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Coordination of fiscal and monetary policy in CIS-countries
A theory of optimum fiscal area?

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Abstract

The following paper analyze the problem of fiscal and monetary coordination in selected CIS-countries and compare it with the institutional structure in the EMU. To enhance the literature in that field it is necessary to take into account some new approaches. Most of our interest are spill-over effects, free-riding behavior and pre-coordination within fiscal and monetary areas. Besides the more institutional economic analysis we try to build-up an economic model that analyze the optimal degree of coordination. Moreover, numerical simulations complete the theoretical analysis and illustrates a 'coordination-frontier'. We show that the optimal degree of coordination depends on fiscal rules and government size. Furthermore, another new result illustrates that spill over effects are not sufficient for deepening coordination. Therefore, our model is an interesting research object for the future of 'Economic-Coordination' literature. Hence, we solve the following key-problem in fiscal coordination: What is the optimal degree of fiscal coordination between different countries in a monetary area?

JEL classification: E61; E69; F42

Keywords: Fiscal–monetary coordination; Interaction conflicts; Fiscal federalism

1. Introduction

It is really impressive to see the rapid transformation process and the development of the Eurasian Economic Community (EEC) as well as the transformation process in the selected

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CIS-countries. The chronology of the EEC has many similarities with the development of the current European Economic and Monetary Union (EMU) two decades ago. The Commonwealth of Independent States (CIS) consists in general of: Armenia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Republic of Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine and Uzbekistan. In Juni 2001, the following five CIS-countries—Belarus, Kazakhstan, Kyrgyzstan, Russia and Tajikistan—announced in Belarussian capital Minsk on Thursday to set up the Eurasian Economic Community (EEC). The main target is to boost cooperation between the five member countries, which earlier formed also a Customs Union (Ellman, 1998).

In this paper, we analyze a specific set of macroeconomic policy particularly the coordination of fiscal and monetary policy in the main CIS-countries.[1] We find some new results and suggestions regarding the design of fiscal cooperation frameworks, especially for interacting economies in monetary issues. Moreover, we try to analyze the impact of spill-over effects in interacting fiscal and monetary areas to internalize the coordination burden. We consider a model where fiscal policy reputation, homogeneity, and output variance (volatility) affect the degree of coordination between fiscal policies in CIS-countries, and therefore explain the problem of different coordination behaviors in those countries. Countries with high past reputation or negotiation power, such as Russia, intend to coordinate fiscal and monetary policy issues on a lower degree or more slowly than smaller countries because of the risk-premium on interest rates, higher free-riding incentives and, the well-known signaling effect caused by asymmetric information (Bohn, 1998). Delays in coordination are particularly inefficient, as the longer a country waits the more costly the policy adjustment and the more the spill-over effects lead to free-riding and undersupply. The reason is that longer periods of un-coordination and instability imply higher inefficiencies. This paper studies the economic determinants of delays in the coordination of fiscal policy in selected CIS-countries.

We present a simple model that describes some determinants of delayed coordination due to a strategic-interaction game. Concerning the determinants of coordination, we show that the values of output volatility, homogeneity within fiscal policy rules, and the credibility of other participating countries in fiscal issues are the most relevant variables for explaining differences in the intended degree of fiscal coordination within the main CIS-countries. Moreover, we suggest that CIS-countries that focus on coordination in monetary issues have to look closer to fiscal policy issues. There are two main reasons: on the one hand there are strong interactions between fiscal and monetary policy issues shown in the 'Fiscal Theory of Price Level (FTPL)' (Woodford, 2003). On the other hand a recent article in the new fiscal–monetary interaction literature by Dixit and Lambertini (2003) show also the importance of fiscal policy in monetary areas. Our model illustrates that argument from a public finance perspective. We show that there are different incentives to coordinate fiscal issues between larger and smaller CIS-countries (cf. Alesina and Drazen, 1991; Alesina and Spolaore, 1997). That result is pretty surprising because it is mostly ignored or unaccounted in discussions on coordination of monetary policy issues in CIS-countries.

To maintain price stability during the coordination of monetary policy we have to look to the fiscal policy framework. Hence, fiscal policy is necessary to evaluate the main target price stability. Sometimes it is assumed that central banks are accused of being obsessed with inflation. This is totally untrue. If they are obsessed with anything, it is with 'fiscal policy' coordination (King, 1998). Therefore, we focus in our paper on that dimension and analyze the key determinants and

[1] Those countries are: Belarus, Kazakhstan, Russia and Ukraine.

impacts of fiscal policy coordination. Hence, summing up: our approach is a first step towards a "Theory of Optimum Fiscal Area".

Moreover, we discuss in general the costs and benefits of fiscal and monetary coordination and show again in a simple model which mode of coordination or non-coordination is more successful in an area with different spill-over intensities. Therefore, it seems to us very interesting to understand fiscal policy coordination behavior in a game-theoretic framework. That model approach is the most appropriate one in transition economies where 'Lucas critique' is in function.

The remainder of this paper is structured as follows. Section 2 presents a short literature review. Section 3 starts with the description of the institutional development in CIS-countries and compare it with the European Framework especially with some issues in the fiscal framework. Both following Sections 4 and 5 concentrates on the economic modelling and continues with the discussion of the results. Policy conclusions are taken up in Section 6. The last, Section 7 provides discussion and concluding remarks.

2. Literature review

Our approach is related to the literature on dynamic games between a monetary and a fiscal authority, initiated by Kydland and Prescott (1977) and Barro and Gordon (1983). The paper relates to two analyses of delayed stabilization: (A) Tabellini (1986) considers a war of attrition that is played out between the fiscal and the monetary authorities—an unsustainable combination of monetary and fiscal policies is in place until one side concedes; and (B) Alesina and Drazen (1991) also build a war of attrition model; however, they shift the focus on a game between interest groups. They show why stabilizations are delayed.

Our paper differs from Tabellini (1986) and Alesina and Drazen (1991) in several ways. First, we concentrate on the coordination behavior, and therefore abstract from pure politic-economic determinants. Second, we try to analyze a strategic situation in CIS-countries since 2001. Finally, and most importantly, the model attempts to explain not only the fact that the degree of coordination is different in countries, but also to show why coordination is different between larger and smaller countries and what are the determinants.

The results illustrate that larger countries follow a lower (slower) degree of fiscal coordination than smaller countries because of greater differences in the public sector and smaller output variations. Indeed, the model focuses on a few details to explain fiscal coordination but to analyze the key determinants in that approach helps to model in the second step the spill over (non-)coordination relationship. That provides a reasonable explanation for the current design of coordination in fiscal policy issues in the main CIS-countries. Moreover, that framework works as a general theory of 'Optimum Fiscal Areas' because it captures also the problems of fiscal coordination discussed in the European Monetary Union.[2]

There is also a substantial literature about the economic impact of and reasons for macroeconomic coordination across countries. An early attempt to model that issues is provided by Hamada (1976). His pioneering contribution on international policy coordination, policymaking then becomes a noncooperative game, and there are likely to be gains from cooperation. There emerge a huge body of literature on both theoretical and empirical aspects of policy coordination. Canzoneri and Henderson (1988) and Persson and Tabellini (1995) present excellent surveys of

[2] cf. the huge discussion on the European Stability and Growth Pact (Buti et al., 2003).

"older" models of coordination, stressing political economy aspects. Within the creation of EMU a new debate and literature starts to analyze fiscal and monetary coordination in all variants.

