No. 1298

LABOUR MARKET INSTITUTIONS AND THE COHESION OF THE MIDDLE CLASS

Gilles Saint-Paul

HUMAN RESOURCES AND INTERNATIONAL MACROECONOMICS

CE PR

Centre for Economic Policy Research

LABOUR MARKET INSTITUTIONS AND THE COHESION OF THE MIDDLE CLASS

Gilles Saint-Paul

ABSTRACT

Labour Market Institutions and the Cohesion of the Middle Class*

We develop a simple model to study how relative wage rigidity affects equilibrium taxation. It is argued that relative wage rigidity, by compressing incomes within the middle class, leads to a lower degree of redistributive conflict within the politically important core of society, even though income inequality may increase for society as a whole. In the model, people vote first on wage rigidity and second on redistributive taxation. The rigid society has a lower tax rate than the flexible one. It is supported by the 'middle class' in the first stage, while the poor, the rich and the unemployed suffer.

Gilles Saint-Paul
DELTA
48 Boulevard Jourdan
75014 Paris
FRANCE
Tel: (33 1) 4432 2136

NON-TECHNICAL SUMMARY

Why don't the so-called 'labour market rigidities' which are so often blamed for unemployment go away? What is the role they play in European society? The present paper tries to answer these questions.

It is sometimes argued that rigidities may enhance economic efficiency, or that they achieve redistributive goals. I do not believe that this is their true *raison d'être*, simply because they are far from being the best instruments to meet these goals.

More fundamentally, rigidities are a way of alleviating conflict by homogenizing a politically important 'core' at the expense of an ill-organized 'periphery'. The employed are part of the core, while the unemployed are part of the periphery. In a heterogenous society – say a society with wide income inequalities – sharp distributive conflicts tend to arise. These conflicts may have adverse effects on the economy by leading, at the political level, to highly distortionary tax rates, and populist and demagogic practices. By artificially creating diverging interests among identical people, rigidities paradoxically reduce conflicts. In a society where many poor try to expropriate a few rich – making some of the poor richer and the remaining poor poorer – a convergence of interests is created between the former and the rich. If the poor that are made richer are the politically-decisive group, there will be less redistributive conflict. This is exactly what an institution such as the minimum wage achieves: it increases the income of those unskilled workers lucky enough to get a job, while reducing the income of those who remain unemployed. Collective decision is then shaped by diverging interests *within the 'core' of employed workers*. These interests are less divergent than in the absence of rigidities.

In this paper I develop a simple model which captures these ideas. I assume workers have different skills which enter as complements in the production function. People vote about two things: first, 'labour market institutions', which essentially means a certain degree of relative wage rigidity across skills; second, they vote on 'fiscal policy', which is a simple system of redistributive taxation. It is assumed that 'labour market institutions' are more sluggish, i.e. more costly to remove, than fiscal policy. This is represented by the assumption that people vote first on labour market institutions and then on the prevailing tax rate.

The equilibrium tax rate will negatively depend, in a standard way, on the wealth of the median voter relative to the mean. But this ratio is itself

determined by labour market institutions. We show that it may well be *increased* by wage rigidity, so that the more rigid society will have lower redistributive taxation. It turns out that such a society will be supported by the middle class: the upper-middle class gains because of lower taxation, while the lower-middle class enjoys the direct effects of higher wages. The adverse effects of wage rigidity, on the contrary, dominate for the two extremes of the distribution of income: higher wages fail to fully compensate the poorest for lower transfers, and lower taxes do not compensate the richest for lower wages. This is because, for the poorest, transfers are a very high proportion of income, while the wages of the richest suffer most from lower employment in other income groups, due to complementarities in production between this group and other groups, and to the fact that their employment level does not fall.

The model therefore illustrates how 'rigidity' will be supported by the middle class, because it lowers the degree of redistributive conflict within this politically important 'core' of society. It implies that removing rigidities is difficult because the policy-maker would have to bring together an *extreme coalition* of the poorest and the richest.

