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Consumer economic confidence and preference for redistribution: Main equilibrium results

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Abstract

This article develops a theoretic analysis of the delicate relationship between wealth, economic confidence and preferences for redistribution. In our model, citizens are concerned with the risk of unemployment, but are also concerned about current income. A first result shows that this relationship depends basically on two aspects of individual's preferences. If individuals care most strongly about job security, then the poorer they are and the less confident in the economy they are, the more government they favor. Conversely, if individuals care most strongly about income, then the poorer they are and the less economic confidence they have, the less government they want. This new result suggests that the one-way result in Meltzer and Richard (1981) may not always be true. Therefore, whether citizens favor more or less government as the median voter's economic confidence changes becomes an empirical issue. Furthermore, the article analyzes what happens when there is an aggregate shock that affects overall confidence in the economy. In that case, regardless of the tradeoff job security-income, society unambiguously favors bigger government if it suffers an aggregate shock that reduces overall economic confidence. Conversely, if society receives an aggregate shock that improve overall economic confidence, it unambiguously favors smaller governments.

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1. Introduction

Economists and political scientists alike have identified what appears to be a stylized fact that the size of government has grown steadily over the late 18th, the 19th and the 20th century (see, for example, Persson and Tabelini 2000, and Lindert 2004). Meltzer and Richards (1981) is one of the first articles to present a clear explanation for this growth in the size of the welfare state in OECD democracies. The main idea is a rather simple application of the median voter theorem coupled with the progressive extension of suffrage. Indeed, throughout the past two centuries the consolidation of democracy was paired with higher contingents of citizens being franchised the vote. The new voters typically came from less favored classes, with, on average, lower incomes than the previous voting classes. Therefore, the income of the new median voter lowered. The new median voter, naturally, favored higher government social programs than before, and electoral competition completed the picture, fostering higher investments on social programs.

Lindert (2004) presents a very careful account of the factors that mostly affected the growth in the size of governments based on data involving two different periods: decennial data from 1880 to 1930 and annual data from 1962 to 1981. The 1880-1930 analysis highlights the role of increasingly democratic regimes, especially the switch from "elite democracy", where less than 40% of men were franchised the vote, to full democracy. When countries moved from elite to full democracy there was a clear increase in social spending.

More recent empirical work, however, appears to challenge that older stylized fact. According to Alesina and Giuliano (2009), for example, "The basic Meltzer-Richards model has received scant empirical support". Several empirical articles focused on understanding which additional factors may affect a citizen's preference for redistribution (see, for example, Alesina and Giuliano 2009, and Rehm 2011). However, the literature is sparse when it comes to theoretic models to help understand differences in the preference for redistribution. Piketty (1995) presents a model of rational learning where citizens base their expected future income on their individual mobility experience, allowing for two different dynastic preferences: the ones that expect higher mobility and, therefore, favor smaller governments and the ones that expect lower mobility and, therefore, favor bigger governments. Benabou and Ok (2001) present the "prospect of upward mobility" (POUM) hypothesis. According to the POUM hypothesis, citizens care about future income as well as present income. If a poor citizen expects to have higher income in the future, then he may prefer small government today, in order not to have to pay for a large government tomorrow.

In line with these works, the present article tries to understand on a theoretic point of view the delicate relationship between wealth, economic confidence and preferences for redistribution. In our model, citizens are concerned with the risks of becoming unemployed, but are also concerned about current income. A first theoretic result shows that this relationship is not straightforward and depends basically on two aspects of individual's preferences. If individuals care most strongly about job security, then the poorer they are and the less confident in the economy they are, the more government they favor. On the other hand, if individuals care most strongly about income, then the poorer they are and the less economic confidence they have, the less government they want. This is a new result in the literature, which shows that the one-way result in Meltzer and Richard (1981) may not always be true, as the works by Piketty, and Benabou and Ok also find. As a consequence, whether citizens favor more or less government, as the median voter's economic confidence changes, appears to be an empirical issue.

Furthermore, the present article also analyzes what happens when there is an aggregate shock that affects overall confidence in the economy. In that case, regardless of the tradeoff job

security-income, the effect of an aggregate reduction in economic confidence in the economy is a higher focus on social policy. Therefore, society unambiguously favors bigger government if it suffers an aggregate shock that reduces overall economic confidence. Conversely, the effect of an aggregate increase in economic confidence in the economy is a lower support for social policy. Therefore, society unambiguously favors smaller governments if it receives an aggregate shock that increases overall economic confidence.

2. The basic setup

There is a continuum of citizens of mass one and two periods. In period 0, citizens vote for a policy to be implemented in period 1. At the moment voter i takes his ballot, he holds a job which pays him a salary y_i. The distribution of wages among voters is described by a distribution function $F(y)$.

