

# A monetary and fiscal framework for macroeconomic stability in the European Monetary Union

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## Abstract

A proposal for a monetary and fiscal framework for the general case, i.e. economies outside the eurozone, is set out. After examining the distinctive features of the eurozone, the paper proposes a new monetary and fiscal framework for the European Monetary Union. The monetary policy regime proposed for the eurozone is the same as in the general case. However, it is argued that, with respect to fiscal policy, a deviation from the first-best solution (to be implemented in the general case) would be beneficial in the case of the European Monetary Union.

**Keywords:** Monetary Policy, Fiscal Policy, Macroeconomic Stabilization, Optimum Currency Area Theory

## 1 Introduction

In the case of the European Monetary Union (EMU), the conditions for an optimal currency area are far more starkly violated than, say, in the USA. Mundell (1961) pointed to factor mobility as the single most important determinant of the workability of a single currency area. But labour mobility between member states is heavily constrained due mainly to language barriers.

The basic requirement for the workability of a currency union with heavily constrained labour mobility between its member states (such as the EMU) is that the price levels in all member countries rise by the same proportion over time.

Substantial differences in the price levels of the regions of a currency area are, of course, always undesirable. The question is only whether it would be beneficial to accept other distortions in order to avoid the possibility of the emergence of substantial differences in regional price levels. The answer to this question depends, of course, on how costly the elimination of large regional price levels would be, should they arise.

The ongoing eurozone crisis shows that the economic and social costs associated with realigning the regional price levels in the EMU are tremendous. There is no good reason to assume that the costs associated with the removal of significant regional differences in competitiveness would be significantly lower in the foreseeable future.

This paper argues that it would therefore be desirable to accept the (limited) distortions/costs associated with deviating from the first-best solution for a macroeconomic framework in order to avoid the potentially huge costs associated with the possible emergence of substantial differences in regional price levels within the eurozone.

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Section 2 sets out a proposal for a monetary and fiscal framework for the general case (i.e. economies outside the eurozone). The monetary framework proposed is described in subsection 2.1, while the optimal fiscal framework is outlined in subsection 2.2.

## 2 The general case

### 2.1 A proposal for a monetary framework: “Krugmanite” NGDPRT

#### 2.1.1 What is “Krugmanite” NGDPRT?

With “Krugmanite” Nominal GDP Rate Targeting (NGDPRT) I mean a monetary policy regime under which the central bank has the mandate to target some growth rate of NGDP, say, 5%. The central bank attempts to steer the actual growth rate of NGDP towards the target through the use of interest rate changes and other monetary tools. If these tools are not enough to meet the target rate of NGDP growth, the central bank commits to higher future NGDP growth in order to achieve the NGDP growth target today.<sup>2</sup>

Assume, for example, that the target growth rate of NGDP is 5%. Then the economy is hit by a strong aggregate demand shock. Trying to offset the shock, the central bank cuts interest rates. However, even after cutting interest rates all the way to zero, market expectations indicate that the NGDP growth target will be missed.<sup>3</sup> The central bank is therefore obliged to commit to higher future NGDP growth in order to meet the target today. It may, for example, commit to target 6% rather than 5% NGDP growth next year.

If such a commitment is not enough to meet the target today, the central bank commits to even higher future NGDP growth, say, 7% next year or 6% for the next two years.

This procedure may be repeated several times until market expectations indicate that the central bank will meet its target in this period.

#### 2.1.2 Why “Krugmanite” NGDPRT?

I will answer this question in two parts:

1. Why NGDP Rate Targeting rather than inflation targeting?
2. Why “Krugmanite” NGDP Rate Targeting rather than “normal” NGDP Rate Targeting or NGDP Level Targeting?

One advantage of NGDP Rate Targeting over inflation targeting is that NGDPRT does not exacerbate the effect on output of negative supply shocks. Another advantage put forward by proponents of NGDPRT is that, following a positive productivity shock, NGDPRT would be less conducive to the creation of asset price bubbles than inflation targeting.

