European Journal of Political Economy 94 (2026) 102865

Contents lists available at ScienceDirect

European Journal of Political Economy

journal homepage: www.elsevier.com/locate/ejpe

# Demographics, political agenda and public budget

Giulio Piccirilli [a], Agnese Sacchi [b,*], Guido Traficante [c]

[a] Universitas Mercatorum, Piazza Mattei 10, 00186 Rome, Italy
[b] University of Urbino Carlo Bo, Department of Economics, Society, Politics, Via Saffi 42, 61029 Urbino, Italy
[c] European University of Rome, via degli Aldobrandeschi 190, 00163 Rome, Italy

## HIGHLIGHTS

- We model electoral competition in a society with an ageing population.
- Two-sided intergenerational altruism is considered.
- Party platforms tend to accommodate the demographically dominant group.
- If altruism is strong enough, intra-family transfers between generations occur.
- Altruism acts as a moderator of the growing political influence of the elderly.

## ARTICLE INFO

*JEL classification:*
D72
D83
H60
I28
J11

*Keywords:*
Public spending
Population ageing
Demographic structure
Political agenda
Altruism

## ABSTRACT

In ageing societies, the growing number of elderly citizens is expected to bias the allocation of public resources in their favour, as office-seeking politicians respond to electoral incentives. Yet, such a tendency is scarcely observable in the data for some European countries. This paper develops a theoretical model of electoral competition between two parties facing an electorate composed of young and old voters. A key feature of the model is that voters belonging to different generations, despite having conflicting preferences over the provision of public goods, are linked by family ties that generate altruistic preferences and intra-family transfers. We show that party platforms tend to accommodate the preferences of the demographically dominant group. However, this effect weakens as altruism becomes more widespread, offering a mechanism to reconcile the empirical evidence with theoretical expectations.

## 1. Introduction

A well-established theoretical result in the political economy literature is that larger groups of voters exert greater influence on policy choices, as accommodating their preferences yields a higher electoral payoff (Lindbeck and Weibull, 1987; Dixit and Londregan, 1996; Persson and Tabellini, 2002; Thau, 2021). This does not seem to be the case, however, when considering the influence of older generations in ageing societies.

Amid a severe debt crisis, in 2012 a caretaker Italian government enacted a restrictive pension reform aimed at improving the system's financial sustainability and equity. Ten years later, during the general election campaign, a party – seeking to capitalize on the discontent of those adversely affected, as well as on a more favourable financial context – promised to significantly roll back the reform. Subsequently, the coalition including this party won the election and formed a government. Yet, despite having been in office

* Corresponding author.
*Email addresses:* g.piccirilli@unimercatorum.it (G. Piccirilli), agnese.sacchi@uniurb.it (A. Sacchi), guido.traficante@unier.it (G. Traficante).

https://doi.org/10.1016/j.ejpoleco.2026.102865
Received 9 December 2025; Received in revised form 22 April 2026; Accepted 6 June 2026
Available online 20 June 2026
0176-2680/© 2026 The Author(s). Published by Elsevier B.V. This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/).

for more than three years, the reform remains in place. This suggests that concerns for intergenerational equity within the governing coalition have been sufficiently strong to counteract the temptation to appeal to voters close to retirement.

The observation that the political influence of the elderly does not fully reflect their increasing demographic weight is also evident in the allocation of public resources. For instance, in the four largest and rapidly ageing European countries, real per-child expenditure on education has increased over the past thirty years, while no clear pattern emerges for per-capita health expenditure (see the next section for details).

This paper investigates the political economy of the public budget, with a particular focus on intergenerational conflicts of interest. Motivated by the above observations, we seek to explain why ageing societies do not exhibit systematic shifts in public spending toward the preferences of the elderly, the latter being not only more numerous but also more politically engaged (Barilari et al., 2025). Our central hypothesis is that this outcome reflects underlying cultural characteristics, in particular the strength of intergenerational ties within the family.

We build a model that features two groups of voters – the young and the old – and two political parties that compete in an election. The key ingredient of the model is the presence of intergenerational altruism where individuals of each generation care about the utility of members of the other generation. If altruism is sufficiently strong, intra-family transfers occur between generations. During the campaign, parties commit to a policy platform specifying the tax rate, the level of pensions, the total amount of public goods, and their composition. The platform that best suits the young diverges from that of the old in two respects. First, the young are endowed with greater resources and, as a result, the platforms include a mandatory transfer to the old in the form of pensions. Second, the young and the old have different preferences regarding the composition of public services. The young derive greater utility from goods and services primarily targeted toward them (e.g., education), while the old gain more utility from services tailored to their needs (e.g., healthcare).

The model predicts that, as the proportion of the elderly population increases, the composition of public goods shifts in line with their preferences. However, this shift is attenuated when intergenerational altruism is strong. While this result is general, its implications for other components of the electoral platform depend on the specific context. In particular, the impact of population ageing depends on whether the current composition of public goods – shaped by the relative political power of younger and older cohorts in the past – is biased toward the preferences of either group. If this composition is biased toward the young, population ageing leads to a reduction in overall public goods provision. This, in turn, enables a decrease in taxation and an increase in pension benefits. By contrast, if the composition is biased toward the old, the effects are reversed.

We contribute to the vast literature on the age-based conflict for public resources. Previous studies point out that population ageing enhances the political weight of the elderly, making it harder for politicians to engage in contractionary pension reforms (Persson and Tabellini, 2002). Furthermore, there is evidence that the share of the elderly population negatively affects public resources devoted to education (Poterba, 1997; Brunner and Balsdon, 2004; Cattaneo and Wolter, 2009; Busemeyer et al., 2009; De Mello et al., 2017). Institutional factors and shocks, however, may interfere with the association between ageing and the direction of expenditure. Beetsma et al. (2020) and Romp and Beetsma (2023), for instance, show that the timing of pension reforms is associated with short-term events, such as business cycle downturns or, as in the Italian case, a crisis in the debt market. Institutions, instead, explain the contradictory findings in Kurban et al. (2015), which show that ageing increases per-pupil spending in education in the US due to the way schools are organized and financed.[1] In our paper, we contribute to this literature by focusing on altruism as a potential moderator of the growing political influence of the elderly.

The nexus between the design of public policies and the preferences of different age-groups has been investigated by several studies (Levy, 2005; Grob and Wolter, 2007; Epple et al., 2012). Their common trait is that intergenerational transfers are crucial in determining the composition of public expenditure. One of the main results is that “backward” intergenerational transfers, such as pensions and social security transfers, play an important role in sustaining “forward” intergenerational (in kind) transfers, like education (Rangel, 2003; Boldrin and Montes, 2005; Lancia and Russo, 2016; Bishnu et al., 2021).[2] Following the insights from this literature, in the paper we explicitly model how age-specific preferences fuel a conflict of interest concerning the composition of the public expenditure.

The relevance of altruism as a determinant of the political equilibrium is at the heart of an important contribution by Tabellini (2000) on the political feasibility of social security. Consistent with Tabellini (2000), we assume that altruistic behaviour is driven by an intrinsic element of individual preferences rather than by a sophisticated, self-interested strategy. This assumption is confirmed by Klimaviciute et al. (2017), where the motivations of monetary transfers from the old to the young and the reverse in-kind transfers from the young to the old (care) are explained by the genuine two-sided altruism rather than by the competing hypothesis of exchange motives.

The motivations behind inter-vivos transfers are also examined by Jellal and Wolff (2002). Their findings, based on French data, suggest that the likelihood of a child caring for her parents is positively influenced by the level of care previously demonstrated by those parents toward their own elders. This evidence suggests again that altruistic behaviour, as a culturally transmitted trait,

[1] Schools exhibit costs that are independent from the number of pupils. In addition, in the US schools are financed by property taxes. It follows that in those areas where the number of the old has expanded relatively to that of the young, more resources are spent on the education of each pupil.

[2] The rationale behind this is that educational investments are likely to improve labor productivity and, in turn, would help the social security programs in the future. Consequently, parental investment in education and pensions is traded across generations: children receive education from their parents and pay for their old age benefits in exchange.

is authentic rather than strategic.[3] The argument that altruism is culturally transmitted is further supported by Albertini and Kohli (2013), who examine intergenerational transfers of time and money within families across various European countries. The study conceptualises three main models of intra-family welfare in Europe – the Nordic, Continental, and Southern regimes – and highlights how, within each model, parents provide distinct forms of support to their children.[4] Galasso and Profeta (2018) study the link between inheritance rules and the design of early pension systems. In their model, however, culture shapes social norms – the obligation of the heirs towards their parents – instead of individual preferences.

The paper is organized as follows. Section 2 presents descriptive evidence and empirical results, while Section 3 discusses the role of intra-family altruism, drawing on previous studies. Taken together, the two aforementioned sections support our theoretical model described in Section 4. Section 5 presents some numerical simulations of the model. Finally, Section 6 contains some concluding remarks and some appendices report additional results.

## 2. Empirical motivation and descriptive evidence

The observation that the political influence of the elderly does not correspond to their growing demographic weight is reflected in the evidence on specific expenditure items across the four largest EU economies (Germany, France, Spain and Italy). Fig. 1 illustrates the trends in education spending per child (panel a), health spending per person over 65 years old (panel b), and the share of public expenditure devoted to the old age population, mainly related to pension payments (panel c), using data provided by Eurostat.

Panel a shows that, with the exception of Spain after the Great Recession, education spending per child has consistently increased in real terms across all countries. Panel b instead focuses on health expenditure per elderly individual. In Germany, such expenditure declined until the Great Recession and increased thereafter. By contrast, in the other countries the pattern appears to be reversed: with the exception of the pandemic period, expenditure has remained stable or declined throughout the post-recession years.

Finally, Panel c examines the share of public expenditure allocated to the elderly. For a given possibility to access the welfare services, this share should mirror the evolution of the elderly population as a proportion of the total population. However, while the latter has increased by more than 30% on average across the four countries over the sample period, the share of expenditure directed to the elderly has changed very little.[5] Specifically, it has remained constant in Germany and increased only slightly in the other three countries. This suggests that the fiscal pressures induced by population ageing could have been largely accommodated through a compression of per capita benefits.

Overall, the evidence presented in Fig. 1 indicates that, despite their growing electoral weight, older individuals appear to have lost ground in the allocation of public resources.

We complement this preliminary evidence with a basic panel analysis based on a sample of 29 European countries, including the four countries shown in Fig. 1, observed annually over the period 1995–2022.[6] The objective of the analysis is to assess whether the allocation and the composition of public expenditure are correlated with the demographic structure of the society, controlling for country and time effects:

$$PubExp_{j,i,t} = \beta_0 + \beta_1 Young_pop_{i,t} + \beta_2 Old_pop_{i,t} + y_i + \tau_t + \varepsilon_{i,t} \tag{1}$$

More specifically, we regress the most age-relevant expenditure items (i.e., health, education and social protection where pensions are dominant) ($PubExp_j$), expressed as shares of total expenditure, on two demographic variables – the young-to-prime-age ratio (*Young_pop*) and the old-to-prime-age ratio (*Old_pop*) – as well as on country $(y_i)$ and time $(\tau_t)$ fixed effects. The first demographic variable is defined as the ratio of the population aged 0–14 to that aged 15–64, while the second is the ratio of the population aged 65 and over to that aged 15–64. As in Fig. 1, the rationale for their selection is to focus on items that confer different benefits across age groups. The estimates are reported in Table 1.

The estimates of Table 1 are broadly consistent with the descriptive evidence presented in the previous figures and help clarify the underlying mechanisms. In line with Fig. 1, the results provide limited support for a purely demographic explanation of age-specific public spending patterns. We estimate specifications in which expenditure items are regressed solely on the young-to-prime-age ratio [columns (1)–(3)], solely on the old-to-prime-age ratio [columns (4)–(6)], and, finally, on both variables jointly [columns (7)–(9)] for the sake of robustness. The overall picture that emerges from the table is that population composition is not significantly correlated with the composition of expenditure. Focusing on columns (7)–(9), the signs of the coefficients are broadly consistent with the view that expenditure responds to demographic changes, either through political mechanisms or for accounting reasons. For instance, the share of the young population appears to be positively associated with education spending and negatively associated with health spending, while the opposite pattern is observed for the share of the elderly population. However, since the estimated coefficients are not statistically significant, we interpret this evidence as consistent with the hypothesis motivating our theoretical analysis.

[3] Jellal and Wolff (2002) find that individuals who supported their elderly parents in the past are more likely to maintain contact and receive visits from their adult children. This finding is clearly inconsistent with exchange motivations.

[4] Specifically, the Nordic regime is characterised by frequent but modest transfers; the Continental regime by less frequent transfers and a higher incidence of co-residence; and the Southern regime primarily by co-residence, with limited financial assistance.

[5] Over the period 2001–2022, the share of individuals aged 65 and over in the total population increased by 32% in France, 40% in Germany, 28% in Italy, and 31% in Spain (authors' calculations based on World Bank data).

[6] The list of countries is: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland.

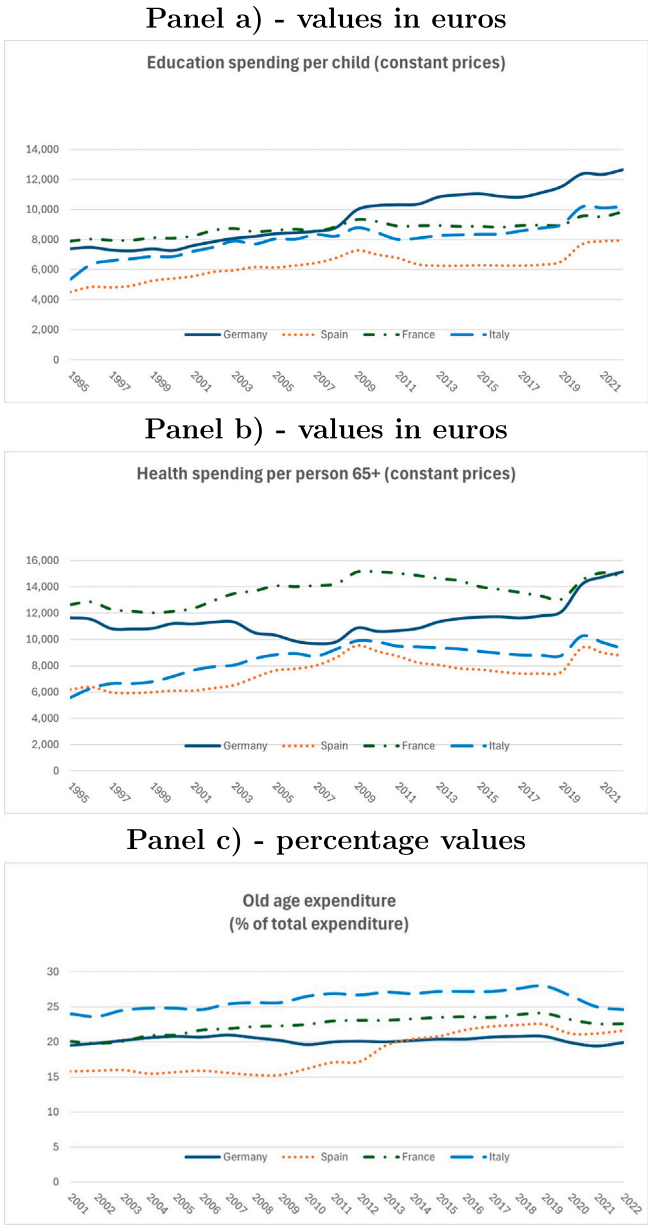



**Fig. 1.** Public spending composition and population targets. Source: authors' elaboration on Eurostat data.

## 3. The intergenerational altruism: Redistribution patterns and measurement issues

### *3.1. The channel of intergenerational altruism*

Standard political economy age-based models predict that older voters should systematically oppose spending that benefits younger cohorts, such as education. Yet, despite some supportive evidence (Jäger and Schmidt, 2016), the empirical literature shows that older voters exhibit more nuanced behaviour due to family ties.[7] In particular, intergenerational linkages and altruistic norms shape preferences (Cattaneo and Wolter, 2009; Cattaneo et al., 2020) and moderate age-based conflicts of interest (Vlandas, 2023).

