# Assessing the Effects of Some Structural Measures in Slovenia

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# 1 Introduction

*According to IMAD analyses, the structural imbalances in Slovenia have been accumulating for several years, which have in turn impeded economic recovery and, in particular, the achievement of lasting, stable economic growth and long-term fiscal sustainability.* We have used the Development Report[1] and Economic Issues,[2] our annual publications, as the basis for identifying the main challenges to Slovenia's economic policy. In these reports a wide range of indicators are used to analyse the main factors affecting Slovenia's long-term development. They reveal that the key structural imbalances in Slovenia include low productivity, low activity on the part of some population groups, inadequate adjustment to demographic changes, a persistently high structural public deficit and high general government debt. The difficulties in these areas, which are closely interlinked, are considered to be the key reason for the weakness in the current economic recovery. Owing to their structural nature, they also dampen potential for long-term growth and undermine the long-term sustainability of the public finances.

*In view of the gradual economic recovery, we estimate that the time is now ripe for Slovenia to implement a set of comprehensive structural reforms.* In times of deep recession, structural measures were more difficult to introduce because the unstable economic and political situation meant that economic policy makers had to focus on short-term counter-cyclical measures. The factors that are now assisting Slovenia regarding the implementation of structural reforms include: (i) the recovery of economic activity, which is at least partly based on domestic demand; (ii) the elimination of uncertainties related to the stabilisation of the banking system; (iii) favourable pricing terms of funding; and (iv) political stability. In such an environment, economic policy has some leeway regarding the design and implementation of measures, which are usually easier to carry out in the first half of the political cycle.

*This analysis presents simulations of selected measures that address the key challenges ahead for Slovenia.* They have been selected on the basis of various criteria, the most important of which include their ability to improve the situation in targeted areas, the empirically supported effectiveness of measures in other countries, and their acceptability in relation to other imbalances in the economy or their impact on its well-being as a whole. The choice of simulated measures was also conditional on the limitations inherent to the models used. In contrast to the measures that have been used the most in recent years, the simulated measures are primarily intended to remedy multiple problems at the same time rather than address only one area. In order to enhance the effectiveness of the set of measures, it will be necessary to define and list them by priority, as too broad a set can reduce the focus on those which are the most important. The credibility and speed of implementation also have a positive impact on the effectiveness of the reform programme, particularly in the short and medium term.[3]

*Empirical estimates suggest that, despite some negative short-term effects, these structural measures would have a significant and permanent positive impact on long-term economic potential and fiscal sustainability in Slovenia.* As expected, positive macroeconomic and fiscal effects dominate in the long term. However, it is also necessary to point to certain, albeit small, negative long-term consequences of the simulated measures: for example, according to the model-based assessments conducted, some of the measures on the product market reduce employment. The model-based simulations also indicate that there are considerable short-term positive effects for measures aimed at reducing administrative barriers as well as those which match supply and demand on the labour market and reduce costs for businesses. Some other measures on the product market could also lower costs and prices, but this would further exacerbate current deflationary pressures. Moreover, some measures could decelerate the urgently needed fiscal consolidation process, at least in the short term. However, it should be noted that, in the long term, structural measures tend to have a positive impact on public finances through endogenously stimulated economic growth. These measures must be defined and implemented by taking full advantage of the flexibility offered within the existing rules of the Stability and Growth Pact[4] regarding temporary deviations from the medium-term budgetary objective. This holds particularly true for the years to come, when the general government deficit in Slovenia is forecast to fall significantly below 3% of GDP.

*Since there are several factors which can increase the uncertainty of the estimates, the results of the simulations should be interpreted with caution.* The results of model-based simulations or estimates relying on parameters taken from other studies may be biased due to changes in the economy's structure,

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[1] Development Report (2015).
[2] Economic Issues (2015).
[3] Anderson et al. (2013); Lusinyan and Muir (2013); Santoro (2015).
[4] Communication from the Commission (2015).

which cannot be fully captured by the models. As the model-based approach has its limitations, only a partial analysis could be made. Given the nature of the analysis, the measures were simulated individually, but as some of them are interlinked, their effects cannot be simply added up. The uncertainty regarding the results is also related to the nature of the simulation tools used. Moreover, owing to the limitations to the model infrastructure, it was not possible to simulate all the measures we deem to be important for achieving lasting economic growth and fiscal sustainability. These measures include, for example, improving the effectiveness and transparency of the judicial system,[5] tackling environmental issues and addressing the effectiveness of the education system.

*The aim of the simulations is to encourage debate among economic policy makers, focusing on measures that will result in the permanent removal of structural imbalances instead of providing only short-term solutions.* The analysis should encourage the implementation of structural measures and assist economic policy makers in taking certain decisions. It represents an empirical upgrade to other IMAD publications, complementing the few studies of the effects of structural measures in Slovenia that have thus far been prepared by domestic and international institutions. Nevertheless, the simulated measures (or a set thereof) represent only one of the many possible combinations of economic policy instruments. The implementation of such measures is also vital in order to provide the incentives and mechanisms required for the economy to respond effectively to economic shocks. The economic environment, which is currently characterised by the high probability, incidence and persistence of shocks, is subject to a number of uncertainties. Since global competition continues to increase, these uncertainties require not only that the main productivity factors are at an appropriate level, but also that they incorporate a high flexibility both within and between all sectors of the national economy.

# 2 Main structural challenges and assessment of the effects of the selected structural measures

*This chapter provides a detailed overview of Slovenia's main structural challenges and an empirical assessment of the impact of some of the measures through which they may be addressed.* These challenges are related to competitiveness, the labour market and public finance, three areas that are closely interlinked.[6] Potential courses of action are proposed for each challenge, and the possibilities for an empirical assessment of the impact of the measures on Slovenia are explored. We also quantify the effects of the selected measures on main macroeconomic aggregates.

*The impact of structural reforms on economic activity in Slovenia has also been assessed by international institutions.*[7] The IMF (2015a) made partial assessments of the long-term effects of a large number of structural reforms in a wide range of areas. It compared the values of institutional quality indicators in Slovenia with those in the best performing countries, taking into account a panel analysis of indicators, the relative levels of economic activity and the costs of structural reforms. According to IMF assessments, reforms improving corporate governance, access to finance, and judicial processes would have the most significant long-term effects on economic growth. In 2015 the OECD made a model-based assessment of the effects of structural reforms at a more aggregate level (OECD (2015)). According to its estimates, the product market, labour market and pension reforms would boost GDP by 1% in 5 years and 2% in 10 years.[8] The product market reforms would have the greatest impact on GDP, solely on account of higher productivity. The impact of the labour market and pension reforms combined would be approximately 50% less.

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[5] The OECD (2015) also draws attention to this area in the context of limitations to the empirical assessments of the effects of structural measures. According to the IMF (Pompe and Bergthaler, 2015), the judicial system affects economic growth not only by its impact on direct foreign investment, lending, enterprise size and export-orientation, innovation, personnel allocations, deleveraging and debt restructuring schemes, but also by creating exposure and risks in the economy.

[6] We omitted another key challenge, financial restructuring of the economy, mainly because: (i) several processes are already underway in this area; (ii) indebtedness declined significantly during the crisis; (iii) the problems remain concentrated in a small number of sectors or enterprises and cannot be captured adequately by the existing model tools, which reflect the aggregate macroeconomic picture; and (iv) it is addressed indirectly through the positive effects of measures simulated in other areas.

[7] Some effects of the structural measures in line with the Europe 2020 strategy for Slovenia were also simulated by Glažar (2012).

[8] In its definition of shocks, the OECD takes into account PMR (Product Market Regulation) and EPL (Employment Protection Legislation) indicators, assuming that the structure of Slovenia's economy corresponds to the average of France, Italy and Spain. It evaluated the effects of already implemented structural reforms or those that were still underway.

***The assessments of the impact of the measures presented in this chapter are not comprehensive, which is mainly due to the limitations inherent to the models used.*** The effects of the individual measures on economic potential were assessed separately and therefore cannot be added together. Although assessments of the short-term effects of the measures are also presented, our objective is to focus primarily on their long-term aspects. Since it is impractical to address structural changes through temporary measures, the measures are simulated as permanent changes.[9] The measures may also have side effects which cannot be fully captured by model-based simulations of individual measures. Therefore simulations of the effects of different measures cannot be directly compared. The measures also differ in terms of scope, and the various structural imbalances also required a variety of quantitative simulation tools, including both DSGE[10] and regression models. As it was not possible to simulate all the measures needed to address the challenges to economic policy in Slovenia, we also used elasticity estimates from the literature. It is also important to note that there are uncertainties to which model-based assessments are exposed; the assessments of the effects are therefore provided in ranges to the greatest possible extent and depending on the availability of model tools.

## 2.1 Competitiveness

***Although the Slovenian tradable sector is fairly competitive, Slovenia lags behind in some aspects of product market functioning and business environment, which limit its effectiveness.*** The usual competitiveness indicators, such as unit labour costs and market share, reveal that Slovenian exporters have enjoyed a fairly favourable position in recent years. However, Slovenia still lags significantly behind its competitors on international trade markets on a number of indicators, which points to limitations to which its tradable sector is directly or indirectly exposed. This holds particularly true with regard to ensuring higher productivity and, therefore, lasting economic growth because Slovenia lags behind other countries in terms of R&D spending efficiency, the excessive regulation of some markets and high administrative barriers for businesses. These limitations also impede fiscal consolidation since they restrict the broadening of the tax base and, consequently, growth in general government revenue. In order to enhance productivity and, in turn, competitiveness, it is also essential to increase the availability of human capital and the efficiency of its allocation by improving the functioning and the efficiency of labour market institutions.

### 2.1.1 Competitiveness challenges

***Increasing productivity and, therefore, competitiveness is vital in order for Slovenia to achieve faster economic growth and narrow its development gap.*** In terms of economic development, the gap between Slovenia and the EU average has been widening since the onset of the crisis, and its convergence with the EU average will be only gradual under a no-policy-change scenario.[11] One of the main recommendations in order for Slovenia to increase its potential GDP growth is to strengthen competitiveness and hence the resilience of its economy to shocks. The strengthening of competitiveness is crucially dependent on policies that foster productivity, which is significantly lower in Slovenia than in the EU. In order for lasting progress to be achieved, it is therefore necessary to focus specifically on measures to increase value added.

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[9] In all cases, the simulations of temporary measures indicate significantly smaller effects than the simulations of permanent measures, which is in line with expectations.

[10] A dynamic stochastic general equilibrium model QUEST (D'Auria at al., 2009), which was developed by the European Commission to assess the results of structural reforms and is also used to quantify the impact of individual structural reforms from national reform programmes in the EU (e.g. Pilot on the Economic Impact of Member States' Structural Reforms in the 2013 and 2014 NPRs: Italy, Spain, Denmark and Czech Republic, 2015). Some effects were also assessed by a similar model, EAGLE, developed by the ECB and calibrated and presented for Slovenia in Clancy et al. (2014). Although the QUEST and the EAGLE belong to the same family of models, they differ in terms of calibration parameters, sectoral division and specifications for individual sectors. The results of the simulations by these two models therefore also differ. As is the case with all other models, DSGE models include many assumptions and simplifications. For example, in the QUEST model, unemployment is a consequence of a household's decision, as individuals are balancing work and leisure time, which does not correspond to the actual situation, particularly in times of crisis. The labour market measures were therefore also simulated using the EAGLE model, which includes involuntary unemployment (Jacquinot et al. 2015). Furthermore, DSGE models (mainly) exclude the financial sector.

[11] According to long-term forecasts (OECD Long-Term Database), Slovenia will achieve the level of GDP per capita relative to the EU (89% of the EU average) recorded at the beginning of the crisis (in 2008) in around 2030, and 100% of the EU average in around 2045.

***Structural reforms usually play a central role in terms of boosting productivity growth,*** particularly in a small, open economy which, once within a monetary union, has a limited range of economic policy instruments available. Structural reforms affect productivity and competitiveness in the medium term. They involve a wide range of areas such as human capital, research and development and innovation, product markets, and many others that affect business sector operations.

***This paper focuses on three key areas of reforms to boost Slovenia's productivity, which are presented in various publications by IMAD (e.g. Development Report, 2015):***

- ***Increasing innovative capacity.*** One of Slovenia's challenges in this area is to make use of its relatively high R&D investment and transform it into marketable products and services (see, for example, the Development Report, 2015). In order to increase efficiency regarding R&D expenditure and a lasting improvement in innovative capacity, the current practice of short-term and constantly changing measures should be replaced by a more stable set of measures. These should be focused on the co-creation of knowledge through interaction between public research institutions and businesses (the competence centres in Austria and Sweden are examples of good practice[12]); strengthening cooperation between large and small enterprises (e.g. clusters in Germany[13]); and human resource development in support of innovative capacity (improving knowledge and skills for entrepreneurship and the use of modern technologies, entering into entrepreneurship during education, etc.)

- ***Deregulation of services.*** High or inappropriate regulation reduces competitiveness on the market and increases the price of services. These higher services costs are borne by businesses, which weakens the competitiveness of the economy. Slovenia is already establishing a comprehensive database of regulated activities and professions,[14] but the key would be reducing the large number of regulated activities (and professions)[15] and establishing a more appropriate arrangement in those fields that need regulation. According to OECD estimates (Koske et al., 2015), professional services are particularly highly regulated in Slovenia, with high barriers to entry for new providers a key factor in this regard.