However, by far the most important advantage of NGDPRT over inflation targeting pertains to aggregate demand shocks.

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<sup>2</sup> Krugman (1998) was the first to explicitly point out that, even if (due to the zero lower bound) conventional monetary policy has lost traction, a commitment to a more expansionary monetary policy in the future can increase aggregate demand today. Hence, I use the term “Krugmanite” NGDPRT to describe the monetary framework proposed. Other important contributions to monetary policy at the zero lower bound include Eggertsson and Woodford (2003) and Jung, Teranishi and Watanabe (2005).

<sup>3</sup> Obviously, at the moment, it is not possible to know exactly what the markets’ expectations of NGDP growth are. A NGDP futures market, as proposed by Scott Sumner (see, for example, Sumner, 2011b) would provide the central bank with the relevant information.

Under the assumption of reasonably small lags between changes in production on the one hand and changes in nominal wages (and prices) on the other, inflation targeting would do a reasonably good job offsetting aggregate demand shocks: if output fell below potential, inflation would fall below its target. By loosening monetary policy, the central bank could bring inflation back to the target and output back to its potential level.

But if there is substantial nominal wage stickiness, inflation targeting is associated with severe problems. Consider an economy with a natural growth rate of 3% and an inflation target of 2%. Assume that this economy is hit by an aggregate demand shock so strong that, *ceteris paribus* (i.e. under the assumption that there is no responsiveness of nominal wages/prices or monetary policy to the shock), the real growth rate of the economy would fall to 0% (i.e. output would be 3% below potential).

In order to understand the failure of inflation targeting under substantial downward rigidity of nominal wages and prices, it is best to use the assumption of zero sensitivity of the rate of inflation to downward changes in the real growth rate as a reference point.

In this case the aggregate demand shock mentioned above would (in the absence of action by the central bank) reduce the real growth rate of the economy to 0% but inflation would not deviate from its target level of 2%. If the central bank could easily distinguish between offsettable (aggregate demand) shocks and non-offsettable (supply) shocks, everything would still be fine. The central bank would recognize the shock as an aggregate demand shock and offset it by loosening monetary policy. Output would not fall below its potential.

But now assume that the central bank cannot distinguish between aggregate demand shocks and supply shocks. In this case, there would be no compelling reason for it to loosen monetary policy. The real growth rate of the economy may have dropped to 0% because of an aggregate demand shock or as a result of a supply shock. In the latter case more expansionary monetary policy would merely lead to overshooting inflation. By not doing anything the central bank can at least ensure that it will meet the inflation target, i.e. its mandate.

In the real world recognizing aggregate demand shocks as aggregate demand shocks (and supply shocks as supply shocks) seems to be quite difficult for central banks (as well as other policymakers). Throughout the last years macroeconomists across the Western world have been occupied with arguing about the gap between the natural and the actual level of output - whether there is such a gap and what its size might possibly be.

And there has been a wide range of answers to these questions. Some central bankers and economists estimated the gap between the natural and the actual level of output to be hugely negative, while others argued that there was no deviation of output from its natural level at all. Some even suggested that output was slightly above its natural level for certain countries (such as the UK where inflation has been running above target for several years). Correspondingly policy recommendations have ranged from urgent calls for aggressive monetary stimulus to demands for tighter money.

In summary, inflation targeting would do a good job offsetting aggregate demand shocks if there were no wage and price rigidities or if the central bank had complete information. In

reality, there is substantial downward wage and price rigidity and the central bank does not have complete information.

Under NGDPRT, the central bank would automatically offset aggregate demand shocks – without having to have detailed information about the output gap (or the ability to distinguish between aggregate demand and supply shocks) and independent of the degree of wage/price rigidity.

Of course, conventional monetary policy may not be enough to fully offset an aggregate demand shock. In order to still meet the target growth rate of NGDP, there are two options available: fiscal policy or committing to a more expansionary monetary policy in the future.