In this section, we present evidence from the existing literature suggesting that intergenerational altruism may constitute an important mechanism underlying muted redistribution patterns.

[7] Jäger and Schmidt (2016) argue that senior citizens discount future payoffs more heavily than working-age individuals and show that demographic change has contributed to the cut-back in government-financed investment in advanced economies over the last four decades.

**Table 1**
Regression Analysis.

| | (1) Health_Exp | (2) Social_Exp | (3) Edu_Exp | (4) Health_Exp | (5) Social_Exp | (6) Edu_Exp | (7) Health_Exp | (8) Social_Exp | (9) Edu_Exp |
|---|---|---|---|---|---|---|---|---|---|
| Young_pop | −0.001 | 0.062 | 0.017 | | | | −0.005 | 0.060 | 0.022 |
| | (0.060) | (0.180) | (0.045) | | | | (0.060) | (0.183) | (0.044) |
| Old_pop | | | | 0.058 | 0.033 | −0.052 | 0.058 | 0.026 | −0.054 |
| | | | | (0.079) | (0.147) | (0.058) | (0.078) | (0.152) | (0.057) |
| Country fixed effects | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| Year fixed effects | YES | YES | YES | YES | YES | YES | YES | YES | YES |
| *N* | 812 | 812 | 812 | 812 | 812 | 812 | 812 | 812 | 812 |
| *#countries* | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 | 29 |

Notes: Constants, country and year fixed effects are included in the estimates, but the coefficients are not reported in the table.
Robust standard errors are in parentheses.
Significant at * 10 percent, ** 5 percent, *** 1 percent.

When age-related transfers and pensions are, at least in part, redistributed within families, younger individuals with older relatives may rationally perceive "pro-old" public spending as not strictly zero-sum (Folbre, 1994; Cardia and Michel, 2004). Consequently, they may exhibit weaker support for pronounced age-based retrenchment. In the spirit of Becker (1974) and Barro (1974), this implies that private intra-family transfers can partially offset other forms of redistribution, thereby attenuating age-based political conflict.

Some evidence for European countries shows that private and public transfers between generations are intertwined rather than independent (Kohli, 1999). Using the European SHARE database, Albertini et al. (2007) show substantial net downward flows from older to younger family members through financial gifts, inter vivos transfers and social support (i.e., time, especially grandparental childcare), implying that the old and the young are linked by systematic intra-family redistribution.

Additional anecdotal evidence, especially from Southern Europe, highlights the prevalence of multi-generational households and delayed home-leaving patterns, in which public benefits accruing to older household members may directly support younger adults via shared budgets, co-residence, and intra-household insurance. This aligns with the "boomerang generation" approach proposed by Mitchell (2006). Similarly, Marè et al. (2024) describe the Italian case as a concrete institutional context in which intra-family redistribution is structurally strong, rendering age-targeted public spending less clearly intergenerationally extractive and favouring new intergenerational living arrangements.

Consistent with this mechanism, studies on German microdata show that the amount of public transfers received by the elderly is positively correlated with the private transfers they provide (Reil-Held, 2006). In the same vein, Schenk et al. (2010) examine the relationship between public pension benefits and private intergenerational transfers within European households. They document that pension income received by older individuals enables them to provide financial or in-kind support to younger family members. Evidence from developing countries also indicates that intergenerational support networks remain active even in the presence of government redistribution (Cox and Jimenez, 1992; Cox and Jakubson, 1995).

In a nutshell, the observed age-incidence might differ from the effective age-incidence of transfers. If a non-negligible share of age-targeted public transfers (e.g., pensions, elderly benefits) is reallocated within families to working-age children and grandchildren through monetary gifts, co-residence, and childcare, then the effective redistribution between young and old is smaller than budget incidence suggests. This could dampen intergenerational distributive conflict and help explain stable, or only weakly contested, age-skewed welfare profiles.

### *3.2. Measuring intergenerational altruism in the empirical literature*

Despite its central role, intergenerational altruism is not directly observable and robust empirical estimates remain limited. The literature has therefore developed along two main empirical strategies.

A first approach relies on structural estimation, aiming at directly recovering altruism parameters within fully specified models of intergenerational preferences. In this framework, altruism enters the utility function explicitly and is identified by matching model-implied outcomes with observed behaviour, such as inter vivos transfers or bequests. This includes Barro-type dynastic models (Barro, 1974) as well as more recent quantitative applications. Notably, Bellettini et al. (2017) provide a direct structural estimate of intergenerational altruism for Italy. Similarly, studies such as Ottoni-Wilhelm et al. (2017) and Carlos Córdoba and Ripoll (2019) estimate altruism coefficients within calibrated overlapping-generations models, testing the consistency of observed transfer patterns with altruistic preferences.

A second, more extensive strand of the literature adopts a reduced-form approach, testing empirical relationships that are direct implications of altruistic models. A central prediction is that exogenous variation in public transfers to one generation should affect private transfers within families. Empirically, this is typically examined by exploiting institutional reforms or cohort-based eligibility thresholds and estimating the effect of pension income, or policy-induced variation in elderly benefits, on private intergenerational

transfers. Evidence of a positive elasticity – i.e., a partial crowding-in effect—suggests that public transfers relax household constraints and enable downward redistribution, a pattern that is difficult to reconcile with purely self-interested behaviour (e.g., Reil-Held (2006); Albertini et al. (2007)).

Within this reduced-form framework, the literature has also proposed several behavioural proxies of intergenerational altruism. These include time transfers, such as grandparental childcare, typically identified using retirement as an exogenous shock to time availability (Hank and Buber, 2009); indicators of intra-household resource pooling, such as multi-generational co-residence (Angelini and Laferrère, 2013; Hanum et al., 2024); and preference-based measures capturing how family linkages shape policy attitudes across age groups (Häusermann et al., 2016; Van Winkle, 2020; Lütolf and Stadelmann-Steffen, 2023).

While no single proxy can fully disentangle altruistic motives from exchange-based behaviour, the joint evidence from financial transfers, time transfers, co-residence patterns, and the positive pass-through from public to private transfers provides consistent support for the presence of intergenerational utility interdependence.

## 4. The model

We borrow the probabilistic voting setting of Bertocchi et al. (2020) to model an electoral race between two parties that face a unit mass of families composed of young and old voters. Public goods are used by the young and the old people. However, owing to age-specific preferences, different public goods serve with different intensities the needs of the two generations. Therefore, the basket of public goods the government provides is the result of the composition of individual preferences expressed through the political process. Before the election, parties announce and commit to a policy platform and voters choose on the basis of the announced platforms as well as on the valence of candidates. Policy platforms specify four elements: the tax rate, the pensions, the total supply of public goods and, finally, the composition of public goods in terms of goods primarily directed to the young (education, for instance) and goods primarily directed to the old (health, for instance).

### 4.1. Preferences

Each family is composed of a fraction $1-\alpha$ of young and a fraction $\alpha$ of old voters. We assume that any young individual is endowed with resources $w^y$ while any old individual is endowed with resources $w^o$. The resources of the young are larger: $w^y > w^o$. Abstracting for a moment from altruism (see next subsection), the utility functions of voters are as follows:

$$u_y = A\log(c_y) + x_y^{\gamma}x_o^{1-\gamma} \quad A>0 \tag{2}$$

$$u_o = A\log(c_o) + x_o^{\gamma}x_y^{1-\gamma} \tag{3}$$

In these expressions, $y$ stands for 'young' and $o$ for 'old', while $A$ is a constant scale factor. Both generations of voters benefit from private consumption, $c_y$ and $c_o$ respectively. Further, both generations benefit from the availability of two public goods, $x_y$ and $x_o$. We indicate with $x_y$ the amount of public goods that are primarily directed to the young - y-goods, for brevity - and with $x_o$ those public goods that are primarily directed to the old - o-goods. Since public goods are not fully specialized to the needs of a single generation - think of health services, for instance - a young person does not benefit only from $x_y$ but also from $x_o$. The same property holds for the old. In any case, we assume that $0.5 < \gamma < 1$, implying that individuals benefit more from those public goods that are mainly directed to their generation.

Let $e$ represent the total amount of public goods and $s$ the fraction of y-goods. It follows that

$$x_y = se \quad x_o = (1-s)e \tag{4}$$

By using Eq. (4), the utility functions can be restated as follows:

$$u_y\left(c_y, e, s\right) = A\log(c_y) + \lambda_y(s)e \quad \lambda_y(s) = s^{\gamma}(1-s)^{1-\gamma} \tag{5}$$

$$u_o\left(c_o, e, s\right) = A\log(c_o) + \lambda_o(s)e \quad \lambda_o(s) = (1-s)^{\gamma}s^{1-\gamma} \tag{6}$$

### 4.2. Two-sided altruism

We assume that a fraction $\beta$ of all families are altruistic in the sense that any member of a given generation cares for the welfare of the members of the other generation. This amounts to segment the overall electorate into four groups: the young in altruistic families ($ya$), the young in non-altruistic families ($yn$), the old in altruistic families ($oa$ ) and, finally, the old in non-altruistic families ($on$).

Following Tabellini (1991) and Tabellini (2000), the utility of the two generations in altruistic families is given by the expressions below that use the functions (5) and (6) reported above:

$$U^{ya} = u^y\left(c_y, e, s\right) + \mu^y u^o\left(c_o, e, s\right) \quad \mu^y \in [0,1] \tag{7}$$

$$U^{oa} = u^o\left(c_o, e, s\right) + \mu^o u^y\left(c_y, e, s\right) \quad \mu^o \in [0,1] \tag{8}$$

The interpretation of Eq. (7) is as follows. A young individual in an altruistic family cares for her own felicity and for the felicity of a representative old individual. The parameter $\mu^y$ stands for the intensity of the young generation altruism. The interpretation of Eq. (8) is similar with $\mu^o$ parameterising the altruism of the old.[8]

### 4.3. Parties

We assume that the election is contested by two parties, an incumbent ($I$) and a challenger ($C$). Before the election, party $z$, $z = I, C$ commits to a four-element fiscal package $\Gamma_z \equiv (\tau_z, e_z, p_z, s_z)$: $\tau_z$ represents a proportional tax rate that is imposed on all individuals, $e_z$ the aggregate supply of public goods, $p_z$ the aggregate pension expenditure and $s_z$ the fraction of y-goods. Notice that the pensions can be interpreted as a redistribution from the young to the old. Thus, we do not include transfers to the young in the fiscal package because these could simply be interpreted as 'negative pensions'.

Both parties are concerned with the expected rent from winning the election given by the probability of winning the election $P^z$ times the rent from holding office $R_z$:

$$P^z R_z$$

We hold that the rent corresponds to the difference between the receipts from taxes and total expenditure. This subsumes the assumption that the ability to extract rents depends on the tightness of the public budget. Assuming that the production of one unit of public goods requires one unit of resources, the expression for the rents is as follows:

$$R_z = \tau_z \left[(1-\alpha) w_y + \alpha w_o\right] - e_z - p_z \tag{9}$$

### 4.4. Consumption and transfers

Let $c^{yn}(\Gamma_z)$ and $c^{on}(\Gamma_z)$ represent the consumption in non-altruistic families, for the young and the old respectively, under the fiscal package $\Gamma_z$. In these families, individual consumption coincides with individual resources:

$$c^{yn}(\Gamma_z) = (1-\tau_z) w^y \tag{10}$$

$$c^{on}(\Gamma_z) = (1-\tau_z) w^o + p_z/\alpha \tag{11}$$

As for the altruistic families, we allow for the possibility of intra-family transfers. It follows that individual consumption may not coincide with individual resources. We assume that transfers are decided after the election and, therefore, are conditional upon the fiscal policy implemented by the winner. Let $t^y$ represent the transfer from a young to all old members of the family and $t^o$ the transfer from an old to all young members. The consumption in altruistic families is as follows:

$$c^{ya}(\Gamma_z; t^y, t^o) = (1-\tau_z) w^y - t^y + \frac{\alpha}{1-\alpha} t^o \tag{12}$$

$$c^{oa}(\Gamma_z; t^y, t^o) = (1-\tau_z) w^o + \frac{p_z}{\alpha} - t^o + \frac{1-\alpha}{\alpha} t^y \tag{13}$$

If a young pays $t^y$ to all old members, the total transfers from the young to the old are $(1-\alpha) t^y$. Thus, any old member receives $\frac{1-\alpha}{\alpha} t^y$. Analogously, if an old pays $t^o$, any young member receives $\frac{\alpha}{1-\alpha} t^o$.

Since transfers are conditional on the policy of the winner, we start the analysis of the economy by studying how transfers are determined for a given policy $\Gamma_z$.

