

**IMPLEMENTING THE GOLDEN RULE
FOR PUBLIC INVESTMENT IN
EUROPE**

Achim Truger

138



WIEN

Materialien zu Wirtschaft
und Gesellschaft Nr. 138
Working Paper-Reihe der AK Wien

Herausgegeben von der Abteilung Wirtschaftswissenschaft und Statistik
der Kammer für Arbeiter und Angestellte
für Wien

**Implementing the Golden Rule for Public Investment
in Europe
Safeguarding Public Investment and
Supporting the Recovery**

Achim Truger

März 2015

Die in den Materialien zu Wirtschaft und Gesellschaft
veröffentlichten Artikel geben nicht unbedingt die
Meinung der AK wieder.

Die Deutsche Bibliothek – CIP-Einheitsaufnahme

Ein Titeldatensatz für diese Publikation ist bei
der Deutschen Bibliothek erhältlich.

ISBN 978-3-7063-0532-7

© Kammer für Arbeiter und Angestellte für Wien
A-1041 Wien, Prinz-Eugen-Straße 20-22, Tel: (01) 501 65, DW 2283

Table of Contents

0	Summary.....	5
1	Introduction	10
2	Austerity and the neglect of public investment in the Euro area.....	12
3	The Golden Rule for public investment: towards an operationalization.....	18
3.1	Introduction: the pay-as-you-use-principle and intergenerational equity	18
3.2	(Traditional) public investment and economic performance in the long run....	20
3.3	(Traditional) public investment and economic performance in the short run ..	22
3.4	Towards an economically plausible operationalization of public investment ..	25
3.5	Some technical questions of implementation.....	28
3.6	Conclusion: A pragmatic proposal for a European Golden Investment Rule..	29
4	The abandonment of existing Golden Rules for public investment in Germany and the UK as a counterargument?.....	33
4.1	The German ‘Golden Rule’ and its substitution by the constitutional ‘debt brake’	33
4.2	The UK’s Golden Rule suspended in 2008/9.....	38
4.3	Conclusions	42
5	Towards a European fiscal policy strategy to boost and safeguard public investment and support the recovery.....	43
5.1	The EU Commission’s insufficient strategy for public investment and fiscal stimulus.....	43
5.2	An alternative European fiscal policy strategy	47
5.2.1	Implementing the Golden Rule to strengthen public investment and safeguard it in the medium term.....	47
5.2.2	A European Investment Programme and an expansionary overall fiscal stance to spark off the recovery	49
6	Conclusion	52
	References	53
	Appendix: Public investment under ESA 2010 and 1995 compared.....	59

List of figures

Figure 1: General government structural primary budget balance in the Euro area, the European Periphery and selected countries in per cent of GDP, 1999-2013.....	12
Figure 2: General government gross fixed capital formation (ESA 2010) in relation to total expenditure in the Euro area, the European Periphery and selected countries in per cent of GDP, 1999-2013	14
Figure 3: General government gross fixed capital formation (ESA 2010) in the Euro area, the European Periphery and selected countries in per cent of GDP, 1999-2013	15
Figure 4: General government net fixed capital formation (ESA 2010) in the Euro area, the European Periphery and selected countries in per cent of GDP, 1999-2013..	16
Figure 5: General government real gross fixed capital formation (SNA 2008) in the Euro area and selected countries (2007 = 100), 2007-2013.....	16
Figure 6: General government gross fixed capital formation (ESA 1995), budget balance and output gap in Germany in per cent of GDP, 1970-2013	34
Figure 7: gross fixed capital formation (ESA 1995) for the different levels of government and output gap in Germany in per cent of GDP, 1991-2013	36
Figure 8: net fixed capital formation (ESA 1995) for the different levels of government in Germany and output gap in Germany in per cent of GDP, 1991-2013	36
Figure 9: general government structural current balance according to official forecasts (as of budget March 2000 until June 2010) and actual outturn in the UK in per cent of GDP, budgetary years 1998/99 to 2015/16	40
Figure 10: general government net debt according to official forecasts (as of budget March 2000 until June 2010) and actual outturn in the UK in per cent of GDP, budgetary years 1998/99 to 2015/16.....	40
Figure A1: General government gross fixed capital formation (ESA 2010) in the Euro area, the European Periphery and selected countries in per cent of GDP, 1999-2013	59
Figure A2: General government gross fixed capital formation (ESA 1995) in the Euro area, the European Periphery and selected countries in per cent of GDP, 1999-2013	59
Figure A3: General government net fixed capital formation (ESA 2010) in the Euro area, the European Periphery and selected countries in per cent of GDP, 1999-2013	60
Figure A4: General government net fixed capital formation (ESA 1995) in the Euro area, the European Periphery and selected countries in per cent of GDP, 1999-2013	60
Figure A5: General government consumption of fixed capital (ESA 2010) in the Euro area, the European Periphery and selected countries in per cent of GDP, 1999-2013	61
Figure A6: General government consumption of fixed capital (ESA 1995) in the Euro area, the European Periphery and selected countries in per cent of GDP, 1999-2013	61

List of tables

Table 1: Implied marginal returns to public investment in per cent.	21
Table 2: net government investment (ESA 2010), budget balance, structural balance and MTO in the EU in per cent of GDP in 2015 (EU Commission estimate).....	31
Table 3: 10 opportunities to strengthen investment and facilitate an expansionary overall fiscal policy stance in Europe	51

0 Summary

- i. As the Euro area economy is still far away from recovery and seems to be on the verge of deflationary stagnation the insight of both the public and policy makers as to the necessity of a macroeconomic policy change has increased. The calls for a more expansionary fiscal stance, above all to boost public – or publically supported – investment, have become louder. The Juncker-Plan is the most prominent official policy reaction.
- ii. The Golden Rule for public investment proposed in this study can contribute to better fiscal policies and to economic recovery in several ways. The rule is widely accepted in the traditional public finance literature and would allow financing public investment by government deficits, thus promoting intergenerational fairness as well as economic growth. Public investment increases the public and/or social capital stock and creates growth to the benefit of future generations. Therefore, it can be justified that future generations contribute to financing those investments via the debt service. Failure to allow for debt financing will lead to a disproportionate burden for the present generation via higher taxes or expenditure cuts and therefore most probably to underprovision of public investment.
- iii. In fact, the adverse incentives produced by the current European fiscal policy framework have already led to a severe neglect of public investment. Within the general regime of austerity imposed, particularly on the countries in the periphery, cuts in public investment have played a disproportionately large role. Recent multiplier estimates find particularly large values for the public investment multiplier especially in economic downturns and recessions, suggesting that the economic damage caused by those investment cuts in terms of deepening and prolonging the economic crisis were substantial. Furthermore, as many studies in the literature find public investment to be growth enhancing also in the long run, the neglect of public investment will most probably decrease the growth potential of the Euro area economy and thereby turn out to be harmful for future generations.
- iv. Although the basic idea of the Golden Rule for public investment is most obvious the operationalization of the concept is not straightforward. In economic terms the most plausible definition would focus on those government expenditures that provide a substantial future payoff in terms of higher growth or avoided future costs. This definition would in some respect be more narrow and in others more comprehensive than the standard definition of public investment in the national accounts. It would be narrower, because military weapon systems, which have just been included in the recent revision of the system of national accounts, would have to be excluded again, as not growth enhancing in the long run. It would be more comprehensive, because some types of public expenditure, most importantly education expenditure, but also some types of social preventative spending would have to be classified as growth enhancing or beneficial for future generations. Additionally it

may be necessary to include investment grants by the government sector to entities classified as private in the national accounts if those entities provide investment equivalent to public investment.

- v. As the classification of educational and other expenditures as public investment still needs further elaboration and clarification the Golden Rule should as a first step be introduced for traditional public investment as defined in the national accounts minus military spending. The rule should apply to net investment, i.e. depreciation should be deducted for the rule to measure properly increases in the net public capital stock. The focus on net investment has the further advantage of providing a strong incentive for those governments that are currently providing negative net public investment, i.e. whose public capital stock is decreasing. Net public investment should then not be counted in the relevant deficit measures of the Stability and Growth Pact and the fiscal compact. In order to prevent a conflict between the Golden Rule of public investment and the goal of stabilizing public debt at below 60 percent of GDP an upper limit of deductible net investment spending of 1 or 1.5 per cent of GDP could be set.
- vi. The abandonment of formerly existing Golden Rules for public investment in Germany and the UK cannot disprove the case for the proposed Golden Rule for Europe. Firstly, the standard criticism of those rules, that they could not prevent government debt from rising because of a lack of compliance can be contested. Secondly, those rules are not comparable with the proposed Golden Rule in the European framework. The German rule was much less sophisticated as it simply provided an upper limit to gross public investment as measured in the government financial accounts for normal economic times that could be transgressed by declaring a macroeconomic imbalance. The UK rule was more sophisticated and provided a definition of net public investment in terms of the national accounts. However, it was too ambitious with its goal of balancing the structural current budget balance including discretionary measures over a precisely dated business cycle: It was particularly – and much more strongly than the EU counterpart – sensitive to forecast and data revisions. From a standard sound public finance perspective both the German and the UK rule – unlike the EU fiscal framework – suffered from a lack of independent surveillance, bindingness and enforcement.
- vii. The Golden Rule for public investment could be approximated for some time even without any changes in the current institutional framework, if the European Commission and the European Council were willing to use the interpretational leeway within this framework. However, to firmly implement the Golden Rule a change in the institutional fiscal framework would be helpful, which could be implemented as an ‘Investment Protocol’ under the simplified revisions procedure of Art. 48 of the Lisbon treaty.
- viii. Such a Golden Rule has some particular advantages over other prominent policy proposals. Unlike proposals to provide more leeway for fiscal policy in general, it provides particular support for public investment as an essential element of public

spending. Unlike the Juncker-Plan or other more ambitious plans to boost public or (publically supported) investment through investment funds it provides a direct boost to public investment on the national level and does not have to rely on highly insecure shifting and leveraging of public funds on the European level in the hope of finding private investors at times when business confidence is extremely low.

- ix. However, the Golden Rule for public investment is mainly a fiscal policy tool focused on safeguarding public investment in the medium term and not so much on providing the – urgently needed – boost to the European economy in the short term. It would therefore have to be complemented by a short term European Investment Programme similar to the European Economic Recovery Plan during the Great Recession. Such a programme could also allow for investment needs beyond the narrow national accounts definition to contribute to public investment in a broader sense. This could be investment in education, including child care, but it could more generally focus on spending with a view to achieving the currently neglected Europe 2020 goals such as social inclusion or other areas that have strongly suffered from austerity over the last years. Last but not least the fiscal stimulus provided should not be thwarted by cutting other public expenditure. Instead, the leeway within the current institutions should be actively used to provide a substantial fiscal stimulus to the European Economy.

Zusammenfassung

Nach sieben Jahren der Krise befindet sich die Wirtschaft der Eurozone am Rande der deflationären Stagnation. Gleichzeitig sind die öffentlichen Investitionen, von denen eigentlich eine Stabilisierung und langfristige Stärkung des Wachstumspotenzials hätte ausgehen sollen, vor allem in den krisengeschüttelten Ländern der Peripherie dramatisch eingebrochen. Die bisherige europäische Krisenstrategie, die auf eine Verschärfung des Fiskalregelwerks setzte, hat in vielen Mitgliedsstaaten zu einer strikten Austeritätspolitik geführt und die Finanzpolitik als makroökonomisches Instrument ausgeschaltet. Offensichtlich bedarf es einer Reform dieser Strategie mit dem Ziel einer Stärkung der öffentlichen Investitionen und einer expansiven Finanzpolitik.

Die Umsetzung einer Goldenen Regel für öffentliche Investitionen, die im vorliegenden Bericht vorgeschlagen wird, wäre ein wesentliches Element einer solchen Reform. Diese in der Finanzwissenschaft seit Jahrzehnten weithin akzeptierte Regel würde die Finanzierung der öffentlichen Nettoinvestitionen durch Nettokreditaufnahme ermöglichen, was gleichzeitig der Gerechtigkeit zwischen den Generationen und der Stärkung des Wirtschaftswachstums dienen würde. Öffentliche Nettoinvestitionen erhöhen den öffentlichen und/oder sozialen Kapitalstock und damit die Wirtschaftsleistung zugunsten zukünftiger Generationen. Diese werden folgerichtig durch den Schuldendienst zur Finanzierung mit herangezogen. Wird die Finanzierung mittels Nettokreditaufnahme dagegen ausgeschlossen, müssen heutige Generationen die gesamte Finanzierungslast durch höhere Steuern oder Kürzungen bei den Staatsausgaben tragen. Als Ergebnis ist gerade in Zeiten knapper Budgets mit zu geringen öffentlichen Investitionen zu rechnen, wie der Absturz der öffentlichen Investitionen in der aktuellen Krise eindrucksvoll belegt.

Der Bericht erläutert zunächst die kurz- wie langfristig zu erwartenden positiven Wachstumswirkungen öffentlicher Investitionen. Die Grundidee der Goldenen Regel wird vorgestellt, und es werden verschiedene Definitionen für öffentliche Investitionen diskutiert. Auf dieser Basis wird ein pragmatischer, praktisch umsetzbarer Vorschlag für die Einbettung der Goldenen Regel in den fiskalpolitischen Rahmen auf europäischer Ebene unterbreitet: Nettoinvestitionen gemäß volkswirtschaftlicher Gesamtrechnung (abzüglich Rüstungsgüter) sollen nicht mehr zu einer Verletzung der europäischen Fiskalregeln führen.

Die angeblichen Gegenbeispiele gescheiterter Goldener Regeln in Deutschland und Großbritannien werden analysiert und als für die hier vorgeschlagene Regel nicht aussagekräftig relativiert. Schließlich wird auf die konkrete Umsetzung auf europäischer

Ebene eingegangen. Die aktuellen Pläne der EU-Kommission zur Stärkung der öffentlichen Investitionen und zur Ankurbelung der Konjunktur werden für nicht ausreichend befunden. Stattdessen wird für die mittelfristige Einführung der Goldenen Regel plädiert, flankiert von kurzfristigen Maßnahmen zur Erhöhung des fiskalpolitischen Spielraums.

1 Introduction

As the Euro area economy is still far away from recovery and seems to be on the verge of deflationary stagnation, the insight of both the public and policy makers as to the necessity of a macroeconomic policy change has increased, recently. The calls for a more expansionary fiscal stance, above all for a boost to public – or publically supported – investment have become louder, with the Investment for Europe Plan (Juncker-Plan) as the most prominent official policy reaction. Even before that plan there were some initiatives – as the introduction of the so called ‘investment clause’ under the Stability and Growth Pact (SGP) – to support and protect public investment. However, quite obviously, those past initiatives have failed, as public investment in the Euro area decreased substantially since the onset of the crisis. In the so called periphery countries public investment expenditures have dramatically shrunk as a result of the austerity policies imposed on those member states.

Obviously, a different approach to fiscal policy and to supporting public investment is needed. One natural candidate for such an approach would be the implementation of the so-called Golden Rule of public investment. The rule is widely accepted in the traditional public finance literature and would allow financing net public investment by government deficits thus promoting intergenerational fairness as well as economic growth. Public investment increases the public and/or social capital stock and creates growth to the benefit of future generations. Future generations contribute to financing those investments via the debt service. Failure to allow for debt financing will lead to a disproportionate burden for the present generation via higher taxes or expenditure cuts and therefore most probably to underinvestment which is exactly what has happened in Europe under the austerity policies.

The EU Commission has to date strongly resisted the introduction of such a Golden Rule, because supposedly it would not fit into the tight fiscal framework of the reinforced SGP and the fiscal compact and put fiscal sustainability at risk (European Commission 2004: 132 and 2012: 25). This, however, is somewhat ironic: Even the conservative German council of economic experts, as high ranking body of policy advice, not exactly known for an inclination towards loose budgets, had included the Golden Rule in its proposal for a German debt brake (SVR 2007). Hence, the original blueprint for the German debt brake – and therefore also for the Fiscal Compact on the European level – included, in fact, a Golden Rule for public investment. Against this background, it is the purpose of the present study to state the case for such a Golden Rule and present a concrete proposal for its introduction in the EU in order to strength-

en and protect public investment and to increase growth in the short as well as in the long run while at the same time not sacrificing fiscal sustainability.

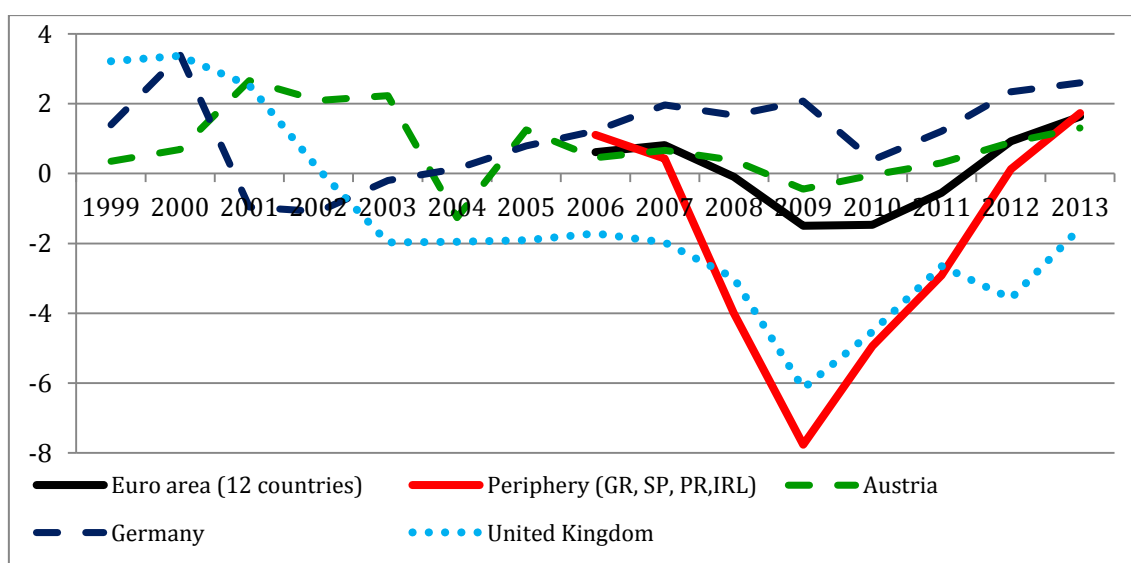
The study will proceed as follows: Section 2 will give an account of the development of public investment over the last 15 years and show that austerity in the wake of the Euro crisis has, in fact, led to disproportionately large cuts in public investment. Section 3 will present an attempt at operationalizing the theoretical concept of the Golden Rule. The basic theoretical idea and the short as well as long run growth effects of traditional public investment will be presented. Definitions of public investment different from the standard one from the national accounts will be discussed. Finally, after dealing with some technical questions of implementation, a concrete proposal for a Golden Rule in the EU fiscal framework will be presented. Section 4 deals with some supposed counter examples, namely the abolished or suspended Golden Rules in Germany (1969-2009) and the UK (1997-2009). It will be shown that the problems that led to the replacement of those fiscal institutions were specific problems of the particular institutional design chosen which can therefore not disprove the general case for the Golden Investment Rule or the proposal made in this study. Section 5 will then turn to the question of implementing the Golden Investment Rule in the present European fiscal policy framework. The plans of the EU Commission to support investment and use the flexibility of the SGP to stabilize the European Economy will be shown to be far from sufficient. In contrast, the Golden Rule of public investment and a European Investment Programme – similar to the 2008 European Recovery Programme – could be combined to boost and safeguard public investment and support the recovery.

