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### **STRUCTURAL REFORMS IN THE EU AND THE POLITICAL MYOPIA IN ECONOMIC POLICIES\***

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**ABSTRACT:** The paper considers economic reforms in the EU using an economic-political model which captures the possible myopia in economic policies, and analyses reforms in taxation, the welfare state, and in the labour and product markets. We show that high taxes and an extensive welfare state are likely to be the case under myopia as compared to the social optimum. We also consider the interaction between the reform activity and the Stability and Growth Pact, which hampers reforms in tax policies, but is conducive to reforming the welfare state, the product and labour markets, although the magnitude of these impacts is not marked under the actual tightness of the Pact. We also find that economic and political considerations tend to favour the emphasis to be put on reforming the goods market, instead of the labour market, which has also broadly speaking been the case in reality in the EU. Econometric evidence presented in the paper also supports these results. Coordination of reforms in the EU is most important in the case of the product market, but not in other fields.

**KEY WORDS:** Economic reform, EU, political myopia

**JEL Codes:** E20, H30

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**TIIVISTELMÄ:** Tutkimus tarkastelee taloudellisia uudistuksia EU:ssa käyttäen apuna taloudellis-poliittista mallia, joka ottaa huomioon mahdollisen poliittisen lyhytnäköisyyden talouspolitiikassa, ja analysoi uudistuksia verotuksessa, hyvinvointivaltiossa sekä työ- ja hyödyke-markkinoilla. Tulokseksi saadaan, että korkea verotus ja laajat hyvinvointimenot ovat todennäköisiä, kun likinäköisyys on vallalla talouspolitiikassa. Tarkastelemme myös EU:n vakaus- ja kasvusopimuksen (VKS) vaikutusta uudistuspolitiikkaan. VKS rajoittaa verotuksen uudistamista, mutta tukee muiden lohkojen uudistamista, mutta näiden vaikutusten suuruus ei todennäköisesti ole huomattava käytännössä. Päättelemme edelleen, että taloudelliset ja poliittiset tekijät puoltavat uudistusten painopisteen asettamista hyödykemarkkinoiden uudistamiseen työmarkkinoiden sijasta, mikä onkin ollut yleisesti ottaen suuntaus käytännössä EU:ssa. Ekonometrinen evidenssi tukee näitä tuloksia. Uudistusten koordinointi EU-tasolla on tärkeintä hyödykemarkkinoiden tapauksessa, mutta ei muilla alueilla.

**ASIASANAT:** Talousuudistus, EU, likinäköisyys

# 1 Introduction

The Lisbon process calls for reforming the EU economies in order to enhance the economic performance of the Union. It is true that structural reforms of the EU have been a long-standing issue in European policy-making and on the agenda of the European and world-wide economic research community, too. Recently, there have been three main lines of research in this field. First, it has been studied what the current situation in the EU is with respect to the reforms and what the consequences of them and their spillovers are within the Union, second, whether reforms, being beneficial in principle for the EU economies as such, are viable in the political and social environment, and third, how the reforms are indirectly affected by EU policies, notably by the coordination in economic policies implied by the monetary union and the Stability and Growth Pact (SGP) with limits on the budget balance.

The literature on the actual state of the reform activity is large and such examinations are regularly done by European Commission<sup>1</sup> and also by international organisations like the OECD, see Cotis and Elmeskov (2006) for a recent stock taking. The effects of economic reforms on key economic indicators has also been under recent research, see the papers in Deroose, Florea and Turrini (2006). The economic policy architecture of EMU is based on a single centralised monetary policy and decentralised fiscal policy making. There are spillovers from fiscal policy both directly, through trade flows and inflation, from one country to the other, and also indirectly transmitted by the single monetary policy, reacting to fiscal stance in the member countries. There are also spillovers from economic reforms in one country to the other member countries. Recently, the spillovers of fiscal policies and economic reforms have been studied empirically by Bénassy-Quéré, Cimadomo and Mignon (2006) and Wyrstrass et al. (2006).

The second issue mentioned above has been raised for long in the sense that the politics of economic reforms are likely to be gloomy, due to their unpopularity and the dislike by various pressure groups towards them, as analysed e.g. already by Saint-Paul (1996). Grüner (2002) has raised the point that due to the informational asymmetries and the costs related to them,

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<sup>1</sup> See the material on the web page <http://europa.eu.int/growthandjobs>.

not reforming the labour market may be a constrained Pareto-efficient solution, although a reform would as such expand the economy.

The third line in the literature on the effects of EU institutions in this respect emerged in the run-up phase to the single currency, see e.g. Sibert (1999), Sibert and Sutherland (2000) and Saint-Paul and Bentolina (2000). They analysed the interaction between economic reforms and monetary policy, and the effect in this respect caused by the changeover to a single currency and coordinated monetary policy. Calmfors and Johansson (2006) have considered the changes in the functioning of the labour market related to EMU from the point of view, whether EMU leads to more wage flexibility.<sup>2</sup> Recently the link between the Stability and Growth Pact, being the basic coordination tool in economic policy making in the EU together with the regular Stability Programmes and Broad Economic Policy Guidelines connected to it, and economic reforms, has been raised in the literature, see Beetsma and Debrun (2004) and the papers in Deroose, Flores and Turrini (2006). The fear is that the two goals of reforming the economy and maintaining sustainability of public finances can be in conflict with each other, so that the Stability Pact may not be conducive to economic reforms, like in the field of tax and pension policies, which may lead to extra cost in the short run, although to long-run economic gains.<sup>3</sup> However, Heinemann (2006) has reached the result that this trade-off is not significant, if existent at all in the light of a comprehensive empirical evidence on economic reforms carried out so far.

The links between the SGP and economic reforms have been analysed by Beetsma and Debrun (2004) using a two-period political-economic model. One shortcoming in this kind of analysis is the loose and general specification of the costs and gains related to economic reforms. In this paper we use a somewhat similar approach as Beetsma and Debrun, but seek to discuss economic reforms in a more explicit way, both their benefits and costs, and evaluate these by building a small model with monopolistic goods and labour markets and distinguish

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<sup>2</sup> See in this respect also Alho and Erkkilä (1996).

<sup>3</sup> One problem of the SGP is also that it treats changes in taxes and expenditure in an asymmetric way, because rises in them potentially have a similar effect on inflation, which questions using the budget deficit as a relevant and key indicator of sustainability of public finances, see Alho (2001). The Stability Pact has been under intensive research and debate and numerous proposals for its reform have recently been launched in the EU and outside as a reaction to the entrance of the big EU countries, France and Germany, into high public deficits in the recession years 2002-03. Such a violation would in principle have led to pecuniary sanctions, but these were avoided by restructuring the Pact. See for recent standpoints in this respect e.g. Gros (2003), Blanchard and Giavazzi (2003), Buiters (2003), EEAG (2004), and also Alho, Kaitila and Widgrén (2000). The actual respecification of the SGP has been analysed by Buti (2006).

the tax/benefit system. The key factor, the effect of which is influenced by political myopia, and which creates intertemporal spillovers, is the investment behaviour of firms, which can be here affected positively by reform policies. We consider the political bias in economic policies and the fact, whether it can be corrected with a SGP. The main part of the paper concentrates on economic reforms in a single EU country, and we take recourse to numerical solutions of optimal policies to illustrate their dependence on the political myopia. Our conclusion is that the reforms are negatively affected by myopia in economic policies. So, taxes are higher and welfare state larger under myopia than in the social optimum. However, the case for product market reform is quite strong, irrespective of the political setup. On the other hand, it may easily be that political considerations block reforming the labour market. Our econometric evidence confirms these findings. The Stability Pact limits and hinders the magnitude of a tax reform, but is conducive to a reform of the welfare state and the labour and product markets, but with the degree of tightness of the actual pact, these effects are not likely to be big.