**Proposition 1.**

i) *Positive transfers from both sides cannot coexist.*

ii) *If, in the absence of transfers, the consumption of the young is sufficiently larger than that of the old* - $\frac{c^{ya}(\Gamma_z;0,0)}{c^{oa}(\Gamma_z;0,0)} > \frac{1}{\mu^y}\frac{\alpha}{1-\alpha}$ - *then it is the young to pay positive transfers:*

$$t^y(\Gamma_z) = \frac{1}{(1-\alpha)(1+\mu^y)}\left[\mu^y (1-\alpha)(1-\tau_z) w^y - \alpha(1-\tau_z) w^o - p_z\right] \tag{14}$$

iii) *By contrast, if in the absence of transfers the consumption of the old is sufficiently larger than that of the young* - $\frac{c^{ya}(\Gamma_z;0,0)}{c^{oa}(\Gamma_z;0,0)} < \mu^o \frac{\alpha}{1-\alpha}$ - *it is the old who pay positive transfers:*

$$t^o(\Gamma_z) = \frac{1}{\alpha(\mu^o+1)}\left[\mu^o \alpha(1-\tau_z) w^o + \mu^o p_z - (1-\alpha)(1-\tau_z) w^y\right] \tag{15}$$

[8] In our two-generation setting, for any child there are $\alpha/(1-\alpha)$ parents. Likewise, for any parent there are $(1-\alpha)/\alpha$ children. Thus, an alternative 'utilitarian' specification of preferences is as follows:

$$U^{ya} = u^y(c^{ya}, e, s) + \mu^y \frac{\alpha}{1-\alpha} u^o(c^{oa}, e, s)$$

$$U^{oa} = u^o(c^{oa}, e, s) + \mu^o \frac{1-\alpha}{\alpha} u^y(c^{ya}, e, s).$$

iv) *An equilibrium with no transfers occurs if:*

$$\mu^o \frac{\alpha}{1-\alpha} \leq \frac{c^{ya}\left(\Gamma_z;0,0\right)}{c^{oa}\left(\Gamma_z;0,0\right)} \leq \frac{\alpha}{1-\alpha}\frac{1}{\mu^y} \tag{16}$$

Part *i)* rules out nonsensical equilibria with transfers from both sides. Part *ii)* and *iii)* outline conditions for having different regimes in equilibrium: Transfers are paid only if there is a sufficient imbalance of resources between the giver and the recipient. Finally, Part *iv)* states that an equilibrium with no transfers occurs for 'intermediate' values of the ratio between the consumption of the young and that of the old. The intuition is that the marginal rate of substitution between the consumption of the young and that of the old is different for the two generations. Hence, no transfer is paid if the rate of transformation lies between the two rates of substitution.

Proposition 1 allows us to express the consumption in altruistic families only in terms of the platform $\Gamma_z$. This is done below in Corollary 1. Let $F\left(\Gamma_z\right)$ represent the amount of resources available to a family:

$$F\left(\Gamma_z\right) = \left(1-\tau_z\right)\left[(1-\alpha)\,w^y + \alpha w^o\right] + p_z \tag{17}$$

**Corollary 1.** *In an equilibrium with $\iota^y > 0$, the consumption in altruistic families is given by*

$$c^{ya}\left(\Gamma_z\right) = \frac{1}{(1-\alpha)\left(1+\mu^y\right)}F\left(\Gamma_z\right) \quad c^{oa}\left(\Gamma_z\right) = \frac{\mu^y}{\alpha\left(1+\mu^y\right)}F\left(\Gamma_z\right) \tag{18}$$

*By contrast, in an equilibrium with $\iota^o > 0$ the consumption in altruistic families is given by*

$$c^{ya}\left(\Gamma_z\right) = \frac{\mu^o}{(1-\alpha)\left(1+\mu^o\right)}F\left(\Gamma_z\right) \quad c^{oa}\left(\Gamma_z\right) = \frac{1}{\alpha\left(1+\mu^o\right)}F\left(\Gamma_z\right) \tag{19}$$

The relevant feature highlighted by the Corollary is that, with positive transfers, in altruistic families the consumption of both generations is proportional to family rather than individual resources.

### 4.5. Voting

Individuals belonging to the same group $r\ \{= yn, on, ya, oa\}$ have the same preferences and the same endowment. Hence, if they come to the poll, they vote for the same party. However, an individual may decide not to vote if her cost of voting exceeds the benefit. Assuming that the cost of voting is uniformly distributed with support $[0, d]$ across members of the same group of voters, the rate of turnout of group $r$ is

$$\left|U^r(\Gamma_I) - U^r(\Gamma_C) + \delta\right|/d$$

In this expression, $U^r(\Gamma_z)$ is a short notation for the utility of a member of group $r$ conditional on the implementation of the platform announced by party $z$. The benefit of voting depends on the utility differential $U^r(\Gamma_I) - U^r(\Gamma_C)$ augmented by the shock $\delta$. The shock captures the exogenous preference for party $I$ which, for instance, may result from the relative valence of the incumbent *vis-a-vis* the challenger. Notice that the turnout depends on the absolute value of voting for the preferred party and on the maximum cost $d$. Those who cast their vote do so only if their cost of voting is lower than the return from electing the preferred party.

We assume that $\delta$ is unknown at the time of platform announcements and that it is subsequently extracted from a uniform distribution with support $\left[-\frac{1}{2}+\phi, \frac{1}{2}+\phi\right]$, $0 < \phi < \frac{1}{2}$. This assumption implies that the incumbent has an exogenous advantage. The advantage, however, is not so large as to rule out a win by the challenger in case the utility differential is nil for all groups of voters.

The incumbent wins the election if she receives more votes than the challenger. The probability for the incumbent to win the election as of the time of platform announcement is (proof in the appendix):

$$P^I = \frac{1}{2} + \phi + \sum_r q_r\left[U^r\left(\Gamma_I\right) - U^r\left(\Gamma_C\right)\right] \quad r = ya, yn, oa, on \tag{20}$$

In this expression, $q_r$ represents the fraction of the electorate belonging to group $r$. For the elderly in altruistic families, for instance, it holds $q_{oa} = \alpha\beta$.

If the utility differential is nil for all groups, the probability is $\frac{1}{2}+\phi$. The probability increases above $\frac{1}{2}+\phi$ if, summing over all groups, the aggregate utility differential under party $I$ is positive. Indeed, a larger differential induces a larger turnout. Importantly, the utility differential for a given group contributes more to the probability the larger the share of the group in the electorate.

### 4.6. Political equilibrium

For concreteness, we focus on the platform announced by the incumbent. The objective of the incumbent is to maximize the expected rent $P^I R_I$ taking into account the budget constraint [Eq. (9)] and the expression for the probability of being elected [Eq. (20)]:

$$\max_{\Gamma_I} P^I R_I \quad s.t.(9) \text{ and } (20) \tag{21}$$

The problem that solves for the optimal platform for the challenger is analogous. One only needs to swap the $C$-$I$ indices in Problem (21) and replace $\phi$ with $-\phi$ in the probability expression.

Once one uses the appropriate consumption and utility functions in the expression for $P^I$, the solution to this problem characterizes the platform announced by the incumbent.

In the remainder of the section, we state two propositions. Proposition 2 deals with the equilibrium with positive intra-household transfers while Proposition 3 addresses the equilibrium with no transfers.

*Let* $\sigma(s)$ and $\overline{\mu}$ be defined by the following expressions

$$\sigma(s) \equiv \left[(1-\alpha) + \alpha\mu^o\beta\right]\lambda_y(s) + \left[\alpha + (1-\alpha)\,\mu^y\beta\right]\lambda_o(s)$$
$$\overline{\mu} = \alpha\mu^o + (1-\alpha)\,\mu^y$$

**Proposition 2.** *No matter the direction of the transfers, in an equilibrium with positive transfers:*

i) *The two parties set* $s^*$ *so as to maximize* $\sigma(s)$*:*

$$s^* \equiv \arg\max \sigma(s) \tag{22}$$

ii) *The two parties set the same tax rate* $\tau^*$ *and the same pension expenditure* $p^*$*:*

$$\tau^* = 1 - \frac{A\left(1+\beta\overline{\mu}\right)}{\sigma(s^*)w^y} \qquad p^* = (1-\tau^*)\,\alpha\,(w^y - w^o) \tag{23}$$

iii) *The supply of public goods by party C is larger than that of party I:*

$$e_z^* = \left[(1-\alpha)\,w^y + \alpha w^o\right] - \frac{X_z}{\sigma\,(s^*)}, \quad z = I, C$$
$$X_I = A\left(1+\beta\overline{\mu}\right) + 1/2 + \phi/3 \qquad X_C = A\left(1+\beta\overline{\mu}\right) + 1/2 - \phi/3 \tag{24}$$

A term that occurs in all expressions is $\sigma(s)$. This term stands for the marginal return of public goods from the perspective of the party and it represents the expected amount of extra votes gained by marginally increasing the supply of public goods.[9]

Eq. (22) indicates that the parties choose the composition of public goods so as to maximize this return. Further, Eq. (24) indicates that, as this return increases, parties are willing to spend more on public goods. They do so by raising more resources through taxes and by devoting less resources to pensions, as implied by Eq. (23).

The expression that solves for $\tau^*$ results from equating the electoral cost and the electoral return from a marginal increase in the tax rate. Suppose that the party increases the tax rate by a small amount $d\tau$ but part of the extra revenue collected is rebated to the old through the pensions so as to prevent a drop in their income. Thanks to this intervention, the party can produce $(1-\alpha)\,w^y d\tau$ of more public goods and increase, along this channel, the expected vote by $(1-\alpha)\,w^y d\tau \cdot \sigma\,(s^*)$. On the other hand, however, the young consume less in non-altruistic families while both the young and the old consume less in altruistic families due to the sharing of the burden via intra-family transfers. Following this drop in private consumption, it can be shown that the expected vote decreases by $(1-\alpha)\,\frac{A\left(1+\beta\overline{\mu}\right)}{c^{yn}}w^y d\tau$. Thus, optimality requires $\sigma\,(s^*) = \frac{A\left(1+\beta\overline{\mu}\right)}{c^{yn}}$, a condition that solves implicitly for $\tau^*$ as shown in Eq. (23).

Notice that the expenditure for pensions depends on the size of the old generation and on the difference between the two endowments. Since the endowment of the young is larger than that of the old ($w^y > w^o$) $p^*$ is positive so that pensions truly represent a transfer from the young to the old implemented through the public budget. Notice also that the amount of the individual pension $p^*/\alpha$ decreases one-to-one with respect to $(1-\tau^*)\,w^o$. The consequence is that the individual consumption of the old coincides with that of the young in non-altruistic families:

$$c^{on} = \left(1-\tau^*\right)w^o + \frac{p^*}{\alpha} = \left(1-\tau^*\right)w^y = c^{yo} \tag{25}$$

By using the pensions, the party transfers resources between generations. Eq. (25) suggests that the optimal transfer of resources equalizes the marginal utility of private consumption of the two generations. The reason is that increasing the consumption of the generation which is demographically dominant at the expense of the other generation is more profitable in terms of votes but also more costly in terms of resources.

While the consumption in non-altruistic families is equalized, Corollary 1 clarifies that this is not the case in altruistic families where relative consumption only depends on the direction of transfers. To grasp intuition observe that any attempt to redistribute resources within altruistic families is bound to fail in presence of intra-family transfers since these latter simply undo mandatory transfers (pensions).[10] The upshot is that, in presence of transfers, parties give-up control over relative consumption in altruistic families and only focus on non-altruistic families.

The only source of asymmetry between the two parties is the incumbency advantage associated with $\phi$. If the two parties proposed the same platform, the probability of winning for the incumbent would be larger than that of the challenger by $2\phi$. However, Eq. (24) clarifies that the incumbent promises a lower amount of public goods than the challenger. The intuition is that the incumbent exploits

[9] We assume that the primitive parameters of the model are such that $\tau^*$ and $e_z^*$ are both positive.

[10] The undoing of intergenerational mandatory transfers in presence of altruistic voluntary transfers was first noticed by Becker (1974).

the electoral advantage to attain a larger rent in case of win. By using the solution for $\Gamma_z$ in the expressions that define $P^z$ and $R_z$, it turns out that the advantage is used to improve both the rent and the probability to win:

$$P^I - P^C = \frac{2}{3}\phi \qquad R_I - R_C = \frac{1}{\sigma(s^*)}\frac{2}{3}\phi$$

While Proposition 2 characterizes the equilibrium with positive transfers within the altruistic families, Proposition 3 below characterizes the equilibrium in case of no transfers.

**Proposition 3.** *With respect to the equilibrium with transfers, in the equilibrium without transfers the announced platforms differ only in the tax rate and the pensions:*

$$\tau^* = 1 - A\frac{\left(1+\frac{\alpha}{1-\alpha}\beta\mu^o\right)}{\sigma(s^*)w^y} \qquad p^* = \alpha(1-\tau^*)\left(\frac{1-\alpha}{\alpha}\frac{\alpha+(1-\alpha)\beta\mu^y}{(1-\alpha)+\alpha\beta\mu^o}w^y - w^o\right) \tag{26}$$

The peculiarity of the equilibrium without transfers is that pensions could in principle equalize consumption across the two generations in all families. However, due to altruism, consumption equalization is not efficient from the perspective of the parties. Suppose, for simplicity, that the intensity of altruism is the same for both generations—i.e., $\mu^y = \mu^o$. In this case, parties obtain more votes from altruistic families if they let a member of the generation that is numerically dominated to consume more with respect to a member of the generation that is numerically dominant. The reason is that while altruism does not affect the terms at which resources can be transferred between generations, it does alter the relative benefits via internalization. An increase in consumption for a member of the minority is internalized by many voters. By contrast, an equal increase in consumption for a member of the majority is internalized only by few voters. In general, the tendency of parties to favour the few becomes more relevant if the many are also relatively more altruistic and if the share of altruistic families enlarges. Notice that the expression for $p^*$ in Proposition 3 coincides with the one stated in Proposition 2 if $\beta = 0$ or else $\mu^y = \mu^0 = 0$. This confirms that consumption equalization arises only in the absence of altruism.

In Proposition 1 we stated the possibility of different equilibria concerning the existence and the direction of transfers. By using the equilibrium platforms we may re-state the conditions for the existence of these equilibria in terms of primitive parameters.

