Diversity of Capitalism and Macroeconomic Policy

(preliminary and incomplete)

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Abstract

The analysis of the relations between diversity/variety of capitalism and macroeconomic policy is still largely undeveloped. According to Soskice [2007], discretionary macroeconomic policy would be suited to liberal market economies whereas more orthodox macroeconomics would fit with coordinated market economies. Following this conclusion, the dominant macro policy in Europe nowadays would be more favourable to the emergence of a CME than that of a neo-liberal model of capitalism. On the other hand, orthodox macroeconomic policy is often blamed for its neoliberal inspiration. The contribution will try to analyse some of the links between macroeconomic policy and institutional features differentiating models of capitalism.

1 introduction

A contemporary theme of comparative political economy is the analysis of differentiated models of capitalism (Hall & Soskice [2001], Amable [2003]). This literature has established that developed economies are not simply near-identical variants of a canonical model of capitalism, but exhibit important differences with respect to their labour market institutions, degree and type of competition on product markets, structure and generosity of the welfare state, type of financial system and corporate governance, education and training systems, etc. Furthermore, institutional features specific to a given model are not a random collection of institutional forms. The institutions of a given variety of capitalism are complementary to each other in the sense that the stability of a given institution is reinforced by the presence of another specific institutional form (Aoki [1994], Amable & Palombarini [2008]).

The role of macroeconomic policy in the differentiation of models of capitalism or the consequences of the existence of specific institutions in a given model for macroeconomic policy are issues that have more rarely been addressed by the comparative political economy literature. The main reason is probably that the differentiation
of capitalism is a matter of institutions, which are stable, long term, constructions, whereas macroeconomic policy is commonly thought to have a short/medium term effect. The ‘régulation’ theory is a good example of this relative neglect of macroeconomic policy. The crux of the theoretical construct of the ‘régulation’ theory is the emergence, stability and crisis of dominant institutional forms: competition, wage-labour nexus, international regime, monetary regime and the State. Macroeconomic policy is merely thought of as an ‘adjuvant’ (Boyer [2001]) to the mode of regulation, not an essential element. What made the post war fordist growth regime possible was not Keynesian-type macroeconomic fine-tuning but the articulation of a series of institutional forms and an accumulation regime. Similarly, macroeconomic policy could not be considered as responsible for the crisis of the fordist mode of régulation, nor could it be expected to provide a solution to the crisis. Only the analysis of the long term dynamics of the economy could provide answers in this respect. The definition of a macroeconomic policy had to be made according to the requirements of systemic coherence, i.e. in accordance with the dominant institutional forms.

Other types of literature made a link between institutions and macroeconomic policy. As Iversen and Soskice [2006] recall it, 1980s’ literature on neocorporatism established a connection between the degree of centralisation of wage bargaining and macroeconomic policy. Countries where labour market institutions led to centralised bargaining taking place between large unions would have greater possibilities to implement counter-cyclical macroeconomic policies in exchange for wage restraint. Left-wing governments would be in a better position to obtain this mix of wage restraint and full employment. Countries with more decentralised bargaining could not have such an exchange and accommodating macroeconomic policies would encourage wage and price increases, leading to high levels of inflation and inferior macroeconomic performance. In this context, wage discipline imposed by right-wing governments would be more efficient.

In a recent contribution, Soskice [2007] made more specific associations between macroeconomic policy and varieties of capitalism. Two types of result are proposed. First, liberal market economies (LMEs) such as the US would have a more accommodating aggregate demand management regime than coordinated market economies (CMEs) such as Germany. Again, this correspondance is not random but corresponds to a systemic requirement for each type of capitalism. There would be a complementarity between an accommodating or flexible aggregate demand management regime on the one hand, and the most specific features of the production regime, limited welfare state and majoritarian type of political system of the LMEs on the other hand. Likewise, the ‘conservative’, rules-based aggregate demand management regime would be better suited to the production regime, social-democratic welfare state and consensus-based political institutions that characterise CMEs. Second, the complementarities in CMEs that link production regimes with welfare states, political systems and aggregate demand management regimes would damp limited size shocks but amplify larger shocks. The reason is that large shocks would make welfare systems appear unsus-
tainable to agents who would consequently increase their savings and thus amplify the shock.

The aim of this paper is not to propose a general approach of the links between macroeconomic policy and the institutions characteristic of a model of capitalism, but to investigate some aspects of that question. The next section briefly reviews the main issues and reviews the propositions made by Soskice [2007]. Section 3 will propose a (probably too) simple macroeconomic model to analyse how fiscal policy can influence the cooperative or non cooperative behaviour of bargaining agents. Section 4 will emphasise the divergence of interests on macroeconomic policy with the help of another simple model.

