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Overcoming the EU Crisis and Prospects for a Political Union

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Summary: The euro crisis and a new debate about immigration in Europe have undermined support for the EU. While economic recovery in the euro area and the EU, respectively, is likely to reinforce the backing for EU integration slightly, one should start a broader discussion about sensible reforms in the EU and the euro area; the new agenda should anticipate the Transatlantic Trade and Investment Partnership and help to accelerate the required economic adjustment. As long as no broader consistent EU reform programme has been adopted populist forces could strongly influence the public discussion in Europe and the euro area, respectively. The analysis presented shows the benefits of the euro's reserve currency position, namely in the framework of a neoclassical growth model with seigniorage based on international reserve holding. A reform agenda for the EU and the euro area should focus on avoiding free-rider fiscal behaviour and moral hazard in the euro area and reforms should consist of various elements, including a push for a Euro Political Union. Such a union is the only way to avoid Greek deficit fraud-type problems in the future; the minimum supranational expenditures in Brussels should be close to six percent so that an efficient policy mix in the euro area can be expected and counter-cyclical policy be implemented – with a major welfare gain for people in Europe.

Zusammenfassung: Die Euro-Krise und die neue Diskussion über die Einwanderung nach Europa haben die Unterstützung der EU geschwächt. Obwohl sich auf Grund der wirtschaftlichen Erholung sowohl in der Euro-Zone als auch in der EU die Unterstützung für die EU-Integration verstärken dürfte, sollte man eine umfassende Diskussion über sinnvolle Reformen in der EU und in der Euro-Zone in Gang setzen. Das neue Programm sollte die transatlantische Handels- und Investitionspartnerschaft im Voraus bedenken und helfen, die erforderliche wirtschaftliche Anpassung zu beschleunigen. So lange kein umfassenderes geschlossenes EU-Reformprogramm beschlossen wurde, können populistische Kräfte die öffentliche Diskussion in Europa und in der Euro-Zone stark beeinflussen. Die vorliegende Analyse zeigt die Vorteile des Euros als Reservewährung, und zwar im Rahmen des neoklassischen Wachstumsmodells mit der Seigniorage auf der Grundlage internationaler Reservebestände. Ein Reformprogramm für die EU und für die Euro-Zone sollte sich auf das Trittbrettfahrer-Finanzverhalten und auf den Moral Hazard konzentrieren, die Reformen sollten sich aus verschiedenen Bestandteilen zusammensetzen, einschließlich einer Unterstützung für die Euro Politik-Union. Solch eine Union ist der einzige Weg, Defizit-Betrugsprobleme, wie in Griechenland geschehen, in Zukunft zu vermeiden. Supranationale Mindestausgaben in Brüssel sollten nahe bei 6% sein, so dass ein effizienter Policy-Mix in der Euro-Zone erwartet werden kann und antizyklische Politik durchgeführt wird – mit großem Wohlfahrtsgewinn für alle Menschen in Europa.

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1. Introduction

European integration stands for decades of enlargement and deepening which have generated considerable economic benefits for EU member countries. More than 50 years of successful EU integration have thus far been achieved (TILLY/WELFENS/HEISE, 2007) where EU-deepening and EU-widening have been part and parcel of integration dynamics. The euro crisis has brought not only a crisis for the 17 euro area countries in 2010-2013 but also undermined the political support for European integration and EU institutions, respectively. The Commission survey (EUROPEAN COMMISSION, 2013) shows a marked long-term decline of the share of people supporting the EU. Similarly, the PEW Center Survey (PEW, 2013) has shown a considerable decline for the EU project; the PEW Survey gives the following summary:

„The European Union is the new sick man of Europe. The effort over the past half century to create a more united Europe is now the principal casualty of the euro crisis. The European project now stands in disrepute across much of Europe. Support for European economic integration – the 1957 raison d'être for creating the European Economic Community, the European Union's predecessor – is down over last year in five of the eight European Union countries surveyed by the Pew Research Center in 2013. Positive views of the European Union are at or near their low point in most EU nations, even among the young, the hope for the EU's future. The favorability of the EU has fallen from a median of 60% in 2012 to 45% in 2013. And only in Germany does at least half the public back giving more power to Brussels to deal with the current economic crisis.“

Table 1: Decline in Support for the European Project

	Economic integration strengthened economy			Favorable of EU		
	2012 %	**2013** %	**Change**	**2012** %	**2013** %	**Change**
Germany	59	54	-5	68	60	-8
Britain	30	26	-4	45	43	-2
France	36	22	-14	60	41	-19
Italy	22	11	-11	59	58	-1
Spain	46	37	-9	60	46	-14
Greece	18	11	-7	37	33	-4
Poland	48	41	-7	69	68	-1
Czech Rep.	31	29	-2	34	38	+4
MEDIAN	**34**	**28**	**-6**	**60**	**45**	**-15**

Source: PEW Research Center Q9f & Q31, Washington DC

There is no surprise that support for EU integration has weakened in some EU crisis countries. With an expected economic upswing in the medium term political support for the EU is likely to increase once again. It is, however, additionally worrying that the political support for the EU integration has also weakened in France and the Netherlands where the referendums on the envisaged new constitution failed in 2005. In the

Netherlands, a more EU-sceptical attitude has become visible in 2013/20214 where the euro crisis, immigration issues and other aspects of EU integration play a role. At the same time one may note that the political cooperation Belgium-Netherlands-Luxemburg is working in the field of foreign policy – the foreign ministers of the three countries jointly visited the Ukraine in early March 2014.

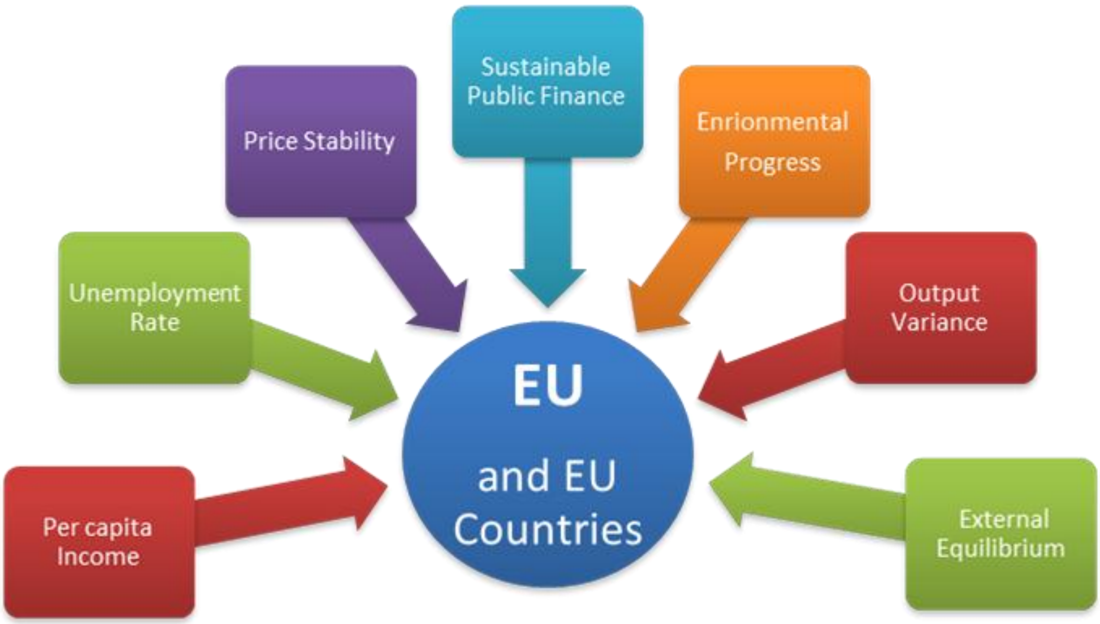
There is rising criticism against the euro and EU integration. Much of this criticism comes from the right-wing of the political spectrum: A typical right-wing, politically radical, scepticism is raised by the Dutch PVV which has commissioned in London both a study from a consulting company against the euro (LOMBARD STREET RESEARCH, 2012) and a study showing the alleged net benefits of the Netherlands leaving the EU and the euro area (CAPITAL ECONOMICS, 2014). Interestingly, most of the tables from the Lombard consulting group study can be classified as wrong only two years after publication. It is surprising to some extent that economic consulting groups in London seem willing to deliver to anti-EU parties the desired results that are however highly implausible. The study on NExit by CAPITAL ECONOMICS comes up with the following summary finding: *"For a NExit which is assumed to be announced on 1 January 2015, a Swiss-type trading arrangement between the Netherlands and the European Union should see Dutch gross domestic product somewhere between ten and thirteen per cent higher by 2035 than it would have been had the Netherlands continued as a member of the Brussels-led bloc...Over that 21 year period, the benefits of NExit to Dutch national income would have accumulated to between €1,100 billion and €1,500 billion in today's prices."*

With the negative result of the Swiss referendum of February 2014 on free labour mobility with EU countries, the question will be raised of how the EU should react to this. It is clear that the EU should be careful not to grant Switzerland, or other non-EU countries, overly favourable conditions in terms of access to the EU single market since otherwise leaving the EU will look like an attractive option for certain countries that will then expect to get de facto access to the single market while maintaining national fiscal policy and monetary policy (the effective contribution fee paid to the EU is rather small). There are popular misreadings of the Swiss referendum; its has, however, largely be overlooked that the Swiss referendum had particularly negative votes in states adjacent to Germany and Italy – that is a heavy commuter burden was a major problem which largely reflects insufficient infrastructure expenditures of the Swiss government (and of Germany, Italy, Austria and France as neighbour countries which should invested more e.g. in bridges); e.g. the city of Basel has 190 000 inhabitants, the number of German and French commuters working in Basel is 35 000 (SCHWEIZ TOURISMUS; 2014, p.4). Switzerland not only has a high share of immigrants in the total population – about 23% in 2014 – but also faces strong trans-border commuter traffic. It would be wise if the EU and its partner countries should more carefully study trans-border commuter problems in the future.

Neither of the two studies commissioned by the PVV mentions the role of defence expenditures. Economic integration and intensified trade networks are known to reduce military conflicts in the respective region; without the EU, countries facing net EU contributions of 0.1% to 0.5% of GDP are most likely to face much higher defence expenditure-GDP ratios. Before World War I 3-4% of GDP was a typical order of magnitude while within the EU only 1-2% represents the relevant range of national defence expenditures. From this perspective it is already clear that a maximization of per capita consumption is to be expected in the case of a combination of EU integration and NATO membership. The EU is a peace-maintaining project in Europe and this should not be overlooked. At the same time one should not ignore the new, very critical publications about the EU benefits – sponsored by radical parties. Part of the problem is that the European Commission has not come up with occasional studies on membership benefits or an ongoing reporting on the net benefits of EU membership for each country in the European Union.

While the four freedoms of the EU single market have delivered considerable economic benefits, the euro crisis on the one hand and the UK's long established pushing for EU reforms on the other have undermined the support for EU integration; problems with EU regional and structural policy are also obvious as empirical findings suggest that 50% of the respective funds have no effect in the recipient regions (BECKER, EGGERT, EHRLICH, 2010). For various reasons it would be useful to take stock of the EU economic policy goals and to consider reforms necessary for generating long run net economic benefits for all EU countries.

Figure 1: Policy Fields in the EU



The perception of EU integration success is obviously related to several key variables:

- Per capita income development: economic integration is expected to contribute to economic catching-up and based on empirical evidence for 13 EU countries this has indeed been the case (JUNGMITTAG, 2006);
- The unemployment rate which is strongly related to labour market institutions and an adequate mix of fiscal and monetary policy. HOFER/PICHELMANN (1999) have shown that EU single market dynamics have reinforced labour market clearing in the EU15 countries, but there is evidence that insider-outsider problems persist;

- Price stability: in the EU the creation of the euro area in 1999 brought major change in the sense that in the group of initially 11 euro countries a low inflation rate was achieved by means of the rather consistent monetary policy framework of the European Central Bank. The ECB has, however, neglected issues of fiscal sustainability and overemphasized the view that individual countries' economic performance should not be considered as relevant. However, as long as there was no supranational euro bonds, the ECB should have been very concerned indeed by fiscal developments and excessive deficits in individual euro countries – the crucial policy field of open market policies naturally would involve buying bonds of individual euro member countries or of all euro countries at the same time. However, the ECB publications of 1999-2010 show a benign neglect of fiscal policy sustainability issues. At the same time the European Commission refrained from looking into monetary policy issues – almost no publication can be found from the Commission on ECB Monetary Policy. Thereby the Commission overlooked the potential problems of open market policies.
- Sustainable public finance: the Stability and Growth Pact had defined, in a pragmatic approach, that a maximum of 3% deficit-GDP ratio and a maximum of a 60% debt-GDP ratio should be respected by euro countries. However, this pact was not enforced by the Commission – within the first twelve years about 70 cases of excessive deficit/debt could be observed. Germany and France were among the early sinners and the respective governments obviously did not understand that a lack of sticking to the Pact would imply that the deficit and debt limits enshrined would henceforth be no longer respected in a broader context.
- Environmental progress: In this field the EU should be responsible for cross-border environmental problems, however, this normative principle is not really implemented since the supranational policy layer has no right to impose environmental taxes on emissions. This points to policy efficiency problems in the European Union.
- Economic stability – as measured by output variance (and political stability; the latter could be proxied, for example by the number of countries with early elections – but political stability to a large extent is related to economic stability). Here the euro area has a problem since the initial institutional setup does not allow an optimum policy mix: While monetary policy is supranational, fiscal policy is almost exclusively organized at the national level – the ratio of national government consumption to GDP amounts to about 20% in euro countries, the supranational (EU) expenditures relative to GDP are just 1% and absolutely not representative of an expenditure structure that is suitable for counter-cyclical fiscal policy.
- External equilibrium: Here the euro area should have defined what external equilibrium should mean for a monetary union. In a situation in which one or several euro member countries should lose access to international capital markets – due to confidence problems and excessive national deficit/debt dynamics – the commonly favored view of the aggregate current account balance of the euro area became doubtful from an analytical point of view. By contrast, in Germany the Stability and Growth Law of 1967 requires that the government achieves external equilibrium along with price stability, full employment and adequate and stable economic growth; this Law should urgently be adjusted to take into account the

new institutional setup in the euro area. For other EU countries similar consistency problems should be considered.