In period 1, citizen i may maintain his job or may loose it, in which case he receives no salary. The likelihood of keeping his job depends on the working of the economy and on his own characteristics, and is represented by a probability π_i. Therefore, there is a probability $1-\pi_i$ that i will loose his job and receive zero wages in period 1.

The parameter π_i reflects consumer i's confidence in the economy and varies across individuals. The higher the parameter π_i, the higher is citizen i's confidence in the good performance of the economy. The wage y_i and the parameter π_i of a citizen i are positively correlated such that, as y_i increases, so does π_i. The rationale for this hypothesis is the stylized fact that higher wages correspond to more skilled tasks, which, in general, are scarcer, and, thereby, more stable. Indeed, according to Diebold *et al.* (1994), for example, "[…]retention rates have declined for high school dropouts and high school graduates relative to college graduates[…]". More specifically, according to Rehm (2011), "[…] the risk of unemployment and income level are negatively correlated (mainly because education determines both variables)[…]". See also Faber (2011) and Moene and Barth (2012).

The policy to be implemented in period 1 regards the unemployment benefits, s, to be transferred to citizens who loose their job. The policy s is measured in per capita terms.

In period 1 all citizens who maintain a job pay taxes[1] according to the same rate $\tau \in [0,1]$. The only role of government in the present model is to collect taxes τ to finance the unemployment benefits' policy s.

A citizen i has Von Neumann-Morgenstern utility function $u(w)$, where w is his wealth in period 1, which is a random variable assuming value $w=y_i$ with probability π_i –when he maintains his employment– and value s with probability $1-\pi_i$ –when he looses his job. The utility function $u(w)$ is assumed to be strictly increasing, strictly concave with Arrow-Pratt relative coefficient of risk aversion greater than 1, i.e., voters are reasonably risk averse. Therefore, if policy s is to be implemented in period 1, financed by the tax rate τ, citizen i's expected utility is $U_i(\tau,s) = \pi_i u\left((1-\tau)y_i\right) + (1-\pi_i)u(s)$.

In period 0, each citizen votes for the unemployment policy that maximizes his expected utility, taking into consideration that the policy will be financed by income taxation. Equivalently, each citizen votes for the tax rate that maximizes his expected utility, taking into consideration that the collected tax will finance the unemployment benefits.

[1] The results of the present model would remain unchanged if one requires that those who receive unemployment benefit also pay taxes over these benefits.

3. Solution

The expected government budget constraint

Since citizen *i* keeps his job with the probability π_i, the expected government revenue from taxes is given below.

$$\int \pi_i \tau y_i dF_i = \tau \int \pi_i y_i dF_i$$

Let $Y = \int y_i dF_i$ be the average[2] income in the economy if there were no unemployment, i.e., in the hypothetical case of full employment. Then, $Y > \int \pi_i y_i dF_i$, the average income of the actually employed citizens. Let $\Pi = \dfrac{\int \pi_i y_i dF_i}{Y} = \int \pi_i \dfrac{y_i}{Y} dF_i$. Then $0 \leq \Pi \leq 1$ and $\Pi Y = \int \pi_i y_i dF_i$. Therefore, Π can be interpreted as the average probability of keeping a job in society, weighted by wage relative to average wage. Then, the government's revenue can be rewritten as $\tau \Pi Y$.

Government revenue is used to finance unemployment benefits. Let now $\overline{\Pi} = \int \pi_i dF_i$ be the non-weighted average probability of keeping a job. The government expected expenditure is given below.

$$\int (1 - \pi_i) s dF_i = (1 - \overline{\Pi}) s$$

Therefore, the expected budget constraint of the government can be written as follows.

$$\tau \Pi Y = (1 - \overline{\Pi}) s$$

Voter i's preferred policy

The government's budget constraint establishes the amount of benefits that can be distributed to the unemployed, *s*, given a tax regime τ as $s = \dfrac{\Pi}{1 - \overline{\Pi}} \tau Y$.

Therefore, voter *i*'s expected utility can be rewritten as a function of τ.

$$U_i(\tau) = U_i(\tau, s(\tau)) = \pi_i u((1 - \tau) y_i) + (1 - \pi_i) u\left(\frac{\Pi}{1 - \overline{\Pi}} \tau Y \right).$$

Hence, voter *i*'s preferred tax rate must satisfy the following first order condition.

$$U_i'(\tau) = -\pi_i y_i u'((1 - \tau) y_i) + (1 - \pi_i) \frac{\Pi}{1 - \overline{\Pi}} Y u'\left(\frac{\Pi}{1 - \overline{\Pi}} \tau Y \right) = 0.$$

That condition can be rewritten as:

$$\frac{\Pi}{1 - \overline{\Pi}} Y u'\left(\frac{\Pi}{1 - \overline{\Pi}} \tau Y \right) = \frac{\pi_i}{1 - \pi_i} y_i u'((1 - \tau) y_i) \qquad (1)$$

Therefore, voter *i*'s preferred tax policy, τ_i, is the tax rate τ that solves equation (1).

