Trade-offs of Fiscal Austerity in the European Debt Crisis: The Case of Slovenia[†]

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Abstract

In this paper, we investigate the trade-off between the needs for budget consolidation and the desirability of expansionary fiscal policies as a means of demand management by simulating alternative scenarios with a macroeconometric model of the Slovenian economy. The simulations show that for the Slovenian economy an expansionary fiscal policy is neither feasible nor desirable: it leads to unsustainable government debt and has only weak effects on income and employment. It turns out that that the Stability Programme of the Slovenian government and the related policy prescriptions of the EU lead to reasonable results in terms of public debt without strong adverse effects on output and unemployment. An expansionary fiscal policy is not desirable as it results in unsustainable public debt without enhancing employment and output sufficiently.

Keywords: Macroeconomics; Fiscal Policy; Economics of Transition; Slovenia; Crisis; Public Debt

JEL Classification: E17; E37; H63

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1.   Introduction

As a consequence of the "Great Recession", the financial and economic crisis since 2007, many countries have to struggle with the problem of increasing government debt. Government budget deficits occurred through reactions of automatic stabilizers and as a result of discretionary fiscal policy measures aiming at supporting aggregate demand. Not only those countries which entered the crisis with already high public debt were affected but also some fiscally sound ones faced the problem of unsustainable sovereign debt. In the European Union, the government debt issue is felt particularly hard for two reasons: on the one hand, the EU has set itself the goal of reducing national debt levels to 60 percent of GDP and government deficits to 3 percent of GDP or below already in the Maastricht Treaty and has attempted to enforce these targets through the Stability and Growth Pact, although with only limited success. On the other hand, some EU member states, which gained from reduced interest rates through the membership in the monetary union, were tempted to pursue expansionary policies until financial markets recognized the danger of their debt becoming unsustainable and began to fear that these countries might be confronted with sovereign default. As a result, interest rates increased and the so-called periphery of the EU (especially some southern countries like Greece, Portugal, Spain, Italy and Cyprus) were caught in a trap of high and increasing public debt and decreasing national income (see e.g. Fenz et al. 2012).

The present situation in these EU countries is therefore characterized by a hard choice for fiscal policy makers due to the trade-off between the tasks of reducing public debt and stimulating income and employment. The strategy of the EU Commission aims at fulfilling both tasks by concentrating on budget consolidation through restrictive fiscal policies while assigning the target of income growth to structural measures invigorating labor and goods markets. This is met with increasing criticism from the public, politicians and also many economists who claim that an expansionary course of fiscal policy is required to return to a growth path in the weak economies of the EU periphery. According to this view, the present austerity prescriptions are not remedies but door openers for the way into an even deeper crisis, and an expansionary policy through additional government expenditures, especially investment, is called for.

In this paper, we attempt to shed some light on this question by considering a small EU member country that has been confronted by the above mentioned trade-off recently, namely Slovenia. Slovenia until the "Great Recession" was relatively successful in managing its economy after entering the EU in 2004 and the Eurozone in 2007. However, it was hit hard by the international crisis in 2009, with real GDP decreasing by 7.8 percent, and was confronted with an exploding public debt afterwards. The public debt to GDP ratio increased from 22.0 percent of GDP in 2008 to 54.1 percent in 2012, with a further increase being expected by all forecasts. At the same time, real GDP decreased by 2.3 percent in 2012, and the future

prospects are likewise gloomy. Although the situation is mostly judged to be less threatening than in higher indebted countries in Slovenia itself (Braniselj 2011), the Slovenian case can serve to illustrate the dilemma of fiscal policy between austerity and demand management in a member state of the Eurozone today.

2.   The Slovenian Stability Programme

Like other countries in the Eurozone, Slovenia has to formulate a Stability Programme every year and to submit it to the European Commission and the Council of the EU within the European Semester. The most recent program was adopted by the government May 9, 2013 (Republic of Slovenia 2013), together with the National Reform Programme 2013–2014 (Republic of Slovenia 2013a), which details planned reforms, mainly of a structural character. Both documents were the basis for the EU Council recommendations to Slovenia (and other countries) adopted May 29, 2013 and approved by the Council June 19, 2013. Measures to promote growth include strengthening the financial sector and restructuring companies. The former includes transferring bad bank assets to the Bank Assets Management Company DUBT, which will be effected by a DUBT bond asset guaranteed by the government for up to 4 billion euros. In addition, banks will receive additional capital in order to ensure capital adequacy at a level comparable with the EU average. Both measures will take place in the third quarter of 2013. The bank recapitalization will increase government debt at once by estimated 900 million euros. The total increase in debt is estimated to mean surpassing the reference level of 60 percent of GDP temporarily, followed by a decrease to less than 55 percent through the sale or liquidation of assets acquired by the DUBT.

Based on the Council decision of January 19, 2010, Slovenia is undergoing the Excessive Deficit Procedure. Accordingly, it should have lowered its budget deficit to GDP ratio below 3 percent of GDP by 2013. The Stability Programme and the resulting documents recognize that this did not occur and postponed the date for achieving this goal. In particular, the Stability Programme states as main goals of Slovenia's fiscal policy to lower the deficit below 3 percent of GDP by 2014 and to achieve a structurally balanced budget by 2017. Moreover, government debt shall be stabilized below 55 percent of GDP.