Issues of macroeconomic policy coordination and cooperation attracted a large interest in the macroeconomic literature of the 1980s and 1990s. Petit (1989), Wallis (1988), McKibbon and Sachs (1991), and Nordhaus (1994), e.g. provide detailed discussions on macroeconomic policy transmission and coordination in dynamic macroeconomic models. The coordination issue concerns both the coordination between monetary and fiscal policy in the national economy and the coordination of macroeconomic policies between countries (Van Aarle et al., 2001). Hughes Hallett and Ma (1996) and Demertzis and Hughes Hallett (1998) found that uncoordinated policies cause particular problems in cases where countries are not symmetric.

The inability of policymakers to commit is also the reason for counterproductive policy coordination in Rogoff (1985), Kehoe (1989) and Canzoneri and Henderson (1988). But if, policymakers could commit in their models, cooperation would be beneficial. Beetsma and Bovenberg (1998), Beetsma et al. (2001) and Eichengreen and Ghironi (2002) show more examples of counter productive cooperation.

Furthermore, Dixit and Lambertini (2001, 2003) and Eichengreen and Ghironi (2002) explain that there is no need for fiscal cooperation in a monetary union when all players agree on their goals. In this case they can reach their welfare optimum. Jensen (1996) shows that fiscal cooperation may be disadvantageous of monetary cooperation and lacks credibility with the private sector but is welfare-improving when central banks adhere to a rule. Lombardo and Sutherland (2004) find that fiscal cooperation may be welfare-reduction if monetary policies are set non-cooperatively.

Several papers mentioned in the last paragraphs have in common that cooperation is welfare-reducing, but contrary to these papers Mendoza and Tesar (2003) find gains from fiscal cooperation. The only conclusion from that literature is for this reason: fiscal coordination and/or cooperation is a mixed blessing. Thus, further research is necessary.

While in monetary policy Mundell (1961, 1976), McKinnon (1963) and Kenen (1969) developed the well-known 'Optimal Currency Area' approach there is no analog in fiscal policy. Therefore, our approach can be seen as a first step towards a "Theory of Optimal Fiscal Area". We analyze and discover similar criteria as in the optimum currency literature but for an optimal fiscal area.

3. Institutional comparison

In the five CIS-countries, the transformation process has made great progress especially since the creation of EEC in 2001. In those countries, central planning is a matter of economic history, there exists functioning markets for goods and factors of production, the legal and administrative framework for a market economy is in place, a large part of the economy is now in private hands, economic growth has resumed (in average 5% in 2003 and 2004), and the country concerned has demonstrated its attractiveness to foreign private capital (Gomulka, 2000).

The institutional development in some CIS-countries starts in the mid 90ies. In 1995 Russia and Belarus created a customs union, in which Kazakhstan and Kyrgyzstan joined later. These four states signed a treaty, with the goal of 'deepening integration in the economy, since, education, culture, the social and other spheres with respect for the sovereignty of the sides', as well as coordination of foreign policies and joint protection of their borders in 1996. After 3 years on February 26, 1999, Belarus, Kazakhstan, Kyrgyzstan, Russia and Tajikistan signed a new treaty of a "Custums Union and the Common Economic Space". The biggest cornerstone was the idea to create an Eurasian Economic Community according to the archetype of the European Economic

and Monetary Union, since 1999. On October 10, 2001, the five states signed a treaty and creating the so-called "Eurasian Economic Community" (EEC). After the ratification process by all five participating members the treaty comes into force on May 31, 2001.

The primary objectives of EEC are:

> "Priority task of the community is to create necessary conditions for further *boosting cooperation* between the member countries in trade, economic, social, humanitarian and legal spheres with an optimum balance of national and common interests"

Moreover, the Interstate Council of EEC, expressed that the EEC activity will be effective and aimed towards integration of the community into the system of world economic ties, as well as the formation and strengthening of the community will be a weighty stimulus for boosting cooperation within the format of the CIS states. Furthermore, the EEC is open to all the countries that share its aims and principles and are ready to undertake necessary commitments and participate in its activity as full members or observers.

The supranational institutions consists of the Interstate Council of the EEC, where President Nursultan Nazarbayev was elected as the Chairman on a 1-year rotating basis. He proposes to build an Integration Committee and an Interparlimentary. The meetings of the EEC Interstate Council would once or twice per year, respectively. The responsibilities of the Integration Committee is to check the implementation of the documents adopted with the community once in 3 months. But despite its targets it is not an independent body—like the European Commission—moreover, it consists of the Vice-Presidents of the member countries.

The latest institutional development in that region was that six CIS-countries establish a 'Collective Security Treaty (CST)' that intensify coordination of measures concerning the fight against terrorism in 2003. The countries of the Collective Security Agreement—Russia, Armenia, Belarus, Kazakhstan, Kirghizia, and Tajikistan—joint planning of antiterrorist events and regular exchange of information are planned (Zurbrügg, 2003).

The described institutional developments are for an European scholar quite surprising. The evolution of a common market to a common union 'EEC' is not only very similar to the ancestor in Europe it is also interesting to see the differences (Kolodko, 2004). Analyze the institutional differences between EEC and EMU helps to find the big challenges and problems in future of the Eurasian Economic Community (Nsouli, 2003). To learn from past failures of EMU is the easiest and fastest way to catch-up to the west European states.

In the following paper we focus on the objective: boosting the coordination in economic issues especially the necessity of fiscal coordination if it is intended to coordinate monetary policy in selected CIS-countries. It is impossible to describe the whole European Union and their institutions,[3] however to see the parallels and the problems we focus on some current developments of fiscal–monetary interaction in the EMU. The Economic and Monetary Union in Europe has a common central bank that determines monetary policy, but each member country's government retains simultaneously a large degree of fiscal autonomy. Since January 1, 1999, one of the most problematic issues in the European Monetary Union (EMU) has been the growing interactions between sovereign countries' fiscal policy and the European Central Bank's (ECB) monetary policy. Moreover, to ensure European price stability (art. 105 ECT) in the EMU the Maastricht Treaty was supplemented with the so-called European Stability and Growth Pact (SGP)

[3] But there are a number of excellent books for example Baldwin and Wyplosz (2004), De Grauwe (2003) and many more.

in Amsterdam in 1997. The implementation of the SGP (VO 1466/97 and 1467/97), which aims to be one of the mainstays in the European fiscal framework, introduced additional conflicts. In the further discussion, we highlight the emergence of such problems seen in the EMU for the CIS-countries.

If we talk about exchange rate policy, regional monetary integration, external anchors and monetary transmission mechanisms in the main CIS-countries; a detailed analyze of the growing interactions through such policy changes is necessary. Moreover, that policy changes raises immediately the question about closer coordination between the main CIS-countries in fiscal issues because of trade and policy interactions, free-riding behavior and external effects.

From an institutional economic perspective is immediately clear that despite the huge similarities between the evolution of EMU and EEC the main supranational institutions are missing in EEC. A supranational Commission, Par-lament and Court of Justice. However, that institutions have played the major force in the European integration process (Michelmann and Soldatos, 1994; Rosamond, 2000). Hence, without these institutions and the balance of power between the supranational and national institutions the EU might be not what it is today. The European experience of monetary and fiscal integration shows that every time when policymakers block against each other the 'supranational institutions' back the cooperation and collaboration. This is recently seen in fiscal policy and the current reform discussion on the SGP in Europe. To strengthen the EEC it is very important to build such institutions and learn so from the ups-and-downs in the European integration process. In the following, we explain how difficult fiscal–monetary coordination might be without any supranational institutions. We build now an economic model to analyze fiscal coordination in different countries lets say in the main CIS-countries. The model in the next section helps to indicate necessary determinants for an 'Optimum Fiscal Area'.