Given the constraint on conventional monetary policy through the zero lower bound of nominal interest rates, macroeconomic stabilization could rest on a two-tier approach such as this: as long as the economy is not at the zero lower bound on nominal interest rates, the central bank uses conventional monetary policy to meet its mandate. If the economy is up against the zero lower bound, the central bank is empowered to determine the budget balance (the difference between government spending and tax revenues) so as to meet its mandate.

However, such a two-tier approach to macroeconomic stabilization would be suboptimal. Ideally, macroeconomic stabilization policy does not only produce the level of GDP (employment) that would be achieved under flexible prices. It also produces the allocation of resources achieved under flexible prices. Using fiscal policy as a macroeconomic stabilization tool can yield the level of GDP corresponding to the flexible price equilibrium but, obviously, it is not able to achieve the same composition of it.

Using fiscal policy as a counter-cyclical stabilization tool involves a trade-off between the goal of macroeconomic stabilization and the purpose of microeconomic efficiency. This kind of trade-off does not exist in the case of monetary policy, which therefore dominates fiscal policy as a macroeconomic stabilization tool.

This dominance also holds when conventional monetary policy is constrained by the zero lower bound and the central bank has to commit to future monetary policy actions in order to increase aggregate demand today (see, for example, Mankiw and Weinzierl, 2011).

Given that unconventional monetary policy in the form of a commitment to higher inflation (NGDP growth) in the future should produce less distortion than fiscal stimulus, the monetary framework should ideally enable the central bank to commit to a more expansionary future monetary policy in case the economy is up against the zero lower bound.

One way of doing this would be NGDP Level Targeting (NGDPLT).<sup>4</sup> If, under an NGDPLT regime, the target path of NGDP is undershot, this automatically leads to anticipation of a (temporarily) more expansionary monetary policy in the future. Expectations of monetary expansion in the future will reduce the real interest rate and therefore increase aggregate demand today, which will limit the degree of the undershooting.

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<sup>4</sup> For a detailed description of the concept of NGDP Level Targeting see, for example, Sumner (2011a, 2011b).

The problem with NGDPLT is that, for expectations of higher NGDP growth in the future to materialize, the growth rate of NGDP today has to fall below its (implicit) target level. That is, NGDPLT implies a commitment to more expansionary monetary policy in the future only if the (implicit) target growth rate of NGDP (say 5%) is undershot today.

Hence, if the economy is hit by an aggregate demand shock that (due to the zero lower bound of nominal interest rates) cannot be fully offset by conventional monetary policy, NGDPLT can limit the degree to which the growth rate of NGDP undershoots the target. But monetary policy will not be able to prevent the growth rate of NGDP from undershooting the target rate.

Obviously, it is not ideal for a monetary policy regime to imply a commitment to more expansionary monetary policy in the future merely as a reaction to NGDP undershooting its target growth rate. Rather, it would be desirable that such a commitment take place in order to avoid the growth rate of NGDP to be undershot in the first place.

And this is where the advantage of “Krugmanite” NGDPRT over NGDPLT lies. “Krugmanite” NGDPRT means that the central bank commits to a more expansionary monetary policy in the future, as soon as market expectations indicate that, despite zero interest rates, in the absence of further action the NGDP growth target will be undershot. That is, in contrast to NGDPLT, “Krugmanite” NGDPRT fully offsets every aggregate demand shock - independent of its size.<sup>5</sup>

The key to understanding why the central bank (provided it were endowed with the appropriate mandate) would be able to offset every aggregate demand shock is the simple fact that it can always print more money.

Of course, just increasing the money supply is not enough. In order for aggregate demand to increase, markets have to believe the increase in the money supply will be permanent. A permanent increase in the money supply will eventually lead to a proportional rise in the price level. At the zero lower bound, higher expected prices reduce the real interest rate. Hence, aggregate demand increases today.

Since the central bank can always print more money, there is no limit to the extent to which it can increase the future price level. Provided that markets expect the increase in the money supply to be permanent, the central bank can reduce the real interest rate up to the point where any aggregate demand shock is fully offset.