We omit here the short-run demand and inflationary effects of policies, in order to keep the analysis as manageable, but extend the time span to the medium run with supply side dominance. This emphasis is likely to lead to the situation that the reforms of the tax system and the welfare state are of the beggar-thy-neighbour type, because they can give rise to inward FDI in the reforming country at the cost of the neighbouring EU countries. Therefore, there is not so much scope for active coordination, because the scope of these reforms already in a single EU country is limited and biased towards the status quo. The situation in the goods market is, however, reverse, as we shall see. Economic reforms are typically disinflationary, while they expand the supply side of the economy. Giorno, Hoeller and van der Noord (2006) among others have emphasised the point that there should also be simultaneous expansionary demand side policies, notably monetary policy, in order to realise the gains of supply side policies. The analysis of tax policies in EMU has been carried out recently, also concentrating on the short run, by Bénassy-Quéré (2006) and Kotilainen (2006).<sup>4</sup> Bénassy-Quéré analyses the spillovers of fiscal policy in a two-country framework emphasising the various channels of tax policy and their interaction with the optimal monetary policy by the ECB. Kotilainen considers progressiveness of the tax system and its properties from the point of view of output and inflation stabilisation.

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<sup>4</sup> These papers have also been produced within the TAXBEN project.

The rest of the paper is organised as follows. In Section 2 we build the basic political-economic model of the economy. In Section 3 we consider the individual economic reforms. Section 4 presents some econometric evidence on the reforms and Section 5 turns to consider the issue of coordination of economic reforms in the EU. Section 6 concludes.

## 2 The model

We build a two-period model with imperfections in the goods and labour markets, aimed at medium-run analysis of policies and, consequently, concentrate on the supply side of the economy. GDP  $Q$  is produced with the capital stock  $K$ , being installed at the beginning of the period, and labour  $L$  so that the production function has constant returns to scale with respect to these inputs in period  $t$ ,  $t = 1, 2$ ,

$$Q_t = K_t^\beta L_t^{1-\beta}, 0 < \beta < 1. \quad (1)$$

With  $\delta$  being the rate of depreciation, the capital stock accumulates,

$$K_2 = I_1 + (1 - \delta)K_1, \quad (2)$$

where  $I$  is the flow of investment expenditure. In the second period there is no investment and the capital stock will be driven to zero at the end of it (consumed, or sold abroad, similarly as all the financial assets in a standard two-period model). The household sector has two assets, a financial asset bearing the international real rate of interest  $r$ , and firm equity. With perfect foresight arbitrage drives the two net rates of return to be equal. The firms decide on their optimal investment  $I_1$  in period 1, and thereby the capital stock  $K_2$  in period 2, and demand for labour in both periods. Maximising the present value of profits in periods 1 and 2, including the adjustment cost related to investment flow, defined as  $(a/2)(K_2/K_1)^2$ ,  $a > 0$ , leads to the following outcome,

$$L_t = K_t \left[ \frac{1}{1-m} \frac{W_t}{P_t} \right]^{\varepsilon_L}, t = 1, 2 \text{ and} \quad (3)$$

$$(1-m)(1-\tau_K)Q_{K2} = r + \delta + a(K_2/K_1), \quad (4)$$

where  $W$  is the wage rate,  $P$  the price level,  $\varepsilon_L$  the elasticity of labour demand, i.e.  $-1/\beta$ ,  $m$  the mark-up factor in the goods market and  $\tau_K$  is the tax rate on capital income. Using the production function (1), we come from (4) to the optimality condition for investment,

$$aK_2 / K_1 + r + \delta = (1 - \tau_K)(1 - m)^{1/\beta} B(W_2 / P_2)^{1-1/\beta} , \quad (5)$$

where  $B$  is a positive function of  $\beta$ . From (5) we can solve the investment expenditure to be a negative function of the real wage cost. The budget constraint of the households sector is in periods 1 and 2, respectively,

$$C_1 + A_1 = (1 - \tau_L) \frac{W_1}{P_1} L_1 + b_1(\bar{L} - L_1) + \Pi_1 + (1 + r)A_0 \quad \text{and} \quad (6)$$

$$C_2 = (1 - \tau_L) \frac{W_2}{P_2} L_2 + b_2(\bar{L} - L_2) + \Pi_2 + (1 + r)A_1 , \quad (7)$$

where  $C$  is private consumption,  $A$  the aggregate stock of financial assets of the households,  $\tau_L$  the tax rate on labour income,  $\Pi$  residual profits, which are taken given by the representative consumer with respect to the adjustment costs of the firms,  $b$  the unemployment benefit in real terms and  $u_t = \bar{L} - L_t$  is the number of unemployed workers in period  $t$  with  $\bar{L}$  being the labour supply. The residual profit, less the adjustment costs, related to investment, is equal to  $\Pi = (1 - \tau_K)(Q - (W/P)L) - (r + \delta)K$ . For simplicity, we discard individual labour supply decisions and assume that each consumer supplies inelastically a unit of labour.<sup>5</sup> The welfare  $V$  of the consumers (households) depends on the private and public consumption, the latter being denoted by  $G$ ,

$$V_1 = \sum_{t=1}^2 \left( \frac{1}{1 + \sigma} \right)^{t-1} U_t, \quad \text{where } U_t = U(C_t, G_t) = \frac{1}{1 - \xi} C_t^{1-\xi} + \alpha \frac{1}{1 - \xi} G_t^{1-\xi}, \quad (8)$$

where in a typical manner  $0 < \alpha < 1$ ,  $\xi > 0, \xi \neq 1$  and  $\sigma$  is the subjective rate of time preference, assumed to be the same as the real rate of interest  $r$ . The public services  $G$  are supplied to the private sector free of charge at zero price.

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<sup>5</sup> This is not crucial as taxes have an effect through wage setting on employment, see Eq. (11) below.

The households allocate their consumption over time through optimal borrowing and take as given the public expenditure of the government. Under a free capital market, and as the time preference is the same as the real rate of interest, the consumers smooth consumption over time, i.e. maximizing (8) with respect to  $A_1$ , gives the result;

$$C_1 = C_2 = \frac{1+r}{2+r}R. \quad (9)$$

Here  $R$  is the after-tax net real resources of the consumers,

$$R = (1-\tau_L)\frac{W}{P}L_1 + \Pi_1 + \frac{1}{1+r}\left((1-\tau_L)\frac{W}{P}L_2 + \Pi_2\right) + (1+r)A_0. \quad (10)$$

We consider the following two possible situations prevailing with respect to labour market institutions. In the basic situation there is a single monopolistic trade union, which sets unilaterally the real wage to be as follows,

$$\frac{W}{P} = \frac{\varepsilon_L}{(1-\tau_L)(\varepsilon_L + 1)}b, \quad (11)$$

where the elasticity of labour demand,  $\varepsilon_L$ , is higher than unity in absolute value.<sup>6</sup> The second case is that of a competitive labour market, reached through a liberalisation, which drives the mark up in wage setting to zero, and the net wage down to the level of unemployment benefit,

$$(1-\tau_L)\frac{W}{P} = b. \quad (12)$$

Under a monopolistic labour market the real wage rate is, of course, higher than in a flexible labour market. The labour union may potentially behave in an intertemporal manner and take into account the effect of its wage policy on investment by the firms. However, this leads to a time inconsistent wage setting policy in such a way that the wage rate will initially be declared to be lower in the second period than in the first, in order to attract more investment by the firms, but then the wage rate will be raised when the second period arrives, see Heijdra

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<sup>6</sup> Note that we discard in (11) the complication of distinguishing the marginal and average tax of income taxation in the trade union model, and simply concentrate on average taxes, see on this and derivation of (11) Bovenberg, Graafland and de Mooij (2000) and Alho (2006).

and van der Ploeg (2002, chapter 8.5). The time consistent outcome in the labour market is just given by (11), which we take to be the result of wage setting in both periods.

Let us now assume that the government in power in period 1 faces the following political structure, similarly as in Beetsma and Debrun (2004), so that in the beginning of period 2 there is an election and the present government has the probability  $p$  of winning it and running a second term. We define that the government may be of four possible types:

- (i) a “true” national policy-maker (social planner) which uses exactly the same utilitarian welfare function as the private sector agents in (8) with the same weight given to postponed welfare, and which finances tax reductions through a cut in public expenditure,
- (ii) a government which uses the same kind of utilitarian welfare function as in (8), but which gives for the second period welfare only the weight  $p$ , and which similarly finances tax reductions through a cut in public expenditure,
- (iii) a government which keeps the public consumption  $G_1$  fixed in period 1, due, e.g., to the vested interests of the public sector employees or its overall commitment to the welfare state, and which therefore finances reforms through increased borrowing as bound by the SGP, and, *mutatis mutandis*, reforms the expenditure of the welfare state under the influence of the Pact, and finally,
- (iv) an international non-elected body, which only pays attention to long-run, i.e. period 2, potential output and long-term fiscal balance of the country.<sup>7</sup>

The government faces the options to carry out economic reforms:

- a) through cutting taxes, only taxes on labour being considered here,
- b) curtailing the welfare system by lowering  $b$ ,
- c) by driving the mark up in the labour market down and reforming it from monopolistic to more competitive, and
- d) reforming the product market as more competitive by driving the mark up  $m$  there down.