4. Model

The positive issue of how policymakers choose macroeconomic coordination and cooperation between different countries remains unexplored in the current literature. Using the simple stylized model below, we provide a formalization of credibility, reputation and signaling effects. Thus, we build up a reputation game between two governments that differ both in their ability to coordinate fiscal and monetary issues and in their size. In this model, we examine separating equilibria and pooling equilibria.

The government's objective is to reach the optimal degree of coordination x^* that stabilizes the national economy especially output-growth and inflation. We use the following loss function similar to Drazen and Masson (1994)

$$L = p\Lambda + \frac{1}{2}(T)^2 \tag{1}$$

where p denotes the probability that the coordination fails, and Λ is the fixed cost of failure. The costs of failure Λ include possible free-riding costs, spill over losses and rising inflation as a consequence thereof with higher instability. The government chooses first taxes T to achieve its intended fiscal budget target value. The cost of taxation is standard, while the cost of a failed coordination reflects either the reputational and political costs of missing the announced budget target or the higher inflation and lower growth perspectives.

The sequence of events is as follows. At the beginning of period 0 the government decides about the relative amounts of one- and two-period coordination. At the end of period 1 the government chooses taxes to meet the announced budget target. However, whether the target will be met

remains uncertain, as it depends on a shock, Z, which hits the budget after taxes have been set. The success of coordination depends on the realization of Z. The probability that the coordination fails is

$$p = \text{prob}[Z > T - G - X], \tag{2}$$

where G denotes government spending and X the degree of coordination effort, which depends on the revenue and output in each period. The distribution of the shock Z is triangular with mean zero, $E_1 Z = 0$, and a support ranging between $-a$ and a. With this assumption we capture the fact that shocks of larger size are less likely to occur. Eq. (2) shows on the right-hand side the distribution of Z, as we focus on a government that expects to succeed, in the sense that it chooses a level of taxes, T, for which the expected budget is larger than the announced target; i.e., $T - G - X > 0$. The coordination effort (cost) is equal to

$$X = (1 - \psi)Y + (\psi)E_0[Y] \tag{3}$$

where ψ is the share of coordination in period 2, Y and $E_0 Y$ are the output and the expected output, respectively (similar to budget growth revenue). Additionally, we assume that output Y depends on fiscal policy coordination. There are various different governments with respect to size and fiscal policy in the EEC. The governments may be of two types—tough or weak—depending on the level of spending in period 1. A tough government has a level of spending, G^{L}, lower than the level of spending, G^{H}, of a weak government (Drazen, 2000). That distinction implies that tough governments are able to produce sustainable fiscal policy in comparison to the weak, i.e. tough governments have a more strict budget management. Moreover, the governments vary in size empirically measured as in the literature by Fatás and Mihov (2001). That results in

$$Y = Y\left(\frac{G^i}{s_j}\right) + \mu; \quad i = \mathrm{H}, \mathrm{L}; \quad j = \mathrm{B}, \mathrm{S} \tag{4}$$

where $Y(G) \geq 0$, s_j is a scaling parameter reflecting the fact that the different members of the monetary union are of different size; s_{B} is for big countries and s_{S} is for small countries with $s_{\mathrm{B}} \geq s_{\mathrm{S}}$. Moreover, μ is an independent shock, distributed on the compact support $[\mu^1; \mu^h]$, with mean $E_0\mu = 0$ and variance $E_0\mu^2 = \sigma^2$, which reflects some uncertainty. There is empirical evidence that smaller countries are more open to trade and that a positive relationship between trade openness and government size exists (Alesina and Wacziarg, 1998). We argue in line with Rodrik (1998) that small open countries are more often subject to external shocks, and therefore have positive incentives in fixed exchange currency mechanism to coordinate faster.[4]

Substituting $X + G - T$ into the value of p, and replacing p in Eq. (1), we obtain the loss that the government expects after observing X, but before knowing the realization of Z:

$$L = \frac{\Lambda}{2a^2}[a + G + X - T]^2 + \frac{1}{2}(T)^2. \tag{5}$$

[4] Alesina and Wacziarg (1998) find some evidence of a direct relationship between openness and the size of government transfers.

Then, the optimal value of taxes is equal to $T^* = \zeta[a + G + \mathrm{X}]$, where $\zeta = \Lambda/(\mathrm{a}^2 + \Lambda)$. All technicalities are relegated to Appendix A. Substituting T^* into Eq. (5), and taking expectations conditional on the information at time 0, yields the value of the expected loss after some transformations as

$$E_0 L^* = E_0 \left(\frac{\zeta}{2}\right)[a + G + X]^2 = E_0 \left(\frac{\zeta}{2}\right)[a + G + ((1 - \psi)Y + (\psi)E_0[Y])]^2 \tag{6}$$

The loss function (6) is minimized by choosing $\psi = 1$, or respectively by setting $x^* = -a - G$. The last solution implies that the degree of coordination is $x^* < 0$ and depends on government spending and shocks 'a'. Higher government spending also implies relatively higher budgetary targets. The explicit solution for $\psi = 1$ implies that the government insulates the budget from budget shocks and thus eliminates all the uncertainty regarding the cost of coordination. This policy is optimal because it rules out the possibility that the coordination may fail as a result of a negative shock to the budget. Intuitively, a government that expects to succeed will not take the whole coordination effort in period 1 because of budget risks in the meantime. Thus, the government decides first to coordinate optimally in period 2.

Consider now a class of separating equilibrium where beliefs have the following form: for coordinate levels less than ψ^{S}, the other governments expect to be tough (T). If the consolidation takes place first in period 2, the government is identified as weak (W) because their coordination effort X is lower and thus slower than in the case of a tough (T) government. This implies the following two conditions.

The weak government compares

$$E_0 L^{\mathrm{W}}(W, \psi = 1) \leq E_0 L^{\mathrm{W}}(T, \psi \leq \psi^{\mathrm{S}}), \tag{7}$$

that inequality holds for

$$\psi \leq \psi^{\mathrm{S}} = \frac{\sigma^2 + \lambda\alpha - \sqrt{\lambda^2\alpha^2 + \sigma^2\lambda(2\alpha - \lambda)}}{\sigma^2 + \alpha^2}, \tag{8}$$

where $\alpha = a + G^{\mathrm{H}} + Y(G^{\mathrm{H}}/s_j)$ and $\lambda = Y(G^{\mathrm{H}}/s_j) - Y(G^{\mathrm{L}}/s_j)$, and it is the solution of the square equation of the expected loss of the weak government under full information. The intuition for this result is as follows. A short and thus fast coordination carries no benefit for a weak government, except to allow it to distinguish itself as tough. As it is mimicking a tough government, coordination benefits are saved merely for the two-period coordination. Such gain disappears if the weak coordinates more faster. In contrast, the coordination risk increases in the short term, because of shocks that can arise after the coordination process, which implies that the weak reveals itself by choosing $0 < \psi^{\mathrm{S}} < 1$. It is also worth mentioning that the degree of coordination increases with the variance of output shocks σ^2, and decreases with the difference, λ, between the efforts at fiscal policy stabilization.