The Stability Programme envisages both reducing public expenditures and increasing revenues to achieve the 2014 goal. With respect to the former, it proposes caps on public employees' salaries and restrictive policies on pensions and social transfers as well as some additional decrease of public consumption and investment. Should this plan not work, a crisis tax will be introduced January 1, 2014. Also a property tax and some other tax increases are planned as of January 1, 2014. Already July 1, 2013, the value added tax will be increased by raising the normal rate by 2 percentage points (from 20 to 22 percent) and the lower rate by 1

percentage point (from 8.5 to 9.5 percent); this was done as planned in the meantime.

In the Stability Programme the results of a forecast for the Slovenian economy are reported which show the effects of the planned measures on its main aggregates. According to its authors, this was done using a dynamic stochastic general equilibrium model. However, no alternative scenarios are presented; hence it is not possible to evaluate the advantages and disadvantages of the strategy chosen by the Slovenian government. Furthermore, an alternative forecast with a different model can be regarded as desirable in order to check for the robustness of the forecast.

Therefore in this paper we use our own model, SLOPOL9, a Cowles Commission type macroeconometric model to simulate alternative scenarios for the Slovenian economy, both without and with the measures of the Stability Programme and under further alternative assumptions about fiscal policy. We are particularly interested in the trade-off between budget consolidation and growth enhancement through fiscal demand management. This may also serve to provide some information about the possibilities and limitations of fiscal policy in stabilizing the business cycle in a small open economy within the Euro Area. As the effectiveness of fiscal policy has become a subject of research again recently, it may also be a modest contribution to this debate (see, for instance Coenen et al. 2008, 2012, Cogan et al. 2010, Taylor 2009).

3.   The SLOPOL9 Model

The simulations for the present paper were conducted with the macroeconometric model SLOPOL (SLOvenian POLicy model, version 9). In this version, SLOPOL9 has 71 equations of which 27 are behavioral. The econometric estimations are based on quarterly data for the period 1995q1 to 2011q4. More details about the model including equations and variable definitions can be found in Weyerstrass and Neck (2013). Earlier versions were used to simulate macroeconomic policy scenarios during (Neck et al. 2012) and after (Blueschke et al. 2012) the "Great Recession" and to determine optimal policy paths in an economic crisis (Neck et al. 2011); SLOPOL9 was used to simulate effects of alternative policies designed to deal with the problems of an aging society and financing the pension system (Weyerstrass and Neck 2013).

SLOPOL9 contains behavioral equations for the goods, financial, and labor markets. The demand side of the economy is modeled in more detail and has therefore more influence on the development of the macroeconomic variables than the supply side; hence the model can be classified as primarily of the Keynesian type. Real GDP and its expenditure components (exports, private and public consumption, gross fixed capital formation), imports, prices, wages, interest rates, employment, and labor supply are determined endogenously. In addition, the public sector and the population

structure are modeled in detail. As unit root tests identify almost all variables as integrated of order one, most equations are specified as error correction models with the growth rate of the respective variable over the same quarter of the previous year as the endogenous variable.

Private consumption depends on real disposable income and on the real long-term interest rate, combining the traditional Keynesian view with more modern consumption theories such as the permanent income hypothesis. Disposable income includes both wage income and yields from financial wealth. Income from wealth is determined by multiplying the stock of financial wealth by the average interest rate. Financial wealth is extrapolated with the growth rate of the nominal capital stock.

Gross fixed capital formation is influenced by final demand (the accelerator hypothesis), by the user cost of capital, and by capacity utilization. The user cost of capital is approximated by the real interest rate and the depreciation rate on the capital stock. Including the ratio between actual and potential GDP (the macroeconomic capacity utilization rate) expresses the idea that higher net investment becomes necessary when the utilization of the existing capital stock increases.

Real exports depend on world trade and on the international price competitiveness of Slovenian goods and services on the world market. The latter is approximated by the real effective exchange rate vis-à-vis Slovenia's 41 most important trading partners. The real exchange rate depends on nominal exchange rates and on consumer prices. Real imports are influenced by domestic demand and by the real effective exchange rate.

Employment depends on real GDP and on the real gross wage. The employment function explains the employment rate, i.e. the number of employees in relation to the total working age population rather than the employment level. Labor supply by private households is determined by multiplying the labor force participation rate by the working age population. In a behavioral equation, the participation rate is positively related to the real net wage. The positive coefficient implies that the positive substitution effect of an increasing net wage dominates the negative income effect.

Wages are determined in an extended Phillips curve equation. Hence, gross wages depend on consumer prices, labor productivity and the labor market situation. Labor market tightness is captured by the difference between the actual and the structural unemployment rate. The consumer price index (CPI) is determined by exogenous and endogenous factors. For a small open economy like Slovenia, international raw material prices are important determinants for the domestic price development. This is taken into account by including the import deflator in the consumer price equation, together with the wage rate as the dominant domestic price determinant. The deflators for private and for public consumption are related to the CPI. In view of the high import content of exports, the export deflator is explained by the import deflator, in addition to unit labor costs as the most important domestic cost factor. The import deflator is influenced

by the oil price in euro, where the oil price approximates international raw material prices in general.