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<sup>7</sup> We can perhaps think the OECD and the EU Commission to figure in this role.

The social and economic policy tools by which the labour market reform is actually put into effect are not analysed here. A process possibly leading to it could be an extreme form of globalisation and perfect elasticity of supply of capital to the economy.<sup>8</sup> Taxes on the capital income are kept fixed. We consider them to be set through international tax competition to a low level and because taxes on the existing capital stock would simply mean lump-sum taxes and serve as an efficient and simple way to finance the reform, which is, however, unlikely to be the case in reality.

As to the government of type (i) above which decides to finance the reform through cutting the public expenditure with an equivalent amount, there is no place for calling for corrective measures, as noted by Beetsma and Debrun (2004). In Appendix 1 we in short consider the case where a SGP corrects the political bias of myopia.

In the modelling of an economic reform, as in Beetsma and Debrun (2004), the government incurs costs now and benefits later related to a reform. One drawback of the general formulation of this kind, although being intuitively plausible, is that the magnitude of benefits and costs remains obscure and gives no economic insight as to their size. Therefore, we take here another route and try to be more explicit in this sense. In all other cases (a) – (c) above than the last reform (d), the benefit and cost of a reform for the government is primarily measured only in terms of the change in its welfare function, including the probability  $p$  of being re-elected, to be specified below in more exact terms. As to the reform (d) of the product market, the government bears a political loss  $M$  related to the fall in profits on existing capital, caused by a lower  $m$ , which is defined as,

$$M(m) = \pi(m_0 - m)Q_{\bar{K}}\bar{K}, \quad (13)$$

where  $m_0$  is the previous mark up and  $0 \leq \pi \leq 1$  denotes the weight given by the government on profits of the firms, i.e., the income of the (domestic) capital owners. In addition, the government incurs through SGP in period 1 a sanction, related to excessive borrowing, of size  $S_1 = f(D_1 - \bar{D})$ ,  $f' \geq 0$ , with  $D$  being the public debt and  $\bar{D}$  is the threshold value of it. In period 2,  $S_2 = 0$ , as  $D_2 = 0$  because all debts are repaid at the end of period 2.<sup>9</sup> The country con-

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<sup>8</sup> This is the famous principle by Hicks from 1932 in his *Theory of Wages*: “The elasticity of demand of what ever rises, if the elasticity of supply of a cooperant factor to it rises”, see Hatzius (2000).

<sup>9</sup> In reality, there are kinks in the derivative of the sanction functions, which are, however, here omitted for simplicity.

cerned is small and so the government does not think about raising revenues from the sanctions of the other EU countries, if they run excessive deficits, similarly as assumed by Beetsma and Debrun (2004). In the cases (ii) and (iii) above the government in power in period 1 maximises the following welfare function,

$$U(C_1, G_2) + \frac{p}{1+\sigma} U(C_2, G_2) . \quad (14)$$

The budget constraint of the government is in period  $t$ ,

$$T_t = T_{L_t} + T_{K_t} = \tau_{L_t} W_t L_t + \tau_{K_t} Q_{K_t} K_t = G_t + b(\bar{L} - L_t) - D_{t+1} + S_t + (1+r)D_t , \quad (15)$$

where  $G$  is the public consumption expenditure. Let us denote in the sequel by  $B_t$  the budget surplus in period  $t$ , less the current transfers related to the welfare state. We assume that the outcome of the election in the beginning of period 2 only depends on the present after-tax real labour income of the median voter and assume that he or she is an employed person, so that

$$p = p\left(\frac{(1-\tau_L)W}{P}\right), \text{ with } p' > 0, p'' < 0. \quad (16)$$

This is, of course, quite a simple and crude picture of the political process.

### 3 Optimal reform policies

The model is solved as to the overall optimum under commitment to an economic reform so that it will be enacted identically in both periods.<sup>10</sup> This means that the government in power in period 1 considers its welfare in period 1 and in period 2 only to the extent that its choices in the current period affect its welfare in period 2 if in power then. The key state variable creating the intertemporal spillovers between the periods 1 and 2 is the capital stock  $K_2$  in the beginning of the second period. Our key aim is to illustrate the effect of the political myopia, captured by the probability  $p$  of winning the next election, on the optimal choice of reform policy. This allows us to make an evaluation of the intensity of the reform process.

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<sup>10</sup> Note that the problem of time inconsistency mostly concerns the taxation of capital income, which issue is here left aside.

The sequence of action is as follows: first, the reform is announced by the government taking into account the reactions by the private sector in the goods and labour market, and secondly, the private sector, holding the reform as a permanent policy package, carries out its behaviour derived above.

We analyse economic reforms (a) - (d) above as separate cases, and do not consider here the potential interaction between them, which is, however, likely to exist in practice.

### 3.1 Lowering of the income tax

Tax policy is often viewed to have effects solely on the aggregate demand. However, it has an essential role also on the supply side of the economy through wage setting, which is now analysed.<sup>11</sup> We first note that the after-tax real wage is here not affected by taxes, so that tax policy has a one-to-one effect on the wage claims by the union, see (11). It is useful for the analysis below to derive the following expressions for the static change in real disposable income  $Y$ ,

$$Y = (1 - \tau_L)(W/P)L + b(\bar{L} - L) + \Pi + rA \quad (17)$$

where  $\Pi$  was defined above on page 5. The budget surplus,  $B$  defined as tax revenues less transfers,

$$B = \tau_K(Q - (W/P)L) + \tau_L(W/P)L - b(\bar{L} - L), \quad (18)$$

with a given capital stock and the stock of financial assets. We can now derive the following expressions,

$$\frac{\partial Y}{\partial \tau_L} = -\frac{1 - \tau_K}{1 - \tau_L} \frac{WL}{P} + \left( \frac{W}{P} - \frac{b}{1 - \tau_L} \right) \varepsilon_L L < 0 \quad (19)$$

and

$$\frac{\partial B}{\partial \tau_L} = \left[ 1 + \frac{1 + \varepsilon_L - \tau_K}{1 - \tau_L} \right] \frac{WL}{P}. \quad (20)$$

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<sup>11</sup> See Bénassy (2006) and Alho (2001) for an analysis of these two channels of tax policy in the short run through demand in the goods and supply in the labour market.

Expression (20) is likely to be positive in practice. So, income tax reductions lead to a rise in after-tax incomes and consumption, and to a lower rate of unemployment, at the cost of a higher budget deficit. Let us first consider the government of type (ii), i.e. which lowers taxes and simultaneously lowers public consumption expenditure. The optimal choice of the income tax rate can be written to be the following, based on (14),

$$\frac{\partial U_1}{\partial \tau_L} + \frac{p}{1+\sigma} \left[ \frac{\partial U_2}{\partial K_1} \frac{\partial K_1}{\partial \tau_L} \right] = 0. \quad (21)$$

Using the above result in (9), we can write this as follows

$$U'_C \frac{1+r}{2+r} \left(1 + \frac{p}{1+\sigma}\right) \left(\frac{\partial Y_1}{\partial \tau_L} + \frac{\partial Y_2}{\partial \tau_L}\right) + U'_G \left[ \frac{\partial B_1}{\partial \tau_L} + \frac{p}{1+\sigma} \frac{\partial B_2}{\partial \tau_L} \right] = 0. \quad (22)$$