A separating equilibrium of the tough government thus exists if and only if the tough government is willing to slow down the fiscal coordination to ψ^{S}. This happens if

$$E_0 L^{\mathrm{T}}(T, \psi^{\mathrm{S}}) \leq E_0 L^{\mathrm{T}}(W, \psi^{\mathrm{S}} < \bar{\psi} \leq 1), \tag{9}$$

and the incentive compatibility constraint is satisfied if

$$(1-\psi^{\mathrm{S}})^2\sigma^2 \leq (1-\bar{\psi})^2\sigma^2 + \bar{\psi}^2\lambda^2 + 2\bar{\psi}\lambda\beta, \tag{10}$$

where $\beta = a + G^{\mathrm{L}} + Y(G^{\mathrm{L}}/s_j)$. The necessary condition for Eq. (10) also crucially depends on σ^2 and λ. If the shock σ^2 is too large then the tough government would prefer not to reveal its type. When such a separating equilibrium does not exist, a pooling equilibrium may exist, where both governments choose the same degree of coordination.

In a pooling equilibrium, both governments choose the same degree of coordination; i.e., the forward output rate is equal to

$$E_0 Y_1^{\mathrm{P}} = E_0[qY_1^{\mathrm{T}} + (1-q)Y_1^{\mathrm{W}}] = \left[Y\left(\frac{G^{\mathrm{L}}}{s_j}\right) + (1-q)\lambda\right] \tag{11}$$

where q, which is the probability that the government is tough, depends on the beliefs of the other governments in the EEC. Moreover, q depends on the economic and political impact in the CIS-countries. As the tough government chooses ψ^{P}, the coordination effort that minimizes its expected loss, a pooling equilibrium exists if and only if ψ^{P} satisfies the incentive compatibility constraint of the weak government, $E_0 L^{\mathrm{W}}(\text{Pool}, \psi^{\mathrm{S}}) \leq E_0 L^{\mathrm{W}}(W, \psi = 1)$. This requires

$$\psi^{\mathrm{P}} = \frac{\sigma^2 - (1-q)\lambda\beta}{\sigma^2 + (1-q)^2\lambda^2} \geq \psi^{\mathrm{W}} = \frac{\sigma^2 + \lambda\alpha q - \sqrt{\lambda^2 q^2\alpha^2 + \sigma^2\lambda q(2\alpha - \lambda q)}}{\sigma^2 + \lambda^2 q^2}. \tag{12}$$

Condition (12) shows that for a pooling equilibrium to exist the initial reputation, q, must be sufficiently high. Intuitively, a higher impact and higher reputation in fiscal policy implies a lower risk of increasing inflation expectations and lower interest rate risk-premium, and thus makes the tough government willing to choose a decrease in degree of coordination in the fiscal budget ψ^{P}, instead of more coordination between fiscal issues.

In summary, the results are as follows. First, if a pooling equilibrium exists, the corresponding coordination effort ψ^{P} is fewer (slower) than the separating equilibrium degree ψ^{S}, which induces a weak government to reveal itself, because $\psi^{\mathrm{W}} > \psi^{\mathrm{S}}$. Second, the degree of coordination increases with the variance of output shocks in period 1, σ^2, and decreases with the difference, λ, between the fiscal stabilization efforts by the two governments. Thus, the reputation game shows that if the variance σ^2 is low relative to λ, the differences in fiscal coordination, and hence a separating equilibrium is more likely. Instead, in a pooling equilibrium, coordination effort is less than in a separating equilibrium. In both constellations the degree of coordination ψ is faster with higher variances σ^2 and smaller fiscal heterogeneity λ. We next summarize the results in the following propositions, but first consider the short helpful Lemma 1.

Lemma 1 ($\lambda \geq 0$). *The proof of Lemma 1 follows from the model assumptions. We now want to find the adequate equilibrium condition in which the main CIS-countries are probably situated.*

Proposition 1. *A coordinated monetary policy area (fixed-exchange rates) with decentralized fiscal policy implies high differences in fiscal coordination λ and, because of several risk pooling in monetary variables, a lower variance σ^2 than within a single state (so-called pooling effects).*[5] *Thus, a coordinated monetary area with a decentralized fiscal framework is more likely located in a separating equilibrium.*

[5] Empirical findings confirm this constellation Fatás and Mihov (2001).

Proof of Proposition 1. Follows directly from the model results. □

The intuition of this result suggests that the degree and incentives of coordination is different between the different governments in the countries. Moreover, heterogeneity alone is not sufficient to delay coordination. There must also be uncertainty about the variance of output. A comparison of the findings in the war of attrition model by Alesina and Drazen (1991) reveals that they show only that stabilization is delayed. However, the model here explains the delay and differences in coordination around members in a fixed-exchange rate area. The following proposition can explain the incentives in coordination (behavior) of bigger countries like Russia. Moreover, from Propositions 1 and 2 it is clear that the pooling equilibrium in the group of larger countries is more likely because of the higher probability q that implies fewer fiscal budget coordination.

Proposition 2. *If* $\lambda \geq 0$, *fiscal coordination differs*; *for* $\lambda = 0$ *no difference occurs*. *The first condition implies different degrees of coordination among countries of different sizes*.

Proof of Proposition 2. The first part follows directly from Lemma 1. That implies a relationship between government spending and government size:

$$\frac{G^{\mathrm{H}}}{G^{\mathrm{L}}} \geq \frac{s_{\mathrm{B}}}{s_{\mathrm{S}}} > \frac{s_{\mathrm{B}}}{s_{\mathrm{B}}} = \frac{s_{\mathrm{S}}}{s_{\mathrm{S}}} > \frac{s_{\mathrm{S}}}{s_{\mathrm{B}}}.$$

The inequalities prove the case that a higher discrepancy between government spending and size implies a lower degree of coordination. The second part is immediately clear from Eq. (10). □

Proposition 2 states that countries' government expenditure, and thus partially deficit, is more than proportional to their size. It is obvious that small (weak) governments have a greater burden than the larger countries (de Haan et al., 2003). Fielding (2002) argues that marginal costs are inversely proportional to a country's size. Smaller countries therefore tend to have higher marginal costs of debt, and thus fiscal coordination is proportionally higher in smaller countries.

Proposition 3. *Important determinants of the degree of coordination are fiscal policy rules* (*homogeneity*) λ *and output variance* σ^2.

Proposition 3 explains that in a coordinated monetary area there are many different degrees of coordination. There is no single frontier or border of coordination rather a whole surface of different coordination constellations. The coordination effort (speed) depends on output shocks and the differences in governments' spending (cf. Fig. 1). There is considerable empirical evidence that countries or regions with large governments display less volatile economies, as shown by Galí (1994) and Fatás and Mihov (2001). The intuition of the results lends support to the traditional Keynesian view of automatic stabilizers.[6] Fatás and Mihov (2001) explain: 'Our results also indicate that the size of the budget is key to understanding the stabilizing effects of fiscal policy'. This empirical 'stylized fact' implies in our model a slower coordination effort for larger countries, exactly as we have observed empirically over the last 3 years in the EMU. Moreover, von Hagen et al. (2004) emphasize in a recent empirical study: 'Since output volatility is generally higher in small and fast growing economies, this empirical finding can also be read as an indication that small countries are more able to engage in fiscal consolidation (coordination), or that governments there are more willing to do so'. The main theoretical findings are the relationship between the degree of coordination and on the one hand the government size and on the other hand the national fiscal policy rule. This is illustrated below in Fig. 1.

[6] Virén (2001) shows this empirically within a VAR model for the EU.