Labour market institutions and the cohesion of the middle class

Gilles Saint-Paul*

CERAS, DELTA, and CEPR

September 4, 1995

Abstract

We develop a simple model to study how relative wage rigidity affects equilibrium taxation. It is argued that relative wage rigidity, by compressing incomes within the middle class, leads to a lower degree of redistributive conflict within the politically important core of society, even though income inequality may increase for society as a whole. In the model, people vote first on wage rigidity and second on redistributive taxation. The rigid society has a ower tax rate than the flexible one. it is supported by the "middle-class" in the first stage, while the poor, the rich and the unemployed suffer from it.

1   Introduction

Why don't the so-called "labour market rigidities" which are so often blamed for unemployment go away, what is the role they play in European society? The present paper tries to answer that question.

It is sometimes argued that rigidities may enhance economic efficiency,[1] or that they achieve redistributive goals. I do not believe that this is their true *raison d'être*, simply because they are far from being the best instruments to meet these goals.[2]

---

*CERAS is a CNRS associate unit, while DELTA is a joint research unit ENS-CNRS-EHESS. This paper was prepared for the International Institute for Public Finance Congress, Lisbon, August 1995.

[1] The potential for a regulated labour market to be desirable under market imperfections is discussed in Alogoskoufis et al. (1995).

[2] These reasons are more formally discussed in Saint-Paul (1994, 1995c).

More fundamentally, rigidities are a way of alleviating conflict by ho-
mogenizing a politically important "core" at the expense of an ill-organized
"periphery". The employed are part of the core, while the unemployed are
part of the periphery. In a heterogenous society - say a society with wide
income inequalities - sharp distributive conflicts tend to arise. These con-
flicts may have adverse effects on the economy by leading, at the political
level, to highly distortionary tax rates, populist and demagogic practices.
By artificially creating diverging interests among identical people, rigidities
paradoxically reduce conflicts. In a society where many poor try to expropri-
ate a few rich, making some of the poor richer and the other poorer creates a
convergence of interests between the former and the rich. If the poor who is
made richer is the politically decisive group, then there will be less redistribu-
tive conflict. This is exactly what an institution such as the minimum wage
achieves: it increases the income of those unskilled workers lucky enough
to get a job, while reducing the income of those who end up unemployed.
Collective decision is then shaped by diverging interests *within the "core" of
employed workers*. These interests are less divergent than in the absence of
rigidities.[3]

In this paper. I develop a simple model which captures these ideas. I
assume workers have different skills which enter as complements in the pro-
duction function; people vote about two things; first, "labour market insti-
tutions", which essentially means a certain degree of relative wage rigidity
across skills. Second, they vote on "fiscal policy", which is a simple system of
redistributive taxation. It is assumed that "labour market institutions" are
more sluggish, i.e. more costly to remove, than fiscal policy. This is repre-
sented by the assumption that people vote first on labour market institutions
and then on the prevailing tax rate.

The equilibrium tax rate will negatively depend, in a standard way, on
the wealth of the median voter relative to the mean. But this ratio is itself
determined by labour market institutions. We show that it may well be
increased by wage rigidity, so that the more rigid society will have lower
redistributive taxation. It turns out that such a society will be supported
by the middle class: the upper-middle class gains because of lower taxation,
the lower middle class enjoys the direct effects of higher wages. The adverse
effects of wage rigidity, on the contrary, dominate for the two extremes of
the distribution of income: higher wages fail to fully compensate the poorest
for lower transfers, and lower taxes do not compensate the richest for lower
wages. This is because, for the poorest, transfers are a very high proportion

---

[3]Many aspects of the European unemployment problem can be approached from a
political economy perspective. See for example Saint-Paul (1995a,b)

2

of income, while the wages of the richest suffer most from lower employment in other income groups, due to complementarities in production between this group and other groups, and to the fact that their employment level does not fall.

The model therefore illustrates how "rigidity" will be supported by the middle class, because it lowers the degree of redistributive conflict within this politically important "core" of society. It implies that removing rigidities is difficult because the policymaker would have to bring together an *extreme coalition* of the poorest and the richest.

