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**FISCAL POLICY CO-ORDINATION,  
IMPERFECT LABOUR MARKETS,  
AND MONETARY UNION**

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**ABSTRACT:** We analyse fiscal policy co-ordination under imperfect labour markets and monetary union. Fiscal policies may have positive and/or negative spillovers that may lead to welfare losses. These spillovers can be internalised through policy co-ordination.

First, we discuss policy credibility, time-inconsistency, and commitment, and then make a survey of policy co-ordination literature. Finally we extend an existing model to analyse fiscal policy co-ordination in a static two-country macro-economic framework. We compare uncoordinated and co-ordinated fiscal policies in a Nash game and two Stackelberg games with first the governments and then the labour unions as leaders. The results are analysed as functions of the governments' inflation aversion.

We interpret the Nash game and the game with the labour unions as Stackelberg leaders as regimes in which the governments are unable to commit to their fiscal policies. The results of these two games differ only slightly. Also, there is very little difference between the uncoordinated and co-ordinated cases.

The results are different in the Stackelberg game with the governments as leaders. Here the governments are able to commit in the eyes of the labour unions. Compared to the other two games, commitment results in stricter fiscal policies, lower nominal wages, lower inflation, higher real wages, lower employment and output, and higher labour union utility. Also there is a difference between the uncoordinated and co-ordinated cases. Co-ordination leads to a less strict fiscal stance, higher inflation and nominal wages, lower real wages, higher employment and output, and lower labour union utility.

According to the results, governments should either let the labour unions be leaders or co-ordinate their policies if they are leaders themselves. Meanwhile, the labour unions gain from letting the governments act as leaders, especially if the latter do not co-ordinate their fiscal policies. The best case is therefore not the same for governments and labour unions.

We emphasise the benefits from fiscal policy co-ordination when the fiscal authorities are able to make a commitment to their policies. Lack of commitment neutralises any effects from fiscal policy co-ordination.

**KEY WORDS:** Fiscal policy, Policy co-ordination, Monetary union, Imperfect labour markets, Commitment

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**TIIVISTELMÄ:** Tutkimuksessa analysoidaan finanssipolitiikan koordinaatiota epätäydellisten työmarkkinoiden ja rahaliiton oloissa. Finanssipolitiikalla voi olla positiivisia ja/tai negatiivisia ulkoisvaikutuksia, jotka saattavat johtaa hyvinvointitappioihin. Nämä ulkoisvaikutukset voidaan sisäistää päätöksenteossa politiikkakoordinaation avulla.

Tarkastelemme aluksi politiikan uskottavuutta, aikaepäkonsistentti-suutta ja sitoutumista. Tätä seuraa politiikkakoordinaation kirjallisuuskatsaus. Lopuksi laajennamme erästä olemassa olevaa mallia analysoidaksemme finanssipolitiikan koordinaatiota staattisessa kahden maan makromallissa. Vertaamme koordinoimatonta ja koordinoitua finanssipolitiikkaa Nash-pelissä ja kahdessa Stackelberg-pelissä, joissa ensin hallitukset ja sen jälkeen ammattiyhdistysliikkeet toimivat johtajina. Tulokset on analysoitu hallitusten inflaatioaversiivisuuden funktiona.

Tulkitsimme Nash-pelin ja ay-liikkeiden johtaman Stackelberg-pelin tilanteiksi, joissa hallitukset eivät pysty sitoutumaan harjoittamaansa finanssipolitiikkaan. Näiden kahden pelin tulokset eroavat vain vähän toisistaan. Lisäksi koordinaatiolla on hyvin vähän vaikutusta tuloksiin.

Tulokset eroavat kuitenkin näistä, kun hallitukset toimivat Stackelberg-johtajina, jolloin ne pystyvät sitoutumaan finanssipolitiikkaansa. Verrattuna kahteen muuhun peliin, sitoutuminen johtaa tiukempaan finanssipolitiikkaan, alhaisempiin nimellispalkkoihin ja inflaatioon, korkeampiin reaali-palkkoihin, alhaisempaan työllisyyteen ja tuotantoon sekä korkeampaan ay-liikkeiden hyötytasoon. Lisäksi koordinoitu ratkaisu eroaa koordinoimattomasta. Verrattuna koordinoimattomaan ratkaisuun, koordinointi johtaa kevyempään finanssipolitiikkaan, korkeampaan inflaatioon ja nimellispalkkoihin, alhaisempiin reaali-palkkoihin, korkeampaan työllisyyteen ja tuotantoon sekä alhaisempaan ay-liikkeiden hyötytasoon.

Tulosten mukaan hallitusten pitäisi joko antaa ay-liikkeiden toimia Stackelberg-johtajina tai koordinoida finanssipolitiikkaansa, jos ne toimivat itse johtajina. Sen sijaan ay-liikkeen kannattaa antaa hallitusten toimia johtajina erityisesti, jos ne eivät koordinoi finanssipolitiikkaansa. Paras tilanne on siten eri hallituksille ja ay-liikkeille.

Korostavamme finanssipolitiikan koordinoinnin hyötyä, kun politiikan harjoittajat pystyvät sitoutumaan harjoittamaansa politiikkaan. Sitoutumisen puuttuminen neutraloi finanssipolitiikan koordinaation vaikutukset.