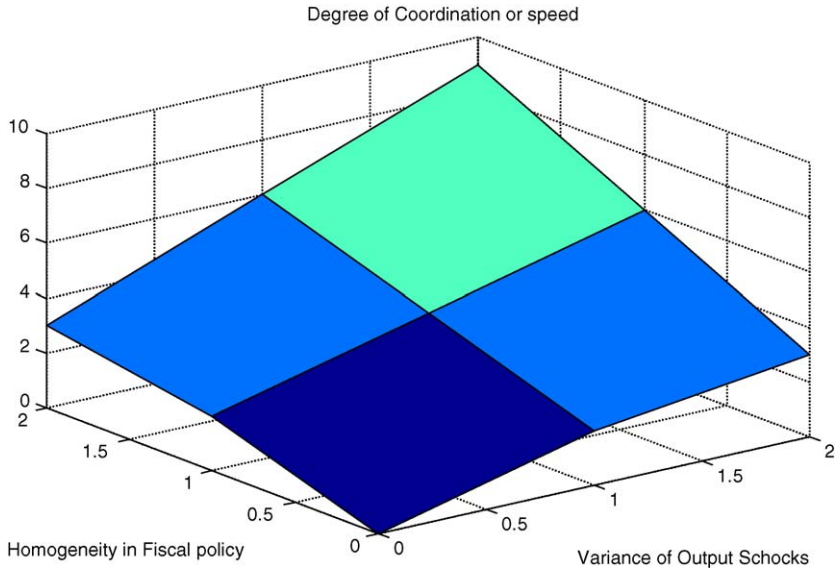

Fig. 1. Coordination Surface.

The stylized fact that government size has a negative effect on the volatility of output fluctuations was until now unexplored in economic theory, because in the standard RBC model there is no clear connection between these variables (Galí, 1994). This unexplored phenomenon can be partially explained in our model. Larger countries have stronger economic and political influence; i.e., higher automatic stabilizers, which can affect country's reputation and thus its coordination behavior.

Hence, Fig. 1 summarizes the theoretical findings of our model. The two key determinants of a 'Optimum Fiscal Area' are: (a) the fiscal policy rule and (b) the variance in output shocks. It is intuitively clear that a higher variance of output shocks and more distinguishing policy framework detain the degree of coordination. Moreover, a stylized fact in empirical macroeconomics confirm that theoretical finding. Hence, it is immediately shown that bigger and tougher countries are closer to the origin and therefore have lower incentives in coordination in comparison to smaller countries.

The same is true for the other dimension: homogeneity in fiscal policy rules (Fatás et al., 2003; von Hagen and Harden, 1994).

Proposition 4. *The coordination effort differs between countries in fiscal policy homogeneity* λ *as follows:*

(a) *Weak/Tough government is big*; *i.e.*, $\lambda^{W,B}/\lambda^{T,B}$
(b) *Weak/Tough government is small*; *i.e.*, $\lambda^{W,S}/\lambda^{T,S}$
(c) *Weak and Tough government are both small or big*; *i.e.*, λ

Thus, it is: $\lambda^{W,S} > \lambda > \lambda^{W,B}$ *and/or* $\lambda^{T,B} > \lambda > \lambda^{T,S}$.

The proof of Proposition 4 follows directly from Lemma 1 in connection with Proposition 2. The intuition is: If the weak government is also small ($\lambda^{W,S}$) then fiscal policy is totally different (heterogeneous). This constellation implies a low coordination effort for the large government

because of free-riding on the small weak state (Bandt and Mongelli, 2002). In the other case, if the weak government is big ($\lambda^{W,B}$), fiscal policy is more homogenous. This implies that the small governments speed up their coordination because of real benefits through spill overs from the big countries (cf. Heise, 2001). In summary, the fiscal policy homogeneity parameter implies more coordination for a tough and small government. For smaller countries, gains from free-riding and spill over effects are more important than high domestic fiscal policy expenditures. That implies costs in favor of the larger countries. Moreover, von Hagen et al. (2001) show that most of the smaller countries follow a contract approach, which works more effectively in fiscal consolidations and thus coordination.

The puzzling question of why some countries do not coordinate fiscal and monetary issues immediately, once it becomes apparent that current policies are costly, could partially be explained using the above model. The spirit of our analysis is similar to recent attempts to explain other stylized facts of fiscal policy. Due to the fiscal–monetary interaction and the impacts of the fiscal theory of price level thinking and analyzing 'fiscal policy cooperation' is necessary. Talking about a closer monetary cooperation between selected CIS-countries generates immediately the problem what happens with fiscal policy. This is best seen in the European case and the discussions about the fiscal framework especially the Stability and Growth Pact. Therefore, we focus on the fiscal policy side and ask the question: Is there an equivalent to the 'Optimum Currency Area' called 'Optimum Fiscal Area'?

The model reveals two new and necessary determinants for an optimum fiscal area. Both new variables are in connection with spill over effects. However, in the next section, we show that it is not sufficient to focus only on spill-over effects in our new theory of 'Optimum Fiscal Area' (coordination) between sovereign countries.

5. Spill-over-impact model

Starting with the model in the previous section we analyze now the behavior and incentives of coordination and taking into account the impact of spill over effects. Assume we have two countries $i = 1, 2$ (T, W) that have to decide about fiscal coordination. Both states maximize their welfare Ω_i,

$$\max \Omega_i = U_i(G, X_i, X_j) - C_i(T, X) \quad i = 1, 2 \quad j \neq i, \tag{13}$$

where U_i is the national utility function increasing in expenditures G and with coordination effort of the other country X_j and decreasing with own coordination X_i. Own coordination induce costs depending on external effects to other countries and go ahead with declining sovereignty rights. Moreover, C_i the cost function contains explicit costs of cooperation as administrative costs and tax costs (cf. model in Section 4).[7] For simplicity and without loss of generality we assume the following explicit utility and cost function that are common standard in strategic game theoretic constellations[8]:

$$U_i = \frac{1}{2}[G - 2x_i + x_j]^2$$

[7] We assume fix tax costs and can therefore neglect that parameter.

[8] cf. Cournot equilibrium.

and

$$C_i = \frac{1}{2}\gamma k_i,$$

where γ represents a cost parameter and k_i the degree of coordination. Furthermore, the coordination spill over is defined as follows:

$$x_i \frac{1}{2}(c - k_i - \zeta k_j)^2,$$

where c is a constant, k_i for the degree of coordination between the states and ζ represents the spill over effect. That modelling implies that higher degrees of coordination (closer coordination) k_i induces lower coordination effort caused by positive effects to national utility. However, that depend also on the spill over effect ζ from the other participating country.

In the following we compare two scenarios. (A) Both countries optimize individual the national welfare function (non-cooperation) and (B) Both countries coordinate the policies and optimize a general welfare function and thus internalizing the spill over effects.

- Scenario (A)
  Each country i maximize the following function:

$$\max \Omega_i(k_i^{\mathrm{N}}) - \frac{1}{2}[G - 2(c - k_i - \zeta k_j) + (c - k_j - \zeta k_i)]^2 - \frac{1}{2}\gamma k_i^2 \tag{14}$$

  After deviating the F.O.C. and assuming a symmetrical structure ($k_i^{\mathrm{N}} = k_j^{\mathrm{N}}$) we yield[9]:

$$\frac{\partial \Omega_i}{\partial k_i} = 0 \Leftrightarrow k^{\mathrm{N}} = \frac{(G - c)(2 - \zeta)}{\gamma - (1 + \zeta)(2 - \zeta)}. \tag{15}$$

  Now we have calculated the degree (incentives) of coordination k^{N} in a non-cooperative framework. The main determinants are the government expenditure, the cost parameter and most important the spill over effect ζ.
- Scenario (B)
  Now the same procedure for the cooperative case. Maximizing the following function with $k^{\mathrm{C}} = k_i = k_j$ is

$$\max \Omega_i(k^{\mathrm{C}}) = \frac{1}{2}[G - 2(c - (1 + \zeta)k^{\mathrm{C}}) + (c - (1 + \zeta)k^{\mathrm{C}})]^2 - \frac{1}{2}\gamma(k^{\mathrm{C}})^2 \tag{16}$$

  Disintegration of the F.O.C. yields

$$\frac{\partial \Omega_i}{\partial k^{\mathrm{C}}} = 0 \Leftrightarrow k^{\mathrm{C}} = \frac{(G - c)(1 + \zeta)}{\gamma - (1 + \zeta)^2}. \tag{17}$$

  In the cooperative case the degree of coordination depends again on the cost parameter and as well to the spill over effect ζ.

