

Pierre Pestieau

“Political Sustainability of Redistribution and the Reform of Social Security”

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Introduction

The lectures of Pestieau dealt with the future of the ‘Welfare State.’¹ In the Western economies, much of the discussion about the welfare state is not so much concerned with the existence of public expenditure programs, since it is considered as a part of our civilisation. The discussion concentrates on the size and the form of these programs. Most economists concentrate on the costs (charges) and benefits of the welfare state and the trade-off between equity and efficiency. In his lectures, Pestieau dealt with the issues of voting, political sustainability, and support for public expenditure programs.

In Europe, total public expenditures increased considerably since the 1970s. There are however huge differences between various countries. These differences are partly the result of differences in levels of GDP per head. The general increase in GDP per head in European countries during the past decades has been associated with increasing social spending. However, when plotting the level of public spending against GDP per head in the various countries, clearly there are several outliers. This can be explained by differences in preferences of the countries.

The two main sectors in total public spending are health and retirement. The effects of these programs on the poverty rate may vary between different countries. Although one should expect the poverty to be decreased by the WS, this is not necessarily the case. Moreover, it is not possible to draw conclusions about the effectiveness of public spending on the basis of the resulting poverty rate in a country, since the priority of a country does not have to be to fight

¹ In this report, with the concept of Welfare State I refer to the whole set of programs that is covered by public spending.

poverty. According to Pestieau (see, e.g., Casamatta, Cremer et al., 1997), public expenditure programs may have different objectives. They may aim at just a relief of poverty (minimal view which requires low payroll taxes) or at a reduction of the uncertainty faced by all individuals (more generous view which attracts more political support). Public spending programs can be distinguished with respect to their rate of redistribution. The universalistic ('Beveridgean') programs are based on flat benefits and consequently have a high degree of redistribution. The social insurance ('Bismarckian') programs are characterised by earnings related benefits. Therefore, it is important to look not only at the *size* of social expenditures (generosity), but also at the level of *redistribution*. The level of redistribution accounts for the difference between private and public provision of the good or service.

Political support for Social Insurance

In general in Europe, private insurance is much less important than social insurance. There are some outliers like Ireland and the UK that have a relatively high percentage of GDP spent on private insurance in relation to the percentage spent on social insurance. Epple and Romano (1996) describe a regime where a good (in their analysis health care) provided by the government may be supplemented by private purchases. They pose several questions concerning whether the government will fund provision of the good, what level of public provision will be chosen, and what will be the effect on aggregate consumption. Casamatta et al. (1997) deal with a social insurance possibly supplemented by a private insurance.

Concerning the choice of the level of public provision, Atkinson (1995) discusses the choice of a tax rate in the case of majority voting where everyone votes between two tax rates only on the basis of the resulting level of utility. In the case of single-peaked preferences for each individual, the median voter theorem² applies which states that the majority voting outcome reflects the preferences of the median voter (see also Rosen, 1995, ch. 7).

Epple and Romano (1996) develop a model that includes two goods, health services h (either publicly provided (g) or privately purchased (s)) and the numeraire good b . Income y is spent on paying taxes yt and purchasing b and s , so $b = y(1-t) - s$ and $g = t\bar{y}$ (government budget constraint) with \bar{y} being the average income level. The level of g is determined by

² The median voter is defined as the voter whose preferences lie in the middle of the set of all voters' preferences.

majority vote and is the same for everybody. It is not possible for the individuals to sell a part of g in order to be able to purchase more of the numeraire good, so there will be some agents who are constrained by the public health program (they get more health services than is optimal and purchase zero units of s), while the other individuals are not constrained (they purchase supplementary health services s and to them public provision of g is equivalent to an income supplement).

Epple and Romano (1996) show that individuals with an income lower than the average income level prefer a positive level of government expenditure whereas individuals with a higher than average income achieve highest utility for $g = 0$. Therefore, according to the median voter theorem, equilibrium government provision of health services is positive if the median income is less than average and zero if the median income is more than average. This result is due to the redistributive effect of the public expenditures, which causes the tax price of health care to households with income less than the mean to be below the market price. The mixed regime (i.e. government provision may be supplemented by private market purchases) is preferred by a majority to the alternatives of market only and government only provision. First, it includes the situation where health services can be obtained only privately (i.e. $g = 0$). Second, under a mixed regime individuals with positive demand for private health services ($s > 0$) are better off than in a regime where private purchases are prohibited while those individuals with $s = 0$ are not worse off.