2 Austerity and the neglect of public investment in the Euro area

Fiscal policy in most developed economies has been dominated by consolidation measures after the strong increase in government debt as a result of the global financial and economic crisis in recent years. Fiscal restriction was particularly strong in the Euro area because of the strict fiscal framework of the Stability and Growth Pact (SGP) and the additional policy reactions after the onset of the Euro crisis. Above all the so called periphery countries (Greece, Ireland, Portugal and Spain) whose government bonds had come under speculative attacks from the financial markets were forced into austerity policies under the relevant rescue programmes and/or by the European Commission/Council strictly enforcing and even reinforcing the tight framework of the SGP (see Blyth 2013 and Truger 2013).

Figure 1 shows the general government structural primary budget balance (SPB) for the Euro area (12 countries due to lack of data), the European Periphery and selected individual countries from 1999 to 2013. The change in this variable over time is a standard measure of the fiscal stance, i.e. the discretionary changes in fiscal policy. With the exception of the non-Euro area countries Denmark and Sweden the fiscal stance was substantially negative almost everywhere after 2009/2010. The fiscal effort in the Euro area as a whole was in the dimension of 3 per cent of GDP within only three years from 2010 to 2013. In the periphery as an aggregate it was as large as almost 10 per cent of GDP within the four years from 2009 to 2013.

Figure 1: General government structural primary budget balance in the Euro area, the European Periphery and selected countries in per cent of GDP, 1999-2013



Source: European Commission (2014a); author's calculations.

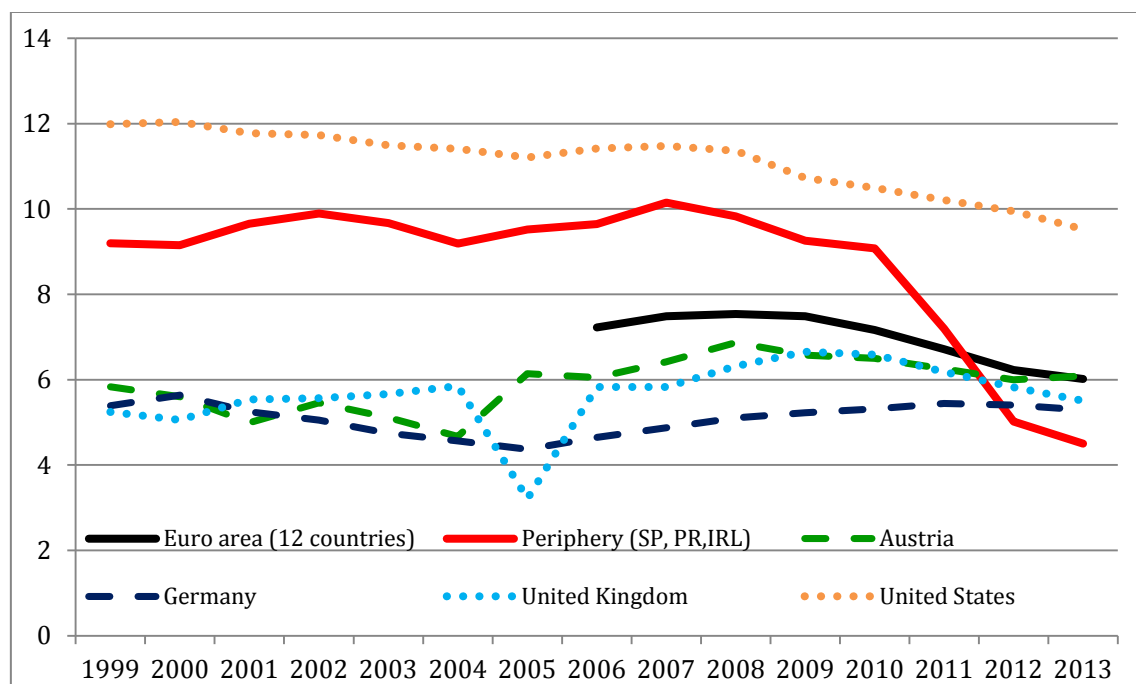
Furthermore, it is by now widely accepted that the change in the SPB is a problematic measure for the fiscal stance which tends to seriously underestimate the fiscal effort in times of economic contractions. The SPB is calculated by cyclically adjusting the headline primary balance and subtracting one-off measures. The usual methods of cyclical adjustment tend to underestimate the cyclical fluctuations of the economy and will therefore have pro-cyclical effects if applied to fiscal policy. The method employed by the EU Commission (see d'Auria et al. 2010) has proven to be highly sensitive to this endogeneity bias, i.e. the problem that potential output is highly sensitive to variations in actual output (see Horn and Logeay 2007, Klär 2013 and 2014; Truger and Will 2013). During economic contractions – especially during large and durable contractions as those that had to be observed in the Euro crisis – the estimates of potential output are substantially revised downwards: Such dramatic downward revisions of potential GDP have substantial consequences for the calculation of structural budget balances and the assessment of consolidation efforts (Andrade et al. 2014). These efforts will usually be underestimated because a substantial part of the fiscal effort is wiped out, as a larger part of the actual deficit is registered as structural although in fact it may well just be cyclical, i.e. caused by the (in principle) temporary contraction. A further underestimation or at least inaccuracy as to the estimate of structural balances may result from deviations of actual budget semi-elasticities from the estimated average values in the procedure of cyclical adjustment (see European Commission 2010: 124-128).

The European Commission has already admitted that the estimates of the fiscal effort based on the change in the structural (primary) budget balance tend to underestimate the true discretionary consolidation efforts and has developed complementary indicators to assess fiscal effort (European Commission 2013a: 101-132 as well as Carnot and de Castro 2015). Using the results by Carnot and de Castro (2015: 10) it must be concluded that the estimate of fiscal effort based on the SPB underestimates discretionary fiscal effort for Portugal by 20 per cent, for Ireland by 45 per cent, for Spain by almost 75 per cent and for Greece by almost 90 per cent. In this case, the true fiscal effort in the periphery as a whole from 2009 to 2013 would be 16 per cent of GDP instead of “only” 10 per cent as indicated by the SPB (see similarly Darvas et al. 2014: 10-15).

The potential consequences of austerity in that dimension can most easily be illustrated by using the concept of the fiscal multiplier. Multiplying the cumulative negative fiscal stance for a given year in relation to some base year with the multiplier gives a rough estimate of the output effects of austerity relative to a baseline scenario without any consolidation measures. Recent estimates suggest that the multiplier, particularly

under the current conditions in the Euro area with monetary policy at the lower bound, fixed exchange rates within the currency union and simultaneous consolidation, tends to be large and (sometimes well) above one (Gechert 2013 and Gechert and Rannenberg 2014). Applying such multipliers to fiscal stances of the order of magnitude shown before, unavoidably leads to the result of devastating economic effects of austerity policies in the Euro area. In fact, a strikingly clear correlation between the cumulative fiscal stance and the development of real GDP since the trough of the crisis can be established (Truger 2014). The countries that saw the strongest fiscal restriction tended to perform worst in terms of GDP growth. Although many other factors must be taken into account, it does seem pretty obvious that austerity has prevented and/or ended the recovery in the most troubled economies and has driven them into recession which in turn – together with the global economic slowdown – was responsible for the stagnation in the rest of the Euro area economies in 2012.

Figure 2: General government gross fixed capital formation (ESA 2010) in relation to total expenditure in the Euro area, the European Periphery and selected countries in per cent of GDP, 1999-2013



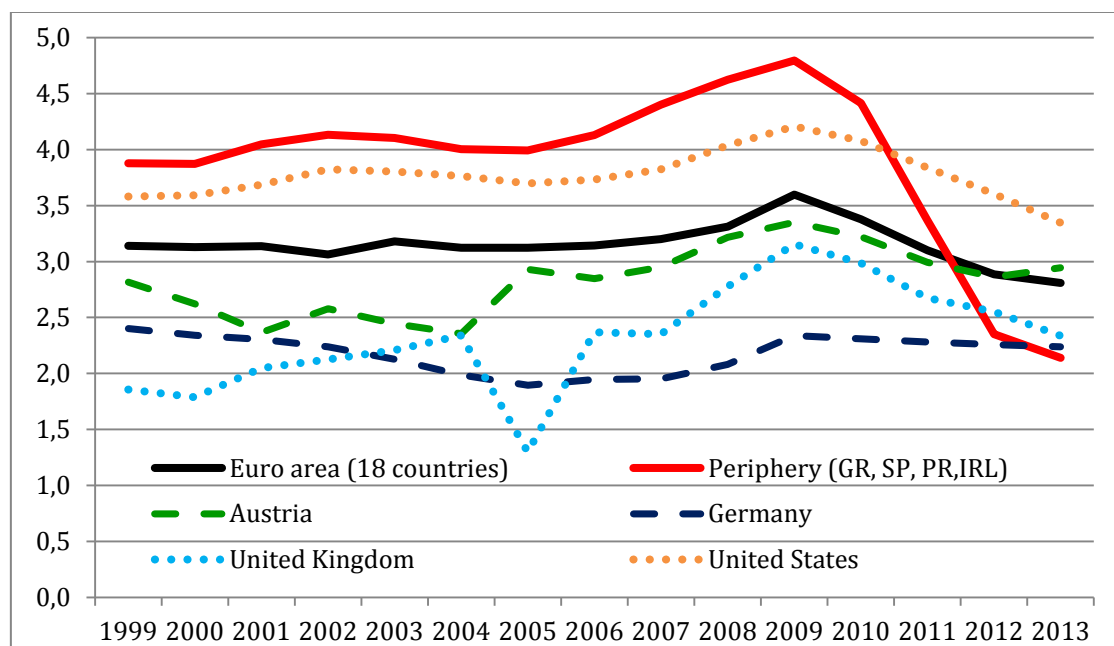
Source: European Commission (2014a); author's calculations.

It is plausible to assume that the strong fiscal pressure in the Euro area led to particularly strong cuts in public investment. Unlike many other spending categories public investment is not mandatory and – in the absence of institutions like the Golden Rule – politically relatively easy to cut. In fact, this is exactly what happened in the countries under severe budgetary pressures (see figure 2): In the periphery government gross

fixed capital formation (=public investment) declined from slightly below 10 per cent of total government expenditure to only 4.5 per cent in 2013. Italy saw a decline from about 7 per cent to 5 per cent, whereas in most other countries it remained relatively stable.

Darvas et al. (2014: 15-27) present a more detailed account of the composition of expenditure side consolidation measures by main expenditure category and function from 2009 to 2013. Obviously, capital expenditure was the most widespread and largest component of consolidation measures, but compensation of employees and other current primary spending – as well as in some cases social spending – were also substantially affected.¹ According to Barbiero and Darvas (2014: 5) the cuts in public investment in the periphery until 2011 strongly affected all kinds of public investment, but they were relatively strongest in investment in defense, housing and community amenities, health, general public services as well as environment protection.

Figure 3: General government gross fixed capital formation (ESA 2010) in the Euro area, the European Periphery and selected countries in per cent of GDP, 1999-2013



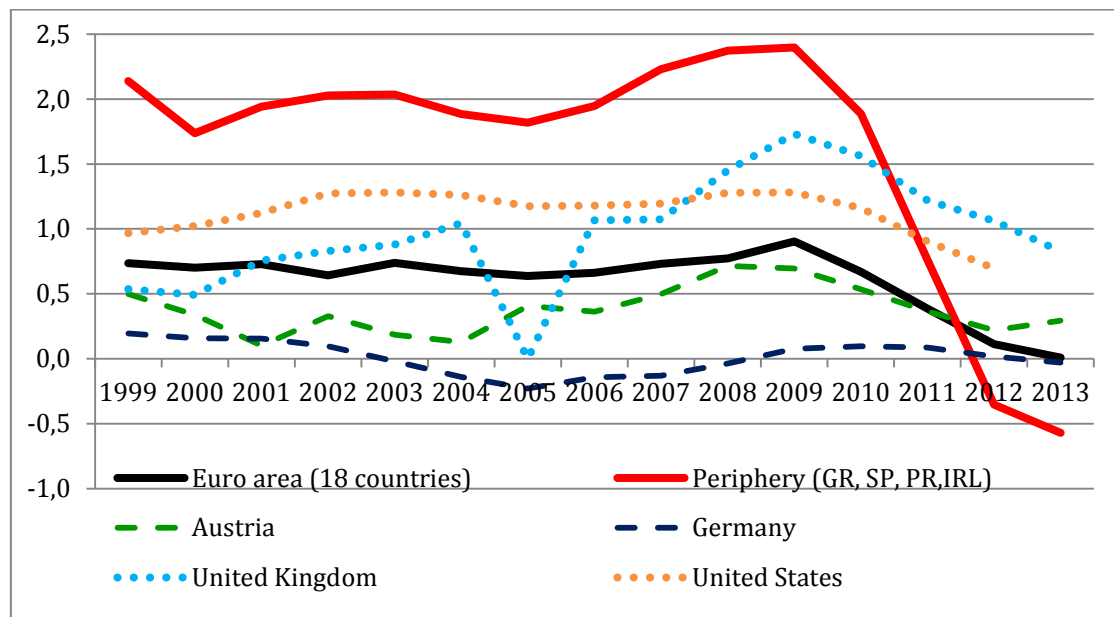
Source: European Commission (2014a); author's calculations.

The development of gross public investment in relation to GDP showed a similar pattern (see figure 3): It almost halved from more than 4 per cent before the crisis to only 2.2 per cent of GDP in 2013 in the European periphery. Net public investment, i.e.

¹ See Darvas et al. (2014) for an analysis of austerity's effect on poverty and social hardship.

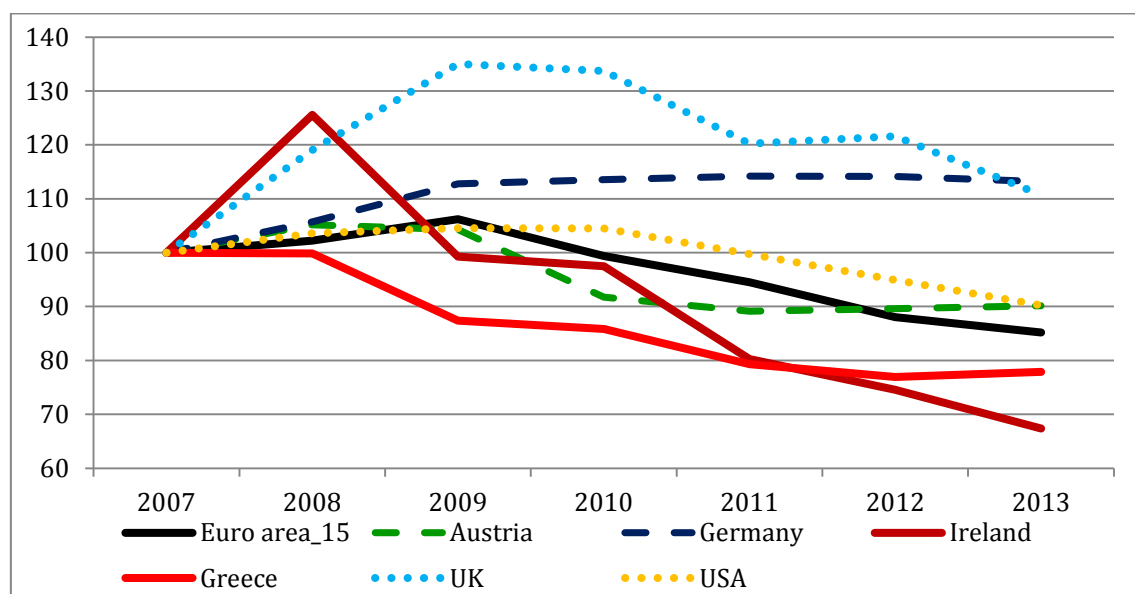
gross investment minus depreciation, decreased from about 2 per cent of GDP to a negative -0.6 per cent of GDP – the net public capital stock in the periphery was shrinking. For the Euro area as a whole and for Germany net public investment was zero in 2013.

Figure 4: General government net fixed capital formation (ESA 2010) in the Euro area, the European Periphery and selected countries in per cent of GDP, 1999-2013



Source: European Commission (2014a); author's calculations.

Figure 5: General government real gross fixed capital formation (SNA 2008) in the Euro area and selected countries (2007 = 100), 2007-2013



Source: OECD (2014); author's calculations.

It is sometimes argued that the development of investment ratios in relation to GDP may exaggerate the decline in public investment over time or in international comparison. If the deflator of public investment grows more slowly than the GDP deflator then the real (relative) decline of public investment may be substantially smaller than suggested by the nominal investment ratio (see for example Ragnitz et al. 2013: 97-99). As much of public investment is construction investment and the prices in that sector came under severe pressure after the bursting of the real estate bubble and the sharp decline in government orders, particularly in the periphery, this argument seems plausible. However, the available OECD (2014) data for the development of real public gross fixed capital formation for Ireland and Greece show that there was, in fact, a sharp fall in the level of real public investment (see figure 5). In Greece the fall was almost in line with the fall in real GDP since 2008, in Ireland it was even much stronger. Therefore, there can be no doubt, that austerity policies in the Euro area have negatively affected public investment in a disproportionately strong manner.

3 The Golden Rule for public investment: towards an operationalization

3.1 Introduction: the pay-as-you-use-principle and intergenerational equity

The Golden rule has been a widely accepted traditional public finance concept for the handling of government deficits for decades (see Musgrave 1939 and 1959: 556-575). It strives for an intertemporal realization of the pay-as-you-use principle in the case that present government spending provides future benefits. It allows financing such spending (=net public investment) by government deficits thus promoting intergenerational equity. Net public investment increases the public and/or social capital stock and provides benefits for future generations. Therefore, it is justified that future generations contribute to financing those investments via the debt service. Future generations inherit the burden of public debt, but in exchange they receive a corresponding public and/or social capital stock. Failure to allow for debt financing of future generations' benefits will lead to a disproportionate burden for the present generation through higher taxes or lower spending creating incentives for the underprovision of public investment to the detriment of future generations. This general incentive problem may become exacerbated in times of fiscal consolidation when cutting public investment may seem the politically easiest way of reducing the budget deficit. As demonstrated in section 2, the recent experience with austerity policies shows that this danger is real and has, in fact, materialized in the most striking manner. Independently of the current crisis, there is evidence that fiscal contractions were a key factor responsible for the decline in public investment in earlier decades (Välilä et al. 2005; Turrini 2004: 9-26).