**Corollary 2.** *Let $\hat{\alpha}_0$, $\hat{\alpha}_1$, $\hat{\alpha}_2$ and $\hat{\alpha}_3$ be given by the following expressions:*

$$\hat{\alpha}_0 = \frac{\mu^y(1-\beta)}{(1-\beta\mu^o\mu^y)+\mu^y(1-\beta)};\ \hat{\alpha}_1 = \frac{\mu^y}{1+\mu^y};\ \hat{\alpha}_2 = \frac{1}{1+\mu^o};\ \hat{\alpha}_3 = \frac{1-\beta\mu^o\mu^y}{(1-\beta\mu^o\mu^y)+\mu^o(1-\beta)}$$

*and consider that $0 < \hat{\alpha}_0 < \hat{\alpha}_1 < \hat{\alpha}_2 < \hat{\alpha}_3 < 1$.*

*If $\alpha < \hat{\alpha}_0$, the equilibrium is unique while exhibiting positive transfers from the young to the old. If $\hat{\alpha}_0 \le \alpha < \hat{\alpha}_1$, the equilibrium is not unique: it may either feature transfers from the young to the old or no transfer at all. If $\hat{\alpha}_1 \le \alpha < \hat{\alpha}_2$, the equilibrium is unique and is characterised by no transfers. If $\hat{\alpha}_2 \le \alpha < \hat{\alpha}_3$, the equilibrium is not unique: it may either feature transfers from the old to the young or no transfer at all. Finally, if $\alpha > \hat{\alpha}_3$, the equilibrium is unique while exhibiting positive transfers from the old to the young.*

A generation gives up consumption to benefit a member of the other generation only if the terms at which transfers take place are sufficiently favourable. Notice that the larger the generation the more favourable the terms of transferring resources to the other generation. This explains the reason for having equilibria with positive transfers only if $\alpha$ is sufficiently large—in this case $t^o > 0$—or sufficiently small—in this case $t^y > 0$. By the same token, for intermediate values of $\alpha$, the incentives to transfer resources between generations are too small.

Multiple equilibria arise for some values of $\alpha$. The multiplicity is rooted in the 'reflection' between platforms and voters' behaviour. Parties design platforms upon anticipating whether intra-family transfers will occur or not. In turn, the occurrence of intra-family transfers is optimally decided upon the implementation of the platform.[11]

**Corollary 3.** *The subset of $\alpha$ which allows for a no-transfer equilibrium widens with the fraction of altruistic families: $\frac{d\hat{\alpha}_0}{d\beta} < 0$ and $\frac{d\hat{\alpha}_2}{d\beta} > 0$.*

This result is somehow counterintuitive as one could expect that the scope for equilibria with positive transfers increases with the number of altruistic families. The reason is that an increase in the number of altruistic families forces parties to propose fiscal packages that are more aligned with the incentives that subsume the voluntary redistribution in these families. Hence, as the number of altruistic families increases, intra-family transfers become less likely to occur instead of more likely.[12]

### 4.7. Remarks and extensions

In the model, we have assumed that intergenerational altruism is an exogenous trait of individual preferences in the sense that family members care for the utility of members of the other generation. This assumption follows the footprints of Becker (1974) and Barro (1974) and has been widely used in the literature. An application close to our political economy context is that of

[11] In the electoral game, the parties are non-atomistic and act before the (atomistic) voters. This means that, in presence of multiple equilibria, a party can induce the preferred equilibrium. In Appendix D, we show that, in the regions that allow for two equilibria, the parties are indifferent between the two.

[12] Eq. (26) implies that an increase in the share of altruistic families leads parties to propose more generous pensions if the young are in large numbers and if they are more altruistic than the old. Indeed, these are also the conditions under which it is likely that intra-family transfers run from the young to the old (Proposition 1).

Tabellini (2000), a study that interprets social security as an institution that redistributes resources in favour of old-age low-income individuals and that shows how intra-family altruism may cause the formation of an electoral majority supportive of such a redistribution.[13]

While treating altruistic utility linkages as a primitive is a common assumption, Mulligan (1997) argues that such linkages may be the outcome of a choice. According to Mulligan, the utility of the offspring affects that of their parents but the intensity of the link is not exogenous. Rather, it depends on the amount of resources *invested* in the offspring care. As a consequence of this assumption, the intensity of altruism turns out to be larger for those who are endowed with more resources thus making altruism not only endogenous but also heterogeneous across families. Rapoport and Vidal (2007) insert the assumption of endogenous altruism in an otherwise standard model of growth and, importantly, discuss how the assumption should be interpreted. In their view, endogenous altruism causes a change in preferences that occurs at a very slow pace. Essentially, the attitude of parents towards their offspring reflects the stage of the economic and social development. Accordingly, since our analysis is confined to a given stage of development, we abstract from this type of endogeneity and from the induced heterogeneity.[14]

In the model, we have also assumed that altruism is disconnected from political participation in the sense that all individuals face the same (stochastic) cost of voting no matter whether they are altruistic or non-altruistic. Intra-household altruism, however, may be connected to the broader concept of social altruism, a trait that could positively affect political participation (Fowler and Kam, 2007). In the remainder of this section we show how the model can be generalized to account for asymmetric voting costs and, hence, for correlation between altruism and participation.

As in the baseline model, we continue to assume that the individual cost of voting is distributed uniformly. However, we hold that the support of the distribution differs according to the altruistic attitude of individuals. For the members of altruistic families the support is $[0, d_a]$ while for those of non-altruistic families the support is $[0, d_n]$. By using these distributions it can be shown that the probability for the incumbent to win the election is formally similar to the expression in Eq. (20) provided one substitutes the fraction of altruistic households $\beta$ with $\widetilde{\beta}$, where the latter is defined as follows (details in the Appendix):

$$\widetilde{\beta} = \frac{\beta d_n}{(1-\beta)\, d_a + \beta d_n}$$

While $\beta$ represents the share of the altruist over the whole electorate, $\widetilde{\beta}$ can be interpreted as their *effective* electoral influence. In short, the difference in the cost of voting drives a wedge between the demographic and the electoral weight of a group. According to Fowler and Kam (2007), the altruist is more likely to vote than the non-altruist. In terms of the model, this boils down to assuming that the average voting cost for the altruist is smaller than that of the non-altruist: $d_n - d_a > 0$. In this case, the expression for $\widetilde{\beta}$ clarifies that the true electoral weight of the altruist is larger than their share over the electorate. It follows that the impact of a change in $d_n - d_a$ in the political equilibrium is equivalent to the impact of a change in $\beta$ in the baseline model.

### 4.8. Comparative statics

In this section, we discuss the comparative statics of the political equilibrium. We focus on how the platforms are affected by the age composition of the electorate and by the intergenerational altruism. Since intergenerational transfers – notably, from the old to the young – appear to be a stylized fact (Albertini and Kohli, 2013), we restrict the attention to equilibria featuring positive transfers.

Let $\overline{\alpha}$ be given by the expression

$$\overline{\alpha} = \frac{1}{2}\frac{1-\beta\mu^y}{1-\beta\left(\mu^y+\mu^o\right)/2}, \tag{27}$$

**Proposition 4 (ageing).**

i) *The fraction of o-goods increases with ageing ($ds^*/d\alpha < 0$). Public expenditure is equally allocated between the two types of goods if the fraction of old voters $\alpha$ coincides with $\overline{\alpha}$.*
ii) *If $\alpha > \overline{\alpha}$ ($\alpha < \overline{\alpha}$) ageing causes an increase (reduction) in taxation and a reduction (increase) in individual pensions. Aggregate pensions increase with ageing no matter the value of $\alpha$.*

The objective of the two parties is the product of the probability of winning and the rents once in office. For a given supply of public goods, a change in their composition does not affect rents but does change the probability of winning. It follows that parties choose the composition that is most efficient in terms of votes. This explains why the fraction of o-goods increases with ageing.

Altruism, however, interacts with the the composition of the electorate in affecting spending. When deciding on spending, the parties certainly pay attention to the size of the two generations. Thus, being both generations equally altruistic, parties tend to favour the generation that is numerically dominant. However, the generation that is numerically dominant may also be more altruistic than

[13] Due to altruism, the offspring of poor parents support social security even if it turns out to be costly for them in terms of more taxes. Thus, if poor families are majoritarian, the coalition of young and old members is strong enough to sustain social security. In a closely related paper, Tabellini (1991) shows that intergenerational altruism may also be conducive to a coalition that supports the repayment of public debt even in the absence of repudiation penalties.

[14] While altruistic preferences are exogenous, the induced behaviour is not. For instance, in the model, intra-family transfers depend on the initial endowment of resources as well as on the fiscal package in place. On the other hand, altruistic-like endogenous behaviour can also be motivated by selfish concerns (see, for instance, Cremer and Gahvari (2025).

the other. In this case, parties may gain votes by favouring the numerically dominated generation instead of the dominant. When the share of old voters coincides with $\overline{\alpha}$, the difference in altruism compensates the numerical imbalance so that parties choose to split equally the supply of public goods in the two components. More o-goods are produced only if the actual share of the old lies above $\overline{\alpha}$. By inspecting Eq. (27), one may easily infer that $\overline{\alpha}$ is larger than $1/2$ if $\mu^o > \mu^y$. In this case, parties may favour the young even if the old are majoritarian.

While Part *i)* focuses on the impact of ageing on the composition of spending, Part *ii)* is concerned with the impact on the tax rate and the pension expenditure. In this respect, the Proposition states that such an impact depends on the underlying demographic context. If the old are already in large numbers in the sense that $\alpha > \overline{\alpha}$, the combination of public goods is already biased towards them and, as a consequence, an older population puts pressure for more public goods. Responding to such a pressure requires a tax increase and a reduction in individual pensions. By contrast, if $\alpha < \overline{\alpha}$, the composition of public goods is biased in favour of the young. Hence, an ageing electorate presses for a lower supply of public goods, which allows a reduction in taxes and an increase in individual pensions.

As to the reaction of aggregate pensions to ageing, the electoral motive combines with the enlargement of recipients. If $\alpha < \overline{\alpha}$, the aggregate pension expenditure increases on both accounts: the number of recipients enlarges while individual pensions become more generous. By contrast, if $\alpha > \overline{\alpha}$, the two forces operate in opposite directions. It turns out, however, that the enlargement of recipients represents the dominating force. Hence, aggregate pensions always increase with ageing.

**Proposition 5 (altruism).**

i) *The relative supply of o-goods with respect to y-goods decreases with the altruism of the old and increases with that of the young.*
ii) *If the old are more altruistic than the young and $\alpha > \overline{\alpha}$, an increase in the number of altruistic families reduces both the relative supply of o-goods and the tax rate while increasing individual and aggregate pensions.*
iii) *The sum of public and private consumption increases with respect to a) the altruism of the old, b) the altruism of the young and c) the fraction of altruistic families.*

Altruism interacts with the strategic usage of public goods. If the old become more altruistic then they are more concerned with the public goods directed to the young. By the same argument, more altruistic young voters are more concerned with the goods directed to the old. Following these changes in preferences, the composition of public goods announced in the platforms tilts accordingly (Part i).

We have seen that, when the old are numerous enough ($\alpha > \overline{\alpha}$), parties implement a public expenditure biased towards the o-goods. In addition, they levy large taxes and pay low pensions to please the old through a large public expenditure. Part ii) of Proposition 5 adds an important qualification to these results, which relates to the motivating evidence of the paper. Beyond being numerous, if the old are also sufficiently altruistic ($\mu^o > \mu^y$), the bias in the composition of public goods is attenuated in a society where intergenerational altruism is diffuse. It follows that, if altruism is a relevant feature of the social fabric, the old express a lower desire for a large public expenditure, which leads to less taxation and more pensions.

Part iii) enlightens a further effect of altruism, which is that of increasing the utility of both public and private consumption. This happens because agents belonging to a given generation internalize the utility of agents belonging to the other generation. Parties take into account this effect and propose platforms that allow for more public and private consumption. In essence, altruism tilts the marginal rate of transformation facing the parties between the probability of winning and the rents once in office. With altruistic voters, shifting one unit of resources from rents to public or private consumption, causes a larger increase in the probability of being elected. As a result, parties give up some rents to gain a higher probability of winning.

Due to non-linearities, the comparative statics of altruism cannot be pursued any further analytically. Thus, in the next section, we move to numerical simulations.

## 5. Numerical simulations

In this section, we move beyond the analytical characterization of the political equilibrium to compute the platforms that arise under different demographic ($\alpha$) and altruism conditions ($\beta$). The primary objective of this exercise is to provide a quantitative evaluation of the impact of ageing and of its interaction with altruism.

The baseline scenario is characterised by the following set of parameters: $w^o = 0.7w^y$, $\gamma = 0.65$, $\mu^o = 0.9$, $\mu^y = 0.6 \cdot \mu^o$, $\phi = 1/4$. Furthermore, the parameters $A$ and $w^y$ are set so as to target a 40% tax rate and a 22% public services expenditure over GDP when $\alpha = 0.55$ and $\beta = 1$. The difference between the endowments of the old and the young is set at a level that ensures the payment of positive pensions under all demographic conditions and transfer regimes. While the value of $\mu^o$ is based on the estimate provided by Bellettini et al. (2017), for $\mu^y$, $\gamma$ and $\phi$ no studies provide robust estimates.[15] However, alternative baseline values do not lead to significant changes in the results. Finally, the assumptions used to pin down $A$ and $w^y$ are chosen to match data for a group of large

[15] Bellettini et al. (2017) provide a structural estimate of the intensity of altruism of the elderly toward their offspring, based on a model that assumes all older individuals are altruistic. Using Italian data and different model specifications, they report a set of point estimates with an average value of 0.94. In terms of our model, this result identifies the product $\beta \cdot \mu^o = 0.94$. Comparable estimates are not available for other countries. In the benchmark scenario used to calibrate $A$ and $w^y$ we set $\beta = 1$ and $\mu^o = 0.9$. In practice, we assume that the average intensity of altruism in other EU countries is slightly lower than that observed in a country with traditionally strong family ties.

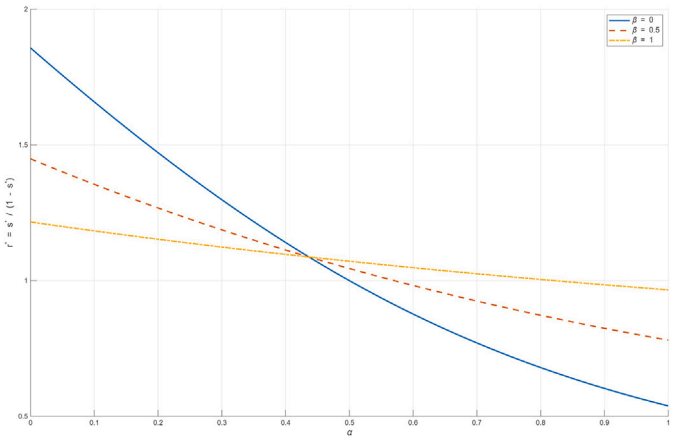



**Fig. 2.** The ratio of y-goods/o-goods.

and rapidly ageing EU countries.[16] To calibrate $A$ and $w^y$ we consider a value of $\alpha = 0.55$, as the share of old voters (i.e., individuals aged 50 and above) is 57% in Italy, 55% in Germany, 54% in Spain, and 52% in France (source: own calculations based on Eurostat data).