- ***Reducing administrative barriers to improve the business environment.*** International competitiveness surveys (WEF, Doing Business) point to a number of obstacles to doing business in Slovenia. The main barriers in the last few years include limited access to finance (start-up funding in particular), restrictive labour regulations and government bureaucracy. Efforts made in these areas should be focused on optimising and simplifying the procedures of obtaining documents and permits, expediting the enforcement of contracts and improving the electronic exchange of data between businesses and the government. By establishing the e-VEM portal, Slovenia has made significant progress in recent years regarding the ease with which a business is set up. It has also adopted new insolvency legislation, which has facilitated more efficient and faster business restructuring, but too little has been done to create a supportive business environment.

## 2.1.2 Empirical assessment of measures in the area of competitiveness

***Owing to the many possible effects of economic policy, the results of measures for improving competitiveness can be assessed using a wide range of empirical approaches.*** The impact of innovation on productivity and economic growth is usually determined by panel analyses and simulations by structural macroeconomic models, which include variables that are directly or indirectly related to expenditure on innovation. The impact of innovation can also be measured by an analysis of Slovenia's deviation from the best performing countries, where the estimates are based on a comparison with countries with more favourable values for the relevant structural indicator (e.g. the number of patent applications) and the use of the elasticity of economic activity to the change in the relevant structural

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[12] Stern, P. et al. (2013).
[13] Germany Leading-Edge Clusters (2014).
[14] The Government Office for Development and European Cohesion Policy included the project for the renewal of regulated professions and activities (the first phase of which is the compilation of a list of professions and activities) among the key projects of the government project office. The project is carried out by the Ministry of Economic Development and Technology in cooperation with the Ministry of Public Administration and the Ministry of Labour, Family and Social Affairs.
[15] Between 2010 and 2015, the number of regulated professions declined from 323 to 262, mainly owing to deregulation in craft sectors, but is still much higher than the EU average (176).

indicator. The results of product market reforms can usually be assessed using a model-based simulation of different competition measures (e.g. mark-ups). The main problem with simulations of this type is the conversion of competition indicators (such as PMR indicators[16]) into model-based measures of competition. The impact of measures reducing administrative barriers is assessed in a similar way and is associated with the same problems.

***We assessed the effects of measures in three areas that pose a significant challenge for Slovenia in achieving higher productivity.*** The impact of the higher efficiency of R&D expenditure on the number of patent applications and, in turn, economic activity was assessed in two steps, by an analysis of Slovenia's gap with the top performers and by a model estimate. In the area of deregulation of services, we focused on the impact of the deregulation of architectural, legal, accounting and technical services, assuming a decline in the values of PMR indicators. In order to assess the impact of reducing administrative barriers, we simulated a decline in the duration and costs of a number of administrative procedures. International institutions regard these procedures as the greatest obstacle to doing business in Slovenia.[17] The measures in all three areas were simulated by DSGE models.

***Simulations of some possible measures to enhance competitiveness (such as increasing the efficiency of R&D spending, deregulation of services, reducing administrative barriers) indicate a possible increase in GDP over the long term, i.e. by 0.1% to around 1% per measure.*** As expected, an improvement in R&D spending efficiency would have a significant positive effect on GDP. If the efficiency of R&D spending were to approach the levels recorded in countries with comparable economic development, GDP would rise by 0.3% to 1% in the long term. Furthermore, if the main administrative barriers and barriers to entry to the professional services market were reduced to the average of more developed countries, GDP would again increase by 0.5% and 0.1% respectively over the long term.

***The order of magnitude of the effects of measures on GDP is comparable with that in other similar studies for Slovenia and other countries.*** Estimates of the exact same sets of structural measures as those which are simulated in our analysis are rare in the available literature. There are only few studies which deal with the impact of higher efficiency of R&D expenditure on economic activity. We have therefore compared the model-based simulation with an alternative estimate of the impact of an increase in the number of patent applications on GDP using the elasticities from Cheptea and Velculescu (2014), which leads to a very similar result (Table 1, Appendix 1). Simulations of the deregulation of services in the studies for other countries vary and often include other service sectors alongside professional services. This is one of the main reasons why our estimate of its impact on GDP is at the lower bound of the estimates in other studies, which range between 0.1% and 1.1% (Table 2 in Appendix 1). In terms of administrative barriers, a comparison with analyses that assess the impact of a 25% decline in administrative costs is the most sensible. This represents a 2.5 times larger decline than in our simulation and would, according to various assessments, increase GDP by 0.8% to 1.9% (Table 3 in Appendix 1).

**Increasing the effectiveness of R&D expenditure**

***In the first phase, we assessed the effects of higher efficiency of R&D expenditure using data envelopment analysis (DEA), through which we determined the size of shock.*** We estimated the extent to which the number of patent applications would increase[18] if the efficiency of R&D spending in Slovenia rose to the levels in the best performing countries in this area. The analysis[19] reveals a fairly low level of R&D spending efficiency in Slovenia, with the share of R&D expenditure in GDP significantly larger than in countries at the efficiency frontier, while the number of patent applications lags significantly behind.[20] As the most efficient countries deviate considerably from Slovenia in this regard, we simulated an

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[16] The indicator of product market regulation (PMR) was developed by the OECD to measure a country's regulatory framework and track the progress of reforms on the markets for goods and services. It consists of two sub-sets: entry regulation and conduct regulation. Barriers to entry to the market arise from qualification requirements (the duration of education, the length of compulsory traineeship, a professional exam), compulsory chamber membership, quotas for foreigners and exclusive rights of certain professions to perform certain activities. Conduct regulation involves the regulation of prices in certain activities, advertising, forms of business and inter-professional cooperation (Koske et al., 2015).

[17] Doing Business 2016 (World Bank, 2015); The Global Competitiveness Report 2015–2016 (WEF, 2015); The World Competitiveness Yearbook (IMD, 2015).

[18] The number of patent applications was thus used as a measure of R&D spending efficiency.

[19] We estimated the effectiveness of R&D expenditure through the number of patents issued in the last ten years. We assumed that R&D expenditure affected the patents within two years. We therefore took account of average R&D expenditure (as a % of GDP) in 2003–2012 and the average number of patents per million inhabitants in 2005–2014.

[20] If it reached the most efficient countries in the EU, the number of patent applications Slovenia could be approx. 75% higher with the current level of R&D expenditure.

improvement in R&D spending efficiency that would enable Slovenia to reach the level of the best performing countries which are at more comparable levels of economic development.[21] According to the DEA results, Slovenia should increase its R&D spending efficiency (or the number of patent applications) by around a quarter in order for this to be achieved.[22] The increase in efficiency was carried out in the first quarter of the model-based simulation and is permanent.

***The model-based simulation indicates that an improvement in R&D spending efficiency has positive short-term and long-term effects on GDP and a neutral impact on employment.*** The impact of increasing R&D spending efficiency on GDP would already be positive in the first year and would strengthen further over the years to come; within ten years GDP would be 0.3% to 1% higher. The positive effect would mainly reflect an increase in exports as a result of higher export competitiveness. Higher efficiency and hence productivity would translate into a real increase in wages, which would boost private consumption. The simulation using the QUEST method shows a slight rise in employment owing to increased recruitment of highly qualified personnel; however, in the long term, employment declines slightly as higher wages reduce labour demand. The EAGLE model shows a similar response for employment, but employment declines over the long term due to a high rate of transitions of highly qualified people into the more efficient and better paid private sector and their unwillingness to work in the public sector. We also assessed the impact of higher R&D spending efficiency on GDP using the elasticity of GDP growth to the number of patent applications from Cheptea and Velculescu (2014). The results show that a 25% increase in the number of patent applications raises annual GDP growth by 0.1 percentage points in the long term (in a period of fifty years), which is, in ten years, a very similar increase in GDP (around 1%)[23] to that indicated by the QUEST simulation.

*Figure 1:* **DEA: efficiency frontier of R&D expenditure**
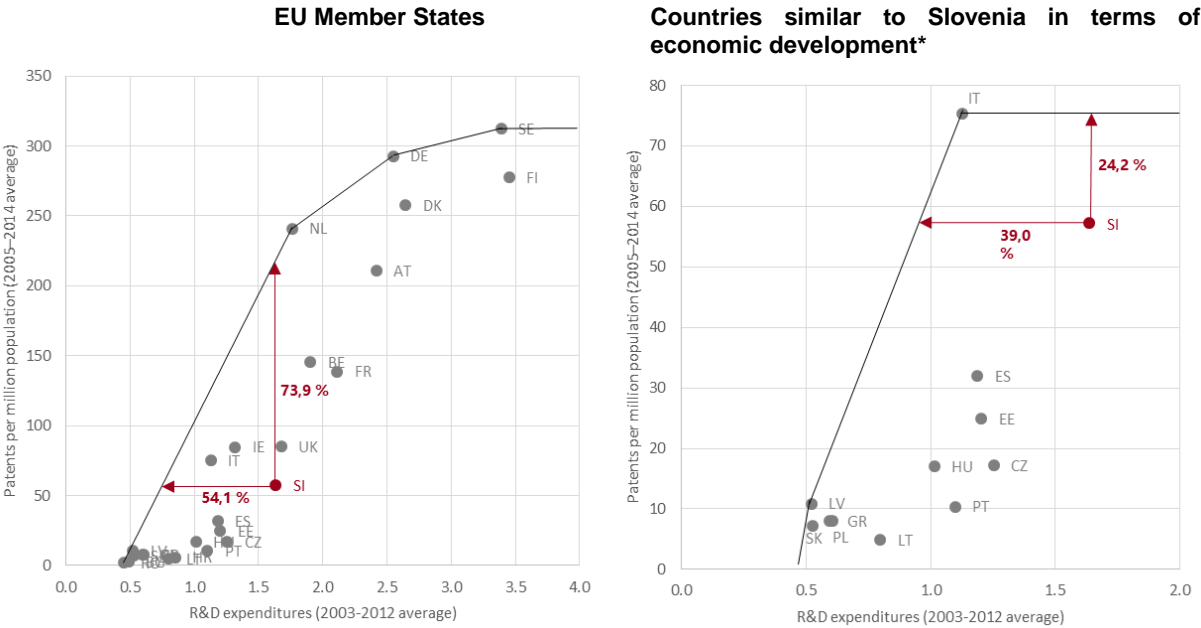


Note: * Countries with GDP per capita in purchasing power standards, which differ from the Slovenian indicator by not more than 15 percentage points in absolute terms (EU index=100).
Source: calculations by IMAD.

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[21] The countries where GDP per capita in purchasing power standards (EU index=100) differs from the Slovenian indicator by not more than 15 percentage points in absolute terms.
[22] It should be noted that patents are also impacted by the economy of scale; in countries with higher nominal R&D expenditure, more patents can be expected.
[23] Assuming the same impact on average annual GDP growth in the first ten years as in the 50-year average.

*Figure 2:* **Simulation of the effect of an increase in R&D spending efficiency**
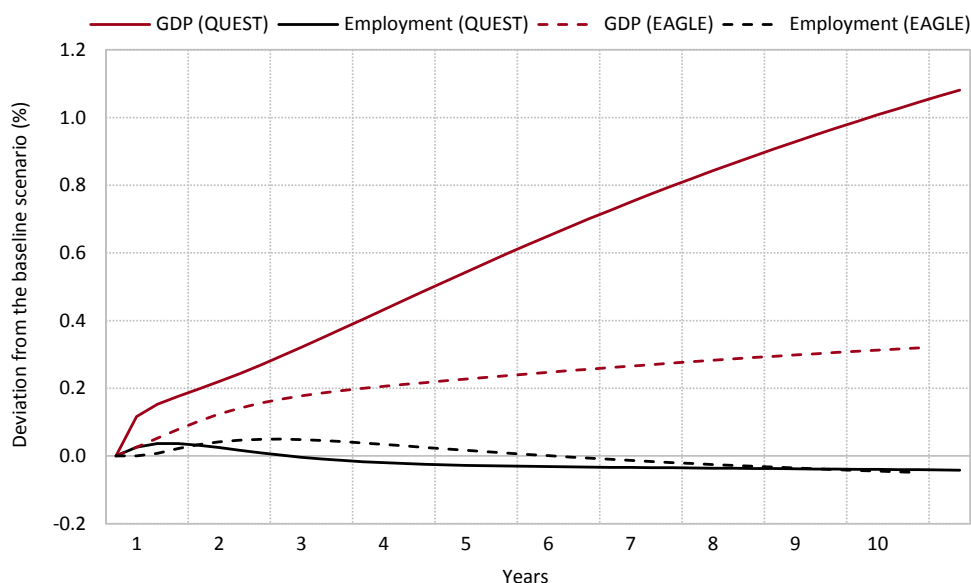


Source: calculations by IMAD.

**Effects of the deregulation of professional services**

***In assessing the effects of the deregulation of professional services, we determined the size of shock on the basis of the product market regulation (PMR) indicator converted into the change in mark-up for intermediate inputs.*** The PMR indicator for professional services covers two types of regulation: entry regulation (barriers to entry to the market) and conduct regulation (regulation of business operations) for four professional service sectors (architectural, legal, accounting and technical services). Slovenia has a high level of entry regulation in all these sectors. We simulated an improvement to the OECD level in those areas where Slovenia is furthest from the average (compulsory chamber membership, the length of compulsory traineeship, the number of services that can be carried out only by persons with certain qualifications). Such an improvement would lower the PMR indicator for professional services from 2.56 (OECD calculation for 2013) to 1.46. The next step was converting the decline in the PMR indicator into a change to the mark-up in professional services as described in the Thum-Thysen and Canton (2015) study. Under the aforementioned assumptions, the mark-up would decline from 19% to 13%. Data from the input-output tables show that, in Slovenia most (90%) of these services are used as intermediate inputs in other sectors. In determining the size of shock, we also took into account that professional services represented a 6% share of intermediate inputs. We thus determined the shock of reducing the mark-up for intermediate inputs from 10% to 9.64%, which we used in the model. A permanent mark-up reduction was carried out in the first quarter of the model-based simulation.