Although the general idea behind the Golden Rule is most plausible and easy to understand its operationalization is difficult. The most difficult problem is to find a workable and economically sensible definition of the term 'public investment' that allows for government deficits. Theoretically, any government action that creates benefits – in the widest sense – for more than one period may qualify for this.² However, the literature usually focusses on concrete future material economic benefits in terms of higher productivity and growth. The question for an individual potential investment project then becomes whether it creates enough public and/or social capital so that its returns are higher than or at least equal to its costs in terms of interest payments and possibly additional costs. Ideally, if the returns are high enough debt sustainability would automati-

² See Buiter (2001) for the many difficult questions that may arise in this context.

cally be satisfied as the additional growth would decrease or at least stabilize the debt to GDP ratio (IMF 2014: 110). The optimal approach of defining public investment that qualifies for deficit finance would then be to include all public spending projects that create sufficient returns in terms of higher future productivity and growth. Obviously, such a classification process would be extremely costly and unfeasible in practice. Therefore, the central question on a macroeconomic level is, whether general categories of public spending can be identified that are usually associated with sufficiently higher growth and productivity. Of course, such a pragmatic approach necessarily risks including types of public spending that should not be qualified as investment as well as excluding types of public spending that should correctly be classified as investment.

However, despite the difficult questions from a theoretical point of view that strives for optimality, the concept of the Golden Rule has many advocates in academia starting with Richard A. Musgrave (1939 and 1959), one of the founding fathers of modern public finance.³ In the context of the fiscal policy debate in the EU many economists have criticized the EU fiscal framework of the SGP for its lack of a Golden Rule of public investment and correspondingly proposed to introduce such a rule into the framework (e.g. Fitoussi and Creel 2002: 63-65; Blanchard and Giavazzi 2004; Barbiero and Darvas 2014; Dervis and Saraceno 2014). And, last but not least, as mentioned in the introduction, the German council of economic experts had delivered a proposal that was to become more or less the blueprint for the German debt brake, which explicitly expressed the need to include the Golden Rule as important element of the fiscal rule (SVR 2007 and 2006: 308-311).

The critical question for the justification of the Golden Investment Rule then is whether public investment is productive, i.e. whether it increases productivity and growth. The natural starting point for the analysis is the debate about the growth effects of traditional public investment, i.e. mainly traditional infrastructure investment as classified in the national accounts, as it has received the most attention in the literature. In this section first the long-run supply as well as short-run demand effects of this classical type of public investment will be discussed (sections 3.2 and 3.3). After considering other types of government expenditure as potential candidates for the classification as public investment an economically rational and workable definition of public investment will be sketched (section 3.4). After dealing with some technical details of implementation

³ It should be mentioned that the Golden Rule is difficult to justify from a traditionally Keynesian or post-Keynesian functional finance view: Although it would be seen as a major step forward if compared to balanced budget or similar approaches to budget deficits, investment expenditure as an upper limit to government deficits would usually be considered as an arbitrary and probably too tight constraint for fiscal policy. See e.g. Sawyer (2010) as well as Mathieu and Sterdyniak (2012).

(section 3.5), finally a pragmatic proposal for a European Golden Investment Rule will be presented (section 3.6).

3.2 (Traditional) public investment and economic performance in the long run

The central question of the long-run growth effects of public investment has received much attention in the literature (for an overview see Romp and de Haan 2005; Ragnitz et al. 2013: 49-81; Melo et al. 2013; Bom and Ligthart 2011 and forthcoming). From a theoretical point of view it is most plausible that public investment, especially if it focuses on “core” infrastructure like transport facilities (roads, railways, ports, airports), communication systems as well as power generation and other utilities should be productive and growth enhancing. The public infrastructure stock in this sense is simply indispensable for most productive processes: Without water and energy supply, without transport capacities most production processes would simply be unthinkable. It is, therefore, plausible to think of public infrastructure as an input factor that is complementary to private capital and labour inducing additional private investment and labour supply.

However, at least two qualifications should be made. First, for additional public infrastructure to be productive it should not be abundant. Although the quantity and quality of infrastructure is difficult to measure, on the basis of the World Economic Forum’s Competitiveness report the IMF (2014: 79-81) concludes that the overall quality of infrastructure and that of roads has clearly (slightly) decreased from 2006 to 2012 in Germany (France) and that it is lagging behind in Italy. This is at least a hint that there is room for improvement. It is also a hint that net public investment must not necessarily be into completely new infrastructure projects, but that maintenance investment may also have an important role to play (see Rioja 2013). Second, although positive growth effects from core infrastructure investment are most plausible from a theoretical point of view, not all of public investment as defined in the national accounts is into core infrastructure. In fact, a substantial part of public investment is investment into equipment as well as public buildings, e.g. for administration, education and hospitals. For such investment a direct positive contribution to private production processes may be more difficult to establish. However, for those countries for which data on both the public capital stock as a whole as well as specifically on public infrastructure is available, the correlation between the two is strong, so that overall public investment may serve as a proxy for infrastructure investment (IMF 2014: 80).

Empirically, as usual in Economics, the effects are contested in the literature. The famous study by Aschauer (1989) using a production function approach found a very high elasticity of output with respect to the public capital stock. This would have meant an extremely high return on public investment, indeed, much higher than imaginable for private investment. In the following debate many different definitions of public (infrastructure) capital were used, different estimation techniques and variations of Aschauer's original approach were introduced. Furthermore, apart from Aschauer's original production function approach also the cost-function approach, times series analysis as well as cross section estimations were applied. Although the results differed very much and some studies found no or even negative effects of public investment on growth, the general conclusion is that there is a positive growth effect, but that it is much smaller than originally claimed by Aschauer (see Romp and de Haan 2005; Melo et al. 2013).

Table 1: Implied marginal returns to public investment in per cent.

	all public capital		core public capital	
	Regional	national	regional	national
short term	17.4	10.2	24.0	16.8
long term	28.0	20.8	34.6	27.4

Source: IMF (2014: 86); Bom and Ligthart (2014: 907-908); author's calculations.

Bom and Ligthart (2014) conducted meta-regressions including 68 studies with 578 estimates for the public capital-growth nexus and confirm this basic conclusion for the period 1983 to 2008. According to their results, the average output elasticity of public capital is 0.082. Conditional elasticities vary depending on whether they refer to the short or the long run, to all public capital or core infrastructure and to regional or national investment. They are higher for core infrastructure, for regional investment and for the long run. Table 1 shows the implied marginal returns which are in the range between 10 per cent (short run, national, all public capital) to 34.6 per cent (long run, regional, core infrastructure). Whereas the latter marginal return is large enough to justify deficit-financed public investment even under pessimistic assumptions about the user cost of capital (real interest rate plus depreciation rate), the former would have to rely on more favourable conditions. However, the implied long term marginal returns

even in the case of all public capital for national and regional investment with 20.8 and 28 per cent are considerably high.

Furthermore, the IMF (2014: 87-90) ran simulations with its DSGE model for advanced economies, incorporating the aforementioned estimates for the output elasticity. The results are encouraging for the use of public investment to boost the economy and induce growth. If monetary policy is accommodative and the output elasticity is large, there is a strong output effect, crowding in of private investment and a substantial decrease in the public debt to GDP ratio. The results remain positive with respect to output even if monetary policy is not accommodative or the output elasticity is low. With respect to the debt level the result remains positive in the latter case, but the debt level increases slightly in the former case. In a panel regression for 15 European countries for the period 1980 to 2013 Hakhu et al. (2014) conclude that increases in the public capital expenditures to GDP ratio lead to long-run decreases in the debt to GDP ratio. All in all, therefore, one may safely assume traditional public investment to have considerably positive growth effects.

3.3 (Traditional) public investment and economic performance in the short run

In addition to the more long-run supply-side effects the more short-run demand-side effects of public investment must also be addressed. In the present economic context in Europe these effects are obviously of particular importance both for assessing the impact of austerity programmes in retrospect and – symmetrically – of investment related debt financed fiscal stimulus programmes to overcome the crisis. The analysis proceeds in two steps. In the first step the question of fiscal policy effectiveness as such, irrespective of the particular instrument, must be clarified, before in the second step the comparative effectiveness of the different instruments, i.e. different expenditure or revenue side categories can be addressed.

Obviously, the answer to the question of fiscal policy effectiveness depends very much on the macroeconomic theory employed. Keynesian approaches will predict relatively high fiscal multipliers whereas most of the standard mainstream models will predict small or even zero multipliers. Adherents of non-Keynesian effects may even assume negative multipliers, which would render fiscal policy completely counterproductive. From a theoretical point of view, therefore, almost anything is possible which means that one has to take a look at empirical multiplier estimates to see whether fiscal policy is effective or not.

The traditional pre-crisis empirical studies usually found positive multipliers. As suggested by the standard Keynesian textbook models and the Haavelmo-Theorem expenditure multipliers were typically substantially larger than revenue side ones (see e.g. the overviews by Hemming et al. 2002, Arestis and Sawyer 2003, Bouthevillain et al. 2009 and Creel et al. 2011). As a rule of thumb one could assume the expenditure multiplier to be slightly below one and the revenue multiplier somewhere around 0.5. On the basis of these estimates fiscal policy is effective and the fact that austerity policies would severely hurt was clearly predictable before implementation (Truger 2013).

Maybe one of the – very few and small – positive side effects of the Great Recession and the austerity crises in many countries was that it has strongly encouraged empirical research on fiscal policy effectiveness and the size of the multiplier. In fact, many of the recent studies confirm the earlier multiplier estimates and in many cases even go substantially beyond them. First, the case for non-Keynesian effects has severely been damaged by Guajardo et al. (2011) and Perotti (2012). Second, the multiplier tends to be sizeable and (sometimes well) above one (Auerbach and Gorodnichenko 2012; Batini et al. 2012; Blanchard and Leigh 2013; Baum et al. 2012; Coenen et al. 2012; De Long and Summers 2012; Holland and Portes 2012; Carnot and de Castro 2015). Third, the expenditure multiplier tends to be larger than the revenue side multiplier (Auerbach and Gorodnichenko 2012; Batini et al. 2012; Gechert 2013; Carnot and de Castro 2015). A rather new finding was that, fourth, multipliers tend to be larger during strong recessions (Auerbach and Gorodnichenko 2012, Batini et al. 2012, Baum and Koester 2011, Baum et al. 2012, Creel et al. 2011; Fazzari et al. 2012; Gechert and Rannenberg 2014 and Carnot and de Castro 2015). According to Batini et al. (2012: 23) the expenditure multiplier during recessions could be in the range of 1.6 to 2.6 whereas the tax multiplier only in the range of 0.16 to 0.35. As an aside, it is remarkable that a recent empirical EU Commission working paper reproduces exactly the qualitative results just sketched, which implies that the EU Commission's position in the famous multiplier debate with the IMF (IMF 2012; European Commission 2012a; Blanchard and Leigh 2013) was, in fact, untenable.

As to the question of the relative size of the public investment multiplier, the pre-crisis literature as a rule of thumb found it to be (slightly) above one and therefore slightly larger than other spending categories so that public investment in addition to its long term economic advantages could be seen as the most effective short-run fiscal policy instrument. Some of the recent studies even come up with much larger (relative) estimates of the investment multiplier. Auerbach and Gorodnichenko (2012) obtain values larger than two with a maximum estimate of larger than four whereas the estimates for government consumption spending are “only” at about 1.4.

On the basis of these results, Barbiero and Darvas (2014: 8-9) conclude that a more growth-friendly consolidation in the Euro area would have been possible if public investment spending had been preserved at the cost of cutting current spending. However, this conclusion does not seem fully convincing: While it is plausible to preserve public investment it is not clear whether cutting government consumption is the relevant and sensible alternative: First, although the multiplier estimate for consumption spending referred to is smaller than the investment multiplier, it is still substantially larger than one so that the damage of austerity policies would still have been very large even under the more “growth-friendly” strategy. Second, one should not rely too much on individual studies and their estimates. Instead, judgment should be based on a broad overview of different studies. Gechert (2013) and Gechert and Rannenberg (2014) conducted meta-regressions including 104, respectively 98 empirical multiplier studies controlling for different study characteristics. They also generally find higher investment multipliers as compared to their consumption counterparts (around 1.6 vs. 1), but the difference is certainly not as large as in the Auerbach and Gorodnichenko (2012) paper. Third, in the case that fiscal restriction is unavoidable, the whole set of available instruments should be taken into account. This, however, leads to the conclusion that on average cutting government spending is unnecessarily painful, because the average estimates of the revenue side multiplier are much lower than those for the consumption or overall government spending multiplier. On average Gechert (2013) and Gechert and Rannenberg (2014) also find systematically smaller multipliers for government transfers. This can, however, not serve as an argument for cutting social transfers for consolidation purposes: Apart from the highly problematic social impact, there is evidence that the transfer multiplier is particularly high during recessions (Gechert and Rannenberg 2014). Therefore, a much more growth-friendly consolidation could be achieved via tax increases, which – from a standard Keynesian perspective – should mainly focus on high incomes and wealth. The question of the comparative size of different revenue side multipliers deserves much more attention than it has so far received in the literature (Godar et al. 2015). An even more growth-friendly consolidation could be achieved by spending part of the additional revenue from suitable tax increases on increased public investment or other expenditures (Truger et al. 2010: 80-88).

All in all, therefore, the empirical literature on short-run effects of fiscal policy strongly supports protecting public investment from consolidation pressures and using it to stimulate the economy in case of stagnation. However, the substantial demand-side effects of other spending categories, particularly government consumption, should also not be neglected.

3.4 Towards an economically plausible operationalization of public investment

As was shown in the previous two sections the case for applying the Golden Rule to traditional government investment in the sense of the national accounts is quite strong. Traditional public investment can on average be classified as productive and substantially growth enhancing and will therefore benefit future generations who should therefore contribute to its financing via the debt service.

Before turning to other potential expenditure categories to be included under the Golden Rule, some thoughts seem necessary on whether the traditional concept of investment in the national accounts is fully adequate or whether some modifications seem necessary. One important thing to notice in this context is, that the definition of (public) investment has been changed in the recent general revision of the system of national accounts and the transition from the old system ESA 1995 to ESA 2010 (see Dunn et al. 2014). Tables A1-A6 in the appendix compare gross investment, net investment and depreciation as a percentage of GDP for the Euro area, the Periphery and selected other countries under the two systems. In general the transition to ESA 2010 and the accompanying further changes have led to an increase in gross public investment with marked differences between the countries. For net investment on average the changes are small as the increases in gross investment have almost completely been compensated by correspondingly higher depreciation.

A first change has to do with spending on research and development. Whereas before the revision, mostly tangible assets (construction and equipment) and a small fraction of intangible assets were counted as investment, after the revision also spending on research and development is included. From an economic point of view this seems justified as it is highly plausible that public R&D spending in research institutions or universities or also as grants given to the business sector may be productive, although there is no clear evidence as to the growth effects, yet. In addition, public R&D spending suffered under the strong fiscal contraction (see Veugeleers 2014). This change should be the most important quantitatively in explaining the increase in gross investment for many countries.

A second change is highly problematic: Military expenditure on weapons systems is now counted as fixed investment, the reason being that “the new system recognises their productive potential for the external security of a country, over several years.” (Dunn et al. 2014: 10). However, this classification can be criticized on ethical grounds:

Weapons systems are potentially destructive and if really used they destroy productive capital instead of increasing it. Indeed, that was precisely the reason, why they were previously recorded as immediately consumed under ESA 1995. Furthermore, it is highly questionable whether the fiscal framework should actively encourage military spending and a potential arms race. The ethical questions apart, spending on weapons systems can hardly be considered as a particularly growth enhancing expenditure category. Theoretically, it is not clear how the marginal contribution of military investment to national security should be measured. Indeed, military investment was explicitly excluded from many studies on the long term growth effects of public investment. Aschauer's original contribution did not find military spending to be important for economic productivity (Aschauer 1989).

A third change occurred in the delimitation of the government and the private sector. The classification has become stricter in most cases in the sense that some companies/non-profit organisations closely related to the public sector had to be reclassified from the private to the government sector. This statistical enlargement of the government sector may partly remove one shortcoming of the investment definition in the national accounts: Investment grants paid by the public sector to private companies are not classified as investment expenditure. In the case that a formerly private company which receives investment grants increasing its investment expenditures is reclassified to be part of the public sector, the additional investment spending will now be counted as government investment. However, if a public investment grant is spent on investment by a recipient company then from an economic point of view it should generally not make a difference whether the company is classified as public or private. Therefore, for purposes of the Golden Rule, investment grants paid from the public to the private sector should be classified as public investment.

Of course, there may be other expenditure categories that may be equally or even more beneficial. A natural candidate is public spending on education or health care which in the existing system of national accounts is classified as current expenditure. It has been argued that privileging traditional, mostly physical investment in infrastructure and equipment and neglecting those other forms of investment in an economic sense may distort the optimal allocation of resources with potentially unclear implications for efficiency, growth and welfare (Turrini 2004: 29-30). However, in the presence of strong evidence for considerably positive growth effects of traditional public investment it would seem overcautious to forego the advantages of the Golden Rule. Indeed, a stepwise approach is much more convincing. The economic case for including other types of spending into the Golden Rule should be checked. If inclusion seems rational but at the current stage difficult to implement for statistical or other reasons, then the

Golden Rule should as a first step be applied to traditional investment. As soon as the open questions with respect to other expenditure categories are solved, their implementation can follow as a second step.

Should other potentially growth enhancing types of government spending be classified as investment? In principle they should as long as it can be shown that the growth effect to be expected is at least as large as that of traditional public investment. The natural candidate for this would be education expenditure. Education as investment in human capital is crucial within endogenous growth theory (Lucas 1988) and empirical research suggests that the private as well as social rate of return of education can assumed to be very high (Psacharopoulos and Patrinos 2004; Card 2001). Although it is difficult to reliably compare the estimated rate of return for different types of expenditure, it would at least be plausible to include public education expenditures under the Golden Rule. This is also the general conclusion drawn by most advocates of the Golden Rule.

However, at the present stage it is difficult to implement this in a convincing way. First, an exact definition of the relevant education expenditure would have to be given which is not straightforward (see Vesper 2007: 24-29). Second, in order to be consistent with the Golden Rule, net education investment would have to be measured, i.e. depreciation would have to be deducted. According to the SVR (2007: 80-81) based on Ewerhart (2002 and 2003) depreciation of the German human capital stock, relevant for such a calculation, would be in the order of magnitude of 95 per cent of total education spending. This particular result stems from the demographic development in Germany and must not necessarily be a very plausible way of quantifying depreciation of human capital investment. Indeed completely different conclusions in this respect can be drawn from Kunze (2002) and Will (2011). But it shows that there are some difficult conceptual issues that would have to be resolved before education expenditure could be properly included into the Golden Rule.

There are other expenditure categories that might be considered as investment under the Golden Rule. Indeed, from a supply-side perspective some types of social spending may well be highly productive, because they increase labour supply and production: Health expenditures, if effective, will contribute to a more stable and larger workforce. Spending on child care can substantially increase parents' labour force participation (Bauernschuster and Schlotter 2015). And the same may be said for spending on social work and integration. All of this could lead to higher labour force participation and therefore contribute to higher growth and, at the same time, to one of the main

Europe 2020 goals. Obviously, it is not easy to find adequate definitions and estimating depreciation in order to arrive at net investment may be even more difficult.