The inconsistency between national economic policy and supranational policy is one of the key problems in the EU and the euro area. However, rising political support in favour of anti-EU parties in almost all EU countries since the euro crisis started in 2010 is also a challenge. The growing anti-EU sentiment to some extent is also reflecting a lack of clarity about the economic benefits of EU membership and, with the euro crisis, new doubts have emerged in many EU countries. One key aspect of the euro crisis that raises doubts about the EU is the fact that such small countries such as Greece, Portugal and Ireland – each standing for only about 2% of the EU's gross domestic product – were able to cause so much instability and confusion both in the euro area and the EU.

In the following analysis some key EU problems are picked up and a new view on the benefits of the euro is presented (section 2). Section 3 looks into sustainability problems of the euro area and section 4 presents proposals on how to organize a Euro Political Union.

2. Economic Analysis of EU Dynamics and Problems

2.1 Calculating the Benefits from the Euro: A New View and A Growth Model with International Seigniorage

The euro crisis was interpreted by many EU sceptics as meaning that monetary integration could not deliver the economic benefits promised before the start of the euro area and the European Central Bank, respectively. This, however, is a misreading of monetary union, at least to the extent that it should not be difficult to really implement the Stability and Growth Pact in a revised institutional setting. The benefits could be even larger than promised by the European Commission in its study One Europe – One Money. A key benefit that has not been much considered is related to the euro's role as an international reserve currency. The view of CHINN/FRANKEL (2008) that the share of the euro in global reserves might overtake the share of the US dollar is interesting, however, after the euro crisis this view is not very convincing – at least not until the euro crisis has been solved in a sustainable manner.

Potential economic benefits of euro integration go beyond what has been calculated by various earlier studies that have mainly emphasized the reduction of transaction costs and the elimination of exchange rate risk and the rise of price transparency in the EU single market. The economic benefits related to the role of the Euro as an international reserve currency are crucial. Let us consider that the global currency reserves are about € 6000 bill. (in 2013) where the euro could have a market share of 25% - it was close to this figure before the euro crisis and since then the market share in the global foreign reserves of central banks has slightly declined. Let us assume that, following the analysis of EICHENGREEN (2012) for the US dollar – the difference between the global yield of investment is 2-3 percentage points higher than the interest rate paid on foreign reserves. Taking up the lower bound estimate of 2 percentage points the economic benefit for the euro area is equal to 0.25 x 0.02 x € 6000 bill. = € 30 bill. per year; or about 0.3% of the euro area GDP. This is the amount of "free imports of goods and services" that the euro area countries can obtain from the rest of the world. The present value of this advantage is – based on a real interest rate of 3% - (100/3)x € 30 bill. = 100 bill. € or about 10% of the euro area's GDP of 9500 bill. € in 2012. Dividing 100 bill. € by 330 million people in the euro area the per capita life-time benefit is roughly 3000 € only from the reserve-holding aspect. The euro's market share increased from 18% to 25% between 1999 and 2009, a stable and successful monetary union could increase its global market share to about 40% in the long run. Taking into account other benefits from saving transaction costs and from enhanced innovation dynamics plus financial economies of scale the benefits of the euro could be close to 1% of EU GDP which translates, at a discount rate of 3%, into a positive welfare effect of the euro of 10 000 € per capita. One should, however, emphasize that such benefits can only be achieved in the context of a stable euro area. A euro area in which fiscal discipline cannot be imposed on euro member countries will not be able to deliver the benefits calculated here – the institutional setup needed for stable euro area that imposes fiscal discipline will be described later. A modified neoclassical growth model with international seigniorage based on the reserve currency status of the currency is presented in the appendix.

The potential benefits of the euro are large, but there also are some specific risks associated with the financing structure of the EU. The ratio of banks' assets to GDP in the US is close to 100%, but the respective ratio in the EU is about 350% and the true equity capital of EU banks is only about 2% if one defines equity capital on a narrow base (SCHOEMAKER/PEEK, 2014). This implies that a rather small EU-wide negative shock could seriously destabilize the European banking system. Contingent bonds ("Coco Bonds") have been suggested by the Liikanen Commission in the EU as a means to cope with potential banking instability. This instrument should be introduced on a broader scale so that Coco Bonds should be more firmly established. Contingent bonds are automatically converted into equity once the respective banks falls below a critical level of equity capital. The 'too big to fail' problem of big banks is still a key problem for the EU and the euro area, respectively. Governments could consider the encouragement of company bonds but then the quality of the work of rating companies should be reinforced in parallel; this has not happened so far. An independent EU rating company – created on the basis of a foundation and using competitive tendering that involves major university research centers – is needed here. EU leadership can, however, not be expected in crucial policy fields if political consensus-building is both quite complex and rather costly.

As regards an analytical framework for a growth model with international seigniorage a rather simple neoclassical model allows to shed more light on the benefits of the euro.

A Neoclassical Growth Model with International Seigniorage

A critical part of the economic benefits of a currency of a big monetary union is related to its role as an international reserve currency. This holds both for the US dollar and the euro.

Let us consider a simple two country model (country I is the home country and its currency is an international reserve currency). Country I has a production function

$$Y = K^{\beta}\left(AL\right)^{1-\beta} \tag{1}$$

where Y is output, K, A and L denote capital, knowledge and labour, respectively; 0<ß<1. Nominal foreign currency reserves of the central bank held abroad (country II) are denoted by R*, in real terms – expressed in units of country I – the reserves are R*/P. It is assumed (with δ denoting the capital depreciation rate) that the difference between the net marginal product of capital ßY/K - δ is equal to **Ω**'r' where r' is rate of return which the reserve currency country pays on the government bonds held by country II; the parameter **Ω**' exceeds unity so that the net marginal product of capital exceeds r'. It will be assumed that r' indeed is rather low, namely that there will be a permanent positive difference between the net marginal product of capital and r'. Hence we have the following equilibrium condition for the goods market: savings S=sY (0<s<1) plus the imputed benefit (ßY/K - δ - r')R*/P from foreign reserves holdings is equal to gross investment dK/dt + δK (K is capital, t is time and δ is the capital depreciation rate).

$$\frac{dK}{dt} + \delta K = sY + \left(\frac{\beta Y}{K} - \delta - r'\right)\frac{R^*}{P} \tag{2}$$

Let us assume that the gap

$$\left(\frac{\beta Y}{K} - \delta - r'\right) = \Omega > 0 \tag{3}$$

and that it holds

$$\frac{R^*}{P} = \varphi Y \tag{4}$$

where φ is a policy parameter of country II; the government/central bank of country II wants to make sure that reserves are sufficient to buy at any moment a share φ of output of country I (the reserve currency country). The term (ßY/K - δ - r')φ thus stands for a permanent current account deficit position of country I that effectively is the direct benefit of enjoying the privilege of having the status of a reserve currency.

Based on a production function Y=Kß(AL)1-ß we get (with a constant growth rate a of knowledge and a constant population growth rate n; and y':= Y/(AL)) in a modified neoclassical growth model the following equation for the accumulation of capital (with k':= K/(AL))

$$\frac{dk'}{dt} = \left(s + \Omega\varphi\right)k'^{\beta} - \left(a + n + \delta\right)k' \tag{5}$$

Thus the steady state capital intensity (# denotes steady state) is

$$k'\# = \left(\frac{s + \Omega\varphi}{a + n + \delta}\right)^{\frac{1}{1-\beta}} \tag{6}$$

Hence the reserve currency will enjoy a higher steady capital intensity than without the position of a reserve currency. Moreover, the level of output per labour in efficiency units (y’) also will be raised through the reserve status of the currency (e’ denotes the Euler number):

$$y'\# = \left(\frac{s+\Omega\varphi}{a+n+\delta}\right)^{\frac{\beta}{1-\beta}} \tag{7}$$

Hence per capita income y:= Y/L in the steady state is given by (with A0 denoting the initial level of knowledge):

$$y = \left(\frac{s+\Omega\varphi}{a+n+\delta}\right)^{\frac{\beta}{1-\beta}} A_0 e'^{at} \tag{8}$$

As regards the order of magnitude one should consider that s= 15%, Ω= 3% and φ=100% implies a considerable increase of the steady state per capita income – related to the reserve currency status: Denoting Ωφ as a fraction s’ of s (hence Ωφ= s’s) we can write (with the approximation ln(1+s’) ≈s’):

$$\ln y \approx \frac{\beta}{1-\beta}\left[\left(\ln s + s'\right) - \ln\left(a+n+\delta\right) + \ln A_0\right] + at \tag{9}$$

If Ωφ/s increases by one half percentage point real per capita income will increase by a percentage of 0.5ß/(1-ß) or about 25% if ß is assumed to be close to 1/3 (a typical number for many OECD countries). Hence if the gap Ω increases from 2% to 4%, the ratio Ωφ/s increases by 0.6 percentage points and hence the real per capita income level of the steady state will rise by 30 percent.

The implicit assumption made here is that the free import obtained through the reserve currency status is used for additional capital accumulation and that there is no effect on the progress rate. If, however, the progress rate a is endogenous and a is related to the share of R&D expenditures relative to GDP the rise of y’# in the steady state would also imply a higher a# in the steady state. Since a figures also the denominator of the expression for the level of the growth path of y’:= Y/(AL) will transitorily decline for some time, but clearly the growth rate of output in the steady state would increase. Moreover, there could be positive international technology spillovers so that a rise of a could also raise a* in country II. Such spillovers could be expected the more, the more two-way foreign direct investment has taken place in the past, that is the more active multinational companies are on both sides.

2.2 The EU Crisis and Financial Market Instability Problems

2.2.1 Enlargement Problems, Complexity and Cohesion

The EU has, to some extent, a history as an elite project and this aspect seems to have become more important since the 1990s. This perception has partly emerged in the context of EU eastern Enlargement which means that the EU of 28 countries in 2014 is much more complex – and thus more difficult to understand – than the EU15 before the eastern enlargement started on May 1, 2004. The communication efforts of the European Commission have not increased in keeping with the rising complexity of integration.

If enlargement leads to an economic ‘catching-up’ in relatively poor new member countries achieving political consensus at some point could become easier in the Community – despite the rising number of member countries; the assumption made here is that with a rising convergence of per capita income (at purchasing power parity) achieving consensus will become easier since similarity of political preferences typically are positively linked to the similarity of per capita income positions. Here, the EU structural funds and the cohesion fund have not only an economic function but a political function as well, provided that such funds stimulated economic catching up of regions and member countries, respectively. The Euro crisis has been a considerable setback, not only in terms of economic cohesion but has also undermined political decision-making in the EU since achieving consensus has become more difficult on the back of transitory income divergence across euro area/EU member countries.

Given ongoing economic globalization and the rising role of technology and multinational companies for economic growth the EU should not simply emphasize locational competition and system competition in the European Union. One should consider a more active benchmarking and better regular reports on innovation systems and innovation dynamics. DG Macro should be encouraged to analyse much more the Schumpeterian dynamics of EU countries and the role of such dynamics for growth, structural change, trade and foreign direct investment. Product innovations are no less important than process innovations.

It is noteworthy that the real demand for money can be shown to be a positive function of product innovations since the marginal benefits of liquidity will be raised if more product innovations become available in the market. Empirical research for EU countries is straightforward here.

Since 2014 – i.e. since the full mobility of capital and labour has been introduced for Romania and Bulgaria - immigration within the EU has become a new hot issue, particularly in some prospective immigration countries. Here it is quite important to point out that immigration countries are not only facing the challenge of an influx of unskilled labour, but typically skilled workers (including physicians, scientists, software experts) are also coming. Western EU countries are free to cope with immigration from Eastern Europe not only by supporting the integration of immigrants; western EU countries also could tap EU funds to finance projects in eastern European EU countries.

Finally, part of the euro crisis management in 2010-13 has been rather poor. People often feel that the standard principles of EU/euro policy are no longer respected and this creates uncertainty and frustration in the broader public.

2.2.2 The Euro Crisis

The Stability and Growth Pact was not credible in the euro area during the first twelve years: Neither the deficit-GDP ratio of 3% nor the 60% debt-GDP ratio could be enforced. Small euro countries with high debt-GDP ratios were rather vulnerable to the Lehman

Brothers bankruptcy of September 15, 2008; governments of countries, such as Greece and Portugal, with high foreign debt-GDP ratios should have immediately adopted a twin-pronged policy of budget consolidation and improving international competitiveness, but the governments in Athens and Lisbon did just the opposite.

The chronology of the euro crisis which erupted in May 2010 can be summarized by four key elements (WELFENS, 2012).

- The Transatlantic Banking Crisis – with its peak in the form of the collapse of the US investment bank Lehman Brothers on September 15, 2008 – made investors more risk-averse so that countries with high debt-GDP ratios or high deficit-GDP ratios were bound to face increasing problems in refinancing government debt in international capital markets: This author already had warned in a previous book Transatlantische Bankenkrise (Transatlantic Banking Crisis) that a euro crisis was a likely scenario for the EU after the transatlantic banking crisis.
- The Greek government's deficit policy of the election year 2009, when the government notified a deficit-GDP ratio of 4% to the European Commission while the true figure was about 16%, is considered as a political deficit fraud which was bound to lead to a very difficult problem: Not only was the deficit-GDP ratio of 15.6% far removed from the maximum deficit-GDP ratio of 3% enshrined in the Stability and Growth Pact of the EU, but experience shows that a deficit-GDP ratio cannot be reduced by more than a few percentage points per year and therefore Greece, already having a debt-GDP ratio of 110% in 2008, was facing bankruptcy and a loss of access to international capital markets in 2009. Greece obtained a multilateral rescue package from Euro partner countries which one may consider as an adequate policy intervention only in combination with sufficient privatization efforts by the Greek government. The government of Greece should have embraced the challenge of privatization: According to an IMF report of December 2010 the government's assets clearly exceeded government debt, but the privatization efforts were dismal, less than 1% of assets were privatized in 2010-2013.
- Ireland, the crisis country No. 2 in 2010, stands for a different policy pitfall: The government there did not implement the EU Banking Directive – risk diversification was ignored as a key principle in Ireland's major banks; and prudential supervision agencies did not intervene, instead so-called light regulation was applied. The result was that Ireland's banks suffered sky-high losses in 2008/09 and the Irish government was more or less forced to save major Irish banks through the injection of capital and nationalization, respectively. The massive costs of saving banks translated to a deficit-GDP ratio of close to 32%, 2/3rds of which was accounted for by the government's bank rescuing costs. Ireland obtained more than € 60 billion in rescue funds, but the European Commission and the Euro partner countries did not even require an independent inspection report before giving such a large rescue loan to Ireland.
- Portugal became the third crisis country in 2011 that had to obtain funds from the Euro rescue fund. Italy and Spain also faced a certain destabilization as interest rates of these countries strongly increased which partly reflected a higher risk premium. The interest rate conversion of the euro area's first decade thus gave way to interest rate diversion. Germany, considered – along with France – to be a safe haven country attracted very high capital inflows so that the interest rate is unusually low. WELFENS (2009) argues in this context that the German

government's saving on interest rate expenditures is close to 1% of GDP and the low interest rate has raised private investment.