***The model-based simulation shows that a decline in the mark-up in the intermediate inputs sector increases GDP over the long term, while its long-term impact on employment is neutral.*** A decline in the mark-up of 0.36 percentage points lowers both GDP and employment in the short term, but the negative impact on economic activity lasts less than one year. Simulations using the QUEST model indicate the largest positive impact on GDP (almost 0.1%) approximately four years after the implementation of the measure; a similar effect is recorded ten years after the mark-up reduction. This is at the lower end of estimates from comparable studies.[24] The long-term increase in GDP owing to the mark-up reduction and the consequent decline in intermediate input prices arises from the higher competitiveness of exports (lower export prices) and a higher real return on capital owing to a decline in the general price level in the economy. As the model was calibrated at the zero lower bound on interest rates, the monetary policy does not respond to deflation despite the endogenous nature of its policy function. As a higher return on capital would increase the investment of households that have no liquidity constraints, their private consumption would decline slightly. The impact on employment would be neutral over the long term, whereas

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[24] One reason for the smaller effect of the simulated shock in our simulation than in studies for other countries is that the deregulation measures in other studies often include other services alongside professional services. Also, we simulated a decline in the mark-up for intermediate inputs, where — as a result of the negative impact on private consumption — the overall effect on GDP is somewhat smaller than in the case of a decline in the mark-up for finished products, which is usually the subject of shock in comparable analyses.

employment would decline slightly in the short term owing to a fall in intermediate input prices and because companies would start using relatively less expensive capital.

*Figure 3:* **Simulation of the effect of a mark-up reduction in the intermediate inputs sector**
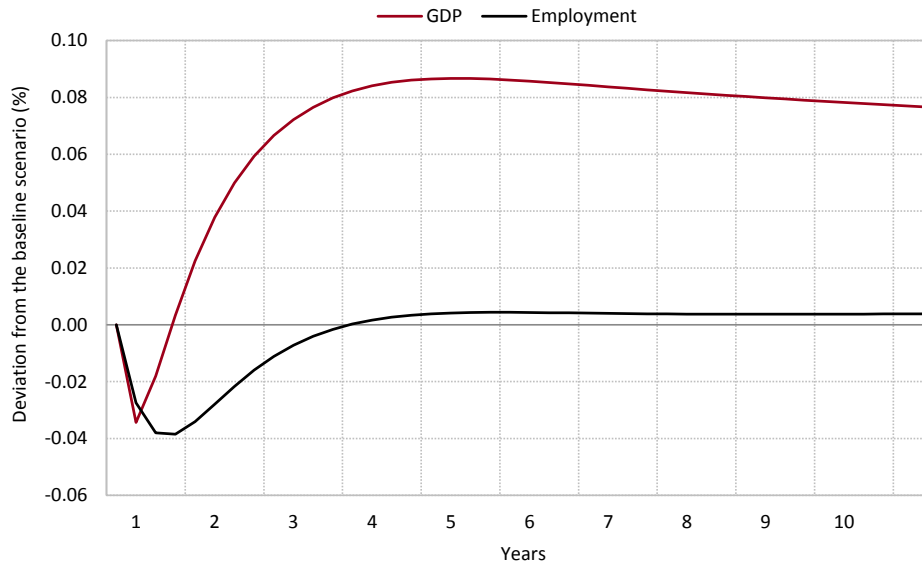


Source: calculations by IMAD.

**Effects of reducing administrative barriers**

***We simulated the reduction in administrative barriers on the basis of the value of the indicator of the ease of doing business converted into a reduction in administrative costs.*** Among administrative barriers, the World Bank indicator of the ease of doing business (Doing Business, 2015) for Slovenia draws attention to the lengthy proceedings for businesses and high costs in some areas. Our simulation shows that shortening lengthy administrative proceedings and reducing costs[25] to the EU average improves the value of the ease of doing business indicator by 10%. Assuming the same decline in administrative costs, we then estimated the effect of the 10% reduction in administrative barriers using the QUEST model, expressing the decline in administrative barriers as a permanent decline in administrative overheads for businesses in the finished product sector in the first quarter of the simulation.

***The results of the model-based simulation indicate that a reduction in administrative barriers has a positive impact on GDP and a negative impact on employment.*** Reducing administrative barriers by 10% already has a favourably effect on GDP in the first year; within a ten-year period GDP increases by almost 0.5%. An increase in GDP as a result of lower administrative overheads is due, on the one hand, to a decline in prices, which – through higher competitiveness – also boosts exports. On the other hand, owing to the decline in administrative overhead, corporate profits rise slightly and enable an increase in investment. Household capital gains also expand, thereby increasing private consumption.[26] However, a reduction in administrative work in companies translates into a fall in employment, which remains low over the long term because the increase in investment cannot entirely offset the decline in employment due to the reduction in administrative work.[27]

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[25] In the following areas: dealing with construction permits, registering property, paying taxes, enforcing contracts, and starting a business.
[26] The increase in private consumption is a result of the higher capital gains of households without liquidity constraints. In liquidity-constrained households, private consumption decreases owing to lower employment and real wages.
[27] The marginal productivity of labour does not increase with the decline in administrative costs, which means that labour demand falls.

*Figure 4:* **Simulation of the effect of reducing administrative overhead costs for companies in the finished product sector**
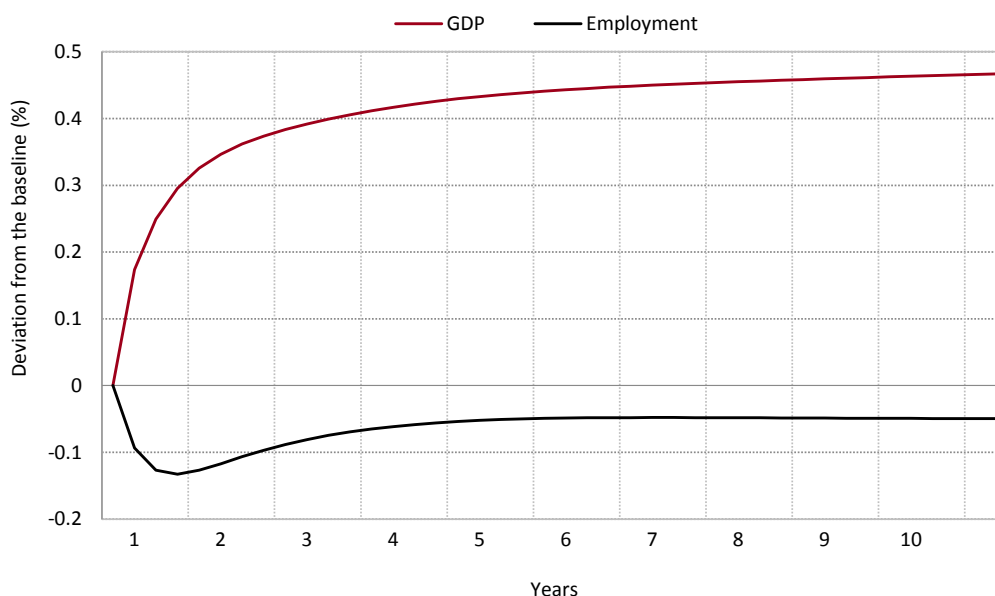


Source: calculations by IMAD.

## 2.2 Labour market

***By providing appropriate conditions for the efficient allocation of labour, the labour market can be a significant factor in developing the economy's potential growth.*** The efficient allocation of workers should be ensured not only within and between firms but also across sectors. Slovenia took steps to provide a more efficient allocation by lowering employment protection in 2013, and the value of the employment protection index in Slovenia is therefore now below the OECD average.[28] According to our assessment, Slovenia has already established conditions for higher flexibility in this area, but further measures will be required in order to eliminate other imbalances by improving the matching of labour market supply and demand.

***The elimination of structural imbalances on the labour market would favourably affect employment and economic activity; in the long term, it would also improve fiscal performance.*** We have determined some key structural problems that reduce the efficiency of the labour market. Solving these problems would also address some of the other challenges to Slovenia's economic policy. A more efficient allocation of the production factor of labour could, together with measures on the product market, improve productivity and hence competitiveness. The elimination of labour market imbalances would also have a favourable impact on general government revenue, either directly by increasing employment or indirectly – and with a lag – by boosting economic activity. At the same time, it would also reduce general government expenditure related to unemployment.

## 2.2.1 Labour market challenges

***Slovenia's labour market is characterised by certain structural imbalances.*** The low employment rates for older people, low-skilled people and the young stand out in particular, all of which are areas where Slovenia lags significantly below the EU average. The low employment rate of older people is primarily attributable to the possibility of early retirement. The low employment rate of young people is, besides the economic crisis, also a consequence of the absence of a dual system of vocational education as well as

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[28] OECD Indicators of Employment Protection.

gaps between the structure of the supply of graduates and the needs of the economy.[29] The inadequacies of the educational structure are also reflected in the relatively small share of people with a tertiary education employed in the private sector. In addition to the structure of the economy, this is also a consequence of the relatively high rates of labour taxation, notably for those employees who create higher value added. Long-term unemployment also rose during the crisis, which may slow the decline in unemployment in the medium term and is also a result of a lack of incentives to return to work. These are particularly associated with the relatively high replacement rate for people who become unemployed, which ranks among the highest in the EU, especially in the initial phase of unemployment.

***In order to be able to effectively deal with labour market issues, Slovenia should adopt a wide range of measures to reform the pension and education systems and the tax and labour market policies.*** Implementing several labour market measures at the same time can be more effective in reducing unemployment and increasing employment than separate and uncoordinated actions. Implementing a comprehensive package of measures is therefore also recommended for the labour market (Bassanini and Duval, 2006).[30] Together with an appropriate education policy, the already implemented and urgent additional pension system reforms should be complemented by active employment policy measures (hereinafter: activation policy) and better incentives to work by lowering replacement rates and selectively reducing the tax wedge on labour. An increase in funding for ALMP schemes, for which Slovenia falls below the average for more developed countries, and, in particular, an appropriate choice and a more efficient implementation of ALMP schemes could reduce unemployment and increase employment among vulnerable groups.[31] A reduction in the replacement rate, which creates a high unemployment trap, could increase the transition of jobseekers from unemployment to employment and reduce the incidence of long-term unemployment.[32] Compared to other countries, Slovenia has high replacement rates in the initial phase of unemployment and for unemployed people who received low or average wages[33] when they were employed, whereas the replacement rates for the long-term unemployment are at the same levels as the EU and OECD averages. A lower labour taxation for highly educated people could also boost the private-sector recruitment of the highly educated labour force and improve labour productivity.

## 2.2.2 Empirical assessment of the effects of labour market measures

***The macroeconomic effects of labour market reforms are usually empirically assessed through panel analyses and structural macroeconomic models.*** Empirical analyses of activation policy mainly focus on the impact of the level of ALMP spending on unemployment and employment. The effects of reducing the replacement rate and the tax wedge on employment can also be assessed by DSGE models in addition to panel analyses.[34] The analyses conducted mostly confirm that a reduction in the replacement rate and the tax wedge has a positive impact on unemployment and employment (with a delay), whereas the direction of the short-term effects also depends on the stage of the business cycle at the time of reform implementation. Nevertheless, the short-term effects of a lower replacement rate, increased funding for activation policies and tax wedge cuts are also usually positive (Bouis et al., 2012). Moreover, Bassanini

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[29] As PIAAC data (the OECD methodology for measuring the competencies and skills of adults) are not available, it is not yet possible to assess the effects of eliminating the imbalances in skills and qualifications for Slovenia. Assessments for other countries show that, by reducing skill mismatch to the level of countries with the lowest mismatch, labour productivity could be boosted by between 2% and 10% (McGowan and Andrews, 2015).

[30] The implementation of measures should take into account the complementarity of labour market policy instruments (Arpaia and Mourre, 2009), for example, a system of unemployment benefits, and of an activation policy. With a decline in unemployment benefits, ALMP schemes can play a significant role in minimising the short-term negative effects on the wellbeing of the unemployed by offsetting the decline in their income with a swifter return to employment.

[31] Analyses of the efficiency of ALMP programmes in EU countries point to training programmes as one of the most important ALMP instruments (Kluve, 2006). Slovenia allocates relatively less funding for these programmes, often using subsidies instead, which are considered to be a less effective measure for encouraging employment. This leads to the conclusion that there is still considerable room for improving the efficiency of ALMP schemes is Slovenia.

[32] Lowering the replacement rate reduces the reservation wage (i.e. the wage at which the unemployed is willing to accept work), a measure that potentially alleviates the pressure on wage growth and thus increases labour demand (Blanchard, 2014). Shortening the period of benefit entitlement also has a positive impact on long-term unemployment, as it encourages the unemployed to seek employment (Nickell, 1997).

[33] In the initial phase of unemployment, the replacement rate for a single person without children with earnings at 67% of the average was 86% in 2013 in Slovenia, if the household was entitled to social assistance and subsidy for housing (in the EU, 71 % on average). The replacement rate for those in this household category with earnings at 100% of the average wage was lower (68%), but higher than the EU average (58%).