[2] Here average income and total income are equivalent concepts because the population has mass 1.

In order to determine how the preferred policy changes as y_i changes, let us analyze the right hand side (RHS) of equation (1). Define $h(\pi_i) = \frac{\pi_i}{1-\pi_i}$ and $f(y_i) = y_i u'((1-\tau)y_i)$.

Taking first order derivatives of f yields $f'(y_i) = u'((1-\tau)y_i) + (1-\tau)y_i u''((1-\tau)y_i)$.

Now note that $f'(y_i) < 0$ if and only if:

$$-\frac{(1-\tau)y_i\, u''((1-\tau)y_i)}{u'((1-\tau)y_i)} > 1 \qquad (2)$$

But the left hand side of inequality (2) is the Arrow-Pratt coefficient of relative risk aversion calculated at the wealth value $(1-\tau)y_i$, which, by hypothesis, it is greater than one. Therefore, the function $f(y_i)$ is decreasing in y_i.

On the other hand, given the hypothesis that the probability of keeping a job, π_i, is increasing in the wage, the function $h(\pi_i) = \frac{\pi_i}{1-\pi_i}$ has to be increasing in y_i.

Therefore, the combined effect of a change in wage (or, equivalently, in the probability of keeping a job) on citizens' preferences for redistribution will depend on which of these two factors, $h(\pi_i)$ or $f(y_i)$, dominates. Call $h(\pi_i)$ the *security factor* and $f(y_i)$ the *income factor*. The security factor, increasing in π_i, reflects citizens i's job security, whereas, the income factor, decreasing in y_i, reflects citizens i's income vulnerability. Consider now two alternative hypotheses for the relative strength of each of these effects, which we assume to hold for the entire population.

Assumption 1: The security dominance case.

Assume that the changes in $h(\pi_i)$ dominate the changes in $f(y_i)$ in the sense that the composite function $h(\pi_i).\, f(y_i)$ is an increasing function of y_i.

Return now to equation (1). If y_i increases, then τ cannot remain constant, as the right hand side (RHS) of (1) would increase while its LHS would not change, a contradiction. Moreover, τ cannot increase. Indeed, if τ also increased, then the RHS of (1) would further increase (recall that $u'(w)$ is a decreasing function) whereas the LHS would decrease, another contradiction. Therefore, if y_i increases, then it must be the case that τ decreases for (1) to hold.

Therefore, under the hypothesis of *security dominance*, the richer a citizen gets, the less government he favors. Similarly, the safer his job, the less taxes he wants. Put in a different but equivalent way, when voters care strongly about loosing their jobs, then poorer citizens having less stable jobs favor more government.

This result is in line with the seminal article by Meltzer and Richard (1981), which predicts that poorer citizens favor bigger governments. Furthermore, given the relationship between income and job security, the present model also predicts that citizens facing higher risks of loosing their jobs also favor higher taxes. However, this comparative statics depends crucially on the hypothesis of security dominance, as will become clear in the next section.

Assumption 2: The income dominance case.

Assume now that the changes in $f(y_i)$ dominate the changes in $h(\pi_i)$ in the sense that the composite function $h(\pi_i).f(y_i)$ is a decreasing function of y_i.

Review equation (1). If y_i increases, then τ cannot remain constant, as the RHS would decrease while the LHS of (1) would not change, a contradiction. Moreover, τ cannot decrease. Indeed, if τ also decreased, the RHS of (1) would further decrease (recall that $u'(w)$ is a decreasing function) whereas the LHS would increase, another contradiction. Therefore, if y_i increases, then it must be the case that τ increases for (1) to hold.

Therefore, under the hypothesis of income dominance, the poorer a citizen gets, the less government he favors. Similarly, the riskier his job, the less taxes he wants.

This result is in opposition to Meltzer and Richard (1981), which predicts that poorer citizens favor bigger governments. One possible rationale for such preferences may come from the fact that the poorer a citizen is, the higher is the (opportunity) cost of paying taxes to the government, since the lower is his net income. Since the *income factor* dominates, the poorer citizens are not ready to accept that extra burden.

The equilibrium tax policy

The previous analyses show that citizens' attitudes towards redistribution depend heavily on which of two factors –the security factor or the income factor– dominates voters' preferences. However, if either the Security Dominance assumption or the Income Dominance assumption holds for the entire society, then the Median Voter Theorem applies and the median voter's preferred policy is the Condorcet winner.

