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FINANCIAL INEQUALITY, GROUP ENTITLEMENTS AND POPULISM

Federico Favaretto^{^^} and Donato Masciandaro[^]

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Abstract

This paper offers a theoretical framework that explains how financial inequality and misbeliefs about group entitlements among voters foster voting in favour of populist parties. When a banking shock occurs in an economy with heterogeneous agents, the central bank independently chooses the optimal degree of monetization to balance financial and monetary instability, while agents choose between a populist party and a classical party to select the degree of bank bailout, which is paid through a proportional tax. Agents vote according to a behavioural mechanism that we call “democratic rioting”: “aggrieved” agents benefit psychologically from voting for the populist party. The banking shock triggers a higher probability of voting for a populist party in the presence of financial inequality and misbeliefs about group entitlements.

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1. Introduction

Political parties and movements that are labelled “populist” are still searching for causes to support. The aim of this paper is to propose a theoretical mechanism that links an aggregate negative wealth shock (i.e. a banking shock) to a higher probability that groups of agents will vote for a populist party.

In our framework, the populist party offers an alternative to a classical party (without a specific political definition) that represents the optimal policy choice for society. Our approach is a static model that is not founded on microeconomics. It propose a bridge between a political economy framework and a macroeconomic one: a negative wealth shock leads the government to introduce a proportional tax to fund the bailout of the banking system. The extent of this intervention is decided by the electorate. The classical party accepts the central bank’s independent choice on debt monetization, while the populist party prefers a suboptimally high level of bank bailout.

Populism is not new and recent new waves of populist movements demonstrate that it is not only a left-wing phenomenon. Indeed, after the first wave of populism, which was mostly a left-wing movement concentrated in Latin America (Dornbusch and Edwards 1991, Acemoglu et al. 2013), a second wave gained ground in many European countries and the United States. This second wave led to both left-wing and right-wing movements. Such movements directly or indirectly have a significant influence on several public dimensions, including the design and implementation of different economic policies (Dovis et al. 2016, Aggeborn and Persson 2017, Rodrik 2017).

The populist movements share a demand for short-term protection (e.g. from immigrants or competition) as well as three main properties (Guiso et al. 2017, Kaltwasser 2018): a claim that they protect the people from the elite, a focus on demand-driven policymaking and a disregard for the longer-term consequences of their policies. At the core of populist policies is the fact that they present solutions that appear to be welfare enhancing in the short run for the majority of the population but are costly in the long run for everyone. This is a constant in the literature focused on the economic aspects of populism (Sachs 1989, Dornbusch and Edwards 1991, Acemoglu et al. 2013, Chersterley and Roberti 2016).

This paper takes stock of the features of populist movements. First, we assume that populists prefer short-term policies to long-term policies. In our static framework, this means that populists desire a sub-optimally high level of public spending to save not only the banking system but also their equity and deposits. We assume that this is an attractive policy for angry and aggrieved voters. The apparent contradiction between the typical goals of a populist party and the desire to save a larger amount of bank assets is addressed by the fact that most populist parties utilize high public spending to reward specific social and economic groups.

Second, we assume that individuals who decide to vote for a populist party do so after calculating the costs and benefits of such voting preferences for their wealth group. We know that populist and nationalist movements tend to focus on specific group logics rather than a wide and open public discourse on policy. By making this assumption, we adopt the view that groups vote for populists in certain situations.

Third, we know that populists tend to publicly blame and target economic and political elites. In our framework, we focus on the economic elites. Our model adopts an assumption on the distribution of individual costs of voting for populists—we assume that people who are “poor” are more likely to vote for the populist party.

Fourth, we know that populists rely on societal explanations that are rooted in group dynamics. Groups are usually seen as competing for public resources and media attention. Examples of such competition can be seen in the typical divisions between immigrants and natural-born citizens and divisions along ethnic lines (e.g. gypsies and non-gypsies). In our framework, we have only two groups (“rich” and “poor”), which are determined on the basis of wealth. However, the mechanism through which populism emerges may be

extendable to other groups. Indeed, both groups may have some probability of voting for the populist party if the group's beliefs about entitlements differ from actual policies.

For example, if the poor feel entitled to a certain level of bank bailout by the government, the difference between the preferred policy and the actual policy will generate a feeling of aggrievement that will lead the individuals in the group to vote for the populist party in protest. We refer to this as a “democratic riot” because it entails the psychological benefit of showing anger within a democratic regime. The idea of a democratic riot is attractive because it acts as a bridge between voting decisions made on the basis of sound fundamentals and a voting decisions guided by behavioural mechanisms.