The fact that at the current stage there are difficulties, however, does not mean that an economically rational and workable definition of potentially relevant other investment expenditures does not exist, at all. It only means, that for the first stage of introducing the Golden Rule one should better rely on the traditional definition of public investment from the national accounts (with the small modifications mentioned).

3.5 Some technical questions of implementation

Even if – for practical reasons – the Golden Rule is initially limited to traditional public investment, some technical questions of implementation will have to be resolved. The prescriptions for the government in terms of the national accounts will have to be operationalized in terms of standard financial government accounts. This usually involves correcting for privatization revenues, loans and investment grants between government units (SVR 2007: 76.). However, for the general government this is a procedure that is familiar also in the current fiscal framework in which all national governments have to regularly submit their stability programmes according to the definitions of the system of national accounts. Problems might arise for the subnational levels of government, particularly for budgetary planning at the local level in which the new conventions would most probably have to be newly implemented.

Furthermore, depending on the design of the existing systems of fiscal federalism in the member states questions as to the vertical and horizontal allocation of the general government investment deficit allowance among and on the different federal levels may occur. For example, if the municipal level is the main investor and a substantial part of its investment is currently financed through own resources then the implied deficit and debt ratios for the municipalities under the Golden Rule may become very large or collide with existing national deficit constraints for the subnational levels. Obviously this problem could be tackled by suitable investment grants from higher federal levels which would then also be allocated the corresponding deficit allowance. The Golden Rule may in the medium term actually be used for an investment-friendly reform of fiscal federalism.

Another problem that has always been stressed in the discussion about the Golden Rule (e.g. Turrini 2004: 5-6) is the estimation of depreciation that is necessary to determine net investment, i.e. gross investment net of depreciation. In the absence of dual accounting in the government financial budgetary accounting systems these have

to be estimated for the different federal entities. Due to lack of data, for the subnational levels this may require some less than perfect but workable technical conventions, especially for calculating and distributing depreciation between subnational governments. However, the German council of economic experts in his Golden Rule proposal recommended merging financial accounts and national accounts as a pragmatic solution in the absence of dual accounting. Values for gross investment could be taken from the financial accounts and values for depreciation from the national accounts. Depreciation could then be distributed to the different federal states according to its share in gross investment (SVR 2007: 77). If the technical difficulties of estimating depreciation are assessed to be overwhelming, as an alternative, a certain percentage of gross public investment, e.g. in the range of 20 per cent to 50 per cent, could be used as a proxy of net investment.

After all, one should not exaggerate the conceptual and technical problems of implementing the Golden Rule. It should be kept in mind that the current fiscal framework in the EU relies to a large extent on complex non-observable concepts that are constantly under revision like the output gap and the cyclically adjusted budget balance (Barbiero and Darvas 2014: 10). If despite all their shortcomings these concepts are accepted as workable there is no reason to be more critical when it comes to the operationalization of the Golden Rule. After all, it is certainly technically easier to implement and leads to more accurate and stable results. This was also decidedly the position of the German council of economic experts when defending his concept for the Golden Rule:

“Despite these limitations it would be exaggerated to completely discard the Golden Rule with recourse to the inconveniences of reality. Investment related borrowing may meet the requirements of the Golden Rule but in an imperfect manner so that a really convincing concept cannot be realized in its pure form. However, a complete ban of investment related borrowing cannot even be underpinned by a theoretically plausible argument.” (SVR 2007: 80; author’s translation)

3.6 Conclusion: A pragmatic proposal for a European Golden Investment Rule

According to what has been presented in the previous section, a Golden Rule for public investment should be introduced in Europe. As a pragmatic first step this Golden Rule should apply for government fixed capital formation as defined in the national accounts with small modifications: Military spending on weapons systems should not count as

investment whereas public investment grants to firms or non-profit organisations should be counted. The rule should apply to net investment, i.e. depreciation should be deducted for the rule to measure properly increases in the net public capital stock.

The Golden Rule can then be applied within the current fiscal framework of the SGP and the fiscal compact by deducting net public investment as defined above from member states' relevant deficit measures, i.e. from the government deficit under the corrective arm and the structural deficit under the preventive arm of the pact and the fiscal compact. In effect, this means that the threshold for an excessive deficit as well as the medium term budgetary objective would be increased by the amount of net public investment. In order to prevent a conflict between the Golden Rule of public investment and the goal of stabilizing public debt below 60 per cent of GDP an upper limit for deductible net investment spending could be set at 1 or 1.5 per cent of GDP.⁴ The limit might not be set as a threshold above which all net investment will be fully relevant for the public deficit but rather as a limit to the percentage of net investment that is deductible from the deficit measures in order to provide incentives for public investment as a whole and prevent the category as a whole from cuts. This may seem like a rather academic question given the fact that most member states' net investment was typically below 1.5 per cent of GDP even before the crisis (see table 2). It might, however, gain relevance if a gross definition of public investment would have to be used for the Golden Rule or if additional expenditure categories would be classified as public investment.

⁴ Barbiero and Darvas (2014: 10) propose the introduction of an asymmetric Golden Rule in order to prevent excessive incentives for public investment and deficits. In recession, member states would be allowed to apply the Golden Rule by deducting public investment from the deficit measures, whereas in good times the standard SGP procedure is applied. However, this would raise difficult questions as to the timing of business cycles and might destabilize public investment over time.

Table 2: net government investment (ESA 2010), budget balance, structural balance and MTO in the EU in per cent of GDP in 2015 (EU Commission estimate)

	net investment			budget balance (2015)		MTO
	Average 1995-2007	2015	difference	headline	structural	
European Union (28 countries)	0.7¹⁾	0.3²⁾	-0.4	-2.6	-1.7	-0.3³⁾
Euro area (19 countries)	0.7⁴⁾	-0.1⁵⁾	-0.7	-2.2	-1.0	-0.2⁶⁾
Belgium	0.0	-0.3	-0.3	-2.6	-2.1	0.75
Bulgaria	1.2	3.0	2.2	-3.0	-2.7	-0.5
Czech Republic	-0.4	-0.3	-0.5	-2.0	-1.7	-1
Denmark	-0.1	0.6	0.6	-2.8	-1.8	-0.5
Germany	0.0	0.0	0.0	0.2	0.7	-0.5
Estonia	2.9	2.2	-0.8	-0.6	-0.8	0
Ireland	1.6	0.0	-1.7	-2.9	-3.4	0
Greece	2.3	-0.5	-2.8	1.1	1.7	
Spain	1.9	-0.5	-2.4	-4.5	-2.3	0
France	0.8	0.1	-0.3	-4.1	-2.6	0
Croatia		1.7		-5.5	-4.3	
Italy	0.5	-0.5	-1.0	-2.6	-0.6	0
Cyprus	2.7	0.5	-2.2	-3.0	-1.4	
Latvia	-2.6	0.6	3.6	-1.1	-1.6	-1.0
Lithuania				-1.4	-1.7	-1.0
Luxembourg	2.4	1.7	-1.0	-0.4	0.4	0.5
Hungary	-0.5	1.2	1.4	-2.7	-2.6	-1.7
Malta	1.9	1.0	-1.0	-2.0	-2.4	0
Netherlands	0.9	0.2	-0.6	-2.2	-0.9	-0.5
Austria	0.5	0.3	-0.2	-2.0	-1.0	-0.45
Poland	0.5	1.8	1.1	-2.9	-2.7	-1.0
Portugal	2.2	-1.2	-3.2	-3.2	-1.7	-0.5
Romania	2.2	2.5	0.4	-1.5	-1.2	-1.0
Slovenia	1.7	2.5	0.5	-2.9	-2.2	0
Slovakia	-0.1	-0.4	-0.1	-2.8	-2.0	-0.5
Finland	0.7	0.5	-0.1	-2.5	-1.0	-0.5
Sweden	1.0	1.4	0.3	-1.6	-1.0	-1.0
United Kingdom	0.8	1.1	0.0	-4.6	-4.6	
1) 26 countries: no data for Croatia and Lithuania; 2) 27 countries: no data for Lithuania 3) Weighted average of available data 4) 17 countries: no data for Croatia and Lithuania; 5) 18 countries: no data for Lithuania 6) weighted average of available data						

Source: European Commission (2015a; 2013b and 2014c); author's calculations.

Conceptual advantages apart, the focus on net investment has the further advantage of providing a strong incentive for those governments that are currently providing negative net public investment, i.e. whose public capital stock is decreasing, because compared to the status quo their fiscal constraints would otherwise tighten (see table 2). Although this is a welcome incentive in the medium term, countries should in the short term be given some time to adjust their net investment.

The Commission and member states should over the medium term actively promote ways of improving the statistical measurement of public investment and of improving the government accounts, in particular as concerns the calculation of depreciation. Furthermore, research and debate should also be directed towards identifying other expenditure categories that could qualify as public investment and where applicable towards how to include them under the Golden Investment Rule.

4 The abandonment of existing Golden Rules for public investment in Germany and the UK as a counterargument?

In the discussion about a Golden Rule for public investment it is sometimes argued that two prominent examples of Golden Rules, namely the ones in Germany and the UK, had only just failed in the recent past. It is true that the U.K. has suspended its Golden rule in 2008/9 and that Germany has even more dramatically changed its fiscal rules by introducing a constitutional ‘debt brake’. The usual reason given for these changes in both cases is, in fact, the perceived failure of the previously existing institutions. They are said to have failed in preventing an increase in government debt, because they left too much leeway for politicians and/or were not legally binding or enforceable (see SVR 2007: 62-72 for the German case and Dupont and Kwarteng 2012 for the UK). Therefore this section will take a closer look at both examples to see whether they can really damage the case for the Golden Rule of public investment.

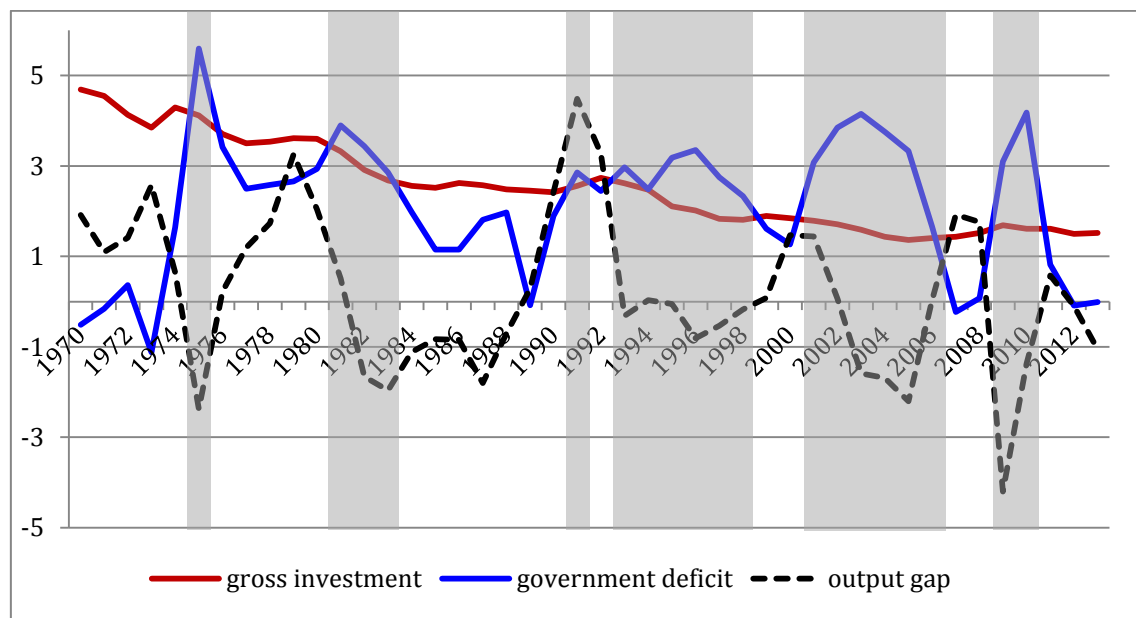
4.1 The German ‘Golden Rule’ and its substitution by the constitutional ‘debt brake’

The German ‘Golden Rule’ had been written into the German constitution as part of the so called great reform of fiscal federalism in 1969. It has to be seen as closely connected with the stability and growth law of 1967 which called for an active, macroeconomic stabilization policy on the federal level and the level of the federal states in order to achieve price stability, adequate and steady economic growth, high employment and international balance of payments. The new rule at the time replaced the previous constitutional ban of budget deficits which allowed for deficits only if they were self-financing in the sense that their fiscal return was higher than the annuities that had to be paid on the debt. Its purpose was to loosen the deficit restriction for growth-enhancing investment while allowing for active cyclical stabilization (Dönnebrinck et al. 2010: 22-35).

The German fiscal deficit rule before 2009 was, strictly speaking, no Golden Rule in the sense of this study, at all: It was simply a constitutional budgetary rule for the federal level and the majority of federal states that was related to public investment (see SVR 2007: 57-72). It stated that government net borrowing should not exceed the level of gross government investment as represented in the government financial accounts (not the national accounts). However, gross investment did only serve as an upper limit for

the budget deficit in economically ‘normal times’. A transgression of the limit was possible if the government declared a macroeconomic disequilibrium that had to be reduced with the help of fiscal stimulus from a higher budget deficit. The term macroeconomic (dis)equilibrium had no clear operationalization but referred to the four basic macroeconomic goals that were formulated in the Stability and Growth Law, namely price stability, adequate and steady economic growth, high employment and international balance of payments.⁵ Much of the criticism of the former German rules for government debt was directed against the vagueness of this concept which was said to have led to an excessive usage of the exceptional clause.

Figure 6: General government gross fixed capital formation (ESA 1995), budget balance and output gap in Germany in per cent of GDP, 1970-2013



Source: Federal Statistical Office; European Commission (2014a); author's calculations.

However, the case for an excessive usage is not too easily made. For illustrative purposes figure 6 shows general government gross investment, the government budget deficit and the output gap for Germany from 1970 to 2013. Obviously, transgressions of the deficit limit happened quite often: In 19 out of 44 years the budget deficit was higher than gross public investment. However, in 13 out of these 19 years the output gap was negative, which may be interpreted as evidence of a macroeconomic disequilibrium (Horn et al. 2013). In 3 out of the remaining 6 years the output gap was positive but declining which means that the economy was experiencing a downswing, which was

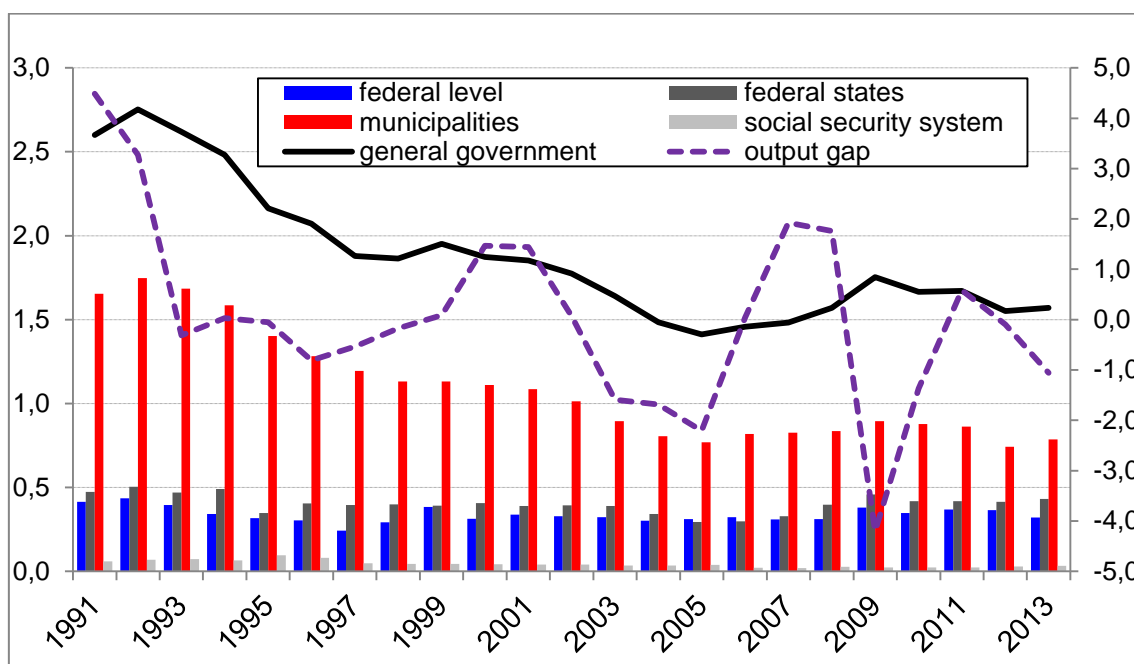
⁵ See SVR (2005: 320-328) and Horn et al. (2013) for a general discussion of potential criteria to operationalise the exceptional clause and their application to concrete budgets.

plausibly the case in 1981, 2001 and 2002. Finally, in one year (1994) the transgression was negligible, and in another (2006) the strong upswing after a five year stagnation period had been difficult to predict. Following this interpretation, there was only one year (1991) with a clearly unjustified transgression of the rules.

Of course, this interpretation may be contested, because the analysis was based on data from the national accounts and the general government where in fact data from financial accounts as well as for the federal level and the relevant individual federal states should have been used. However, at least for the federal level a similar analysis with financial account data leads to comparable results (Horn and Truger 2007) and it is at least relevant information that the fiscal rules for the federal level and the federal states in Germany did not lead to obviously unjustified transgressions of the deficit limit when checked on an aggregate macroeconomic level with data from the national accounts.