Committing to higher NGDP growth in the future is a means to convey to markets the information that the increase in the money supply will indeed be permanent.

## 2.2 The optimal fiscal framework

With respect to the expenditure side of fiscal policy optimality implies that the marginal benefit of government consumption be equal to the marginal benefit of private spending. That is, government consumption should remain a constant fraction of GDP over the business cycle. With respect to taxation optimality implies that tax rates are to remain constant over the

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<sup>5</sup> Under NGDPLT, an aggregate demand shock which cannot be fully offset by conventional monetary policy causes the growth rate of NGDP to undershoot the target today and then overshoot the target in the future. Under “Krugmanite” NGDPRT, an aggregate demand shock which cannot be fully offset by conventional monetary policy does not cause the growth rate of NGDP to undershoot the target today; it only leads to above target growth of NGDP in the future.

business cycle in order to minimize the excess burden of taxes (see, for example, Barro, 1979).

Due to the counter-cyclical nature of transfer payments (automatic stabilizers) optimal fiscal policy would thus correspond to a counter-cyclical pattern in the budget balance (see, for example, Alesina and Tabellini, 2005).

However, one cannot plausibly explain the persistence of large deficits and the corresponding explosion of public debt observed in many countries as the result of optimal fiscal policy. At the root of this deficit bias are political economy distortions.

Political economy models of fiscal policy can be grouped into differential categories depending on the source of interest heterogeneity causing fiscal deficits (see Eslava, 2010):

1. heterogeneity of interests between politicians and voters
2. heterogeneity of interests between politicians
3. heterogeneity of interests between social groups or districts/regions.

In the first of these categories opportunistic policymakers use deficits to enhance their chances of getting re-elected. The second category of models is based on the hypothesis that politically motivated deficits are caused by partisan policymakers, who use fiscal deficits strategically to influence the policy of successors belonging to the opposing party. The third category explains the deficit bias as a result of distributional conflicts between social groups, districts or regions.

However, the deficit bias of the political sphere can be eliminated by a fiscal rule requiring the structural budget balance to be zero at all time, whereby estimates of the structural budget balance should be conducted by an independent institution. And this is exactly the fiscal framework for the general case proposed in this paper.

### **3 A framework for macroeconomic stability in the EMU**

Section 2 made a proposal for a monetary and fiscal framework for the general case, that is, for currency areas that are either optimal or not suboptimal enough to justify a deviation from the first-best solution for the monetary and fiscal framework.

The theory of the second best states that, if one optimality condition cannot be satisfied, the next-best solution involves changing other conditions away from optimality as well (see Lipsey and Lancaster, 1956).

In practice, policymakers usually lack the information to implement the second best policies. According to the theory of the third best (see Ng, 1983, chapter 9), policymakers should therefore refrain from trying to reduce the cost associated with one kind of distortion by artificially introducing other distortions into the economy.

For this reason, I do not suggest that, say, for the USA, modifying the monetary and fiscal framework described in section 2 would be preferable to implementing the first-best solution - even though I agree with Kouparitsas (2001) that the US is not an optimum currency area.

However, in the case of the European Monetary Union (EMU), the conditions for an optimal currency area are far more starkly violated than in the USA. Mundell (1961) pointed to factor mobility as the single most important determinant of the workability of a single currency area. While capital is certainly sufficiently mobile in the EMU, this is not at all the case for labour. Labour mobility between member states is heavily constrained due mainly to language barriers.<sup>6</sup>

The economic and social costs resulting from asymmetric shocks in combination with immobility of labour have turned out to be extremely large. Given that there is no reason to believe that, in the future, the EMU will not be subject to (large) asymmetric shocks anymore and given that the immobility of labour between the member states is unlikely to decrease significantly in the foreseeable future, a deviation from the first-best solution for the monetary and fiscal framework is, in my view, justified in the case of the eurozone countries.<sup>7</sup>

The introduction of the Euro reduced real interest rates in the peripheral countries of the eurozone, which led to a significant increase in aggregate demand. The development in Germany was the exact opposite: investment was sluggish for years and unemployment was high. As a result, the peripheral countries were consistently overshooting the common inflation target. Germany, on the other hand, was consistently undershooting the inflation target.