Therefore, whereas a society may turn to higher social insurance as the median voter gets poorer and has riskier jobs, a different society may, on the contrary, favor less public protection as the median voter's confidence in the economy plunges. The main theoretic contribution of this paper to the literature is pointing out that there are theoretical grounds for contradicting Meltzer and Richard (1981)'s results, so that it becomes an empirical matter to find out how a society's preferences for redistribution changes as the median voter's income or job stability prospects change.

So far, this article's analyses focused on individual preferences, and the effect on preferences for redistribution of changes in the distribution of income and job security in society. In certain situations, however, there may be aggregate shocks that affect the entire society. The recent financial crisis, for example, reduced overall world trade, affecting job prospects for all individuals, most especially in countries that depend heavily on exports. The next section aims at studying such a situation in which the entire society becomes less (or more) confident in the future of the economy.

4. The role of aggregate consumer confidence

According to the solution of voters' maximization problem we concluded that the Condorcet winning policy τ_M is the solution τ to the following equation, where we replaced y_i with the median salary y_M and π_i with the corresponding median probability of keeping one's job π_M in equation (1).

$$\frac{\Pi}{1-\overline{\Pi}} Yu'\left(\frac{\Pi}{1-\overline{\Pi}}\tau Y\right) = \frac{\pi_M}{1-\pi_M} y_M u'\left((1-\tau)y_M\right) \tag{3}$$

Suppose now that the entire society suffers a confidence shock so that, although higher paid workers retain higher probabilities of keeping their jobs, there is an overall reduction in job stability. This would happen, for example, during a sudden world crisis that affects an entire country's economic prospects. In the present framework, this could be modeled, for instance, by an overall shift in π_i, for example $\pi_i' = \pi_i(1-\varepsilon)$, for every citizen i, where ε measures the magnitude of the shock. More generally, one could have heterogeneous effects of the shock on citizens, $\pi_i' = \pi_i(1-\varepsilon_i)$, as long as ε_i in decreasing in income y_i, i.e., lower paid jobs are more heavily affected by the shock. Suppose this shock affects only consumer confidence, i.e., the probabilities π_i, but do not affect the (ex ante, full employment) distribution of income, $F(y_i)$.

In that case, no matter which one of the two assumptions (risk or income dominance) holds, the median voter theorem applies and the median income citizen still determines the Condorcet winning policy according to (3). However, the overall reduction in economic confidence changed some of the parameters in equation (3).

The lower economic confidence does not affect $Y = \int y_i dF_i$, however, it does reduce $\Pi = \frac{\int \pi_i y_i dF_i}{Y} = \int \pi_i \frac{y_i}{Y} dF_i$ and $\overline{\Pi} = \int \pi_i dF_i$. In particular, it reduces $\alpha = \frac{\Pi}{1-\overline{\Pi}}$.

Let $g(\alpha) = \alpha Yu'(\alpha\tau Y)$. Then, it can easily be seen that the hypothesis of high relative degree of risk aversion implies that g is a decreasing function. But the LHS of equation (3) is precisely $g\left(\frac{\Pi}{1-\overline{\Pi}}\right)$. Therefore, the LHS of (3) increases as overall economic confidence decreases.

Consider now the equilibrium policy τ_M that solves equation (3). Since the LHS increased, τ cannot remain constant. If τ decreased, then the LHS would further increase, whereas the RHS would decrease, which is a contradiction. Therefore, τ must increase for (3) to hold.

Therefore, if overall consumer confidence deteriorates, then society wants to increase taxation financing of unemployment benefits. Conversely, it is straightforward to check that if overall consumer confidence improves, then society unambiguously wants to reduce taxation financing of unemployment benefits. Note that these results are true regardless of which factor, the risk or the income factor, dominates voters' preferences.

5. Conclusion

The present article tries to understand on a theoretic point of view the delicate relationship between wealth, economic confidence and preferences for redistribution. A first theoretic result shows that this relationship is not straightforward and depends basically on two aspects of individual's preferences. If individuals care most strongly about job security, then the poorer they are and the less confident in the economy they are, the more government they favor. On the other hand, if individuals care most strongly about income, then the poorer they are and the less economic confidence they have, the less government they want. This is a new

result in the literature, which shows that the one-way result in Meltzer and Richard (1981) may not always be true. As a consequence, whether citizens favor more or less government as the median voter's economic confidence changes appears to be an empirical issue.

Furthermore, the present article also analyzed what happens when there is an aggregate shock that affects overall confidence in the economy. In that case, regardless of the tradeoff job security-income, the effect of an aggregate reduction in economic confidence in the economy is a higher focus on social policy. Therefore, society unambiguously favors bigger government if it suffers an aggregate shock that reduces overall economic confidence. Conversely, the effect of an aggregate increase in economic confidence in the economy is a lower support for social policy. Therefore, society unambiguously favors smaller governments if it receives an aggregate shock that increases overall economic confidence.

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