[9] We assume to satisfy the SOC that $\gamma > (2-\zeta)^2$.

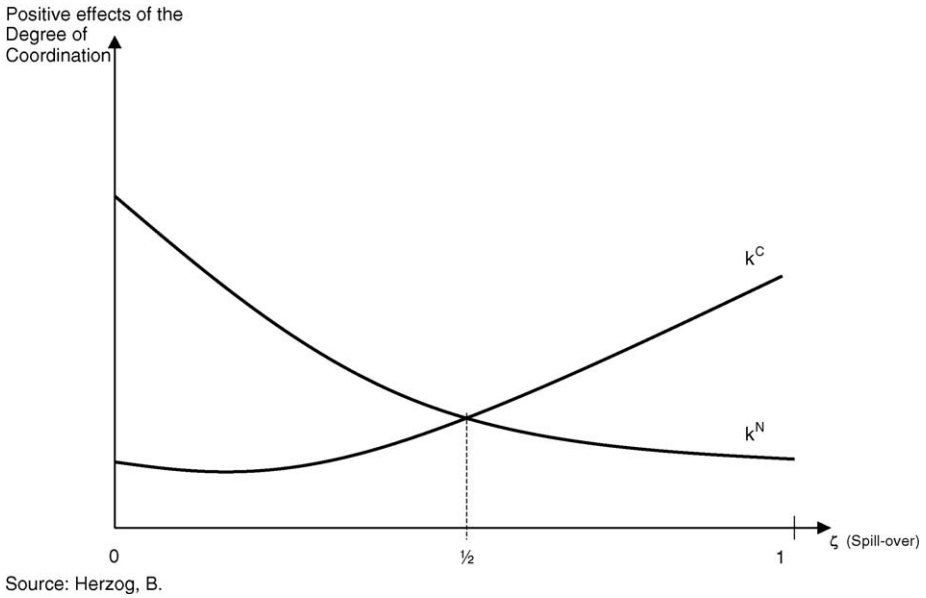

Fig. 2. Impact of spill over.

To analyze the effects of both scenarios we numerically plot both curves as shown in Fig. 2.

The figure illustrates that in the case of high spill-overs ζ the cooperative case is more efficient (beneficial) than in the case of low spill over effects. Both curves intersect in $\zeta = 1/2$:

$$k^{\mathrm{N}}\left(\zeta = \frac{1}{2}\right) = k^{\mathrm{C}} = \frac{3/2(G-c)}{\gamma - (9/4)} \tag{18}$$

Moreover, we see easily the degree of non-coordination is more beneficial $k^{\mathrm{N}}(\zeta) > k^{\mathrm{C}}(\zeta)$ if $\zeta > 1/2$, and is worse $k^{\mathrm{N}}(\zeta) > k^{\mathrm{C}}(\zeta)$ if $\zeta > 1/2$. Fig. 2 illustrates, that the benefits of cooperation between both countries decreases if the spill over effects are smaller, and vice versa. So what? Now, we combine our findings from the model in Section 4 with the results shown above.

Proposition 5. *High spill over effects imply benefits in coordination of fiscal issues. However, output volatility and fiscal heterogeneity reduce that coordination incentives.*

The proof of Proposition 5 is easily shown by an upward (downward) shift of the optimal (non-)cooperation frontier. Moreover, we can show that coordination between different countries with different size are different. The intuition of Proposition 5 is as follows: despite high spill over effects coordination could be inefficient if the fiscal framework is totally heterogeneous and/or the size of government as well as the reputation of countries differ. That indicates the decline of the colored hatched area in Fig. 3.

Summing up, first we explained why there are different incentives or degrees of coordination in different countries. In a second step, we analyze the effect of spill over to coordination and finally link both results. That model framework explains different amounts of coordination in a

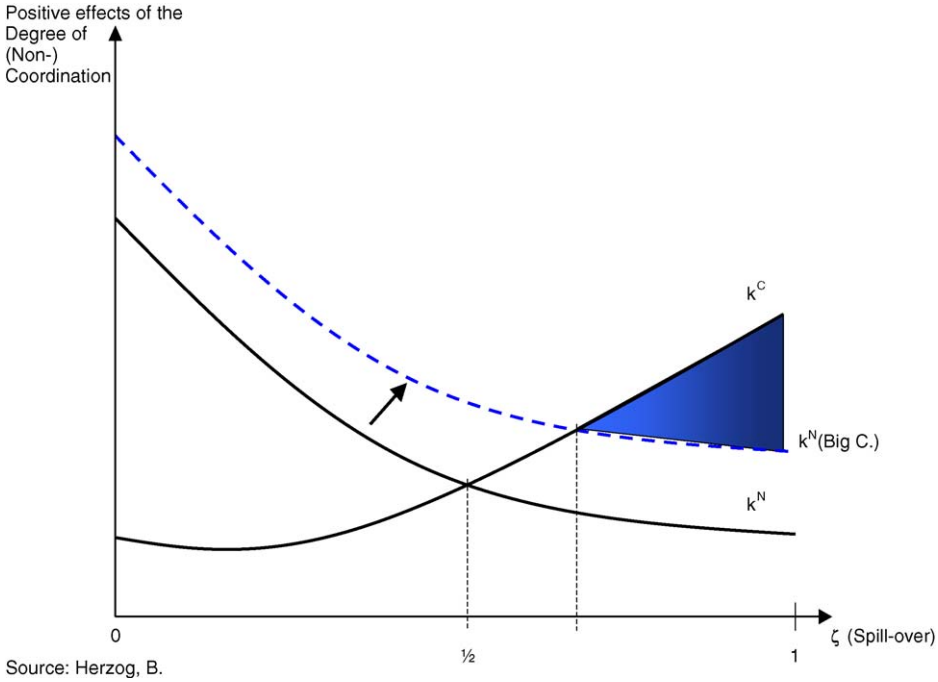

Fig. 3. Impact of all determinants to benefits in coordination.

general framework within fiscal policy issues. Therefore, it can be seen as a preliminary approach to an 'Optimum Fiscal Area Theory'.

6. Policy conclusions

The lessons which we propose to draw from the model are as follows:

(1) The success of transition depends on the creation of essential—institutions, law, and microeconomic and macroeconomic policy coordination—which are conducive to the development and growth of a new private sector.
(2) The fiscal policy, in order to be consistent with the stability objectives of price-stability, need an interaction-coordination mechanism like the Stability and Growth Pact in Europe but with a different structure. To close the gap between bigger and smaller countries to enhance coordination we have to look for the different key determinants as analyzed in our model.
(3) Coordination depends on strategic fiscal policy decisions and thus on economic determinants and not only on the interaction effects and political determinants as usually assumed.
(4) Moreover, the incentives to fiscal–monetary coordination depends again not only on the spill-over effects. Analyzing merely that dimension is neither a necessary nor a sufficient condition.
(5) Thinking about monetary coordination in selected CIS-countries, requires a detailed analysis of the coordination impacts on fiscal issues.