[34] Panel analyses: Elmeskov et al. (1998), Nickell and Layard (1999), Blanchard and Wolfers (2000), Nickell et al. (2003), and Bouis et al. (2012). Analyses using DSGE models: Arpaia et al. (2007), Everaert and Schule (2008), Gomes et al. (2010), Hobza and Mourre (2010), and Cacciatore et al. (2012).

and Duval (2009) also emphasise the importance of a simultaneous implementation of labour market and other reforms.[35]

***In keeping with findings regarding labour market issues and taking the model limitations into account, we simulated three categories of measures.*** By increasing spending on ALMP training and education programmes, we simulated the effects of activation policies on the employment of older and younger people, and, using the production function, on GDP. Using DSGE models, we analysed the effects of lowering the replacement rate and assessed the effects of tax wedge cuts for highly educated workers. In simulating the effects of reducing the replacement rate, we were limited by the structure and calibration of the models, which allowed us to simulate only a reduction in the average replacement rate instead of replacement rates for individual cases (e.g. in the initial phase of unemployment), which is where Slovenia deviates more from the OECD average. In simulating lower labour taxation for highly educated people, we could simulate a tax wedge cut only for employees earning 167% of the average wage, which is a proxy for the earnings of highly educated people.

***Simulations of some labour market measures (increasing ALMP spending, reducing the replacement rate and the tax wedge) indicate a possible increase in Slovenia's GDP in the range of 0.2% to around 1% for each individual measure.*** Raising spending on ALMP training programmes targeted at young and older people to the OECD average could increase GDP by approximately 0.2% in five years. A reduction in the replacement rate to a level close to the EU average would increase GDP by just over 1% over the long term. Reducing the tax wedge for highly educated people would have a more modest impact on economic activity but quite a significant impact on employment of this specific group of employees.

***The results of the simulations of labour market measures in Slovenia are similar to those in studies conducted for other countries.*** Analyses for other countries also focus mainly on the convergence of indicator values to those in the best performing countries. In countries with similar low levels of spending on activation policies to Slovenia, an increase in this type of expenditure would reduce unemployment by around 0.2 percentage points (Bouis and Duval, 2011), and raise employment and GDP by around 0.4% and 0.2%, respectively (Tables 1 and 2 in Appendix 2). The results of the selected simulations for lowering the replacement rate indicate an increase in employment, a reduction in unemployment and higher economic growth. The assessments for selected countries (Table 3 in Appendix 2) therefore indicate that lowering the replacement rate to the values in best performing countries could increase GDP by 0.2% to 0.9% in the medium term and reduce the unemployment rate by 0.6 to 0.8 percentage points. Analyses for other countries also show that a decline in the tax wedge for highly educated people has a very modest impact on employment and GDP.[36]

### Increasing spending on ALMP training programmes for young and older people

***First we assessed the impact of increased ALMP spending on employment.*** As a variable of spending on training programmes we used the variable as defined in Bassanini and Duval (2006) and Bouis and Duval (2011), which reflects the level of spending per unemployed person as a share of GDP per capita.[37] We simulated an increase of 5 percentage points for this variable, bringing it to the OECD average for the 1997–2013 period.[38] Such an increase in spending on ALMP would raise the employment rate for young people by 0.5 percentage points and for older people by 0.7 percentage points within a five-year period. The long term effects appear to be even more pronounced. Assuming that the number of people of working age remains unchanged, we then converted the higher employment rates for young and older people into aggregate employment growth. The results indicate an increase in employment as soon as in the first year of implementing the measure; within five and ten years, employment is around 0.4% and 0.6% above the baseline respectively.

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[35] Their calculations indicate that a simultaneous decline in the average replacement rate and the average tax wedge lowers unemployment by an additional 0.3 percentage points and a simultaneous reduction in the replacement rate and PMR by 0.4 percentage points, on average, in the OECD.

[36] See Orsini et al. (2014) and Gal and Theising (2015).

[37] This variable was used in the panel analysis by Bassanini and Duval (2011) as it allows for the effects to be monitored regarding a country's size and the number of unemployed, which can significantly affect international comparisons of the levels of spending on ALMP. Since Slovenia was not included in the sample used to calculate the elasticities, these results should be interpreted with caution.

[38] Such an increase in the variable represents (*ceteris paribus*) an increase in spending on training programmes within ALMP from 0.06% of GDP (the share in 2004–2013) to 0.3% of GDP. This would rank Slovenia among countries such as Austria, Germany and the Scandinavian countries, all of which significantly stimulate activation of the unemployed.

***In the second step we assessed the effect of the change in employment on potential GDP directly by means of the production function.*** In the production function, employment is directly expressed as a production factor of labour. As the contribution of labour to potential GDP is weighted by a coefficient of 0.7, potential GDP would be around 0.2% higher within five years due to employment growth.[39] Although the effects of higher ALPM spending were not assessed by the structural models, it can be assumed that an increase in funding for training programmes for young and older people would favourably impact employment and GDP, mainly by improving the matching between the supply of and demand for these two age groups of people and their activation in seeking employment.[40] This also reflects the need for effective use of ALMP spending. An analysis by Varga and in 't Veld (2014), which simulates an increase in ALMP spending using a DSGE model, indicates than raising ALMP[41] by 12.5 percentage points would increase GDP by 0.2% in five years. This is less than in our simulation using the production function.

*Figure 5:* **Effect of increasing ALMP spending on training programmes on employment and potential GDP**
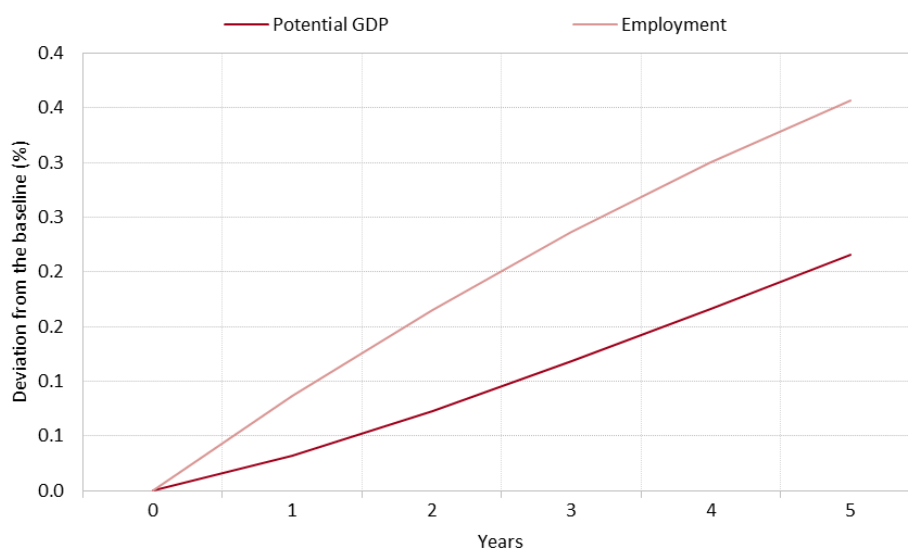


Source: IMAD estimates.

**Reducing the replacement rate for unemployment benefits**

***The shock of reducing the replacement rate was determined on the basis of a comparison between the replacement rate in Slovenia and the EU average; the simulation was carried out using both DSGE models.*** Slovenia has high replacement rates for minimum and average wage earners in the initial period of unemployment, but the models only allow for simulations of the effects of the average replacement rate for longer unemployment spells. In simulations using the QUEST model, we could simulate only a decline in the replacement rate for households that receive only unemployment benefits. Slovenia exceeds the EU average in replacement rates for households which, besides unemployment benefits, also receive social assistance and housing benefits, which can be simulated using the EAGLE model. The replacement rate for households that are not entitled to these additional incomes is slightly below the EU average. In the event of a decline in the replacement rate, as simulated with the QUEST model, Slovenia is still slightly below the EU average; according to the simulation with the EAGLE model, it ranks around the EU average. The initial calibrated replacement rate in the QUEST model is 30%; in the EAGLE model, it is 50%. We simulated a replacement rate decline of 15%, which corresponds to a decline of around 5 percentage points

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[39] Under the explicit assumption that the productivity of newly employed people is equal to the average productivity of all employees.
[40] The broadening of the labour market from the EAGLE model in Gomes et al. (2012), presented in Jacquinot et al. (2015), facilitates a simulation of an increase in the efficiency of matching labour force supply and demand. In the model, matching efficiency is expressed by a matching function in the form of the Cobb-Douglas production function along with the number of vacancies, the number of unemployed and the parameters of matching elasticity and matching efficiency. A permanent 5 percentage point increase in matching efficiency could increase employment by 0.9% in five years; GDP would also be slightly higher, and unemployment would decline. Measures that could increase matching efficiency include those that improve the efficiency of education, access to information on vacancies on the labour market and the efficiency of ALMP training programmes.
[41] The definition of the indicator is the same as in Bassanini and Duval (2006): ALMP spending per unemployed person as a % of GDP per capita.

in the QUEST model, and a fall of approximately 8 percentage points in the EAGLE model. The replacement rate also remains just above the EU average with this decline.

***In addition to the significant positive long-term effects of lowering the replacement rate, model-based simulations also indicate negative short-term effects.*** The model-based assessments show that GDP could be 0.9–1.2% higher and employment even 1.0–3.8% higher ten years after the shock. The simulation using the DSGE models shows that lowering the replacement rate works in a similar way to reducing the wage level. The shock reduces the reservation wage, i.e. the wage at which an individual is willing to accept work. Lower hiring costs increase labour demand. Over the short term, a reduction in the replacement rate can – through lower wages – have a slightly negative impact on GDP and productivity. In line with the elasticity of the employment structure to a change in the reservation wage, employment would increase most in the group of low-skilled workers, i.e. by 2% within 10 years. The effects in the group of employees with upper secondary education (0.9%) and higher education (0.5%) would however be smaller. Higher employment would serve to reduce unemployment. The measure would also have a positive impact on the budget balance as a result of lower expenditure on unemployment benefits and higher GDP. As it was not possible to simulate the effects of the changes in the specific replacement rates that stand out in Slovenia, we consider the model-based assessments of the impact of reducing the average replacement rate to be slightly overestimated.

*Figure 6:* **Effect of a reduction in the replacement rate for unemployment benefits on employment and GDP**
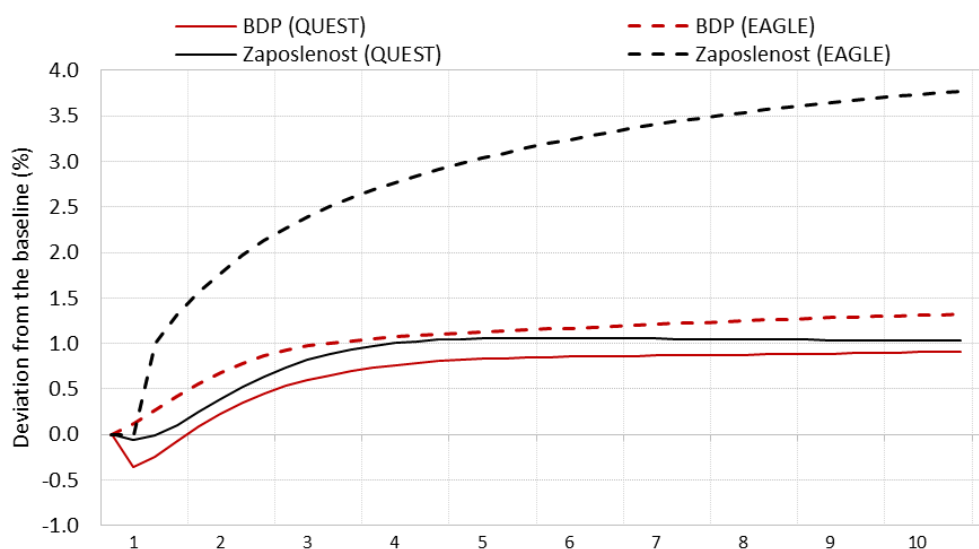


Source: IMAD estimates.

**Lowering the tax wedge for the highly educated labour force**

**We simulated a lowering of the tax wedge on high income, which is a proxy for the income of the highly educated labour force.** In determining the level of shock, we were limited by the fact that the model structure only allowed tax wedge simulations for earnings at 167% of the average wage, which is the only proxy for the incomes of higher educated staff. We were therefore only able to simulate the tax wedge cut for these income levels, although Slovenia stands out particularly in terms of its high marginal tax rates on very high income (see Kosi Antolič, 2015). We simulated the effects with the QUEST model, using a tax wedge decline of 5 percentage points as a shock.[42]

***The model-based simulation of a reduction in the tax wedge for highly educated employees indicates only small positive effects on GDP and aggregate employment.*** A positive, albeit small, effect of this measure on employment and GDP would be seen as soon as in the first year after implementation.

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[42] With such a decline, the tax wedge in Slovenia (which is around the EU average for people earning 167% of the average wage) would come close to the average of new EU Member States. In 2014 the tax wage for a single person earning 167% of the average gross wage totalled 46.3% in Slovenia and 41.0% in new EU Member States (the Visegrád Group, Estonia, Lithuania, Latvia, Bulgaria, Romania, Malta, Croatia). The EU-28 average was 46.8%.