2 macroeconomics and models of capitalism

The links between nonaccomodating macroeconomic policies on the one hand and CMEs’ characteristics on the other hand, as well as those between accomodating macroeconomic policy and LMEs may be briefly exposed. Soskice [2007] considers that welfare states in CMEs are instrumental in stabilising the skill acquisition system CMEs’ production regimes is based on. CMEs’ welfare states provide income and status guarantees that are needed in order for workers to invest in the specific skills that CMEs’ firms base their competitiveness on. By contracts, production regimes in LMEs demand general skills and do not require the existence of a generous welfare state. Political institutions play a role too. Consensus regimes in CMEs provide a framework for interests groups to take part in policy making and stabilise the alliance between unions and firms in favour of a well-developed welfare state. Both parties have an interest in such a system: unemployment, wage and status protection provide the incentives for workers to invest in the specific skills firms need. Besides, the proportional representation system of CMEs enable a centre-left political alliance that is more favourable to the welfare state than the centre-right alliance found in majoritarian systems. The CMEs’ governments are thus in a consensus system and face strong workers and firms unions. On the other hand, LMEs’ governments are strong and face fragmented social partners.

The link with macroeconomic policy is the following. When powerful and unified governments face individual agents, they can take decisions on fiscal and monetary policy without being concerned that discretion might weaken their bargaining position. This is supposed to be the case in LMEs. By contrast, in CMEs, governments face a small number of powerful unions and are thus more likely to refrain from discretionary behaviour and prefer conservative monetary and fiscal arrangements. Discretionary macroeconomic policy would lead to inefficiencies, and it would thus be in the interest of both government and unions to have conservative monetary and fiscal regimes. The rationale can be summarised as follows. When there is a small number of powerful bargainers, i.e. workers and firms’ unions, this is likely to lead to higher price and wage increases. Sectoral bargainers will be able to raise their
demands, ignoring the effect of higher inflation on the aggregate economy. This situation is often represented as the outcome of a prisoner’s dilemma game between unions that set wages independently of each other. Each union may raise the wage or keep it constant in their sector. The prisoner’s dilemma outcome is that each union has incentives to raise wages, leading to high inflation. In the absence of sanctions from, for instance, a conservative Central Bank, this inflation will result in loss of competitiveness and an inefficient outcome for unions in terms of employment. Conservative authorities can credibly threaten to react to inflation by raising interest rates, leading to a contraction of activity that would threaten employment. In short, a conservative aggregate demand management regime changes the trade-off between inflation and employment. Following the same line of argument, a conservative regime is not necessary in LMEs since there are no strong unions. A non accommodating monetary policy would not raise the incentives for wage moderation. The Central Bank can be accommodating without fear of unions taking advantage of it to push for wage hikes. In fact, the economy would benefit from having authorities react quickly to macroeconomic shocks.

The argument regarding fiscal policy is mostly based on the ’common pool’ problem. CMEs’ political system is in general consensus-based whereas LMEs’ system is majoritarian. Therefore, CMEs will most likely have coalition governments, with coalition partners representing different groups within society. Majoritarian LMEs will most likely have single-party governments, with a powerful government facing fragmented social groups. In coalition governments, different parties can directly or indirectly take decisions about public expenditure in different areas. These decisions are then taken independently, presumably in the direction of the specific groups behind each coalition partner, but they are financed out of general taxation. There are therefore incentives to ’overspend’ and produce ’excessive’ deficits. It is then in the interests of coalition member to have an institutional device that prevents such behaviour. The simplest is to remove the possibility to use discretion in budget policy and fix some rules in order to maximise the interests of the coalition. Following this logic, CMEs should have strong rules for public expenditure. Again, such ’discipline’ would not be necessary in LMEs. On the opposite, according to the same logic as before, LMEs would benefit from reactive budget policy as shock-absorbing device.