We can further derive,

$$\frac{\partial Y_2}{\partial \tau_L} = \frac{\partial Y}{\partial \tau_L} + \frac{\partial Y_2}{\partial K_2} \frac{\partial K_2}{\partial W_2} \frac{\partial W_2}{\partial \tau_L}, \quad (23)$$

where the last terms on the right hand side can be solved from (5) and from  $\partial Y_2 / \partial K_2 = Q_{K2} = 1+r$ . In (23) the last term on the right hand side is negative so that a rise in taxes leads to a wage hike, which cuts the investment activity. The change in public expenditure in period 2 is as follows,

$$\frac{dG_2}{d\tau_L} = \frac{dB_2}{d\tau_L} = \frac{\partial B}{\partial \tau_L} + \frac{\partial(T_{L2} + T_{K2})}{\partial K_2} \frac{\partial K_2}{\partial \tau_L} = \frac{\partial B}{\partial \tau_L} + (\tau_L + \tau_K(Q_{K2} - 1)) \frac{\partial K_2}{\partial \tau_L}, \quad (24)$$

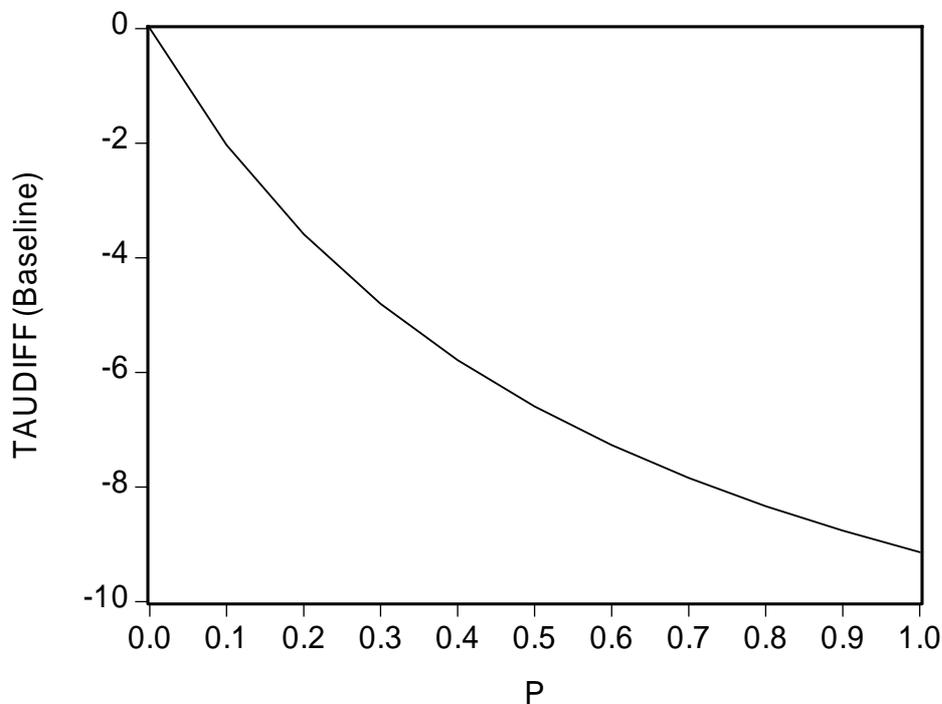
as  $dL_2 / dK_2 = 1$  if we normalise the initial real wage rate to unity.<sup>12</sup> Remember that according to our simple specification of politics above in (16), a cut in taxes is politically neutral in the sense that it does not affect the probability of winning an election. This means that a tax cut today only has a positive intertemporal spillover through (23) and (24). The more the government takes into account the future gains of lowering the tax rate, the higher the incentive is today to lower taxes.

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<sup>12</sup> Note that we assume that the government does not impose a tax on depleting the capital stock at the end of period 2.

The analytical solution of optimal policies is quite tedious between the marginal gains and costs of a reform and bears only little more insight so that therefore it is best to turn to a numerical solution of them, see Figure 1 for tax policy.<sup>13</sup> In general, the following numerical solutions showing the reaction of the optimal tax to the political myopia parameter  $p$  may, however, exaggerate the true situation in practice, where the changes in tax/benefit parameters include a marked inertia, which is not, however, tried to be captured here. We get the following result.

**Figure 1. The optimal tax rate as a function of  $p$ , the difference to the case of a myopic government, %-points**



*Result 1. It holds for the optimal tax policy that  $\partial\tau / \partial p < 0$ . This implies that the social optimum tax rate, with  $p$  being unity, is lower than that chosen by a myopic government and that the international non-elected body emphasises a tax reform more than the national decision makers.*

The intuition behind the result is that putting a larger weight on the future gains, which are linked to investment behaviour, gives more incentive to carry out the reform in tax policies lowering the tax rate, because of the consequent wage moderation.

<sup>13</sup> The numerical calibration and the parameter values used are shown in the Appendix 2.

Turn then to the case of a government of type (iii), which decides to run a deficit in period 1, while making a tax reform and has to consider the influence of the SGP on its policies. In this case  $dG_1 = 0$ , but through the budget constraint of the public sector, there is a spillover to the second period government expenditure,

$$G_2 = T_2 - b(\bar{L} - L_2) - (1+r)(G_1 + S(D_1) - T_1 + B_0) \quad (25)$$

where B is the stock of government debt. The optimum condition for tax policy is now

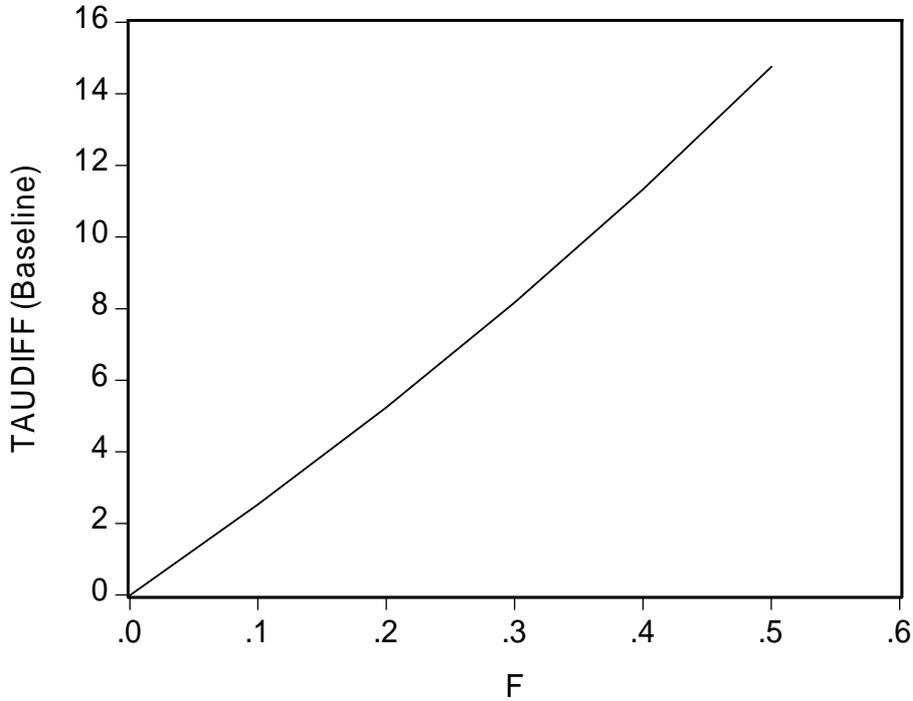
$$U'_C \left[ \frac{\partial C_1}{\partial \tau_L} + \frac{p}{1+\sigma} \frac{\partial C_2}{\partial \tau_L} \right] + U'_G \frac{p}{1+\sigma} \left[ b \frac{\partial L_2}{\partial \tau_L} + \frac{\partial T_2}{\partial \tau_L} + \frac{1+r}{1-f'} \left( b \frac{\partial L_1}{\partial \tau_L} + \frac{\partial T_1}{\partial \tau_L} \right) \right] = 0. \quad (26)$$

Analysing this we come to the following conclusion with respect to the slope of the SGP sanction function  $f'$ . A numerical solution is presented in Figure 2.

