eurostat.

4. The 2017 budget reflects significant parametric reforms undertaken since 2012 to improve pension finances. A major change approved in 2012 provided for the unification of male and female retirement ages by 2024 and the indexation of the retirement age to life expectancy at retirement starting in 2017 (see figure). Also, after a transition period from a 50/50 wage/price inflation indexation method, pension benefit indexation is to be based solely on pensioners' inflation staring in 2018.[3] Moreover, the maximum assessment base for pension contributions was increased from 4 to 5 times the average economy-wide wage. In 2017, the assessment base increased further to 7 times the average wage.[4] These changes applied to both of Slovakia's main pension pillars: the public defined-benefit "pay-as-you-go (PAYG)" pillar (Pillar I); and the private defined-contribution pillar (Pillar II). See Box 1 for a description of Slovakia's pension system.



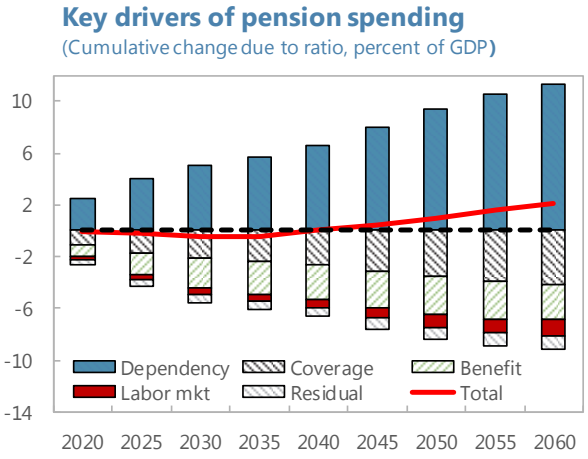
Source: Slovak authorities.

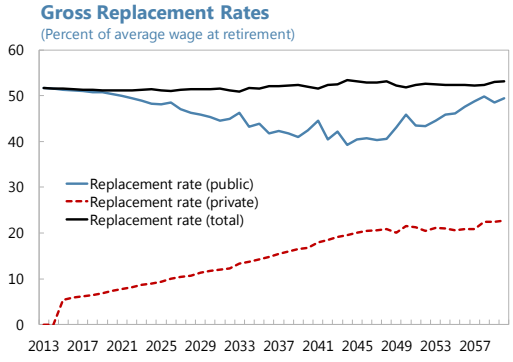
[2] See The Brain Drain from Slovakia (January 2017).

[3] Pensioners' inflation follows a particular basket of goods that reflects preferences of the elderly population. For the 2015 Ageing Report pensioners' inflation was projected to exceed consumer price inflation by 0.003/year.

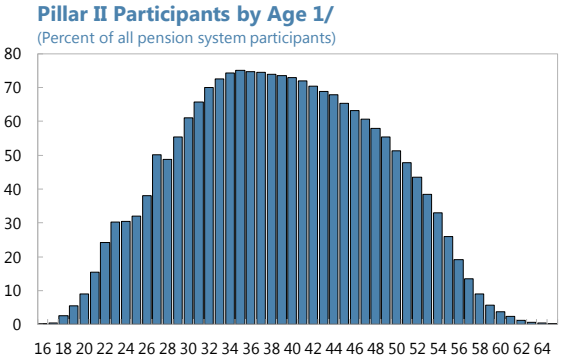
[4] The ceiling on pension benefits is 3 times the average wage.

5. Nonetheless, after a dip, the Ageing Report projects pension expenditures to rise, while health expenditures rise throughout the projection period. The initial pension expenditure path relative to GDP results from the pension reforms noted above and relatively high projections for total factor productivity (TFP) growth through 2035. Subsequently, as Slovakia's "baby boom" generation starts to retire in 2035 pension expenditures begin to increase. The assumed low participation of new labor market entrants in Pillar II (10 percent) compared to 75 percent of existing contributors aged 35 that are participating in Pillar II compounds the upward pressure on pension spending starting in 2055.[5] Moreover, expected longer contributory periods add to the projected pension burden. Overall, the EC and the authorities project heath and long-term care and pension expenditures to rise 4.5 percentage points of GDP by 2060, while a worst case scenario presented by the EC indicates total age-related expenditures could reach 25 - 30 percent of GDP, up to 40 percent higher than the baseline, in large part due to the assumed convergence of Slovakia's long-term care expenditures, which are currently low in Slovakia (0.2 percent of GDP).





Source: Slovakian authorities.



Sources: Slovakian authorities; and IMF staff calculations.
1/ All Pillar II participants also participate in Pillar I.