Finally, there are complementarities in fiscal and monetary policies. A conservative monetary policy requires a rules-based fiscal policy for credibility’s sake. A lax budget policy would make the threat of a non accommodating monetary policy non credible. Therefore, CMEs should have both conservative monetary policies and non accommodating fiscal policy. The same argument works in reverse for LMEs. An accommodating monetary policy would see its effects annihilated by a conservative budget policy. Therefore, LMEs should have both lax budget and accommodating monetary policies.
3 Fiscal policy and wage bargaining

The links between the institutional characteristics of the different models of capitalism and the type of macroeconomic policy certainly go well beyond the elements presented in the previous section. Without going very much into details, a few points may be mentioned. First, as has often been noted in some recent comparative political economy contributions, the dichotomy between CMEs and LMEs may be helpful as a first approximation, but far too limited to account for the diversity of models of capitalism. Consequently, analysing the links between macroeconomic policy and models of capitalism on the basis of this dichotomy alone is probably too limiting. For instance, Japan and Germany are equally classified as CMEs. According to Soskice [2007], they should have the same type of conservative and non-accommodating macroeconomic policies. The evidence of the last fifteen years leads one to doubt that Japanese fiscal or monetary policies were particularly conservative. The way macroeconomic policy has been used in connection with the banking crisis must probably be analysed in reference to the political equilibrium of Japan, and not simply as a simple consequence of Japan being a ‘CME’.

The links between industrial specialisation, innovation and macroeconomic policy may also be more complex than usually thought. If institutions governing labour, financial and product markets differ across countries, these will be characterised by different growth-maximising inflation and debt rates and hence by different conditions for monetary and fiscal policies (Ernst [2006]). This is of particular relevance for Europe. Any convergence in the stance and conduct of monetary and fiscal policies that European countries experience impacts on the productive system by influencing the profitability of different innovation strategies. Since institutions regarding the regulatory and institutional framework surrounding European labour, financial and product markets are governed by political processes that are different from those regulating monetary and fiscal policies, a mismatch between the two spheres of the institutional architecture can be expected, with negative consequences for the emergence and sustainability of a specific European socio-economic model.

Another point is to establish a difference between a macroeconomic policy determined by a political process and a policy determined by functionalist requirements. Even if a given policy can be considered as stabilising a given economy or improving its performance, different social groups may have differentiated opinions about the pursuit of this policy. Fiscal or monetary policies have distributional consequences and the pursuit of a given policy implies that the government must have a wide enough social support. The orientation of macroeconomic policy will therefore reflect the type of support that the government expects.

Also, the impact of monetary policy may involve some particular complementarities that depend very much on a mix of institutional features and historical circumstances. The combination of a lax monetary policy with deregulated financial markets favours the emergence of asset bubbles which may boost macroeconomic performance.
until they burst out. The internet bubble of the 1990s as well as the current financial crisis are examples of such a combination. This possibility will not be examined in what follows.

3.1 The macroeconomic model

The model combines simple macroeconomic relations. The level of demand depends positively on private sector expenditure, fiscal policy (budget deficit) controlled by the government and the real short term interest rate controlled by the Central Bank. To simplify matters, the level of output is specified in reference to a ‘normal’ level, $\bar{Y}$, and the effect of fiscal policy through a budget multiplier $c$. Output depends negatively on the interest rate, with a coefficient $\delta$.

$$Y = \bar{Y} + c \cdot G - \delta \cdot r$$

The Central Bank determines the level of the real short term rate of interest and is sensitive to inflation, or more accurately the price level, and the output level. Positive deviations of $Y$ from its ‘normal’ level $\bar{Y}$ pushes the Central bank to increase the real rate of interest. Toughness of the Central Bank can be appreciated with the values of the $\eta$ (inflation) and $\theta$ (real output and hence unemployment) coefficients.

$$r = \tau + \eta \cdot p + \theta \cdot (Y - \bar{Y})$$

Turning to income distribution, real profits are the difference between real output on the one hand and the real wage bill and the real cost of debt $D$ on the other hand.

$$Y - \frac{W}{P} \cdot L - r \cdot D$$

Real wages are the product of the real wage $\frac{W}{P}$ and the level of employment $L$.

$$\frac{W}{P} \cdot L$$

Real rents are the product of the real rate of interest and the debt level

$$r \cdot D$$

The level of employment is determined by technology and institutions. More specifically, the size of the ‘efficient’ labour force necessary to produce an output level $Y$ is $L^*$, determined by a technological inverse productivity coefficient $a$.

$$L^* = a \cdot Y$$

Nevertheless, actual employment $L$ defers from efficient employment by a term $f$ which represents the employment which is independent from output fluctuations. This term may represent the extent of employment protection.

$$L = a \cdot Y + f$$
3.2 Wage bargaining

The wage bargaining process will be modelled as a simple game between ‘workers’ or ‘unions’ and firms’ management. Palombarini [2001] has considered a similar setting to analyse the Italian political crisis of the 1990s. Each player will have two strategies: aggressive (A) and moderate or ‘cooperative’ (C). To each possibility will be associated levels of the nominal wage rate \( W \) and nominal prices \( P \). Cooperation or moderation implies for the unions a limited use of strikes and social movements, a moderation in wage claims, a general agreement with management’s restructuring propositions. For firms, moderation is a limitation in price increases and a bargaining with unions concerning the level and allocation of profits. Aggressive behaviour for the two players corresponds to the opposite choices: high wage claims under the threat of strikes, high price increases, minimal cooperation between firms and workers.