The peripheral countries with their relatively fast rising price levels became increasingly uncompetitive vis-à-vis Germany with its relatively slowly rising price level. When private capital flows from Germany to the peripheral countries came to a sudden end, the peripheral economies were left with prices substantially out of line with those in Germany.

The cost associated with the internal devaluation the peripheral countries are now going through would be greatly mitigated if there were high labour mobility between the member countries of the eurozone. But due mainly to language barriers, workers from, say, Spain cannot easily emigrate and take up jobs in, say, Germany.

The basic requirement for the workability of a currency union with heavily constrained labour mobility between its member states (such as the EMU) is therefore that the price levels in all member countries rise by the same proportion over time.<sup>8</sup> Put differently: while a member state of the EMU may no longer have its own monetary policy, it still has an “inflation target” to meet year by year.

But how can each member state of a single currency area ensure to meet the common “inflation target” without having its own monetary policy? The answer is: through using fiscal policy.

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<sup>6</sup> Another important determinant of the workability of a single currency area is the degree of fiscal integration (see Kenen, 1969). Since the EMU is not a federal state but an association of independent nation states, fiscal integration within the EMU is virtually non-existent.

<sup>7</sup> In the long run, labour may become much more mobile within the EMU, if the English language in Europe evolves to being used for business and communication in way it is already used in, say, India today.

<sup>8</sup> Of course, avoiding substantial differences in the price levels of the regions of a currency area would also be desirable if labour were highly mobile. But if labour is as immobile as in the EMU, avoiding substantial differences is absolutely crucial: without the mitigating effect of high labour mobility, the costs associated with realigning the price levels of different regions are extremely high.

Given the fact that member countries of the EMU are subject to asymmetric shocks and given the fact that they have transferred monetary policy to a common central bank, fiscal policy becomes crucial for the purpose of stabilizing the national economies and ensuring that price levels in all member countries rise by the same proportion over time.

As described above, the introduction of the Euro led to lower real interest rates and an economic boom in the periphery, while the development in Germany was the exact opposite. Here is what should have happened: fiscal policy in peripheral countries should have been very contractionary throughout the boom years in order to meet the common inflation target. For the same reason (namely to achieve the common inflation target) fiscal policy in Germany should have been relatively expansionary. This would have stimulated demand, output and therefore wages.

Here is what actually happened: in the peripheral countries fiscal policy was far too expansive given the economic environment. As long as the deficit limit of 3% – erected by the “Stability and Growth Pact” (SGP) – was not exceeded, governments in those countries did not have sufficient incentives to tighten fiscal policy in order to meet the common inflation target. As a result, those countries were consistently overshooting the common inflation target.

Germany, on the other hand, was consistently undershooting the inflation target: instead of being expansive, fiscal policy in Germany, in its attempt to meet the requirements of the SGP, was contractionary, thereby hampering demand (and therefore output and nominal wage increases) even more.

That is, rather than offsetting the asymmetric shocks hitting the eurozone, fiscal policy in the member countries of the EMU exacerbated them by becoming pro-cyclical.

Neutral fiscal policy<sup>9</sup> (i.e. the first-best solution for a fiscal framework, see subsection 2.2) would have been an improvement on the pro-cyclical fiscal policy observed in the eurozone but it would most probably not have prevented the emergence of substantial differences between regional price levels.

Substantial differences in the price levels of the regions of a currency area are, of course, always undesirable. The question is only whether it would be beneficial to accept other distortions (i.e. costs) in order to avoid the possibility of the emergence of substantial differences in regional price levels. The answer to this question depends, of course, on how costly the elimination of large regional price levels would be, should they arise.

The ongoing eurozone crisis shows that the economic and social costs associated with realigning the regional price levels in the EMU are tremendous. There is no good reason to assume that the costs associated with the removal of significant regional differences in competitiveness would be significantly lower in the foreseeable future.