6. The Ageing Report projections are subject to uncertainty, as are all projections over decades-long horizons. Key macro-economic assumptions appear optimistic compared to recent economic trends and an aging workforce. In addition, the existence of Pillar II and frequent changes in its implementation (see below) adds degrees of uncertainty to forecasting participation levels in Pillar II and replacement rates in the public pension system. Moreover, the changes result in the transfer of assets out of Pillar II, reducing the base over which fixed costs associated with managing Pillar II assets are spread. This in turn could lead to lower net pensions for Pillar II contributors and

[5] In the short- and medium-term the low projected Pillar II participation reduces the amount of projected contribution transfers from Pillar I to Pillar II.

generate calls for expansion of coverage of the rate-of-return guarantee for Pillar II contributors or the reversal of some reforms, all of which imply higher public pension expenditure in the future relative to current projections.

C. Pension Expenditure

7. The EC projections for age-related spending are comprehensive, thorough, and provide for easy comparisons among EU member states. This is particularly true of the non-pension age-related expenditures. While incorporating a set of common macroeconomic assumptions provided by the EC and subject to a comprehensive peer review, the pension projections are more idiosyncratic, reflecting the specifics of each member's pension system. Given the importance of pension spending in budget outlays in Slovakia and the generally long lead time required to phase in any needed pension reforms, this section assesses the robustness of the pension spending projections and develops alternative scenarios of possible pension spending outturns.

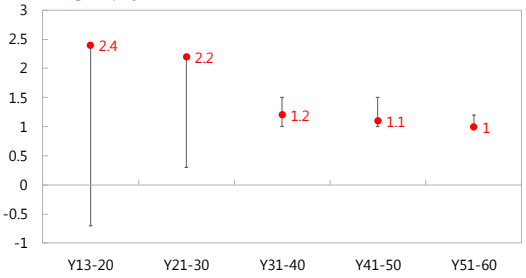
How Robust are Slovakia's Pension Projections?

8. The pension projections for Slovakia in the Ageing Report are subject to downside risks. The risks emanate from a possible over-estimation of total factor productivity growth and large uncertainty surrounding the government's intentions regarding Pillar II. Balancing these risks to some extent are recent fertility and employment rates, which were above the rates assumed in the Ageing Report. The rest of this subsection discusses the downside risks and applies scenario analysis to estimate the additional pension cost under alternative assumptions.

Lower-than-projected growth in total factor productivity

9. Slovakia's TFP growth is projected to be the highest in the EU until 2030. TFP growth is the key driver of labor productivity growth from which GDP (after adjusting for changes in labor inputs) and real wage growth are derived.[6] Projected TFP growth for Slovakia, which averages 2.3 percent from 2013–30 —the highest in the EU (see chart)— reflects EC projections of potential growth until 2023 and an upward adjustment made to TFP growth rates from 2024–2045 for countries with per capita incomes below the EU average. The latter adjustment is made to simulate anticipated economic convergence with richer EU countries. Within the convergence

Total Factor Productivity Growth of EU Members
(Range of projection 1/ 2/)

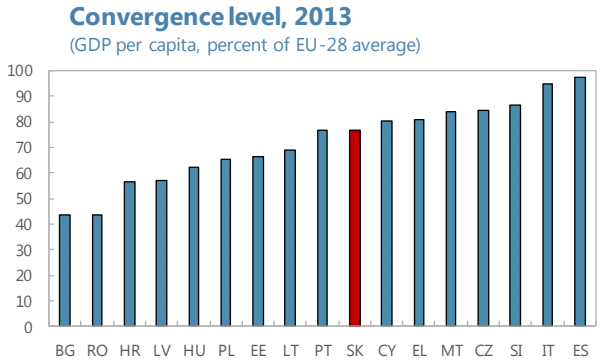


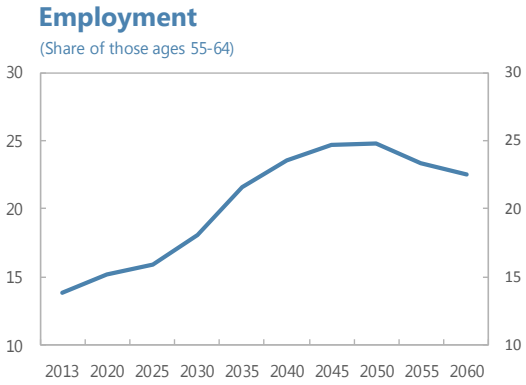
Sources: European Commission; and IMF staff calculations.
1/ Range of projections in The Ageing Report.
2/ Slovakia has the highest average TFP growth over the periods 2013-30.

[6] The EC used a Cobb-Douglas function to calculate potential output. In the short run, labor and TFP inputs to the function are adjusted for the business cycle. Constant returns to scale are assumed, with labor's share of gross value added (GVA) being 65 percent. The latter assumption is likely too high for Slovakia, where total labor compensation is probably closer to 50-60 percent of GVA.

group, the baseline scenario assumes that the lower the GDP per capita, the higher the real catching up potential. In the long run, total factor productivity growth rates in all countries converge to 1 percent, which implies labor productivity growth converges to 1.5 percent.[7] (See EC 2014 for a fuller description of the methodology for projecting TFP growth.)