The equation for the short-term interest rate takes into account that Slovenia was not a member of the Euro Area during the first years of the period for which data were used for estimating the equations; the country joined the Euro Area in 2007. Before the recent crisis, the short-term interest rate in Slovenia deviated only slightly from the Euro Area average and converged towards the Euro Area interest rate. In the model, the long-term interest rate in Slovenia is determined by the Slovenian short-term interest rate and by the Euro Area average long-term interest rate. The latter accounts for convergence between Slovenia and the Euro Area average over time. As the financial crisis has clearly shown, the long-term interest rate also contains a risk premium which is positively related to the public debt level. Financial market participants, who doubt the long-term sustainability of public finances, demand a higher risk premium. This is captured by including the debt-to-GDP ratio in the equation for the long-term interest rate. The implicit interest rate on public debt is explained by the long-term market interest rate.

The real effective exchange rate vis-à-vis Slovenia's 41 most important trading partners is explained by the nominal exchange rate between the euro and the US dollar (taking Slovenia's Euro Area membership since 2007 into account), the exchange rate between the Slovenian tolar and the euro (accounting for Slovenia's own currency before joining the Euro Area), and CPI inflation in Slovenia. Even though nominal exchange rates vis-à-vis the other Euro Area member states no longer exist since 2007, different price developments are relevant and important also within the monetary union.

On the supply side, potential GDP is determined via a Cobb-Douglas production function with labor, capital and autonomous technical progress as input factors. Since potential GDP is a long-term concept, it is not the actual but the trend realizations of the production factors that are used for its estimation. For the factor labor, this requires the estimation of the structural, i.e. the non-accelerating inflation rate of unemployment (NAIRU). The latter is estimated by applying the Hodrick-Prescott filter to the actual unemployment rate. The NAIRU is then endogenized via a moving average equation.

The model contains a number of potential fiscal policy instruments, namely government transfers paid to households, government consumption, government investment and several tax rates. In the present investigation transfers other than pensions are considered separately because the pension problem (a long term problem instead of the short term one considered here) was already investigated in Weyerstrass and Neck (2013). As Slovenia is a member of the Euro Area, its monetary policy is conducted by the Euro system and the European Central Bank (ECB) in particular and is no longer available as a national policy instrument.

4.   Set-up of the Simulation Experiments

The SLOPOL9 model was simulated over the period 2012–2020 under alternative assumptions about the design of fiscal policy. For the period 2012Q1 until 2013Q2, we used historical values of the exogenous variables and, in a few cases, adjusted results by using add factors dealing with special events during these quarters in order to approximate the historical time paths of the main objective variables in cases where their data were already available (the simulations were executed during the first week of July 2013). For 2013Q3, we introduced a negative shock of EUR 900 million on government debt which will come into effect due to recapitalization actions as described in the Stability Programme. Otherwise, from 2013Q3 on we created a baseline by projecting developments of the exogenous variables which we considered to be plausible, combining forecasts from the current Stability Programme, the OECD, the European Commission and other sources. The model turned out to be too large and complex to allow for optimization experiments, so we were confined to simulations of alternative policies.

In order to simulate the fiscal actions of the government, several control variables are considered in our model. These include:

GN – (nominal) government consumption,

GINVN – (nominal) government investment,

RESTTRANSFERSN - remaining (nominal) government transfers to private households,

VATAXRATE - value added tax rate,

INCTAXRATE - average personal income tax rate,

and a summary variable increasing government revenues without influence on the non-public-sector variables of the model which serves to model the imposition of property taxation (including taxes on land) and other lump-sum-tax-like measures that influence the primary balance positively.

Here we report about four different simulation scenarios which are called "baseline", "stability program", "growth" and "cold turkey". The "baseline" scenario serves as a benchmark for the other three and is meant to show what would happen if the government did not intervene in the current economic situation. It can be interpreted as experiment of government policy doing "business as usual". In this scenario, the main fiscal instruments considered in our model, viz. *GN*, *GINVN* and *RESTTRANSFERSN* are projected with growth rates close to values of the recent past. Their annual rates are presented in table 1. After the drops in government consumption and investments in 2012, these indicators return slowly to the "normal" growth rate levels of around 5% per year. Transfers to household increase with a relatively high growth rate of 6% per year.

	2013	2014	2015	2016	2017	2018	2019	2020
GN	2%	3%	4%	5%	5%	5%	5%	5%
GINVN	2%	3%	4%	5%	5%	5%	5%	5%

RESTTRANSFERSN	6%	6%	6%	6%	6%	6%	6%	6%

Table 1: growth rates for main fiscal instruments in the "baseline" scenario

Tax rates are not changed; the planned further decrease of the corporate income tax rate is assumed to be suspended. The global variable world trade volume, which drives the development of exports, is assumed to grow at moderately positive rates but not to return to pre-crisis growth. Euro interest rates remain low, and the euro-dollar exchange rate remains roughly constant, as does the oil price.