2   The model

We now turn to the formal description of the model. There are n groups of workers, each of equal size $1/n$. The production function is CES in these inputs:

$$Y = (\sum_{i=1}^{n} a_i l_i^{\eta})^{1/\eta}$$

,where l_i is employment of type i-workers, and a_i indexes their respective productivity. Firms are perfect competitors in product and labour markets, so that each group earns a real wage equal to its marginal product:

$$w_i = (\sum_{i=1}^{n} a_i l_i^{\eta})^{1/\eta - 1} a_i l_i^{\eta - 1} \tag{1}$$

This in turn implies that the relative wage across two groups i and j is given by:

$$\frac{w_i}{w_j} = \frac{a_i}{a_j} \left(\frac{l_i}{l_j}\right)^{\eta - 1} \tag{2}$$

We will compare the outcome of a full employment equilibrium with that of a "rigid economy". In the full employment equilibrium, given the assumption of equally sized groups, one simply has:

$$\frac{w_i}{w_j} = \frac{a_i}{a_j}$$

A given labour market institution is represented by a single parameter $\rho \in [0, 1]$ which indexes the degree of relative wage flexibility. I thus assume that wages are set so that the labour market clears for the most productive group and:

$$\frac{w_i}{w_j} = \left(\frac{a_i}{a_j}\right)^{\rho} \tag{3}$$

3

Thus, for $\rho = 1$ the economy is at full employment while for $\rho = 0$ all groups have the same wage. Using (2) and the fact that the labor market clears for group n, it is easy to see that employment of group $i < n$ is determined by:

$$l_i = \left(\frac{a_i}{a_n}\right)^{\frac{1-\rho}{1-\eta}} \left(\frac{1}{n}\right) < \frac{1}{n} \qquad (4)$$

Unemployment is therefore higher in the less productive groups, a stylized feature of the real world data.

We will simply consider that voters elect between a fully flexible world ($\rho = 1$) and a rigid one ($\rho < 1$). Given the collectively chosen value of ρ, one can compute employment levels for each group using (4) and then plug them into (1) to obtain the wages for each group.

Redistribution then takes place in the second stage of the game. Each worker is taxed at a flat rate. Tax receipts are used to finance a lump-sum transfer which is paid to every member of the population. Given the tax rate τ, the income of an employed worker of group i is then given by:

$$w_i(1-\tau) + R \qquad (5)$$

, where R is the amount of transfer per capita. We introduce distortions in the following simple fashion: we assume a fraction of the transfers is wasted in the tax collection process, and that this fraction increases with the tax rate. Thus, total transfers are equal to:

$$R = \left(\tau - b\tau^2/2\right) Y \qquad (6)$$

, where $b > 0$ is an index of distortion.

The tax rate is determined by majority voting. Due to the concavity of the transfer function with respect to the tax rate, each group's utility is concave and unimodal in the tax rate. Therefore there exists a unique median voter equilibrium. The equilibrium tax rate is therefore determined by maximization of (5) subject to (6), for $i=d$, where d refers to the group of the decisive voter. I assume an interior solution. The first-order condition implies:

$$\tau = \tau^* = \frac{1 - w_d/Y}{b} \qquad (7)$$

, where the traditional dependance of the tax rate on the mean/median ratio is apparent.

The decisive group is finally determined by the following inequality:

$$\sum_{i=d+1}^{n} l_i \leq 1/2 \leq \sum_{i=d}^{n} l_i \qquad (8)$$

4

Note that we have assumed no unemployment benefits, so that the unemployed are the poorest. As a result, unemployment pushes the social group of the median voter downwards. This is why the median voter is not identical to the median in the distribution of *wages*. To prevent this effect from entering in a discontinuous fashion (which would be an artifact of the discrete number of types), we have "convexified" it in our numerical computations. Thus, we replace w_d in (7) with:

$$\hat{w} = mw_d + (1-m)w_{d+1}$$

, where m, the weight on the median employed group is set equal to:

$$m = \frac{1/2 - \sum_{i=d+1}^{n} l_i}{l_d}$$

This captures the fact that the decisive individual within group d is closer to the upper limit of this group, the closer to $1/2$ is the number of people richer than that upper limit. If groups were representing n-tiles of income distribution, the above formula would be the appropriate linear interpolation of the decisive voter's income, based on the n-tiles aggregate incomes.