*Result 2. It holds for the optimal tax that  $\partial \tau / \partial f' > 0$ . This implies that the more stringent the SGP is, the higher the tax rate.*

This result confirms what was mentioned in the Introduction that the SGP and maintaining the budget balance may be opposed to carrying out a reform which causes costs for the public sector finances. The intuition is that the SGP makes borrowing more costly, and therefore calls for higher current taxes. It turns out that this impact of the SGP may in principle be quite large, but is not, however, very big, if we concentrate on the size of the sanctions stipulated in the SGP. This defines the curvature  $f'$  of the sanction function S to be on the order of 0.1 and thereby its effect on the optimal tax policy is rather limited. It is, of course, true that our approach to the SGP is very crude, and it should be remarked that the revised formulation of the SGP actually binds a reform activity less than what was the case previously, as the Commission now, i.a., takes into account a number of factors, including implementation of the Lisbon agenda when evaluating excessive public deficits, see Buti (2006).

**Figure 2. The optimal tax rate ( $\tau_L$ ) as a function of  $f'$  (F), difference with respect to the situation of no SGP ( $f' = 0$ ), %-points,  $p$  fixed to the value 0.5**



### 3.2 Reforming the welfare state

A reduction of the unemployment benefit  $b$  represents here a structural reform which curtails the welfare state. Note that this measure has both an economic and political content as it drives down the real after-tax wage rate, which leads to a political cost, see Equations (11) and (16). We first derive the result that the disposable real income of the households depends on the level of benefits  $b$  as follows,

$$\frac{\partial Y}{\partial b} = -(1 - \tau_K) \frac{WL}{Pb} + u + \varepsilon_L^2 \frac{\varepsilon_L - 1}{1 + \varepsilon_L} L. \quad (27)$$

The change in budget surplus is given by

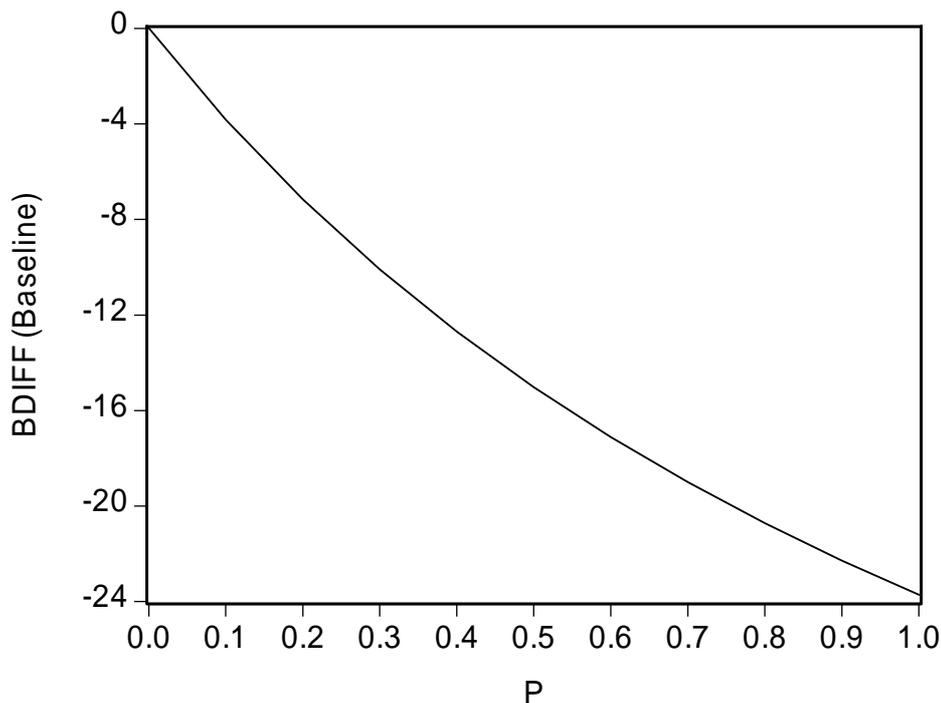
$$\frac{\partial B}{\partial b} = \left[ -\frac{\tau_K}{b} + \tau_L(1 + \varepsilon_L) \right] \frac{WL}{P} - u + \varepsilon_L L < 0. \quad (28)$$

The expression (27) is ambiguous as to its sign, although likely to be positive, which would imply that private consumption is likely to fall as a result of a cut in social welfare system, but there is a rise in budget surplus and thereby in public expenditure. On the other hand, employment will go up, so that there is a polarisation between the income of employed and unemployed, which issue is, however, not tackled any more in this paper. The optimal solution is analogous to that presented above in Section 3.2.

The intertemporal spillover of lowering  $b$  is similar as above in connection with taxes, i.e. lower welfare benefits lead to a gain in welfare later on as there is a positive effect on investment through wage moderation. In this case the dependence of the optimal  $b$  on  $p$  is therefore of a similar kind as compared to that in the case of taxes, see Figure 3. We can state,

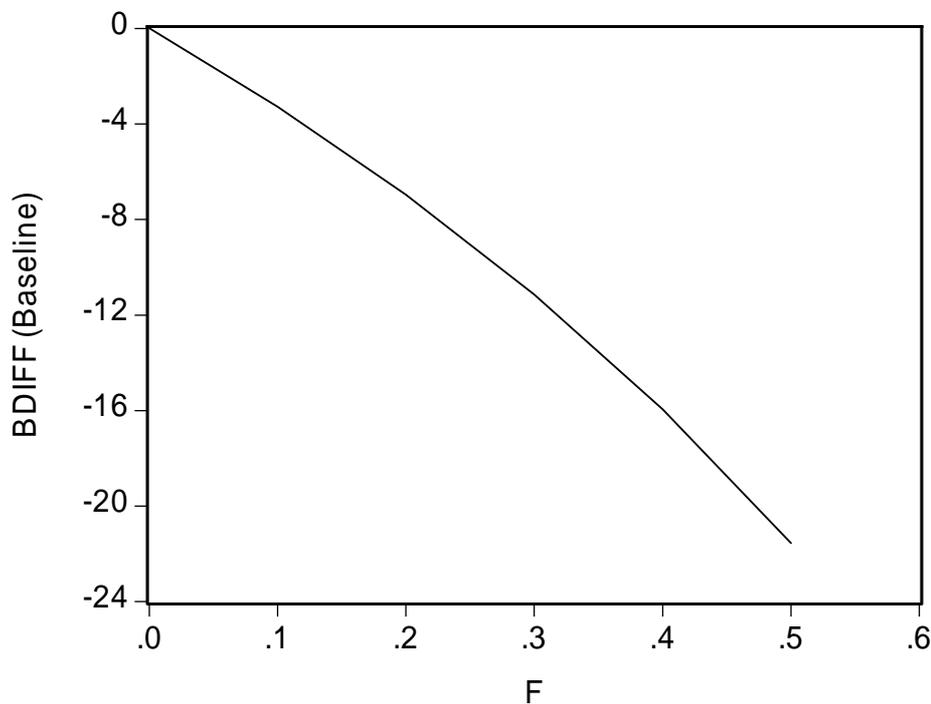
*Result 3. It holds for the optimal welfare benefit that  $\partial b / \partial p < 0$ . This implies that the social optimum welfare benefit, with  $p$  being unity, is lower than that chosen by a myopic government and that the international non-elected body emphasises a reform in the welfare state similarly more than the national decision makers.*

**Figure 3. The optimal welfare benefit ( $b$ ) as a function of  $p$ , difference to that with  $p = 0$ , %, the effect of  $b$  on  $p$  being omitted**



Turn then to the case where a lowering in  $b$  is done under the constraint of SGP, i.e. the government of type (iii). Now, SGP causes savings in public sector finances as the expenses on benefits go down and therefore this means that now the SGP is conducive to a reform in the welfare state. But again, the effect on the intensity of reform is not very big within the range of the strictness of the actual SGP, see Fig. 4.