The "stability program" scenario simulates the policy recommendations described in the most recent Slovenian Stability Programme and the National Reform Programme 2012–2014. As discussed above, the package described in these documents and approved by the government contains a number of restrictive fiscal policy measures. On the one hand, a reduction of government expenditures is planned, which we assume to amount to negative growth rates as given in table 2. Note that we assume that government purchases of goods and services are temporarily reduced in 2014 and 2015, while transfers are assumed to be kept constant over the entire simulation period (which accords with the Stability Programme).

	2013	2014	2015	2016	2017	2018	2019	2020
GN	1.5%	-7%	-4%	1%	2%	3%	4%	4%
GINVN	1.5%	-7%	-4%	1%	2%	3%	4%	4%
RESTTRANSFERSN	0%	0%	0%	0%	0%	0%	0%	0%

Table 2: growth rates for main fiscal instruments in the "stability program" scenario

On the other hand, several policy actions are intended to increase government revenues, such as an increase of VAT by 2 percentage points (starting already in 2013Q3) and several additional revenue-side measures such as the introduction of a property tax in 2014Q1. As the Stability Programme is not specific about the quantitative size of these measures, we assume that they shall increase government revenues by about EUR 300 million per year, which corresponds to the envisaged volume of the "crisis tax", an emergency measure to be introduced only if expenditure cuts cannot be enacted as planned.

The "growth" scenario analyzes the effects of an expansionary fiscal policy which aims at increasing the level or the growth rate of real GDP and decreasing the rate of unemployment at almost any cost in terms of fiscal stability (government deficit and debt). Table 3 shows the growth rates of the main fiscal policy instruments for this scenario. In addition, the government is assumed to decrease the average personal income tax rate

by 1 percentage point starting in 2014. As this scenario runs counter to all announced government plans in Slovenia, it is not to be regarded as a realistic option; in fact, it would probably be met with sanctions from the EU immediately. Instead, it serves as standard of comparison with the "stability program" scenario, in particular as to the relative costs of expansion versus austerity.

	2013	2014	2015	2016	2017	2018	2019	2020
GN	2%	7%	7%	7%	7%	7%	7%	7%
GINVN	2%	8%	8%	8%	8%	8%	8%	8%
RESTTRANSFERSN	6%	7%	7%	7%	7%	7%	7%	7%

Table 3: growth rates for main fiscal instruments in the "growth" scenario

The "cold turkey" scenario simulates the effects of a still more ambitious program than the Stability Programme, namely a way of quick restructuring of public finances, with the target of a balanced budget starting already in 2014. To achieve this objective, fiscal policy design contains the same measures on the income side as the "stability program", viz. an increase of VAT by 2 percentage points starting in 2013Q3 and the property taxation measures as described above. On the expenditure side, the actions are also more restrictive than in the "stability program" scenario as shown in Table 4. The figures result from an equal reduction, in terms of nominal expenditures, of government consumption and transfers, with a smaller reduction of government investment, which has higher multipliers than the other two categories of public expenditures.

	2013	2014	2015	2016	2017	2018	2019	2020
GN	1.5%	-14%	0%	3%	3%	4%	4%	4%
GINVN	1.5%	-7%	-4%	1%	2%	3%	4%	4%
RESTTRANSFERSN	0%	-27%	18%	8%	6%	0%	0%	0%

Table 4: growth rates for main fiscal instruments in the "cold turkey" scenario

The main purpose of considering this scenario is an evaluation of the relative advantages of a shock therapy as compared to a more gradualist approach towards budget consolidation. The "cold turkey" scenario assumes that policy makers want to achieve a balanced budget immediately at nearly all cost in terms of output and employment lost. Of course, we abstract from political obstacles to such a policy which will be highly unpopular with the voters, especially because of the drastic (though temporary) reduction of transfers in 2014.

Figures 1 to 3 show the development of the expenditure side policy variables in the four scenarios considered. Note that the time paths of the main components of government expenditures, viz. public consumption *GN*, public investment *GIN* and exogenous transfers *RESTTRANSFERS*,