One may criticize the non-privatization of government assets in Greece and call for the European Bank for Reconstruction and Development in London – with much privatization experience in post-socialist eastern European countries – to be involved in a joint privatization effort between the government in Athens and European partner institutions. Given the very serious Greek economic problems and taking into account the risk of contagion in the euro area (read: the risk that Greek instability undermines stability in other euro countries as suspicious investors lose confidence in a broader perspective in several euro countries) it would have been adequate to swiftly organize a medium term privatization programme.

As regards the real side of the economic development in euro crisis countries a lack of modernization in information & communication technology (ICT) may be considered to be part of the problem of slow growth and international competitiveness; Greece and Portugal lagged far behind EU partner countries in digital innovation dynamics in the decade after 1995 as the development of ICT patents per capita that decade shows. The EU's Lisbon Agenda 2010, that had emphasized the role of modern digital networks and international competitiveness, has obviously not delivered in some EU countries.

The International Monetary Fund is criticized for the pitfalls in its Financial Sector Assessment Program (FSAP) which looks into the financial sector of IMF member countries: the IMF's analysis of Ireland of 2006 which argued that there were no problems in the financial sector of Ireland obviously was quite misleading. The 'hair cut' for private creditors of Greek sovereign debt is considered as doubtful since the first natural step towards stabilizing Greece, namely broad privatization, had not been adopted. Moreover, the increasing role of the EU summits/euro summits is considered as problematic since the summit diplomacy visibly restores the role of national policy makers at the EU level while the role of the European Commission is marginalized.

One should consider several proposals for overcoming the euro crisis (WELFENS, 2012):

- As a practical measure all ministries of finance of EU countries should share the same software and the European Commission should be allowed to look into the digital budget process so that the type of deficit policy fraud that has occurred in Greece in 2009 could not be repeated. The European Commission did not understand before the end of 2009 what really had happened in Athens and tardy policy responses may indeed be considered as part and parcel of the euro area problems.
- Massive and rapid privatization in Greece should be organized as a political venture which should draw on the experience of eastern European EU countries. It seems, however, that the Greek government is not interested much in getting international support for broad privatization and the German government was reluctant to consider the involvement of the EBRD in 2010-2012. It was only in 2014 that governments of several Euro countries started to put adequate emphasis on the EBRD as an institution to be involved in privatization in Greece.
- A specific policy option for the ECB could be to place euro bonds in the market, following the model of some Asian central banks. The ECB should replace national bonds by supranational euro bonds – a rather unusual proposal.

- The most important issue is the question of how to make the deficit limits of governments credible. Here, only a political euro union would be a success-promising institutional modernization that could help to implement deficit limits and to regain long-term stability. A political euro union would mean that Brussels would stand in the future for higher government expenditures (currently 1% of GDP), including infrastructure expenditures and defence so that the supranational policy layer would largely be responsible for counter-cyclical fiscal policy. A narrow interpretation of the "principle of subsidiarity" (the supranational policy layer should only assume tasks which cannot be fulfilled equally well at lower policy layers) is refuted; only a bigger role of supranational expenditures in certain policy fields would generate a stronger interest of voters in EU policy – the long-term decline in the voter turnout at European Parliament elections could thus be reversed; and certainly there are good reasons why one should have a supranational fiscal policy for which infrastructure expenditures would naturally play an important role. It is, however, unclear what could motivate Germany, France and other countries to give more power to Brussels.

One may argue that the risks faced by Germany's taxpayer in the euro crisis is not more than about 3% of GDP which is a much lower figure than some worst case scenarios of other leading German economists suggest. As regards restoring a stable banking system Welfens suggests that a tax on the volatility of the rate of return on equity would be ideal to encourage bankers in the US and the EU to think more long-term and to target a realistic and rather stable rate of return on equity instead of short-term profit maximization (leading to high volatility of the rate of return and excessive risk-taking in the context of chasing for rather high yields on investment).

The euro has been an institutional innovation in the EU and, with the ECB, it has been a success in the first decade: Low inflation, job creation and considerable growth were achieved by almost all euro countries. However, the opportunistic behaviour of several small euro countries and lack of political leadership in the monetary union have undermined the stability of the euro. One should not overlook that Germany and France also have shown rather limited respect for the Stability and Growth Pact in 2004/05 and this certainly has undermined the credibility of the Pact. Both countries have enjoyed in 2010-2013 specific benefits as safe haven countries so that interest payment of government was lower than normally. However, one also should consider that France has a specific problem with its high minimum wage while Germany's way to promote renewable energy is quite doubtful – and both problems are related to fiscal deficit problems:

- The French minimum wage legislation is such that firms get a wage subsidy for workers who get paid the minimum wage – close to € 22 billion or roughly 1% of GDP; the wage subsidy (26%) is a strange complementary effect of a rather high minimum wage in France (€ 9.43 in 2013, € 9.53 in 2014). The fiscal effects of minimum wage legislation have for long been overlooked. Effectively the high French minimum wage brings about not only a high youth unemployment rate in many regions of France, it also implies through the associated 1% deficit-GDP ratio that the "specific debt-GDP" ratio (considering only this part of the deficit) of France would be 66.7% in the long run if one assumes a trend output growth rate of 1.5%; the worsening of the French rating and higher real interest rates are a high price which France under normal capital market condition would have to pay for a rather unsophisticated system of minimum wages. While a modest and regionally differentiated minimum wage can generate favorable economic effects a rather high uniform minimum wage rate can have high social costs that are imposed on both current and future generations.

- Germany's promotion of solar energy and wind energy as key renewables is characterized by a policy which pays a fixed feed-in tariff for a twenty year period – an approach which gives no adequate incentives for innovations. There are no significant innovation effects according to a recent study (EFI, 2014); at the same time it is obvious that Germany's energy-intensive sectors are bound to shrink if electricity prices should strongly increase (IHS, 2014) – e.g. if the exemptions from the renewables surcharge for major exporters have to be phased out as a consequence of the Commission taking Germany to the European Court for illegal effective subsidization of firms. Households all pay a surcharge on the electricity bill (this is an implicit subsidy), the EEG-levy; as regards firms small firms have to pay the full renewable energy levy while big firms in the tradables sector are exempt from the surcharge which in the view of the Commission (and probably most economists) amounts to a regime with an explicit subsidization of big exporters. The overall amount of feed-n tariffs paid per year in 2013 was close to € 20 billion – for solar and wind electricity with a market value of € 2 billion plus a market value of greenhouse gas emissions avoided of less than 0.5 bill. € - and it could reach about 1% in 2015; the present value of the 20 year-subsidization scheme in 2013 was close to 10% of Germany's GDP. This feed-in tariff scheme which has no link between the feed-in tariff and the market price is highly inefficient and distorts the EU single market (the European Commission has offered Germany exemptions from the surcharge for 67 sectors while demanding that all companies should pay at least 1/5 of the standard surcharge which only shows how weak the position of the Commission is) a more intelligent system probably could generate the same effects at half the subsidy. If the current implicit subsidy scheme has to be scrapped and all renewables feed-in payments would have to be paid by explicit government subsidies Germany's government would face a structural 1% deficit-GDP ratio only from the promotion of renewable energy – in an institutional setup in which the Fiscal Pact allows only a structural deficit-GDP ratio of 0.5% of GDP (and Germany's Constitution only 0.3% structural deficit at federal level and 0% at the regional level – the latter as of 2020). The current German feed-in tariff scheme will collapse if the European Court – as expected - should decide that EU exporters of renewable energy also should be entitled to obtain the same feed-in tariffs as producers of solar and wind power in Germany; this is expected from a pending case of a Danish renewable energy firm that exports electricity to Sweden and wants to obtain the Swedish feed-in tariff which so far only renewable energy producers in Sweden can obtain. Here one clearly can understand that national energy policies that are not in line with the EU single market cause considerable inefficiencies.

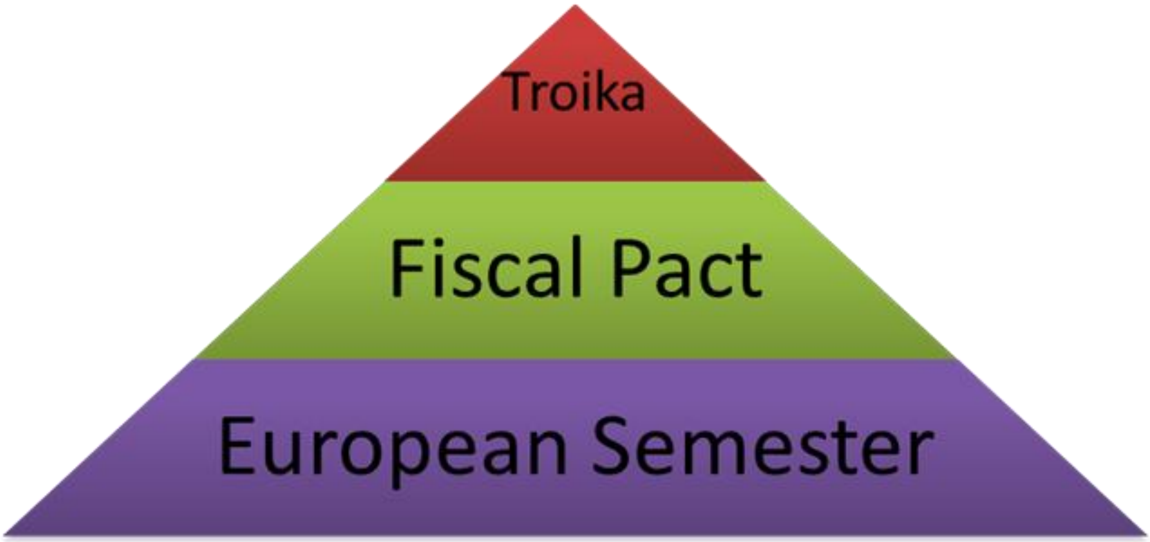
One therefore cannot overlook that governments not only in certain small countries have conducted strange economies policies, but Germany and France as well as Italy and Spain stand for euro countries that should adopt more consistent economic policies. It also is fairly obvious that the ECB's monetary policy cannot be a substitute for economic policy contradictions and excessive deficit-GDP ratios of euro countries.

2.2.3 OMT Programme of the ECB and the Verdict of the German Constitutional Court

The OMT programme of the ECB of September 2012 has calmed international capital markets: The European Central Bank has announced that it would create the option for an unlimited buying of the government bonds of those crisis countries which had concluded an adjustment programme with the permanent EMS rescue fund; the relevant maturity should be one to three years and the OMT would be open only for countries which still enjoyed access to capital markets. The German Constitutional Court has declared OMT as unconstitutional and has passed the case to the European Court of Justice. Obviously Germany's Constitutional Court largely followed the arguments of the invited expert Hans-Werner Sinn, head of the publicly financed Ifo Institute, whose written testimony shows considerable lack of theoretical and empirical foundation but apparently sounds convincing for many people (for a critique of SINN (2013) see WELFENS (2014); the fact that on September 11th, 2011 Sinn had called, in the Frankfurter Allgemeine Sonntagszeitung, for Germany's government and the German Central Bank to boycott the European Central Bank – an EU institution with full democratic legitimacy – would not really have suggested that a highly esteemed constitutional court would invite the head of the Ifo Institute to testify in a policy case of the ECB; Sinn's call for an ECB boycott is beyond the role of scientific analysis; at least if one sticks to Karl Popper's Critical Rationalism).

The key elements developed in the euro crisis management by the EU are the Troika (IMF, ECB plus EU) as a joint actor for programme countries, the adoption of the Fiscal Pact – with a maximum structural deficit-GDP ratio of 0.5% - and the European semester. The problem is, however, that the IMF is increasingly unwilling to be active in the stabilization of euro countries and the Fiscal Pact, in its present form as a treaty outside the EU's Lisbon Treaty, is not really enforceable. Moreover, the 0.5% structural deficit limit of the Fiscal Pact (adopted by 25 EU countries; not the UK and the Czech Republic) is potentially inconsistent with the 3% deficit-GDP limit in the Stability and Growth Pact. Thus it is quite difficult for the general public and investors to understand which deficit-GDP limit is relevant in the respective euro country and this creates new political risk that should translate into a higher risk premium in capital markets; with the effect of reduced investment spending per unit of GDP.

Figure 2: Elements of Fiscal Problem Solving in the Euro Crisis



3. Dynamics of EU Economic Integration and Challenges for EU Economic Deepening

EU economic integration has reinforced the intra-EU network of trade and foreign direct investment. This has contributed to specialization gains and helped to exploit economies of scale as well as stimulated Schumpeterian innovation dynamics. EU deepening - including Economic and Monetary Union – has reinforced the economic benefits of integration in the first decade, however, the crisis years 2010-2013 have raised serious concerns about the stability of the euro area. The basic idea of an Economic and Monetary Union was to reinforce the benefits of the EU single market by reinforcing competition and by reducing the nominal and real interest rates in almost all euro countries so that a large welfare gain could be generated. However, the first five years of the euro did not show much improvement in the economic policy of member countries (POSEN, 2007) and the poor policy reaction of many euro member countries to the Transatlantic Banking Crisis and during the critical year 2009 – after the bankruptcy of the Lehman Brothers bank in 2008 – is part of a lack of professional orientation in the fiscal policy of some euro countries. A special problem associated with real income decline in 2009-2013 in euro crisis countries is not only the rapid rise of unemployment but the rising economic divergence associated with the economic divisions within the euro area and the EU, respectively. Since the cost of achieving political consensus in a group of countries is a positive function of the international income per capita variance the economic crisis is also associated with a potential political crisis. The large cost of the euro crisis for the EU countries and the "euro club", respectively, clearly suggests that the type of euro crisis of 2010/2011 should definitively be excluded in the future.