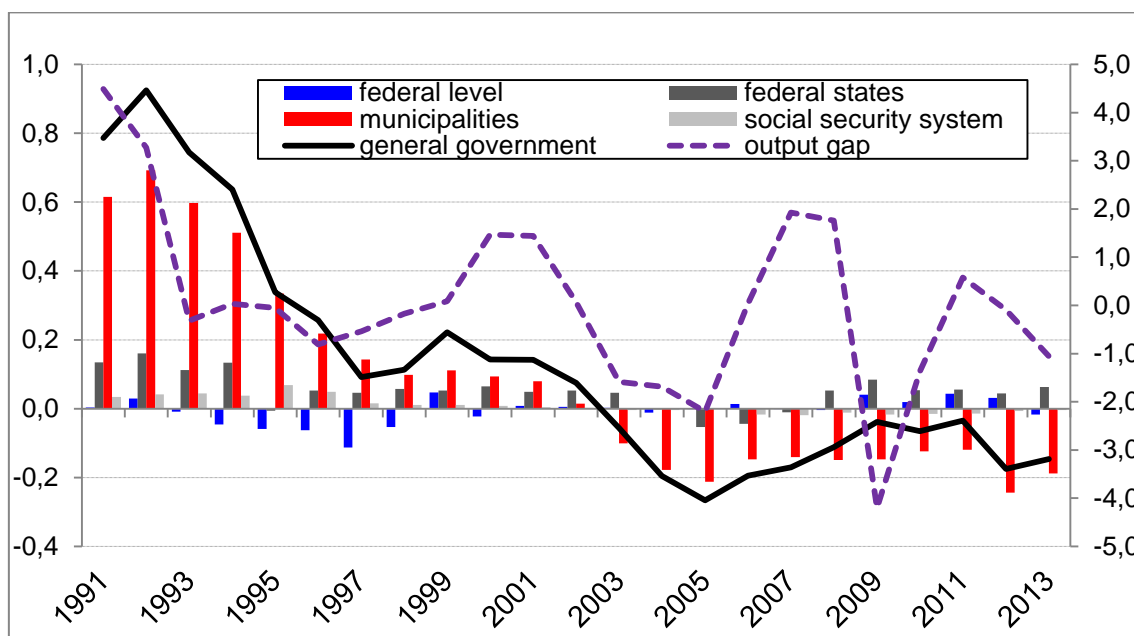
Groneck (2008: 121-123) presents tables listing in which of the 15 years from 1992 to 2006 the federal level and each of the individual federal states transgressed the deficit limit. Unfortunately, however, Groneck does not even try to check whether the transgression might have been justified by the exceptional clause. This might have been rewarding, though: As suggested by the EU Commission's November 2014 output gap data for Germany from figure 6, all of the federal level's 7 transgressions occurred in years with a negative output gap (6 years) or during a downswing (1 year). Furthermore, transgressions on the level of the federal states were relatively less frequent (71 occasions for 16 states in 15 years, i.e. out of 240 potential occasions) which is consistent with the federal level taking stronger responsibility for economic stabilization. Finally, 63 of the lamented 71 transgressions occurred in years with a negative output gap or during a downswing. After all, it seems that German fiscal policy was not as lax with its fiscal rules as is often suggested.

Figure 7: gross fixed capital formation (ESA 1995) for the different levels of government and output gap in Germany in per cent of GDP, 1991-2013



Source: Federal Statistical Office; European Commission (2014a); author's calculations.

Figure 8: net fixed capital formation (ESA 1995) for the different levels of government in Germany and output gap in Germany in per cent of GDP, 1991-2013



Source: IMK in der Hans-Böckler-Stiftung; European Commission (2014a); author's calculations.

Furthermore, there is some evidence that the investment related fiscal rules in Germany may have contributed to protecting and stabilizing government investment over the business cycle. Figures 7 and 8 show gross and net public investment in relation to

GDP for the different levels of government.⁶ The federal level and the level of the federal states were submitted to the fiscal rule whereas the municipal level which undertook more than half of overall public investment, but is strictly regulated regarding fiscal deficits, was not. As can be seen in the figures and as is demonstrated by the variation coefficient, municipal gross and net investment is more volatile in general and – more importantly – its correlation with the output gap is much stronger than it is in the case of federal or federal state gross and net investment. Furthermore, the trend of federal and state investment did not decline as sharply as that of municipal investment and most of the substantially negative German net public investment (ESA 1995) was caused by the municipalities.

Nevertheless it is true that the previous German institutional limits to government deficits did not use an economically sensible definition of public investment and left much room for political interpretation. They did neither put an upper limit to transgressions of the deficit limit nor place a requirement to undercut the limit in economically good times. And due to the absence of strong sanctions the degree of enforceability was low (SVR 2007: 62-64). All of this may have contributed to the considerable increase of the German debt to GDP ratio from below 20 per cent in the early 1970s to its maximum of about 80 per cent in 2010. However, it should be noted that much of the increase occurred in economically bad times. And a very large part of the increase in German (federal) government debt relates to the economic and fiscal shock of German unification and later on the financial rescue measures taken during the financial crisis. The unification related debt piled up until 1995 in the federal special funds “Erblastentilgungsfonds” and “Fonds Deutsche Einheit” amounted to more than 290 bn. Euros or 11.3 per cent of 2010 GDP according to the Federal Finance Ministry. The debt related to the financial rescue packages from 2008 to 2010 amounted to 388 bn. Euros or 15.1 per cent of 2010 GDP according to Eurostat. All of this cannot be attributed to the German investment related deficit rules at the time.

However, if one believes the points mentioned to be important shortcomings then this is not an argument against the Golden Investment Rule as such. To the contrary, in fact, as already mentioned in section 3, to overcome the shortcomings of the old framework, the German council of economic experts argued in favour of a Golden Rule for net public investment which according to his preferences was to be embedded in a suitably strict institutional framework. In the end most of his recommendations as to the strict framework were put into practice in the design of the German debt brake. Unfor-

⁶ The figures show fixed capital formation according to the old ESA 1995 definition as this is closer to the relevant investment categories of the fiscal rules at the time.

unately, the net investment related part of his concept dropped out during the political process and was replaced by the requirement for the structural budget to be (almost) in balance allowing for a general government structural budget deficit of only 0.35 per cent.⁷

4.2 The UK's Golden Rule suspended in 2008/9

The Golden Rule in the UK was introduced under the Labour government's Chancellor of the Exchequer Gordon Brown in 1997 and was practiced until the March 2008 budget. As a consequence of the budgetary repercussions of the global financial and economic crisis it was suspended in the pre-budget report in November 2008 and has not been practiced any more since the March 2009 budget. The rule stated that the government over the economic cycle would only borrow in order to invest and not to fund current spending. The Golden Rule was complemented by the sustainable investment rule according to which public sector net debt in relation to GDP would be held at a stable and prudent level over the cycle. This level was set at 40 per cent of GDP (Budd 2010: 34-35).

Two main reasons were given for the Golden Rule: First, it was to protect government investment from disproportionately large cuts during potential periods of budget consolidation. In fact, the absence of such protection was seen as a major reason for a decline in net investment and the public stock under the previous conservative government in the past. Second, it was justified by the well-known intergenerational equity considerations, namely that current spending should be financed by current tax-payers whereas public investment also benefitted future tax payers and should therefore be (partly) borne by future tax payers through the debt service. The sustainable investment rule was more difficult to justify because there is no way to determine the optimal debt level for an economy, but it was thought necessary to reduce the risks associated with high and increasing debt levels. Both rules were to be met over the cycle which meant that there was room for the working of automatic stabilisers and even for discretionary fiscal policy (Budd 2010: 35-36).

Except for the regular admission of discretionary fiscal policy – which would in combination with the need to balance the cumulative current budget over a precisely dated cycle later on prove to be its decisive weak point – the UK Golden Rule looked strikingly similar to the Golden Rule sketched in section 3. In fact, there were more similarities

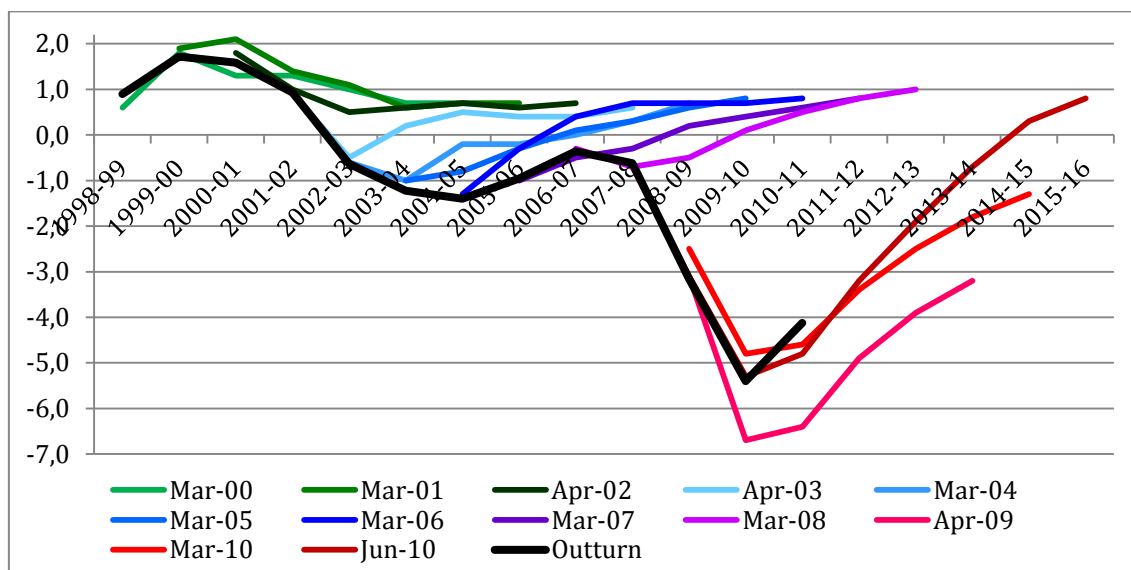
⁷ For a critical evaluation of the German debt brake see Truger/Will (2013).

as the UK government had also decided to use the national accounts definition of net public investment and with the sustainable investment rule it had introduced a provision to prevent the debt level from rising too strongly as a result of high deficits that might be caused by very high levels of net investment.

In some respects Labour's fiscal framework was remarkably successful: The approach was discussed in a friendly manner by an IMF working paper (Kell 2001). Public net investment, which had been on a downward trend since the late 1970s and had reached a record low level of 0.2 per cent of GDP in 1997, recovered and was brought back to the level of the early 1990s. In an empirical investigation Creel et al. (2009) concluded that the Golden Rule had strengthened the positive growth effects of public investment in the UK. Even in terms of controlling current deficits and net debt it seemed successful for quite some years (see figure 9). Until the March 2003 budget it looked as if the current structural balance would never become negative over the whole budgetary horizon leading to large and growing cumulative surpluses. But even until the March 2006 budget it looked as if the cumulative current structural balance could plausibly be balanced. Indeed, in 2006 it seemed as if the requirements of the Golden Rule could safely be met (Emmerson et al. 2006: 14). The same applies for the sustainable investment rule: Net public debt had at times been smaller than 30 per cent of GDP and was projected to stay safely below the 40 per cent threshold (see figure 10).

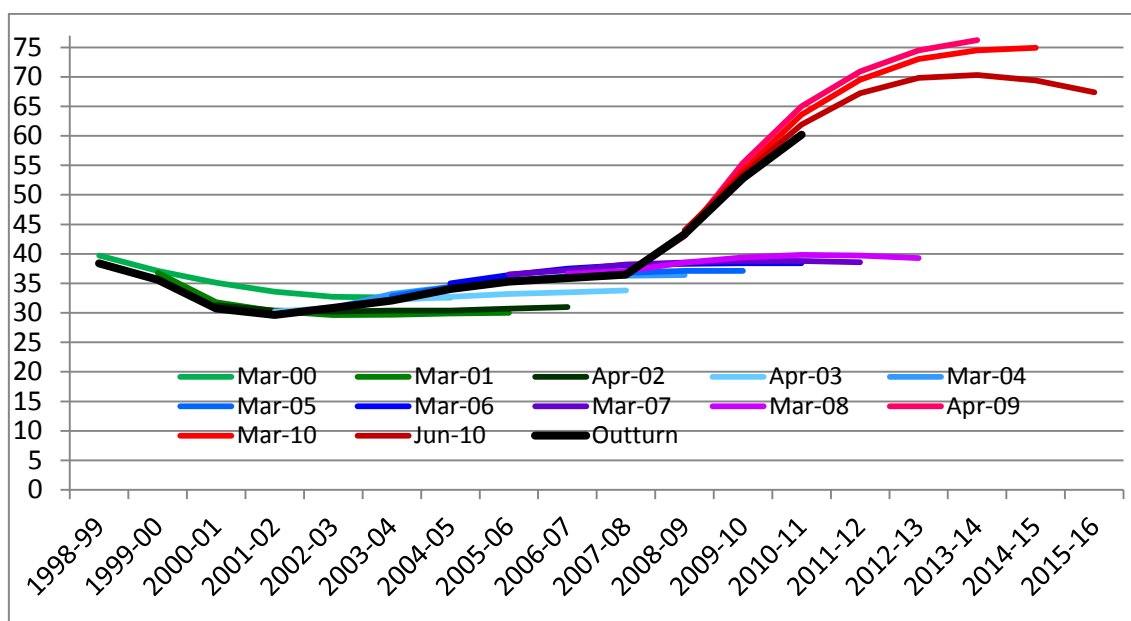
After 2006 budgetary prospects kept worsening until it became finally clear in the context of the April 2009 budget that it would be impossible to get near a balanced cumulative current balance over a medium term horizon as public deficits had exploded after the onset of the global financial and economic crisis: The negative fiscal stance necessary for sticking to the Golden Rule would have been irresponsibly high (Chote et al. 2009) and therefore the Golden Rule as well as the sustainable investment rule were suspended and replaced by a temporary operating rule. The suspension was in line with a corresponding provision in the Code of Fiscal Stability and did not constitute a breach of the rules. The temporary operating rule stated that the government was to decrease the structural current deficit every year after the onset of the recovery (Budd 2010: 43).

Figure 9: general government structural current balance according to official forecasts (as of budget March 2000 until June 2010) and actual outturn in the UK in per cent of GDP, budgetary years 1998/99 to 2015/16



Source: OBR (2011).

Figure 10: general government net debt according to official forecasts (as of budget March 2000 until June 2010) and actual outturn in the UK in per cent of GDP, budgetary years 1998/99 to 2015/16



Source: OBR (2011).

It is obvious that the Golden Rule cannot be made responsible for the financial and economic crisis which finally and most justifiably led to its suspension. However, even before the crisis there had been criticism of the UK fiscal policy framework and the way the government was handling it (Budd 2010; Chote et al. 2008 and 2009). When the

prospects for the budget worsened, the government repeatedly presented forecasts that later on proved to be too optimistic, which suggested future current budget balance surpluses so that the Golden Rule would be followed over the cycle. Later on the government gave the impression that it had changed the definition of the cumulative current budget surplus and it repeatedly changed start and end years for the precise dating of the cycle. Although there were plausible reasons for the changes they raised the suspicion that the government was manipulating the calculations so as to make sure that the Golden Rule could be met without changes in the fiscal policy stance (Chote et al. 2008: 37-46). A widespread conclusion is that the government by employing more realistic forecasts and by switching to a more restrictive fiscal policy stance before the crisis could have improved the starting position for fiscal policy when the crisis hit (Budd 2010; Chote et al. 2009; Dupont and Kwarteng 2012). However, both fiscal rules would have had to be suspended because of the dramatic extent of the fiscal shock that was caused by the crisis, even if the extremely optimistic forecast underlying the 2002 budget would have materialized (Chote et al. 2009: 87).

Whether the aforementioned criticism of the UK fiscal framework is adequate or not, it can certainly not be read as a criticism of the general concept of the Golden Rule. Instead it is a criticism of the specific institutional details of the UK Golden Rule or of the labour government's behaviour under this rule. The main error in the construction of the Golden Rule in the UK was that it allowed for regular discretionary fiscal policy, but combined this with the need to balance the cumulative current budget over a precisely dated business cycle. Given the uncertainty of economic and budgetary forecasts and the difficulty of dating the business cycle, this was a much too ambitious approach for fiscal policy that was bound to fail at some point in time. Under this approach fiscal policy is always determined by the cumulative current balance of the past, because it determines the leeway for future fiscal policy. Unforeseen events can then have dramatic consequences for the required fiscal effort if suddenly the cumulative current budget deficit has to be balanced in the short run under such a rule.

A less ambitious and more feasible approach would therefore have been to simply strive for a (nearly) balanced structural current budget and allow for expansionary discretionary fiscal policy in bad times under the condition that the structural budget return to balance after some time when the recovery is strong enough. Actually, this is both the approach of the SGP and also of some of the reform proposals for the UK Golden Rule (Chote et al. 2010: 99-101). Furthermore, most of the discussion about improving the independence of budgetary forecasts, independent monitoring of the budgetary process or enforcing compliance with fiscal rules (Chote et al. 2009: 106-111) would be

obsolete if a suitably modified Golden Rule were embedded in the strict European framework of the SGP and the Fiscal Compact.

4.3 Conclusions

The preceding analysis has demonstrated that the abandonment of the previously existing public investment related fiscal frameworks in Germany and the UK cannot serve as counterarguments against the Golden Rule concept proposed in this study. First, it was shown that although it is true that in both examples the political leeway was large and enforceability was a problem, it is debatable whether this was really the reason for the increase in government debt. Second, even if it had been, this would only have been a problem of the specific institutional framework adopted in those countries and not a general problem of the Golden Rule as such. Third, some elements of the country examples even point to the feasibility and advantages of a Golden Rule for public investment: In the UK the net investment concept from the national accounts (ESA 1995) was successfully applied and the net investment ratio was substantially increased and afterwards stabilized. In Germany, at least, the volatility and pro-cyclicality of federal and federal state investment seems to have been constrained. Therefore, one can indeed expect the Golden Investment Rule to stabilize and protect public investment from budgetary cuts.⁸ Fourth, some of the prominent reform proposals for both countries' fiscal frameworks pointed exactly in the direction of the Golden Investment Rule that is proposed in this study: Combining the European fiscal framework of the SGP with a deduction of (a fraction of) net public investment from the structural budget deficit so that the relevant current structural budget is targeted to be close to balance.

⁸ This conclusion is cautiously also drawn by the IMF (2014: 110-111) after empirically estimating that public investment in countries with Golden Investment Rules is more stable in fiscal contractions than in other countries without one.

5 Towards a European fiscal policy strategy to boost and safeguard public investment and support the recovery

5.1 The EU Commission's insufficient strategy for public investment and fiscal stimulus

It is by now widely accepted on the EU level that a more expansionary fiscal policy against the imminent deflationary stagnation is necessary, because monetary policy alone will not be able to spark off the recovery. In his by now famous Jackson Hole speech Mario Draghi called for a more expansionary fiscal stance for the Euro area as a whole and a public investment programme on the European level insisting, however, that the existing rules of the Stability and Growth Pact be respected (Draghi 2014). The European Council at its meeting in June 2014 also saw the need to enhance growth within “the possibilities offered by the EU's existing fiscal framework to balance fiscal discipline with the need to support growth” (European Council 2014: 7).

The new Commission has launched mainly two initiatives substantially enlarging its predecessor's efforts (European Commission 2014b and 2015b). For expositional purposes they can be divided into three main sets of measures. The first two of them are particularly concerned with promoting (public) investment in Europe. First, the so-called ‘investment clause’ under the preventive arm of the treaty is specified and will potentially be made applicable on more occasions. Second, an Investment Plan for Europe, the ‘Juncker-Plan’ has been launched, i.e. a European Fund for Strategic Investments (EFSI) to finance investment on a large scale. Third, the interpretation of the SGP has been clarified with the aim of providing more fiscal leeway for member states under adverse economic conditions and/or implementing structural reforms.