10. The projected medium-term TFP growth may be on the high side. Slovakia's past economic performance, its level of convergence, and rapidly aging population suggest a lower rate of TFP growth is more likely. Since 1995, annual TFP growth in Slovakia has averaged 2 percent, encompassing Slovakia's economic downturn in the late 1990s and the pre-Global Financial Crisis economic surge in the mid-2000s. More recently, in line with the broad trend in EU countries, TFP growth has slowed to 1.8 percent. While a difference of 0.3 to 0.5 percentage points may not seem large on an annual basis, it adds up on a cumulative basis. For example, Slovakia's potential GDP would be permanently 9 percent lower relative to Ageing Report projections if the recent growth rate in TFP were to prevail until 2030. In addition, Slovakia's per capita GDP was about 75 percent of the EU28 average in 2013, higher than 9 other converging countries (see figure). Yet, Slovakia is expected to have a higher TFP growth, and by extension converge more quickly to richer EU countries than these other countries. This is possible, but one would generally expect those countries with lower per capita GDP to converge faster. Also, the high TFP growth experienced during pre-crisis years of high capital inflows may not be repeated. Finally, as noted earlier, Slovakia faces the worst aging dynamics in the EU. A recent study analyzing the effects of aging on productivity concluded that a five-percentage point increase in the share of workers aged 55–64 is associated with a decrease in total factor productivity of somewhere between two and four percent (Aiyar et al, 2016). For Slovakia, this implies a decrease in TFP of 4 to 8 percent by 2045, when the share of workers aged 55–64 will have increased 10-percentage points from 2013.



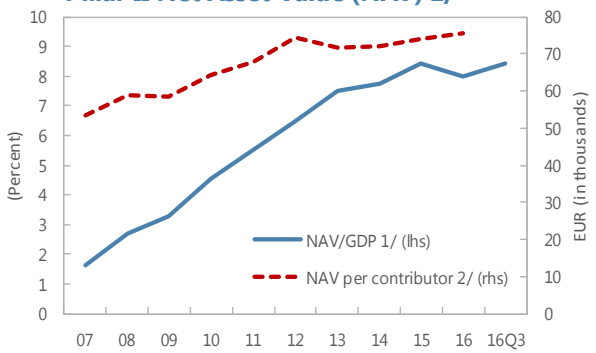


[7] In the short to medium term, labor productivity growth is projected to average 2.9 percent per year from 2013–30. This is more than 50 percent higher than the observed average annual labor productivity growth of 1.8–1.9 percent since the 2008 global financial crisis. (See Labor Productivity: Developments and Outlook, Annex I in the accompanying Staff Report.)

Uncertainty surrounding Pillar II

11. The authorities have altered the parameters of Pillar II multiple times. The rules governing entry and the contribution rates to the private pension system have changed frequently since its inception in 2005 (see table). In addition, the minimum participation period varied from 10 to 15 years before being abolished in 2015, and the authorities have "opened" the Pillar II system four times for pension system participants to exit or enter Pillar II without penalties.[8] Those who exit Pillar II and transfer their Pillar II savings to Pillar I, are entitled to full Pillar I benefits upon retirement. To date, about 420 thousand pensioners have exited Pillar II during open periods, transferring EUR 1.1 billion in pension savings to Pillar I. This exodus and lower asset returns, reflecting changes in investment regulations and the high proportion of Pillar II participants that invest in bonds (75 percent), combined with the European Central Bank's monetary easing policy have led to a flattening in the growth rate of per capita Pillar II assets (see figure).

Pillar II Net Asset Value (NAV) 1/



1/ Net asset value at beginning of year.
2/ NAV/Number of activity contributors in January.
Source: Slovakian authorities; IMF staff calculations

Pillar II – Contribution Rate and Rules Governing Entry

Period	1/1/05 - 12/31/08	1/1/09 - 3/31/12	4/1/12 - 8/31/12	9/1/12- 12/31/12	1/1/13- 12/31/16	2017 1/
Contribution rate	9	9	9	4	4	4.25
Labor market status and age						
New entrant <=35	M	V	M	M	V	V
New entrant >35	M	V	M	M	No	No
Existing <=35	V	V	V	V	V	V
Existing >35	V	V	V	V	No	No

Source: Slovak authorities

1/ Starting in 2017, contribution rate is scheduled to be increased in annual increments of 0.25 percentage points until rate equals 6 percent in 2024.