The figures display results over the full range $\alpha \in [0, 1]$ and for $\beta = \{0, 0.5, 1\}$. As for the tax rate and individual pensions, we restrict the attention to equilibria with transfers.[17]

Fig. 2 illustrates the ratio of y-goods to o-goods ($r^* = s^*/(1 - s^*)$) as a function of the share of old voters and for different levels of altruism. Consistent with Proposition 4(i), the relative supply of y-goods decreases monotonically with ageing for all levels of altruism: as the share of elderly individuals increases, political parties propose a composition of public spending that is increasingly aligned with the needs of older individuals (o-goods, such as pensions and healthcare) and less aligned with those of younger individuals (y-goods, such as education).

The Figure also illustrates how ageing interacts with altruism. The supply of the two types of public goods is balanced ($r = 1$) when $\alpha = \bar{\alpha}$ [Proposition 4(i)]. Recall that $\bar{\alpha}$ is defined such that the numerical imbalance between the two age groups is offset by differences in altruism, so that both groups exert the same political pressure on the allocation of public resources. If altruism is absent ($\beta = 0$), the two groups exert equal pressure when they are of equal size, hence the ratio is equal to one (in the figure this occurs at $\alpha = 0.5$). In contrast with this, $\bar{\alpha}$ exceeds 0.5 as the degree of altruism increases: the elderly must numerically dominate the young to compensate for the difference in the intensity of altruism. Given that the old are more altruistic toward the young ($\mu^o > \mu^y$), a more diffuse presence of altruism (higher $\beta$) attenuates the compositional shift, resulting in platforms that better accommodate the needs of the young. This confirms the finding of Propositions 5(i)–(ii): strong altruism moderates the policy tilt toward the elderly's preferences. Moreover, altruism flattens the slope of the relationship: In a society where the old are more altruistic than the young, public services tend to accommodate the needs of the young to a greater extent, independently of the demographic structure.

Fig. 3 illustrates the equilibrium tax rate and pensions as a function of $\alpha$ in the two equilibria with transfers. The dotted vertical lines correspond to the thresholds $\hat{\alpha}_1$ and $\hat{\alpha}_2$. By Corollary 2, if $\alpha < \hat{\alpha}_1$ the young provide voluntary transfers to the old in altruistic families. By contrast, if $\alpha > \hat{\alpha}_2$ transfers flow in the opposite direction. Finally, if $\alpha \in [\hat{\alpha}_1, \hat{\alpha}_2]$ no transfers occur.

To interpret the behaviour of the tax rate, recall that it is declining for $\alpha < \bar{\alpha}$ and increasing thereafter [Proposition 4, (*ii*)]. An ageing population demands fewer public goods when these are biased toward the needs of the young - which occurs to the left of $\bar{\alpha}$ - and more public goods when the bias is reversed, i.e., to the right of $\bar{\alpha}$. Notice that, if $\beta = 0$, $\bar{\alpha}$ equals 0.5, which lies within the segment $[\hat{\alpha}_1, \hat{\alpha}_2]$.

The most relevant feature of the figure, however, is the interaction between ageing and altruism. Consistent with Proposition 5 (ii), altruism substantially attenuates the impact of ageing. In a society where altruism is widespread, the equilibrium tax rate changes very little with the demographic composition of the electorate. Notice, additionally, that altruism affects not only the magnitude of the slope but also its sign. This occurs because, while the thresholds $\hat{\alpha}_1$ and $\hat{\alpha}_2$ are independent of $\beta$, the turning point $\bar{\alpha}$ is not. As noted above, the turning point $\bar{\alpha}$ shifts to the right as $\beta$ increases. Using Eq. (27), in the baseline scenario $\bar{\alpha}$ increases from 0.5 in the absence of altruism to approximately 0.82 if all families are altruistic ($\beta = 1$). This implies that, for $\alpha$ in this range, the tax rate increases with ageing in the absence of altruism but decreases if altruism is widespread.

Consistent with Proposition 2(ii), the behaviour of individual pensions mirrors that of taxes. Notably, as the economy becomes more altruistic, individual pensions vary little with ageing and, if anything, tend to increase over nearly all empirically plausible

[16] Tax revenue, including social contributions, amounted in 2023 to approximately 45% of GDP in France, 40% in both Italy and Germany, and 37% in Spain (Eurostat). More in detail, to calibrate $A$ and $w^y$ we set this ratio equal to 40. Similarly, the share of public consumption in GDP was about 24% in France, 22% in Germany, 19% in Italy, and 18% in Spain. Accordingly, in calibrating $A$ and $w^y$ we target a value of 22% for this ratio.

[17] In the Appendix we show the simulations for pensions and taxes in the regime without transfers.

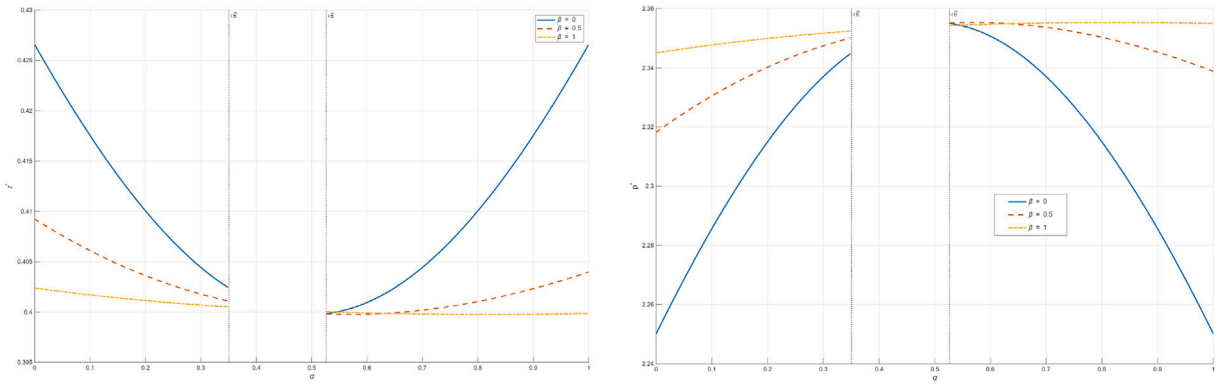



**Fig. 3.** Tax rate (left panel) and individual pensions (right panel).

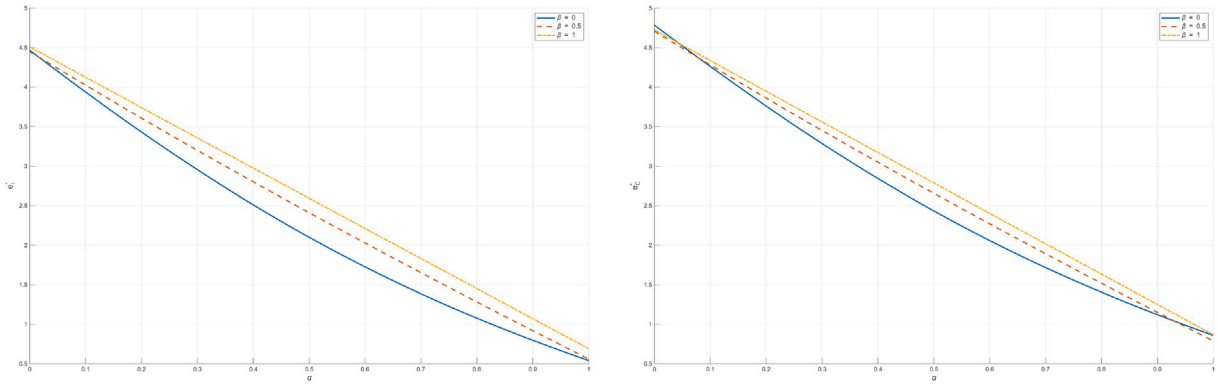



**Fig. 4.** Public expenditures for the incumbent (left panel) and for the challenger (right panel).

values of $\beta$. In any case, regardless of the behaviour of individual pensions, aggregate pension expenditure always increases with ageing due to the growing number of beneficiaries.

Finally, Fig. 4 illustrates the public expenditure proposed by the incumbent and the challenger. Note that expenditure declines with ageing for both parties. A larger share of elderly voters demands fewer public goods when their provision is biased toward the young ($\alpha < \bar{\alpha}$) and more public goods when it is biased toward the elderly ($\alpha > \bar{\alpha}$). However, these electoral effects are dominated by the reduction in aggregate resources that accompanies population ageing. Thus, irrespective of majority preferences, the supply of public goods declines because fewer resources are available.

Consistent with Proposition 5(*iii*), expenditure increases with altruism across the entire demographic range. This occurs because an additional unit of public goods raises the probability of winning the election to a greater extent in a more altruistic society. Moreover, the challenger systematically proposes a higher level of public goods than the incumbent, as implied by Proposition 2(*iii*). The incumbent exploits its advantage to extract greater rents, while the challenger offsets its disadvantage by committing to more generous spending. The gap between the two platforms is invariant with respect to both $\alpha$ and $\beta$, being determined solely by the incumbency parameter $\phi$ and the electoral return of public goods $\sigma(s^*)$.

Overall, the numerical results confirm the core predictions of the model. Demographic ageing shifts the composition of public spending toward old-age goods, increases aggregate pension expenditure, and – if the elderly are sufficiently numerous – pushes taxation upward. Intergenerational altruism acts as a systematic moderating force: it attenuates both the compositional bias in public spending and the impact of ageing on the tax rate and individual pensions. Altruism also modifies the direction of the effect of ageing on both the tax rate and individual pensions. These findings provide a coherent political economy interpretation of the stylized facts documented in Section 2.

## 6. Concluding remarks

The ageing of the population in advanced economies places increasing pressure on public budgets due to the shrinking number of net contributors and the growing number of beneficiaries. Beyond this mechanical budgetary effect, demographic dynamics also reshape the political arena: older cohorts vote in greater numbers and may tend to support platforms that prioritize age-related spending, a pattern consistent with the evidence highlighted by Galasso and Profeta (2004) and Poterba (1997). However, as first observed by Razin et al. (2002), the impact of demographics operating through the political system is difficult to detect, since countries with a higher dependency ratio are also characterized by lower social security spending.

In this paper, we develop a political economy model that reproduces these mechanisms. The model centers on the competition between two political parties that design their electoral platforms with the objective of maximizing the expected rents from holding office. As the share of elderly voters increases, parties propose a composition of public spending that is more closely aligned with the preferences of the elderly and less responsive to the needs of the young. Moreover, when the share of elderly voters grows in a context where spending is already skewed in their favour, the electoral mechanism leads to demands for greater overall public spending financed through higher taxation.

The principal contribution of the model lies in its analysis of the interaction between population ageing and intergenerational altruism. The key finding is that altruism has little effect on the qualitative direction of ageing's impact on fiscal policy, but exerts a significant moderating influence on its magnitude. In this respect, the model provides an interpretative framework for understanding the stylized facts presented at the beginning of the paper. Because demographic shifts mechanically reduce their relative electoral weight, institutional or participatory mechanisms that increase the political visibility of younger cohorts may counterbalance the skew in electoral incentives.

Overall, the analysis underscores the importance of incorporating interpersonal linkages into political economy analyses of fiscal choice. It suggests that preferences extending beyond the individual voter – when transmitted across generations – can serve as a stabilizing force within democratic fiscal systems. In this paper, we have confined our analysis to a static environment. While this restriction allows for clear-cut results, it prevents us from studying how population ageing affects the accumulation of public capital through the political system, as well as how altruism interacts with ageing in determining the accumulation of capital. We leave the dynamic extension of our model to future research.

## CRediT authorship contribution statement

**Giulio Piccirilli:** Writing – review & editing, Writing – original draft, Formal analysis, Conceptualization. **Agnese Sacchi:** Writing – review & editing, Writing – original draft, Formal analysis, Conceptualization. **Guido Traficante:** Writing – review & editing, Writing – original draft, Formal analysis, Conceptualization.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Acknowledgements

We thank the Editor and two anonymous reviewers for their valuable observations. Moreover, we thank Frank Bohn, Francesco Lancia, Paolo Liberati, the participants at the 64th conference of the Italian Economic Society, the 35th conference of the Italian Public Economics Association and the 4th Rucam Political Economy Workshop for their fruitful comments and suggestions on previous manuscript versions. Usual disclaimers apply.

## Appendix A. Descriptive statistics

See Table 2

**Table 2**
Descriptive statistics and variable definitions.

| Variable | Definition | Mean | Std. dev. | Min | Max | Obs. | Source |
|---|---|---|---|---|---|---|---|
| Health_Exp | Health expenditure (% total exp) | 12.99 | 3.02 | 4.10 | 22.60 | 812 | Elaborations on Eurostat |
| Edu_Exp | Education expenditure (% total exp) | 11.61 | 2.30 | 6.70 | 19.20 | 812 | Elaborations on Eurostat |
| Social_Exp | Social protection expenditure (% total exp) | 35.67 | 4.95 | 20.50 | 46.90 | 812 | Elaborations on Eurostat |
| Young_pop | Pop 0–14/Pop 15–64 (%) | 24.92 | 3.50 | 19.00 | 39.11 | 812 | Elaborations on Eurostat |
| Old_pop | Pop over 65/Pop 15–64 (%) | 24.89 | 4.73 | 15.66 | 37.52 | 812 | Elaborations on Eurostat |

Notes: The statistics are calculated over the entire period (1995–2022) for 29 European countries listed in footnote 6.

## Appendix B. Proof of Proposition 1

We report the expressions of consumption in altruistic families upon dropping, for simplicity, the dependence on $\Gamma_z$:

$$c^{ya} = (1-\tau)\,w^y - t^y + \frac{\alpha}{1-\alpha}t^o \qquad c^{oa} = (1-\tau)\,w^o + \frac{p}{\alpha} - t^o + \frac{1-\alpha}{\alpha}t^y$$

Transfers are set so as to solve the following problems:

$$\max_{t_y \geq 0} \quad A\log(c^{ya}) + \mu^y A\log(c^{oa}) \tag{28}$$

$$\max_{t_o \geq 0} \quad A\log(c^{oa}) + \mu^o A\log(c^{ya}) \tag{29}$$

For simplicity, but without loss of generality, we have also ignored the utility derived from public goods.