Another EU key challenge is the relation between the internet and the integrity of people – and the attacks of national secret agencies against what should be the "natural digital rights" of everybody, namely digital integrity in the internet in the European Union. The internet has created new loopholes relating to human rights and until now there is no Digital Bill of Rights in the EU. The European Commission and the European Parliament should take the initiative to declare it illegal for the secret service of EU member countries to do what the British GCHQ agency apparently did via a special unit, the JTRIG: *"Among the core self-identified purposes of JTRIG are two tactics: (1) to inject all sorts of false material onto the internet in order to destroy the reputation of its targets; and (2) to use social sciences and other techniques to manipulate online discourse and activism to generate outcomes it considers desirable. To see how extremist these programs are, just consider the tactics they boast of using to achieve those ends: "false flag operations" (posting material to the internet and falsely attributing it to someone else), fake victim blog posts (pretending to be a victim of the individual whose reputation they want to destroy), and posting "negative information" on various forums."* (THE INTERCEPT, 2014)

3.1 Social Market Economy Facing Increasing Long-Term Financial Instability?

After the US banking crisis and the Transatlantic Banking Crisis rising criticism has been voiced against the Social Market Economy in OECD countries since the financial sector has been the key impulse for economic instability and the Great Recession of 2008/09, respectively. A second wave of criticism is directed against the Economics profession – very few economists anticipated the US banking crisis; among the very few exceptions (probably less than 0.1% of US economists) was RAJAN (2005) who explained in his paper for the Jackson Hole conference of central bankers why financial innovations were doubtful and brought instability risk for the financial system. The key innovation was in the form of the originate and distribute model: banks give loans to private households and firms in stage I, shortly after this the bank creates an asset-backed security (ABS) consisting of a broad portfolio of these loans and sells this ABS in the capital market – without effectively having to worry much about the 8% equity capital requirement of the Basel I/II regulations the bank can then launch a new round of giving loans to the private sector or to government. This financial innovation with ABS clearly weakens the incentive of bankers to carefully evaluate borrowers' ability to repay the loan so that there is a bias for the average loan quality to deteriorate considerably. RAJAN (2005) also emphasized that remuneration schemes of banks were quite similar across OECD countries and the pressure to beat the top benchmark created pressure for streamlining investment behaviour of bankers – so herd behaviour was encouraged. Central Bankers of most OECD countries present at the Jackson Hole Meeting of 2005 did not greet Rajan's paper with interest or gratitude about the intellectual enlightenment – most central bankers simply did not want to consider the new risks that had emerged in the context of financial innovations. Bad news was not welcome.

Six notes are adequate here:

- Due to the originate and distribute model the higher risk thus was no longer visible in banks' balances but it often had remained in the banking sector since the buyers of the ABS were subsidiaries fully owned by banks: The special purpose vehicles (SPVs) organized by banks which typically gave minimum equity capital to the SPV – but a large credit line so that the SPV gets a top rating and thus can refinance the buying of ABS by issuing commercial paper at low interest rates – did not only face a largely hidden asset quality problem (unless managers really want to know about the asset quality) but also faced a maturity mismatch in the sense that they had financed buying long term ABS through short term commercial papers.
- The solution of the problem is to introduce taxation that gives an incentive to managers and bankers in the financial sector to think more about long term realistic rates of return on equity – government should impose a tax on the variance (or the coefficient of variation over a rolling five year period) of the rate of return on equity (WELFENS, 2009, WELFENS, 2011).
- With the expansion of information & communication technology (ICT) funds, banks and insurance companies have launched a myriad of complex papers as financial innovations; for most of these papers there are no standard markets and hence no market prices, the value of the paper is based on complex formulae of which a typical big bank will use several thousand. It is noteworthy that for about 80% of the papers that banks in the euro area redeem at the ECB there is no market price. This is a situation which is doubtful and obviously quite in contrast to the principles of a market economy. Nobody seems to care about this strange situation and the problems with financial innovation dynamics.
- The solution for the problem obviously would be the introduction of standardization of financial market products and launching a kind of patenting procedure for a certain group of highly innovative services and papers, respectively; moreover, the central banks of OECD countries should not accept papers without a market price as collateral and this then would put adequate incentives on banks to stop wildcat financial innovations.
- The potential instability problem related to financial markets is likely to become worse in the long run – and more frequent – in mature market economies: This is due, firstly, to the rising ratio of wealth to income in OECD countries; that ratio has increased from about three in 1950 in western European market economies to about five in 2000; wealth accumulation and wealth management naturally involves banks and funds, including unregulated hedge funds; secondly, the quality-securing mechanisms in financial markets are weaker than in goods markets where exit and voice (to use Hirschman's concepts) are two key elements to cope with weak quality – if firm i offers weak quality consumers will switch to alternative suppliers with higher expected quality, and if all or most firms offer only weak quality the consumers could publicly complain and thus make quality problems in a certain sector known in the whole society; this in turn will put pressure on firms to improve quality; thirdly, the share of intangible capital in total assets of mature industrialized market economies is rather high (WORLD BANK, 2011); and the valuation of intangible assets naturally is more complex than that of machinery and equipment or real estate. The share of intangible assets in OECD countries was 81% in 2005, while the respective share in low income economies was 57% (total per capita wealth in low income countries: US-$6138; for the OECD: US-$ 588 315 US-$; global average: US-$ 120 475).

- Governments should encourage the creation of voice in the financial sector and the diffusion of test results of the quality of financial services – e.g. in Germany in 2012 a test of Stiftung Warentest (Foundation on Product Testing) revealed that a standard investment case of a typical household brought worse results than before the banking crisis: An EU directive is desirable which requires regular testing of banks' services and mandatory publication on the home page website of the banks tested and on a special EU consumer website – the latter would stand for virtual EU deepening which is a dimension that has been neglected so far.

It would be wise if the OECD and the European Union would pick up the challenges described. Simply following a business as usual strategy is likely to be a recipe for future disaster. As regards the European Union, the European Commission could put the topic of Sustainable Innovation Dynamics of Market Economies on both the research agenda and the policy agenda, and financial market innovations would be a natural element of this. Picking up key topics and issues in a timely fashion is a testament to political leadership and there is no reason why the EU should not be able to deliver in this field; in the US vested financial market interests might discourage policy initiatives along the line suggested – a joint transatlantic task force could also be useful (not least in the context of the Transatlantic Trade and Investment Partnership initiative).

3.2 Deepening the European Union?

The European Union is facing a crisis in 2010-2013: Not only is the euro crisis lingering on in the form of an unsolved Greek debt crisis but the general support for the EU institutions has declined in almost all countries; in some countries this EU confidence shock is rather modest in the sense that trust in national political institutions has declined even more so (MERLE, 2013). However, the latter is also a problem for EU integration since the weak national governments are hardly willing and able to transfer power to Brussels for EU deepening; rather opportunistic national political behaviour could be such that national policymakers will try to further trim the EU budget and take power back to the national level. Ongoing pressure from the British government for such a taking back of power from Brussels was visible in 2013/2014. The basic prerequisite for Brussels to become a stronger player in Europe again is that a strong economic upswing is achieved and that the European Commission and the European Parliament can come up with convincing fields of EU deepening; such deepening is not likely to be a realistic option if the supranational policy layer is not giving back some policy fields to the EU member countries. From an economic perspective the field of agricultural policy could be shifted to the national policy layer, however, it is not clear that all EU countries would support such a move. A deepening of the European Union can only become a viable policy option if a change in the vertical division of labour would bring major economic benefits such that the income tax rate could be reduced in all EU countries – and if an EU income tax were to be introduced, the aggregate income tax rate would have to be reduced. The key arguments for giving more power and government expenditures to the EU can be expressed as follows:

- Shifting defence expenditures to the supranational level could allow to save on military expenditures since a supranational government will be in a better position when buying military equipment than national defence ministers in individual EU countries.
- Shifting infrastructure expenditures – particularly for international projects – would allow not only to save on costs but also to get the critical mass of government expenditures in Brussels that is necessary to pursue an anti-cyclical fiscal policy.
- The stabilization gains from a genuine EU fiscal policy could be considerable as one could realize a better policy mix and hence reduce the variance of output.
- The Lisbon Treaty allows indeed a greater cooperation of a group of member countries willing to consider EU deepening. Given the many opt-outs realized in the Maastricht Treaty – for the UK and Denmark – and in the Stability Pact – for the Czech Republic and the UK – there is a risk that the EU project becomes increasingly opaque for the people in the EU and for the world at large.

Even if one can present several arguments for EU deepening and a greater role of the EU, it is obvious that many counter-arguments and alternative aspects may be considered:

- There is no broad political support for EU deepening in most EU countries; e.g. the UK government would rather like to get power back to the national policy layer.
- There is a growing wave of anti-EU political parties in many EU countries.
- None of the six EU founding countries has taken the initiative for EU deepening and this implies that even among the most experienced EU countries there is almost no political will to shift more power to Brussels.
- The principle of subsidiarity has been interpreted in a way that allows the national policy layer to maximize political influence in a way that is partly not in line with dynamic efficiency considerations – one important aspect that voter turnout would be much higher if government expenditures and tax issues were more important in Brussels than in the current regime with government expenditures of only 1%.

The debt crisis of several EU countries is often considered as standing for a particular burden on future generations. This, however, is only partly an adequate view since the younger generation is rather mobile in Europe and many young people could decide to escape from higher future income taxation by emigrating to other countries; the main burden of adjustment in a period in which policy wants to reduce the debt-GDP rate is likely to fall mainly on retired people as typically pensions are cut. Facing strongly ageing populations in Spain and Italy in the period 2020-2050 the political resistance to cut the debt-GDP ratio will, however, be high as pensioners represent an increasingly large share of voters in these two countries. While the debt crisis of Greece, Ireland and Portugal represented each about 2% of euro area GDP in 2011, a debt crisis in Italy and Spain would cause much bigger problems for the euro area. Implementing a debt brake in each EU country – ideally enshrined in the national constitution – thus seems to be a crucial challenge.

Some EU countries have rather high government expenditure-GDP ratios. To some extent this might reflect inefficiency in the government; but in Scandinavian countries and France there also is the particular role of large public social security systems. The opportunities to trim government expenditure-GDP ratios in principle are rather big in the field of retirement schemes; e.g. government could give tax incentives for more private retirement savings and reduce public pension schemes. However, the Transatlantic Banking Crisis has largely undermined the trust in private retirement savings and the nationalization of private retirement schemes in several eastern European EU countries also has undermined the trust of people in private retirement schemes. The unusually low interest rates in OECD countries in the five years after 2009 also create problems for making private retirement savings more attractive.

Democracies rarely embrace sweeping institutional reforms in good time; it is often only in the context of the adjustment pressure of a crisis that major institutional changes are considered and launched. This does not necessarily mean that one will have to wait for a new EU/euro crisis which would trigger broader institutional reforms. In any case it would be useful to have a blueprint for consistent politico-economic reforms in the EU. Here the European Commission could have an important role and complementary scientific analysis can be useful for getting a stimulating, broader discussion among the general public. The economic costs of Non-Political Union could be very high and here the economic analysis could make an important contribution. Basically one would combine insights from Computable General Equilibrium Models – here the existing models would at first have to be upgraded in a way that the four economic freedoms of the EU can adequately taken into account. So far, standard CGE Models (e.g. Mirage from CEPII) are good for analyzing trade liberalization, but capital flow liberalization – this should also include foreign direct investment flows and the activities of multinational companies, respectively – could only be analyzed within an enhanced model; this also holds for labour mobility effects. There is an additional challenge in the sense that one would have to build at least a three country model, namely country I and II for covering EU integration and country III as a big outsider country (rest of the world); the combination of country I and II has to be flexible in the sense that country II should reflect the case of a small open economy – with no repercussion effects of integration on I – or alternatively a large economy with integration repercussion effects. Additionally, it would be useful to consider the macroeconomic effects within the existing Quest Model of the European Commission.

EU deepening could be achieved in a five stage approach:

a) Stabilization of the euro area and adjusting the institutional setup towards higher credibility of fiscal discipline;

b) At the same time development of a growth-enhancing policy in all EU member countries – this includes some active benchmarking, particularly in the use of information and communication technology; ICT technology should also be used for making EU decision making (Commission, Parliament etc.) more transparent; here the development of innovative apps for citizens is crucial

c) Creation of a group of euro countries willing to cooperate more intensively within the framework of the Lisbon Treaty; creation of euro bonds, possibly as covered supranational euro bonds.

d) Shadowing of supranational fiscal policy through strong unconditional fiscal policy cooperation of euro countries.

e) Creation of a Euro Political Union on the basis of referenda in all euro/EU countries.

A decade should suffice to implement the five stages. There are few prospects for successful deepening if the EU is not going to adjust its main policy focus: More democracy, higher economic efficiency in regional/structural EU policy and a much stricter implementation of EU/euro policy principles are required. Early on it is necessary to calculate the resource-saving effects of a euro political union. As regards economic sanctions for non-compliance with fiscal rules euro countries should put, upfront, part of foreign reserves into a special EIB account; serious non-compliance, as defined by an Independent Expert Commission ("Indexco"), would mean that the country will automatically lose part of the foreign reserves that had been paid up into the EIB escrow account. Without a stronger commitment from leading EU countries to European integration sustainable integration progress in Europe cannot be achieved.

3.3 Transatlantic Trade and Investment Partnership EU-USA and Integration of Integration Areas

A broad challenge for the EU is the Transatlantic Trade and Investment Partnership (TTIP) agenda. The negotiations between the EU and the US have started in 2013 and could bring considerable progress in terms of cutting non-tariff barriers on both sides of the Atlantic. The economic benefits in key industries in the EU and the US could be large (IRAWAN/WELFENS, 2014). The EU will be able to get a rather favourable outcome of TTIP negotiations only if the US considers the EU as a strong partner. As long as the euro crisis has not been overcome and adequate EU deepening not defined the US could have a strong strategic advantage in the negotiations.

Key issues in TTIP concern the reduction of tariffs and non-tariff barriers as well as trying to define mutual recognition of standards or agreeing on principles of regulatory equivalence of US and EU rules, respectively. The role of taxation and regulation in banking also is crucial and the EU countries should be expected to unanimously back a common negotiation position of the European Commission. The benefits from TTIP – according to standard trade analysis – will amount to 0.5-1% of gross domestic product in the EU and the US. However, this is likely to be a strong underestimation of the order of magnitude of TTIP benefits since the medium term effect of increasing transatlantic foreign direct investment and the long term intensification of innovation dynamics are not taken into account. If one could remove more than half of the non-tariff barriers prices of goods in the tradable goods sector should reduce by about 3% on both sides of the Atlantic and if tradable goods represent 2/3 of all goods the medium term impact on the aggregate price level is a fall of 2% (say over a five year adjustment period). If enhanced medium term foreign direct investment generates another plus of 1% of gross domestic product while the long run enhanced international technology transfer might represent 0.5% of GDP the overall benefit could be about 3.5% of gross domestic product in both the US and the EU. The key effects of foreign direct investment and enhanced innovation dynamics have been quite neglected in standard economic analysis of TTIP (an exception to some extent is IRAWAN/WELFENS, 2014).