**ASIASANAT:** Finanssipolitiikka, politiikkakoordinaatio, rahaliitto, epätäydelliset työmarkkinat, sitoutuminen

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## CONCLUDING REMARKS

Fiscal policy co-ordination is an important theme within the context of a monetary union when there is no fiscal federalism. How deep co-ordination will go and what forms of co-ordination will eventually be used in the Economic and Monetary Union in Europe remains under political moulding. Models help to analyse reality and perhaps shed some valuable insights into the broader issues of policy co-ordination. The Treaty on European Union states that the member states of the European Union “shall regard their economic policies as a matter of common concern and shall coordinate them within the Council”. The co-ordination of economic policies is therefore not really an alternative in the EU, only the extent to which it is implemented and the forms co-ordination assumes.

This study was in two main parts. First, in Chapters 2 and 3, we discussed relevant issues in policy co-ordination and surveyed existing literature. Economic interdependency and spillovers between countries may result in a need to co-ordinate fiscal policies. These externalities can be internalised through the co-ordination of policies, and a higher level of utility may be reached. We discussed the types of economic interdependency and the objectives co-ordination may have. We also discussed economic incentive constraints, credibility, time inconsistency, and commitment. We then surveyed some of the literature that analyses policy co-ordination.

In the second major part of the study we constructed a static two-country macro-economic model with imperfect labour markets to analyse fiscal policy co-ordination. The model is an extension of a model by Agell, Calmfors and Jonsson (1996). We analysed three games, a Nash game and two Stackelberg games with first the governments and then labour unions acting as leaders. Within each of the games we analysed an uncoordinated and a co-ordinated case. Usually models establish one time sequence and do not compare the results to those reached if the time sequence were different. In the model in Chapter 4, leadership has an impact on the effects of co-ordination.

We analysed the results as a function of the governments' inflation aversion. As this aversion increases, governments will run stricter fiscal policies. The results of the model are discussed more in Section 4.4.

We have stressed the importance of credibility and commitment for policy co-ordination to be useful. If a policy authority is able to make a credible commitment to some policy target, the authority in question will typically not suffer from time-inconsistency problems when it faces rational market forces.

Our results are broadly in line with the results in Barro and Gordon (1983b) and the results in the policy co-ordination models based on Alesina and Tabellini (1987), where the set up is, however, quite different from that used in the model in Chapter 4.

Barro and Gordon (1983b) argued that commitment will create an environment with a lower growth rate of money and thus a lower rate of inflation. Our results in Chapter 4 are in accordance with this. In the Alesina-Tabellini (1987) framework the central bank acts as a Stackelberg leader with respect to the labour union. Inflation, output and public spending are lower and taxes are higher in the committed regime than in the discretionary one. In our model, having the government as the Stackelberg leader with respect to the labour unions results in more restraint in fiscal policy, lower inflation, higher real wages and lower employment and output than the regimes, where the fiscal authority is unable to commit to that extent.

According to Alesina and Tabellini (1987), the more independent the central bank is, the lower are inflation, output and public spending, and the higher is the tax rate. Despite the loss in output and public spending, the fiscal authority is made better off by having a more independent central bank. Again comparing to our model in Chapter 4, where there is no central bank however, higher government inflation aversion results in lower inflation, lower output and less public spending. Regardless, the labour union is made better off. Jensen's (1992b) results from a model based on the Alesina-Tabellini framework indicate that international co-operation creates higher employment than not co-operating. The results in Chapter 4 are in line with this.

This study has stressed the importance of credibility and commitment for policy co-ordination to be useful. If a policy authority

is able to make a credible commitment to some policy target, the authority in question will typically not suffer from time-inconsistency problems when it faces rational market forces. This is also the case when policies are co-ordinated. Only when the governments act as Stackelberg leaders, which we interpret here as a situation where the governments are able to commit before the labour unions, co-ordination of fiscal policies has noticeable effects.

According to Currie and Levine (1993), one should have both reputation (interpreted here as commitment) and co-operation in order to benefit from policies. Without one or the other, the benefits either do not exist or they may become negative. Our results from the model we constructed and analysed in Chapter 4 are in line with this. If we calculate the value of the governments' loss function at a single point of their inflation aversion, we find that when the governments are leaders the co-ordination of fiscal policies results in a smaller loss. On the other hand, there is hardly any difference in the other two games. At the margin, the difference actually becomes negative when the labour unions are leaders.

According to our results, the governments should either co-ordinate their policies if they are leaders themselves or they should let the labour unions be leaders. On the other hand, the labour unions gain from letting the governments act as leaders, especially if the latter do not co-ordinate their fiscal policies. Indeed, the labour unions lose from the co-ordination of fiscal policies when the governments are Stackelberg leaders. Consequently, even though co-ordination may benefit some it does not necessarily benefit all the actors in this model. Our results emphasised the benefits from fiscal policy co-ordination in an environment of policy commitment.

Even though the structure of our model differs somewhat from many other models used in analysing the co-ordination of fiscal policies, we are able to draw fairly similar results. What is interesting in our results, is that what maximises the utility of the governments is not necessarily optimal from the point of view of the labour unions. The importance of commitment by the policy authority — the chosen time sequence of decision making — is emphasised as having a significant impact on whether or not policy co-ordination is beneficial.