Economics Bulletin

Volume 45, Issue 4

Intergenerational transfers, mandatory retirement and economic growth

Lars Kunze
TU Dortmund University

Abstract

This paper investigates the relationship between economic growth and the mandatory retirement age in an overlapping generations model with family altruism. It is shown that the relationship between the mandatory retirement age and economic growth is inverted U-shaped so that an increase in the mandatory retirement age beyond its growth-maximizing level may harm growth if bequests are not operative within the family whereas the growth effect is unambiguously positive with operative bequests. Our findings highlight the importance of intergenerational transfers in determining the overall growth effect.

Lars Kunze, TU Dortmund, Department of Economics, 44221 Dortmund, Germany, e-mail: lars.kunze@tu-dortmund.de, phone: +49 231 755-3275.
Citation: Lars Kunze, (2025) "Intergenerational transfers, mandatory retirement and economic growth", *Economics Bulletin*, Volume 45, Issue 4, pages 1744-1754
Contact: Lars Kunze - lars.kunze@tu-dortmund.de.
Submitted: July 30, 2025. **Published:** December 30, 2025.

1. Introduction

Advanced economies face profound demographic change. Rising life expectancy and low fertility put pressure on public pension systems and have renewed the debate over the macroeconomic effects of higher retirement ages. While many OECD countries have raised statutory ages for fiscal reasons (OECD, 2023), the long-run growth implications remain unclear.

Theoretical contributions have produced divergent predictions. Gonzalez-Eiras and Niepelt (2012) and Fanti (2015) find negative growth effects in OLG models where increasing the mandatory retirement age affects growth through changes in savings and labor supply. Other models highlight non-linearities. Kunze (2014) demonstrates an inverted U-shaped relationship between retirement age and growth in an overlapping generations framework with human capital accumulation: moderate extensions raise growth via higher returns to education, while excessive increases dampen growth by lowering savings and physical capital accumulation. Chen and Miyazaki (2020) obtain a similar hump-shaped relationship when the labor supply of older workers is endogenous. By contrast, Zhang and Zhang (2009) find a positive growth effect in an OLG model where parents' time investment in the education of their children ultimately determines long-run growth. Masuyama and Ohdoi (2022) extend this by allowing working-age agents to invest in both their children's and their own human capital; growth gains are strong at low retirement ages, but the effect becomes neutral if the mandatory retirement age is large.

These contrasting results suggest that the growth impact of retirement age reforms is contingent on the structure of intergenerational transfers. However, no study has systematically analyzed human and physical capital (in the form of bequests) as joint channels of intergenerational transfers so far. This paper addresses this gap. We develop an overlapping generations model with family altruism that incorporates both human capital and bequests of physical capital (Lambrecht et al., 2005). Considering bequests alongside human capital is essential, as inherited physical capital constitutes a substantial share of aggregate wealth in many economies, with potentially important effects on savings behavior, capital accumulation, and economic growth (see, e.g., Piketty (2014)). Our results reconcile the apparently conflicting findings in the literature: When bequests are inoperative, the growth-retirement relationship is inverted U-shaped, consistent with Kunze (2014) and Chen and Miyazaki (2020). When bequests are operative, raising the retirement age unambiguously promotes growth, aligning with Zhang and Zhang (2009) and Masuyama and Ohdoi (2022). Intuitively, with inoperative bequests, the growth effect reflects the trade-off between a higher return to educating children and lower savings and thus a slowdown of capital accumulation, whereas with operative bequests, the additional lifetime income is also channelled into intergenerational transfers in the form of bequests, thereby sustaining capital accumulation and yielding an unambiguously positive growth effect.[1]

By identifying both human capital investments and bequests as decisive mechanisms, the model provides a unifying explanation for these divergent results and offers a sharper basis for evaluating retirement age reforms in economies with different intergenerational transfer structures.

The remainder is organized as follows. The next section introduces the model and derives

[1]While the model primarily reflects the institutional environment of advanced economies, its qualitative insights remain informative for developing countries. In economies where credit and inheritance markets are less developed, bequests tend to be inoperative, and education becomes the dominant channel of intergenerational transmission, implying that the growth-retirement relationship is more likely to exhibit an inverted U-shaped pattern.

the growth effects of a higher mandatory retirement age when bequests are either operative or not.