Intuitively, why would voters select a populist party over a party with better economic policies? One interesting explanation has behavioural roots: voters make this decision on the basis of a sense of “aggrievement” caused by a difference between what is expected and what is delivered by political parties. More specifically, how would voters in advanced economies express anger over the way their wealth group is treated by public policy? One possibility may be to vote for a party that offers an alternative to the old elites. The assumption is that by voting for a populist party, individuals in the group gain a psychological benefit from seeing that other group members do the same. The public display of anger is key to the psychological benefit of voting for a populist party, as was the public rioting discussed by Passarelli and Tabellini (2017).

Within this model, we consider a single policy dimension: the percentage of bank bailout pursued by the government after a banking shock. In this context, voting decisions are linked to the economic situation through two elements: the level of financial inequality and misbeliefs about group entitlements. Both are necessary for an individual in a group to have a probability of voting for the populist party.

Agents are divided into the categories of rich and poor based on the level of wealth that they possess, which we assume is a given. This wealth consists of bonds, deposits and equity, but its composition does not matter, in contrast to the situation in Masciandaro and Passarelli (2018). For a feeling of aggrievement to exist, at least one group must have a self-serving bias (a limit case is that both groups must have the same exogenous and distorted reference point).

We define self-serving bias as the additional weight that an individual assigns to his or her group when considering social-welfare optimization. For example, the poor may believe they deserve more weight as a group than the rich. If at least one of the two groups has a self-serving bias, individuals in that group will have a positive probability of voting for the populists. (In the limit case in which both rich and poor have no self-serving bias, an aggrievement and likelihood of voting for the populists emerges only for exogenous reference points that are different from the policy's actual utility).

In our framework, the central bank is assumed to be independent and to set the optimal policy determined in equilibrium by society (see Masciandaro and Passarelli 2018). Thus, the only aspect that populists may influence is fiscal policy, as we do not consider the potential consequences of electing populists for the level of central bank independence (CBI) (see Buiter 2016, de Haan and Eijffinger 2017, Goodhart and Lastra 2017, Rajan 2017, Rodrik 2018). This setup replicates several cases of populists movements in Europe (e.g. Marine le Pen in France, the Five Star Movement in Italy) – monetary policy is constrained by an international institution with strong independence, such as the European Central Bank, while fiscal policies are subject to populists' demands.

Our analysis suffers from several limitations. First, we use a static model that is not founded on microeconomics, as we only wish to understand the intuition behind the potential mechanism without working with a quantitative model. Second, although we define the probability that individuals will vote for the populist party, we are unable to make conclusions with regard to electoral outcomes.

A recent paper that tackles populism using a full-fledged model is Pastor and Veronesi (2018). These authors build a heterogenous agent model with inequality aversion, and they document several regularities related to risk aversion, trade openness, and the populist vote in the Brexit referendum and President Trump’s election. Our paper describes a very different theoretical setup.

The remainder of the paper is organised as follows. Section 2 provides an overview of the economy used in our model, while Section 3 presents the voting mechanism and the behavioural setup. Section 4 covers our conclusions.

2. The model

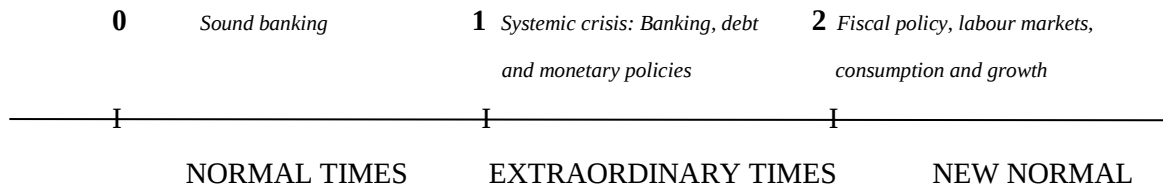
The economy consists of a population of **citizens**, a **government**, a **central bank** and a **banking system**.¹ For simplicity, we assume that the population size is normalized to one, such that total and per capita amounts are the same for all variables.

We assume a static model in which there are three subperiods (see Figure 1). At $t = 0$, banks engage in business with some level of risk (**normal times**). The outcome of these activities determines the extent to which the bank’s risk profile (i.e. its capacity to meet its obligations) is sound. Without a bank crisis, the government does not need to issue debt and, consequently, there is no need to introduce distortionary taxation to service such debt.