M = mandatory; V=voluntary; no=not allowed to enter

12. The regular changes to Pillar II's parameters induce uncertainty its future. Recent analysis by the authorities shows that when joining Pillar II was voluntary approximately 30 percent of new labor market entrants joined in the first seven years after entering the labor market. The authorities estimate that if the trend continues the share of pension contributors in Pillar II would reach 45 percent by the time new labor market entrants reach 35 years old. However, the

[8] The minimum participation period was 10 years between 2005-2007. From January 1, 2008, to October 31, 2011, it was increased to 15 years. The minimum period was reset to 10 years again from November 2011 to December 2014. Since 2015, there is no minimum participation period. The only condition to meet before drawing a Pillar II pension is reaching the retirement age (early retirement is also possible under certain conditions).

projections in the Ageing Report assume 10 percent of new labor market entrants in the age group 18–25 join Pillar II. While this is low given recent experience, it may be prudent.[9] Continual policy and rule changes related to Pillar II call into question the authorities' long-term commitment to it. Existing contributors may rationally assume that the Pillar II system does not have solid government support and opt out if there were further openings. In addition, the perception of less generous annuity from Pillar II upon retirement, as asset value per contributor has stagnated, could dampen enthusiasm for Pillar II.[10]

Model Calibration

13. An identity that highlights the key drivers of pension expenditures is used to develop alternative pension expenditure scenarios. In the identity (hereafter, the model), pension expenditure relative to GDP is a product of the old-age dependency, coverage, benefit, and labor market ratios (European Commission, 2014b).

$$\frac{\text{Pension Exp}}{\text{GDP}} = \overbrace{\frac{\text{Population } 65+}{\text{Population } 20-64}}^{\text{DependencyRatio}} \times \overbrace{\frac{\text{Number of Pensioners (Pensions)}}{\text{Population } 65+}}^{\text{CoverageRatio}} \times \overbrace{\frac{\frac{\text{Average income from pensions (Average Pension)}}{\text{GDP}}}{\frac{\text{Hours Worked } 20-74}{}}}^{\text{Benefit Ratio}} \times \overbrace{\frac{\text{Population } 20-64}{\text{Hours Worked } 20-74}}^{\text{Labour Market / LabourIntensity}}$$

14. The model checks the robustness of the estimates generated by the Aging Report. This assessment was conducted by using the macro economic and demographic projections in the Ageing Report as inputs. The model generated pension expenditure-to-GDP ratios that were broadly consistent with those in the Ageing Report across the projection horizon (See table). Specifically, the model suggests pension expenditures will be 0.5 percentage points of GDP higher by 2060 relative to the Ageing Report, equivalent to 0.01 percent of GDP a year. The primary difference relates to the calculated effect of the changes in the benefit ratio on pension expenditure. The model returns a more gradual reduction in the benefit ratio through 2020, relative to the Ageing Report, which generates a higher pension expenditure in 2020 and the rest of the projection period.

[9] From a projection standpoint, a low assumed participation rate in Pillar II implies lower projected transfers of annual social contributions from Pillar I to Pillar II.

[10] New legislation, effective from 2017, allows savers in the 2nd pension pillar to make a one-off withdrawal of their savings upon retiring. The amount eligible for withdrawal depends on their pension from other sources (mainly the first pillar). The use of this provision is extremely uncertain in part because the track record of benefit payments from Pillar II is extremely short. The first benefits were paid in 2015. That being said, the new provision could increase the attractiveness of the Pillar II scheme.

Earnings-related Public Pension Expenditure Projections (baseline)

	Cumulative change	2013	2020	2030	2040	2050	2060
Model	2.63	8.12	8.39	7.96	8.50	9.58	10.75
Ageing report	2.11	8.12	8.04	7.62	8.11	9.12	10.23
Difference 1/	0.52	0.00	0.35	-0.01	0.04	0.07	0.06
of which:							
Dependency ratio effect	0.23	...	0.17	-0.06	0.16	0.05	-0.10
Coverage ratio effect	-0.03	...	0.05	-0.02	-0.08	0.01	0.01
Benefit ratio effect	0.26	...	0.27	-0.02	0.03	0.03	-0.05
Labor market effect	-0.05	...	-0.09	0.05	-0.09	-0.01	0.09
Residual	0.10	...	-0.02	0.01	0.02	-0.01	0.12

Source: Slovakian authorities, European commission, and IMF staff calculations
1/ Change in model pension expenditure/GDP level less change in Ageing Report level.

15. After establishing the robustness of the model, the projections were updated. The base year for the projections was advanced to 2015 from 2013 using actual economic and demographic outturns. In addition, IMF projections through 2020 for nominal GDP, the labor force size, and labor productivity replaced older EC projections as inputs to the model. Moreover, given the rapid decline in the unemployment rate over the last few years and the closing of the output gap, the unemployment rate is projected to fall to 7.5 percent in 2020 and remain at that level thereafter, roughly equivalent to Slovakia's non-accelerating inflation rate of unemployment as calculated by the European Commission. The rates of change or levels of other input variables were left broadly unchanged from 2025-60. With these updates, the model implies an increase in pension expenditures-to-GDP of 0.4 percentage points by 2060, relative to the calibrated increase of 2.6 percent of GDP. The primary driver is a larger-than-projected increase in the average pension benefit of about 2.8 percent per annum in 2014–15 compared to an initial projected annual increase of 2.3 percent, on average, over the 2013–20 period.