The EU should make clear that TTIP should be organized and implemented in such a way that the rest of the world can also expect economic benefits. TTIP could be a starting point to reinforce trade and investment relations between the EU and Mercosur and the EU and ASEAN etc. Integration of integration areas should be a new topic on the future agenda of the EU.

4. Reforme Programme for the EU: Towards a Political Union

4.1 Basic Issues Relevant for a European Political Union

EU integration has become more complicated in the context of enlargements and EU deepening. This undermines the political support for integration in Europe. From a politico-economic perspective a more complex integration area should be better and more thoroughly explained to the public – but no major increase in the EU budget in this field has been realized. It is necessary to simplify and streamline economic policy-making whenever possible. Here, there are key challenges as simply reading text from various DGs reveals: The widespread use of cumbersome abbreviations makes most of the EU publications impossible to understand for ordinary citizens. It is an easy reform task for the Commission to correct this and the European Parliament should push stronger for such reforms in the future. Less bureaucracy is one element of improving the EU administration, but a general switch to simplified language is also recommended.

The supranational expenditures relative to GDP have stayed for decades around 1%. It is totally implausible that the optimum government-GDP ratio should be 1% for a group of six countries and for a group of 28 countries as well. The structure of EU expenditures is such that there is almost no redistribution and for macroeconomic stabilization the size of the budget is much too low; a typical recession will witness that government expenditures will increase by 0.5 to 1% in a normal recession and up to 2% in a very serious economic downturn. The main EU categories bring redistribution between countries – increasingly over time – where the main recipient countries are Greece, Portugal, Ireland and Spain, the main contributors (on the basic of contributions relative to GDP) were in the 1990s the Netherlands, German, Luxemburg and Sweden (DOMENECH/MAUDESU/VARELA, 2000).

Taxation in a vertical government perspective should be governed by simple principles: The theory of fiscal federalism suggests that on efficiency grounds mobile units should pay taxes for benefits obtained – in this perspective local government should set adequate prices; here property taxation can play an important role (e.g. a city that has built a dam should charge implicit flood protection prices that are proportionate to the market value of the house). Federal grants given to states (looking at the US context) should be such that spillovers are adequately internalized. Setting aside EU agricultural expenditures that certainly do not reflect spillover aspects the supranational EU level effectively gives grants of 0.6% of EU GDP and this certainly is totally inadequate if spillovers are to be internalized. One may argue, of course, that so far the member states themselves have created adequate vertical fiscal systems. However, the EU single market has changed the game in the sense that e.g. R&D subsidies in Germany, France, the Netherlands or Sweden will create large spillover effects for other countries so that in a US-like EU political union Germany should get some supranational extra funding as a compensation from Brussels; otherwise the aggregate innovation activity of the EU will be suboptimal and the growth rate of output lower than in an optimum taxation regime.

Taxation for the purpose of income redistribution is one standard argument for government activities, however, looking at the US raises interesting observations and reflections:

- As regards redistribution via taxation FELDSTEIN/VAILLANT WROBEL (1998) published empirical evidence that suggest that state government attempts to redistribute income are not really successful: The evidence presented shows that net-of-tax relative wages of skilled versus nonskilled workers are hardly affected by progressive income taxation in the US, and the main reason for this is labour mobility across state borders.
- In the EU labour mobility across countries is smaller than in the US and this might explain that EU countries have a larger political propensity for income redistribution than the US.
- Recent evidence (NIEHUES, 2013) has shown that the efficiency of redistribution is weak in some EU countries – in France, Bulgaria and Cyprus the post-tax income position of the top quintile was better the before taxes in 2009.
- In a political economy perspective one may instead raise the question of the tax revenue-maximizing income tax – the answer in a setting with a Cobb Douglas production function is that this tax rate (pushed for by bureaucrats) is equal to the output elasticity of capital (WELFENS, 2013).

It is adequate to reform the vertical political division of labour which in budgetary terms is strange: roughly 40% of the EU budget are spent on agriculture while the share of value-added of this sector is below 2% in the EU and hardly any positive external effects are recorded in agriculture. Almost nothing is spent on infrastructure and zero on defence - this makes the EU budget structure look very strange in comparison with the US. Simply sticking over decades to the inherited vertical division of labour is, of course, inadequate in the context of the euro crisis which has involved big expenditure cuts at the national level in many euro countries. The EU Summits have adopted the strange philosophy that expenditures at the supranational layer also should be cut. Instead one should have raised the question about an optimal vertical division of government expenditures and about other key aspects of a euro political union: Higher expenditures at the supranational level would be adequate as is shown subsequently.

OATES (1999, p.1121-1122) summarizes the key insights from fiscal federalism – the normative theoretical basis for designing adequate vertical assignment of tasks and expenditures, respectively - as follows:

“The traditional theory of fiscal federalism lays out a general normative framework for the assignment of functions to different levels of government and the appropriate fiscal

instruments for carrying out these functions... At the most general level, this theory contends that the central government should have the basic responsibility for the macroeconomic stabilization function and for income redistribution in the form of assistance to the poor. In both cases, the basic argument stems from some fundamental constraints on lower level governments. In the absence of monetary and exchange-rate prerogatives and with highly open economies that cannot contain much of the expansionary impact of fiscal stimuli, provincial, state, and local governments simply have very limited means for traditional macroeconomic control of their economies. Similarly, the mobility of economic units can seriously constrain attempts to redistribute income. An aggressive local program for the support of low-income households, for example, is likely to induce an influx of the poor and encourage an exodus of those with higher income who must bear the tax burden...In addition to these functions, the central government must provide certain "national" public goods (like national defense) that provide services to the entire population of the country.

Decentralized levels of government have their raison d'etre in the provision of goods and services whose consumption is limited to their own jurisdictions. By tailoring outputs of such goods and services to the particular preferences and circumstances of their constituencies, decentralized provision increases economic welfare above that which results from the more uniform levels of such services that are likely under national provision. The basic point here is simply that the efficient level of output of a "local" public good (i.e., that for which the sum of residents' marginal benefits equals marginal cost) is likely to vary across jurisdictions as a result of both differences in preferences and cost differentials. To maximize overall social welfare thus requires that local outputs vary accordingly."

By overemphasizing the principle of subsidiarity the EU has prevented an adequate fiscal federalist structure: Adding up 1,5% of GDP and 1,5% for infrastructure adds up to 3% plus regional funds and structural funds plus agricultural subsidies would give at least 4% - four times the actual ratio of government expenditures in Brussels relative to GDP. The supranational euro level has defence not on the agenda so far, redistribution is minimal – except between member states and regions, respectively – and fiscal policy not existing. Except for tariff revenues the EU has no distinct source of revenue. In terms of fiscal federalism the EU is largely economic nonsense; a euro political union could be a step to correct this and thus to create massive welfare gains.

Moreover, there is an EU single market but no integrated social security system that really makes the EU labour market a truly integrated one. A worker might have been consecutively employed for two years in each of the 28 member countries and in the end there is no cumulated fair entitlement for pension payments: The legal entitlement indeed could be zero.

Shifting Balance of Power within the EU

The euro crisis has unveiled structural problems in the euro area but it also has brought about a shifting balance of power within the EU:

- the euro crisis has shifted the balance of power in the EU in favour of the European Summit.
- The increasing power of the European Summit comes at the expense of the European Commission and reinvigorates nationalism to some extent – namely as a consequence of weakening the European Union. The fact that the political support for EU institutions has weakened in the EU during the euro crisis is an alarming signal; while one might point out that political support for national institutions has declined even more so in many countries, a general undermining of trust in political institutions in Europe is showing problems in political governance and legitimacy in the EU.
- Restoring trust and political support for the EU requires a refocus of policy activities of the EU on key fields and avoid activities in policy areas of non-relevance for the European Union – e.g. the regulation of oil cans in restaurants which was given up as project only after much public discussion in the EU in 2013
- The Greek deficit fraud of 2009 – an election year – and the non-application of EU prudential supervision legislation in Ireland has shown that political moral hazard and free rider attitudes of a few EU countries can thoroughly undermine the economic and political stability of the whole euro area; and with these problems the euro area and the EU must successfully cope if long term viability of the euro area is to be achieved.

The complex policy pattern in the euro crisis has reinforced the impression that economic policy in the EU is opaque and difficult to understand for ordinary citizens. The Commission should start an initiative in which decision-making in the European Union is better explained and through which decision-making processes should become more transparent and simplified wherever possible. More transparency is also crucial in the political process among EU institutions; for example the negotiations on the Transatlantic Trade and Investment Project (TTIP) with the US should be organized by the Commission in such a way that the European Parliament and the EU public get clear and timely information about the status of key negotiation areas; and about medium and long-term impact studies of TTIP which go well beyond the pure trade dimension.

The EU and euro area should have the ability to implement Pareto-improving international cooperation and to prevent member countries from free-rider attitudes and political moral hazard behaviour.

(1) Big international cooperation projects which bring considerable economic benefits – such as TTIP – face uncertain political support in the EU, not least since the European Commission is weak in explaining even a very reasonable project as TTIP to the general public: Adopting measures for simplifying and making more transparent EU decision-making and EU economic policy while re-focussing the role of the EU summits are crucial elements to be implemented. European integration issues have become rather complex over time and the Commission has neglected the task to keep projects relatively simple and understandable. Clearly, with 28 countries, the EU is much more complicated to organize than the initial group of six countries.

(2) It is of paramount importance that a repetition of the Greek deficit fraud of 2009 is ruled out in the future. This can be rule out only if massive exceeding of the deficit-GDP limits and excessive debt-GDP ratios of EU member countries translate into bankruptcy

while not allowing government (broadly defined) to collapse - necessary is introduction of new key principles of social security policy in EU countries and of a minimum EU unemployment insurance for six months with expenditures of about 0.5% of GDP.

(3) If the supranational expenditures would be raised to about 6% of GDP – mainly on the basis of infrastructure expenditures, defence expenditures, R&D expenditures as well as traditional EU expenditures – one would have the fiscal basis for a euro political union in which Brussels can implement countercyclical economic policy and ensure a consistent policy mix;

(4) If the Greek deficit fraud of 2009 would occur the country would go bankrupt, but the combination of (2) and (3) implies that highways still would be built, unemployment compensation paid and the political fall-out of such national political mismanagement would not derail the whole euro system: With that perspective in mind no political leader at the national level would have an incentive to repeat the Greek case of deficit fraud of 2009; prudent fiscal national behaviour would be reinforced if true euro area parties would be established – if the natural political goal for all national political leaders would be to finally become the head of a euro area government (or the head of the political opposition in a Euro Parliament) the incentive to ruin one's own career prospects by very high national deficit-GDP ratios would be zero.

(5) With respect to raising the budget volume in Brussels strongly there is a natural caveat: One could not spend about 6% of GDP in Brussels without having adequate political legitimacy so that a Euro Political Union is required in the long run; there is a need for a Euro Parliament that would elect a Supranational Government and which could impose Euro taxation, Euro Bonds and also a supranational deficit provided that deficits could be incurred only for financing public investment and if a supranational debt brake – limiting the deficit-GDP ratio to 0.5% - would be implemented.

More efficiency in intra-EU regional transfers is required and more investment in city twinning programmes (the EU27 had about 40 000 in 2013) could be quite useful – this building of Europe from the 'bottom up' is quite crucial to avoid the picture of EU integration as being organized as an elite project. At the same time one should not overlook that tensions in social fabric of euro member countries differ considerably if one looks at production lost from strikes per 1000 workers:

Table 2: Strikes and Lockouts, Rates of Days not Worked per 1,000 Employee, 1999-2008 (ordering for 2006)

Country	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
France							151	116		
Cyprus				20,1	29	37,2	66,2	110,3		
Canada	203,831	132,69	173,843	229,76	130,39	236,034	303,67	56,693	124,248	60,405
Spain	102,4	233,3	119,1	297,4	45,8	248,9	50,1	47	58,3	74,5
Italy	60,627	57,875	65,618	304,918	121,656	43,344	54,848	32,794	52,617	
Finland	9,5	110	25,6	31	28	18	280,3	29,9	37,9	6,5
United Kingdom	9,638	19,44	20,206	50,73	19,089	34,351	6	28	38	28
Germany	2,3	0,33	0,82	8,9	4,8	1,3	0,5	12,4	8,1	3,7
Hungary	89,9	55,1	2,848	0,503	0,881	6,8	0,352	2,33	10,09	
Switzerland	0,7	1,2	4,8	5,1	1,4	9,3	0,3	1,8	1,6	3,1
Slovakia	0	0	0	0	0,002	0	0	0,007	0	0
Latvia	37,3	0	0,007	4,2	0	0	0	0	0	3,2
Lithuania		10199	2155	0	0	0	0,773	0	8214	27087
Lithuania				4,2	0	0		0	8214	27087
Poland	11	8			1	1	0	0	2	28

Source: ILO LABORSTA Database, http://laborsta.ilo.org, 19.03.2014

Among the reforms to be considered are:

(6) cutting EU regional funds in order to raise the efficiency of EU regional and structural policies. There is a need for launching a special coordinated programme on training, retraining and skill-upgrading in the EU; here EU benchmarking could be useful and the EU should allocate funds for active benchmarking, namely that weaker regions successfully imitate programmes of rather successful regions. The allocation of regional funds of the EU is rather inefficient (BECKER ET AL. 2010) and certain countries stand for a rather high share of violations of basic EU rules; the European Court of Auditors so far is not really critical with EU member countries violating the rules of the EU. This is a problem to the extent that in a future European political union the share of government expenditures at the supranational level would have to strongly increase – but this cannot be recommended unless spending of funds by EU member countries generally is in line with the rule book of the EU.

(7) starting a new programme for EU city twinning which should have a particular focus on Eastern Europe and the UK – the bottom-up approach of European integration is crucial for first-hand positive experiences of people with EU regional integration (previously city-twinning was a political priority of the EU, but in the late 1990s political support and budget funds declined); more city twinning between EU cities and cities in Russia, Ukraine etc. also could be considered as a strategic policy element.