Lower taxation of labour would increase labour supply and hence employment, thereby reducing the ratio of capital to labour, which lowers wages. The decline in the wage level would only be temporary as wages would settle around the baseline level within a few years, slightly reducing the positive effects of this measure on employment and GDP. In ten years, the employment of highly educated persons would increase by around 0.6%, but the effect on total employment would be negligible. This is, in addition to the small proportion of highly educated employees in total employment, also due to the definition of highly educated persons in the QUEST model, according to which this group includes only those with a technical educational background, who create innovations and can be employed in the R&D sector (e.g. engineers and science and technology graduates). The simulated effects of a tax wedge cut on employment and GDP are therefore likely to be underestimated, which could also be due to the absence of the effects of transmission of employment between population groups with different levels of educational attainment in the model-based simulation.[43]

*Figure 7:* **Effect on employment and GDP of a reduction in the tax wage for highly educated people**
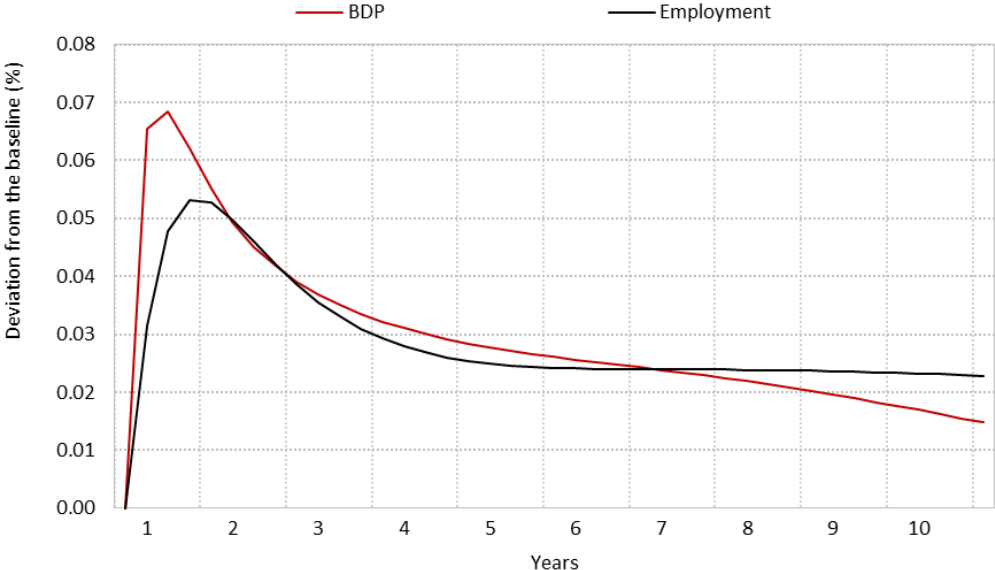


Source: IMAD estimates.

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[43] Although the increased employment of highly educated people would also be expected to positively affect the employment of persons with upper secondary and lower education (owing to the potential for complementary skill sets, a decline in the general wage level and the resulting higher demand for the labour force in general), the employment rates of persons in these education groups remain almost unchanged. This is likely due to the fact that the measure is targeted only on persons with higher education. The analyses conducted by Orsini et al. (2014) and Gal and Theising (2015) also confirm that a shock targeted at a specific education group only impacts employment in that group.

## 2.3 Public finance

***Fiscal policy faces a short-term challenge of correcting the general government deficit and the urgent need to implement structural reforms, which are dealt with in this paper and are aimed at addressing long-term imbalances.*** Most of the fiscal measures implemented during the crisis have been short-term oriented, and the austerity measures for correcting the deficit have mainly involved linear expenditure cuts. Fiscal policy has yet to adequately address the structural difficulties in place, which could otherwise translate into unsustainably high deficits and, consequently, general government debt. These problems have been building for a long period of time and have become even more pronounced during the crisis. In our assessment, the key structural challenges to Slovenia's fiscal policy include demographic changes and the high level of state ownership in companies, which are the main factors behind the current and expected general government debt. The high level of general government debt not only affects market participants' assessments of country risk and increases the costs of finance for businesses, it also raises the volume of interest expenditure. These are crowding out general government expenditure categories that could be leveraged to implement other economic policy tasks. Demographic changes, which are mainly related to population ageing, will have a particularly significant impact on the level of expenditure allocated for pensions, health care and long-term care in the future. In addition to the systemic measures implemented in the above-mentioned areas, the high level of general government debt could also be reduced through more efficient management or the privatisation of state-owned companies. Over the longer term, more sustainable fiscal consolidation could also be achieved through structural measures aimed at increasing competitiveness and labour market efficiency, which would expand the tax base and increase its quality.[44]

## 2.3.1 Fiscal challenges

***Given that general government debt has surged to over 80% of GDP during the economic and financial crisis, its reduction is one of the key challenges to Slovenia's economic policy.*** Although the relative debt level is currently lower than the EU or euro area averages, it has increased almost four-fold since the onset of the crisis.[45] As long as general government debt is at a moderate level, it can serve to improve welfare and stimulate long-term economic growth if the funds are spent effectively. However, a high debt level not only leads to higher country risk ratings and hence higher costs of finance for economic agents, but also increases interest expenditure, which indirectly reduces economic growth. Most authors suggest 85–95% of GDP as the threshold range at which the general government debt begins to negatively affect economic activity.[46] This negative impact appears to be particularly pronounced in the first few years after this threshold is exceeded. Pescatori et al. (2014) find that the dynamic of debt growth, which increases GDP volatility, is even more problematic than its high level. Given the rapid and significant increase in Slovenia's general government debt, it is necessary to adopt measures to ensure its long-term sustainability.[47]

***General government debt can be reduced in several ways.***[48] The most direct method of debt reduction is running primary budget surpluses, where the choice of fiscal consolidation instruments plays a key role. In absolute and relative terms, debt contraction is also facilitated by nominal economic growth. The nominal economic growth must be higher than the expected market nominal interest rate on general government

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[44] Some analyses (e.g. Lama and Medina, 2015) indicate that fiscal consolidation which is implemented amid modest wage growth is at its most effective in circumstances of high productivity growth when supported by previously implemented structural measures.

[45] In the Report on Government Deficit and Debt (October 2015), general government debt in Slovenia at the end of 2015 was estimated at 84.0% of GDP. However, given the significant pre-financing of liabilities for 2016 and the macroeconomic trends projected, we can expect both the absolute value and the share of debt in GDP to be lower at the end of 2016.

[46] For euro area countries, which do not execute their own monetary policy, some studies (Fournier and Fall, 2015) suggest even lower debt thresholds, i.e. at 50–70% of GDP. Empirical studies (Kumar and Woo, 2010) indicate that a 10 percentage point increase in the initial debt-to-GDP ratio is associated with a slowdown in per capita GDP growth of around 0.2 percentage points (under this assumption, per capita GDP growth in Slovenia would decline by approximately 1 percentage point due to the increase in general government debt of approx. 60 percentage points). The main reason for this is lower labour productivity. Its slowdown is due to the impact of higher debt on borrowing costs, which reduce investment and, in turn, slow the growth of capital stock per worker. In the event of a high level of debt, the indirect effects of higher interest payments also play a role, crowding out other categories of general government expenditure.

[47] According to IMF analyses (IMF, 2015b), general government debt in Slovenia is sustainable in the medium term, but exposed to risks in the event of shocks to GDP growth and the primary budget balance. It lists the large share of state guarantees among the risks to the sustainability of general government debt.

[48] The literature available on this subject is extensive; for a theoretical and empirical overview, see, for example, Reinhart et al. (2015).

debt. General government debt can also be reduced by gains from the privatisation of state assets and by improving state asset management. Owing to possible trade-offs between its short- and long-term effects on the public finances, privatisation is appropriate mainly for countries with short-term liquidity problems. Debt can also be reduced by restructuring, but this is usually less feasible and is dependent on clauses in contracts for individual bond series.

***As the issues faced by Slovenia are structural in nature, government debt cannot be reduced solely through the pursuit of medium-term budgetary objectives.*** Since the structural fiscal problems concerning the ageing population are particularly important for Slovenia, it is prudent to analyse the effects of the pension reform and the health system reform. The latter also includes the reform of the long-term care system. In view of the high level of state ownership in companies and their low profitability, improving the efficiency of the management of state assets also represents a challenge. Rising costs mean that these areas are expected to pose the greatest risk to Slovenia's long-term fiscal sustainability in the future (Development Report, 2015; Economic Issues, 2015).

**Pension system**

***Most indicators suggest that the existing pension system in Slovenia is financially unsustainable, and that this unsustainability will deepen in the future.*** Transfers from the state budget to the pension fund have been increasing in recent years. Having accounted for 33% of total pension insurance revenue in 2014, these transfers are increasingly crowding out other categories of general government expenditure. In addition to this, the pension reform already adopted no longer ensures the long-term sustainability of the pension system, which is due in part to the parameters of the system not having been sufficiently adjusted to demographic changes or increasing life expectancy, but also due to the indexation of pensions. Based on long-term projections of ageing-related expenditure, Slovenia is therefore the only EU country with a high risk to its long-term fiscal sustainability.[49]

***Such developments point to the urgent need for the social protection systems to be adapted to take account of population ageing, an area in which the pension system, in particular, stands out in the long term.*** Among the urgent measures required, IMAD[50] and other international institutions (EC, IMF, OECD) mostly emphasise the need to increase the effective retirement age by linking the retirement age to changes in life expectancy, rewarding those who choose to remain in service longer and reducing incentives for early retirement. Other measures include changing indexation rules, extending the reference period for calculating the pension base and increasing the role of private pension savings.

***Although pension system reforms are usually analysed with regard to their impact on the public finances, they also have a significant impact on other macroeconomic variables.*** The size and magnitude of the effects of measures on economic activity and employment differ with regard to the type of measure concerned. A review of the relevant literature reveals that pension reform tends to have a long-term positive effect on economic activity, mainly on account of its impact on labour force supply.[51] According to IMF simulations (Karam et al., 2010), only an increase in the retirement age has a significant long-term positive impact on economic activity, whereas the effects of most other measures are negligible, or, in the event that contribution rates are increased, even very negative in the short and particularly in the long term. Similarly OECD estimates (Hviding et al., 1998) show positive long-term effects for extending the retirement age, but a neutral impact of a reduction in pensions on GDP growth. The rapidly increasing share of pension expenditure in the state budget, the quickly deteriorating demographic picture and poor long-term prospects for the sustainability of the pension fund in Slovenia stimulate the choice of instruments that could already limit pension expenditure in the short term.

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[49] This estimate is based on the European Commission's long-term fiscal sustainability indicator (S2). The long-term sustainability indicator shows the adjustment to the primary balance required in order to prevent the debt-to-GDP ratio from increasing relative to the reference year over the long term. The S2 is calculated using the initial budget position as the basis (measured by the gap between the current primary budget balance and the primary balance that stabilises the debt as a share of GDP) and the long-term projection of age-related expenditure.

[50] For example, in Economic Issues (2015).

[51] This is also corroborated by the OECD (2015) study for Slovenia, but there even the long-term effects are negligible. Some model-based simulations (e.g. Bouis et al., 2012: p. 25) even show that pension system reforms may have negative short-term effects because of a reduction in the employment rate of older people. This is due to the departure of older people from the labour force when an increase in the minimum retirement age is announced. Some indicators reveal that this was also the case in Slovenia prior to the adoption of the pension reform in 2012.

**Health system**

*An efficient health system not only supports the achievement of health policy goals, it also has a favourable impact on the public finances and is one of the factors that ensure appropriate labour force productivity.* The challenges to Slovenia's health policy from an economic activity and fiscal perspective mainly involve the following factors: population ageing;[52] the low number of healthy life years; the efficiency of the health system; absenteeism; and systemic changes to expedite the development of the public-private partnership in health and long-term care. In order to increase the number of healthy life years, it is crucial for Slovenia to take steps to implement preventive health protection measures designed to reduce risky behaviour (alcoholism, smoking, obesity)[53] by, for example, increasing excise duties on alcohol, tobacco and food or beverages with high sugar content. A coordinated inter-sectoral health promotion programme would, over the long term, also help reduce absenteeism and increase the labour force participation of the older population. In order to minimise absenteeism as swiftly as possible, the measures taken should also be focused on increasing employer responsibility for health and safety at work, regulations regarding temporary disability and sickness benefits, evaluations of incapacity for work, the shortening of waiting periods and preferential treatment in cases of long-term absence.

*The majority of analyses show that health care reforms tend to have a positive impact on the economy, and that their effects are direct and indirect in nature.* The available analyses (e.g. Furcery and Zdzienicka, 2010; Barbiero and Cournede, 2013) mainly indicate that investment in health makes a significant contribution to medium- and long-term GDP growth. Studies also corroborate that health has a positive impact on economic development and the wellbeing of the individual and society as a whole (Figueras et al., 2008; Suhrcke and Urban, 2010).[54] There is also a clear correlation between health status and labour force participation (fewer people exiting the labour market owing to ill health or retirement; European Commission, 2010) and between the health of older people and the demand for long-term care. In this context, informal long term care within the family decreases the availability of the work force (women in particular), while formal care exerts additional pressure on general government expenditure.

*Several studies[55] rank the efficiency of the health care system in Slovenia as medium; in order to increase the long-term sustainability of the health care system, structural measures should be taken as soon as possible.* According to the European Commission (Medeiros and Schwierz, 2015), more efficient health care systems could reduce health care expenditure as a share of GDP in the EU by an average of 0.5% per year; according to the OECD (Journard et al., 2010), improved health care efficiency could increase life expectancy in the EU by more than two years. Analyses of the health system (Merkur et al., 2013, and the Ministry of Health and the European Observatory on Health Systems, 2015) reveal that, in order to increase the efficiency of the health system, Slovenia should focus on: (i) establishing a national system of health technology assessment (HTA) as soon as possible; (ii) reforming provider payment mechanisms; (iii) introducing incentives to encourage employee performance; (iv) strengthening primary care by means of a gatekeeping system; (v) investing in e-health; and (vi) establishing a system of long-term care. The policy that the provision on public services will be, under appropriate supervision, gradually transferred to a public-private network of organisations is also being implemented only slowly.

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[52] Population ageing constitutes a problem of how to adjust health funding to the rapid decline in workforce and how to deal with the increasing needs of older population, a rising burden of chronic illnesses and conditions and people dependent on assistance from others. This paper does not deal with simulations of the effects of changes in health system financing on economic activity.