The above formulae allow us to compute, as a function of ρ, the welfare of each group. It is then possible to compute the gains and losses from a "rigid" labour market depending on the group and employment status of each individual.

3 Results

We have numerically simulated the above model. Table 1 represents the values chosen for the a_i's and the associated income shares for the full employment economy. We have chosen $n = 10$ and $\eta = 0.2$. The a_i's have been picked to represent some "typical" income distribution, which is skewed to the right. We have assumed people vote between $\rho = 1$ and $\rho = 0.9$.

The gains and losses from each group are represented in table 2, along with the unemployment rates generated by the rigid system of wage formation. The two striking features are, first, that the equilibrium tax rate is lower under the rigid regime — this captures the idea that the rigid regime is associated with less redistributive conflicts —, and, second, that the rigid regime will be supported by the employed middle class ("the core") and opposed by the unemployed and the extremes of the distribution of income ("the periphery"). Thus, the tax rate drops from 20 to 12.7 % in the rigid regime compared with the flexible one, and 61.8% of the population support the rigid regime.

We now discuss these two features in greater details.

3.1 Effect on the median

The lower level of taxation in the rigid regime comes from the fact that the decisive voter is less poor relative to the mean, than in the flexible regime. This effect is in fact the combination of two conflicting effects. First, *given its rank in the wage distribution*, the median voter becomes richer relative to the mean. This, given that the median is poorer than the mean, is the direct effect of the wage compression induced by the rigid system. Second, the rank of the decisive voter itself falls. This is because all the unemployed now side together and vote for high taxes; as a result, *within the employed*, the rank of the decisive voter in the wage distribution falls, since voters on the "left" of the median now include all the unemployed. This effect, which is captured by inequality (8), tends to make the median *poorer* relative to the mean. In our computation, however, the first effect dominates. Thus, while the rank of the decisive voter falls from 0.5 to 0.48, the median/mean income ratio nevertheless rises from 0.8 to 0.87, so that the equilibrium tax rate falls. But it is interesting to note that for different income distributions, the second effect may dominate, so that the rigid society will actually increase redistributive taxation. Intuitively, the second effect will dominate the larger the fall in the median's rank, and the larger the fall in income associated with a given fall in the rank. This will be true when rigidities cause more unemployment (i.e. are more distortionary) and when the "income gradient" is locally larger, meaning inequality is locally larger.[4]

3.2 Extreme coalitions

The lower degree of redistributive taxation explains why the upper-middle class favors rigidity even though their pre-tax wages are lower. This process, however, has limits. In our simulation, the top income group has a fall in income which is too large to be compensated by lower taxes. The highest income group is the one which has the highest drop in its marginal product because it remains at full employment (its gross wage falls by 6.7 %). It is also true that the lowest income groups, which depend heavily on transfers relative to wages, suffer from rigidity because of a lower transfer level. Even though the wage of the poorest group rises by 20 %, transfers fall so much that their net income falls by 6 %.

Thus, the coalition against rigidity is an extreme one, which includes the unemployed, the poorest employed and the richest employed. Bringing such

---

[4]This latter feature is interesting because it may help to explain why more unequal societies (such as the U.S. or Latin America) may favor flexibility over rigidity.

a coalition together on the same political platform is a difficult task. This is one of the obstacles facing labour market reform in Europe.