What If the Identified Risks Materialize?

16. The assumptions in the updated model form the basis for assessing the magnitude of the risk posed by lower TFP growth or further openings of Pillar II. The following table summarizes the impact of these scenarios on pension expenditure relative to the projected expenditure in the Ageing Report (original) and the updated projections. Lower TFP growth raises projected pension expenditure by 1.2 percentage points of GDP and reduced Pillar II participation, through further re-openings, could increase pension expenditure 0.3 percentage points of GDP by 2060.[11]

[11] The European Commission has also analyzed potential risks to pension spending based on various scenarios. Please see: *Pension sustainability in the euro area – fiscal risks associated to demographic and macroeconomic uncertainties and policy options* – Issues Note.

Earnings-related Public Pension Expenditure Projections (scenarios)

	Baseline		Scenarios	
	Ageing Report	Updated 2/	Lower TFP by 0.25 p.p. annually	Lower Pillar II participation by 25 percent
Public pension/GDP, 2060	10.2	11.0	12.2	11.2
Cumulative change 1/	2.1	3.0	4.3	3.3
of which:				
Dependency ratio effect	11.3	11.8	12.2	11.9
Coverage ratio effect	-4.2	-4.5	-4.6	-4.5
Benefit ratio effect	-2.6	-2.2	-1.2	-2.0
Labor market effect	-1.3	-1.3	-1.4	-1.3
Interaction effects (residual)	-1.0	-0.8	-0.8	-0.8

Source: Slovakian authorities, European commission, and IMF staff calculations

1/ Estimated pension expediture/GDP for the base year of 2013 in the 2015 Ageing report was 8.12 percent. The actual value was 7.95 percent of GDP, which is used in the updated projections and the two scenarios.

2/ Includes higher initial pension expenditure estimate using caliberated model instead of baseline of 0.5 percent of GDP.

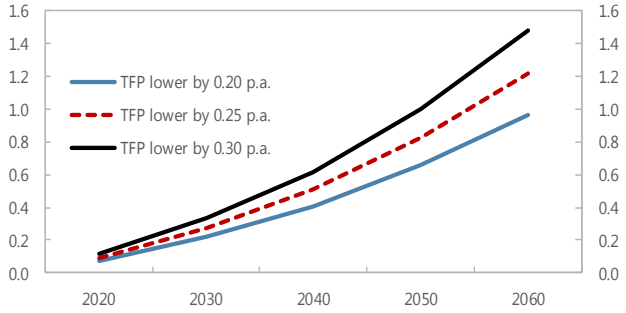
- **A reduction in the TFP growth rate of a ¼ percentage point per annum increases projected pension expenditure by 1–1.5 percent of GDP**. The channel for generating the increase would be a more gradual decline in the benefit ratio as the average wage, which is a function of GDP and hours work (i.e., labor productivity), would be lower relative to the updated (and original) projections.[12]

- **Lower participation in the Pillar II system would add to Pillar I pension expense.** During four openings from 2008-15, 35 percent of those who participated in Pillar II at the end of 2007 transferred their contributions to Pillar I.[13] As of end 2015, there were roughly 1 million contributors to Pillar II. If another 20-30 percent of existing participants were to leave under future openings before 2025, pension expenditures could increase, relative to the updated projections, by a cumulative 0.2-0.4 percent of GDP over the projection horizon. The channel would be higher average replacement rates, as more contributors receive full Pillar I pension benefits. As a result, benefit ratios would be higher than currently projected. (See Box 2 for a brief discussion of the methodology used to assess the impact of lower Pillar II participation on Pillar I pension expenditure.)

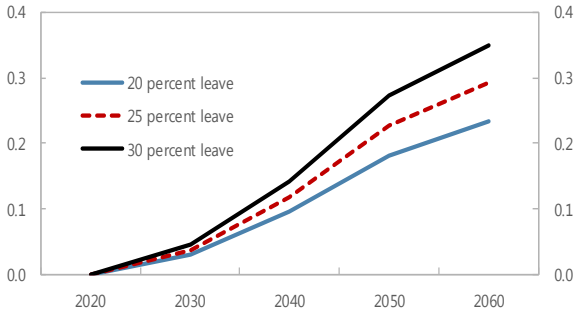
[12] The Ageing Report's risk scenario for lower TFP growth assumes that long-run TFP growth for EU countries will be 0.8 percent per year instead of one percent. This assumption leads to an increase in Slovakia's pension expenditure by 0.4 percentage points over the projection horizon relative to the baseline scenario.