2. The Model

We consider an overlapping-generations model in which parents have an altruistic concern and care about the disposable income of their children.[2] Population size is assumed to be constant and normalized to one, so that a new cohort of identical individuals is born in each period.[3] Each individual lives for three periods: During childhood individuals are educated by their parents and do not make any economic decisions. In the second period of life, each individual gives birth to one child and inelastically supplies h_t efficiency units of labor[4], with his endowment of human capital depending on his parents' spending on education. Following the related literature, see, e.g., Lambrecht et al. (2005) or Kunze (2014), each adult individual receives income from two sources: labor income $w_t h_t$ earned in period t and a non-negative amount of bequest b_t inherited from the previous generation. This disposable income I_t constitutes the individual's total resources and is allocated to current consumption c_t, education expenditures for the child e_t, and voluntary savings s_t:

$$I_t \equiv w_t h_t + b_t = c_t + e_t + s_t \tag{1}$$

During old age each individual allocates the return to his voluntary savings $R_{t+1}s_t$ plus the proceeds of labor income in old age $w_{t+1}h_{t+1}\rho\chi$ to second period consumption d_{t+1} and to give a non-negative bequest b_{t+1} to his offspring:

$$d_{t+1} = R_{t+1}s_t + \rho w_{t+1}h_t - b_{t+1} \tag{2}$$

where R_{t+1} is the interest factor at $t+1$, $\rho \in [0,1]$ is the retirement age (or, more precisely, the fraction of the period that an old household is required to work).[5] To obtain a balanced growth path (along which all individual variables grow at the same rate) we set $h_t = \chi h_{t+1}$ in the above equation, where $\chi \in (0,1]$ is the labor productivity of old relative to young workers.[6]

[2]The model is taken from Lambrecht et al. (2005), who study the growth effects of a pay-as-you-go pension scheme. It is extended to analyze the growth effects of mandatory retirement. The main idea of the family altruism model is that parents care about the economic success of their children, which is measured by the children's income. See the aforementioned paper and references therein for further details and empirical evidence.

[3]Note that we follow the related literature (see Lambrecht et al. (2005) and Kunze (2012)) and assume that fertility choice is exogenous. An analysis of the case with endogenous fertility is left for future research. In this case, however, the model would no longer be analytically tractable.

[4]Endogenizing labor supply would not alter the qualitative nature of our main results, but it would add unnecessary complexity to the theoretical framework. For the sake of tractability, we therefore treat labor supply as exogenous.

[5]Note that we follow Zhang and Zhang (2009) and assume that the proportion of human capital during adulthood is the same as in old age. Our main results are qualitatively the same if individuals were to take into account the effect of educational investments on their own level of human capital during old age as well as on that of their children. An alternative assumption would be that members of the working generation not only educate their children but also have the opportunity to invest in their own skills for old-age labor supply (Masuyama and Ohdoi, 2022). Including such a self-education margin or allowing for human-capital depreciation would modify the magnitude, but not the direction, of the results: a higher mandatory retirement age would still raise the return to education and stimulate human-capital accumulation, while the associated reduction in savings would continue to generate the trade-off underlying the inverted-U or monotonic relationship between retirement and growth. A more detailed analysis of such an extended model is left for future research.

[6]For reasons of simplicity, the model abstracts from institutional features such as pay-as-you-go pension schemes, taxation, and other elements of the social security system in order to isolate the pure intergenerational