Epple and Romano (1996) also show that it is not always the voter with median income who determines the level of government provision. When the marginal rate of substitution between t and g increases with income not the voter with median income is pivotal, but the voter with income level y_l such that voters with income less than y_l plus voters with income greater than \bar{y} constitute half of the population.

Casamatta et al. (1997) deal with the issue of voting, political sustainability, and support for social insurance. They analyse a setting where private insurance in addition to social insurance is potentially available, but may be prohibited. In their model they adopt a 'two-stage political economy approach'. At the first (constitutional) stage of the process an agreement is made about the type of the social insurance, and at the second stage decisions are made by majority voting about the actual tax rate and benefit levels (see also Atkinson, 1995). Moreover, social insurance is financed by a proportional payroll tax and there are three types of individuals (1, 2, and 3) with different income levels ($w_1 < w_2 < w_3$). All individuals have identical preferences over disposable income and insurance benefits and they all face the same

probability to have to rely on insurance benefits (although in reality there seems to be a negative correlation between income and the probability to become sick, unemployed, and disabled). The link between the benefits and the contributions is represented by $b = \alpha$, where $\alpha = 0$ indicates that each individual will receive the same benefits and $\alpha = 1$ indicates that there is no redistribution of income. It is assumed that private insurance is costlier than public insurance. The rate of return on private insurance is constant while the rate of return on public insurance decreases with income. If α becomes large enough individuals with high income will also choose public insurance.

The level of α is determined at the constitutional stage in the decision making process. In the Casamatta et al. (1997) paper two different possible objectives are considered. First, with the Rawlsian objective the government maximises utility of the worst off individual with respect to α taking into account the direct impact of an increase in α as well as the indirect impact through the payroll tax. Second, with a utilitarian objective the constitutional problem consists in determining the α that maximises the sum of utility of all individuals. They show that if private insurance is inhibited, with a Rawlsian objective $\alpha = 0$ if the median income is below average, whereas $\alpha > 0$ if the median income is above average. With a utilitarian objective it may be optimal to set $\alpha > 0$, even if the median income is below the average income level.

For a given α the tax rate is chosen by majority voting, so we have to identify the median voter and determine his preferred tax rate. Casamatta et al. (1997) show that when private insurance is prohibited the preferred tax rate decreases or increases with α for individuals with above-average and below-average incomes respectively. Moreover, individuals with high incomes tend to prefer higher tax levels than individuals with lower income (this is because social insurance is the only source of income in the bad state of nature). In this case, the median voter is simply the individual with median income, i.e. individual 2, and depending on whether the w_2 is below or above average income the voted tax rate will be increasing or decreasing respectively.

When the individuals are allowed to purchase private insurance, different situations can be distinguished, depending on the value of α . Individuals with below average income always prefer social insurance to private insurance regardless of the value of α . For individuals with higher than average income we can determine a certain level of α for which they are indifferent between social and private insurance. If the actual value of α is below that

level, these individuals prefer private insurance and their preferred payroll tax is zero whereas for higher values of α a positive tax rate is preferred. Now there is a divergence between the distribution of income and the distribution of choice, i.e. the median voter is not necessarily individual 2. If w_2 is lower than the average income, the poor individual is the median voter for values of α for which the rich individual prefers a zero tax. Individual 2 has the decisive vote for values of α for which the rich individual prefers a positive tax rate. If w_2 is higher than the average income, both individuals 2 and 3 prefer a zero tax rate for low values of α . Consequently, for these low values of α the voting equilibrium is a zero tax since individual 2 is the median voter. For higher values of α the rich individual still prefers a zero tax rate, whereas the individuals 1 and 2 prefer a positive tax rate. For these values of α the poor individual has the decisive vote. If α is larger than the indifference level of the rich individual, all individuals prefer a positive tax rate and the median voter is individual 2.