4   Identifiability and status quo bias

In the preceding discussion, we have neglected an important issue, namely whether we were considering an initially rigid society considering becoming more flexible, or the contrary. That is, we implicitly assumed that people were individually assigned to employment and unemployment prior to voting on the reform. The most preferred outcome then did not depend on the status quo. In practice, of course, things are different: when society is initially rigid, the losers from it (the unemployed) are initially identified, whereas when it is initially flexible people do not know who is going to become unemployed. This indeterminacy may induce a status quo bias, i.e. the rigid society will choose to remain rigid while the flexible one will choose to remain flexible.[5]

In table 3, we have computed the gains from the reform when society is initially flexible and each worker has the same probability of becoming unemployed if rigidity is decided. That is to say, the expected income to a worker of group i when the economy will be rigid is now assumed to be:

$$E(z_i) = (1 - u_i)z_{ie} + u_i z_u$$

, where $z_{ie} = w_i(1 - \tau) + R$ is the net income of an employed worker of type i in the rigid economy and $z_u = R$ the income of an unemployed.[6]This weighted average specification assumes that all workers of the same group have the same probability of ending up unemployed following the introduction of rigid institutions.

The results in table 3 are striking: each group now opposes rigidity.

These results are suggestive that a flexible society will choose to become rigid at times when the losers are easily identified. For example, following a recession, those who kept their jobs, anticipating an expansion, will have a incentive to implement a rigid labour market. The burden will not be borne by further job destructions but by less job creation in the coming expansion. The recession has therefore implicitly allowed a minority of losers to be identified, which makes the shift possible.

---

[5]The analysis of status quo bias in the presence of uncertainty about the distribution of the gains from reform can be found in Fernandez and Rodrik (1992).

[6]Remember that we have assumed that there are no unemployment benefits in the rigid world. Unemployed workers nevertheless earn the lump-sum transfer R.

5   Introducing exposure

It is also possible to extend the model to take into account the fact that people move between employment and unemployment. We typically expect a higher exposure of the employed to unemployment to make them less supportive of the rigid economy. This turns out to be indeed the case.

To take exposure into account without departing from this simple static model, we simply assume that the permanent income of an employed is a weighted average of his wage (net of taxes and transfers) and the earnings of an unemployed. In the absence of unemployment benefits, this is simply equal to:

$$y_{ie} = \frac{[u_i + s_i\,(1 - u_i)]\,z_{ie} + u_i s_i z_u}{u_i + s_i}$$

, where y_{ie} is the average lifetime income of an employed worker in group i, and $s_i \in [0, +\infty]$ is an index of his exposure to unemployment, i.e. the probability per unit of time of falling into unemployment. For $s_i = 0$ one simply has $y_{ie} = z_{ie}$; permanent income is then equal to the income of an employed. For $s_i = +\infty$ one has $y_{ie} = (1 - u_i)z_{ie} + u_i z_u$; the weight on z_{ie} is then exactly equal to the employment rate $(1 - u_i)$. In that limit case, people move between unemployment and employment so often that the permanent income of both employed and unemployed workers is the same and simply equal to the average of income over the two states.

Table 4 gives the net gains from the rigid economy for a small value of s_i, $s_i = 0.02$. Exposure to unemployment greatly reduces the support for rigidity: half of the groups are now against it, so that voters are overall against rigidity.

6   Conclusion

In this paper we have developed a model which lends support to the view that a majority of voters, mostly from the middle class, may support "rigid' labour market institutions because they lower the degree of redistributive conflict between the politically decisive voters and the rest of society. Society is then split between a "core" of employed middle-class agents who benefit from the system either through higher wages (for the lower middle class) or lower taxes (for the upper middle class). The losers are the poor, the unemployed and the rich, namely the two extremes of the income distribution. This extreme coalition further enhances the robustness of the rigid equilibrium since its members will have diverging interests regarding many other issues.