There are four possible outcomes: (i) both players adopt a cooperative strategy and nominal wages and prices are \( W_c \) and \( P_c \); (ii) workers adopt a cooperative strategy and firms an aggressive one, leading to \( W_{ca} \) and \( P_{ca} \); this equilibrium will be considered as dominated by firms; workers adopt an aggressive strategy and firms a moderate one; this equilibrium dominated by workers gives wages and prices equal to \( W_{ac} \) and \( P_{ac} \) respectively; (iv) finally, both players go for the aggressive strategy and \( W_{aa} \) and \( P_{aa} \) are obtained.

<table>
<thead>
<tr>
<th>( W ) ( \backslash F )</th>
<th>C</th>
<th>A</th>
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<tr>
<td>C</td>
<td>( W_c ) ( P_c )</td>
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<td>A</td>
<td>( W_{ac} ) ( P_{ac} )</td>
<td>( W_{aa} ) ( P_{aa} )</td>
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Table 1. The payoff matrix

We define the cooperative nominal wages and prices as the benchmark, \( W_c = W_1, \ P_c = P_1 = 1 \). A cooperative behaviour of firms coupled with an aggressive strategy of workers leads to a sizeable increase in wages and a more moderate increase in the price level. Let us consider that in reference to the cooperative benchmark, nominal wages are increased by a factor \( \alpha_s > 1 \) and prices are raised by a factor \( \beta \) such that \( 1 < \beta < \alpha_s \). \( \alpha_s \) measures the power (relative to \( \beta \)) of trade unions to tilt income distribution to their benefit. \( \beta \) reflects the consequences of the nominal wage increase on the price level. The equilibrium dominated by firms leads to an increase in wages by a factor \( \beta \) and an increase in prices by a factor \( \alpha_p > \beta \). The aggressive solution leads to a high inflation in both wages and prices, \( W_{aa} = \alpha_p \alpha_s W_1, \ P_{aa} = \alpha_p \alpha_s P_1 \).

<table>
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<tr>
<th>( W ) ( \backslash F )</th>
<th>C</th>
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<tbody>
<tr>
<td>C</td>
<td>( W_1 ) ( P_1 )</td>
<td>( \beta W_1 ) ( \alpha_p P_1 )</td>
</tr>
<tr>
<td>A</td>
<td>( \alpha_s W_1 ) ( \beta P_1 )</td>
<td>( \alpha_p \alpha_s W_1 ) ( \alpha_p \alpha_s P_1 )</td>
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Table 2. Prices and wages

We normalise levels of real output and real interest rate: \( \bar{Y} = 1, \tau = 0 \)
3.3 Strategies and equilibriums

3.3.1 Strategy choice

Fiscal policy will determine the strategies of players through its consequences on players’ payoffs. Workers will choose strategy $e$ over strategy $e'$ if the wage income associated to strategy $e$ is higher than with the other strategy:

$$[a \cdot (\bar{Y} + c \cdot G - \delta \cdot r_e) + f] \cdot \frac{W_e}{P_e} > [a \cdot (\bar{Y} + c \cdot G - \delta \cdot r_{e'}) + f] \cdot \frac{W_{e'}}{P_{e'}}$$

The same applies to profits:

$$\bar{Y} + c \cdot G - \delta \cdot r_e - [a \cdot (\bar{Y} + c \cdot G - \delta \cdot r_e) + f] \cdot \frac{W_e}{P_e} - r_e \cdot De >$$

$$\bar{Y} + c \cdot G - \delta \cdot r_{e'} - [a \cdot (\bar{Y} + c \cdot G - \delta \cdot r_{e'}) + f] \cdot \frac{W_{e'}}{P_{e'}} - r_{e'} \cdot De$$

The following results can be established:

- Workers will choose a cooperative strategy if firms adopt a cooperative behaviour if $G < G_1$ with

$$G_1 = \frac{\alpha \{ \beta [1 + \delta (\theta - \eta)] + \alpha_s [\delta (\beta \eta - \theta) - 1] \} - f(\alpha_s - \beta)(1 + \delta \theta)}{ac(\alpha_s - \beta)}$$