At $t = 1$, there is a banking shock and, consequently, the government has to redesign its strategy (**extraordinary times**). This public policy involves two decisions, one regarding the banking policy (i.e. the **bailout amount**) and another regarding the fiscal policy (i.e. how to finance that bailout). If the central bank is not independent, then the option of purchasing government debt by printing money, which is known as **fiscal monetization**, is appealing. The degree of fiscal monetization will depend on the degree of CBI.

Given that the government issues public debt for the amount of the bailout and that government bonds can be purchased by either citizens or the central bank, the degree of CBI tells us the amount of public debt to which the central bank is forced to subscribe. In general, the level of CBI serves as a proxy for the central bank’s power as a **veto player** given the political pressure to use monetary policy tools to address banking or fiscal emergencies.

Figure 1: Normal times, extraordinary times and the new normal



¹ Alternatively, as in Gertler et al. (2017), we can assume that each household (family) consists of a continuum of members who can be either workers or bankers. Workers supply labour and earn wages for the household, while bankers manage a financially risky business and transfer the relative earnings to the household. The number of bankers in each household is heterogeneous.

At $t = 2$, the government introduces an income tax to repay debt and interest. The citizens make decisions about labour, consumption and income given the tax, and the central bank transfers payments for the interest received on its bond purchases back to the government (*new normal times*).

The governmental policies that adopt a long-term perspective, including the definition of CBI, will be **socially optimal policies**. In other words, the equilibrium in new normal times will reflect the intertemporal trade-off between minimizing tax distortions and smoothing out banking externalities.

1.1 Normal times

For simplicity, we assume that there is only one representative bank in the economy. This means that all banks are homogeneous and the macro-banking outcome is simply the sum of micro-level optimizing behaviours.

The systemic risk that a banking crisis produces depends on the behaviour of the banking sector. Banking activity is measured using the variable r , which represents the amount of risk that the banks bear while doing business. A bank's profits increase as a function of risk, as does its overall equity value. We assume profits are a concave function of this risk: $\pi(r)$ such that $\pi'(r) > 0$ and $\pi''(r) < 0$. Without loss of generality, we normalize the number of bank shares to one, such that π also represents the market price of the bank shares. Let $\lambda\pi$ be the total amount of bank liabilities, where λ is the liability to capital ratio, which represents the bank's financial leverage.

At $t = 0$ (normal times), a banking crisis occurs if the bank is unable to meet its obligations. In such an event, the value of the bank's liabilities, $\pi(1 + \lambda)$, falls to zero and the bank's shareholders bear the full cost, π , of the crisis (bail-in). We assume that the bank's failure probability, p , is associated with its risk assumption. Therefore, we assume that the crisis probability $p(r)$ is increasing and convex in risk, such that $p'(r) > 0$ and $p''(r) > 0$.

When a crisis occurs, a bailout policy injects fresh public capital equal to a proportion, β , of the bank's value. $\pi(1 + \lambda)\beta \in [0,1]$ represents the percentage of bailout implemented, $\beta\pi$ represents the bank's equity value after the bailout and $(1 - \beta)\pi$ represents the cost for shareholders.

The bank chooses the risk profile that maximizes its own expected equity value while taking both the crisis event and the bailout into account:

$$\text{Max}_r \pi(r)(1 - p(r)) + \beta^* \pi(r)p(r), \quad (1)$$

where the first term in the maximand is the expected value when business continues as usual (i.e. without turmoil) and the second term represents the outcome if a bailout policy, β^* , is implemented when a crisis occurs. The optimality condition that pins down the optimal level of risk, r^* , undertaken by the bank is the following:

$$(\pi'(1 - p) - p'\pi) + S(\pi'p + p'\pi) + S_\pi \pi' \pi p \leq 0, \quad (2)$$

where strict inequality implies $r^* = 0$. The first bracketed term in equation (2) represents the marginal effect of the risk assumption on the equity value. If the bailout option does not exist, only this term will appear on the left-hand side of equation (2). The second and third terms represent the moral hazard arising from the bailout option. The bank's behaviour in normal times discounts the possibility and the features of government intervention in extraordinary times, which depend on the CBI, all else equal.

1.2 Extraordinary times

At $t = 1$ (extraordinary times), the government faces a decision: let the bank fail or rescue it. In the latter case, the government issues public debt for the amount of the bailout. Public bonds are purchased by either citizens or the central bank. The central bank's purchases represent fiscal monetization, which is inversely associated with the CBI – a higher degree of independence means a lower level of fiscal monetization.

The government defines the bailout policy, β , such that the saved amount is $\beta\pi(1 + \lambda)$, which supports both the bank's shareholders and its depositors. The government finances this policy by issuing new debt at time 1, which becomes an asset in the portfolios of citizens and the central bank. It then charges a proportional income tax of rate, τ , for servicing the debt at $t = 2$.