These five lessons overlap with the following conclusions reached by Charles Wyplosz in his own recent survey.[10] But despite all the matters, which we have emphasized in our model, the most important one is: Incentives of fiscal policy coordination are very different and complex between countries. Moreover, the degree of spill-over effects are not the key to decide about coordination or non-coordination as it is often assumed in standard economic literature. Recent comparative studies in CIS-countries show that the more successful countries, attempt to identify the key underlying determinants in line with our model approach (Gomulka, 2000).

7. Conclusions

Fiscal and Monetary coordination is a more complex issue as sometimes assumed in economic models. To explain at least some complexity in that framework we first analyzed a model of strategic interaction between 'weak' and 'tough' member states and big and small countries. In a second step we integrate that findings in a model of spill over analysis. We conclude the paper by discussing some generalizations and by touching on some issues that the model did not address but that are important in explaining the right degree of coordination.

First, our argument is much more general than initially considered. The results are thus very similar to the model of Alesina and Drazen (1991). However, the determinants for international coordination and cooperation are more complex and general than in a pure national framework. The model shows that credibility, the missing parameter in Alesina and Drazen (1991), plays a very important role in the case of international fiscal policy coordination. A second generalization in our model is the explicit modelling of coordination incentives within, the different size and behavior of governments, and the interaction of fiscal policy between countries. Finally, we note some issues not discussed earlier in the paper. The major omission is a closer endogenous political-economic description of the model, considering for instance important political events such as elections, veto power, and decisions about distribution policy.

Moreover, the linkage of both model results show us several new findings. That lead us to the following policy conclusion: to close the gap in macroeconomic policy coordination, a sound institutional framework is on the one hand needed and on the other it is necessary to reduce national concerns of losses for most in the bigger and more powerful countries. Furthermore, discussing monetary coordination in CIS-countries require an analysis of fiscal coordination. The reasons are: fiscal–monetary interaction and the complex incentives and determinants of fiscal policy coordination. Therefore, this paper can be seen as a first step towards a coherent 'Theory of Optimum Fiscal Area'.

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[10] C. Wyplosz (2000): The Ten Years of Transformation: Macroeconomic Lessons, CEPR-Paper No. 2254.

Appendix A. A Model derivations

A.1. Derivation of the loss function

Substituting $X+G-T$ into the value of p, and replacing p in Eq. (1), we obtain the loss function:

$$L = \frac{\Lambda}{2a^2}[a+G+X-T]^2 + \frac{1}{2}(T)^2. \tag{A.1}$$

Then, the optimal value of taxes is equal to $T^* = \zeta[a+G+X]$ where $\zeta = \Lambda/(a^2+\Lambda)$. Substituting T^* into Eq. (A.1) yields

$$L = \frac{\Lambda^2}{2a^2}((1-\zeta)(a+G+X))^2 + \frac{1}{2}(\zeta[a+G+X])^2 \tag{A.2}$$

$$L = \left[\underbrace{\frac{\Lambda}{a^2+\Lambda}}_{=:\zeta}\left(\frac{a^2}{a^2+\Lambda}\right) + \zeta^2\right]\frac{1}{2}(a+G+X)^2 \tag{A.3}$$

this is now

$$E_0L^* - E_0\left(\frac{\zeta}{2}\right)[a+G+X]^2 = E_0\left(\frac{\zeta}{2}\right)[a+G+((1-\psi)Y+(\psi)[E_0[Y]]^2 \tag{A.4}$$

A.2. Derivation of the separating equilibrium

Consider a class of *separating equilibrium.* The weak government compares

$$E_0L^{\mathrm{W}}(W,\psi=1) \le E_0L^{\mathrm{W}}(T,\psi\le\psi^{\mathrm{S}}); \tag{A.5}$$

that inequality is equivalent to

$$E_0[X-Y(G^{\mathrm{H}})+Y(G^{\mathrm{H}})]^2 \le E_0[X-\psi Y(G^{\mathrm{H}})+(1-\psi)\mu+\psi Y(G^{\mathrm{L}})]^2 \tag{A.6}$$

$$0 \le \psi^2(\lambda^2+\sigma^2) - 2(\alpha\lambda+\sigma^2)\psi + \sigma^2. \tag{A.7}$$

The 'only' solution is now:

$$\psi \le \psi^{\mathrm{S}} = \frac{\sigma^2+\lambda\alpha-\sqrt{\lambda^2\alpha^2+\sigma^2\lambda(2\alpha-\lambda)}}{\sigma^2+\alpha^2} \tag{A.8}$$

where $\alpha = a+G^{\mathrm{H}}+Y(G^{\mathrm{H}})$, $\lambda = Y(G^{\mathrm{H}})-Y(G^{\mathrm{L}})$. A separating equilibrium of the tough government thus exists if and only if the *tough* government is willing to slow the consolidation down to ψ^{S}. This happens if

$$E_0L^{\mathrm{T}}(T,\psi^{\mathrm{S}}) \le E_0L^{\mathrm{T}}(W,\psi^{\mathrm{S}}<\bar{\psi}\le 1), \tag{A.9}$$

$$E_0[a+G^{\mathrm{L}}+(1-\psi^{\mathrm{S}})Y+\psi^{\mathrm{S}}E_0Y]^2 \le E_0[z+\bar{\psi}\lambda+(1-\bar{\psi})u]^2 \tag{A.10}$$

$$E_0[z+(1-\psi^{\mathrm{S}})u]^2 \le E_0[z+\bar{\psi}\lambda+(1-\bar{\psi})u]^2, \tag{A.11}$$

and thus the incentive compatibility constraint is satisfied if

$$(1-\lambda^{S})^{2}\sigma^{2} \leq (1-\bar{\psi})^{2}\sigma^{2} + \bar{\psi}^{2}\lambda^{2} + 2\bar{\psi}\beta\lambda, \tag{A.12}$$

where $\beta = a + G^{L} + Y(G^{L})$. The necessary condition for Eq. (A.12) also crucially depends on σ^2 and λ.

A.2.1. Derivation of the pooling equilibrium

In a *pooling equilibrium* both governments choose the same consolidation; i.e., the forward output rate is equal to

$$E_0 Y = [Y(G^{L}) + (1-q)\lambda]. \tag{A.13}$$

A pooling equilibrium exists if and only if ψ^{P} satisfies the incentive compatibility constraint of the weak government, $E_0 L^{W}(\text{Pool}, \psi^{S}) \leq E_0 L^{W}(W, \psi = 1)$. This requires

$$\psi^{P} = \frac{\sigma^2 - (1-q)\lambda\beta}{\sigma^2 + (1-q)^2\lambda^2} \geq \psi^{W} = \frac{\sigma^2 + \lambda\alpha q - \sqrt{\lambda^2 q^2\alpha^2 + \sigma^2\lambda q(2\alpha - \lambda q)}}{\sigma^2 + \lambda^2 q^2}. \tag{A.14}$$

References

Alesina, A., Drazen, A., 1991. Why are stabilizations delayed? Am. Econ. Rev. 81 (5), 1171–1188.

Alesina, A., Spolaore, E., 1997. On the number and size of nations. Q. J. Econ. 21, 1027–1056.