- Workers will choose a cooperative strategy if firms adopt an aggressive behaviour if $G < G_2$ with

$$G_2 = \frac{a \left[ \beta (1 + \delta \theta) + \alpha_p^2 \alpha_s \delta \eta - \alpha_p (1 + \delta (\beta \eta + \theta)) \right] - f(\alpha_p - \beta)(1 + \delta \theta)}{ac(\alpha_p - \beta)}$$
Firms will follow a cooperative strategy when workers follow a cooperative behaviour if

\[
G < G_3 = \frac{\alpha_p (\alpha_p - 1) (D + \delta) \eta - f (\alpha_p - \beta) w_1 (1 + \delta \theta) + a w_1 \{\beta (1 + \delta \theta) - \alpha_p [1 + \delta ((\beta - 1) \eta + \theta)]\}}{acw_1 (\alpha_p - \beta)}
\]

Firms will follow a cooperative strategy when workers follow an aggressive strategy if

\[
G < G_4 = \frac{(\alpha_p \alpha_s - \beta) \beta (D + \delta) \eta - f w_1 (\alpha_s - \beta) (1 + \delta \theta) + a w_1 \{\beta (1 + \delta \theta) - \alpha_s [1 + (\alpha_p - 1) \beta \delta \eta + \delta \theta]\}}{acw_1 (\alpha_s - \beta)}
\]

A first result is that a certain degree of fiscal conservatism encourages cooperative behaviour for both firms and workers. A reason is that within a certain range of fiscal policy, the threat of action of the Central Bank is effective. A noncooperative behaviour would push the price level upwards and the Central Bank would react by increasing the real interest rate. The negative effect on aggregate demand that would follow would annihilate the income gain expected by the players. Therefore, moderation is optimal in order to prevent too strong a reaction from the monetary authority. Above a certain limit, fiscal policy has such an expansive impact on aggregate demand that it pushes players to try to tilt income distribution to their benefit. The action of the Central Bank has a certain limit considering the restriction on the maximum price level that the economy can achieve.
3.3.2 Equilibriums

The economy may then find itself in four different equilibriums.

**Dominated by firms**  Workers find it better to cooperate while firms choose to be aggressive. The outcome is an equilibrium dominated by firms, $W = \beta \cdot W_1$, $P = \alpha_p$

Necessary conditions for such an equilibrium are that workers prefer to cooperate when firms are aggressive. The conditions regarding the size of the budget deficit are:

$$G_3 < G < G_2$$

**Dominated by workers**  Workers find it optimal to be aggressive while firms choose to cooperate. The outcome is an equilibrium dominated by workers, $W = \alpha_s \cdot W_1$, $P = \beta$

Figure 4: $G < G_4$

Figure 5: $G_3 < G < G_2$

Figure 6: $G_1 < G < G_4$
This corresponds to:

\[ G_1 < G < G_4 \]

**Cooperative**  Both workers and firms find it optimal to be cooperative

This is possible when

\[ G < G_1 \& G < G_3 \]

**Aggressive**  Both workers and firms find it optimal to adopt an aggressive strategy

Such an equilibrium can be possible when

\[ G > G_2 \& G > G_4 \]

The choice of the level of public expenditure cannot be supposed to depend on ‘economic efficiency’ alone. Were this the case, efficiency would recommend to have a moderately conservative fiscal policy, forcing workers and firms to adopt a cooperative behaviour. But considering a political determinant of macroeconomic policy does not necessarily need to this conclusion. A right wing government defending the interests of firms would choose an equilibrium dominated by firms and hence implement a moderately expansionary fiscal policy: \( G_3 < G < G_2 \). A left-wing government would also try to implement a not too restrictive budget policy in order to achieve an equilibrium dominated by workers: \( G_1 < G < G_4 \). Which of the two equilibriums would correspond to a more restrictive fiscal policy depends on the model’s parameters. It is therefore useful to consider some comparative statics results.
3.4 Some comparative statics

How do specific features of models of capitalism influence the relationship between macroeconomic policy and players’ strategies? We consider here how some parameters differentiating models of capitalism have an impact on the threshold levels of public expenditure $G$.