In my view, it would therefore be desirable to accept the (limited) distortions/costs associated with deviating from the first-best solution for a fiscal framework in order to avoid the potentially huge costs associated with the possible emergence of substantial differences in regional price levels within the eurozone.

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<sup>9</sup> Note that “neutral” fiscal policy would – due to the counter-cyclical nature of transfer payments (automatic stabilizers) – correspond to a counter-cyclical pattern in the budget balance (see subsection 2.2).



Each member country of the EMU should be subject to a fiscal rule requiring the budget balance to be set in such a way as to ensure that, over time, the national price level increases by the same proportion as the price level in the eurozone as a whole. That is, on the national level there should be a price level targeting mandate for fiscal policy. Such a fiscal framework would have prevented the inflation/competitiveness divergence between Germany and the peripheral countries of the EMU.<sup>10</sup>

The ECB's monetary policy regime (whether it be inflation targeting, price level targeting, NGDPRT, NGDPLT, "Krugmanite" NGDPRT or yet some other policy regime) determines how the "common" (eurozone-wide) price level evolves over time.

A price level targeting mandate for fiscal policy implies a commitment of member states to correct past deviations from the eurozone-wide change in prices and would thus ensure that national price levels rise roughly synchronously over time. If, in a given year, inflation in the eurozone as a whole were, say 2%, but inflation in, say, Spain were 3%, then Spain would have to correct for this deviation from the eurozone-wide rate of inflation by targeting a rate of inflation below the eurozone-wide average in the next year.

In any given year, the expected rate of inflation for the eurozone as a whole is the reference point that national fiscal authorities use in order to determine which rate of inflation to aim for in that year. For a member state whose price level has risen synchronously with the eurozone-wide price level over time, the inflation target for that year will, of course, simply equal the expected eurozone-wide rate of inflation.

Price level targeting (through the use of fiscal policy) on the national level does not imply constraints on the choice of the monetary policy regime on the European level. If the ECB followed an NGDP (Rate or Level) Targeting regime, the expected rate of inflation for the eurozone as a whole (i.e. the reference point for national fiscal authorities) would simply equal the difference between the NGDP growth target and the expected real growth rate.

That is, a deviation from the first-best solution for the fiscal framework on the national level does not necessitate a deviation from the first-best solution for the monetary framework on the European level. Hence, "Krugmanite" NGDPRT could and, in my view, should be the monetary policy regime of the ECB.

Some might argue that, due to political economy distortions, fiscal policy could not be relied upon to fulfil its price level targeting mandate.

Discretionary fiscal policy has undoubtedly been subject to a deficit bias across countries. However, under the fiscal framework proposed in this section, fiscal policy would not be discretionary but subject to a clear mandate. And as long as the sanctions on a government not meeting its mandate are sufficiently costly, the framework should provide the member countries of the eurozone with the right incentives to meet their price level targeting mandates.

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<sup>10</sup> If, at some point in the future, labour is much more mobile within the EMU (for example because everybody is fluent in English), there is, of course, no justification any more for deviating from the first-best solution for a fiscal framework. Fiscal policy should then be required to be neutral.

Alternatively, the determination of the budget balance (i.e. the difference between public spending and tax revenues) could be delegated to an independent institution: independent institutions such as the central bank are not subject to the political economy distortions associated with the democratic sphere.<sup>11</sup>

In each member country of the eurozone a *National Fiscal Policy Committee* could be given the mandate to set the budget balance in such a way as to ensure that, over time, the national price level increases by the same proportion as the price level in the eurozone as a whole.<sup>12</sup> Such *National Fiscal Policy Committees*, independent of politics and given a clear mandate, would provide the right incentives for fiscal policymakers.

Of course, delegating the determination of the budget balance target to an independent institution would be associated with one potential problem. The committee sets the budget balance target having in mind a certain aspired effect on aggregate demand (and hence the rate of inflation).