**Figure 4. The relation of the optimal benefit  $b$  as a function of  $f'$  ( $F$ ), difference to the situation of no SGP ( $f' = 0$ ), %,  $p$  fixed to the value 0.5**



However, this is not a complete picture as the lowering of  $b$  drives down the net after-tax wage, and this has a negative political spillover as to the election outcome, see (11) and (16). This has the effect that the lowering of  $b$  is less likely than without a political consideration.<sup>14</sup>

### 3.3 Reforming the institutions in the labour market

The possibility to reform the labour market from a monopolistic to a competitive one is the next issue. This change in principle drives down the rate of unemployment  $u$  to zero in our

<sup>14</sup> We have calibrated the model so that in the baseline optimum  $dp/db = 0$ . Therefore, we are not able to find out the magnitude of the political factor, see Appendix 2.

model. Note that this reform has both an economic and political content as it leads to a cut in the real after-tax wage rate, and it is likely to be very unpopular. It can first be written on the basis of (11) and (12) that

$$\frac{d(W/P)}{W/P} = \varepsilon_L^{-1} < 0 \quad (29)$$

and

$$d \log \left[ (1 - \tau_L) \frac{W}{P} L \right] = 1 + \varepsilon_L^{-1} > 0. \quad (30)$$

The result (30) implies that the effect on aggregate real labour income is positive. Similarly, it would boost government finances, and thereby be a win-win reform at the aggregate level. Let us consider a piecewise reform, which cuts gradually the mark up in the labour market. Similar calculations as above yield the following results,

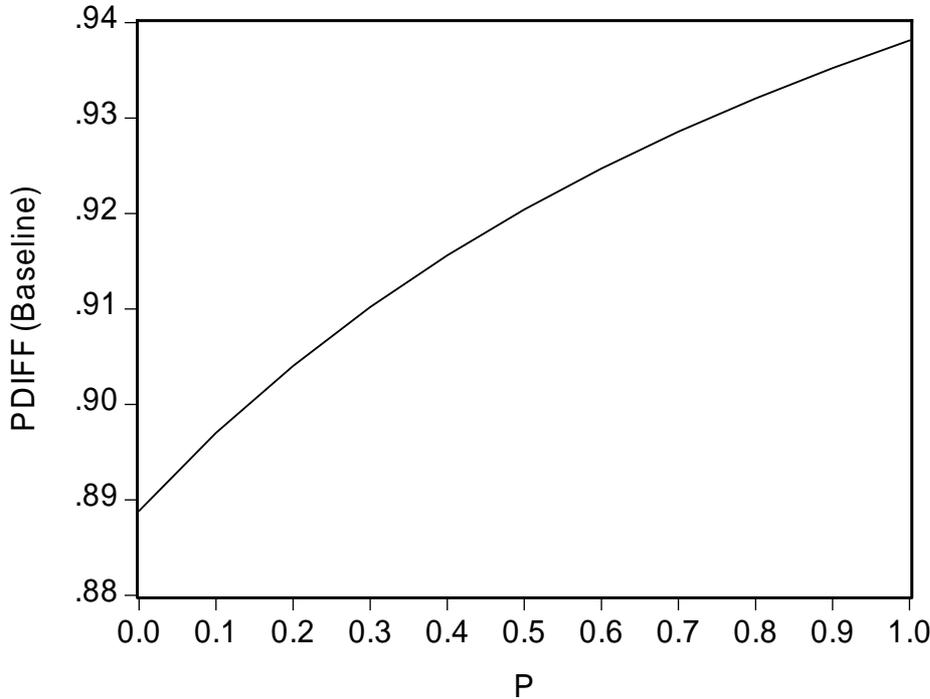
$$\frac{\partial Y}{\partial(W/P)} = \left[ \tau_K - \tau_L + (1 - \tau_L - \frac{b}{W/P}) \varepsilon_L \right] L, \quad (31)$$

and

$$\frac{\partial B}{\partial(W/P)} = \left[ -\tau_K + \tau_L + \varepsilon_L \left( \tau_L + \frac{b}{W/P} \right) \right] L < 0. \quad (32)$$

The effect of a reduction in the mark-up in wage setting on aggregate after-tax real income in (31) is ambiguous, although likely to be negative, if the replacement rate is not very big. It unambiguously increases the budget surplus, if the two tax rates are near each other. As the replacement ratio, i.e.  $b/(W/P)$ , is here fixed see Eq. (11), there does not exist a uniformly “best” (inner point optimum) wage level, as is plausible. A solution in the political market for preserving the status quo of the wage level is presented in Figure 5. The interpretation of the figure is that, if a lowering of the wage level by 1 per cent would reduce the probability  $p$  of winning the election by more than 0.9 percentage points, a reform in the labour market is called off. In empirical terms, we are inclined to think that this threshold value is quite low, so that the case in reality for a labour market reform is not very strong. It is also interesting that the effects of the economic factors on the required reaction in the political market to lead to a status quo in Figure 5 do not depend much on the existing political myopia in economic policies. A combined use of tax policies, which would neutralise the effect of lowering of the real wage on incomes, would be an interesting policy. We, however, leave this to a subsequent analysis.

**Figure 5. The semielasticity  $dp/(dW/W)$  preserving the status quo in the labour market**



We have not explicitly considered the role of the SGP in this connection, but due to the fact that a reform in the labour market leads to a fall in the budget deficit, see (32), the situation is analogous as in connection with reforming the welfare state in Section 3.3. SGP strengthens the case for reforming the labour market.

### 3.4 Reforming the goods market

The last policy exercise is the reform in the goods market. We treat the mark up there as independent from that in the labour market, although it has been argued that in reality they are linked positively to each other, see Jean and Nicoletti (2002). This reform means that the required rate of return on capital is driven down, and thereby there is an incentive to expand the capital stock. The net rate of return on capital is  $\rho = (1 - \tau_K)Q_K$  and this reacts to the change in the mark up  $m$  (see (14) above),

$$\frac{\partial \rho}{\partial m} = \frac{r + \delta}{(1 - m)^2} > 0. \quad (33)$$

This measure has an effect both on the labour demand in (3) and the demand for capital in (4). We can first derive the following expressions,

$$\frac{\partial Y}{\partial m} = \left[ (1 - \tau_L) \frac{W}{P} - b \right] \frac{\varepsilon_L}{1 - m} < 0 \quad (34)$$

and

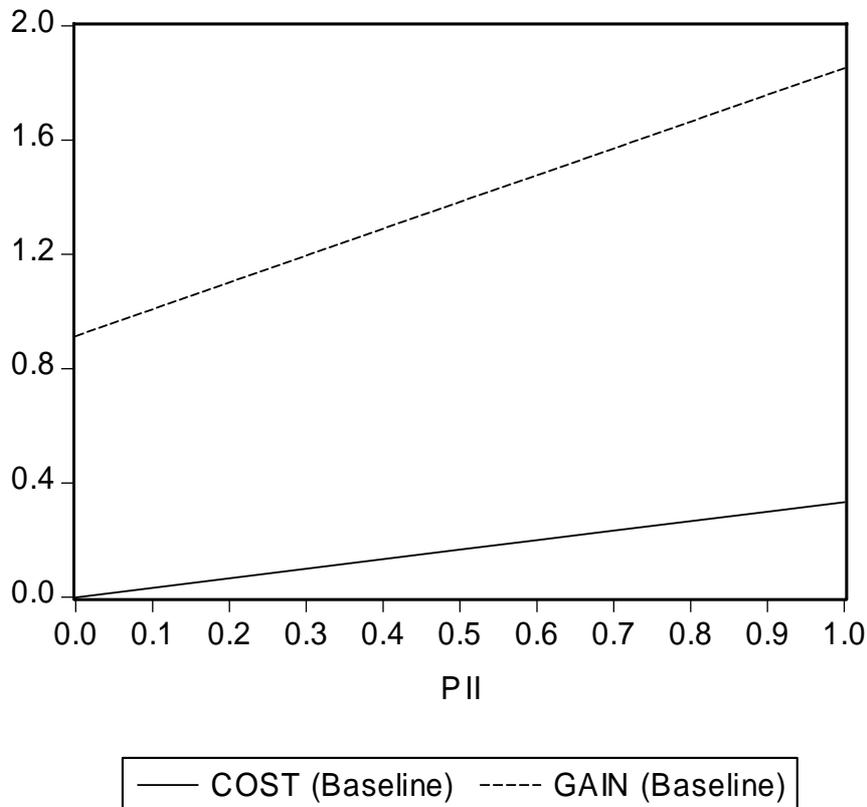
$$\frac{\partial B}{\partial m} = \left[ \tau_L \frac{W}{P} + b \right] \frac{\varepsilon_L}{1 - m} < 0 . \quad (35)$$

These results show that a lowering of the mark up is unambiguously beneficial both for private income, and thereby on consumption, and for finances of the public sector. The gain of the reform in the goods market is magnified by the larger capital stock in the second period, see Eq. (33). Of course, we should note that lowering of  $m$  is only in certain sense a policy tool of the government and imperfections in the goods market are based on many factors. This reform does not have an impact on the political process in our formulation. The government only bears the cost defined above in (13) related to the loss in the income on the existing capital caused by a fall in the mark up.