The determination of α in the constitutional stage if private insurance is available again depends on the level of w_2 with respect to average income. With a Rawlsian objective, if w_2 is below average income, α is set zero, since then the poor individual is the median voter and nothing can be gained from setting $\alpha > 0$. If w_2 exceeds average income, it is always optimal to set a positive level of α , but if α becomes larger than the value for which individual 2 is indifferent between social and private insurance, the economy moves away from redistribution. Therefore, α is set at the indifference level of individual 2. With a utilitarian objective, it is not possible to determine the optimal value of α analytically.

From the above analysis, we can conclude that allowing for private insurance reduces the size of the social insurance program just on the base of political voting. On the other hand, the welfare of the poor individuals increases due to the availability of private insurance, although they do not purchase private insurance. Moreover, private insurance in itself tends to increase welfare since it gives individuals an additional option. This corresponds with the conclusion of Epple and Romano (1996) that a mixed regime dominates both exclusive regimes.

Voting for Social Security

In most European countries social security programs are organised as a pay-as-you-go (PAYG) system (i.e. the workers in one period pay for the benefits of the retirees in the same

period). The payroll tax is determined by the dependency rate (the ratio of the number of retirees to the number of workers) and the replacement rate (the ratio of the retirement benefits to the wage rate). The problem European countries are facing nowadays is that the dependency rate is increasing since people are living longer, so the length of retirement in good health increases, while the replacement rate is not modified. This means that the payroll tax has to be increased.

Under the PAYG system pension benefits to which a retiree is entitled are not directly related to his past contributions. Therefore, current taxpayers have an incentive to misrepresent their preferences by voting for a lower tax rate now and a higher tax rate upon their retirement, unless they are convinced that there will be no other voting opportunities within their lifespans or the current tax rate will prevail in all future voting processes (Hu, 1982).

Boadway and Wildasin (1989) analyse the political process behind social security. Using a model of overlapping generations, they study the determinants of the existence and level of social security programs and the dynamic evolution over time. The level of benefits to retirees (β) is the only policy choice variable in the model and it is determined by majority voting. It is assumed that the social choice of β will be the most-preferred level of the median voter (according to the median voter theorem, see also above), who maximises his remaining lifetime utility (or consumption) in the belief that, once chosen, the value of β will remain unchanged for the remainder of his lifetime. The age of the median voter is lower than but close to the age of retirement.

Boadway and Wildasin show that, if it is not possible to borrow against future social security benefits and if this constraint is binding (which is only the case if β is larger than the after tax wage), the ideal level of social security benefits for the median voter will not be the efficient level of β , since this level will only be chosen by an individual who is at the beginning of his active life.

Pestieau applied the model developed in Casamata et al. (1997) to the problem studied by Boadway and Wildasin (1989). He distinguishes three types of individuals with different levels of productivity, h_i , and income, w_i . ($i = 1, 2, 3$). The three groups are assumed to be of the same size and to grow at the same rate n . People start as workers and in the next period they retire. Two social security systems are analysed, the PAYG and the fully funded (FF) system. The average rate of return to the social security equals n with PAYG and r (interest rate) with FF. They assume $r \geq n$. Consumption by the young, c , equals after tax wage minus

private savings. Consumption by the old, d , equals private savings (including the proceeds) plus the social security benefits. Both the old and the young have to vote for the payroll tax level, where the old are only interested in d whereas the young are interested in both c (which is reduced by a higher tax level) and d (which increases with a higher tax level).

First, with a PAYG system, retirees of all three groups choose a payroll tax level $t = 1$. The working generation maximises its utility comparing the return on social security with that on private saving. For all values of α , the rich workers choose a zero tax level because of (1) the higher rate of return on private saving ($r > n$) and (2) the redistribution. For each group, we can again determine a level of α for which they are indifferent between a positive tax and saving. If w_2 is below average income, the workers 1 and 2 choose a positive tax and no saving for values of α below their indifference level of α and conversely for higher levels of α . The median voter theorem holds because of single peaked preferences. As in the previous section, the median voter is not necessarily the individual with median income. Depending on the value of α , the workers of type 1 or the workers of type 2 are the decisive voters. If α exceeds the indifference level for the worker of type 1, the equilibrium tax will be zero.

Now, we consider the funded system. In this case there is no intergenerational redistribution. The retirees are indifferent about the payroll tax level, so only the young are voting. Since $r = n$, for $\alpha = 1$ the workers are indifferent between private and public schemes. If $\alpha < 1$, the workers of type 1 and 2 prefer the collective scheme, and the individuals of type 3 prefer the private scheme.