But different expenditures have different multipliers and the same is true for different taxes. Different compositions of tax and expenditure changes consistent with the committee's budget balance target may have significantly different effects on aggregate demand (Calmfors, 2003, p. 336). Therefore, the actual effect of the budget balance target on aggregate demand may be quite different from the one the committee had in mind when setting the target.

Fortunately, there is a simple solution to this problem: the committee should have the right to adjust the budget balance target at any time. If it transpires that the actual effect of the fiscal change differs from the intended effect on aggregate demand, then the committee can adjust the budget balance target accordingly.

One might think that delegating the determination of the budget balance to an independent institution would not be democratically legitimate. But this is not the case.

Generally, delegation of decision-making powers to an independent institution is innately democratically legitimate, if any disagreement regarding the question of how to best achieve a certain objective (which has to be either a common objective shared by virtually everybody or one that has been determined democratically) is not caused by different value judgements but only by different factual judgements (see, for example, Calmfors, 2003, pp. 334 - 335).

The determination of the budget balance does not involve value judgements because it does not involve non-negligible redistributive effects. Delegating the determination of the budget balance to an independent institution, while leaving the question of how to achieve this budget balance in the sphere of democracy, would therefore be democratically legitimate.

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<sup>11</sup> The proposal to delegate the determination of the budget balance to an independent institution has been made, for example, by Calmfors (2002, 2003) and Wyplosz (2002, 2005, 2008). The first proposal for the delegation of certain aspects of fiscal policy to an independent institution was made by Ball (1996). Independently, Gruen (1997) made a proposal very similar to that of Ball (1996).

<sup>12</sup> In order to avoid harmful delay in the implementation of changes in the budget balance determined by the National Fiscal Policy Committee, there should be a certain time limit for the decision making process in. If the parliament (maybe due to distributional conflicts between interest groups) has not passed a law specifying adequate changes in public spending and taxation by the end of the time limit, the committee should have the right to take action itself in order to achieve the desired change in the budget balance. One could, for example, endow the committee with the power to order a proportional change in income taxes in such a case.

That the determination of the budget balance does indeed not involve non-negligible redistributive effects is derived in the following.

Regarding potential redistributive effects associated with the determination of the budget balance, one has to distinguish between intratemporal (within a time period) and intertemporal (over many time periods) effects.

Variations in the budget balance barely have intratemporal distributional consequences. However, delegating the power to determine the budget balance to an independent institution also means delegating public debt policy (i.e. the determination of the path of public debt over time). Through public debt policy again, the fiscal authorities can shift deadweight loss associated with taxation to later generations.

However, being able to shift deadweight loss associated with taxation between generations does not mean that fiscal authorities are also able to shift welfare between generations.

If an individual thinks that the fiscal authorities do not accumulate enough public debt (i.e. that the fiscal authorities do not shift enough deadweight loss associated with taxation to later generations), they are free to increase their private consumption (i.e. to reduce the value of the inheritance to their children). If, on the other hand, an individual believes that the fiscal authorities accumulate too much public debt, they are equally free to ramp up saving (i.e. to increase the value of the inheritance to their children).

No matter what the fiscal authorities (be it the parliament or some independent institution) decide regarding the path of public debt, every individual can offset the consequences of these decisions on the distribution of welfare between himself (herself) and his (her) children by adjusting consumption. The children again are free to decide on the distribution of welfare between themselves and their own children, and so on.

That is, the question of how to distribute welfare between generations is decided upon in the best way possible: by proportional representation, i.e. everybody decides for themselves and the majority is not able to force its will upon the minority.

In order to illustrate this, assume the following change in expectations: future (in the sense of next generation) economic growth is predicted to be far higher than previously suggested. Suppose further that fiscal authorities do not change public debt policy. Given the expected increase in the welfare of their children vis-à-vis their own welfare, some individuals may decide that the size of the inheritance they were planning to leave for their children is too generous. Those individuals who think so will increase consumption (reduce saving), thereby reducing the value of the inheritance they leave their children.