[13] Over the 2008–15 period, the net reduction in Pillar II participants was about 16 percent as new entrants to the labor force continued to join Pillar II.

TFP scenario: Change in PE/GDP
(cumulative percentage point change)



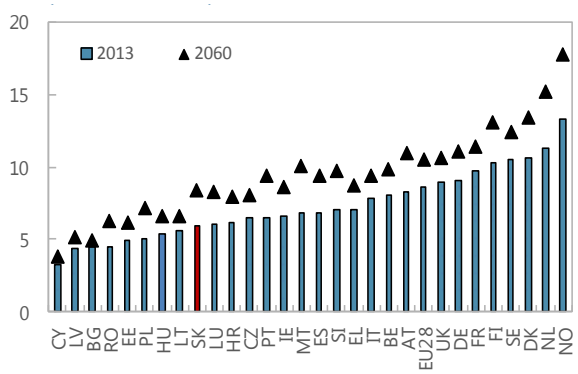
Pillar II scenario: Change in PE/GDP
(cumulative percentage point change)



D. Health Expenditure

17. Slovakia has increased public spending on health significantly in the last ten years yet health outcomes remain relatively poor. For example, the general government spends about 5.2 percent of GDP annually on health care, but the rate of amenable mortality[14] was 17 percent higher than comparable countries and 93 percent higher the EU average (Ministry of Finance, 2016). With health care spending projected to increase 40 percent by 2060, due primarily to Slovakia's rapidly aging population, the government commissioned an expenditure review of health spending in 2016 conducted by Ministry of Finance with joint assistance from the IMF, EC, and OECD. To restrain the growth in health care costs and guide the expenditure review, the authorities established a target of no real increase in general government health spending from 2017–19.

Health and L-T care expenditure
(Percent of GDP)



18. Aggressively implementing identified savings in recent expenditure reviews will be critical to achieving the short-term target for public health care spending. (Hughes et al, 2016). Based on a recent expenditure review of health spending, the finance ministry estimates savings and efficiency gains worth about 0.5 percent of GDP. Of the total potential savings in healthcare, some EUR 270 million could be realized in public health insurance spending. The 2017 budget identifies the savings measures to be implemented. The ministry has also identified three areas where higher spending efficiency can be achieved – drugs, medical equipment and radiology and laboratories. In addition, oversight of implementation of measures identified in the health and other spending reviews has been assigned to a new Implementation Unit in the Office of the Deputy Prime Minister.

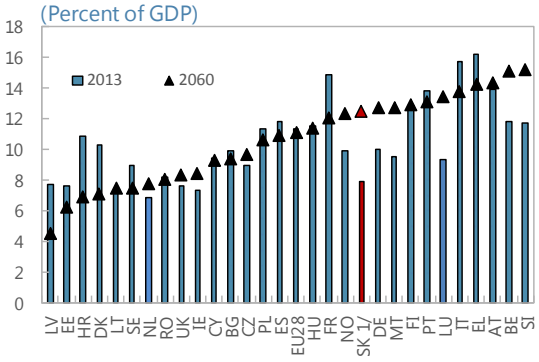
[14] Deaths that could be avoided by high-quality healthcare.

19. More broadly, there is a need to invest in structural measures to improve the relatively poor health outcomes of the Slovak population. In particular, the transition from a hospital-centered and disaggregated health care model to a primary care-centered health system with a high level of integrated health care provision needs to be managed carefully to ensure that the cost containing measures will translate into long-term cost growth reduction in the Slovakia.

E. Long-term Feasibility and Sustainability of Pension and Health Spending

20. The two alternative scenarios for pension expenditures presented above are not mutually exclusive. Taken together, pension expense to GDP could increase by a cumulative 1.5 percentage points, on top of the 3 percentage point increase estimated in the updated baseline. This implies a pension expenditure equivalent to about 12.5 percent of GDP in 2060 (See chart). To mitigate the risk of such an increase, it is critical that the authorities implement existing reforms. In addition, the authorities could consider further reforms to the pension system as well as measures to enhance TFP growth presented in Annex II to the accompanying staff report such as reforms to the legal system and steps to improve the protection of property rights. Other important measures to boost productivity growth would be improving the quality of public institutions and the education system. Moreover, a political resolve not to open up the Pillar II system again would be a good risk-mitigating measure.

Public pension expenditure, 2060
(Percent of GDP)



Source: 2015 Ageing Report; Fund staff calculations.
/1 Assuming both risk scenarios materialize.