(8) continuous focus on ICT expansion, including the introduction of identical budget software in all euro countries, as a means to reinforce the transparency of fiscal policy and to raise the credibility of the Fiscal Pact and the Stability and Growth Pact, respectively. The role of information & communication technology has been emphasized by the Commission since the Lisbon Agenda 2010. However, the Lisbon Agenda was, in part, poorly implemented and the macroeconomic implications of ICT expansion – in an environment with absolutely falling ICT investment goods prices – are not adequately taken into account. Measured in real terms real investment relative to real GDP is much higher in many EU countries/OECD countries than the nominal share of investment in

nominal GDP: The true investment/GDP ratios – based on real figures – are about 2 percentage points higher in Germany and the US than the nominal share suggests; this implies that the alleged weakness of investment in Germany is smaller than suggested by many economists. The internet is used by people to find a new job in all OECD countries but the leader country for finding new jobs via the internet is Canada (OECD, 2013) – with Germany and France trailing far behind it, respectively. The situation is much worse in Italy, Spain, Portugal and Greece. Here the EU could encourage an active OECD benchmarking initiative that should stimulate the use of digital internet-based matching technology (Subsequently an illustrative table – see appendix - shows how large the differences in internet-based job searching in the EU are: Sweden's figure of 90% in 2013 is five times as big as that in the case of Bulgaria; here open coordination in the EU apparently is not working – countries with a big gap to the leaders should engage in some twinning within less than one year and the ratio of the indicator of the top country to the bottom country should be held below 2:1 in a five year adjustment process for which the respective country should provide 4/5 of the required financial resources).

(9) starting a new programme on the full integration of energy markets in the EU and adopting a globally oriented EU climate policy: The Commission has pushed for many years for an integration of energy markets in the EU, but only limited progress has actually been achieved. There is not much benchmarking of renewable energy and not much attention has been devoted to the inefficiencies of energy policies in certain countries; e.g. Germany where the annual cost for the renewable charges faced by households and companies have amounted to about 20 bill. € in 2012 while the associated reduction of CO2 emissions is less than € 0.5 bill. € (with one ton of CO2 emission assumed to reflect a high price of 5 € per ton); the market value of the renewable energy produced is only about € 2 bill.

Given the rather low specific CO2 emissions of gas it would make sense to substitute coal in electricity production with gas in the EU and worldwide. If the share of coal in electricity production could be reduced by 1%, and replaced by gas, this would be equivalent to an increase of the share of renewables in global energy production of 11% (RÜHL, 2014).

The increasing transatlantic electricity prices will create certain problems in the context of TTIP. The following table shows how large electricity prices differ within the EU and between EU countries and the US – the rising gap in favour of the US will undermine the international competitiveness of producers of energy-intensive products in Europe (e.g. the ratio of industrial electricity prices in Germany exceeded that of the US by 70% in 1978, in 2000 the price level in Germany was 12% below that of the US, by 2009 the price level in Germany was 105% higher than in the US, in 2012 the price ratio was 2,22).

Table 3: Electricity prices for industry in US dollars/MWh in the US and in Selected EU Countries

	1978	1980	1990	2000	2007	2008	2009	2010	2011	2012
Germany	47,42	57,59	91,28	40,55	108,90	128,95	139,55	135,83	157,23	148,72
USA	27,90	36,90	47,50	46,00	63,94	68,28	68,12	67,89	68,21	66,98
Price relation Germany/USA	1,70	1,56	1,92	0,88	1,70	1,89	2,05	2,00	2,31	2,22
Italy	43,15	65,16	97,58	88,94	236,99	289,81	276,15	258,09	279,31	291,79
Netherlands	31,16	59,20	52,30	57,05	120,75	132,90	128,65	116,09	118,48	109,51
Spain	27,98	44,32	97,39	42,58	89,59	125,15	103,15	131,88	148,77	k.A.
UK	37,98	62,76	70,69	55,40	129,88	145,94	134,29	121,06	129,49	134,17
France	32,41	47,98	56,39	35,76	92,19	104,83	106,70	106,95	121,54	116,33

Source: IEA (2013), Electricity Information 2013, Paris.

The variance of regional energy prices in the EU is large – it could be smaller if the EU single energy market would be fully implemented; a fully integrated single energy market would also imply a lower average EU electricity price and this in turn would imply a rise of equilibrium output and possibly an improvement of the EU current account. If one compares the interregional electricity price variance in the US (based on prices of electricity in US states) the variance is only slightly smaller than in the EU as is shown in the appendix. One should, however, not overlook the fact that the German energy turnaround has created a problem for the European Commission which considers the exceptions from the special renewable energy surcharge for big firms as a discrimination that is inconsistent with the EU single market rules: The German energy turnaround is associated with high feed-in tariffs for renewable energy and a special surcharge on the electricity usage of households and firms, with exceptions for big electricity consumers in the export sector. Effective subsidies (collected via electricity bills) have amounted to about € 20 bill. in 2013, the market value of the electricity produced by solar power and wind power in Germany was only about € 2 bill.; adding to this the market value of CO emissions avoided – on the basis of the all time high of € 30/ton – roughly € 1 bill. is to be added, which still leaves the impression of massive economic inefficiencies of the energy U-turn in Germany: investing € 20 bill. for a € 3 bill. benefit means squandering a large amount of funds and resources, respectively.

Besides efficiency considerations one may emphasize that EU member countries should have some policy autonomy in environmental policy, at the same time it is clear that all EU countries should respect EU single market rules so that energy policy designed to encourage renewable energy also faces constraints that should be respected. While one can raise critical objections against Germany’s course in the promotion of renewable energy one should not overlook the fact that feed-in tariffs stimulate the exploitation of static and dynamic economies of scale so that world market prices e.g. of solar panels and wind power mills should decline over time – Germany’s policy thus could also affect renewable energy investment outside Germany and the EU, respectively. A particular problem of Germany’s feed-in tariff scheme is that the implicit fixed per unit subsidization is not declining over time so that the innovation incentive is rather modest. Looking at

Germany's renewable energy policy and given the geographical and climatic situation of Germany it is rather surprising that German policymakers have strongly encouraged the expansion of solar energy – not so much of wind energy where Germany's comparative advantage is rather high; if the EU energy market were fully integrated and efficiency considerations would be taken seriously, German taxpayers would rather subsidize solar power expansion in Greece, Spain or Portugal instead of strong solar energy expansion in Germany.

4.2 New Aspects of the Euro Area: Towards a Political Union

The Euro area needs the creation of euro bonds, otherwise the European Central Bank would not even have a basis for a consistent open market policy or some form of Quantitative Easing (QE) – the latter stands for an expansionary open market policy in an environment of already very low central bank interest rates; also, the incipient pressure for deflation in 2014 makes it necessary to create Euro Bonds, otherwise the ECB would have to buy national euro bonds from all Euro countries within a QE-approach. The ECB as a central bank should not have less policy options than other leading central banks in the OECD; say the US or the UK. However, the creation of supranational euro bonds is not only a political decision, it requires that an attractive market be created for euro bonds. Thus one should consider

(10) the launching of supranational euro bonds in an exclusive maturity range of 10 years+ in the euro area – for this project a Euro Area Investment Bank should be created (possibly as a sub-unit of the EIB, based on a separate treaty between euro area countries); such a political project requires careful organization, there is no doubt that it would bring major benefits since banks would have an asset with full implicit risk diversification in the euro area. However, euro bonds will carry low interests only if a supranational policy layer has the right to tax – if necessary to guarantee payment of principal and interest on euro area bonds. With low real interest rates in the whole euro area there will be prospects for higher growth, however, there also will be the challenge to avoid that mainly consumption is increasing (as it has been in the case in the first decade of the euro in some southern euro area countries); government has always the option to impose higher value-added tariff rates as a means to reduce consumption.

Additionally it is necessary to consider the problems and opportunities of a potential future euro political union. Hence one may suggest to

(11) start of a broader discussion about a euro political union, including the implications for a supranational tax system and the role of the euro area in international organizations; the concept of a euro political union clearly requires a true parliamentary system in which there is not only a government and a parliament with competing parties (a government camp facing a well organized opposition) – it also will be necessary to have the right to tax at the supranational level and with the taxable income broadly defined the income tax rates can be rather low. Tax base broadening along with reduced income tax rates is conducive for economic growth and also reduces the size of the shadow economy whose productivity typically is much lower than that of the official economy. Only if there is a supranational

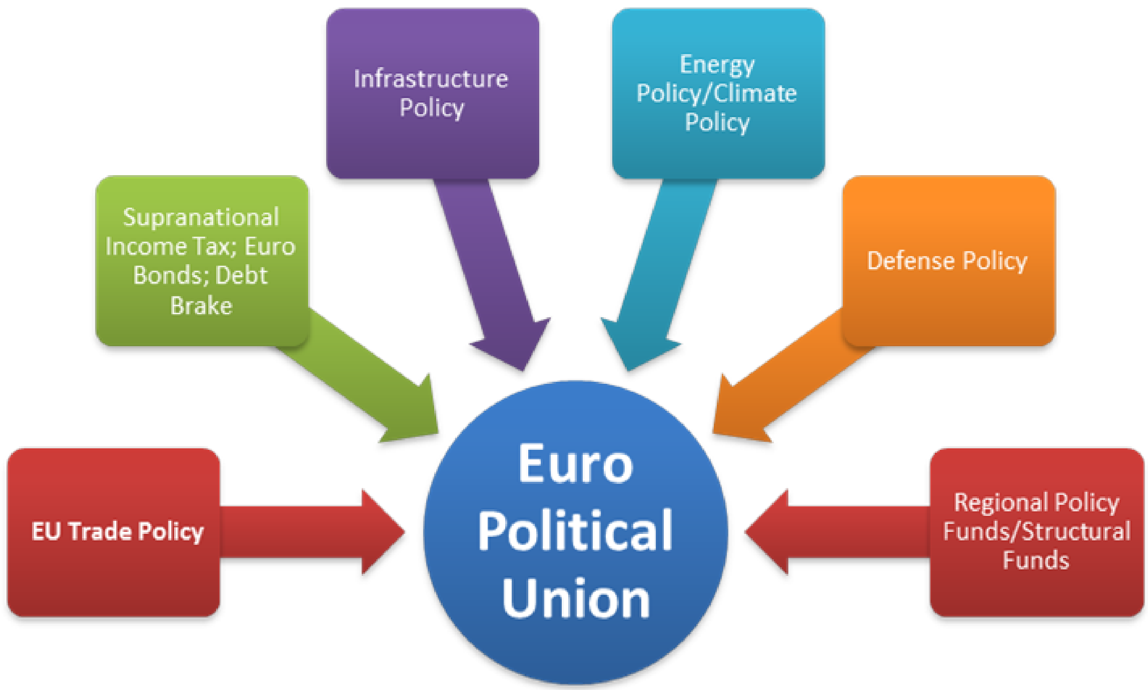
debt brake and if a euro area parliament would have the right to tax can euro bonds be expected to carry very low real interest rates. It is noteworthy that Germany's Constitutional Court removed the 3% minimum vote requirement in European elections in 2014 – here the Court indeed has pointed out that the current European Parliament is not working like a normal parliament since the EP largely stands for all major parties joining in a power brokerage vis-à-vis the European Commission which has wide executive powers as well as legislative powers.

At the global level the EU should not only try to conclude a TTIP agreement with the US, but the European Union also would be wise to consider a careful creation of a club of integration clubs. Hence one should

(12) start a broader political discussion about the project of a transatlantic free trade area and prospects of EU globalization management through a specific EU strategy for cooperating with other regional integration schemes: e.g. EU-Mercosur or EU-ASEAN. An EU-Mercosur hybrid community should be rather easy to achieve since both the EU and the Mercosur are a customs union – so all countries of the respective integration club share a common external tariff. If the EU could build broad relations between the EU and Mercosur, the EU and ASEAN etc. one could indeed use integration clubs as building blocs for global economic liberalization and cooperation. In a successful integration of integration clubs approach the most important field of cooperation would concern competition policy. Here the EU should take the initiative and push for a more intensive policy dialogue in the international arena; if similar concepts of competition policy would be adopted in various integration clubs effective global competition policy will be reinforced and this will be to the advantage of the consumer; moreover, excessive lobbying pressure by big multinational companies would be rather limited in such a setting and this also could generate welfare gains.

As regards a future euro political union there are several elements that should be carefully considered.

Figure 3: Euro Political Union



The discussion about a political union in the EU has witnessed several contributions (e.g. SPINELLI GROUP, 2013; see appendix)

A Euro Political Union could be created in the medium term where key elements would be:

- The traditional supranational trade policy; here the adequate overlap between the euro area and the EU is unclear.
- A Euro Area Parliament (to which extent this would have an overlap with the EU Parliament remains to be determined)
- The Euro Area Parliament should have the right to tax in the fields of income and cross-border pollution emissions (this includes CO2 taxation); a standard corporate tax rate should be fixed where member countries should have the right to impose a bonus of up to 5% - so if the standard corporate tax rate were 15% the effective national minimum corporate tax rate would be 10%. With taxation partly implemented at the supranational level one can implement tax base broadening and thus can reduce the (overall) income tax rate/corporate tax rate so that a fairer and more effective tax system would be achieved than in the EU framework. If the tax revenue from emissions would amount to 1% of GDP at the supranational level the average income tax rate in Brussels would have to be close to 4.5% of GDP – assuming that government expenditures in Brussels would amount to about 5.5% of GDP (0.5 % of GDP would come from unemployment insurance contributions).
- Infrastructure expenditures would be largely shifted from the national level to Brussels – this should represent about 1.5% of GDP. Assuming 1.5% of GDP also for defence, 0.5% for R&D promotion in the field of military, energy, ICT and the environment, 0.5% for life-long learning and mobility/retraining of workers, 1% for the traditional EU expenditures and 0.5% for covering the first six month of

unemployment insurance the budget at the euro political layer would sum up to about 6% of GDP. This is sufficient to shift counter-cyclical fiscal policy to the supranational (euro) policy layer in Brussels. A debt brake based on a maximum structural supranational deficit-GDP ratio of 0.5% would be useful, at the national policy layer a maximum structural deficit-GDP ratio 0.25% could be allowed so that the debt-GDP ratio of the overall euro area would have a long-term steady state value of 0.5 if one assumes a trend output growth rate of 1.5% - this follows from the Domar formula according to which the long run debt-GDP ratio is determined by the ratio of the deficit-GDP ratio to output growth. In the medium term the supranational structural deficit-GDP limit could be rather 0.45% and that for the national policy layer 0.3% (the sum adding up again to 0.75%). As regards the actual deficit rules of the euro area there is some inconsistency: It should be noted that the 3% deficit-GDP limit of the Stability and Growth Pact could be in contradiction to the 0.5% maximum structural deficit-GDP ratio of the Fiscal Pact and this inconsistency creates new credibility problems in the field of fiscal policy of the EU.