**Employment protection**  The different models of capitalism vary quite substantially by their level of employment protection and labour market regulation. In the model considered here, the extent of employment protection is measured by $f$. The effect of $f$ on the $G_s$ are unambiguously negative.

$$\frac{\partial G_1}{\partial f} = \frac{\partial G_2}{\partial f} = \frac{\partial G_3}{\partial f} = \frac{\partial G_4}{\partial f} = -\frac{1 + \delta\theta}{ac} < 0$$

Therefore, an increase in $f$ makes the cooperative equilibrium more difficult to reach and, conversely aggressive equilibriums easier to obtain. The impact of $f$ on the $G_s$ threshold values is larger when the Central Bank is more reactive to the output level or unemployment (a large $\theta$) and when the economy is more sensitive to the real rate of interest (a large $\delta$). In fact, employment protection $f$ and fiscal policy are substitutes rather than complements when it comes to sustaining aggregate demand. The larger the fraction of workers whose job is not threatened in times of recession, the more stable aggregate demand is and hence the less necessary it is to implement an expansionary fiscal policy. Since the impact of $f$ is the same on all $G$ thresholds, a change in $f$ does not increase or decrease the range within which the equilibrium dominated by workers or that dominated by firms are possible:

$$\frac{\partial (G_2 - G_3)}{\partial f} = \frac{\partial (G_4 - G_1)}{\partial f} = 0.$$ 

**Workers and firms’ bargaining power**  Workers and firms bargaining power is appreciated with the values of the $\alpha_p$ and $\alpha_s$ parameters (or $\alpha_p/\beta$ and $\alpha_s/\beta$). It may be shown that $\frac{\partial G_1}{\partial \alpha_s} < 0$, $\frac{\partial G_2}{\partial \alpha_s} > 0$, $\frac{\partial G_3}{\partial \alpha_s} = 0$ and $\frac{\partial G_4}{\partial \alpha_s} < 0$. $\frac{\partial (G_2 - G_3)}{\partial \alpha_s} > 0$, more powerful workers increase the range of fiscal policies making possible an equilibrium dominated by firms, and $\frac{\partial ^2 (G_2 - G_3)}{\partial \alpha_s \partial \eta} > 0$, a more conservative Central Bank is complementary to this effect. The sign of $\frac{\partial (G_4 - G_1)}{\partial \alpha_s}$ is a priori indeterminate, but most likely to be negative. This would reduce the range of possible fiscal policies compatible with an equilibrium dominated by workers and increase the possibilities for a noncooperative equilibrium.

It may be shown that $\frac{\partial G_1}{\partial \alpha_p} = 0$, $\frac{\partial G_2}{\partial \alpha_s} \geq 0$, $\frac{\partial G_3}{\partial \alpha_s} \leq 0$ and $\frac{\partial G_4}{\partial \alpha_p} > 0$.

**Central Bank**  A more ‘conservative Central Bank, i.e. less sensitive to unemploy-ment ($\theta$) and more sensitive to inflation ($\eta$), raises the values of the values of the $G_s$ thresholds:

$$\frac{\partial G_1}{\partial \eta} > 0, \frac{\partial G_2}{\partial \eta} < 0, \frac{\partial G_3}{\partial \eta} > 0, \frac{\partial G_4}{\partial \eta} < 0, \frac{\partial G_5}{\partial \eta} < 0, \frac{\partial G_6}{\partial \eta} > 0, \frac{\partial G_7}{\partial \eta} < 0.$$
A conservative Central bank raises the costs of noncooperation and pushes firms and workers to adopt cooperative strategies. This in turn allows the government to pursue a more proactive budget policy. The budget deficit can increase without immediately being an incentive for firms and workers to adopt aggressive strategies.

The effect on the equilibrium dominated by the firms is the following: \( \frac{\partial (G_2 - G_3)}{\partial \eta} > 0 \)

A central bank more sensitive to inflation increases the possibility to implement a proactive budget policy in the context of a macroeconomic equilibrium dominated by firms. Regarding the effect on the equilibrium dominated by the workers, the same result can be found. \( \frac{\partial (G_4 - G_1)}{\partial \eta} > 0 \).

4 Budget policy and diverging interests

4.1 specifications

We now put aside any problems regarding inflation and the price level, and consider a model expressed in real variables. Let us consider an economy during three periods. In the first period, the economy operates under fiscal equilibrium. This does not necessarily mean that there is a balanced budget, but for the sake of simplicity, let us suppose that this is the case. Macroeconomic relations for the first period are the following:

Consumption out of wages \( CW_1 \) is the product of the propensity to consume \( c \), the first period wage rate \( w_1 \), first period employment \( L_1 \) and \( (1 - t_{w1}) \) with \( t_{w1} \) the first period tax rate on wages.

\[
CW_1 = c \cdot w_1 \cdot L_1 \cdot (1 - t_{w1})
\]

The unemployed earn a benefit \( b_1 \) and consumption of the unemployed may then be expressed as :

\[
CU_1 = c \cdot b_1 \cdot (\bar{L} - L_1)
\]

with \( \bar{L} \) the total active population. The level of unemployment benefit will be a proportion of the wage rate, \( b_1 = r \cdot w_1 \), with \( r \) the replacement rate.