8

A puzzle nevertheless remains: as implied by the model, it takes only a small amount of exposure to unemployment to restore support for the flexible economy. It may be the case that the employed European voters have a very low perceived risk of job loss, either because they are not fully rational, or because seniority rules and job protection provisions imply a very low exposure rate for the decisive voters, even though the aggregate rate may be quite high. One would then have to take into account the full distribution of exposure rates (as in Wright (1986)), who applies it to unemployment compensation) in order to determine the politically decisive agent. Support for rigidity may be enhanced, even at high exposure rates, if the demand elasticity for labour is low enough. Labour market rigidity is then a collective device for (some) workers to collude on a monopoly wage, thus exploiting a downward sloping aggregate demand for labor .[7]

In the model of the paper, there is a welfare loss associated with high taxes in the flexible economy. This welfare loss is however small compared to the one generated by high unemployment in the rigid one. Therefore, as far as aggregate welfare is concerned, the flexible economy is preferable (but we have obviously ruled out the feasibility of ex-ante compensatory transfers; these are determined ex-post). However, the distortionary costs of taxation could be much higher if growth is affected, as is the case in the political economy literature on income redistribution and growth.[8]

---

[7]See Saint-Paul (1995d) and Wasmer (1994) for an analysis along these lines.

[8]See, for example, Agell and Lommerund (1993), Alesina and Rodrik (1994), Perotti (1993), Persson and Tabellini (1994) and Saint-Paul and Verdier (1993).

References

Agell, J. and K.E.Lommerund, (1993) "Egalitarianism and Growth", *Scandinavian Journal of Economics*

Alesina, A. and D.Rodrik, (1994) "Distributive Politics and Economic Growth", *Quarterly Journal of Economics*

Alogoskoufis, G., Bean, C., Bertola, G., Cohen, D., Dolado, J. and G.Saint-Paul (1995), *Unemployment, Choices for Europe*, CEPR

Fernandez, R. and D.Rodrik, (1992) "Resistance to reform: status quo bias in the presence of uncertainty", *American Economic Review*

Perotti, R. (1993) "Income Distribution, Political Equilibrium, and Growth", *Review of Economic Studies*

Persson, T. and G.Tabellini, (1994) "is Inequality Harmful for Growth?", *American Economic Review*

Saint-Paul, Gilles, (1993), "On the Political Economy of Labour Market Flexibility", *NBER Macroeconomics Annual*

———————— (1994), "Do Labour market rigidities fulfill redistributive roles? Searching for the virtues of the European model", *IMF Staff papers*

———————— (1995a), "Some Political Aspects of Unemployment", *European Economic Review,*

———————— (1995b), "High Unemployment from a political economy perspective", forthcoming in G.de la Dehesa and D.Snower, eds, *How should Policy Respond to Unemployment*, Cambridge U. Press.

———————— (1995c), "Reforming Europe's labour markets: political issues", Dräger Foundation, Lübeck.

———————— (1995d), "A framework for analyzing the political support for active labour market policy", Mimeo, DELTA.

———————— and T.Verdier, (1993), "Education, Democracy, and Growth", *Journal of Development Economics*

Wasmer, Etienne, (1994), "The political support against unemployment", mimeo, LSE

Wright, Randall, (1986), "The political economy of unemployment benefits", *Journal of Public Economics*

10

i	a_i	Income share (%)
1	0.08	2
2	0.12	3
3	0.2	5
4	0.24	6
5	0.28	7
6	0.36	9
7	0.48	12
8	0.52	13
9	0.72	18
10	1	25

Table 1: Productivity parameters

i	Un.rate u_i (%)	Change in wages	Relative gain
1	27.1	20.2	-6.1
2	23.3	15.4	-2.0
3	18.2	9.7	1.4
4	16.3	7.7	2.0
5	14.7	6.0	2.3
6	11.9	3.4	2.4
7	8.8	0.5	1.8
8	7.8	-0.3	1.6
9	4.0	-3.5	0.3
10	0.0	-6.7	-1.6

Table 2: Unemployment rates, change in wages, and net gain in the rigid economy compared to the flexible one.

Group	Net gain
1	-22.7
2	-18.7
3	-13.7
4	-12
5	-10.6
6	-8.4
7	-6.2
8	-5.6
9	-3.5
10	-1.6

Table 3: Net gain, status quo=flexible system

Group	Net gain
1	-7.2
2	-3.3
3	-0.12
4	0.5
5	0.76
6	0.8
7	0.35
8	0.14
9	-1.0
10	-1.6

Table 4: Net gain, $s_i = 0.02$