- ALLARD ET AL. (2013) estimate that a 1% negative shock to the national GDP reduces in the US consumption by 0.2%, but in the euro area by 0.6%. At the same time the authors point out that via soft loans to crisis countries – e.g. on the basis of Emergency Liquidity Assistance (ELA) for banks – that creditors and current account surplus countries implicitly generate transfers to the crisis countries of 0.75%-1.25% of GDP of the crisis countries (ELA means that the national central banks can create central bank money on the basis of collateral obtained from banks even if the quality of the collateral is not considered as acceptable by the ECB; the latter can prevent ELA only if there is a 2/3rd majority of the board against ELA in a specific country).
- A large share of public infrastructure policy should be shifted to Brussels once a Euro Political Union has been created; the structural deficit-GDP ratio allowed at the level of member countries should be close to zero in the long run and this would make EU countries more similar to US states who also face clear deficit limitations. As regards shifting infrastructure policy expenditure to the supranational level this could indeed be an ideal way to improve opportunities for a counter-cyclical policy and a more coherent policy mix in the euro area (and the EU). If a political union would be created this should include the right to tax (income tax, cross-border emission tax), euro bonds would be created and unemployment benefits would be financed for half a year. This at least is the conclusion that one can draw from the US experience where the US COUNCIL OF ECONOMIC ADVISORS (2013, chapter 3) has looked into the cyclicality of government expenditures at the state level. Except for current expenditures such as medical expenditures and highway expenditures – (see subsequent table) – most of the state government expenditures was found to be procyclical.

The US Council of Economic Advisers (2013, p. 112) has noted:

„One study by the Government Accountability Office (GAO 2011) examined trends in State and local government spending across the business cycle and found that capital expenditures—primarily spending on land, buildings, and equipment—are more procyclical than other types of spending.... The GAO found that spending on health and public welfare is countercyclical, while current expenditures on elementary and secondary education, current expenditures on highways, and capital outlays are the most procyclical

categories of State and local government spending. The GAO noted that trends in capital outlays and current expenditures tend to lag the business cycle by one to two years, although there is substantial variation in the lag for current expenditures by type.

Private economists have reached similar conclusions. Echoing the GAO finding, Wang, Hou, and Duncombe (2007) studied the determinants of capital spending, noting that capital expenditures tend to be more procyclical than current expenditures. The authors cited evidence that States' and municipalities' financing decisions are affected by the business cycle, but the study did not draw conclusions about the impact of the business cycle on the level of capital spending. Similarly, McGranahan (1999) found that capital spending is more procyclical than current expenditures. On average, McGranahan found that each percentage point increase in the unemployment rate leads to a $6.94 fall in per capita capital outlays (average per capita spending is $239.85); this drop is split evenly between construction spending ($3.57) and other capital outlays ($3.37). Moreover, McGranahan found that even though State operating budgets do not include capital expenditures, States tend to reduce budgetary pressure by reducing capital spending during downturns. Hines, Hoynes, and Krueger (2001) found that all components of State and local government spending are procyclical, with capital spending (on highways, parks, and recreation, for example) generally more procyclical than current spending (on health and education, for example).

Bureau of Economic Analysis (BEA) data on State and local expenditures show that the most recent recession was somewhat atypical, with gross investment failing to rebound as in other recoveries... Ideally, State and local governments would increase investment spending during recessions, both as a means of employing capital and labour, thereby helping to drive the economy out of the recession, and also as a mechanism for strengthening the economy in the future. Moreover, lower labour costs during recessions make capital projects relatively cheap, meaning that investment during recessions can provide taxpayers with a higher return on investment; historically low interest rates in recent years have further lowered the cost of capital projects."

Table 4: Cyclical Behaviour of State and Local Government Expenditure (1977-2008)

Expenditure function	Correlation with GDP	Cyclical behavior
General expenditures	0.34	Procyclical
Capital outlays	0.50	Procyclical
Current expenditures	0.23	Procyclical
Elementary and secondary education	0.60	Procyclical
Higher education	0.29	Procyclical
Health and hospitals	-0.36	Procyclical
Highways	0.53	Countercyclical
Police and corrections	0.38	Procyclical
Public welfare	-0.31	Countercyclical
All other current expenditures	0.40	Procyclical

Source: GAO (2011).

Figure 4: Selected Key Elements of Euro Political Union

Given the historical experiences with sovereign debt problems and defaults one should definitely not only adopt a debt brake at the national level but also at the regional and city level. The example of Switzerland could be useful to study carefully. The default of Argentina in 2001 which was largely caused by a lack of deficit limits for sub-national political units is a clear example that fiscal prudence at the highest political layer is not a guarantee against the default of a country (the whole political system).

The current EU political system is organized in an unusual way since the European Commission is not only the executive institution of the European Union but also initiates EU legislation; the European Parliament is not organized on the principle of a governing party and opposition, rather the leading parties typically form one coalition in order to negotiate with the Commission a compromise in legislation. This institutional construction is not only not counter to the standard institutional setup in a parliamentary democracy, it also raises the risk that a wave of anti-EU parties will grow in all EU countries – such parties pick up criticism about the EU on the right-wing or left-wing while an alternative two party system (to pick a simple model) would pick up the anti-EU criticism within the two parties. Thus the EU political system resembles Switzerland, but without a strong referendum element. The current EU political dynamics could lead to a situation in which anti-EU parties in the end gain up to 50% of the votes at elections for the European Parliament: one cannot even rule out the possibility that anti-EU parties could eventually gain the majority in the European Parliament. This awkward perspective is another reason for switching towards a Euro Parliamentary System which should be organized in the normal setup, namely with government, and government-supporting parties, and opposition parties.

In the US state expenditures and local expenditures combines amount to about 40 % (HENNING/KESSLER, 2012) of government expenditures and state plus local debt as a percentage of GDP is in the range of 20-30%; the federal government's expenditures is 1,5 times as high as that of states expenditures and local expenditures, but federal government deb is about 3 times as high as state plus local debt. If a Euro Political Union with supranational government expenditures had 6% of GDP it would be only about 2/3 of government expenditures (disregarding social security) below the supranational level. If government debt would be split between Brussels and the member states in proportion to relative government expenditures national debt of about 20% of GDP should be shifted to Brussels – along with the same amount of assets and the proposal of a structural supranational deficit-GDP ratio of 0.5% then implies that the debt-GDP ratio would be 0.5/1.5= 30% at the supranational level in the long run (here a growth rate of 1,5% out real GDP has been assumed). It is doubtful that in the long run government expenditures in Brussels would stay at 6% since this is quite small compared to the US federal government expenditures. As regards a comparison of the US and the euro area the biggest difference is in taxation. Federal taxation of income in the US effectively limits tax competition in the US while in the EU there is almost no coordination of tax policies.

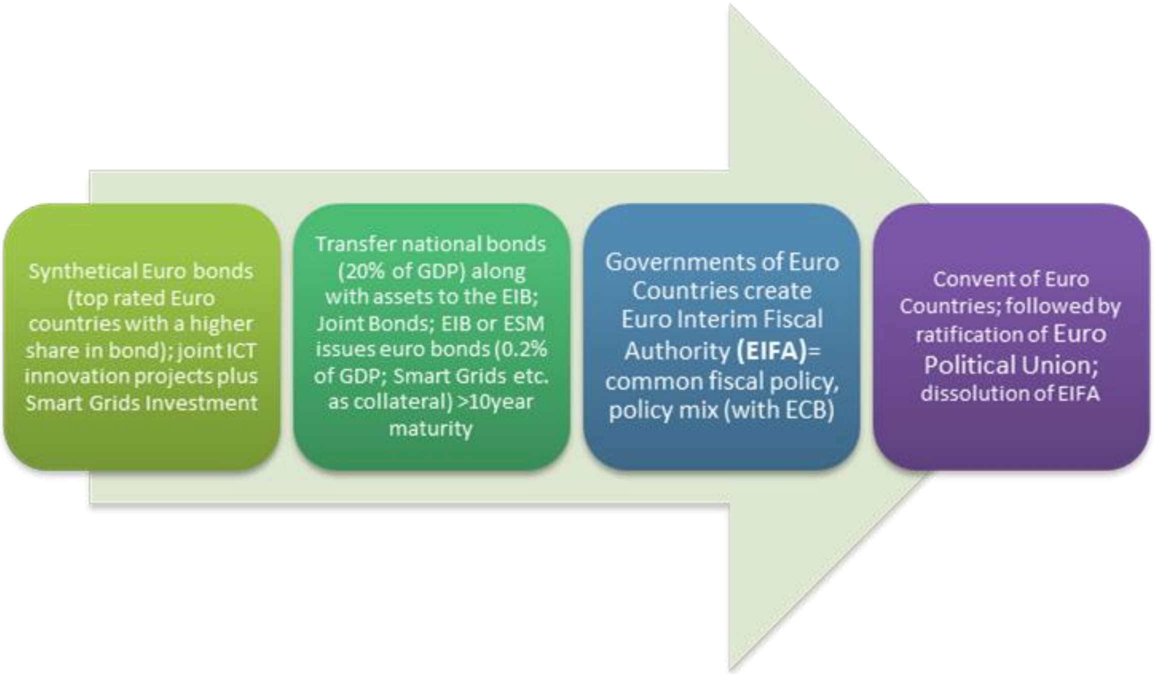
The way towards a Euro Political Union will not be easy. The EU Council could face political tensions once euro countries should decide to move towards a political union, but it would be up to the president of the EU Council to suggest how the interaction between the 18 euro countries and the other ten EU countries should be organized. In a transition period towards a full Euro Political Union there will be a serious challenge for the president of the EU Council to organize smooth cooperation in the Council despite euro area deepening.

The transition to a Euro Political Union could consist of a trajectory of four steps:

- 1) Creation of synthetical bonds in which top rated euro countries are represented with a higher share than the share in euro area GDP; maturity for 10 years and above. This generates a low real interest rate and gives an incentive to poorly rate countries to accelerate reforms and consolidation and growth efforts; financing joint Smart Grid investment and joint innovation projects
- 2) Transfer of national euro bonds of 20% of GDP – plus government assets equivalent of 20% of GDP - to EIB or ESM; exchange into joint bonds Issuing. EIB or ESM will issue 0.2% of GDP in the form of euro bonds on behalf of the euro area countries, exclusively for investment in ICT projects and smart grid projects. Maturity should be above ten years.
- 3) Governments of euro area countries create in a special treaty the Euro Interim Fiscal Authority (EIFA) – through a treaty between euro member countries. EIFA has exclusive responsibility for anti-cyclical policy in the euro area and has the key pillars major infrastructure projects – not only international projects -, defence projects and energy projects. EIFA could be located in a specially designated territory (encompassing Germany, Belgium and the Netherlands) around Aachen and would be resolved after a successful step 4).
- A convent of Euro Countries makes a proposal for a Euro Political Union; after ratification and start of the Euro Political Union (EPU) defines its new role within the EU; in international organizations EPU is exclusively represented, not single

euro countries. EU countries that have not joined EPU initially and should like to join EPU will have to wait at least a decade so that the Euro Political Union can develop a stable institutional framework and distinct economic policies.

Figure 5: Four Step Transition Scheme Towards a Euro Political Union



To the extent that the Euro Political Union is a step towards economic convergence plus higher economic and political stability in the euro area, the medium term outlook for the EU Council should be favourable since convergence of per capita income should facilitate the achievement of political consensus within the euro area and the EU, respectively. The variance of real per capita income variance (on PPP basis) has increased between 1990 and 2005, after 2010 the variance has decreased (see appendix V).

In the very long-run it is up to the euro outsider countries to decide whether or not they will join the euro area. If the euro area is a successful politico-economic venture, pressure on euro outsider countries will grow over time to join the euro area and one cannot rule out that in the very long-run all EU countries will have joined the monetary union – then the euro area indeed would stand for a New EU.

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Appendix I: Health Care Policy Reforms and Social Policy: a Better EU Framework Needed

While not very many people from EU countries might have experienced health problems abroad - in another EU country – those who have can almost all testify about how imperfect the health care systems in EU countries are for EU residents. The natural state of affairs in a digitally networked EU, fifteen years after the start of the EU Lisbon Agenda, should be that for a patient with health problems occurring in any EU country non-discriminatory medical treatment should be provided (not a minimum treatment which often is the case) and no patient should have to pay cash in advance and later have to ask for reimbursement from the health insurance in a tedious process. The whole process should be digitally organized and the only requirements to be fulfilled by the patient are original signatures and later the written/digital confirmation of the health care service provider’s technical report. An interesting group for a survey on the modest state of health care integration in the EU would be Erasmus students with relevant experience abroad.

Income redistribution is organized at the national level of EU countries. Looking at individual countries NIEHUES (2013) finds for 2009 that the richest 20% of the population face considerable income redistribution – in the form of reduced income after redistribution by government – in the Scandinavian EU countries, Belgium, Slovenia and the Netherlands (more than 20% of the income of the highest quintile is redistributed in these countries), but in France, Bulgaria and Cyprus the strange situation was such that after government intervention the income share of the richest 20% had even increased. Redistribution of the poorest 20% of income earners was relatively strong in Ireland, Finland, Denmark, Sweden and Germany where more than 45% of income represented net transfers obtained through government’s redistribution activities. What could be the role of the EU in the field of income redistribution? In a mild institutional reform the EU could indeed adopt common key principles of income redistribution that would rule out such a perverse government redistribution system. To the extent that the EU would also start to pay for part of the unemployment compensation the supranational level would indeed become involved in effective income redistribution. The figures of NIEHUES (2013) deserve some modification if one considers the increasing intra-EU mobility of the elderly; a major problem here is that pensions are not taxed in some countries but are taxed in other countries. One might raise the question whether some minimum tax rate should always apply above a certain real income level expressed in purchasing power parity units.