Equations (34) and (35) show that there does not exist a positive optimal level of the mark up from the welfare point of view, as is plausible, so that we evaluate these gains and losses related to the reform and compare them with each other. The gains are defined analogously as on the left hand side of Eq. (22) and the losses in (13). A numerical solution is in Fig. 6.

Note that in Fig. 6 the axis of  $p$  is the same as that of  $\pi$  in Eq. (13), and that the marginal gain slightly rises as a result of a higher  $p$ . We see that the case of not carrying out a reform in the product market is very weak indeed, and not called off even if a very large weight ( $\pi$  in Eq. (13)) is given to maintain the present income of the capital owners intact. We have not explicitly solved for the role of the SGP in this connection, but, analogously as above in Sections 3.3 and 3.4, due to the fact that a reform in the product market leads to a fall in the budget deficit, see (35), SGP strengthens the case for reforming the product market.

**Figure 6. The marginal gain and marginal cost of reducing  $m$  as a function of  $\pi$  ( $\pi$ ii)**



This completes our analysis of economic reforms in a single country as based on our theoretical model.

## 4 Econometric evidence

We shall next show some results on reform policies of the above kind, based on econometric model simulations by Alho (2002). The model, estimated for the Finnish economy, but being of a fairly general one allowing the determination of the equilibrium rate of unemployment, consists of two behavioural equations: one for labour demand (price setting) and one for wage setting in real terms, the third equation being the identity for the change in the labour share in GDP. The impact of growth of GDP, determined by fluctuations in aggregate demand, is constrained in the model to be a temporary one so that a rise in the economic activity will boost employment in the short, but vanish in the long run, in effect in four years.

The estimated labour demand equation in Alho (2002) is written directly in terms of the change in unemployment,

$$\Delta U = u\left(\left(\frac{WL}{PQ}\right)_{-1}, g\right), u_1 > 0, u_2 < 0, \quad (36)$$

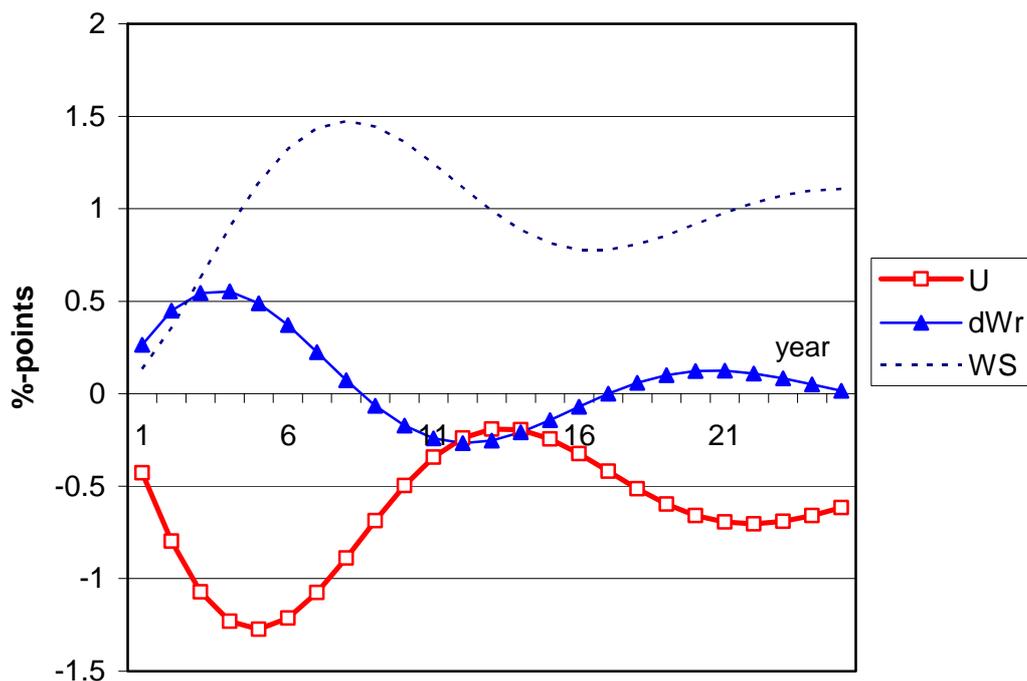
and the empirical wage setting curve is determined by

$$\Delta(W/P) = m\left(U, \left(\frac{WL}{PQ}\right)_{-1}, b, g\right), w_1 < 0, w_2 > 0, w_3 > 0. \quad (37)$$

Here  $U$  is again the unemployment rate,  $W$  the wage rate,  $Q$  production (GDP),  $g$  its growth rate,  $P$  the price level, and  $b$  unemployment benefit, and  $\Delta$  is the difference operator. Taxes did not play a statistically significant role as an exogenous variable in the estimations, except through their indirect effect on benefits  $b$ , which are taxable in Finland.

We carry out two simulations. The first one considers a product market reform, which leads to a reduction in the mark up in the goods market so that the share of capital (non-labour) income in GDP falls by one percentage point. The results are shown in Figure 7.

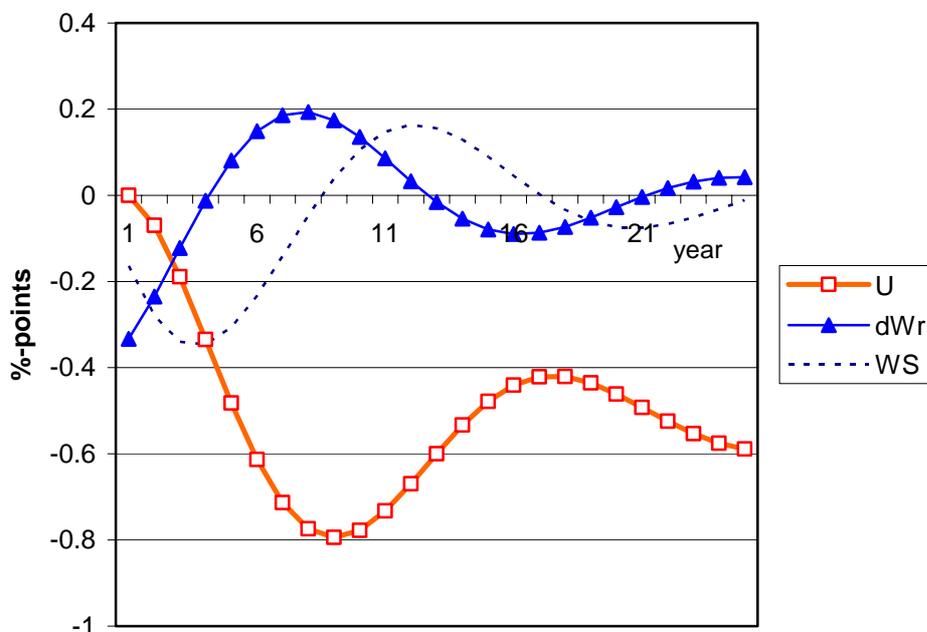
**Figure 7. Goods market reform, for details see the text,**  
 **$U$  = rate of unemployment,  $dWr$  = change in real labour cost,**  
 **$WS$  = share of labour income in GDP**



The results show that there is a reduction in the equilibrium rate of unemployment, and a simultaneous rise in the real wage in the short-term. This makes the policy tool as quite popular confirming the outcome of the results reached above. The second simulation considers a reform in the labour market, which implies that the wage setting curve shifts down so that the labour unions are initially satisfied with one percentage point smaller share of labour income in terms of GDP. The results are displayed in Figure 8.

Also now we get a lower equilibrium rate of unemployment, but at the cost of an initial fall in the real wage. However, over the long term the share of labour in total income is not reduced as the ability-to-pay curve by the firms, determining the long run income distribution, remains unchanged (see e.g. Alho, 2006). However, we also see a reason for the unpopularity of a reform in the labour market, as it initially drives down the real wage.