Investment in each period depends on the volume of profits, defined simply as the difference between output \( Y_1 \) and the wage bill \( w_1 \cdot L_1 \), a propensity to invest \( i \) and the tax rate on profits \( t_{p1} \).

\[
I_1 = i \cdot (Y_1 - w_1 \cdot L_1) \cdot (1 - t_{p1})
\]

Tax rates will be defined in reference to a general tax rate \( \tau \). The share of the tax burden going to firms and workers respectively will be measured by the parameter \( e \), \( 0 \leq e \leq 1 \). When \( e = 1 \), the tax burden falls entirely on firms, whereas taxes are entirely paid by workers when \( e = 0 \).

\[
t_{p1} = \tau \cdot e \\
t_{w1} = \tau \cdot (1 - e)
\]
As in the previous model, employment will be partly determined by ‘technological’ requirements and partly by institutional characteristics. For the first period, let us suppose that employment is proportional to output.

\[ L_1 = a \cdot Y_1 \]

Aggregate output in the first period can then be expressed as the sum of consumption, investment, public expenditure \( G_1 \) and autonomous demand \( A_1 \).

\[
Y_1 = CW_1 + CU_1 + I_1 + G_1 + A_1 \\
A_1 = A
\]

Autonomous demand in the first period is fixed at a reference level \( A \).

Equilibrium in the first period is determined by the balanced budget. Total tax receipts \( T_1 \) are equal to:

\[
T_1 = t_{p1} \cdot (Y_1 - w_1 \cdot L_1) + t_{w1} \cdot w_1 \cdot L_1
\]

and total public expenditure \( D_1 \) is the sum of \( G_1 \) and social expenditure:

\[
D_1 = G_1 + b_1 \cdot (L - L_1)
\]

The balanced budget rule gives the expression for \( G_1 \) and hence the equilibrium levels for output and employment.

We suppose that there is a negative demand shock in the second period, \( A_2 = A - \Delta, \Delta > 0 \). This will lead firms to adjust downward their employment level and the depressed demand will also induce a downward pressure on wages. Employment protection will prevent a full adjustment of employment to the technologically determined level of employment. Employment in the second period will then depend on the degree of labour market flexibility \( \phi \):

\[
L_2 = aY_2 + (1 - \phi) \cdot (aY_1 - aY_2)
\]

When \( \phi = 1 \), flexibility is maximal and employment adjust to the technologically efficient level. When \( \phi = 0 \), the employment level stays fixed at the previous level. Real wage adjustment will be a function of the macroeconomic shock:

\[
w_2 = w_1 - \alpha \cdot \Delta
\]

The unemployment benefit replacement rate stays constant, therefore the benefit itself follows the evolution of the wage rate.

The macroeconomic equilibrium will imply a higher unemployment level and higher social expenditure. At the same time, the drop in output will negatively affect tax receipts. Total public expenditure is defined by:

\[
D_2 = G_2 + b_2 \cdot (L - L_2)
\]
and total tax receipt is:
\[ T_2 = t_{p2} \cdot (Y_2 - w_2 \cdot L_2) + t_{w2} \cdot w_2 \cdot L_2 \]

We suppose that tax rates are not modified between period 1 and period 2.

Let us suppose that a Maastricht-like rule prevents the budget deficit from going over a certain fraction of real output:
\[ D_2 - T_2 \leq m \cdot Y^2 \]

We suppose that the shock is large enough to make the constraint binding. This gives the level of \( G_2 \) and thus \( Y_2 \) and \( L_2 \).

The negative shock vanishes in the third period, autonomous demand reverts to its original value:
\[ A_3 = A \]

As a consequence, the wage rate goes back to \( w_3 = w_1 \) and we suppose that the employment level adjusts to its ‘technologically-determined’ level:
\[ L_3 = a \cdot Y_3 \]

The third period will be an adjustment period, partly correcting the imbalances of the previous period. The second period budget deficit will be partly corrected by a surplus in non social expenditure in order to limit the size of public debt:
\[ G_3 = \epsilon \cdot (T_2 - D_2) \]

\( \epsilon \) measures the extent to which the public debt constraint applies to budget policy. Also, tax rates will be modified proportionately to the previous period’s deficit in order to increase tax receipts:
\[ t_{w3} = t_{w2} - \zeta \cdot (T_2 - D_2) \]
\[ t_{p3} = t_{p2} - \eta \cdot (T_2 - D_2) \]

The burden of public finance adjustment may fall asymmetrically on workers and firms.