As to the first measure, the underlying idea of the ‘investment clause’ dates back to the Commission ‘blueprint for a deep and genuine economic and monetary union’, which envisaged allowing a temporary deviation from the MTO or the adjustment path towards it under the preventive arm if it was the result of ‘non-recurrent, public investment programmes with a proven impact on sustainability of public finances’ (European Commission 2012b: 25), e.g. projects co-financed by the EU.⁹ However, the Commission made clear from the very beginning that this would have nothing to do with a

⁹ See Protta and Viesti (2013) for a summary of the developments around and the debate about the ‘investment clause’.

Golden Investment Rule which it called ‘an indiscriminate approach [that] could easily put in danger the prime objective of the SGP by undermining the sustainability of government debt’ (European Commission 2012b: 25). In this spirit the implementation of the idea was very restrictive, and it continues to be even under the clarifications made by the new Commission:

“Member States in the preventive arm of the Pact can deviate temporarily from their MTO or adjustment path towards it to accommodate investment, provided that: their GDP growth is negative or GDP remains well below its potential; the deviation does not lead to an excess over the 3 per cent deficit reference value and an appropriate safety margin is preserved; investment levels are effectively increased as a result; the deviation is compensated within the timeframe of the Member State’s Stability or Convergence Programme. Eligible investments are national expenditures on projects co-funded by the EU under the Structural and Cohesion policy, Trans-European Networks and the Connecting Europe Facility, as well as national co-financing of projects also co-financed by the European Fund for Strategic Investments.” (European Commission 2015b: 9).

The only improvement compared to the earlier interpretation is that the adverse economic conditions that have to apply now refer only to the member state in question and not to the overall situation of the EU or the Euro area (European Commission 2015b: 9). In the past the ‘investment clause’ provided support for Bulgaria, Romania and Slovenia (European Commission 2015b: 9) while it was denied to Italy (Barbiero and Darvas 2014: 6). The EU Parliament had passed a resolution that the ‘investment clause’ was too narrow and might therefore be extended to completely exclude expenditures for co-funded public investment (European Parliament 2013), but obviously its initiative as to a ‘small-scale Golden Investment Rule’ has not been taken up by the Commission to date. Even if it had, the overall impact on public investment in the EU would have been extremely limited, as the volume of eligible projects is relatively small. However, particularly the CEE member states might have profited substantially (Barbiero and Zarvas 2014: 7).

The second and most prominent measure is the Investment Plan for Europe with – according to the Commission’s hopes – a European-wide total investment impact of 315 bn. Euros from 2015 to 2017 (European Commission 2014b). This is supposed to be reached without additional public debt on the national or European level and without any additional EU expenditures by the creation of a European Fund for Strategic Investments (EFSI) which is guaranteed by 21 bn. Euros from the EU budget (16 bn. through reallocation from existing resources) and EIB reserves (5 bn.). The fund is to

mobilise finance for investments in key areas such as infrastructure, education, research and innovation. For this purpose, an investment pipeline of strategic projects supported by a specialist investment hub of technical assistance will be provided. Finally, barriers to investment are to be removed and improvements in the regulatory regime achieved. As a leverage effect of 15 through the use of financial instruments by the EIB is expected, the 21 bn. Euros are supposed to deliver the overall investment volume of 315 bn. Euros. Funding shall be provided to both public and private investors mostly for long-term large scale investment (240 bn. Euros) and to a smaller extent (75 bn. Euros) to support investment by small and medium sized firms. An even larger investment volume is suggested to the extent that contributions from the private sector or from the member states increase the guaranteed capital. Indeed, in order to enable member states to contribute, the Commission has made it clear that such contributions will be excluded from both the preventive and the corrective arm of the SGB (European Commission 2015b: 6-7).

It is difficult to evaluate the prospects of the Investment Plan for Europe as it is still in its very early stages. However, there are many open questions and whether the Plan will really deliver is quite doubtful. First of all, one may call into question whether the volume of the plan is large enough. Even if it really led to 315 bn. Euros of additional investment that would be about 2.25 per cent of EU GDP or 3 per cent of Euro area GDP spread over three years, i.e. 0.75 or 1 per cent of GDP per year, respectively. Given the depth of the economic crisis, particularly in the euro area, this may well be too little. Furthermore, given the long term character of many of the large scale investment projects it will probably take quite a long time before a significant number of projects will be realized.

The most important doubts, however, relate to the question whether the Plan will really be able to mobilise sufficient additional investment: If it is to stimulate private investment, particularly in the crisis countries typically animal spirits will be low, which means that it will be difficult to find investors irrespective of the terms of the programme. If investors are found, then the danger of windfall gains, i.e. that the investors would have chosen the project, anyway, could be large. And if they really invest because of the favourable conditions of the programme, the question as to the efficiency of the programme arises, especially if it is a PPP project: If the fund offers private investors attractive returns then these returns will have to be paid for, either directly by the public contributor involved or indirectly through charges to the private sector that might otherwise have been avoided. If the fund is to stimulate public investment, one may wonder why this could not be realized by national governments' regular investment. If it is because of fiscal constraints due to the stability and growth pact, an obvious alternative

would be removing or loosening those constraints. All in all, therefore, the risk is high that the Investment Plan for Europe will deliver disappointingly little too late.

The third set of measures consists of different clarifications and formalisations of the interpretation of the SGP (European Commission 2015b: 9-17). First, structural reforms may justify temporary deviations from the MTO or the adjustment path towards it under the preventive arm.

“The Commission will take into account the positive fiscal impact of structural reforms under the preventive arm of the Pact, provided that such reforms (i) are major, (ii) have verifiable direct long-term positive budgetary effects, including by raising potential sustainable growth, and (iii) are fully implemented.” (European Commission 2015b: 12).

Even under the corrective arm structural reforms may be considered as a ‘relevant’ factor, which may lead to the decision that no excessive deficit exists or that the deadline for correcting an existing excessive deficit may be postponed under certain conditions. Second, a clarification of cyclical conditions has been provided. Under the preventive arm adverse cyclical conditions may lead to a diminishing of the adjustment requirement towards the MTO. In exceptionally bad times no structural adjustment is required, in very bad times it is only 0.25 per cent of GDP instead of the previous standard value of 0.5 per cent. For member states under the corrective arm, an unexpected fall in economic activity may now be better accommodated, as fiscal effort will be assessed in a more differentiated way using measures of discretionary fiscal effort that do not suffer from the endogeneity bias of the structural budget balance. Third and finally, the Commission has stated that a severe downturn in the Euro area or the EU as a whole may justify slowing down the pace of consolidation for all member countries both under the preventive and the corrective arm.

All in all, the measures introduced or proposed by the new Commission constitute some progress with regard to counter-cyclical fiscal policies and (public) investment. However, it must be doubted that they will lead to a substantial increase in (public) investment. And the clarifications concerning the SGP may contribute to relieve the pressure from fiscal consolidation and slow down the pace of consolidation somewhat, but obviously they are only designed to permit a slightly less restrictive fiscal stance but not to provide a truly positive fiscal stimulus.

5.2 An alternative European fiscal policy strategy

5.2.1 Implementing the Golden Rule to strengthen public investment and safeguard it in the medium term

The shortcomings of the EU Commission's strategy demonstrated in the previous section suggest that there is certainly a major role to play for the Golden Rule of public investment in Europe. Unlike proposals to provide more leeway for fiscal policy in general, it provides particular support for public investment as a key to short and long term growth. And unlike the Juncker-Plan to boost public or (publically supported) investment through investment funds it provides a direct boost to public investment on the national level and does not have to rely on highly insecure shifting and leveraging of public funds on the European level in the hope of finding private investors at times when business confidence is extremely low.

In fact, if the Golden Investment Rule had been newly introduced, say in 2014, this could have provided a considerable upward shift in public investment with a corresponding push for aggregate demand in the individual member states and the European economy as a whole. This can be illustrated by looking at table 2. Countries with negative net investment, whose investment had suffered from fiscal restraint could have started increasing their investment towards the pre-crisis level or at least the threshold value of 1 or 1.5 per cent of GDP. Countries with traditionally low public investment (like Germany and to a lesser extent Austria) could have started a major investment initiative. And countries with already high public investment could have used the additional leeway for other stimulus measures if cyclical conditions suggested it.

Even without additional investment, those countries with positive net investment would also have improved their budgetary position, i.e. they would have moved closer to their MTO or the 3 per cent reference value of the excessive deficit procedure which would immediately (slightly) reduce consolidation pressures and allow for a less restrictive consolidation path. As the positive stimulus from higher investment will most probably lead to strong multiplier effects under the present conditions, the ensuing upswing would bring countries even closer to their respective deficit and debt targets potentially creating further leeway. However, the immediate positive one-time fiscal stimulus through the introduction should not be overestimated. If all Euro area countries immediately adjusted their public investment to the pre-crisis level the average positive fiscal stance for the Euro area would be 0.8 per cent of GDP. If in addition Germany very substantially increased its net investment by 1 per cent of GDP the overall fiscal stance for the Euro area would be slightly above 1 per cent of GDP. Realistically, for this to

happen, some adjustment time of two or three years would be necessary. Introducing the Golden Investment Rule would then realistically at least achieve the stimulus dimension that the Investment for Europe Plan strives for while at the same time increasing the long term growth potential of the European economy.

One essential question is whether the introduction of the Golden Rule proposed in this study would be compatible with current EU law or whether a change of Council regulations or the Treaty would be necessary. With respect to the old Treaty Blanchard and Giavazzi (2004: 15) argued that the old Art. 104.3 would have allowed implementing the Golden Rule without any treaty changes by changing the corresponding Council regulations, because it stated that in the report to be prepared by the Commission it should also be taken into account whether the government deficit exceeded government investment expenditure. However, since 2008 Art 2 (3) of Protocol No. 12 about the excessive deficit procedure annexed to the Treaty states that investment is to be understood as gross investment. Therefore a permanent interpretation as net investment would probably be difficult to justify. In the end, this is a juridical question that is difficult to answer from an economist's point of view. The change of the Council regulation deemed necessary, however, would still require unanimous consent within the Council.

For some time the introduction of the Golden Rule for public investment could probably be approximated even without any changes in the current institutional framework, if the European Commission and the European Council were willing to more actively use the interpretational leeway within this framework (see table 3 for an overview of measures). Actually, the clarification as to the interpretation of the Pact that the Commission has just given can already be seen as illustrating steps in that direction.

At least additional net investment could be justified if it came in the form of a temporary investment programme, analogous to the way the Commission interprets contributions to the EFSI. Additionally or alternatively, it may be possible to treat an investment programme as structural reform that temporarily allows for deviations from MTO or the adjustment path towards it. As to the 'investment clause' it should be possible to implement it as a 'small-scale Golden Rule' under these conditions. Reference to adverse cyclical conditions might help to increase leeway even further, although this could create the danger of a stop-and-go investment policy, if cyclical conditions improve as can be expected under an investment programme. Finally, recourse to the exceptional clause of a severe downturn in the Euro area or the EU could be had in order to justify slowing down the consolidation path and allowing for additional investment spending. All of this could further be supported if realistically high multiplier values were used in

assessing the budgetary impact of additional investment, which may not be significantly negative or even positive. This would mean that such additional investment could be irrelevant at least under the excessive deficit procedure as it would not (or hardly not) increase the deficit. Reconsideration of the EU Commission's method of cyclical adjustment – e.g. to be more in line with the OECD method and results – may create further leeway as it might increase the cyclical part of the budget deficit thus reducing the structural deficit (Truger 2014).

Some or all of the mentioned interpretational leeway could be used to push up public investment on the level that would be consistent with a Golden Rule in the medium term. However, the permanent recourse to exceptional circumstances which would be necessary to permit permanent use of the rule for public investment in general would most probably overstretch the interpretational leeway inherent in the current framework. Therefore, in order to solidly implement the Golden Rule on the EU level a permanent change in the institutional fiscal framework would be adequate and most probably also necessary from a legal perspective.

Such a change could be adopted as primary law in the form of an 'Investment Protocol' that would be annexed to the Treaty under the simplified revisions procedure of Art.48 of the Lisbon treaty (see table 3). On the member states' level further legal changes would be required if following the fiscal compact there were other legal provisions put in place that would prevent a reinterpretation of the budget balance as net of net spending on public investment. This would for example clearly be the case under the German debt brake.¹⁰

5.2.2 A European Investment Programme and an expansionary overall fiscal stance to spark off the recovery

As discussed in the previous section, the implementation of the Golden Rule of investment would probably take some time until the necessary political and legal steps could be completed. It should therefore mainly be seen as a fiscal policy framework focused on safeguarding public investment in the medium term, and not so much as a readily available instrument for providing the – urgently needed – boost to the European economy in the short run. Because the Juncker-Plan will not be able to provide this boost in

¹⁰ See Burret and Schnellenbach (2014) for an overview of the state of implementation of the fiscal compact in the different signatory member states.

the short run – and most probably not even in the long run – the Golden Rule would have to be complemented by other forms of short-term fiscal stimulus.

As argued in the previous section the leeway inherent in the current institutional framework is sufficiently large to permit such a stimulus. Probably the most convincing way to do this would be to use the provision concerning a severe downturn in the Euro area or the EU to justify a temporary deviation from the consolidation path, thus allowing for a substantial European Investment Programme (see table 3). The Commission has explicitly made a comparison with the 2008 European Economic Recovery Plan (European Commission 2008) to give an example of the potential use of this provision (European Commission 2015: 17). As a condition for the use of this provision it “should remain limited to exceptional, carefully circumscribed situations to minimise the risk of moral hazard.” (European Commission 2015: 17). Actually, one may well argue that the Euro area is right now in such an exceptional situation after years of recession and stagnation and the threat of deflation while monetary policy is at the lower bound.

Such a European Investment Programme should provide an annual stimulus of at least one per cent of GDP for two or three years. One option for the direction of the programme would be to use it in order to start phasing in traditional net public investment up to the desired level after the final implementation of the Golden Rule. Alternatively or additionally such a programme could also be used to allow for investment needs beyond the narrow national accounts definition to contribute to public investment in a broader sense.¹¹ Such a direction would meet concerns that the Golden Rule alone would only promote traditional tangible investment and neglect other important forms of investment in the economic sense of the word. This could be investment in education, including child care, but it could more generally focus on spending with a view to achieving the currently neglected Europe 2020 goals such as social inclusion or other areas that have strongly suffered from austerity over the last years. Last but not least the fiscal stimulus provided should not be thwarted by cutting other public expenditure. Instead, the leeway within the current institutions should be actively used to provide a substantial fiscal stimulus to the European Economy.

¹¹ Aiginger (2014) has made a similar proposal which he called the ‘silver rule’ proposal. Whereas the Golden Rule allows permanent debt financing of all net investment, the silver rule allows temporary debt financing of additional investment.

Table 3: 10 opportunities to strengthen investment and facilitate an expansionary overall fiscal policy stance in Europe

goals	measures
short term (use interpretational leeway within present framework to come close to the Golden Rule of public investment)	
strengthening investment + expansionary overall fiscal policy stance	(1) more active use of the 'investment clause'
	(2) allow for temporary investment programmes (analogous to EFSI)
	(3) interpret temporary investment programmes as structural reforms
	(4) incorporate realistic investment multiplier in budgetary analysis ex ante
	(5) use leeway in economically bad times
	(6) implement better methods of cyclical adjustment
	(7) temporarily higher spending with a view to Europe 2020 goals
	(8) use exception for severe downturn in EU or Euro area
medium term (solid implementation of the Golden Rule of public investment)	
EU implementation	(9) 'investment protocol' as annex to the Treaty (simplified revisions procedure Art.48)
national implementation	(10) change national legislation to allow deduction of net public investment from deficit where necessary

Source: author's compilation.

6 Conclusion

Most parts of the Euro area have seen seven years of deep economic crisis. Public investment which should have stabilized the economies and kept up their long-term growth potential has instead dramatically shrunk in the crisis-ridden countries of the periphery. The EU needs to address these problems. The previous strategy of tightening the fiscal constraints of the SGP has driven many member states into austerity and has disempowered national fiscal policy as a macroeconomic policy instrument. Unfortunately, in the current situation, with depressed aggregate demand, deflationary tendencies and monetary policy at the lower bound, national fiscal policy is the only instrument left that could bring about a sustained recovery. The EU Commission is shying away from this conclusion and tries to evade anything that might change the present institutional framework for fiscal policy.

In contrast, the Golden Rule of public investment proposed in this study would be one important element of the necessary institutional reform. The rule is widely accepted in the traditional public finance literature and would allow financing (net) public investment by government deficits thus promoting intergenerational fairness as well as economic growth. A pragmatic version focusing on net public investment as defined in the national accounts minus military expenditures plus investment grants for the private sector could quickly be implemented. Net public investment should be deducted from the relevant deficit measures of the Stability and Growth Pact and the fiscal compact. This would at once protect public investment from cuts and provide leeway for investment to recover. In order to prevent a conflict between the Golden Rule of public investment and the goal of stabilizing public debt at below 60 per cent of GDP an upper limit of deductible net investment spending of 1 or 1.5 per cent of GDP could be set. Over time it could be technically and statistically refined and potentially include other – more intangible types – of investment like education expenditures.

As political implementation would probably take some time, the Golden Rule would have to be complemented by expansionary fiscal policy to provide the urgently needed boost to the European economy in the short term. This could be done by a short term European Investment Programme similar to the 2008 European Economic Recovery Programme during the Great Recession. Such a programme could also allow for investment needs beyond the narrow national accounts definition to contribute to public investment in a broader sense, e.g. for expenditure related to the currently neglected Europe 2020 goals such as social inclusion.

References

- Aiginger, K. (2014): A silver bullet for restarting growth in Europe, EurActiv.com PLC, <http://www.euractiv.com/sections/euro-finance/silver-bullet-restarting-growth-europe-310912>.
- Andrade, J.S., Duarte, A. (2014): Output-gaps in the PIIGS Economies: An Ingredient of a Greek Tragedy, Estudos do GEMF No. 06/2014, Coimbra: Faculdade de Economia da Universidade de Coimbra Grupo de Estudos Monetários e Financeiros (GEMF).
- Arestis, P., Sawyer, M. (2003): Reinventing fiscal policy, in: Journal of Post Keynesian Economics, 26 (1): 3-25.
- Aschauer, David A. (1989): 'Is Public Expenditure Productive?' Journal of Monetary Economics, 23: 177–200.
- Auerbach, A. J., Gorodnichenko, Y. (2012): Fiscal Multipliers in Recession and Expansion. in: Alesina, A., Giavazzi, F. (eds), Fiscal Policy after the Financial Crisis, Chicago: University of Chicago Press (forthcoming).
- Barbiero, F., Darvas, Z. (2014): In Sickness and in Health: Protecting and Supporting Public Investment in Europe, Bruegel Policy Contribution 02/2014.
- Batini, N., Callegari, G., Melina, G. (2012): Successful Austerity in the United States, Europe and Japan, IMF Working Paper, WP/12/190, Washington D.C.
- Bauernschuster, S., Schlotter, M. (2015): Public child care and mothers' labor supply—Evidence from two quasi-experiments, Journal of Public Economics 123 (1): 1-16.
- Baum, A., Koester, G. B. (2011): The impact of fiscal policy on economic activity over the business cycle - evidence from a threshold VAR analysis, Deutsche Bundesbank Discussion Paper Series 1: Economic Studies, No. 03/2011, Frankfurt a.M.
- Baum, A., Poplawski-Ribeiro, M., Weber, A. (2012): Fiscal Multipliers and the State of the Economy, IMF Working Paper WP/12/286, Washington D.C.
- Blanchard, O., Giavazzi, F. (2004): 'Improving the SGP through a proper accounting of public investment', CEPR Discussion Papers 4220.
- Blanchard, O., Leigh, D. (2013): Growth Forecast Errors and Fiscal Multipliers, International Monetary Fund Working Paper No. 13/1, Washington D.C.
- Bom, P., Ligthart, J. (2014): What Have We Learned From Three Decades of Research on the Productivity of Public Capital?, Journal of Economic Surveys 28 (5): 889-916.
- Blyth, M. (2013): Austerity. The history of a dangerous idea, New York: Oxford University Press.
- Bouthevillain, C. et al (2009): Pros and cons of various fiscal measures to stimulate the economy, Banco de Espana Economic Bulletin, July 2009, 123-144.
- Budd, A. (2010): Fiscal Policy under Labour, National Institute Economic Review 212 (1): R34-R48.
- Buiter, W. (2001): Notes on 'A code for fiscal stability', Oxford Economic Papers 53(1): 1-19.
- Burret, H., Schnellenbach, J. (2014): Implementation of the Fiscal Compact in the Euro Area Member States, Working Paper 8/2013, updated January 2014, Wiesbaden: Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung.