The f.o.c.s. of these problems are as follows:

$$-\frac{1}{c^{ya}}+\mu^{y}\frac{1-\alpha}{\alpha}\frac{1}{c^{oa}}\leq 0 \quad t_y\geq 0 \quad t_y\left[-\frac{1}{c^{ya}}+\mu^{y}\frac{1-\alpha}{\alpha}\frac{1}{c^{oa}}\right]=0 \tag{30}$$

$$-\frac{1}{c^{oa}}+\mu^{o}\frac{\alpha}{1-\alpha}\frac{1}{c^{ya}}\leq 0 \quad t_o\geq 0 \quad t_o\left[-\frac{1}{c^{oa}}+\mu^{o}\frac{\alpha}{1-\alpha}\frac{1}{c^{ya}}\right]=0 \tag{31}$$

Suppose the solution is such that $t_y>0$ and $t_o>0$. In this case, the complementary slackness conditions require

$$c^{oa}=\mu^{y}\frac{1-\alpha}{\alpha}c^{ya} \tag{32}$$

$$c^{oa}=\frac{1}{\mu^{o}}\frac{1-\alpha}{\alpha}c^{ya} \tag{33}$$

which, clearly, cannot hold jointly. This proves part i) of Proposition 1.

Suppose the solution is such that $t_y>0$ and $t_o=0$. By using the complementary slackness for $t_y$ we find

$$t^{y}=\frac{1}{(1+\mu^{y})(1-\alpha)}\left[\mu^{y}(1-\alpha)(1-\tau)w^{y}-\alpha(1-\tau)w^{o}-p\right] \tag{34}$$

Thus, consistency with $t_y>0$ requires $\frac{(1-\tau)w^{y}}{(1-\tau)w^{o}+p/\alpha}>\frac{\alpha}{\mu^{y}(1-\alpha)}$. This proves part ii) of Proposition 1.

Next, suppose that the solution is such that $t_y=0$ and $t_o>0$. By using the complementary slackness for $t^{o}$ we find

$$t^{o}=\frac{1}{(1+\mu^{o})\alpha}\left[\mu^{o}\alpha(1-\tau)w^{o}+\mu^{o}p-(1-\alpha)(1-\tau)w^{y}\right] \tag{35}$$

Thus, consistency with $t_o>0$ requires $\frac{(1-\tau)w^{y}}{(1-\tau)w^{o}+p/\alpha}<\mu^{o}\frac{\alpha}{1-\alpha}$. This proves part iii) of Proposition 1.

Finally, part iv) follows immediately from parts ii) and iii).∘

## Appendix C. The probability of winning (Eq. (20))

Consider voters of group $r$, $r=ya,yn,oa,on$, and let $q_r$ represent the fraction of the electorate belonging to this group. Further, assume that individuals belonging to group $r$ extract their voting cost from a uniform distribution with support $[0,d_r]$. In the baseline model we hold that the support is the same for all groups: $d_r=d$ for all $r$. In the extension of Section 4.7, we assume that the support differs according to the altruistic attitudes of individuals: $d_r=d_a$ if $r=ya,oa$, $d_r=d_n$ if $r=yn,on$.

If $U^{r}(\Gamma_I)-U^{r}(\Gamma_C)+\delta\geq 0$, group $r$ prefers party $I$. By contrast, if $U^{r}(\Gamma_I)-U^{r}(\Gamma_C)+\delta<0$, the group prefers party $C$. Suppose the group prefers party $I$. The members of the group who turn out for vote coincide with those with a voting cost lower than the positive amount $U^{r}(\Gamma_I)-U^{r}(\Gamma_C)+\delta$. Since the cost of voting is uniformly distributed across individuals in the interval $[0,d_r]$, the fraction of members that turn out for vote is

$$\left[U^{r}(\Gamma_I)-U^{r}(\Gamma_C)+\delta\right]/d_r \tag{36}$$

By contrast, suppose that $U^{r}(\Gamma_I)-U^{r}(\Gamma_C)+\delta<0$ so that they prefer party $C$. By symmetry, the fraction of members that turn out to vote for party $C$ is

$$\left[U^{r}(\Gamma_C)-U^{r}(\Gamma_I)-\delta\right]/d_r \tag{37}$$

Party $I$ wins the election if the number of votes for $I$ is larger than the number of votes for $C$. That is, if the following inequality holds:

$$\sum_{r}q_r\left[U^{r}(\Gamma_I)-U^{r}(\Gamma_C)+\delta\right]/d_r\geq 0 \tag{38}$$

Conditional on the announced policies and on $\delta$, the left-hand side of Inequality (38) represents the difference between the total number of votes for $I$ and the total number of votes for $C$.

The Inequality (38) can be written as follows:

$$\frac{\sum_r q_r\left[-U^{r}(\Gamma_I)+U^{r}(\Gamma_C)\right]/d_r}{\sum_r q_r/d_r}\leq\delta \tag{39}$$

Since $\delta$ is uniformly distributed in the interval $\left[-\frac{1}{2}+\phi,\frac{1}{2}+\phi\right]$, conditional on the announced policies, the probability that $\delta$ is at least as large than the left-hand side of Inequality (39) is

$$P^{I}=\frac{1}{2}+\phi+\frac{\sum_r q_r\left[U^{r}(\Gamma_I)-U^{r}(\Gamma_C)\right]/d_r}{\sum_r q_r/d_r} \tag{40}$$

By setting $d_r=d_a$ if $r=ya,oa$ and $d_r=d_n$ if $r=yn,on$, Eq. (40) can be written as

$$P^{I}=\frac{1}{2}+\phi+\sum_{r}\widetilde{q}_r\left[U^{r}(\Gamma_I)-U^{r}(\Gamma_C)\right] \tag{41}$$

where $q_r$, $r = ya, yn, oa, on$, are defined as follows

$$\widetilde{q}_{ya} = \widetilde{\beta}(1-\alpha), \quad \widetilde{q}_{oa} = \widetilde{\beta}\alpha, \quad \widetilde{q}_{yn} = \left(1-\widetilde{\beta}\right)(1-\alpha), \quad \widetilde{q}_{on} = \left(1-\widetilde{\beta}\right)\alpha$$

$$\widetilde{\beta} = \frac{\beta d_n}{(1-\beta)d_a + \beta d_n}$$

In the baseline model, it holds $d_a = d_n = d$. Thus, $\widetilde{\beta}$ coincides with $\beta$, $\widetilde{q}_r$ coincides with $q_r$ and, finally, Eq (41) coincides with Eq. (20) in the main text.

## Appendix D. Proof of Propositions 2 and 3

By using the expressions in Eqs. (9) and (20) for $R_I$ and $P^I$ and the Lagrange multiplier $\Lambda_I$, the problem for the incumbent stated in Eq. (21) can be written as follows

$$\max_{\Gamma_I} P^I\left[\tau_I(1-\alpha)w^y + \tau_I\alpha w^o - e_I - p_I\right] + \\ + \Lambda_I\begin{Bmatrix} P^I - \frac{1}{2} - \phi - (1-\alpha)\beta\left[U^{ya}(\Gamma_I) - U^{ya}(\Gamma_C)\right] \\ -(1-\alpha)(1-\beta)\left[U^{yn}(\Gamma_I) - U^{yn}(\Gamma_C)\right] \\ -\alpha\beta\left[U^{oa}(\Gamma_I) - U^{oa}(\Gamma_C)\right] - \alpha(1-\beta)\left[U^{on}(\Gamma_I) - U^{on}(\Gamma_C)\right] \end{Bmatrix}$$

We first compute the equilibrium with $t^y > 0$, then the equilibrium with $t^o > 0$ and, finally, the equilibrium with $t^y = t^o = 0$.

- Equilibrium with $t^y > 0$

The first step consists of computing the utility expressions $U^r(\Gamma_I)$, $r = yn, on, ya, oa$ that are pertinent to this equilibrium. These are obtained by using the expression in Eq. (10) for the consumption of group $yn$, in Eq. (11) for the consumption of group $on$ and in Eq. (18) for the consumption of groups $ya$ and $oa$.

By using the pertinent utility expressions, the FOCs for $(s_I, \tau_I, e_I, p_I, P^I)$ are respectively

$$\frac{d\sigma(s_I)}{ds_I} \equiv \left[(1-\alpha) + \alpha\beta\mu^o\right]\lambda_y'(s_I) + \left[\alpha + (1-\alpha)\beta\mu^y\right]\lambda_o'(s_I) = 0 \tag{42}$$

$$P^I\left[(1-\alpha)w^y + \alpha w^o\right] + +A\Lambda_I\left[\begin{array}{l}\beta\left(1+\overline{\mu}\right)\frac{(1-\alpha)w^y+\alpha w^o}{F(\Gamma_I)} + \\ +(1-\alpha)(1-\beta)\frac{1}{1-\tau_I} + \alpha(1-\beta)\frac{w^o}{(1-\tau_I)w^o+p_I/\alpha}\end{array}\right] = 0 \tag{43}$$

$$-P^I - \Lambda_I\sigma(s_I) = 0 \tag{44}$$

$$-P^I + A\Lambda_I\left[-\beta\left(1+\overline{\mu}\right)\frac{1}{F(\Gamma_I)} - (1-\beta)\frac{1}{(1-\tau_I)w^o + p_I/\alpha}\right] = 0 \tag{45}$$

$$\tau_I(1-\alpha)w^y + \tau_I\alpha w^o - e_I - p_I + \Lambda_I = 0 \tag{46}$$

By using the expressions for $\lambda_y(s)$ and $\lambda_o(s)$, Eq. (42) is solved implicitly for $s_I^*$.

Computing the explicit solution for $\tau_I^*$ and $p_I^*$ requires a few steps.

First, combine Eqs. (43) and (45) to find

$$p_I^* = \left(1-\tau_I^*\right)\alpha(w^y - w^o) \tag{47}$$

Second, substitute Eq. (44) into Eq. (45) and rearrange:

$$\sigma(s_I) = A\left[\beta\left(1+\overline{\mu}\right)\frac{1}{F(\Gamma_I)} + (1-\beta)\frac{1}{\left(1-\tau_I\right)w^o + p_I/\alpha}\right] \tag{48}$$

Third, substitute Eq. (47) into Eq. (48) and recall that $F(\Gamma_I)$ represents the overall resources available to the household for private consumption. After a bit of manipulation, Eq. (48) yields

$$\tau_I^* = 1 - A\frac{1+\beta\overline{\mu}}{\sigma(s_I^*)w^y} \tag{49}$$

Eqs. (49) and (47) solve for $\tau_I^*$ and $p_I^*$.

Recall that the problem for the challenger is formally similar to the problem of the incumbent with the exception that $-\phi$ replaces $\phi$ in the expression for the probability of winning the election. Since $s_I^*$, $\tau_I^*$ and $p_I^*$ do not depend on $\phi$, it holds

$$s_C^* = s_I^* = s^*, \tau_C^* = \tau_I^* = \tau^*, p_C^* = p_I^* = p^* \tag{50}$$

Given that the incumbent and the challenger impose the same tax rate and pay the same pensions, the private consumption for all groups of voters under the incumbent is the same as under the challenger. Further, the incumbent and the challenger choose the same composition of public goods. This implies that the utility differentials that determine the probability of winning the election

may only come from different levels in the supply of public goods. By using Eq. (20), the probability for the incumbent to win the election is

$$P^I = \frac{1}{2} + \phi + \sigma(s^*)\left(e_I - e_C\right) \tag{51}$$

To compute the solution for $e_I$ substitute Eq. (44) into Eq. (46) and rearrange

$$P^I = \sigma(s^*)\left[\tau^*(1-\alpha)w^y + \tau^*\alpha w^o - e_I - p^*\right] \tag{52}$$

Then, observe that the LHSs of Eqs. (51) and (52) are equal. Hence the RHSs must be equal too:

$$\frac{1}{2} + \phi + \sigma(s^*)\left(e_I - e_C\right) = \sigma(s^*)\left[\tau^*(1-\alpha)w^y + \tau^*\alpha w^o - e_I - p^*\right] \tag{53}$$

Substitute the results for $\tau^*$ and $p^*$ in the latter and rearrange:

$$e_I = \frac{1}{2}\left\{\left[(1-\alpha)w^y + \alpha w^o\right] + e_C - \frac{1}{\sigma(s^*)}\left[\frac{1}{2} + \phi + A\left(1 + \beta\overline{\mu}\right)\right]\right\} \tag{54}$$

This expression indicates the 'reaction function' of the incumbent to the decision of the challenger concerning the supply of public goods. By recalling that the problem of the challenger is similar with the exception that $-\phi$ replaces $\phi$, the reaction function of the challenger is

$$e_C = \frac{1}{2}\left\{\left[(1-\alpha)w^y + \alpha w^o\right] + e_I - \frac{1}{\sigma(s^*)}\left[\frac{1}{2} - \phi + A\left(1 + \beta\overline{\mu}\right)\right]\right\} \tag{55}$$

Solve the system (53)–(55) with respect to $e_I$ and $e_C$:

$$e_I^* = \left[(1-\alpha)w^y + \alpha w^o\right] - \frac{1}{\sigma(s^*)}\left[\frac{1}{2} + A\left(1 + \beta\overline{\mu}\right) + \phi/3\right] \tag{56}$$

$$e_C^* = \left[(1-\alpha)w^y + \alpha w^o\right] - \frac{1}{\sigma(s^*)}\left[\frac{1}{2} + A\left(1 + \beta\overline{\mu}\right) - \phi/3\right] \tag{57}$$

This concludes the computation of $\Gamma^z, z = I, C$, in the equilibrium with $t^y > 0$.

- Equilibrium with $t^o > 0$

In analogy with the previous case, the first step consists of computing the utility expressions $U^r\left(\Gamma_I\right)$, $r = yn, on, ya, oa$ that are pertinent to this equilibrium. These are obtained by using the expression in Eq. (10) for the consumption of group *yn*, in Eq. (11) for the consumption of group *on* and in Eq. (19) for the consumption of groups *ya* and *oa*.

By using the pertinent utility expressions, it turns out that the FOCs for the optimal $\gamma^z, z = I, C$ are similar to those that arise in the regime with $t^y > 0$. Hence, the optimal $\Gamma^z, z = I, C$ is the same in the two regimes with positive transfers.

This concludes the proof of Proposition 2.

- Equilibrium with $t^y = t^o = 0$

To obtain $U^r\left(\Gamma_I\right)$, $r = ya, yn, oa, on$ that are pertinent to this equilibrium, use $\left(1-\tau_I\right)w^y$ for the consumption of the young and $\left(1-\tau_I\right)w^o + p_I/\alpha$ for the consumption of the old.