If both systems are compared, assuming that $r = n$, with PAYG the tax rates are higher than with FF. Under the Rawlsian criterion FF is preferable to PAYG or conversely, depending on the degree of substitutability between consumption in the first and the second period. With a utilitarian criterion FF is consistently preferred to PAYG. Consequently, there is no ideal system.

Reforming Social Security

In many countries pensions are organised in a PAYG system. Because of rapid growth in population and productivity in the past decades, past and current retirees have received much more back from social security than they contributed, even if we allow for a reasonable rate of return (Belan and Pestieau, 1998). However, because of the ageing of the population several

countries are planning to shift to a FF or privatised system to avoid an non sustainable pressure on public expenditures. Such a shift will have considerable short-run costs. The transition generation has to be 'sacrificed' in the sense that they have to pay the payroll tax for the benefits of the current retirees as well as the contribution to the fund for their own retirement.

Belan et al. (1998) argue that to avoid the double burden on the transition generation the contributions paid when the PAYG system was introduced should have been kept and invested instead of transferring it as a to a generation of retirees who had not contributed to it. Some economists (e.g. Feldstein and Samwick, 1996) state that the transition from a PAYG to a fully privatised system of individual retirement accounts can be done without sacrificing the transition generation. They argue that, although the short-run costs are high, the welfare gains in the long-run are so huge that the temporary loss is bearable.

Belan and Pestieau (1998) however argue that gains are not possible with the transition from a PAYG to a fully funded system *per se, ceteris paribus*. Gains are only possible if other changes are also made, such as a change in the rate of redistribution. However, such a change does not justify a transition from PAYG to FF since these gains can also be made within the PAYG system. In academic discussions or political debates the comparison between FF and PAYG approaches often bears these other dimensions such as the rate of redistribution of those two alternatives in stead of the fundamental difference between PAYG and FF, the former not being funded and the latter being funded.

If the government does not want the present generation to bear a double burden, she has to borrow money to pay for the pensions of the retirees who did not yet (fully) contribute to their fund. This amount of money is just equal to the amount of money the transition generation would have to pay. The transition is just shifting from implicit to explicit debt and the debt is equivalent to the burden of the PAYG system.

Belan and Pestieau (1998) show that it is possible to get a Pareto-improving reform in the case of endogenous labour supply (in which case the key element of the reform is not so much the shift from an unfunded to a funded system but more the shift from a distortionary to a non- distortionary tax scheme), in the case of endogenous economic growth (where the benefits result from a subsidy on savings that could also have been introduced with a PAYG system).

Optimal Redistribution with Social Insurance

In many countries, governments try to achieve a redistribution of income. Governments redistribute not so much by taxation, but mostly by providing health services, education and social insurance. In a first-best world a pure redistributive tax and not social insurance should not be used for the objective of redistribution. In such a world, the only reason to introduce social insurance is because of the economies of scale. However, in a second best world it can be optimal to use the mechanism of social insurance to redistribute income over individuals.

Cremer and Pestieau (1996) study the role of social insurance in redistribution. They use a model with two individuals with different productivity levels. The individuals are also different with respect to their probability of incurring a loss, for example becoming disabled, unemployed, or sick. Part of the potential loss is covered by social insurance while the rest may be covered by a private insurance purchased at the insurance market. Risk averse agents will choose full insurance, in which case there is no uncertainty for the agent anymore.

The government only observes labour income, but not the wage, labour supply, and the probability of incurring a loss of each individual. The government chooses the optimal income taxation level and the proportion of social insurance that maximises welfare. Cremer and Pestieau (1996) show that the optimal tax rates and redistribution levels depend on the sign of the correlation between ability and risk.

Conclusions

On the basis of the discussion above here some main conclusions will be given. First, pure redistribution is not politically sustainable. Second, supplementary private schemes are most often desirable. Third, social security benefits chosen by majority tend to be excessive particularly with a pay-as-you-go system. Fourth, reforming social security from an unfunded to a fully funded system without sacrificing a generation and without changing the rate of redistribution is neutral. Finally, in a second-best world social insurance can be used for redistribution purposes even when optimal income taxation is available.

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