are different in all scenarios, with the main bulk of budget consolidation assumed to be borne by transfers and public investment being least affected. This reflects the normative orientation of this analysis, aiming at an evaluation of the Stability Programme by comparing its effects with some alternative. For a positive analysis, probably public investment would be more subject to cuts as examples in other countries show. Unfortunately those government expenditures which can most easily be reduced politically are those which exert the largest multiplier effects on GDP and employment.
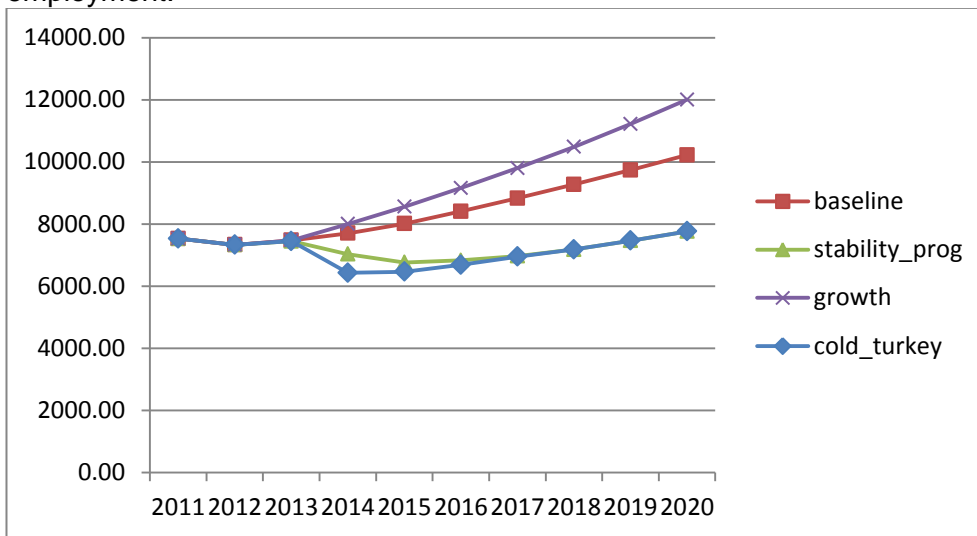
Figure 1. Government consumption (*GN*)
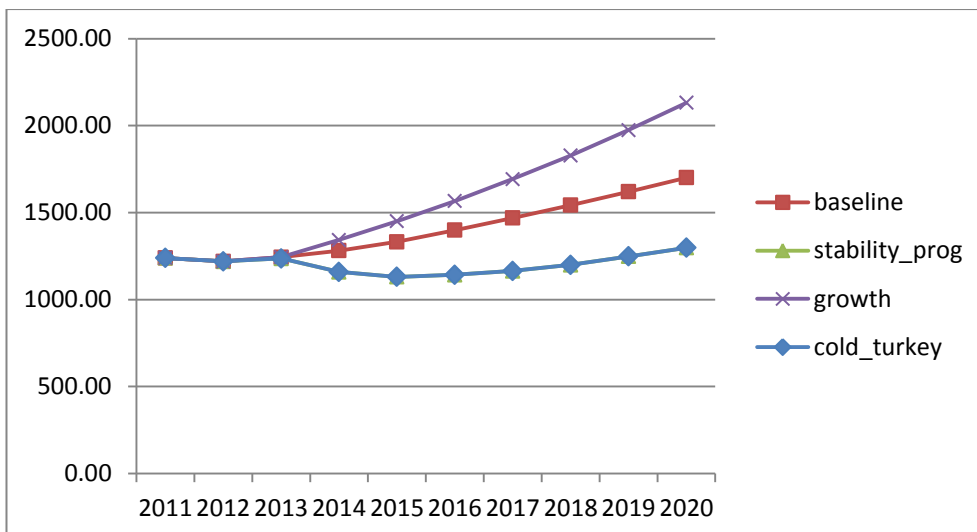
Figure 2. Government investment (*GINVN*)
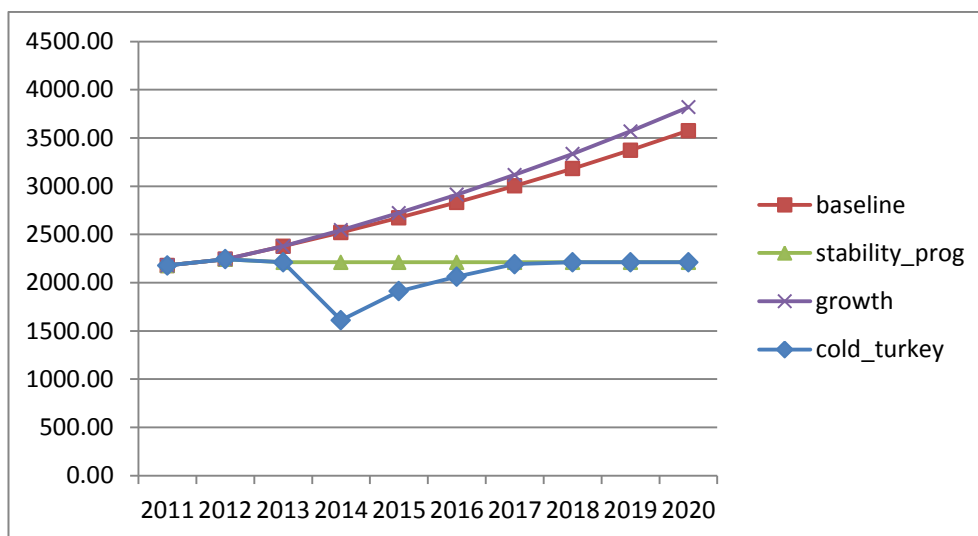
Figure 3. Exogenous transfers (*RESTTRANSFERSN*)

5.   Results of the Simulations

Considering the effects of different paths of fiscal policy instruments, it is convenient to concentrate on two groups of variables which are objectives for the Slovenian policy makers and are influenced through the channels of the macroeconomic model. First, we have to consider the targets of full (or high) employment, output or income growth, and price stability. These variables are relevant for policy makers in any country and also explicit goals of the Slovenian government. To them, one could add the goal of a balanced current account; however, in a monetary union this has less relevance than otherwise, and the simulations show that all scenarios result in a current account surplus, so this does not provide severe problems during the period under consideration. Budget consolidation measures affect real GDP and its growth more directly and employment and unemployment indirectly, both in an adverse way. The effects on the price level and on inflation are more indirect as these variables depend primarily on monetary policy which is not under the control of national policy makers in Slovenia.