We finally specify the objective functions of each social group: the undiscounted sum of net profits and wages over the three periods
\[ \Pi = (Y_1 - w_1 \cdot L_1) \cdot (1 - t_{p1}) + (Y_2 - w_2 \cdot L_2) \cdot (1 - t_{p2}) + (Y_3 - w_3 \cdot L_3) \cdot (1 - t_{p3}) \]
\[ W = w_1 \cdot L_1 \cdot (1 - t_{w1}) + w_2 \cdot L_2 \cdot (1 - t_{w2}) + w_3 \cdot L_3 \cdot (1 - t_{w3}) \]
4.2 Some numerical results

Since the model, although extremely simple in its structure, involves many parameters and makes it difficult to say something by way of analytical results, we exhibit some numerical results instead. This is not a calibration exercise since no attempt is made to take 'realistic' values of the parameter. The aim is simply to illustrate possible outcomes of the model rather than to replicate some real-world properties.

The first set of parameters considers a real wage with limited flexibility, a tax structure favourable to wages and a tax adjustment falling entirely on profits. Figures 9 and 10 display the evolution of profits and wages respectively as a function of $m$, with a limited employment level flexibility ($\phi = 0.25$). Profits decrease with $m$ until a certain value and then increase. Above a certain expansionary budget policy, the beneficial effects of activity stimulation benefit firms and profits increase. The same non linear evolution is observable for wages, but the profile is different. The level of $m$ above which wages increase is higher than the threshold value for profits.
The following figures (11 & 12) give three-dimensional plots of profits and wages as functions of $m$ and $\phi$. Without surprise, profits tend to increase with labour market flexibility. The sensitivity of profits to $m$ seems to be increasing too with $\phi$. The relationship between wages and $m$ changes markedly with the degree of employment protection. High values of $\phi$ are associated with a positive relationship between wages and budget policy discretion whereas low values of $\phi$ give a negative relationship. This outcome emphasises the substitution between employment protection and budget policy in the stabilisation of labour income. For low values of labour market flexibility, labour’s interest is not that an expansionary budget policy be implemented. Firms interest are identical to labour’s interests for low values of $m$ but diverge from those for a higher of budget policy discretion. For high values of labour market flexibility, labour’s preferred budget policy becomes expansionary. In the absence of employment protection, employment fluctuations following negative demand shocks threaten labour’s income. An expansionary budget policy is the only possibility to maintain employment at a relatively high level.

This pattern is also found with a more flexible economy. The second set of parameter is characterised by wage flexibility and no employment protection.

Wages decrease with $\phi$ when $m$ is low and increase with labour market flexibility when $m$ is high. A more accommodating fiscal policy will make it easier for workers to accept labour market flexibilisation. Such an argument is sometimes found in the literature on the political economy of reforms. For instance, the conservative monetary policy of the ECB and the limits to fiscal policy set by the Maastricht treaty would hinder the implementation of structural reforms in Europe (Pisani-Ferry [2004]).

Figure 11: Profits as a function of $m$ and $\phi$. 

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Figure 12: Wages as a function of $m$ and $\phi$.

Figure 13: Profits as a function of $m$ and $\phi$. 
Therefore, the model’s results point in the direction of possible conflicts between wage-earners and firms regarding the ’optimal’ macroeconomic policy. Also, there seems to be a certain degree of substitution between active macroeconomic policy and some institutions, particularly those that characterise the European models of capitalism, such as employment protection or the welfare state.

5 References

References


6 Appendix

Parameters used in the numerical simulations.

First set: $A = 5$; $\Delta = 2$; $c = 0.8$; $\overline{L} = 20$; $a = 0.75$; $w_1 = 0.85$; $r = 0.6$; $e = 0.9$; $\tau = 0.2$; $i = 0.7$; $m = 0.03$; $\epsilon = 0.05$; $\phi = 0.25$; $\alpha = 0.01$; $tp_2 = tp_1 = 0.18$; $tw_2 = tw_1 = 0.02$; $\zeta = 0$; $\eta = 0.5$;

Second set: $A = 5$; $\Delta = 2$; $c = 0.8$; $\overline{L} = 20$; $a = 0.7$; $w_1 = 0.8r = 0.6$; $e = 0.1$; $\tau = 0.2$; $i = 0.75$; $m = 0.03$; $\epsilon = 0.05$; $\phi = 1$; $\alpha = 0.1$; $tp_2 = tp_1 = 0.18$; $tw_2 = tw_1 = 0.02$; $\zeta = 0.5$; $\eta = 0$;