[53] Various studies (Rehm et al., 2012, Merkur et al., 2013; Sassi et al., 2013; Cecchini et al., 2015) find positive effects of anti-alcohol measures and measures limiting the consumption of tobacco products and unhealthy food on the number of healthy life years, life expectancy and health expenditure. Estimates for Slovenia show that direct and indirect costs of smoking account for as much as 5% of GDP (National Institute of Public Health, 2015a). Raising excise duties seems to be the most cost-effective measure of tobacco control. A 10% increase in prices of tobacco products would reduce consumption by 4% and the share of smokers to 1–2% (National Institute for Public Health, 2015a). Direct costs of treating diabetes amount to at least EUR 120 m per year and indirect costs (resulting from productivity losses, morbidity and mortality) around EUR 5.5 m (National Institute for Public Health, 2015a). The costs associated with alcohol total around EUR 160 m per year; indirect costs have not yet been fully evaluated (National Institute for Public Health, 2015a). OECD (2015) estimates show that anti-alcohol measures alone could prevent incapacity for work due to an alcohol-related disability in around 2–4% of active population.

[54] The same studies point out that the relationship between health and economic activity is not one-way or linear, as higher economic development also contributes to better health of individuals and the total population.

[55] Medeiros and Schwierz, 2015); Joumard et al. (2010); Hribernik and Kierzenkowski (2013); Medeiros and Schwierz (2015); IMF (2015); MACELI Report (European Commission, 2015a). The results of the MACELI Report show that lifestyle differences do not have a significant impact on the comparative efficiency of health systems in the EU.

**State asset management**

***In Slovenia, the state is the direct or indirect owner of a large share of companies.*** The high level of state ownership in Slovenia is not only a consequence of the privatisation model and political decisions, but also of the recent crisis; this led to additional government intervention to bail out companies and recapitalise the banks. At the end of 2014, the value of state assets held by the SSH (the Slovenian Sovereign Holding) and the RS (the Republic of Slovenia) in the form of direct equity holdings totalled EUR 11.6 bn (book value), which is close to one third of GDP.[56] The share of direct state ownership in companies in Slovenia is therefore one the largest in the OECD (European Commission, 2015b).

***The profitability of equity in state-owned companies is much lower than the average profitability in Slovenia's economy.*** In 2014 the average return on equity (ROE) of all the companies in Slovenia amounted to 2.4%;[57] the weighted return on equity of portfolios held by the SSH and the RS was 1.7%. The ROE of the SSH portfolio totalled as much as 11.1%, compared to only 1.1% of the portfolio directly owned by the RS. Even taking the differences in the composition of both state-owned portfolios into account, this gap is significant. The SSH has a relatively larger share of assets in companies in the insurance and production sectors, whereas the RS has a relatively larger share in banks as well as companies in the traffic, transport and infrastructure sectors. The RS also has ownership stakes in companies that required government intervention during the crisis. The low profitability of the portfolio directly owned by the RS clearly points to the need for either better management of state-owned companies or the privatisation of companies or sectors where this would yield more positive results.

***Improving corporate governance would not only increase profitability, it would also have positive macroeconomic effects.*** The IMF (IMF, 2015a) assesses that better corporate governance would contribute to a significant and sustainable increase in economic activity in Slovenia. Among the measures that could make the greatest contribution to growth, it emphasises reforms to enhance the protection of minority shareholders' rights, strengthen auditing and reporting standards, improve access to sources of finance, including venture capital funds and financing through equity markets, and measures facilitating the entry of foreign capital. The literature provides examples of several channels through which better corporate governance could boost GDP growth.[58] Better corporate governance promotes a more efficient allocation of production factors, increases productivity and reduces the risks of financial crises. Therefore it is usually also reflected in better access to external financing at lower cost, which is conducive to investment and employment growth.

## 2.3.2 Empirical assessment of the effects of fiscal measures

***The simulated effects of the fiscal measures indicate a positive impact on macroeconomic aggregates and public finances.*** The simulated measures generally provide results in the long term, both on fiscal and macroeconomic aggregates, which is expected given their gradual introduction. This holds true for not only the effects of the structural reforms of the pension system but also the systems of health and long-term care, particularly those that are also aimed at promoting healthier lifestyles. Some measures, such as changing the indexation of pensions and improving the management of state-owned companies, could already reduce the general government deficit over the short term, i.e. by 0.3 percentage points of GDP per year. Most of the measures simulated in this chapter are, however, long term in nature. The long-term effects on reducing the share of general government deficit in GDP range from 0.1 percentage points for measures related to reducing absenteeism to around 4 percentage points annually for the more comprehensive changes to the pension system parameters. The simulations show that, in order to ensure the long-term sustainability of the pension system, a combination of changes in retirement age, the pension-qualifying period and the pension indexation rule will probably be necessary. Structural fiscal measures would reduce the ratio of general government debt to GDP by between 1 percentage point and 6 percentage points per measure when compared with the no-policy-change scenario; this is without taking into account other, probably positive, indirect effects such as lower interest payments and lower costs of financing the general government and the private sector. An appropriate combination of structural measures could have an even larger positive impact on the general government debt, but this could not be simulated due to the model's limitations. The effects of the structural measures on the public finances have proved

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[56] Report on Asset Management for 2014 (2015).
[57] Data from the balance sheets (AJPES).
[58] For example, Claesens, 2015.

difficult to identify. Those that we were able to assess include the positive effects of health system measures on employment.

**Measures in the pension system**

***Macroeconomic analyses of the effects of pension reform mostly include simulations involving an increase in the retirement age; a rise in the contribution rate for pension insurance; and a reduction to the average pension.***[59] The first measure is particularly appropriate for Slovenia because life expectancy is not fully taken into account when determining the retirement age. Moreover, Slovenia also has one of the lowest retirement ages in the EU.[60] On the other hand, increasing the contribution rate would reduce household disposable income and, consequently, GDP, while reducing the average pension would increase the already quite high at-risk-of-poverty rates for the elderly, which makes these two measures less appropriate under the current circumstances.

***Owing to the model-based limitations, the specific challenges in Slovenia and the purpose of this report, we took into account a narrower set of measures than would probably be envisaged in a comprehensive reform of the pension system.*** We simulated measures that should already have an impact on the sustainability of the public finances in the short term, and those that only have long-term effects. Among the measures that are efficient in the short term, we simulated changes to the pension indexation (indexation for inflation). Using a microsimulation model developed by IER (MSM),[61] we simulated an additional increase in the pension qualifying period and the retirement age based on gains in life expectancy, which is expected to only improve fiscal sustainability over the longer term. As they increase the employment of older people, such measures could also help strengthen the potential of the economy.

Changing the indexation rule

***A simulation of the changes in pension indexation shows that this measure would have a rapid and fairly significant impact on pension expenditure.*** The baseline scenario assumes pension indexation as stipulated in the Pension and Disability Insurance Act/ZPIZ-2 (60% average wage growth and 40% inflation). For changes in the indexation rule, we simulated a case in which pensions were indexed only to the rate of inflation,[62] taking into account the forecast by IMAD from autumn 2015 (Autumn Forecast of Economic Trends, 2015). The calculation demonstrates that a measure that allows pensions to maintain their real value brings cumulative savings of just below EUR 300 m in four years, which means that the share of pension expenditure in GDP would be approximately 0.3 percentage points lower than under the baseline scenario.

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[59] See also Table 1 in Appendix 3.
[60] International comparisons are possible for the average effective exit age from the labour market. According to the Ageing Report 2015 (European Commission, 2015 c), the effective exit age for men (62.5 years) in 2014 in Slovenia was the 8th lowest in the EU-28 and approx. three years lower than in the country with the highest age (Sweden); the effective exit age for women (60 years) was the lowest in the EU-28 and almost five years lower than in the country with the highest average effective exit age from the labour market (Ireland).
[61] For a description of the model, see Majcen et al. (2012).
[62] We disregarded an otherwise very important aspect: given the current level of the lowest pensions, it would be necessary to adopt measures that would prevent an even greater risk of poverty for the older population.

*Figure 8:* **Effects of changing the pension indexation rule on the share of pension expenditure in GDP**
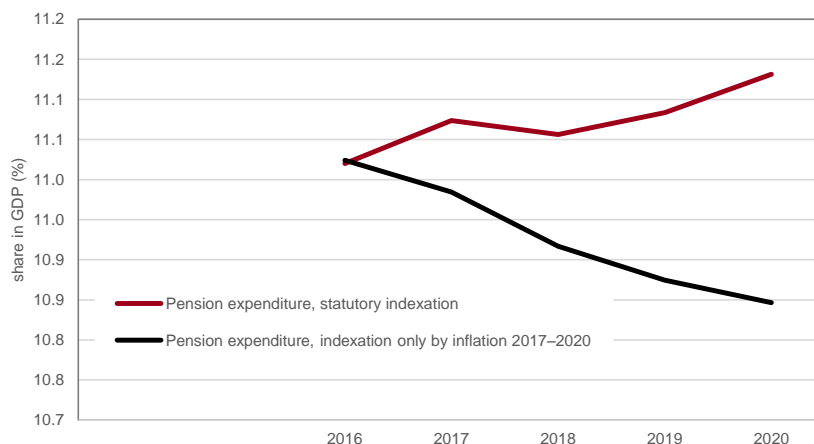


Note: The calculation takes into account data on inflation from the Autumn Forecast of Economic Trends IMAD, September 2015.
Source: IMAD estimates.

Changes to the long-term parameters of the pension system

***The impact of the pension system reforms on long-term pension expenditure was simulated using a microsimulation model (MSM).*** In simulating the impact of changes in pension growth and increases in the retirement age and the pension-qualifying period, we first determined the baseline scenario using the pension parameters from the available MSM model (ZPIZ-2).[63] We determined the demographic parameters ourselves and they are equal in all scenarios. The model makes it possible to determine the first year of transition from the initial to the final value (i.e. the slope of the curve) of demographic parameters, particularly fertility rate, life expectancy, and net migration. As Eurostat projections are based on the convergence scenario (the values of demographic indicators across EU countries should converge by 2150), the assumptions used in our simulation differ slightly from those in EUROPOP2013 projections. The final value for the fertility rate is set just above the current level (2060: 1.60) and lower than in Eurostat's projections (2060: 1.75), given that the number of women of reproductive age is declining in Slovenia. The assumption for life expectancy in 2060 is the same as in EUROPOP2013. Net migration, absent in recent years, is expected to gradually reach 5,000 people per year by 2035 and to maintain that level thereafter, which is similar to the projection in EUROPOP2013.[64]

***Our simulation assumes gradual increases in the retirement age and the pension-qualifying period, in line with gains in life expectancy and changes to the pension indexation rule.*** We assume that the pension reform enters into force in year t and present the results for the year t+40. Under the "Age" scenario, the retirement age and the pension-qualifying period are linked to life expectancy gains in year t: every five years, the age and the period increase by 2/3 of the life expectancy gains at the age of 60 and 65. For example, in 2060 the retirement age would thus be 63.5 years of age for men and 63.1 years of age for women for completing 43.5 and 43.1 years of the pension-qualifying period, respectively (the ZPIZ-2 criteria being that one must be at least 60 years of age and have completed 40 years of the pension-qualifying period without purchase of additional years of service, i.e. this relates to persons who joined the labour force relatively early). For individuals who have completed, for example, 15 years of the pension insurance period, the retirement age would be 68.1 years for men and 67.9 years for women in 2060 (ZPIZ-2: 65 years). In addition to changes in the retirement age and the pension-qualifying period, the simulation also takes account of changes in the growth rate of pensions. More specifically, in the "Indexation" scenario we assumed a smaller increase in pensions than in the baseline scenario (a decline in pension growth of around 1 percentage point per year), but we did not precisely define the indexation factor or the model of indexation).[65]

***The simulations indicate significant effects from changes to the pension system parameters on pension expenditure and the pressing need for a mix of different measures in order to ensure the long-term sustainability of the public finances.*** According to the aforementioned demographic

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[63] We used the MSM version which includes individual data for 2007.
[64] Migration flows are very sensitive to changes in GDP growth and any major changes in societal trends. We estimate that it is not realistic to assume even higher net migration in this period as a whole.
[65] The baseline scenario is not equal to that from the simulation of changes in the indexation rule based on the actual IMAD forecasts from autumn 2015.

assumptions and changes in the pension system parameters related to the "Age+Indexation" scenario, the ratio of pension expenditure to GDP decreases by slightly more than 4 percentage points in the year t+40. Assuming that all other conditions remain unchanged, the annual general government deficit would also be lower by the same percentage at the end of the simulated period. Approximately 80% of the decline would be attributable to the assumed reduction in indexation or the slower growth of pensions. The contributions from the assumed changes in the parameters of retirement age and pension-qualifying period would be much smaller. The relatively small response of the model to this change may be attributed, amongst other things, to the instances of early retirement in the past; this involved the retirement of more people, thereby resulting in a large number of pensioners who will be receiving pension benefits longer due to higher life expectancy. The small response is also closely related to the database for the available model, which includes slightly older individual data.