The second group of objectives can be dubbed public finance objectives. They include, in particular, the government budget surplus and the public debt, both of which are contained in the EU Stability and Growth Pact and of high relevance in the current situation of the European debt crisis. Slovenia displayed reasonably low values of deficit and debt in the years before the "Great Recession", but this is no longer true since then, hence the need for budget consolidation. Thus we expect a trade-off between debt

and deficit on the one hand and GDP (level and growth) and employment on the other. The simulations show the extent to which this trade-off exists. In Figures 4 to 9 we show the time paths of the objective variables.
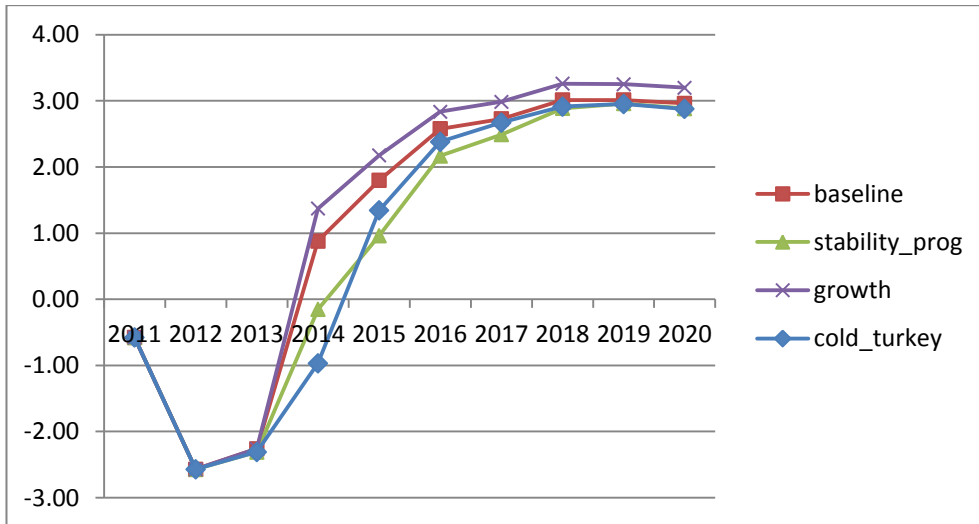