**Figure 8. Labour market reform, for details see the text,  
U = rate of unemployment,  $dW_r$  = change in real labour cost,  
WS = share of labour income in GDP**



## 5 Coordination of structural reforms in the EU

Turn then finally to consider the coordination issue concerning economic reforms within the EU. Take now into account that capital may flow in the form of FDI from one EU country to the other as a result of an economic reform in an EU country. The reforms of the tax policy, the welfare state and in labour market are in our supply side model of the beggar-thy-neighbour type, as they increase the rate of return on existing capital and lead to larger investment, not only by the home country firms, but also to an inflow of capital from the neighbouring EU countries, as the profitability and competitiveness of the home country have increased. If we would coordinate these reform policies in the different EU countries, and maximise the sum of the respective welfare functions, the total capital stock would react less than in the individual member countries. Consequently, the political bias of myopia, reducing in the manner we saw above the magnitude of the reform, would be stronger than under no coordination. So, it is best to avoid too tight coordination of the structural reforms of this type and in this way the bias linked to myopia could be made smaller.

However, with a reform of the product market, the situation is different. Imagine that in the initial situation the rate of return is the same in the EU countries. If the home country makes a reform in the product market, this drives down, in the manner we saw above, the return on existing capital. With free capital flows the domestic firms have less incentive to expand their investment in the home country, as the return in the neighbouring EU country is higher, if the mark up in the labour market remains unchanged, as we have assumed here. As a result, there is an outflow of capital from the reforming country to its neighbours with the previous mark up. This gives a smaller incentive to carry out a reform in the product market than what we saw above.

The current open method of coordination in the Lisbon process in the EU basically consists of peer review and peer pressure of the member countries and the basic tools of it are the regular national reform programmes for growth and jobs, and the annual review reports prepared by the EU Commission for the summit of the Union. It may be the case that these institutional forms are the suitable ones. Therefore we are inclined to think that coordination of product market reforms as already now takes place through common competition policies and liberalising certain key product markets Europe-wide, and leaving the reforms in the welfare state and tax and labour markets to peer pressure, makes good sense.

We should still note the interaction of the reform activity and the single monetary policy in EMU. We have above considered the real interest rate  $r$  as fixed. As reform policies expand the supply side of the economy, they are also disinflationary, and may therefore lead to a rise in the real interest rate if the ECB does not react to the reform concerned. This factor would suggest that the case for coordination of reform activity would be stronger than outlined above. This possibility was already raised by Saint-Paul and Bentolina (2000). Empirically this has recently been studied by OECD (2006, 54-55). In a theoretical two-country model Bénassy-Quéré (2006) shows that the spillover from a tax cut to a neighbouring EMU country can in the short run be either positive or negative, the former being the case if the ECB reacts to the disinflation caused by a tax cut which outweighs the loss in competitiveness in the neighbouring country. In our medium-run model this is not considered, as we keep the real interest rate at its natural level throughout.

## **6 Concluding remarks**

We have here analysed the economics and politics of economic reforms in a concise framework, but which anyway allows us to discuss reforms in a meaningful way. It is, of course, true that many aspects of reforming the economy are much more complex than what is possible to be captured by a simple aggregative model of an economy, as here.

But it seems that in general we can find the following dividing line. The national decision-makers are the least to carry out a reform, which the public would favour, and the international bodies are in general on the right cause, as they keep on calling for reforming the economy. However, their argument may be even stronger than the social optimum.

The role of the Stability and Growth Pact of the EU is not very big, if we take into account the stringency with respect to sanctions of the actual Pact. Its impact is negative in the case of tax reform but positive in terms of other economic reforms. Thus, we could qualify the result of a negative impact of the Pact on reform activity, reached by Beetsma and Debrun (2004), to apply only to tax policy, but in the case of reforming the welfare state, the labour and the product market the case is the reverse. This is due to fact that these latter reforms lead to an improvement in government finances and thereby to a lower effective cost of borrowing.

The numerical values reached in the solutions are, of course, here only indicative. Of the various reforms considered in the paper, it turned out that reforming the goods market would in economic terms and politically have the strongest case, and not much at all hampered by considerations of myopia. It also seems to be the case that in reality reforms in the EU have been clearly more predominant in the goods than in the labour market, see Cotis and Elmeskov (2006).

We can pose the question, whether there should be and there is a remedy to inaction in the EU concerning structural reforms. Of course, within the adopted framework here we can find little guidance on how to make things differently in this sense, but we, anyway showed that, in general, the political bias in economic policies can have quite a substantial effect. We showed that a key factor would be to reduce the extent of myopia in the political process, and that international organisations, like the OECD, and the peer review by the EU Commission and member states, may do a good job in this respect. On the other hand, we could also shed light on the fact why their frequent recommendations on economic reform are put into effect only in a limited degree. But we should also pay attention to the results by Heinemann (2006) who argues that the gains from tax reform are fairly rapid and sizeable so that the argument of myopia may have to be qualified.

The political side of our model is, of course, quite simple. Normally other factors than real wage, like the rate of unemployment and inflation, also play a role in the econometric studies of the outcome of elections and the influences of macroeconomic developments on them. Economic growth affects the sentiment also according to Heinemann (2006). Taking into account of these factors would in principle favour economic reforms as unemployment, inflation and growth can be positively affected by reforms policies in our framework. This means that that the case for economic reforms is stronger than outlined above.

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## Appendix 1. A note on optimal SGP

We can make a general statement on the role of SGP in this connection. The economic meaning of the SGP in this kind of a model is to correct the political bias, which is created by the smaller weight given typically in policy-making to the second period welfare than what is socially optimal. Let  $x$  be one of the policy tools of the government. By differentiating (14) with respect to  $x$ , and assuming for simplicity that  $\partial C_1 / \partial x = \partial C_2 / \partial x$  and  $\partial G_1 / \partial x = \partial G_2 / \partial x$ . Solving then for the optimal government borrowing  $D_1$ , using the the sanction function  $f$  in (15) which leads to  $(1-f)U'_{G1} = pU'_{G2}$ . Imposing then the condition that the actual marginal rate of substitution between private and public consumption is the same as in the social optimum with  $p = 1$ , defined on the basis of (8), we come to the condition,

$$\frac{1+p}{2-f'} + \frac{\partial p / \partial x}{\partial C / \partial x} U(C, G) = 1 . \quad (38)$$

In the case where the measure  $x$  does not affect the outcome of the election or the political bias, i.e.  $p_x = 0$ , we come to the situation, where the optimal stability pact simply eliminates the existing political bias,

$$f' = 1 - p . \quad (39)$$

This means that at the margin the share  $1-p$  of the realised deficit is collected to the Community budget. If, however, the measure  $x$  concerned simultaneously raises the probability of winning an election and raises the private consumption, we come to a situation, where from Eq. (38) the optimal SGP need not be as stringent as in (39), i.e.,

$$f' < 1 - p , \quad (40)$$

as is plausible. However, as we saw above, the opposite case may also emerge so that  $p_x < 0$ , and now the optimal SGP should be tighter than in (39), i.e.,  $f' > 1 - p$ . In the actual SGP the value of  $f'$  is 10 per cent.

## Appendix 2. Calibration and parameter values used in the solution of the model

The calibration is done for two consecutive 5 year periods. The real interest rate was fixed to 5% p.a. The initial tax rate  $\tau_L$  is fixed to 35% and  $\tau_K$  to 25%. The mark-up factor  $m$  is fixed to 0.1. The initial marginal rate of substitution between private and public consumption is solved so that the pre-reform situation is a steady-state status quo with respect to the policy reform with the value of  $p = 0.5$ . This was done separately for each policy measure, as it turned out to be very much lower in the case of taxes than benefits. In the solution of the optimal benefit, the influence through an endogenous  $p$  was omitted in the calibration. In the calculation of the  $dp/d(W/P)$  in connection with the labour market reform the intertemporal elasticity of substitution in (8) was fixed to 2 and the parameter  $\alpha$  to 0.5 in this case case and in connection with the product and labour market reform.

We normalise the stock of the labour force to unity and unemployment rate to 8%. The value of  $\varepsilon_L$  is fixed to fairly low, to the value of  $-1.2$ . The value of the benefit was then solved from (11). The optimal conditions for policy were solved similarly in all cases as in (22). The adjustment cost of the capital stock in (4) was specified so that the rise in the capital stock is in the initial situation 3% per annum.

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