21. Potential savings from implementing further parametric pension reforms could free up budget space of 1.8 to 2.8 percentage points of GDP. Despite significant parametric pension reforms, some "low hanging fruit" remains to be harvested for age-related expenditure savings. The indexation of the statutory retirement age to life expectancy at retirement operates with a considerable lag, accrued pension benefits are indexed to nominal wages, and the calculation of social contributions on a monthly basis allows individuals to shelter earned income from inclusion in the social contributions assessment base. Aggressively tackling each of these items would yield considerable savings.

Potential Savings in Public Pension Expenditure from Further Reforms
(Percentage points of GDP, 2016–60)

Illustrative potential expenditure savings	1.8 - 2.8
Link retirement age more closely to life expectancy	0.6 - 0.8
Change in valorization formula (weight CPI at 25 percent)	1.0 - 1.5
Change in calculation of contribution base (annual assessment)	0.2 - 0.3

Sources: 2015 Ageing Report; IMF staff calculations.

Pension Reforms

22. Fiscal consolidation and rigorous implementation of the 2012 pension reforms are critical to preparing Slovakia for fiscal pressures from aging. In addition, reforms of the following pension parameters could reduce pension expenditure to mitigate the projected increase in pension expenditure and generate space to cover the potential realization of the identified risks above.

- *Tighter link to changes in life expectancy*: The current indexation formula, as of 2017, ties adjustments in the retirement age to annual changes in a rolling five-year average of life expectancies at statutory retirement age. Linking changes in the statutory retirement age to current estimated changes in life expectancy at retirement could reduce pension expenditure by 0.8 percent of GDP in 2060, as identified in the Ageing Report.

- *Valorization formula*: Accrued pension benefits could be indexed to a weighted average combination of consumer price and nominal wage changes. Assuming a 25/75 weighting scheme, this could yield pension expenditure reduction in the range of 1.0 to 1.5 percent of GDP as the replacement rate and, indirectly, the benefit ratio falls.

- *Annual assessment base*: The current method of calculating social contributions only uses monthly earned income. This allows contributors to "game the system" by reporting most of their annual income in one month and only a minimal amount in other months. Thus, with a cap of 7 times the average monthly wage, most of their annual income is exempt from social contributions. If social contributions were instead tied to annual income through an end-of-year reconciliation procedure, annual contributions could increase by 0.2-0.3 percent of GDP.

23. Changes could also be made on the revenue side to reduce the need to finance pension expenditures from general revenue. For example, the cap on employee pension contributions could be removed. There is precedent for this. Contributions to the special pension system for armed service personal are not capped. In addition, pension earnings, which are not subject to income taxes, could be taxed above a certain income threshold. If the threshold is set appropriately, neither of these measures would increase the labor-tax burden on less well off workers, but would help improve the overall fiscal profile.

24. The government should avoid ad-hoc policy changes like those seen in the last two years. For example, the 2017 budget increases old-age pension benefits by a fixed amount equivalent to 2 percent of the average pension. This exceeds the amount that was included in the base line projection by EUR 110–120 million.[15] In addition, a minimum pension was introduced in July 2015 for pensioners with 30 and more qualified years of pension insurance. The estimated annual cost is EUR 25-30 million. These ad-hoc changes have add between EUR 135–150 million to annual pension expenditures (0.1–0.2 percent of GDP).

[15] The baseline reflects the decision at the time of the 2012 pension reforms to gradually move benefit indexation method from a mix of nominal wage and price changes to being solely based changes in pensioner's prices.

Health Spending Reforms

25. The authorities have made a good start on implementing reform measures identified in the 2016 health spending review. Going forward, the authorities should take the following steps to strengthen the overall governance, management and delivery of the findings from the spending review:[16]

- Clear procedures need to be set out to support the oversight mandate of the new Implementation Unit, setting out the frequency and nature of reporting by line ministries on progress in implementing measures.
- The role of the Budget Department in the Ministry of Finance (MoF) needs to be significantly strengthened to ensure that identified measures are effectively integrated into the budget.
- Line ministries, including the Ministry of Health, need to set out clear plans with realistic timelines for implementing savings measures, including continuous engagement with stakeholders and identifying legislation requirements.
- Expand the current efforts to centralize health procurement to more products.

[16] Please see the EC's The 2016 Joint Report on Health Care and Long-term Care Systems and Fiscal Sustainability, Vol. 2, pp. 223-232, for further suggestions for reforms to improve health care in Slovakia.

Box 1. The Slovak Republic's Pension System: Institutional Features

The Slovak Republic has a three pillar universal pension system. The first pillar is a state-run universal defined benefit points-based system, which pays old-age, disability, survivor, and minimum pensions. A second pillar, in 2005, and a third pillar, in 1996, were created as defined contribution schemes. Entrants have to opt into the second pillar. Voluntary participation is possible for new entrants and voluntary entrance is possible before the age of 35 years for those who choose to switch some of their pension contributions. The third pillar is entirely voluntary. Armed forces personnel have a separate scheme.