By using the pertinent utility expressions, the FOCs for $\left(s_I, \tau_I, e_I, p_I, P_I\right)$ are as follows:

$$\frac{d\sigma\left(s_I\right)}{ds_I} \equiv \left[(1-\alpha) + \alpha\beta\mu^o\right]\lambda_y'(s_I) + \left[\alpha + (1-\alpha)\beta\mu^y\right]\lambda_o'(s_I) = 0 \tag{58}$$

$$P^I\left[(1-\alpha)w^y + \alpha w^o\right] + \\ + A\Lambda_I\left[\left[(1-\alpha) + \alpha\beta\mu^o\right]\frac{1}{1-\tau_I} + \left[\alpha + (1-\alpha)\beta\mu^y\right]\frac{w^o}{\left(1-\tau_I\right)w^o + p_I/\alpha}\right] = 0 \tag{59}$$

$$P^I + \Lambda_I\sigma\left(s_I\right) = 0 \tag{60}$$

$$-P^I = A\Lambda_I\left[\alpha + (1-\alpha)\beta\mu^y\right]\frac{1/\alpha}{\left(1-\tau_I\right)w^o + p_I/\alpha} \tag{61}$$

$$\tau_I(1-\alpha)w^y + \alpha\tau_I w^o - e_I - p_I + \Lambda_I = 0 \tag{62}$$

Observe that the f.o.c. for the optimal $s_I$ is the same as in the other two regimes. Further, observe that $s_I^*$ coincides with $s_C^*$. Hence, in the remainder we will refer to $s^*$ as the unique solution.

Solving with respect to $\tau_I^*$ requires two steps. First, combine Eqs. (59) and (61):

$$P^I\left[(1-\alpha)w^y\right] + A\Lambda_I\left[(1-\alpha)+\alpha\beta\mu^o\right]\frac{1}{1-\tau_I} = 0$$

Then, substitute Eq. (60) into the latter and rearrange:

$$\tau_I^* = 1 - A\frac{1+\frac{\alpha}{1-\alpha}\beta\mu^o}{\sigma(s^*)w^y} \tag{63}$$

To solve for $p_I^*$, substitute Eq. (60) into Eq. (61):

$$p_I/\alpha = A\left[1+\frac{1-\alpha}{\alpha}\beta\mu^y\right]\frac{1}{\sigma(s_I)} - (1-\tau_I)w^o \tag{64}$$

Then, observe that Eq. (63) can be rewritten as:

$$(1-\tau_I^*)\frac{w^y}{1+\frac{\alpha}{1-\alpha}\beta\mu^o} = A\frac{1}{\sigma(s^*)} \tag{65}$$

Finally, substitute Eq. (65) into Eq. (64) and rearrange:

$$p_I^* = \alpha(1-\tau_I)\left(\frac{1-\alpha}{\alpha}\frac{\alpha+(1-\alpha)\beta\mu^y}{(1-\alpha)+\alpha\beta\mu^o}w^y - w^o\right) \tag{66}$$

Eqs. (63) and (66) solve for $p_I^*$ and $\tau_I^*$. Notice that $\tau_I^*$ and $p_I^*$ do not depend on $\phi$. Hence, the optimal tax rate and the optimal pension transfer are the same for both parties. For this reason, in the remainder of the proof we use the notation $\tau^*$ and $p^*$.

To solve for $e_I$ substitute $\tau^*$ and $p^*$ in Eq. (62) and rearrange:

$$\Lambda_I = -\left[(1-\alpha)w^y + \alpha w^o\right] + A\frac{1+\beta\overline{\mu}}{\sigma(s^*)} + e_I \quad \overline{\mu} = \alpha\mu^o + (1-\alpha)\mu^y \tag{67}$$

Further, recall that a consequence of the two parties imposing the same taxes, paying the same pensions and choosing the same composition of public goods is that the probability of winning the election only depends on the differential in the supply of public goods. Thus, Eq. (51) continues to hold in the regime with no transfers.

Substitute Eqs. (51) and (67) into Eq. (60) and find the 'reaction function' of the incumbent:

$$e_I = \frac{1}{2}\left\{\left[(1-\alpha)w^y + \alpha w^o\right] + e_C - \frac{1}{\sigma(s^*)}\left[\frac{1}{2}+\phi+A\left(1+\beta\overline{\mu}\right)\right]\right\} \tag{68}$$

Notice that the latter coincides with Eq. (53), which represents the reaction function in the regime with intra-family transfers. It follows that the reaction function of party C is also the same across the two regimes and, ultimately, that each party chooses the same amount of public goods in the two regimes. This concludes the proof of Proposition 3.∘

## Appendix E. Multiple equilibria: Indifference

In this section we show that, whenever two equilibria are possible party I is indifferent between the two. The same holds for party C. The consequence is that multiple equilibria are robust. By making the first move, parties could select an equilibrium. However, the indifference guarantees that none of the two equilibria can be ruled out.

The expected return for party I is $P^I R_I$. Recall that $P^I$ represents the probability of winning the elections and that, in both equilibria, this probability only depends on $e_I - e_C$. Further, recall that Proposition 5 states that each party chooses the same expenditure $e_z$ $z = I, C$ in all equilibria. The consequence is that $P^I$ is invariant with respect to the equilibrium type.

Let us now look at the rent $R_I = \tau_I\left[(1-\alpha)w^y + \alpha w^o\right] - p_I - e_I$. By using the triple $\left[\tau_I^*, p_I^*, e_I^*\right]$ that arises endogenously in the equilibrium with intra-family transfers one obtains:

$$\begin{aligned} R_I = &\underbrace{\left(1 - A\frac{1+\beta\overline{\mu}}{\sigma(s^*)w^y}\right)}_{\tau^*}\left[(1-\alpha)w^y + \alpha w^o\right] - \underbrace{A\frac{1+\beta\overline{\mu}}{\sigma(s_I^*)w^y}\alpha(w^y - w^o)}_{p^*} + \\ &- \underbrace{\left[(1-\alpha)w^y + \alpha w^o\right] + \frac{A\left(1+\beta\overline{\mu}\right)+1/2+\phi/3}{\sigma(s^*)}}_{e_I^*} \\ = &\frac{1/2+\phi/3}{\sigma(s^*)} \end{aligned}$$

When using the triple $\left[\tau_I^*, p_I^*, e_I^*\right]$ for the equilibrium without intra-family transfers one obtains:

$$R_I = \underbrace{\left(1 - A\frac{1+\frac{\alpha}{1-\alpha}\beta\mu^o}{\sigma(s^*)\,w^y}\right)}_{\tau^*}\left[(1-\alpha)\,w^y + \alpha w^o\right] +$$
$$- \underbrace{A\frac{1+\frac{\alpha}{1-\alpha}\beta\mu^o}{\sigma(s^*)\,w^y}\alpha\left(\frac{1-\alpha}{\alpha}\frac{\alpha+(1-\alpha)\,\beta\mu^y}{(1-\alpha)+\alpha\beta\mu^o}w^y - w^o\right)}_{p^*} +$$
$$- \underbrace{\left[(1-\alpha)\,w^y + \alpha w^o\right] + \frac{A\left(1+\beta\overline{\mu}\right)+1/2+\phi/3}{\sigma(s^*)}}_{e_I^*} =$$
$$= \frac{1/2+\phi/3}{\sigma(s^*)}$$

Thus $R_I$ is also invariant with respect to the equilibrium type. This proves what is claimed in the main text. The incumbent is indifferent between the two candidate equilibria. The same result can be derived for the challenger.

## Appendix F. Proof of Proposition 4

Define $r = \frac{s}{1-s}$, $r_h = \frac{\gamma}{1-\gamma}$, $r_l = \frac{1-\gamma}{\gamma}$ and report below the first and the second order conditions for $s$ to maximize $\sigma(s)$:

$$\Omega(x,r) = x(1-\gamma)\,r^{\gamma-1}\left(r_h - r\right) + \gamma r^{-\gamma}\left(r_l - r\right) = 0 \quad x \equiv \frac{(1-\alpha)+\alpha\beta\mu^o}{\alpha+\beta(1-\alpha)\,\mu^y} \tag{69}$$

$$\Omega_r(x,r) = x(1-\gamma)\left[(\gamma-1)\,r^{\gamma-2}\left(r_h - r\right) - r^{\gamma-1}\right] + \gamma\left[-\gamma r^{-\gamma-1}\left(r_l - r\right) - r^{-\gamma}\right] < 0 \tag{70}$$

Since $r_l < r_h$, the f.o.c. requires $r_l < r < r_h$. Further, by using the f.o.c., notice that if $x = 1$ then $r = 1$ and $s = 0.5$. In turn, $x = 1$ requires that $\alpha = \overline{\alpha}$:

$$\overline{\alpha} = \frac{1}{2}\frac{1-\beta\mu^y}{1-\beta\left(\mu^y+\mu^o\right)/2}$$

For the comparative statics of $r$ with respect to $x$ compute $\Omega_x(x,r)$:

$$\Omega_x(x,r) = (1-\gamma)\,r^{\gamma-1}\left(r_h - r\right) > 0 \tag{71}$$

Then, apply the implicit function theorem to prove that $r$ increases with respect to $x$:

$$\frac{dr}{dx} = -\frac{\Omega_x(x,r)}{\Omega_r(x,r)} > 0 \tag{72}$$

For the comparative statics of $r$ with respect to ageing we need to preliminarily compute $dx/d\alpha$:

$$\frac{dx}{d\alpha} = -\frac{1-\beta^2\mu^o\mu^y}{\left(\alpha+\beta(1-\alpha)\,\mu^y\right)^2} < 0 \tag{73}$$

Since $dr/d\alpha = (dr/dx)(dx/d\alpha)$, Eqs. (72) and (73) prove that ageing reduces $r$ and, as a consequence, it reduces $s$. This proves Part i).

To prove Part ii), differentiate $\tau^*$ with respect to $\alpha$ (disregarding the change in $s^*$ due to the envelope theorem):

$$\frac{d\tau^*}{d\alpha} = -\frac{A}{w^y}\frac{d\left[\left(1+\beta\overline{\mu}\right)/\sigma(s^*)\right]}{d\alpha}$$
$$= -\frac{A}{w^y}\frac{1}{\sigma^2(s^*)}\left(1-\beta^2\mu^o\mu^y\right)\left(\lambda_y(s^*) - \lambda_o(s^*)\right)$$

Recall that $\lambda_y(s) = s^\gamma(1-s)^{1-\gamma}$ and $\lambda_o(s) = s^{1-\gamma}(1-s)^\gamma$ with $\gamma > 0.5$. Thus, when $\alpha < \overline{\alpha}$ it holds that $s^* > 0.5$ and, as a consequence, $\lambda_y(s^*) > \lambda_o(s^*)$. Thus $\tau^*$ decreases (increases) with respect to $\alpha$ if $\alpha < \overline{\alpha}$ ($\alpha > \overline{\alpha}$).

By using Eq. (23) we now compute the derivative of the individual pension with respect to $\alpha$:

$$\frac{d\left(p^*/\alpha\right)}{d\alpha} = -\frac{d\tau^*}{d\alpha}\left(w^y - w^o\right)$$

Clearly, individual pensions move in the opposite direction with respect to the tax rate.

The derivative for the aggregate pensions $p^* = \alpha \cdot \frac{p^*}{\alpha}$ is

$$\frac{dp^*}{d\alpha} = \frac{p^*}{\alpha} + \alpha\frac{d\left(p^*/\alpha\right)}{d\alpha}$$
$$= \frac{A}{w^y}\frac{1}{\sigma^2(s^*)}\left\{\begin{array}{l}\left(1+\beta\overline{\mu}\right)\left[(1-\alpha)+\alpha\beta\mu^o\right]\lambda_y(s^*)+\\ +\left(1+\beta\overline{\mu}\right)\left(\alpha+(1-\alpha)\beta\mu^y\right)\lambda_o(s^*)\\ +\alpha\left(1-\beta^2\right)\mu^y\mu^o\left(\lambda_y(s^*)-\lambda_o(s^*)\right)\end{array}\right\}$$

To prove that the derivative is positive it is sufficient to prove that the factor multiplying $\lambda_o(s^*)$ is positive:

$$\left(1+\beta\overline{\mu}\right)\left(\alpha+(1-\alpha)\beta\mu^y\right)-\alpha\left(1-\beta^2\right)\mu^y\mu^o =$$
$$= \beta\left[\left(1+\beta\overline{\mu}\right)(1-\alpha)\mu^y+\alpha\left(\overline{\mu}+\mu^y\mu^o\right)\right] > 0$$

This ends the proof of Part ii).∘

## Appendix G. Proof of Proposition 5

Part i)

Recall that $r$ - the relative supply of y-goods to o-goods - increases with respect to $x$ and differentiate $x$ with respect to $\mu^o$ and $\mu^y$:

$$\frac{dx}{d\mu^o} = \frac{\alpha\beta}{\alpha+\beta(1-\alpha)\mu^y} > 0 \tag{74}$$

$$\frac{dx}{d\mu^y} = -\frac{\beta(1-\alpha)}{\alpha+\beta(1-\alpha)\mu^y}x < 0 \tag{75}$$

The signs of the derivatives prove part i).

Part ii)

Recall that relative supply of o-goods decreases with respect to $x$ and differentiate $x$ with respect to $\beta$:

$$\frac{dx}{d\beta} = \frac{\alpha^2\mu^o-(1-\alpha)^2\mu^y}{\left[\alpha+\beta(1-\alpha)\mu^y\right]^2} \tag{76}$$

The derivative in Eq. (76) is positive if

$$\alpha > \frac{\sqrt{\mu^y}}{\sqrt{\mu^o}+\sqrt{\mu^y}} \tag{77}$$

Thus, under the condition in Eq. (77), an increase in the fraction of altruistic families reduces the fraction of o-goods.

It is straightforward to show that, if $\mu^o \geq \mu^y$, then $\overline{\alpha} \geq \sqrt{\mu^y}/\left(\sqrt{\mu^o}+\sqrt{\mu^y}\right)$. It follows that, when $\mu^o \geq \mu^y$, the inequality $\alpha > \overline{\alpha}$ is sufficient for the condition in Eq. (77) to hold. Summing up, when $\mu^o \geq \mu^y$ and $\alpha > \overline{\alpha}$, the derivative in Eq. (76) is positive.

Differentiate $\tau_I^*$ with respect to $\beta$:

$$\frac{d\tau_I^*}{d\beta} = -\frac{A}{w^y}\frac{1}{\sigma^2(s_I^*)}\left[\alpha^2\mu^o-(1-\alpha)^2\mu^y\right]\left[\lambda_o(s)-\lambda_y(s^*)\right]$$

Recall that $\lambda_o(s) > \lambda_y(s^*)$ if $\alpha > \overline{\alpha}$ while $\alpha^2\mu^o > (1-\alpha)^2\mu^y$ under Condition (77). We have already proved that, when $\mu^o \geq \mu^y$, the inequality $\alpha > \overline{\alpha}$ is sufficient for Condition (77). Thus, with $\mu^o \geq \mu^y$ and $\alpha > \overline{\alpha}$, the above derivative is negative.