*Figure 10:* **Effect of increasing the retirement age, the pension-qualifying period and lower pension growth on the share of pension expenditure in GDP, a comparison with the baseline scenario in t+40**
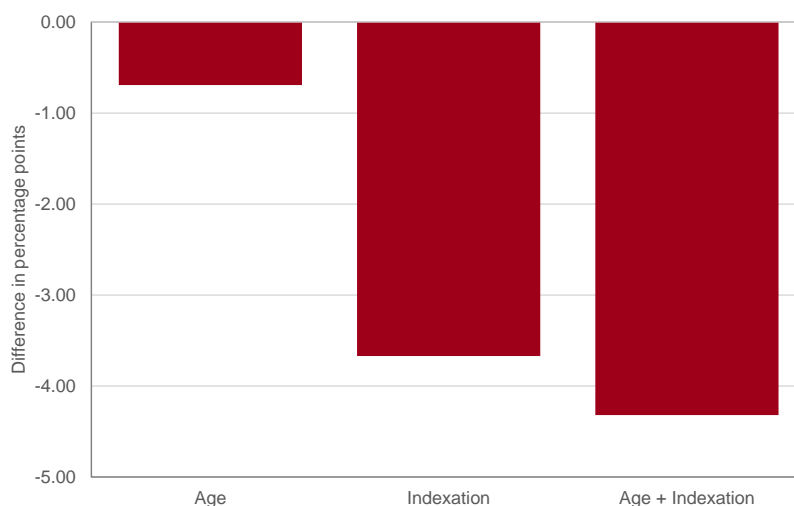


Notes: Explanations of scenarios: Age – changes in the retirement age and pension-qualifying period; indexation – a change in the pension growth rate; Age+Indexation – changes in the retirement age, the pension-qualifying period and in the pension growth rate.
Source: MSM; calculations by IMAD.

***In the additional simulation we assumed two increases in the retirement age and the pension-qualifying period instead of a gradual increase, but the results did not change significantly.*** The increase in the retirement age was simulated by increasing the retirement age and pension-qualifying period to 63 years and 43 years, respectively, or to 67 years and 15 years, respectively, in the initial year of simulation (year t); and by increasing the retirement age and pension qualifying period to 65 years and 45 years, respectively, or 68 years and 15 years, respectively, in the year t+15. We found no significant differences between this scenario and the scenario taking into account a gradual increase in the retirement age and the pension-qualifying period in line with gains in life expectancy (the difference in pension expenditure as a share of GDP between the two scenarios totalled only 0.2 percentage points in the year t+40).

**Measures in the health care system**

***We attempt to demonstrate the effects of measures to increase health system efficiency and reduce absenteeism from the perspective of ensuring fiscal sustainability and fostering economic activity using two simulations.*** First we assessed the effects of an increased efficiency of Slovenia's health system on the growth rate of public expenditure on health over the long term, taking into account the results of the EC study on savings that could be achieved if the efficiency of the health system converged to that of the most efficient systems in the EU. In the second simulation, we estimated the effects of measures for improving employee health and a consequent reduction in the number of working days lost: direct effects on savings for the Health Insurance Institute of Slovenia (HIIS) and employers, and indirect effects on an increase in employment and economic activity.

***The simulation for improving health system efficiency is based on the analysis of the European Commission.*** According to the study by Medeiros and Schwierz (20115) using data envelopment analysis

(DEA), Slovenia could achieve equal results with almost 25% lower total expenditure on health by increasing health system efficiency to the average of the most efficient EU countries. Such an improvement can however be achieved only gradually and over the long term through a combination of the structural measures referred to in section 2.3.1.

***Consistent with this study, our simulation assumes that, in the long term, the share of health expenditure in GDP would increase 0.5% less every year than under the AWG reference scenario.*** The reference AWG[66] scenario, which alongside changes in the demographic structure of the population is used to determine the indicators of medium- and long-term fiscal sustainability, also takes into account a 50% increase in healthy life years. Income elasticity for public expenditure on health declines from 1.1 at the beginning, to 1.0 at the end of the projection horizon of the AWG scenario, i.e. 2060 (European Commission, 2015c).

***The simulations show the considerable long-term effect of increasing health system performance.*** Public health expenditure (excluding investment) accounted for 6.1% of GDP in 2013. Although expenditure on health is assumed to fall, its share in GDP would continue to increase for about two decades, before starting to drop gradually due to a steady decline in the income elasticity of public health expenditure. At the end of the period, public health expenditure as a share of GDP would be only 0.3 percentage points higher than in 2013, which is much less than under the AWG reference scenario, which projects an increase of 1.9 percentage points of GDP. By the end of the simulated period, Slovenia could thus save slightly more than 20% on public expenditure on health and thus significantly ease the pressure on increasing age-related expenditure.

***The efficiency of the use of the available resources for health would also directly benefit from a decline in absenteeism, which would also be reflected in higher productivity and economic growth.*** Slovenian employees took an average of 11.3 days of sick leave in 2014 (the National Institute of Public Health, 2015), while the OECD average is around 9 days.[67] The direct costs of sickness benefits for HIIS totalled EUR 226 m in 2014 (EUR 50 per employee per working day) and around EUR 332 m for employers (EUR 72 per employee per working day).[68]

***In a further simulation we assumed that absenteeism would decline to the OECD average within five years, which would reduce related expenditure by almost 20%.*** This means 2.3 fewer days lost than in 2014, or an increase in the average number of hours worked per employee from 1676 to 1695, i.e. by 0.2% per year, which means an increase of around 1% in five years. According to our calculations, every year after the adoption of measures, the HIIS and employers would directly save an average of 4.7% of expenditure on sickness benefits compared with 2014 (or 23% within five years). A simulation with a production function shows that, owing to better attendance at work, GDP would be around 0.1% higher than the baseline in the first year after the adoption of measures and around 0.7% higher within five years.[69]

**Measures in state asset management**

***In our simulation we limit ourselves only to assessing the impact of better management on the profitability of state-owned companies.*** The impact of privatisation or better management of state-owned companies on macroeconomic aggregates has not been extensively explored and depends on a variety of specific factors. For example, it depends on the sector of enterprises listed for privatisation as well as the stage of the business cycle, both of which are factors that cannot be simulated by the available model infrastructure.

***We assessed how increasing profitability would affect budget revenue from dividends.*** Only a simulation of an improvement in the profitability of companies in the RS portfolio (of 1 percentage point) as measured by the ROE was performed. If we use the data for 2014 as the baseline, this means an improvement in the ROE from 1.1% to 2.1%, which is still lower than the average return on equity of all companies in Slovenia. The SSH objective for managing state assets is to gradually increase returns on

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[66] The Ageing Working Group of the Economic Policy Committee at the European Commission.
[67] The OECD calculation takes 24 countries into account: 17 countries with administrative sources for data on paid absence from work; and 7 countries with data from regular surveys (OECD Stat Database 2015).
[68] In 2014 the costs of approximately half of the working days lost (up to 30 days) were borne by employers (4.6 million days), and approximately half (over 30 days) by the HIIS (4.5 million days) (HIIS, 2015).
[69] Under the explicit assumption that the average productivity of employees who would take fewer days off work due to illness is equal to the productivity of all employees.

equity to 8% by 2020.[70] Considering the existing situation of companies in the portfolio, this could probably only be achieved by changing the portfolio composition or excluding non-performing assets from the portfolio.

***An improvement in the management of companies owned by the RS, which would increase the profitability of the state portfolio, could bring significant additional revenue from dividends under certain assumptions.*** With a 1 percentage point improvement in profitability, this revenue would amount to EUR 100 m (0.3% of GDP) in 2014. This calculation is based on several assumptions, the most important of which – besides an macroeconomic situation which is conducive to such an increase in profitability – are as follows: (i) the volume of equity in companies owned by the RS remains unchanged; and (ii) the ratio of the dividends to profits of companies owned by the RS remains the same as in 2014 (around 1:3). In the event of privatisation or a decline in equity owned by the RS, the first assumption would no longer apply. However, the average return on equity would increase with these changes to the portfolio of assets, which would make it easier to achieve the targeted returns. On the basis of the data available, it is not possible to determine the net effect of the changed assumptions on general government revenue.

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[70] Ordinance on the State Asset Management Strategy, July 2015.

# 3 Conclusions

***Our analysis presents the effects of some measures which could, in our opinion, improve Slovenia's economic potential.*** The measures presented in this document were selected on the basis of a wide set of criteria, the most important of which were as follows: the potential of the measures to improve the situation in targeted areas; the empirically supported effectiveness of measures in other countries; and the acceptability of the measures regarding other imbalances in the economy or their impact on its well-being as a whole. We have focused on measures that tackle multiple problems at the same time rather than addressing only one area. However, we were faced with limitations that prevented us from simulating a larger number of measures using the same model tools. Furthermore, the results point to fairly wide ranges of estimates, which reflect different simulation approaches and reveal inherent uncertainties of point estimates.[71] Owing to these model limitations, the measures were simulated individually and so the results of the simulations cannot be compared directly or simply added up.

***Given the limitations to other economic policies, structural measures could prove effective in eliminating the existing imbalances and increasing long-term potential for growth.*** With fiscal policy facing limitations due to the pursuit of the medium-term objective of a structural balanced budget and the ECB's monetary policy focusing on achieving price stability in the entire euro area, structural measures are one of the few instruments that remain available to domestic economic policy. The estimates from our analysis reveal that, by improving competitiveness and labour market performance and easing the long-term pressure on the public finances, structural reforms could contribute to a lasting increase in economic activity and help eliminate macroeconomic imbalances. This would have a favourable impact on the perception of Slovenia abroad, increase the probability of a decline in lending interest rates and prevent a rise in real interest rates, which could occur as a result of the introduction of some measures. All this could further increase the effectiveness of the structural measures implemented.

***The positive effects of structural measures on long-term economic activity dominate in the simulations, although some measures can also have unfavourable short-term effects.*** The measures that negatively affect economic activity and employment in the short term primarily include those related to the product market, although some simulations also reveal short-term negative effects for certain labour market reforms. The negative impacts of the simulated measures mainly occur as a result of a model-induced reduction of costs: with measures on the product market, this increases job losses; with measures on the labour market, it increases labour supply and, in turn, lowers average wages, which – despite increased employment – reduces aggregate demand. Such deflationary pressures could be particularly unfavourable in the absence of independent monetary policy in an environment of low interest rates, or where there is limited room for an expansionary fiscal policy stance. More specifically, in an environment of extremely low nominal interest rates, deflationary pressures could contribute to an increase in real interest rates and negatively affect domestic demand. Since Slovenia witnessed the deterioration of social risk indicators during the crisis, particular caution must be exercised when choosing these measures and searching for a combination of measures that impact both supply and demand.

***The impact of the simulated measures on fiscal performance is mainly positive.*** The model infrastructure available did not allow us to determine the fiscal implications of all the simulated measures. Nevertheless, the effects of the measures in areas that are not directly related to public finance also appear to suggest significant benefits for the fiscal situation. Only two partial simulations — higher spending on ALMP and a decline in the tax wedge — show a short-term increase in the budget deficit, but these measures can also be expected to benefit long-term fiscal sustainability because they have favourable effects on economic growth. Moreover, while implementing structural reforms, it is also possible — under certain conditions and to some extent — to make use of the flexibility allowed within the Stability and Growth Pact rules regarding the medium-term budgetary objective or a temporary deviation from the dynamics required. Owing to the nature of the simulations, it is the measures in the area of social security systems that have the greatest long-term impact on fiscal performance. It is also crucial to underline the importance of the interaction between measures that are focused directly on the sustainability of the public finances and measures in other areas. For example, the benefits of the labour market measures can complement and thereby enhance the effectiveness of pension system reforms.

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[71] Wide ranges for the estimated results of structural reforms are not uncommon; for a very good illustration of such uncertainty, see Santoro (2015), Figure 7, p. 32.

*Table 1:* **Overview of long-term structural measures in Slovenia:**

**Competitiveness**

| *Deviations from the baseline scenario in the long term (%)* *(in brackets, the simulation period is indicated)* | GDP | Employment | Public finance (percentage points) |
|---|---|---|---|
| ↑ efficiency of R&D expenditure (10 years) | [0.3 to 1.0] | [0.0 to −0.1] | General govt. debt share of GDP: −3.6 |
| Deregulation of services (10 years) | 0.1 | 0.0 | … |
| ↓ administrative barriers (10 years) | 0.5 | −0.1 | … |

Note: Since the effects of individual structural measures were assessed separately, they cannot be added together. The simulations used shocks of different magnitudes. Ranges are provided if the assessments could be made with different model tools.
Source: Estimates and calculations by IMAD.

*Table 2:* **Overview of long-term structural measures in Slovenia:**

**Labour market**

| *Deviations from the baseline scenario in the long term (%)* *(in brackets, the simulation period is indicated)* | GDP | Employment | Public finance (percentage points) |
|---|---|---|---|
| ↑ Spending on ALMPs (5 years) | 0.2 | 0.4 | General govt. bal. share of GDP: −0.2* |
| ↓ Tax wedge for highly educated (10 years) | 0.0 | 0.0 | General govt. bal. share of GDP: −0.7* |
| ↓ Replacement rate (10 years) | [0.9 to 1.2] | [1.0 to 3.8] | General govt. debt share of GDP: −2 |

Note: Since the effects of individual structural measures were assessed separately, they cannot be added together. The simulations used shocks of different magnitudes. Ranges are provided if the assessments could be made with different model tools.
Source: Estimates and calculations by IMAD.