The overall government budget constraint is:

$$\beta(1 + \lambda)\pi(1 + i(1 - \delta)) = \tau y, \quad (3)$$

where τ is the tax rate, y is the citizens' income before taxes, i is the interest paid on the government bond and δ is the share of the debt purchased by the central bank, where $\delta \in [0,1]$. The degree of debt monetization, δ , is negatively associated with the level of CBI. The interest rate on public bonds is determined according to a no-arbitrage condition with respect to a perfect, long-term, risk-free interest rate, which we normalize to zero for simplicity.

For any unit of debt issued at $t = 1$, the government repays $1 + i(1 - \delta)$ at $t = 2$. The cost of debt, $i(1 - \delta)$, is negatively associated with fiscal monetization. When a central bank is more independent (i.e. a low δ), a larger portion of the debt is likely to be sold to citizens. The government fully internalizes the economic consequences of the central bank regime – when defining the institutional rules (i.e. the degree of fiscal monetization, δ), the government determines its degree of freedom in defining the fiscal monetization of the bailout policy, β , and consequently the tax policy, τ . Therefore, the overall policy design is $\tau = T(\beta, \delta)$.

1.3 New normal times

The citizens are risk neutral, and they draw utility from consumption and disutility from labour. They use their net labour income and their financial assets to buy consumption goods. We assume **heterogeneity** in the composition of their portfolios, while labour income is assumed to be the same for all individuals. These assumptions enable us to zoom in on the macroeconomic consequences of financial inequality, all else equal.

Starting with labour income, let individual utility from labour be:

$$l(1 - \tau) - U(l). \quad (4)$$

Labour productivity is normalized to one. Then $l(1 - \tau)$ is the after-tax (net) labour income. $U(l)$ is an increasing and convex effort function. After observing τ , each citizen chooses how much to work in order to maximize (1). The optimality condition yields his or her labour-supply function:

$$L(\tau) = U_l^{-1}(1 - \tau). \quad (5)$$

$L(\tau)$ is decreasing in the tax rate: $L_\tau < 0$. Given the above-mentioned productivity and a population size of one, the labour supply represents the total income: $y = L(\tau)$. Therefore, income and labour supply in equilibrium will depend on the tax policy, which can be influenced by the government's decision regarding the bailout option. However, the government's decision also influences the financial assets held in individual portfolios. In our economy, four asset types are present: bank shares; bank deposits, which can be used as a medium of exchange (no outside money is present); government bonds; and other financial assets.

If the banking policy, β , is implemented at $t = 1$, the *average* value of a citizen's portfolio will be influenced. Its value at $t = 2$ is:

$$\beta\pi + \beta\lambda\pi + \beta(1 + \lambda)(1 - \delta)\pi(1 + i) + [w - \beta(1 + \lambda)(1 - \delta)\pi]. \quad (6)$$

The first term is the value of the bank shares and the second term is the value of the bank deposits. The third term is the value of the government bonds inclusive of interest payments, while the fourth term represents the difference between the initial wealth, w , and the value of the bonds purchased by citizens. Notably, the bailout option can influence the average portfolio value through two channels: the value of the bank's liabilities and the interest payments on public bonds.

The budget constraint of a citizen who owns an average portfolio is:

$$c = l^* (1 - T(\beta, \delta)) + w + \beta(1 + \lambda)\pi(1 + i(1 - \delta)) \equiv C(\beta, \delta), \quad (7)$$

where l^* is the optimal labour supply, which depends on the selected tax policy, such that $l^* \equiv L(\tau)$.

Finally, we consider the financial and monetary externalities triggered by a banking crisis. We assume that the decline in the values of both bank shares and deposits triggers financial externalities:

$$\frac{\varepsilon}{2} [(1 - \beta)(1 + \lambda)\pi]^2 \equiv E(\beta). \quad (8)$$

The externalities are increasing and convex in the amount of bank liabilities that evaporate, and they depend on the bailout policy, β .