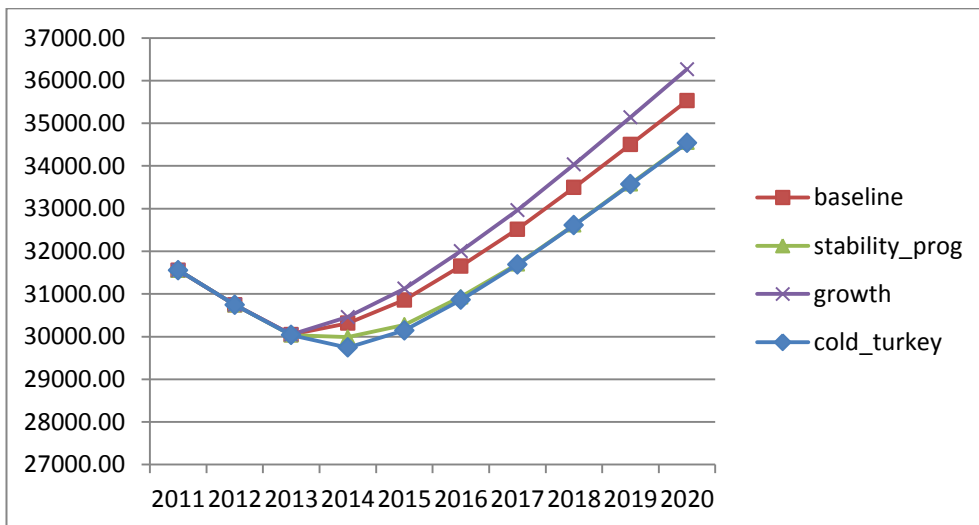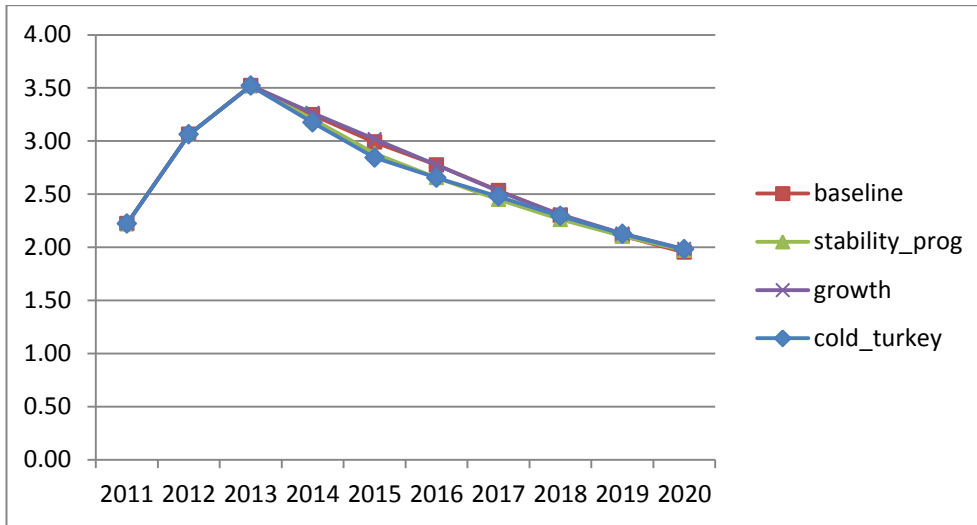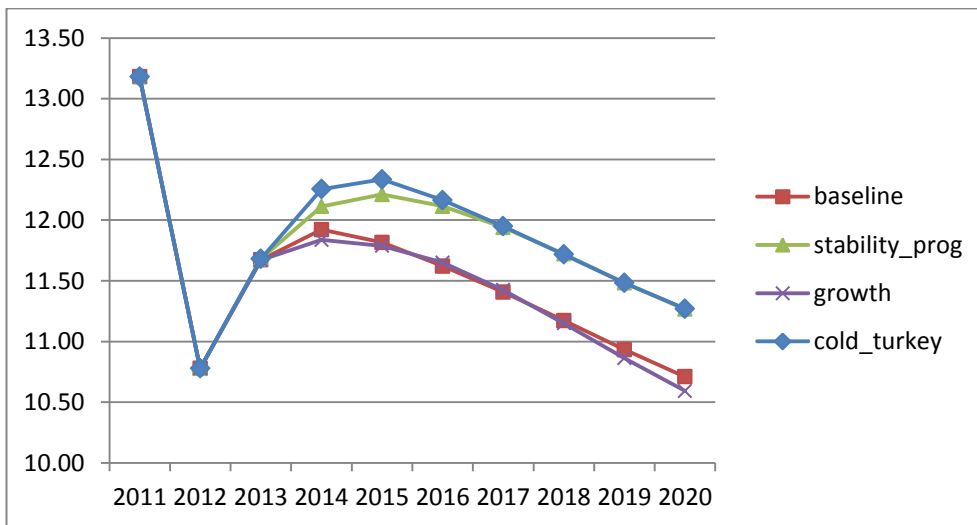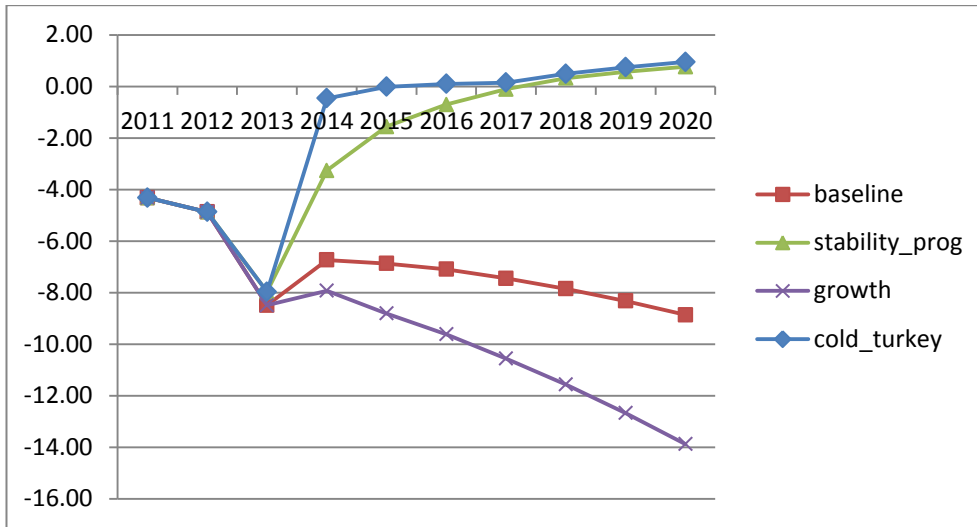**Figure 4. Real GDP growth rate**
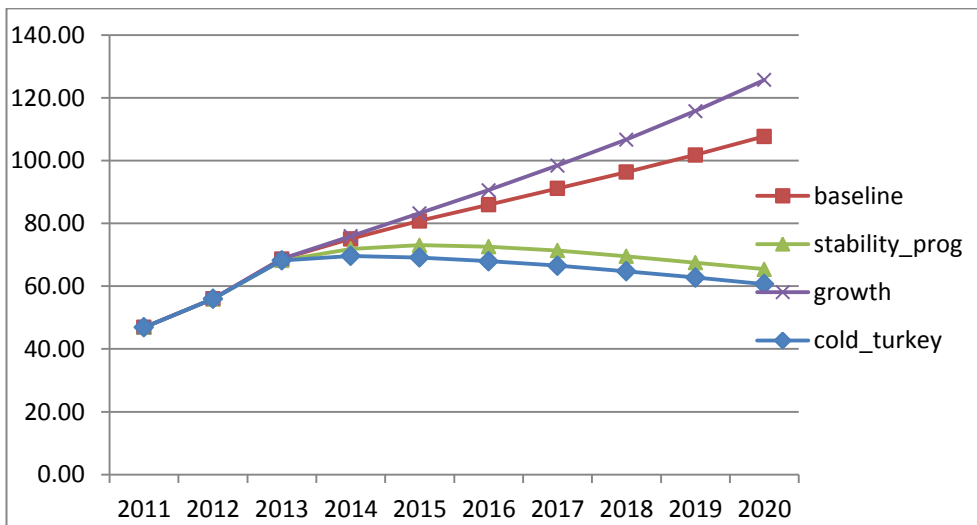