In the aggregate, more consumption and less saving means that, ceteris paribus, the capital stock (i.e. the production capacities) inherited by the next generation will be smaller.

Proportional representation means that even if, at a certain point in time, the majority of people want to redistribute welfare from their children to themselves (or from themselves to their children), the minority that does not want to do so, is free to not change their consumption behaviour.

The net effect in the aggregate (i.e. the net effect on the size of the capital stock) depends on the number of people that want to increase, reduce or keep unchanged their consumption, respectively.

Because individuals can offset any effect of the fiscal authorities' public debt policy on the distribution of welfare between the current and future generations by adjusting consumption, public debt policy is in fact not able to change the distribution of welfare between generations against the will of the people. This means that the determination of the budget balance is not burdened by value judgments related to the issue of intergenerational justice.

Therefore, endowing an independent institution with the power to determine the budget balance, while leaving the question of how to achieve this budget balance in the sphere of democracy, would be democratically legitimate.

To summarize, this section proposes a new monetary and fiscal framework for the European Monetary Union. The monetary policy regime proposed is the same as in the general case: "Krugmanite" NGDPRT, as described in subsection 2.1. However, it is argued that, with respect to fiscal policy within the eurozone, a deviation from the first-best solution (as described in subsection 2.2) would be beneficial.

Each member country of the EMU should be made responsible for using fiscal policy in such a way as to ensure that, over time, the national price levels increase by the same proportion as the price level in the eurozone as a whole. As long as the sanctions on a government not meeting its mandate are sufficiently costly, the framework should provide the member countries of the eurozone with the right incentives to meet their price level targeting mandates. Alternatively, the determination of the budget balance could be delegated to an independent institution.

#### **4 Summary**

This paper proposes a new monetary and fiscal framework for the European Monetary Union. The monetary policy regime proposed for the eurozone is the same as in the general case: "Krugmanite" NGDP Rate Targeting (NGDPRT).

Under "Krugmanite" NGDPRT the central bank has the mandate to target some growth rate of NGDP. The central bank attempts to steer the actual growth rate of NGDP towards the target through the use of interest rate changes and other monetary tools. If these tools are not enough to meet the target rate of NGDP growth, the central bank commits to higher future NGDP growth in order to achieve the NGDP growth target today.

In contrast to other monetary policy regimes such as inflation targeting or even NGDP Level Targeting, "Krugmanite" NGDPRT fully offsets every aggregate demand shock – independent of its size.

With respect to the fiscal framework, the first-best solution (and the one to be implemented in the general case) would be a fiscal rule requiring the structural budget balance to be zero at all time. However, it is argued that, with respect to fiscal policy within the eurozone, a deviation from the first-best solution for a fiscal framework would be beneficial.

The basic requirement for the workability of a currency union with heavily constrained labour mobility between its member states (such as the EMU) is that the price levels in all member countries rise by the same proportion over time.

Substantial differences in the price levels of the regions of a currency area are, of course, always undesirable. The question is only whether it would be beneficial to accept other distortions in order to avoid the possibility of the emergence of substantial differences in regional price levels. The answer to this question depends, of course, on how costly the elimination of large regional price levels would be, should it be necessary.

The ongoing eurozone crisis shows that the economic and social costs associated with realigning the regional price levels in the EMU are tremendous. There is no good reason to assume that the costs associated with the removal of significant regional differences in competitiveness would be significantly lower in the foreseeable future.

This paper argues that it would therefore be desirable to accept the (limited) distortions/costs associated with deviating from the first-best solution for a fiscal framework in order to avoid the potentially huge costs associated with the possible emergence of substantial differences in regional price levels within the eurozone.

Each member country of the EMU should be subject to a fiscal rule requiring the budget balance to be set in such a way as to ensure that, over time, the national price level increases by the same proportion as the price level in the eurozone as a whole. That is, on the national level there should be a price level targeting mandate for fiscal policy. Such a fiscal framework would prevent the emergence of substantial differences in regional price levels within the eurozone in the future.

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