The bailout option also has monetary policy consequences. We assume that fiscal monetization is associated with increasing monetary instability costs. For simplicity, we assume that the costs of monetary instability $I = I(\beta, \delta)$ are quadratic in the degree of CBI, δ :

$$\frac{\varrho}{2} \delta^2 \beta(1 + \lambda)\pi \equiv I(\beta, \delta). \quad (9)$$

In summary, citizens draw utility from consumption and disutility from labour. In addition, financial and monetary externalities must be considered. If we assume that these costs are homogenous among citizens, then the indirect utility function $V(\beta, \delta)$ of the average citizen at $t = 2$ is:

$$V(\beta, \delta) = C(\beta, \delta) - U(l^*) - E(\beta) - I(\beta, \delta). \quad (10)$$

1.4 Optimal policy

The normative benchmark for evaluating actual public policies, which includes the definition of the optimal level of CBI, is identified as follows. Assume that a social planner takes the relationship between the tax policy, τ , and the labour supply into account, and simultaneously sets the policy strategy regarding the banking policy, β^* , and the monetary policy, δ^* , at $t = 1$ in order to maximize the social-welfare function, $V(\beta, \delta)$. Given the public budget constraint (3) and the labour supply (5), the budget constraint becomes:

$$\beta(1 + \lambda)\pi(1 + i(1 - \delta)) = \tau L(\tau). \quad (11)$$

This implicitly gives the relationships between the tax policy on the one side and the banking and monetary policies on the other side. In fact, by differentiating (11) and introducing labour-supply elasticity, $\eta(\tau) \equiv -\tau L_T / L$, to highlight the tax-distortion effect, we obtain:

$$T_\beta = \frac{(1 + \lambda)\pi(1 + i(1 - \delta))}{l^*(1 - \eta(\tau))} > 0 \text{ and} \quad (12)$$

$$T_\delta = \frac{\beta(1 + \lambda)\pi i}{l^*(1 - \eta(\tau))} < 0, \quad (13)$$

where tax policy and CBI are inversely associated, as monetization reduces the debt-servicing costs and, consequently, the tax distortions.

Using the overall social-welfare function (10), the two optimality conditions are:

$$V_\beta = C_\beta(\beta, \delta) - E_\beta(\beta) - I_\beta(\beta, \delta) \leq 0 \text{ and} \quad (14)$$

$$V_\delta = C_\delta(\beta, \delta) - I_\delta(\beta, \delta) \leq 0, \quad (15)$$

where strict inequality implies the corner solution (i.e. $\beta^* = 0$ or $\delta^* = 0$).

When setting the banking policy, the social planner accepts a trade-off between two public goals: externality smoothing and tax-distortion minimization. This trade-off can be mitigated using monetary policy, but it also introduces the dilemma of monetary instability.

By solving the FOC system (14-15) and using (7-9), we obtain the socially optimal choices:

$$\beta^* = 1 - \frac{1}{\varepsilon(1+\lambda)\pi} \left[\frac{\eta}{1-\eta} (1 + i(1 - \delta^*)) + \frac{\varphi}{2} \delta^{*2} \right] \text{ and} \quad (16)$$

$$\delta^* = \frac{\eta}{1-\eta} \frac{i}{\varphi}. \quad (17)$$

If we focus on the central bank regime decisions, the **optimal level of CBI**, δ^* , has certain properties. In our economy, voter heterogeneity depends on financial inequality and has three possible sources: **bank shares**, **bank deposits** and **bond holdings**.

Given a voter j , let $\pi + \pi^j$ be the amount of banking shares in j 's portfolio at time 0. Specifically, depending on $\pi^j > 0$ or < 0 , voter j will be a *bank owner* relative to the average. Let $F(\pi^j)$ be the distribution of the bank's ownership across the population.

Voters can be big or small depositors. Let $\lambda + \lambda^j$ be the amount of bank deposits in j 's portfolio at time 0. Depending on $\lambda\pi^j > 0$ or < 0 , voter j will be a *bank depositor* relative to the average. Let $L(\lambda^j)$ be the distribution of the bank's liabilities across the population.

Finally, voters can be heterogeneous as bond holders. Let $(\beta + b^j)(1 + \lambda)(1 - \delta)\pi$ be the amount of bonds in j 's portfolio at time 0. Depending on $b^j > 0$ or < 0 , voter j will be a *bond holder* relative to the average. Let $G(b^j)$ be the distribution of bond holdings across the population. The average of $G(b^j)$ is zero.

Given the general individual utility function (10) and the above definitions of π^j, λ^j, b^j , the voter j 's utility, $V^j(\beta, \delta)$, is:

$$V^j(\beta, \delta) = V(\beta, \delta) + \beta\pi^j + \beta\lambda\pi^j + b^j(1 + \lambda)\pi i(1 - \delta), \quad (18)$$

where the last three terms on the right account for the three forms of financial heterogeneity of voter j relative to the average.