- Card, D. (2001): Estimating the Return to Schooling: Progress on Some Persistent Econometric Problems, *Econometrica*, 69 (5): 1127-1160.
- Carnot, N., de Castro, F. (2015): The Discretionary Fiscal Effort: an Assessment of Fiscal Policy and its Output Effect, European Commission, Economic Papers no. 543, Brussels.
- Chote, R., Emmerson, C., Tetlow, G. (2008): 3. The fiscal rules and policy framework, in: Chote, R., Emmerson, C., Miles, D., Shaw, J.: *The IFS Green Budget*, January 2008, London: The Institute of Fiscal Studies: 29-61.
- Chote, R., Emmerson, C., Tetlow, G. (2009): 5. The fiscal rules and policy framework, in: Chote, R., Emmerson, C., Miles, D., Shaw, J.: *The IFS Green Budget*, January 2009, London: The Institute of Fiscal Studies: 81-112.
- Coenen C. et al. (2012): Effects of Fiscal Stimulus in Structural Models, in: *American Economic Journal: Macroeconomics*, 4(1), 22–68.
- Creel, J., Monperrus-Veroni, P., Saraceno, F. (2009): ‘On the long-term effects of fiscal policy in the United Kingdom: the case for a Golden Rule’, *Scottish Journal of Political Economy* 56(5): 580-607.
- Creel J., Heyer, E., Plane, M. (2011): Petit précis de politique budgétaire par tous les temps. Les multiplicateurs budgétaires au cours du cycle, *Revue de l'OFCE*, 116(1), 61–88.
- Darvas, Z., Huettl, P., de Sousa, C., Terzi, A., Tschekassin, O. (2014): *Austerity and Poverty in the European Union*, Study for the Committee on Employment and Social Affairs of the European Parliament, Brussels.
- D'Auria, F., C. Denis, K. Havik, K. McMorrow, C. Planas, R. Raciborski, R. Röger, A. Rossi, (2010): *The Production Function Methodology for Calculating Potential Growth Rates and Output Gaps*. European Commission, Economic Papers no. 420, Brussels.
- DeLong, J. B., Summers, L. H. (2012): Fiscal Policy in a Depressed Economy, in: *Brooking Economic Papers*, 44 (1), 233-297.
- Dervis, K., Saraceno, F. (2014): An Investment New Deal for Europe, *Brookings up front*, 3 September, <http://www.brookings.edu/blogs/up-front/posts/2014/09/03-european-central-bank-dervis>.
- Draghi, M. (2014): Unemployment in the euro area, Speech by Mario Draghi, President of the ECB, Annual central bank symposium in Jackson Hole, 22 August 2014, <http://www.ecb.europa.eu/press/key/date/2014/html/sp140822.en.html>.
- Dönnebrinck, E., Erhardt, M., Höppner, F., Sudhof, M. (2010): Entstehungsgeschichte und Entwicklung des BMF-Konzepts, in: Kastrop, C., Meister-Scheufelen, G., Sudhof, M. (eds.): *Die neuen Schuldenregeln im Grundgesetz. Zur Fortentwicklung der föderalen Finanzbeziehungen*, Berlin: Berliner Wissenschaftsverlag: 22-46.
- Dupont, J., Kwarteng, K. (2012): Binding the Hands of Government – a credible fiscal rule for the UK, May, IEA Current Controversies Paper No. 36, London: The Institute of Economic Affairs.
- Dunn, M., Akritidis, L., Biedman, L. (2014): The impact of ESA 2010 on key indicators of the national accounts in Europe, *Eurostat Review on National Accounts and Macroeconomic Indicators*, 2/2014: 7-27.
- ECB (2014): Economic and Monetary Developments: Part 5, Fiscal Developments, in: *ECB Montly Bulletin*, September: 84-94.

- Emmerson, C., Frayne, C., Love, S. (2006): The government's fiscal rules, IFS Briefing Note No. 16, London: The Institute of Fiscal Studies.
- European Commission (2004): Public Finances in EMU 2004, European Economy No. 3, Brussels: European Commission, Directorate-General for Economic and Financial Affairs.
- European Commission (2008): Communication from the Commission from to the European Council: A European Economic Recovery Plan, Brussels, 26.11.2008 COM(2008) 800 final.
- European Commission (2010): Report on Public Finances in the EMU, European Economy No. 4, Brussels: European Commission, Directorate-General for Economic and Financial Affairs.
- European Commission (2012a): European Economic Forecast Autumn 2012, European Economy, 8, Brussels: European Commission, Directorate-General for Economic and Financial Affairs.
- European Commission (2012b) Blueprint for deep and genuine Economic and Monetary Union – the launching a European debate, COM(2012) 777 final/2.
- European Commission (2013a): Report on Public Finances in the EMU, European Economy No. 4, Brussels: European Commission, Directorate-General for Economic and Financial Affairs.
- European Commission (2013b): The 2013 Stability and Convergence Programmes: An Overview, European Economy, Occasional Papers No. 152, June, Brussels: European Commission, Directorate-General for Economic and Financial Affairs.
- European Commission (2014a): Annual macro-economic database (Ameco), November 2014.
- European Commission (2014b): Communication from the Commission to the European Parliament, the Council, the European Central Bank, the Economic and Social Committee, the Committee of the Regions and the European Investment Bank; An Investment Plan for Europe, Brussels, 26.11.2014, COM(2014) 903 final.
- European Commission (2014c): The 2014 Stability and Convergence Programmes: An Overview, European Economy, Occasional Papers No. 199, July, Brussels: European Commission, Directorate-General for Economic and Financial Affairs.
- European Commission (2015a): Annual macro-economic database (Ameco), February 2015.
- European Commission (2015b): Communication from the Commission to the European Parliament, the Council, the European Central Bank, the Economic and Social Committee, the Committee of the Regions and the European Investment Bank; Making the best use of the flexibility within the existing rules of the Stability and Growth Pact, Strasbourg, 13.1.2015 COM(2015) 12 final.
- European Council (2013): COUNCIL RECOMMENDATION with a view to bringing an end to the situation of an excessive government deficit in Spain, 20 June, 0560/1/13 REV 1 (en), Ecofin 478, Brussels.
- European Council (2014): European Council 26/27 June 2014 Conclusions, EUCO 79/14, CO EUR 4 CONCL 2, Brussels.
- European Parliament (2013): Resolution of 8 October 2013 on effects of budgetary constraints for regional and local authorities regarding the EU's Structural Funds expenditure in the Member States', (2013/2042 (INI)), <http://www.europarl.europa.eu/sides/getDoc.do?type=TA&reference=P7-TA-2013-0401&language=EN&ring=A7-2013-0269>.

- Ewerhart, G. (2002): Bildungsinvestitionen, brutto und netto – Eine makroökonomische Perspektive, in: Hartard, S. und C. Stahmer Magische Dreiecke – Berichte für eine nachhaltige Gesellschaft, Bd. 3: Sozio-ökonomische Berichtssysteme, Marburg: Metropolis: 217 - 246.
- Ewerhart, G. (2003): Ausreichende Bildungsinvestitionen in Deutschland? Bildungsinvestitionen und Bildungsvermögen in Deutschland 1992 - 1999, Beiträge zur Arbeitsmarkt- und Berufsforschung, Nr. 266, Nürnberg: Institut für Arbeitsmarkt- und Berufsforschung.
- Fazzari, S. M., Morley, J., Panovska, I. (2012), State dependent effects of fiscal policy. Australian School of Business Research Paper No. 2012 ECON 27.
- Fitoussi, J.P., Creel, J. (2002): How to reform the European Central Bank?, London: Centre for European Reform.
- Gechert, S. (2013): What fiscal policy is most effective? A meta-regression analysis, IMK Working Paper No. 117, September, Düsseldorf: IMK in der Hans-Böckler-Stiftung.
- Gechert, S., Rannenberg, A. (2014): Are Fiscal Multipliers Regime-Dependent? A Meta Regression Analysis, IMK Working Paper No. 139, September, Düsseldorf: IMK in der Hans-Böckler-Stiftung.
- Girouard, N., C. André (2005) "Measuring Cyclically-Adjusted Budget Balances for OECD Countries." OECD Working Paper no. 434, Paris.
- Godar, S., Paetz, C., Truger, A. (2015): The scope for progressive tax reform in OECD countries. A macroeconomic perspective with a case-study for Germany, Revue de l'OFCE, 138, forthcoming.
- Groneck, M. (2008): Es glänzt nicht alles, was gold ist, Wachstums- und Wohlfahrtswirkungen von Budgetregeln, Inauguraldissertation, Köln. <http://kups.ub.uni-koeln.de/2588/1/DissertationGroneck.pdf>.
- Guajardo, J., Leigh, D., Pescatori, A. (2011): Expansionary Austerity: New International Evidence, International Monetary Fund, Working Paper WP/11/158, Washington D.C.
- Hakhu, A., Piergallini, A., Scaramozzino, P. (2014): Public Capital Expenditure and Debt Dynamics: Evidence from the European Union, Working Paper, London: Centre for Financial & Management Studies, SOAS University of London Working Paper.
- Hemming, R., Kell, M. and Mahfouz, S. (2002): The Effectiveness of Fiscal Policy in Stimulating Economic Activity: A Review of the Literature, International Monetary Fund Working Paper No. 02/208, Washington D.C.
- Holland, D., Portes, J. (2012): Self-Defeating Austerity?, National Institute Economic Review No. 222 (October), F4 – F10.
- Horn, G.A., Truger, A. (2007): Stellungnahme zur Anhörung im nordrhein-westfälischen Landtag zur Streichung des kreditverfassungsrechtlichen Ausnahmetatbestands der "Störung des gesamtwirtschaftlichen Gleichgewichts", IMK Policy Brief, May, Düsseldorf: Institut für Makroökonomie und Konjunkturforschung (IMK) in der Hans-Böckler-Stiftung.
- Horn, G., C. Logeay, S. Tober (2007): "Estimating Germany's Potential Output", IMK Working Paper no. 2/2007, Düsseldorf: IMK in der Hans-Böckler-Stiftung.
- Horn, G.A., Truger, A. und Will, H. (2013): Finanzwissenschaftliches Kurzgutachten zum verfassungsgerichtlichen Verfahren wegen Prüfung der Verfassungsmäßigkeit von Vorschriften des Nachtragshaushaltsgesetzes 2010 - VerfGH 20/10 -

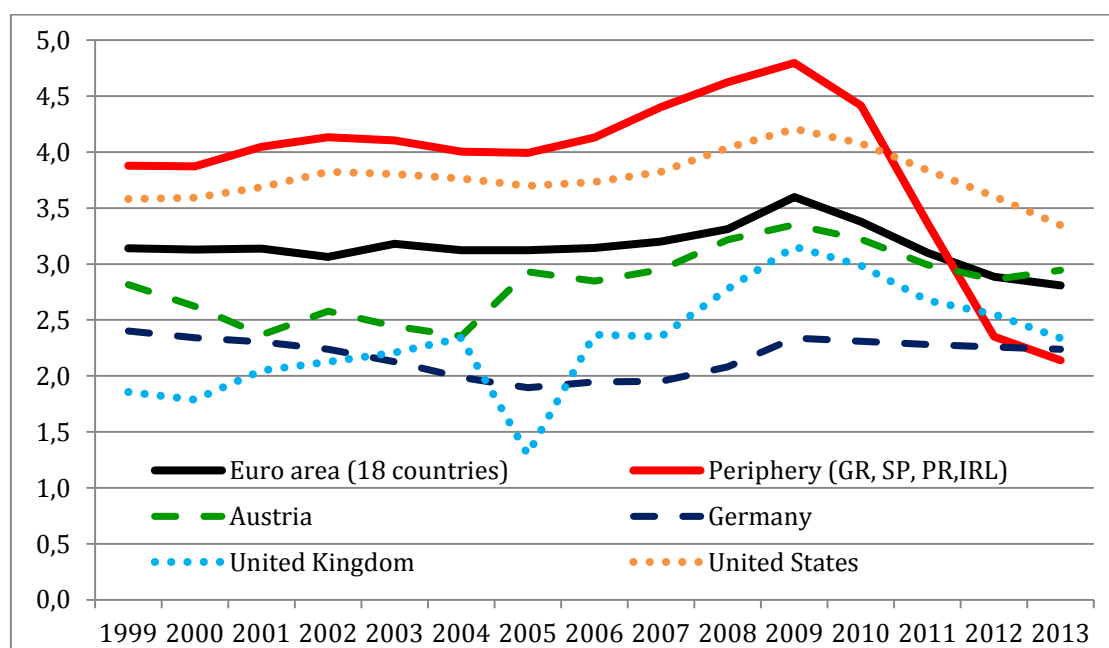
des Instituts für Makroökonomie und Konjunkturforschung (IMK) in der Hans-Böckler-Stiftung im Auftrag der Landesregierung Nordrhein-Westfalen, IMK Studies, Nr. 31, Düsseldorf: Institut für Makroökonomie und Konjunkturforschung (IMK) in der Hans-Böckler-Stiftung.

- IMF (2012): World Economic Outlook October 2012, Washington D.C.: International Monetary Fund.
- IMF (2014): World Economic Outlook October 2014. Washington D.C.: International Monetary Fund.
- Kell, M. (2001): An assessment of fiscal rules in the United Kingdom, IMF Working Paper 01/91, Washington D.C.: The International Monetary Fund.
- Klär, E. (2013): Potential Economic Variables and Actual Economic Policies in Europe, in: *Intereconomics*, 48 (1-2): 33-40.
- Klär, E. (2014): Die Eurokrise im Spiegel der Potenzialschätzungen: Lehren für eine alternative Wirtschaftspolitik?, *WiSo-Diskurs*, April, Bonn: Friedrich-Ebert-Stiftung.
- Kunze, A. (2002): The Timing of Careers and Human Capital Depreciation, IZA discussion paper No.509, Bonn: Forschungsinstitut zur Zukunft der Arbeit.
- Larch, M., Turrini, A. (2010): The Cyclically Adjusted Budget Balance in EU Fiscal Policymaking, in: *Intereconomics* 45 (1-2): 48 - 60.
- Lucas, R. (1988): On the mechanics of economic development, *Journal of Monetary Economics*, Vol.22 (1): 3-42.
- Mathieu, C., Sterdyniak, H. (2012): *Revue de l'OFCE / Debates and Policies, The Euro Area in Crisis*, 127: 189-233.
- Melo, P., Graham, D., Brage-Ardao, R. (2013): The productivity of transport infrastructure investment: A meta-analysis of empirical evidence, *Regional Science and Urban Economics*, 43: 695-706.
- Micossi, S., Peirce, F. (2014): Flexibility clauses in the Stability and Growth Pact: No need for revision CEPS Policy Brief No. 319, 24 July, Brussels: Centre for European Policy Studies.
- Mourre, G., Isbasoiu, G., Paternoster, D., Salto, M. (2013): The cyclically-adjusted budget balance used in the EU fiscal framework: an update, *European Economy, Economic Papers* 478: Brussels: European Commission.
- Musgrave, R. A., (1939): The nature of budgetary balance and the case for a capital-budget, *American Economic Review*, 29, 260-71.
- Musgrave R. A., (1959): *The Theory of Public Finance. A Study in Public Economy*, New York et al.: McGraw-Hill.
- OBR [Office for Budget Responsibility] (2011): October 2011 Forecast evaluation report - historical budget forecasts, 13th October 2011, <http://budgetresponsibility.org.uk/pubs/Historical-Budget-forecastsFER2011.xls>.
- OECD (2012): *Restoring Public Finances*, 2012 Update, Paris.
- OECD (2014): *OECD Economic Outlook* No. 96, November, Database.
- Perotti, R. (2012): The "Austerity Myth": Gain Without Pain?, *Bank for International Settlements, Working Papers* No. 362, Basel.
- Psacharopoulos, G. and Patrinos, H.A. (2004): Returns to Investment in Education. A Further Update, *Education Economics*, 12 (2): 111-134.