Figure 5. Real GDP

Figure 6. Inflation rate

Figure 7. Unemployment rate

Figure 8. Budget balance in relation to GDP

Figure 9. Debt level in relation to GDP

As can be seen from these figures, the baseline scenario, which is driven by a continuation of the trends of fiscal policy during the last years, can be regarded as fairly expansionary. The budget deficit would be no less than 6 percent of GDP and increase to nearly 9 percent at the end of the simulation period. This would entail an increase of public debt to more than one year's output, thus more than five times the value of the last year before the economic and financial crisis (it was 20.1 percent in 2008). The

expansionary course of public expenditures would allow for positive GDP growth rates in every year from 2014 on.

However, the simulation results for the "stability program" scenario shows that the optimistic forecast for real GDP growth is not markedly deteriorated by adopting the measures of the Slovenian Stability Programme. As Figure 4 shows, the restrictive fiscal policies of that program reduce GDP growth only temporarily and by not more than 1 percentage point. This conclusion is reinforced by the very expansionary fiscal policies of the "growth scenario". On the other hand, the budgetary goals are dramatically improved by the measures of the "stability program" policies, and even more when compared to the "growth scenario". Figure 8 shows that the baseline scenario results in ever increasing budget deficits of up to 9 percent of GDP in 2020, and the "growth scenario" even requires deficits of up to 14 percent. From Figure 9 we can see that these two scenarios lead to public debt increases up to more than 100 and 120 percent of GDP respectively, in contrast to the convergence of the "stability program" scenario to a debt-to-GDP ratio of only slightly more than the reference value of 60.

A similar conclusion applies to the effectiveness of expansionary fiscal policy with respect to unemployment (Figure 7). The two expansionary scenarios (baseline and "growth") reduce the rate of unemployment by not more than three quarters of one percentage point as compared to the "stability program" scenario. Although this does not imply complete ineffectiveness of countercyclical fiscal policy, it would require an extremely strong preference for growth and employment to justify the sacrifice of sustainable public finances for such small gains. Of course, the long run effects of such expansionary policies cannot be captured by these simulations, but it may be conjectured that they point even more towards a prudent and cautionary fiscal stance. Interestingly, the rate of inflation is virtually not affected at all by fiscal policy (Figure 6), which is to be expected for a country without a national monetary policy.

Finally, the "cold turkey" scenario gives similar results as the "stability program", except for a faster reduction of the budget deficit and a full convergence to the debt target value. The adverse effects on growth are stronger at the beginning as expected, but only in 2014. Already in 2015 until the end of the simulation period, growth is stronger in this scenario than in the "stability program". The "cold turkey" shock can be regarded as an investment into the future, with higher sacrifice at the beginning and higher payoff at the end.

Altogether, the simulations show that fiscal policy is not very effective in increasing output and employment and the gains from an expansionary policy are fairly small, with a high price to be paid in terms of financial instability. The measures of the Slovenian Stability Programme are seen to be a reasonable way of leading the economy of that country out of the debt crisis, although our simulations are somewhat less optimistic than the forecasts of the Stability Programme. Of course, still more studies of this kind are required to arrive at firm conclusions regarding desirable or even

optimal policies. However, the fact that a predominantly Keynesian model tends to prescribe cautious fiscal policies points toward some robustness of the conclusion about the limited usefulness of an expansionary fiscal policy.

6. Conclusions

In this paper, we investigated the trade-off between the needs for budget consolidation and the desirability of expansionary fiscal policies as a means of demand management. The simulations show that for the Slovenian economy an expansionary fiscal policy is neither feasible nor desirable: it leads to unsustainable government debt and has only weak effects on income and employment. Therefore it seems that the Stability Programme and the related policy prescriptions of the EU are not only more realistic but also more desirable than the proposals of some Keynesian authors. At least under our econometric model, for the Slovenian economy Taylor's (2009) recommendation of sticking to the automatic stabilizers instead of pursuing a discretionary fiscal policy seems to be fully justified.

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