2. The voting mechanism: aggrievement and the populist vote

Prior to analysing the voting mechanism, let us focus on the central bank. We assume the central bank is an independent institution that chooses the optimal level of debt monetization, as described by Masciandaro and Passarelli (2018):

$$\delta^* = \frac{\eta}{1-\eta} \frac{i}{\phi}$$

The emergence of populism does not depend on the types of financial assets held by individuals. We have only rich and poor groups, which differ in terms of the total value of assets.

Individuals vote for a party that decides the policy, β , and there is competition between two parties: a classical party (CP), which is the incumbent status-quo party; and a populist party (PP), which promises to deliver suboptimal policies (i.e. a higher level of β). The individuals are divided into two groups of size λ^i indexed by i – rich and poor. They hold bank shares, deposit shares and bonds. According to (7), the average agent consumes:

$$c = l^*(1 - T(\beta, \delta)) + w + \beta(1 + \lambda)\pi(1 + i^*(1 - \delta))$$

$$C(\beta, \delta) \equiv l^*(1 - T(\beta, \delta)) + w + \beta(1 + \lambda)\pi(1 + i^*(1 - \delta)).$$

The indirect utility function of the average agent at $t = 2$ is:

$$V(\beta, \delta) = C(\beta, \delta) - U(l^*) - E(\beta) - I(\beta, \delta). \quad (25)$$

The individual voter utility is (18):

$$V^j(\beta, \delta) = V(\beta, \delta) + \beta\pi^j(1 + \lambda) + b^j(1 + \lambda)\pi i(1 - \delta).$$

The agents vote for parties that need to decide the parameter β . For simplicity, there are two parties: a “classic” party (CP) and a populist party (PP). CP is the incumbent that represents the average voter decision on β according to (16) and (17):

$$\beta^* = 1 - \frac{1}{\varepsilon(1 + \lambda)\pi} \left[\frac{\eta}{1 - \eta} (1 + i^*(1 - \delta^*)) + \frac{\phi}{2} \delta^{*2} \right]$$

$$\delta^* = \frac{\eta}{1 - \eta} \frac{i}{\phi}.$$

PP votes for a higher level of β than the average voter, which is a suboptimal choice. We model voting such that every agent’s probability of voting for PP depends on an “aggrievement mechanism”, in line with Passarelli and Tabellini (2017). In order to understand the overall voting mechanism, consider that the individual chooses to vote for PP after weighing the costs and benefits. Take $a^i > 0$ for $i \in \{r, p\}$ as given for an individual j , where i represents groups for rich and poor. Assume that i is bounded.

The individual’s costs of voting for PP consist of a general component, $\mu > 0$, common to all groups as well as a random variable, ε^{ij} , with a uniform distribution, a mean of zero and a density of $\frac{1}{2\sigma^i}$.

The benefits of voting for PP for the individual come from expressing his or her emotions in a way that has a public impact (i.e. the choice of government). Importantly, the individual’s benefit from voting for PP rises as the size of the individual’s group increases. In other words, as voting for PP is an (indirect) public display of emotion, the more other group members do the same, the more it pleases the individual. In the words of Passarelli and Tabellini (2017), “the psychological benefit of a public display of anger is stronger if the emotion is more widely shared”.

Specifically, individual j in group i votes for PP if the benefits are greater than the costs:

$$p^i \lambda^i a^i - \mu - \varepsilon^{ij} \geq 0. \quad (26)$$

If we assume a uniform distribution for ε^{ij} , the probability of voting for a populist party is.

$$p^i = \Pr(\varepsilon^{ij} \leq p^i \lambda^i a^i - \mu)$$

$$p^i = \frac{1}{2} + \frac{p^i \lambda^i a^i - \mu}{2\sigma^i}. \quad (27)$$

If we solve for the probability, we have:

$$p^{*i} = \frac{\sigma^i - \mu}{2\sigma^i - \lambda^i a^i}. \quad (28)$$

The derivation of aggrivement a^i is crucial – it is the psychological benefit of voting for PP.

In the words of Passarelli and Tabellini, “the strong assumption is that the benefit is related to the emotions of being treated unfairly”. We define aggrivement for group i as $a^i \equiv A^i(\beta)$ in equation (6):

$$a^i = \frac{\omega^i}{2} \max[0, R^i - V^i(\beta)]^2$$

$$A^i(\beta) \equiv \frac{\omega^i}{2} \max[0, R^i - V^i(\beta)]^2$$

where $\omega^i > 0$ is a sense of entitlement. When it is higher, a^i will be stronger given $R^i - V^i(\beta)$. $V^i(\beta)$ is the group's indirect utility and R^i is the group's reference point (the derivation of R^i is explained below). If $a^i > 0$, then the probability of voting for PP for the individual j in group i is different from zero.