Alesina, A., Wacziarg, R., 1998. Openness, country size and government. J. Public Econ. 69, 305–321.

Baldwin, R., Wyplosz, C., 2004. The Economics of European Integration. McGraw-Hill Companies.

Bandt, O., Mongelli, F., 2002. The Behaviour of Fiscal Authorities. Convergence of Fiscal Policies in the Euro Area, Palgrave, pp. 53–75.

Barro, R., Gordon, D., 1983. Rules, discretion and reputation in a model of monetary policy. J. Monetary Econ. 12, 101–121.

Beetsma, P., Bovenberg, A., 1998. Monetary union without fiscal coordination may discipline policymakers. J. Int. Econ. 45, 239–258.

Beetsma, R., Debrun, X., Klaasen, F., 2001. Is Fiscal coordination in EMU desirable? Swed. Econ. Policy Rev. 8, 57–98.

Bohn, H., 1998. The behavior of U.S. public debt and deficits. Q. J. Econ., 951–963.

Buti, M., Eijffinger, S., Franco, D., 2003. Revisting the stability and growth pact: grand design or internal adjustment? European Economy, Economic Paper No. 180.

Canzoneri, M., Henderson, D., 1988. Is sovereign policymaing bad? Carnegie-Rochester Conference Series Public Policy vol. 28, pp. 93–140.

De Grauwe, P., 2003. Economics of Monetary Union., fifth ed. Oxford University Press.

de Haan, J., Berger, H., Jansen, D., 2003. The end of the stability and growth pact. Research Memorandum, De Nederlandsche Bank (748).

Demertzis, M., Hughes Hallett, A., 1998. Asymmetric transmission mechanisms and the rise in European unemployment: a case of structural differences or of policy failures? J. Econ. Dyn. Control 22, 869–886.

Dixit, A., Lambertini, L., 2001. Monetary-fiscal policy interactions and commitment versus discretion in a monetary union. Eur. Econ. Rev., 977–987.

Dixit, A., Lambertini, L., 2003. Interactions of commitment and discretion in monetary and fiscal policies. Am. Econ. Rev. 93 (5), 1522–1542.

Drazen, A., 2000. Political Economy in Macroeconomics. Princton Univeristy Press, New Jersey.

Drazen, A., Masson, P., 1994. Credibility of policies versus credibility of policymakers. Q. J. Econ. 109, 735–754.

Eichengreen, B., Ghironi, F., 2002. Transatlantic trade-offs in the age of balanced budgets and European monetary union. Open Econ. Rev. 13, 381–411.

Ellman, M., 1998. The political economy of transformation. Oxford Rev. Econ. Policy 13 (2), 23–32.

Fatás, A., Mihov, I., 2001. Government size and automatic stabilizers: international and intranational evidence. J. Int. Econ. 55 (1), 3–28.

Fatás, A., von Hagen, J., Hallett, A.H., Strauch, R.R., Sibert, A., 2003. Stability and Growth in Europe: Towards a Better Pact, vol. 1. Center of Policy Research.
Fielding, D., 2002. The Macroeconomics of Monetary Union. Routledge.
Galí, J., 1994. Government size and macroeconomic stability. Eur. Econ. Rev. 38 (1), 117–132.
Gomulka, S., 2000. Macroeconomic Policies and Achievements in Transition Economies, 1998–1999. Centre's of Globalisation Programme.
Hamada, K., 1976. A strategic analysis of monetary independence. J. Political Econ. 84, 677–700.
Heise, A., 2001. New politics, Westfälisches Dampfboot.
Hughes Hallett, A., Ma, Y., 1996. Changing Partners: The Importance of Coordination Fiscal and Monetary Policies within a Monetary Union, vol. 61. The Manchester School of Econmic and Social Studies, pp. 35–64.
Jensen, H., 1996. The advantage of international fiscal cooperation under alternative monetary regimes. Eur. J. Political Econ. 12, 485–504.
Kehoe, P., 1989. Policy coordiantion among benevolent governments may be undesirable. Rev. Econ. Stud. 56, 289–296.
Kenen, P., 1969. Problem of the internatinal economy. In: The Theory of Optimum Currency Areas: An Electic View. Chicago University Press.
King, M., 1998. The Political Economy of European Monetary Union. EIB Lecture Series, pp. 1–16.
Kolodko, G., 2004. Institutions, Policies and Growth. Tiger Working Paper Series 56, pp. 1–22.
Lombardo, G., Sutherland, A., 2004. Monetary and fiscal interactions in open economics. J. Macroecon. 26, 319–348.
McKibbon, W., Sachs, J., 1991. Global Linkages, Macroeconomic Interdependences and Cooperation in the Worls Economy. Brookings Institution.
McKinnon, R., 1963. Optimum currency areas. Am. Econ. Rev. 53, 715–725.
Mendoza, E., Tesar, L., 2003. A Quantitative Analysis of Tax Competition v. Tax Coordination under Perfect Capital Mobility. NBER Working Paper (9746).
Michelmann, H., Soldatos, P., 1994. European Integration. University Press of America.
Mundell, R., 1961. A theory of optimum currency areas. Am. Econ. Rev. 51, 657–665.
Mundell, R., 1976. Geld- und Währungstheorie. Verlag Vahlen.
Nordhaus, W., 1994. Policy games: coordination and interdependence in monetary and fiscal policies. Brookings Papers Econ. Activity 2, 139–199.
Nsouli, S., 2003. The changing institutional needs of the transition economies and the role of the imf. In: Proceedings of the East-West Conference.
Persson, T., Tabellini, G., 1995. Double-edged incentives: institutions and policy coordination. In: Grossman, G., Rogoff, K. (Eds.), Handbook of International Economics.
Petit, M., 1989. Fiscal and monetary co-ordination: a differentail game approach. J. Appl. Econ. 4, 161–179.
Rodrik, D., 1998. Why do more open economies have bigger governemnts. J. Political Econ. 106 (5), 997–1032.
Rogoff, K., 1985. Can international monetary coordination be counterproductive? J. Int. Econ. 18, 390–407.
Rosamond, B., 2000. Theories of European Integration. Palgrave.
Tabellini, G., 1986. Money, debt, and deficits in a dynamic game. J. Econ. Dyn. Control 28, 427–442.
Van Aarle, B., Engwerda, J., Plasmans, J., Weeren, A., 2001. Macroeconomic policy interaction under EMU: a dynamic game approach. Open Econ. Rev. 12, 61–73.
Virén, M., 2001. The Stability and Growth Pact, vol. 1, Fiscal Policy, Automatic Stabilisers and Coordination. Palgrave, pp. 259–286.
von Hagen, J., Hallerberg, M., Strauch, R., 2004. Budgetary forecasts in Europe—the track record of stability and convergence programmes. Serie Economía 42, 1–32.
von Hagen, J., Hallett, A.H., Strauch, R., 2001. Budgetary Consolidation in EMU, Economic Papers no. 148.
von Hagen, J., Harden, I., 1994. National Budget Processes and Fiscal Performance. Eur. Econ. 3, 311–418 (reports and studies).
Wallis, K.F., 1988. Empirical models and macroeconomic policy analysis. In: Bryant, R.C., et al. (Eds.), Empirical Macroeconomics for Interdependent Economies, Brookings Institution, Washington DC, pp. 225–237.
Woodford, M., 2003. Interest and Prices: Foundations of a Theory of Monetary Policy. Princeton University Press.
Zurbrügg, F., 2003. Executive Director for CIS-Countries, Activity Report 2003. Technical report, IMF.