*Table 3:* **Overview of long-term structural measures in Slovenia:**

**Public Finance**

| *Deviations from the baseline scenario in the long term (%)* *(in brackets, the simulation period is indicated)* | GDP | Employment | Public finance (percentage points) |
|---|---|---|---|
| Pension system | | | |
| Changes to indexation (4 years) | … | … | Pension expenditure as a share of GDP: −0.3 |
| ↑ Retir. age & pension qualif. period (40 years) | … | … | Pension expenditure as a share of GDP: −0.7 |
| ↑ Retir. Age, pens. qualif. period & ↓ index. (40 yrs) | | | Pension expenditure as a share of GDP: −4.3 |
| | | | |
| Health care system | | | |
| ↑ Efficiency of the health care system (40 years) | … | … | Health care expend. as a share of GDP: -1.6 |
| ↓ Absenteeism (5 years) | 0.7 | 1.0** | Expenditure on sickness benefits: −23% |
| | | | |
| Efficiency of asset management (1 year) | … | … | Gen. govt. balance as a share of GDP: −0.3* |

Note: Since the effects of individual structural measures were assessed separately, they cannot be added together. The simulations used shocks of different magnitudes. Ranges are provided if the assessments could be made with different model tools.
Source: Estimates and calculations by IMAD.

***The simulations show that in order for Slovenia to ensure lasting and stronger long-term economic growth, it should take action in several areas.*** It should be noted that since the simulations were carried out separately, the estimated effects of individual structural measures cannot simply be added together. Also, some of the simulated measures have similar effects, which reduces the need for the parallel implementation of several measures. On the other hand, however, the effects of some of the measures can negate the favourable effects of other reforms. For example, "excessive" labour market flexibility can have a negative impact on the innovative capacity of enterprises (see, for example, Kleinknecht, 2015). If several measures are being introduced, it is therefore vital to set priorities in order to minimise or offset possible short-term costs. Analyses show that better results are achieved if product market reforms precede reforms on the labour market (see, for example, Blanchard and Giavazzi, 2001, and ECB, 2015).[72] This holds particularly true in the case of labour market reforms that complement systemic pension system reforms, which are typically introduced over a longer period.

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[72] By reducing prices, product market reforms tend to increase real wages, which can partly offset the usual negative impacts of labour market reforms. The latter should therefore be introduced in the second phase of the implementation of structural measures. See, for example, Decressin et al. (2015) and Lusinyan and Muir (2015).

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# Appendices

**Appendix 1: Supplements to the analysis of the effects of measures in the area of competitiveness**

*Table 1:* **Comparison of the effects of improving R&D**

| | Effect on GDP (in %; five years after the shock) | Effect on GDP (in %; ten years after the shock) | Long-term effect on GDP (in %) | Effect on average annual GDP growth in percentage points | Analysis | Shock |
|---|---|---|---|---|---|---|
| Czech Republic | … | … | 0.01 | … | EC (2015) | Extended use of R&D tax reliefs since 2014. |
| EU-27 | … | … | … | 2.3 | Cheptea and Velculescu (2014) | Increasing the number of USPTO patents granted per million population to the level of the 5 best performing countries in the world. |
| EU-27 | … | … | … | 2.0 | Cheptea and Velculescu (2014) | Increasing R&D expenditure in the business sector to the level of the 5 best performers in the world. |
| Slovenia | −0.1 | −0.2 | 0.9 (effect after 50 years) | … | Varga and in ´t Veld (2014) | Raising the tax rate for businesses claiming R&D tax relief to compensate for half of the lag behind the average of the 3 best performers in the EU. |

Note: The effects of the measures in the analyses are not directly comparable due to the use of different shocks.

Sources: Pilot on the Economic Impact of Member States' Structural Reforms and the 2013 and 2014 NRPs: Italy, Spain, Denmark and Czech Republic. (2015). Brussels: European Commission. Draft for discussion at the LIME working group on EU economic policy; Cheptea in Velculescu. (2014). A Disaggregated Approach to Prioritizing Structural Reforms for Growth and Employment. Washington: International Monetary Fund; Varga and in ´t Veld. (2014). The potential growth impact of structural reforms in the EU: A benchmarking exercise. European Economy. Economic Papers No. 541. Brussels: European Commission.

*Table 2:* **Comparison of the effects of deregulating services**

| | Effect on GDP (in %; five years after the shock) | Effect on GDP (in %; ten years after the shock) | Analysis | Shock |
|---|---|---|---|---|
| **Italy** | 0.08 | 0.10 | EC (2015) | Liberalising professional services (particularly by reducing the barriers to entry via reducing the length of compulsory traineeships, eliminating administrative prices and tariffs) and some network services. |
| **Spain** | 0.18 | 0.22 | EC (2015) | Liberalising retail trade (opening hours, sales & licencing procedures). |
| **Czech Republic** | | | EC (2015) | Reducing or eliminating some barriers to entry in services. |
| **Portugal** | | 3 | OECD (2014) | Reducing barriers to entry for the network sector and retail trade. |
| **France** | 0.2 | 0.3 | OECD (2014) | Simplifying doing business for small and medium-sized services enterprises. |
| **France** | 0.4 | 0.7 | OECD (2014) | Reducing barriers to entry to the market of regulated professions and liberalising natural gas and electricity prices (partially). |
| **Slovenia** | 0.8 | 1.1 | EC (2014) | Lowering margins in the services sector. |

Note: The effects of measures in the analyses are not directly comparable due to the use of different shocks.

Sources: Pilot on the economic impact of Member States' structural reforms in the 2013 and 2014 NRPs: Italy, Spain, Denmark and Czech Republic. (2015). Brussels: European Commission. Draft for discussion at LIME working group of the EU economic policy; Portugal, Deepening structural reform to support growth and competitiveness (2014). Paris: OECD; France, Structural reforms: impact on growth and options for the future (2014). Paris: OECD; The potential growth impact of structural reforms in the EU (2014). Brussels: European Commission; Cheptea in Velculescu. (2015). A Disaggregated Approach to Prioritizing Structural Reforms for Growth and Employment. Washington: International Monetary Fund.

*Table 3:* **Comparison of the effects of reducing administrative barriers**

| | Effect on GDP (in %; five years after the shock) | Effect on GDP (in %; ten years after the shock) | Analysis | Shock |
|---|---|---|---|---|
| **Czech Republic** | 0.03 | At least 0.07 | EC (2015) | Reducing barriers to starting a business by 14.1%. |
| **Czech Republic** | 0.09 | At least 0.12 | EC (2015) | Measures to reduce administrative barriers between 2005 and 2013 by 14.4%; between 2014 and 2020 by 5.6%. |
| **Italy** | 0.07–0.09 | At least 0.15–0.19 | EC (2015) | Measures to reduce administrative barriers, including simplifying investment in infrastructure, making it easier to start a business, and introducing e-government and incentives for nascent entrepreneurs. Three years after the first reform, additional measures were introduced to reduce red tape. The first reform lowered administrative costs by 11.6%, and the subsequent reform by another 3%. |
| **Italy** | … | 0.4–0.7 | Ministry of Economy and Finance of Italy (2015) | Measures to simplify administrative barriers, including increasing the efficiency of the judicial system, reorganising public administration, simplifying procedures and taxes, introducing e-government, simplifying administrative requirements for education and training; a similar methodology to that in the EC (2015). |
| **The Netherlands** | 0.7 | … | World Bank (2007) | Comprehensive reform: 196 measures and a 25% reduction in administrative costs. |
| **SI** **EU-25** | … … | 1.4 1.1–1.3 QUEST 0.8–1.8 Worldcan | EC (2007) | Reducing administrative barriers (costs) by 25%. |
| **Czech Republic** **Italy** **The Netherlands** **Slovenia** **EU-25** | … … … … … | 1.6–1.8 1.8–1.9 1.5–1.6 1.7–1.8 (2025–2040) 1.4 | CPB (2006) | Reducing administrative barriers (costs) by 25% for all EU countries and the US. |
| **EU-25** | 1.1 | 1.0–1.4 | CPB (2004) | Reducing administrative barriers (costs) by 25%. |

Note: The effects of measures in the analyses are not directly comparable due to the use of different shocks.

Sources: Quantitative Assessment of Structural Reforms: Modelling the Lisbon Strategy. (2007). European Commission; Macroeconomic Impact of Structural Reforms (Annex 2 to the Italian National Reform Programme). (2015). Ministry of Economy and Finance of Italy; Pilot on the economic impact of member states' structural reforms in the 2013 and 2014 NRPs: Italy, Spain, Denmark and Czech Republic. (2015). Brussels: European Commission. Draft for discussion at the LIME working group on EU economic policy; Reducing the administrative burden in the EU (2004). CPB Document 93. CPB; Five Lisbon highlights: The Economic Impact of Reaching These Targets (2006). CPB Document 104. CPB; Review of the Dutch Administration Burden Reduction Programme. (2007). World Bank.

## Appendix 2: Supplements to the analysis of the effects of measures on the labour market

The equations used to simulate the effect of increasing expenditure for ALMP training programmes on the employment rates of young and older populations (Bassanini and Duval 2006) are as follows:

$$ER^*_{15-24} = 0,268 \times \Delta ALMPU$$

$$ER^*_{55-64} = 0,348 \times \Delta ALMPU$$

where ER* stands for the employment rate of the age group in question and ΔALMPU is the change in funding allocated for ALMP training programmes per unemployed person, expressed as a percentage of GDP per capita. In the source analysis, the equations were assessed using a longer horizon (for the 1985–2002 period) and a larger number of OECD countries. The size of the sample was different for each equation, depending on the availability of data for individual countries.

The dynamics of the increase in the employment rate are provided by the following equation (Bouis and Duval 2011):

$$\Delta ER = 0{,}1 \times (ER_i^* - ER_{i-1}^*)$$

*Table 1:* **Comparison of the effects of increasing funding for ALMP training programmes on the number of employed**

| Country | Effect on employment (in %; five years after the shock) | Effect on employment (in %; ten years after the shock) | Increasing funding for ALMP training programmes by: |
|---|---|---|---|
| Slovenia | 0.4 | 0.6 | 5 percentage points |
| Slovakia | 0.5 | 0.7 | 6 percentage points |
| Poland | 0.4 | 0.6 | 5 percentage points |
| Czech Republic | 0.4 | 0.6 | 6 percentage points |

Source: Bassanini in Duval (2006); calculations by IMAD.

Note: The effects of measures in the analyses are not directly comparable due to the use of different shocks. Simulations for other countries were made using the coefficient of elasticity of spending on ALMP training programmes (Bassanini and Duval, 2006) for an average OECD country. None of the above-mentioned countries were included in the calculation of this coefficient of elasticity.

*Table 2:* **Comparison of the effects of increased ALMP spending on GDP**

| Country | Effect on GDP (in %; five years after the shock) | Effect on GDP (in %; ten years after the shock) | Analysis | Shock: Increasing ALMP spending by approx. |
|---|---|---|---|---|
| Slovenia | 0.2 | 0.4 | Varga and in 't Veld (2014) | 12.5 percentage points |
| Slovakia | 0.2 | 0.5 | | 13 percentage points |
| Hungary | 0.1 | 0.3 | | 8 percentage points |
| Latvia | 0.3 | 0.6 | | 13 percentage points |

Note: Calculations by IMAD. The effects of the measures in the analyses are not directly comparable due to the use of different shocks. The simulation of effects in Varga and in 't Veld (2014) is made by taking into account the country's convergence to the group of best performers on a given indicator. The shock is defined as the closure of the gap between a given country and the average of the three best performers in terms of the ALMP spending indicator. The value of this indicator for benchmark countries is 28.6%; as stated by Bassanini and Duval (2006), its exact definition is ALMP spending per unemployed person expressed as a percentage of GDP per capita.

*Table 3:* **Comparison of the effects of reducing the replacement rate for unemployment benefits**

| Country | Effect on GDP (in %; five years after the shock) | Effect on employment (in %; five years after the shock) | Effect on a decline in the unemployment rate (in percentage points, five years after the shock) | Analysis | Shock: Reducing the replacement rate by approx. |
|---|---|---|---|---|---|
| Slovenia | 0.4 | … | … | Varga and in 't Veld (2014) | 4 percentage points |
| Ireland | 0.9 | … | … | | 11 percentage points |
| Czech Republic | 0.3 | … | … | | 2.5 percentage points |
| Latvia | 0.2 | … | … | | 2 percentage points |
| Spain | … | 1.1 | … | EC (2015) | 3 percentage points |
| Portugal, Ireland, Spain, Belgium, France | … | … | 0.6–0.8 | Bouis and Duval (2011) | To the OECD average |

Note: The effects of measures in the analyses are not directly comparable due to the use of different shocks.

**Appendix 3: Supplements to the analysis of the effects of fiscal measures**

*Table 1:* **Comparison of the effects of changes in the pension system***

| | Effect on GDP (in %; five years after the shock) | Effect on GDP (in %; ten years after the shock) | Analyses | Shock |
|---|---|---|---|---|
| **Slovenia** | 0.1 | 0.4 | OECD (2015) | OECD (2015): raising the retirement age, rewards/penalties for deferred/early retirement, changes in the calculation of the pension base; |
| **France** | | 0.3–4.4 | OECD (1998) | OECD (1998): gradually eliminating pension financing from public funds, lowering the average expenditure, raising the retirement age; |
| **Italy** | | 0.2–3.8 | OECD (1998) | OECD (1998): gradually eliminating pension financing from public funds, lowering the average expenditure, raising the retirement age; |
| **United Kingdom** | 1 | 1.7 | Barrel et al. (2009) | Barrel et al. (2009): raising the retirement age; |
| **Euro area** | −0.5 to 2 | −0.6 to 2.5 | INGENUE (2001); IMF (2010); Whelan and McQuinn (2014) | INGENUE (2001): retaining the contribution rate, raising the retirement age, changing the pension indexation model; IMF (2010): increasing the retirement age, lowering the average expenditure, raising the contribution rate; Whelan and McQuinn (2014): gradually adjusting the participation rate to that in Switzerland. |

Note: The effects of measures in the analyses are not directly comparable due to the use of different shocks.
* Some effects are determined only approximately as some studies include only graphical representations of the response functions.