Table 5: Redistribution of income in EU-countries (net-transfers as a percentage of net-income in 2009)

Ireland	**61.7**	-6.9	Great Britain	**39.5**	-23.8	Cyprus	**33.8**	2.7
Finland	**53.9**	-20.6	Bulgaria	**38.9**	1.0	Malta	**29.3**	-13.2
Denmark	**50.1**	-36.4	Portugal	**38.3**	-10.8	Slovakia	**27.4**	-1.7
Sweden	**45.8**	-23.4	Latvia	**37.8**	-5.1	Luxembourg	**26.5**	-11.6
Germany	**45.7**	-17.3	Hungary	**37.1**	-9.3	Spain	**23.0**	-4.3
Belgium	**45.2**	-19.5	Slowenia	**36.0**	-19.5	Lithuania	**22.9**	-5.1
Czech Republic	**42.3**	-15.5	Austria	**35.7**	-18.4	Poland	**17.3**	-11.8
Estonia	**42.2**	-9.2	Netherlands	**35.4**	-38.4	Italy	**13.2**	-8.7
France	**39.8**	2.6	Romania	**34.3**	-4.8	Greece	**11.1**	-15.3

How to read the table:
Most people pay taxes and social security contributions – at the same time they obtain transfers from government. The net effect differs across countries: net transfer accounts for 46% of net income for the bottom-quintile in Germany. The top-quintile has net payments of 17% of net income.
XX Bottom income quintile of the population.
XX Top income quintile of the population.
Taxes and social security contributions: Income taxes and social security contributions (share of employers); Transfers: Pensions, unemployment insurance and social security payments related to sickness plus family allowances, also other social security payments (original data from Eurostat)
Source: Judith Niehues: Staatliche Umverteilung in der Europäischen Union, in: IW-Trends 1/2013, Cologne (Institut der Deutschen Wirtschaft)

Table 6: Internet-based Job Search Intensity in EU Countries

a) Individuals using the Internet for looking for a job or sending a job application, % of all individuals aged 16 to 74, 2004-2013

geo\time	2004	2005	2006	2007	2008	2009	2010	2011	2013
Sweden	16	23	24	18	22	22	25	26	29
Finland	22	24	26	26	26	24	27	27	27
United Kingdom	14	16	16	15	20	25	22	26	26
Denmark	16	19	20	26	23	27	29	27	22
Estonia	12	18	17	13	15	23	26	25	21
Netherlands	:	16	19	19	17	17	19	19	21
Spain	:	:	:	10	12	16	16	17	20
Malta	:	5	8	10	10	14	15	20	20
Germany	14	:	17	17	16	18	17	18	19
France	:	:	6	12	17	13	16	15	18
Luxembourg	11	12	11	14	12	13	13	15	18
Hungary	6	10	12	13	14	18	21	20	18
Austria	4	6	9	8	9	10	11	21	18
Ireland	3	2	6	7	9	14	14	20	17
Latvia	9	10	11	9	16	25	25	27	17
Greece	2	2	4	5	5	6	6	13	16
Slovenia	6	7	9	11	10	12	14	14	16
Belgium	:	8	9	8	8	13	13	14	15
Croatia	:	:	:	8	11	14	17	20	15
Portugal	3	4	5	6	8	10	10	11	14
Italy	:	5	6	7	7	9	10	12	13
Slovakia	11	11	10	11	13	16	16	18	13
Lithuania	4	7	9	10	10	15	15	14	12
Cyprus	3	3	5	5	4	5	6	7	11
Poland	5	5	7	7	8	9	10	11	11
Bulgaria	3	:	4	5	7	9	9	12	10
Romania	1	:	3	3	3	5	7	9	8
Czech Republic	3	2	4	4	5	8	8	7	6
EU (28 countries)	:	:	:	12	13	15	15	17	17

b) Individuals using the Internet for looking for a job or sending a job application, % unemployed of individuals aged 16 to 74

geo\time	2004	2005	2006	2007	2008	2009	2010	2011	2013
Sweden	51	78	79	64	81	88	83	72	90
Netherlands	:	32	72	66	78	81	80	75	81
Estonia	25	:	37	51	56	65	72	78	76
Austria	17	29	37	:	49	55	55	66	71
Finland	47	42	51	46	56	62	57	67	69
France	:	:	35	49	47	54	59	63	67
Luxembourg	10	15	12	17	12	19	20	24	65
United Kingdom	:	:	46	33	37	65	50	73	64
Denmark	49	48	52	49	:	48	31	:	62
Germany	42	:	52	48	47	53	56	56	60
Spain	:	:	:	24	31	38	41	44	52
Belgium	:	27	26	32	29	42	40	42	51
Ireland	7	2	12	25	20	41	39	49	48
Slovenia	:	:	25	15	18	30	39	38	48
Hungary	:	16	18	17	27	40	38	42	44
Portugal	7	11	16	20	23	28	24	36	44
Greece	3	4	10	16	15	14	21	35	43
Slovakia	17	26	17	24	25	41	46	43	42
Italy	:	15	18	20	20	27	31	33	41
Latvia	5	5	9	10	25	50	53	56	41
Czech Republic	9	10	17	18	27	42	43	38	40
Cyprus	14	16	9	16	9	17	14	21	37
Lithuania	4	9	13	16	23	35	32	37	33
Poland	10	8	13	14	15	21	28	34	33
Croatia	:	:	:	12	13	20	23	27	31
Romania	3	:	10	8	10	12	19	19	29
Bulgaria	2	:	4	5	10	13	14	20	18
Malta	:	10	11	13	18	28	21	:	:
EU (28 countries)	:	:	:	30	32	41	42	46	51

Source: Eurostat, 26.02.2014

Appendix II: Headline Proposals of the Political Union Proposal of the Spinelli Group (2013)

A Fundamental Law of the European Union

1. 'Ever closer union' defined as federal union of states and citizens deriving legitimacy from popular sovereignty
2. Constitutions of EU states must respect EU values
3. Commission becomes the EU government, appointed by and answerable to the legislature of Council and Parliament
4. Limited right of legislative initiative to Council and Parliament
5. European Council redefined as the lead formation of the Council of Ministers
6. Rotating Council presidency abolished: each formation elects its own chair
7. Commission becomes smaller, nominated by its President
8. Certain number of MEPs elected in pan-EU constituency on transnational lists
9. Wide extension of ordinary legislative procedure
10. Widen jurisdiction of Court of Justice
11. Easier access for citizens to Court of Justice
12. Ending rigid unanimity for future treaty change and entry into force
13. Ending opt-outs in justice and home affairs
14. Creation of an associate membership
15. EU tax revenue to finance EU spending
16. Additional budget for the Eurozone
17. Common economic policy focussed on sustainable growth
18. Fiscal solidarity to complement fiscal discipline
19. New powers for European Parliament in economic and

Appendix III: Ageing in the European Union: Declining Long Term Economic Growth – A Simple Analytical Approach

There is no doubt that EU countries are facing long-term ageing challenges. According to UN estimates the share of gainfully employed in the total population of Germany is expected to fall from about 60% in 2010 to about 50% in 2030; EU estimates show a similar development. Let us denote the share of gainfully employed workers in the total population (L) by φ’, K is the capital stock, A is knowledge which is assumed to be labour augmenting; 0<ß<1. The aggregate production function for real GDP (Y) thus is given by

$$Y = K^{\beta}\left(A\varphi' L\right)^{(1-\beta)} = \varphi'^{(1-\beta)} K^{\beta}\left(AL\right)^{(1-\beta)} \qquad \text{(I)}$$

Defining y’:= Y/(AL) and k’:= K/(AL) we can write:

$$y' = \varphi'^{(1-\beta)} k' \qquad \text{(II)}$$

Let us assume a savings function S = sY. Hence we get for S/(AL) the expression.

$$\frac{S}{AL} = s\varphi'^{(1-\beta)} k'^{\beta} \qquad \text{(III)}$$

Moreover, let us assume that the savings rate is a negative function of φ, namely s= s”φ’$^{-(1-\beta)}$ where s” is the savings function that holds if φ is unity: Thus the savings rate is increasing if the share of gainfully employed in the population is falling so that savings rate - for retirement reasons - should increase in an ageing society. This specific form of the savings function has been chosen for ease of exposition since the equation for dk’/dt will now read (based on the goods market equilibrium condition dK/dt + δK= S; δ is the capital depreciation rate; a denotes dlnA/dt; a is assumed to be constant; n:= dlnL/dt and is constant):

$$\frac{dk'}{dt} = s'' k'^{\beta} - \left(a + n + \delta\right) k' \qquad \text{(IV)}$$

Thus we get as the solution for the steady state capital intensity:

$$k'\# = \left(\frac{s''}{a+n+\delta}\right)^{\frac{1}{1-\beta}} \qquad \text{(V)}$$

Now we get for the steady state solution of Y/(AL):=y’:

$$y'\# = \varphi'^{(1-\beta)} \left(\frac{s''}{a+n+\delta}\right)^{\frac{1}{1-\beta}} \qquad \text{(VI)}$$

Compared to the traditional neoclassical solution there is no stable y’ in the steady state since φ’ is assumed to decline at a constant rate. Taking logs and the time derivative we get (with g denoting growth rate):

$$\frac{d \ln y'\#}{dt} = \left(1-\beta\right) g\varphi' \qquad \text{(VII)}$$

Hence the growth rate of per capita income y:= Y/L is – with a denoting the growth rate of knowledge - given by

$$g_y = a + (1-\beta) g_{\varphi'} \qquad \text{(VIII)}$$

In a society with a constant negative growth rate of φ' the per capita growth rate will be lower than in a society with a constant ratio φ'. If the negative growth rate is -0.6% the decline of the per capita income growth rate is considerable if one assumes that a=2% and ß=1/3; the per capita growth rate is reduced by 0.4 percentage points due to aging. This straightforward result is obtained for the special case of the savings function chosen here, but it makes clear the role of ageing for economic growth. In addition one might want to consider another negative effect, namely that the parameter a is a positive function of φ' (and a negative function of ageing – with a greying workforce learning new technologies will become more difficult unless there is considerable progress in teaching & learning): As φ' declines the progress rate a also will fall. Thus changes in the labour force participation rate can have serious economic effects on long term per capita income development.

Appendix IV: Interregional Electricity Prices for industrial consumers in the US and the EU

Table 7: Electricity Price for Industrial Consumers in USA (excl. Hawaii), Euro per kWh, 2012

Alabama	0,0827	Montana	0,0710
Alaska	0,1161	Nebraska	0,0652
Arizona	0,0741	Nevada	0,0687
Arkansas	0,0600	New Hampshire	0,1039
California	0,1043	New Jersey	0,0992
Colorado	0,0731	New Mexico	0,0725
Connecticut	0,1142	New York	0,1171
Delaware	0,0787	North Carolina	0,0674
Dist. of Col.	0,0935	North Dakota	0,0624
Florida	0,0751	Ohio	0,0737
Georgia	0,0745	Oklahoma	0,0569
Idaho	0,0534	Oregon	0,0646
Illinois	0,0621	Pennsylvania	0,0734
Indiana	0,0711	Rhode Island	0,0923
Iowa	0,0623	South Carolina	0,0749
Kansas	0,0718	South Dakota	0,0630
Kentucky	0,0679	Tennessee	0,0802
Louisiana	0,0603	Texas	0,0634
Maine	0,0896	Utah	0,0626
Maryland	0,0811	Vermont	0,1113
Massachusetts	0,1077	Virginia	0,0628
Michigan	0,0850	Washington	0,0597
Minnesota	0,0688	West Virginia	0,0655
Mississippi	0,0725	Wisconsin	0,0817
Missouri	0,0638	Wyoming	0,0641
		Variance	0,0002849

Source: US Energy Information Administration, EIIW calculations

Table 8: Electricity Price for Industrial Consumers in the European Union (excl. Malta and Cyprus), Euro per kWh, 2012

Belgium	0,0950
Bulgaria	0,0684
Czech Republic	0,1028
Denmark	0,0829
Germany	0,0895
Estonia	0,0647
Ireland	0,1293
Greece	0,1006
Spain	0,1155
France	0,0809
Croatia	0,0892
Italy	0,1193
Latvia	0,1103
Lithuania	0,1135

Luxembourg	0,1007
Hungary	0,0888
Netherlands	0,0805
Austria	0,0906
Poland	0,0869
Portugal	0,1050
Romania	0,0833
Slovenia	0,0872
Slovakia	0,1273
Finland	0,0684
Sweden	0,0804
United Kingdom	0,1097
Variance	0,00030938

Source: Eurostat, EIIW calculations

Appendix V: Real Per Capita Income in EU Countries (PPP)

Table 9: Per Capita Income in EU Countries (PPP)

	1990	1995	2000	2005	2010	2011	2012
Austria	25437,45	27425,82	31775,73	33626,39	35201,16	36053,36	36200,42
Belgium	25096,47	26706,02	30399,01	32189,35	32842,36	32963,04	32639,21
Bulgaria	7524,17	6835,68	7111,70	9809,40	11505,80	12009,31	12177,80
Cyprus	18091,44	20099,77	22731,92	24408,10	25198,03	24661,51	23452,07
Czech Republic	16360,97	15746,16	17340,75	21264,41	23619,69	24103,55	23814,95
Denmark	25442,17	28054,43	31652,55	33193,24	32378,58	32601,66	32363,24
Estonia		7938,07	11512,51	16547,96	16611,33	18202,19	18926,67
Finland	23141,03	21907,30	27332,82	30707,95	31321,68	32026,93	31609,52
France	24211,74	25240,62	28209,89	29452,52	29521,68	29963,22	29819,10
Germany	25881,05	27809,44	30297,63	31114,53	33511,72	34619,99	34819,17
Greece	17325,03	17604,79	20316,73	24348,40	23998,69	22308,50	20921,93
Hungary	13119,69	11690,64	13673,57	16974,56	16958,29	17278,52	17032,56
Ireland			33188,67	38762,02	36785,91	36477,46	36722,89
Italy	23730,90	25262,67	27717,07	28279,87	27059,10	27080,65	26310,46
Latvia	10108,75	6182,02	8529,20	13040,46	12948,31	14832,45	15825,60
Lithuania	12499,73	7385,97	9518,31	14197,30	15534,51	17861,26	18799,22
Luxembourg	42706,94	48443,50	61091,23	68290,31	67742,46	67515,51	65736,30
Malta	13674,10	17071,93	21290,96	21018,56	22696,80	23067,58	23204,15
Netherlands	26275,75	28464,15	33690,79	35104,49	36888,29	37063,47	36438,32
Poland	8182,09	8997,15	11753,35	13784,16	17372,27	17980,78	18303,64
Portugal	16177,37	17520,74	21154,91	21368,96	21779,65	21670,98	21032,43
Romania	7852,70	7212,62	6838,02	9361,41	10715,06	11068,99	11443,52
Slovak Republic	12692,58	10820,39	12726,46	16174,83	20120,69	20846,07	21174,69
Slovenia	16454,68	15975,98	19766,26	23475,57	25052,86	25175,87	24483,16
Spain	19776,66	21021,83	25147,12	27392,04	26908,04	26861,16	26395,46
Sweden	24564,88	24640,54	29145,49	32702,98	34125,35	34861,85	34945,10
United Kingdom	22421,32	24874,97	29445,12	33323,94	32765,53	32877,54	32671,24
Variance	63078307,16	94371774,65	134333431,17	141974805,35	130353730,46	125150886,37	117677775,30

Source: WDI and EIIW calculations

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