Being the pension expenditure proportional to $(1-\tau^*)$ a reduction in the tax rate causes an increase in pensions.

Part iii)

Using the solution for $p^*$, the aggregate private consumption can be expressed as

$$(1-\alpha)c^y+\alpha c^o = \left(1-\tau^*\right)\left[(1-\alpha)w^y+\alpha w^o\right]+p^* = \left(1-\tau^*\right)w^y,$$

while public consumption is given by

$$e^z = \left[(1-\alpha)w^y+\alpha w^o\right]-\frac{A\left(1+\beta\overline{\mu}\right)}{\sigma(s^*)}-\frac{\Delta^z}{\sigma(s^*)} \quad z=I,C$$
$$\Delta^I = 1/2+\phi/3 \quad \Delta^C = 1/2-\phi/3$$

The sum of the two aggregates is

$$\left(1-\tau^*\right)w^y+\left[(1-\alpha)w^y+\alpha w^o\right]-\frac{A\left(1+\beta\overline{\mu}\right)}{\sigma(s^*)}-\frac{\Delta^z}{\sigma(s^*)}$$

By using the solution for $\tau^*$, the sum simplifies as follows:

$$\left[(1-\alpha)w^y+\alpha w^o\right]-\frac{\Delta^z}{\sigma(s^*)}$$

Notice that $\Delta^z > 0$ while $\sigma(s^*)$ is increasing with respect to $\mu^o$, $\mu^y$ and $\beta$. This proves part ii).

## Appendix H. No-transfer equilibrium, simulations

In Section 5, we presented the numerical comparative statics of the platforms proposed by the two parties in an equilibrium with positive intra-family transfers. In the absence of transfers, however, the platforms differ from those under positive transfers in two key dimensions: the tax rate and pension levels. Accordingly, in this appendix, we extend the analysis of Section 5 by examining the behaviour of taxes and individual pensions in a no-transfer equilibrium, shown in Figs. 5–6.

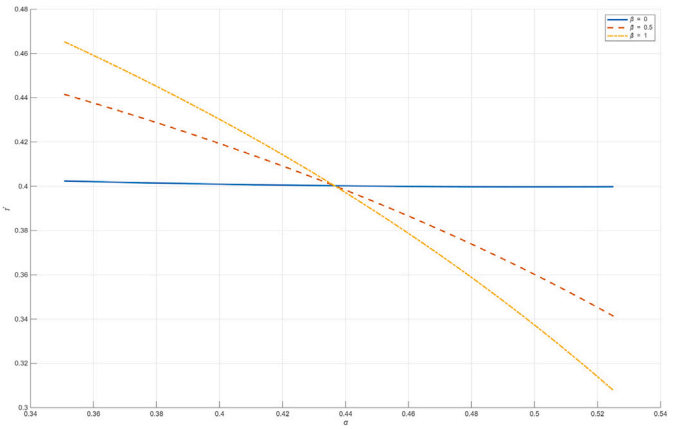



**Fig. 5.** Tax rate (without transfers).

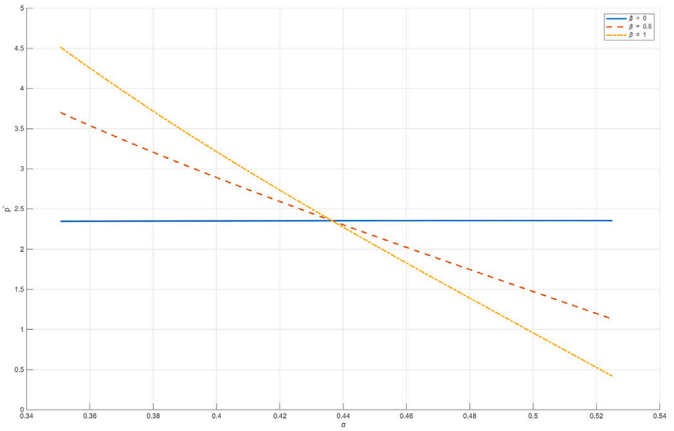



**Fig. 6.** Individual pensions (without transfers).

Fig. 5 shows that the tax rate declines with population ageing, and that this relationship becomes stronger as altruism increases. To develop the intuition, note that, due to the endogeneity of pensions, an increase in the tax rate reduces consumption only for the young. Hence, a party that raises the tax rate benefits from higher rents extracted from the young, but also incurs the cost of reduced electoral support. Considering only non-altruistic voters, both the benefit and the cost depend on the size of the young cohort. By contrast, for altruistic voters, while the benefit still depends on the number of young individuals, the cost depends on both the young and the old, as the latter are adversely affected by the reduced consumption of the former. In other words, altruism introduces an additional cost to higher taxation. Moreover, this additional cost becomes more pronounced as the relative size of the old increases compared to the young. This explains why, in altruistic societies, population ageing induces parties to set lower tax rates.

This effect is absent in an equilibrium with intra-family transfers. In such a setting, intra-family transfers allow the old to share in the reduction in consumption experienced by the young. As a result, the relative sizes of the two groups become irrelevant when evaluating the costs and benefits of higher taxation.

Fig. 6 shows that not only taxation but also individual pensions decline with ageing, with a slope that becomes steeper as altruism increases. The intuition is straightforward: lower tax revenues lead to lower public expenditure and, consequently, to reduced pension benefits.

## Data availability

Data will be made available on request.

## References


Albertini, M., Kohli, M., 2013. The generational contract in the family: an analysis of transfer regimes in Europe. Eur. Sociol. Rev. 29 (4), 828–840.

Albertini, M., Kohli, M., Vogel, C., 2007. Intergenerational transfers of time and money in European families: common patterns—different regimes? J. Eur. Soc. Policy 17 (4), 319–334.

Angelini, V., Laferrère, A., 2013. Parental altruism and nest leaving in Europe: evidence from a retrospective survey. Rev. Econ. Househ. 11 (3), 393–420.

Barilari, F., Mastrorocco, N., Paradisi, M., 2025. Population aging, voting, and political agendas. Eur. J. Polit. Econ. 102748.

Barro, R.J., 1974. Are government bonds net wealth? J. Polit. Econ. 82 (6), 1095–1117.

Becker, G.S., 1974. A theory of social interactions. J. Polit. Econ. 82 (6), 1063–1093.

Beetsma, R., Klaassen, F., Romp, W., van Maurik, R., 2020. What drives pension reforms in the OECD? Econ. Policy 35 (102), 357–402.

Bellettini, G., Taddei, F., Zanella, G., 2017. Intergenerational altruism and house prices: evidence from bequest tax reforms in Italy. Eur. Econ. Rev. 92, 1–12.

Bertocchi, G., Dimico, A., Lancia, F., Russo, A., 2020. Youth enfranchisement, political responsiveness, and education expenditure: evidence from the US. Am. Econ. J. Econ. Policy 12 (3), 76–106.

Bishnu, M., Garg, S., Garg, T., Ray, T., 2021. Optimal intergenerational transfers: public education and pensions. J. Public Econ. 198, 104411.

Boldrin, M., Montes, A., 2005. The intergenerational state education and pensions. Rev. Econ. Stud. 72 (3), 651–664.

Brunner, E., Balsdon, E., 2004. Intergenerational conflict and the political economy of school spending. J. Urban Econ. 56 (2), 369–388.

Busemeyer, M.R., Goerres, A., Weschle, S., 2009. Attitudes towards redistributive spending in an era of demographic ageing: the rival pressures from age and income in 14 OECD countries. J. Eur. Soc. Policy 19 (3), 195–212.

Cardia, E., Michel, P., 2004. Altruism, intergenerational transfers of time and bequests. J. Econ. Dyn. Control 28 (8), 1681–1701.

Carlos Córdoba, J., Ripoll, M., 2019. The elasticity of intergenerational substitution, parental altruism, and fertility choice. Rev. Econ. Stud. 86 (5), 1935–1972.

Cattaneo, M.A., Wolter, S.C., 2009. Are the elderly a threat to educational expenditures? Eur. J. Polit. Econ. 25 (2), 225–236.

Cattaneo, M., Lergetporer, P., Schwerdt, G., Werner, K., Woessmann, L., Wolter, S.C., 2020. Information provision and preferences for education spending: evidence from representative survey experiments in three countries. Eur. J. Polit. Econ. 63, 101876.

Cox, D., Jakubson, G., 1995. The connection between public transfers and private interfamily transfers. J. Public Econ. 57 (1), 129–167.

Cox, D., Jimenez, E., 1992. Social security and private transfers in developing countries: the case of Peru. World Bank Econ. Rev. 6 (1), 155–169.

Cremer, H., Gahvari, F., 2025. Endogenous altruism and long term care policies in a Mirrleesian setting. TSE Working Paper.

De Mello, L., Schotte, S., Tiongson, E.R., Winkler, H., 2017. Greying the budget: ageing and preferences over public policies. Kyklos 70 (1), 70–96.

Dixit, A., Londregan, J., 1996. The determinants of success of special interests in redistributive politics. J. Polit. 58 (4), 1132–1155.

Epple, D., Romano, R., Sieg, H., 2012. The intergenerational conflict over the provision of public education. J. Public Econ. 96 (3–4), 255–268.

Folbre, N., 1994. Children as public goods. Am. Econ. Rev. 84 (2), 86–90.

Fowler, J.H., Kam, C.D., 2007. Beyond the self: social identity, altruism, and political participation. J. Polit. 69 (3), 813–827.

Galasso, V., Profeta, P., 2004. Lessons for an ageing society: the political sustainability of social security systems. Econ. Policy 19 (38), 64–115.

Galasso, V., Profeta, P., 2018. When the state mirrors the family: the design of pension systems. J. Eur. Econ. Assoc. 16 (6), 1712–1763.

Grob, U., Wolter, S.C., 2007. Demographic change and public education spending: a conflict between young and old? Educ. Econ. 15 (3), 277–292.

Hank, K., Buber, I., 2009. Grandparents caring for their grandchildren: findings from the 2004 survey of health, ageing, and retirement in Europe. J. Fam. Issues 30 (1), 53–73.

Hanum, L., Newcombe, P., Scott, T., 2024. A systematic review of intergenerational co-residence between older people and adult children. J. Fam. 30 (6), 968–988.

Häusermann, S., Kurer, T., Schwander, H., 2016. Sharing the risk? Households, labor market vulnerability, and social policy preferences in Western Europe. J. Polit. 78 (4), 1045–1060.

Jäger, P., Schmidt, T., 2016. The political economy of public investment when population is aging: a panel cointegration analysis. Eur. J. Polit. Econ. 43, 145–158.

Jellal, M., Wolff, F.-C., 2002. Cultural evolutionary altruism: theory and evidence. Eur. J. Polit. Econ. 18 (2), 241–262.

Klimaviciute, J., Perelman, S., Pestieau, P., Schoenmaeckers, J., 2017. Caring for dependent parents: altruism, exchange or family norm? J. Popul. Econ. 30, 835–873.

Kohli, M., 1999. Private and public transfers between generations: linking the family and the state. European societies 1 (1), 81–104.

Kurban, H., Gallagher, R.M., Persky, J.J., 2015. Demographic changes and education expenditures: a reinterpretation. Econ. Educ. Rev. 45, 103–108.

Lancia, F., Russo, A., 2016. Public education and pensions in democracy: a political economy theory. J. Eur. Econ. Assoc. 14 (5), 1038–1073.

Levy, G., 2005. The politics of public provision of education. Q. J. Econ. 120 (4), 1507–1534.

Lindbeck, A., Weibull, J.W., 1987. Balanced-budget redistribution as the outcome of political competition. Public Choice 52 (3), 273–297.

Lütolf, M., Stadelmann-Steffen, I., 2023. Do households live the family model they prefer? Household's work patterns across European policy regimes. Socio-econ. Rev. 21 (3), 1421–1443.

Marè, M., Porcelli, F., Vidoli, F., 2024. Il Welfare Italiano: Una Questione Di Famiglia. Il Mulino.

Mitchell, B.A., 2006. The boomerang age from childhood to adulthood: emergent trends and issues for aging families. Can. Stud. Popul., 33 (2), 155–178.

Mulligan, C.B., 1997. Parental Priorities and Economic Inequality. University of Chicago Press.

Ottoni-Wilhelm, M., Vesterlund, L., Xie, H., 2017. Why do people give? Testing pure and impure altruism. Am. Econ. Rev. 107 (11), 3617–3633.

Persson, T., Tabellini, G., 2002. Political Economics: Explaining Economic Policy. MIT Press.

Poterba, J.M., 1997. Demographic structure and the political economy of public education. J. Policy Anal. Manag. J. Assoc. Public Policy Anal. Manag. 16 (1), 48–66.

Rangel, A., 2003. Forward and backward intergenerational goods: why is social security good for the environment? Am. Econ. Rev. 93 (3), 813–834.

Rapoport, H., Vidal, J.-P., 2007. Economic growth and endogenous intergenerational altruism. J. Public Econ. 91 (7–8), 1231–1246.

Razin, A., Sadka, E., Swagel, P., 2002. The aging population and the size of the welfare state. J. Polit. Econ. 110 (4), 900–918.

Reil-Held, A., 2006. Crowding out or crowding in? Public and private transfers in Germany. Eur. J. Popul. 22 (3), 263–280.

Romp, W., Beetsma, R., 2023. OECD pension reform: the role of demographic trends and the business cycle. Eur. J. Polit. Econ. 77, 102280.

Schenk, N., Dykstra, P., Maas, I., 2010. The role of European welfare states in intergenerational money transfers: a micro-level perspective. Ageing Soc. 30 (8), 1315–1342.

Tabellini, G., 1991. The politics of intergenerational redistribution. J. Polit. Econ. 99 (2), 335–357.

Tabellini, G., 2000. A positive theory of social security. Scand. J. Econ. 102 (3), 523–545.

Thau, M., 2021. The social divisions of politics: how parties' group-based appeals influence social group differences in vote choice. J. Polit. 83 (2), 675–688.

Van Winkle, Z., 2020. Family policies and family life course complexity across 20th-century Europe. J. Eur. Soc. Policy 30 (3), 320–338.

Vlandas, T., 2023. From gerontocracy to gerontonomia: the politics of economic stagnation in ageing democracies. Political Q. 94 (3), 452–461.