- Ragnitz, J., Eck, A., Scharfe, S., Thater, C., Wieland, B. (2013): Öffentliche Infrastrukturinvestitionen: Entwicklung, Bestimmungsfaktoren und Wachstumswirkungen, Endbericht zum Forschungsvorhaben im Auftrag des Bundesministeriums für Wirtschaft und Technologie, Dresden: Ifo Institut für Wirtschaftsforschung, Niederlassung Dresden.
- Romp, W., De Haan (2005): Public Capital and Economic Growth: A Critical Survey, EIB Papers, 10: 40-71.
- SVR [Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung = German Council of Economic Experts] (2005): Die Chance nutzen - Reformen mutig voranbringen, Jahresgutachten 2005/06, Wiesbaden.
- SVR (2006): Jahresgutachten 2006/07, Widerstreitende Interessen - Ungenutzte Chancen, Wiesbaden.
- SVR (2007): Staatsverschuldung wirksam begrenzen, Expertise im Auftrag des Bundesministers für Wirtschaft und Technologie, Wiesbaden.
- Sawyer, M. (2009): Budget deficits, public debt and the level of public investment, Departmental Working Papers 2009-31, Department of Economics, Management and Quantitative Methods at Università degli Studi di Milano
- Truger, A. (2013): Austerity in the euro area: the sad state of economic policy in Germany and the EU, in: European Journal of Economics and Economic Policies, Intervention 2/2013: 158-174.
- Truger, A. (2014): Austerity, cyclical adjustment and the remaining leeway for expansionary fiscal policies in the Euro area, IMK Working Paper No. 140, November, Institut für Makroökonomie und Konjunkturforschung in der Hans-Böckler-Stiftung, Düsseldorf.
- Truger, A., Will, H. (2013), 'The German 'debt brake': A shining example for European fiscal policy?', Revue de l'OFCE / Debates and Policies, The Euro Area in Crisis, 127: 155-188.
- Truger, A., Rietzler, K., Will, H., Zwiener, R. (2010): Alternative Strategien der Budgetkonsolidierung in Österreich nach der Rezession, Gutachten des Instituts für Makroökonomie und Konjunkturforschung (IMK) in der Hans-Böckler-Stiftung im Auftrag der Arbeiterkammer Wien, IMK Studies, 2/2010, Düsseldorf: Institut für Makroökonomie und Konjunkturforschung in der Hans-Böckler-Stiftung.
- Turrini, A. (2004): Public investment and the EU fiscal framework, European Economy - Economic Papers 202, Directorate General Economic and Monetary Affairs, European Commission
- Väilä, T., Mehrotra, A. (2005): Evolution and Determinants of Public Investment In Europe, EIB Papers, 10: 18-39.
- Vesper, D. (2007): Staatsverschuldung und öffentliche Investitionen. Studie im Auftrag der Hans-Böckler-Stiftung. IMK Policy Brief, November, Düsseldorf: Institut für Makroökonomie und Konjunkturforschung in der Hans-Böckler-Stiftung.
- Veugeleers, R. (2014): Undercutting the future? European research spending in times of consolidation, Bruegel Policy Contribution 06/2014.
- Will, H. (2011): Comments on Expenditure Growth in line with Potential GDP Growth and the "Golden Rule" An assessment of the propositions of ECOFIN and a "Golden Rule" for public investment including educational spending. Supplement to the expertise "Stability by Balanced Growth" for the Group of the Progressive Alliance of Socialists & Democrats in the European Parliament by Torsten Niechoj, IMK Policy Brief, May, Düsseldorf: Institut für Makroökonomie und Konjunkturforschung in der Hans-Böckler-Stiftung.

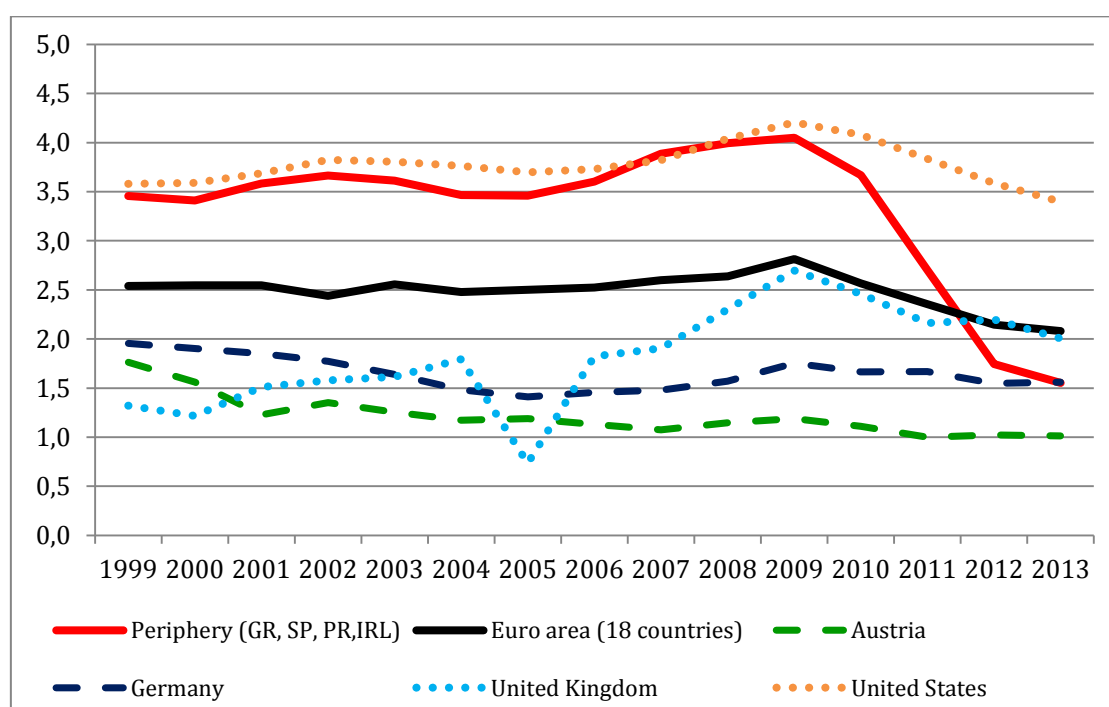
Appendix: Public investment under ESA 2010 and 1995 compared

Figure A1: General government gross fixed capital formation (ESA 2010) in the Euro area, the European Periphery and selected countries in per cent of GDP, 1999-2013



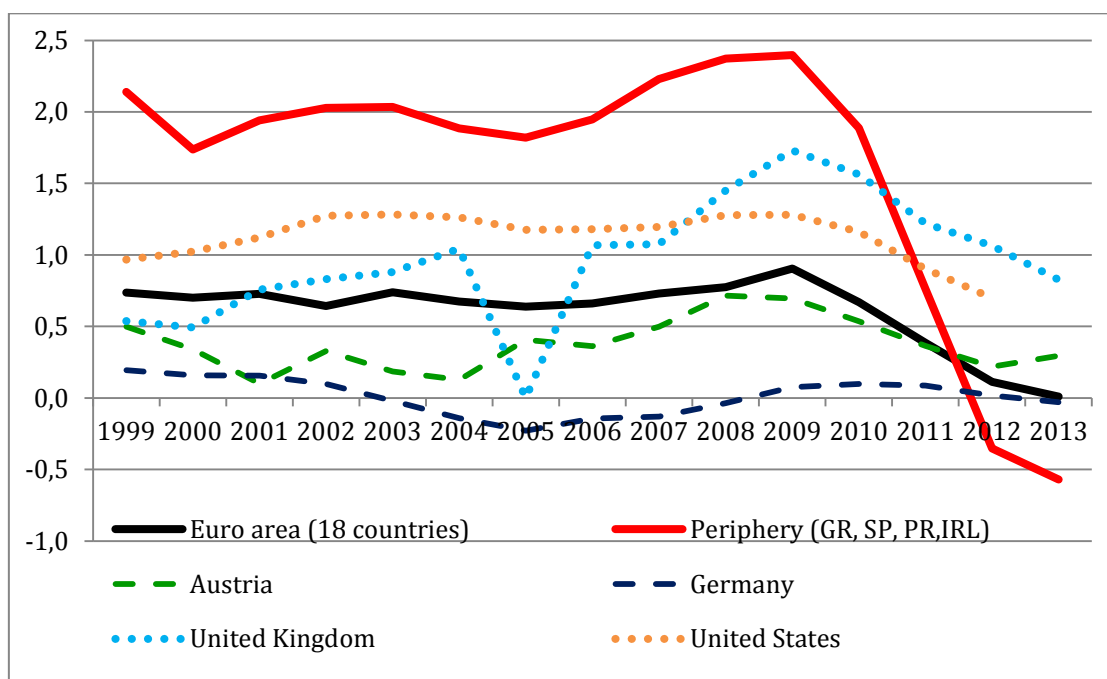
Source: European Commission (2014a); author's calculations.

Figure A2: General government gross fixed capital formation (ESA 1995) in the Euro area, the European Periphery and selected countries in per cent of GDP, 1999-2013



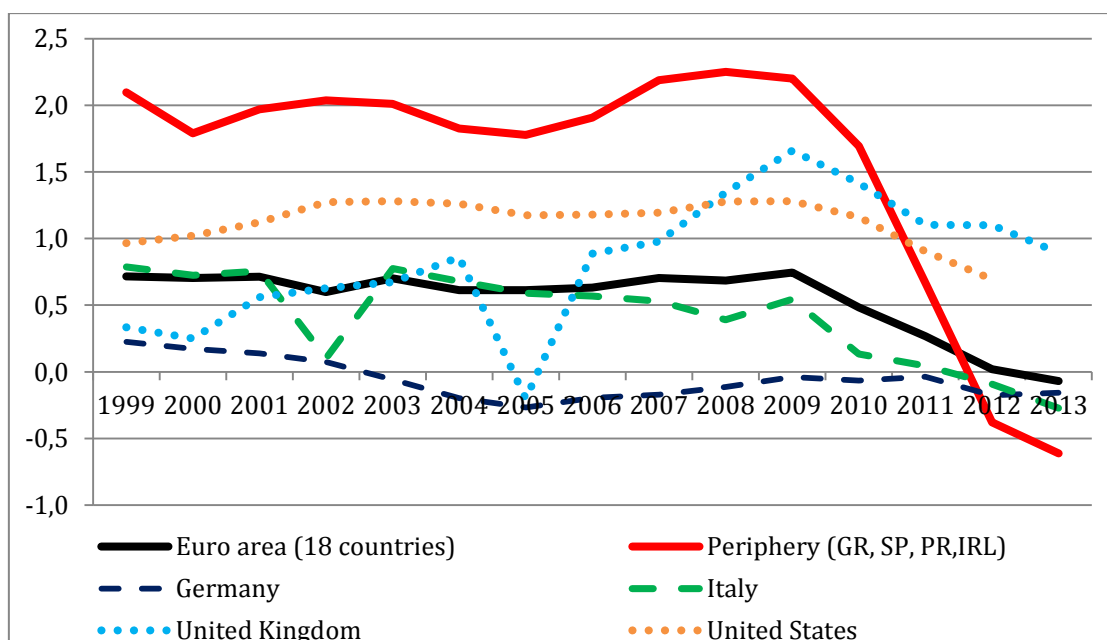
Source: European Commission (2014a); author's calculations.

Figure A3: General government net fixed capital formation (ESA 2010) in the Euro area, the European Periphery and selected countries in per cent of GDP, 1999-2013



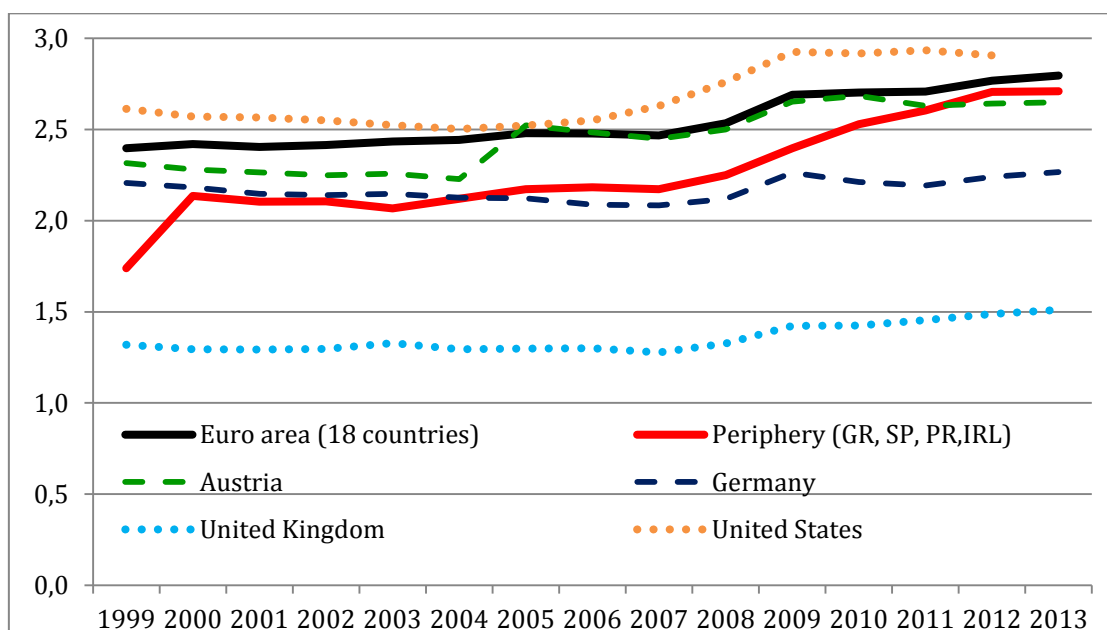
Source: European Commission (2014a); author's calculations.

Figure A4: General government net fixed capital formation (ESA 1995) in the Euro area, the European Periphery and selected countries in per cent of GDP, 1999-2013



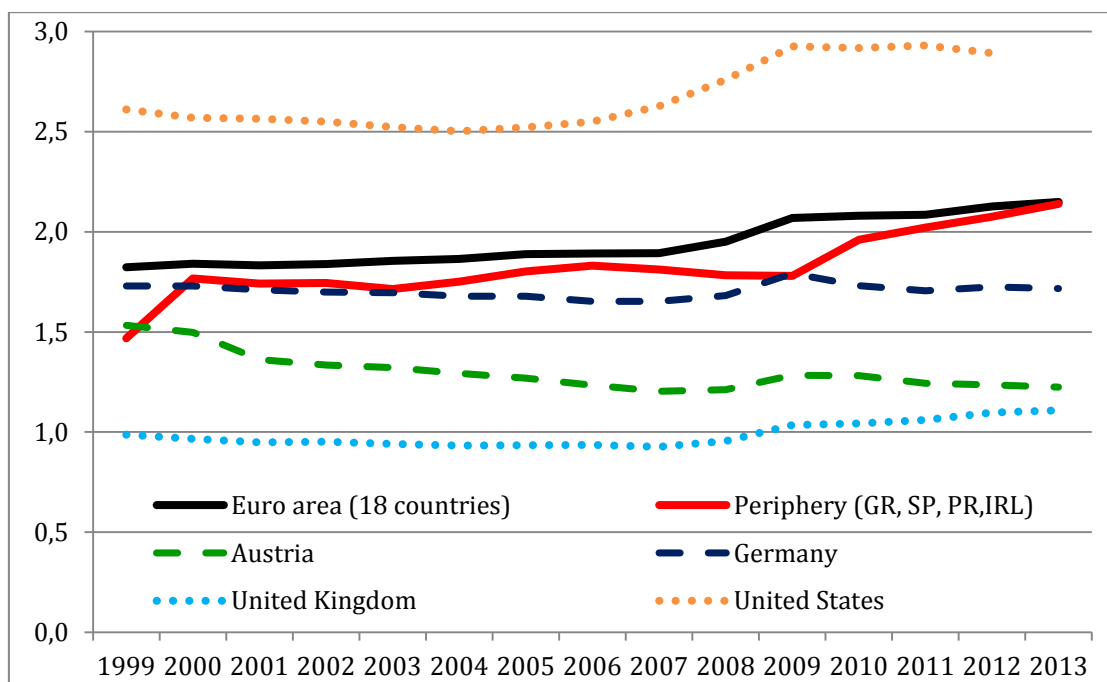
Source: European Commission (2014a); author's calculations.

Figure A5: General government consumption of fixed capital (ESA 2010) in the Euro area, the European Periphery and selected countries in per cent of GDP, 1999-2013



Source: European Commission (2014a); author's calculations.

Figure A6: General government consumption of fixed capital (ESA 1995) in the Euro area, the European Periphery and selected countries in per cent of GDP, 1999-2013



Source: European Commission (2014a); author's calculations.

„Materialien zu Wirtschaft und Gesellschaft“

sind unregelmäßig erscheinende Hefte, in denen aktuelle Fragen der Wirtschaftspolitik behandelt werden. Sie sollen in erster Linie Informationsmaterial und Diskussionsgrundlage für an diesen Fragen Interessierte darstellen.

Ab Heft 80 sind die Beiträge auch als pdf-Datei zum Herunterladen im Internet

<http://wien.arbeiterkammer.at/online/page.php?P=2842>

- Heft 108: Gering qualifiziert in der „Wissensgesellschaft“ – Lebenslanges Lernen als Chance oder Zumutung?; Juli 2010
- Heft 109: Bilaterale Entwicklungsfinanzierung in Europa; Juni 2011
- Heft 110: Ratings in der Krise; November 2011
- Heft 111: Globalisierung und die Zukunft der EU-2020-Strategie; November 2011
- Heft 112: Atypische Beschäftigungsverhältnisse; Jänner 2012
- Heft 113: Europäisches Kräftenessen – Europäische Kräfte messen; Februar 2012
- Heft 114: Was kosten Privatisierungen?; März 2012
- Heft 115: Angestellte, Beamte und der Wandel der Beschäftigungsstruktur in Österreich in der ersten Hälfte des 20. Jahrhunderts; Juni 2012
- Heft 116: Gender Budgeting im Steuersystem, September 2012
- Heft 117: Wettbewerbs(des)orientierung, September 2012
- Heft 118: Die Sozialverträglichkeitsprüfung im österreichischen Ausfuhrförderungsverfahren, Februar 2013
- Heft 119: Transformationen der Arbeitsbeziehungen in Irland und Portugal, Februar 2013
- Heft 120: Erzielen die Programme der aktiven Arbeitsmarktpolitik in Österreich ihre beabsichtigten Wirkungen? März 2013
- Heft 121: Finanzmärkte und Rohstoffpreise, März 2013
- Heft 122: Bestände und Verteilung der Vermögen in Österreich, August 2013
- Heft 123: Finanzmarktstabilität und Risikomanagement in Leasinggesellschaften, September 2013
- Heft 124: Das neoliberale Modell - Genese, Politiken, Bilanz, Dezember 2013
- Heft 125: Einkommensverteilung in Österreich – Eine komparative Analyse von Mikrodatsätzen, Jänner 2014
- Heft 126: Vermögen in Österreich - Bestände, Verteilung, Besteuerungsoptionen, Jänner 2014
- Heft 127: Die Freizeitoption in Kollektivverträgen, April 2014
- Heft 128: Indikatoren bedarfsorientierter Mittelverteilung im österreichischen Pflichtschulwesen, Mai 2014
- Heft 129: Vermögensunterschiede nach Geschlecht, Mai 2014
- Heft 130: Budgetanalyse 2014-2018, Mai 2014
- Heft 131: Zugangsbeschränkungen und Chancen(un)gleichheit im österreichischen Hochschulsystem, Juli 2014
- Heft 132: Die Berufslandschaft im Strukturwandel einer urbanen Ökonomie: Wien 2001-12, August 2014
- Heft 133: Die Sachgüterproduktion Österreichs: Entwicklung und gesamtwirtschaftliche Bedeutung im internationalen Vergleich, Oktober 2014
- Heft 134: Chancengleichheit in Österreich - Bildungs- und Einkommenskorrelationen von Geschwistern, November 2014
- Heft 135: Volkswirtschaftliche Gesamtrechnungen, Zeitreihen 1995-2013, Dezember 2014
- Heft 136: Sozioökonomische Charakteristika der Vermögensverteilung in Österreich – Eine Analyse des HFCS 2010, Dezember 2014
- Heft 137: Drivers of wealth inequality in euro area countries, Februar 2015
- Heft 138: Implementing the Golden Rule for Public Investment in Europe – Safeguarding Public Investment and Supporting the Recovery; März 2015

Eigentümer, Verleger, Herausgeber und Vervielfältiger: Kammer für Arbeiter und Angestellte für Wien; alle: 1041 Wien, Prinz Eugen-Straße 20-22, Postfach 534