Payroll contributions are divided between the first and second pillars. Employer statutory contributions are 10 and 4 percent of covered income to Pillar I and Pillar II, respectively. Employers also make an additional 4.75 percent of covered income "reserve solidarity contribution."[1] Starting in 2017, Pillar II contributions will increase by 0.25 percentage points per year until 2024, when the contribution split will be 12/6. Employees contribute 4 percent of covered income. Covered income for employees is gross wages plus profit sharing, capped at 7 times the average monthly wage 2-years prior.[2] This cap applies to all contributions (paid by employer and employees, voluntary and self-employed), the only exemption is the accident insurance contribution, which is not capped (0.8% paid by employer only). In addition, the ceiling for calculating transfers to compulsory health insurance funds was removed in 2017.[3]

Eligibility for old-age pensions is conditional on age and contribution history. The statutory retirement age is currently 62 years for men and women with less than two children and with at least 15 years of contributions. For women with two or more children the pension age is lower, but will gradually increase to parity with those who have less than two children. Starting in 2017, the statutory pensionable age will be indexed to increases in life expectancy at retirement.[4] Early retirement is possible two years before reaching the statutory retirement age provided the individual's pension benefit is 1.2 times the subsistence income level.

The old-age pension benefit at retirement is linked to a person's lifetime average wage and is calculated using "pension points":

Pension benefit[5] = (APP* PV * contributory period) *solidarity factor*Pillar II adjustment factor

APP (Average pension point) is the average of an insured-person's pension points throughout their career. A pension point is the ratio of the insured person's wage to the economy-wide average wage in the year the of the contribution. The average pension point is capped at 3.

PV (Point value = 10.2524 in 2014) is indexed to average nominal wage growth (third quarter).[6] The authorities project the pension point value to reach 66.4 by 2060.

A solidarity factor reduces pension points higher than 1.25 – the applied coefficient is decreasing to 60 percent by 2018 – and increases pension points lower than one– the applied coefficient is increasing to 22 percent by 2018.

The *Pillar II adjustment factor* scales the pension benefit for the portion of the statutory pension contribution made to Pillar II. For example, if a contributor elects to join Pillar II at the beginning of their career the contributor's Pillar I pension benefit would be reduced by about 1/3.

Sources: OECD, 2015; and European Commission, 2015

[1] Self-employed and voluntary insured persons contribute at the same rates as employers.

[2] Prior to 2017, the cap was 5 times the average monthly wage. The nominal cap in 2017 is EUR 6,181/month.

[3] In 2017, a 7 percent tax on dividends replaced a health insurance contribution of 14 percent on dividends.

[4] Based on the annual change in a rolling five-year average of life expectancies at statutory retirement age, expressed in days. For example, the new statutory retirement age in 2017 will be 62 years and 76 days.

[5] The pension benefit is increased by 6 percent for every addition working year beyond retirement and reduced by 0.5 percent for every month of early retirement. Pension benefits and contributions are not taxed.

[6] Dividing the point value by the average economy-wide earnings in 2014 yields the equivalent to the accrual rate in a defined-benefit scheme. For Slovakia, the implied accrual rate is about 1.25 percent.

Box 2. The Impact of Lower Pillar II Participation on Public Pension Expenditure

A rudimentary methodology was used to assess the impact of further Pillar II openings on Pillar I pension expenditure. The starting point was an assumed "desired" average replacement rate of about 51.5 percent, the Pillar I replacement rate prior to the commencement of Pillar II pension payments in 2015. The rate is also broadly in line with the replacement rate of 50 percent established when the Pillar I system was reformed in 2004 and coincides with the total replacement rate projected under the first and second pillars, as seen in the text chart above. Deviations in replacement rate projections in the Ageing Report from this level were assumed to stem in large part from contributors' participation in Pillar II. In other words, lower participation in Pillar II would lead to a convergence in the replacement rate toward the desired level.

As noted, the four previous Pillar II openings led 35 percent of Pillar II participants to leave the private pension system. If another 25 percent of existing Pillar II participants were to transfer their contributions to Pillar I, one could reasonably project the gap between the "desired" replacement rate and existing projections to be reduced by 25 percent through an increase in the projected replacement rates. To translate the increase in the projected replacement rate in to a model driver, a simple regression between current projected changes in the benefit ratio, the gross average replacement rate, and other control variables was used to estimate the relationship.[1]

[1] Two factors that can significantly influence the relationship between the replacement rate and the benefit ratio are relatively stable. The indexation methods for each ratio are not projected to change over the period, though volatility in the real wage growth can influence the relationship given that the benefit ratio is indexed to pensioners' inflation while accrued pension points are indexed to nominal wages. Also, the projected average contributory period for new pensions varies less than +/- one year from its projected level in 2020.

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