Recall that an individual agent has an indirect utility of $V^j(\beta, \delta)$. For the simplicity of notation, now think about $V^j(\beta)$. Let us consider the rich and poor agents, with group sizes $\lambda^i : V^r(\beta) > V^p(\beta)$, without focusing on the types of financial assets the groups hold. Also assume a reference point exists for individual j in group i :

$$R^i \equiv V^i(\hat{\beta}). \quad (29)$$

Two individuals from different groups will differ in two dimensions: the costs of voting for PP, ε^{ij} ; and aggrivement, a^i .

Consider the first dimension – differences in individual costs of voting for PP. Let us assume that the costs for individual j in group i , ε^{ij} , is a uniform distribution with a mean of zero and a density of $1/2\sigma^i$. At the baseline, we assume that the poor group will be more homogeneous with respect to the cost of voting for PP, as the variance in this cost is lower for poor people than for the rich, such that $\sigma^p < \sigma^r$. Intuitively, the rich may incur more extreme costs if they vote for the populists. From Passarelli and Tabellini (2017), we know that $\frac{\partial p^{*i}}{\partial a^i} > 0$. In other words, the equilibrium probability of voting for PP increases with the level of group aggrivement. Moreover, the smaller σ^i is, the bigger this derivative is – the impact of aggrivement on the probability of voting for PP is greater when group i is more homogeneous. This means that the poor have a higher probability of voting for PP, ceteris paribus.

In order to consider the second dimension of difference between the rich and poor groups, we assume that $\sigma^p = \sigma^r$ – the costs of voting for PP is ex-ante equal for individuals in the two groups. There are two

subcases. In Case 1, a self-serving bias exists for at least one group. In Case 2, no group has a self-serving bias. In order to explain self-serving bias, we need to link it to the description of the reference point R^i . In general, $R^i \equiv V^i(\hat{\beta}^i)$, where $\hat{\beta}^i$ is the subjective fair policy for group i . $\hat{\beta}^i$ is derived from a modified social-welfare optimization in which group i is overrepresented:

$$\hat{\beta}^i = \operatorname{argmax} W^i(\beta) \quad (30)$$

$$\hat{\beta}^i = \operatorname{argmax} \sum_k \pi^{ik} V^k(\beta)$$

where, after defining v^i as the self-serving bias of group i , we have a weight of $\pi^{ii} = \lambda^i(1 + v^i)$, while all other groups, $i \neq k$, have a weight of $\pi^{ik} = \lambda^k(1 - v^i)$. This means that group i assigns itself too much weight relative to other social groups.

Case 1 is the typical case, in line with Passarelli and Tabellini (2017). If both parties have a self-serving bias, then $R^i \equiv V^i(\hat{\beta}^i) \neq V^i(\beta)$ for group i . This means that $a^i \equiv A^i(\beta) > 0$. In other words, individuals in group i have a probability greater than zero of voting for PP. On the other hand, if only one group has a self-serving bias, only individuals in that group will have a probability of voting for PP that differs from zero.

In Case 2, no group has a self-serving bias. If we think about the typical setup, such as $R^i \equiv V^i(\hat{\beta}^i) = V^i(\beta)$, then $a^i \equiv A^i(\beta) = 0$ for all groups as there is no self-serving bias. To make this case meaningful for analysis, we assume a specific reference point, R^i , as a “national target”. Let us define $R^i = \bar{R}$ exogenous. In this setup, assuming that $\bar{R} \neq V^i(\beta)$, both the rich and the poor will have the same aggrivement, so that $a^i = a^r = a^p > 0$.

2.1 Equilibrium

Now we can derive the equilibrium probability and show that it can be expressed as a function of the policy: $p^i = P^i(\beta)$. The government trades off the social-welfare effects of the policy against the consequences of the probability of voting for the populist party. Specifically, let

$$W(\beta) = \sum_{i=1}^2 \lambda^i V^i(\beta) \quad (32)$$

be the standard Benthamite social-welfare function. A benevolent social planner sets the policy to maximize:

$$W(\beta) - \sum_{i=1}^2 \lambda^i P^i(\beta), \quad (33)$$

where the number and size of groups voting for PP increase as the general welfare loss increase. Note that:

$$p^{*i} = \frac{\sigma^i - \mu}{2\sigma^i - \lambda^i a^i}. \quad (34)$$

Hence, we see that:

$$p^{*i} = \frac{\sigma^i - \mu}{2\sigma^i - \lambda^i A^i(\beta)} = P^{*i}(\beta). \quad (35)$$

This means that the choice of β has an impact on the social optimum. Specifically, if group i is aggrieved, then:

$$P^i_\beta(\beta) = -\frac{\lambda^i}{\sigma^i - \mu} [P^i(\beta)]^2 (R^i - V^i(\beta)) \omega^i V^i_\beta(\beta) \quad (36)$$

$$P^i_\beta(\beta) = -\Phi^i(\beta) V^i_\beta(\beta).$$

Given the definition of a^i , as the policy becomes more favourable to the group (i.e. if $V^i_\beta(\beta) > 0$), aggrivement is reduced ($-(R^i - V^i(\beta)) \omega^i V^i_\beta(\beta) < 0$) as is the probability of voting for PP. Therefore, if the policy becomes more favourable to an aggrieved group, then $P^i_\beta(\beta) < 0$. We are now ready to define and characterize the equilibrium.

Definition:

An equilibrium consists of a vector of subjectively fair policies, $\{\hat{\beta}^i\}$, and corresponding reference utilities, $\{R^i\}$; a vector of probabilities of voting PP, $\{p^{i*}\}$; and a policy, β^* , such that:

1. Fair policies maximize the modified social-welfare functions of each group, $W^i(\beta) = \sum_k \pi^{ik} V^k(\beta)$;
2. Within each group i , all members optimally define a probability of voting for PP given the equilibrium policy, β^* , the group's reference utility, $\{R^i\}$, and the equilibrium participation of other group members, $\{p^{i*}\}$;
3. The government policy maximizes the social-welfare function inclusive of the cost of voting for PP (33), taking as a given the groups' reference utilities, $\{R^i\}$, and taking into account how the policy affects equilibrium participation through (35).

The equilibrium policy maximizes (33), yielding:

$$W_\beta(\beta^*) - \sum_{i=1}^2 \lambda^i P^i_\beta(\beta^*) = 0. \quad (37)$$

Thus, a benevolent government trades off the direct welfare effects of the policy, $W_\beta(\beta^*)$, against the disruptions caused by the populist vote. By (32) and (36), the optimality condition can be rewritten as:

$$\sum_{i=1}^2 \lambda^i [1 + \Phi^i(\beta^*)] V^i_\beta(\beta^*) = 0, \quad (38)$$

where $\Phi^i(\beta^*) > 0$ if $a^i > 0$, and zero otherwise. Equation (38) provides a full characterization of the equilibrium policy.²

Proposition 1.

The equilibrium policy solves a modified social-planner problem in which each group i is assigned the extra weight $\Phi^i(\beta^*) \geq 0$. If the extra weight differs between rich and poor, then there is a suboptimal choice of β . Moreover, only aggrieved groups are assigned extra weight in the welfare function – they exert some policy influence.

More generally, the political influence of a group reflects several features. First, more homogeneous (low σ^i) and larger (high λ^i) groups are more influential in voting for populist parties. Second, a more pronounced

² See Passarelli and Tabellini (2017) for second-order conditions of maximization.

self-serving bias (high v^i) and a stronger sense of entitlement (high ω^i) imply that group members are more easily aggrieved and, hence, more prone to vote for populists.

4. Conclusion

In this paper, we presented a model of the relationships among financial inequality, misbeliefs about group entitlements and populism. We defined populist policies as suboptimal short-term policies that imply a bank-bailout percentage that is too high after a wealth shock.

We took stock of four features of populist movements and set up a model that encompasses them to some degree by determining the probability of voting for the populist party in equilibrium. The conditions necessary for this probability to be higher than zero are the existence of financial inequality that divides the voters into rich and poor, and the presence of at least one wealth group with misbeliefs about its entitlements. The latter, which reflects a self-serving bias, implies a difference between the reference utility and the actual utility, which causes aggrievement and, thereby, creates a probability of voting for the populist party.

The mechanism is a behavioural one – voters choose a suboptimal policy due to the psychological benefits of voting for the populist party. We refer to this as a “democratic riot”, as it is comparable to rioting behaviour (Passarelli and Tabellini 2017) but carried out on the electoral ballot.

In our framework, the central bank is assumed to be independent and to adopt the optimal policy that is determined in equilibrium by society (see Masciandaro and Passarelli 2018). Thus, the only aspect that populists can influence is fiscal policy, if we ignore the potential consequences of electing populists for CBI (see Buiter 2016, de Haan and Eijffinger 2017, Goodhart and Lastra 2017, Rajan 2017, Rodrik 2018).

In conclusion, a banking shock triggers a higher probability of voting for a populist party in the presence of financial inequality and misbeliefs about group entitlements.

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