The human capital of an individual in period $t+1$ is a function of the private investment in education, e_t, and the parent's human capital, h_t:

$$h_{t+1} = De_t^{\delta} h_t^{1-\delta} = D\bar{e}_t^{\delta} h_t \tag{3}$$

where D is a scale parameter, $0 < \delta < 1$ is the elasticity of the education technology with respect to private educational spending and $\bar{e}_t \equiv e_t/h_t$ private educational spending per unit of human capital. Individual preferences are assumed to be logarithmic and depend on first and second period consumption and on the disposable income of the adult children:

$$U_t = (1-\beta)\ln c_t + \beta \ln d_{t+1} + \gamma \ln I_{t+1} \tag{4}$$

where $0 < \beta < 1$, γ denotes the degree of altruism towards own children and

$$I_{t+1} = w_{t+1} h_{t+1} + b_{t+1}. \tag{5}$$

Each individual maximizes utility (4) subject to the constraints (1), (2), (5) and the non-negativity of bequests $b_{t+1} \geq 0$ by choosing c_t, e_t, s_t, d_{t+1} and b_{t+1}. The first order conditions determining optimal savings, private educational spending and bequest are:

$$\frac{\partial U_t}{\partial s_t} = -\frac{1-\beta}{c_t} + \frac{\beta R_{t+1}}{d_{t+1}} = 0 \tag{6}$$

$$\frac{\partial U_t}{\partial e_t} = -\frac{1-\beta}{c_t} + \frac{\gamma w_{t+1} D \delta e_t^{\delta-1} h_t^{1-\delta}}{I_{t+1}} = 0 \tag{7}$$

$$\frac{\partial U_t}{\partial b_{t+1}} = -\frac{\beta}{d_{t+1}} + \frac{\gamma}{I_{t+1}} \leq 0 \quad (= 0 \text{ if } \quad b_{t+1} > 0) \tag{8}$$

Inserting (6) and (7) into (8) gives

$$w_{t+1} D \delta e_t^{\delta-1} h_t^{1-\delta} \geq R_{t+1} \tag{9}$$

When bequests are operative, (9) holds with equality and the rate of return to private education equals the interest rate. With inoperative bequests, however, the rate of return to private education exceeds the interest rate.

In every period t, firms produce a single output good according to a Cobb-Douglas production function combining physical capital K_t and human capital H_t:

$$Y_t = AK_t^{\alpha} H_t^{1-\alpha} \tag{10}$$

where $0 < \alpha < 1$ denotes the capital share. Profit maximization gives the usual marginal productivity conditions:

$$w_t = (1-\alpha)AK_t^{\alpha} H_t^{-\alpha} = (1-\alpha)Ak_t^{\alpha}, \quad R_t = \alpha AK_t^{\alpha-1} H_t^{1-\alpha} = \alpha A k_t^{\alpha-1} \tag{11}$$

where $k_t = K_t/H_t$ is the physical to human capital ratio.

---

mechanisms operating through human and physical capital accumulation. Including such institutional components would mainly shift the level of savings and education incentives but would not alter the qualitative results regarding the relationship between the retirement age and growth. A formal integration of pension contributions and tax rates, as in Gonzalez-Eiras and Niepelt (2012) or Bethencourt et al. (2025), could endogenize the fiscal channel and the political determination of retirement policy, which represents a promising avenue for future research.

In equilibrium, the market clearing conditions for the capital, the labor and the good market are:

$$K_t = s_{t-1} \tag{12}$$
$$H_t = (1+\rho\chi)h_t \tag{13}$$
$$Y_t = c_t + s_t + e_t + d_t \tag{14}$$

Inserting the old's budget constraint (2) into the good market equilibrium condition, (14) becomes

$$d_t + I_t = (1+\rho\chi)Ak_t^{\alpha}h_t \tag{15}$$

2.1 Inoperative bequests

In a first step, we study the growth effects of an increase in the mandatory retirement age (an increase in ρ) when bequests are inoperative in period $t+1$. Then, (8) and (15) give

$$I_{t+1} = w_{t+1}h_{t+1} = (1-\alpha)Ak_{t+1}^{\alpha}h_{t+1} \tag{16}$$
$$d_{t+1} = (\alpha+\rho\chi)Ak_{t+1}^{\alpha}h_{t+1} \tag{17}$$

Combining (6), (7) and (11) we obtain

$$\bar{e}_t^{1-\delta} = \frac{\delta D\gamma}{\beta\alpha}(\alpha+\rho\chi)k_{t+1} \tag{18}$$

For a given stock of capital k_{t+1}, a higher mandatory retirement age increases educational spending. At the same time, a higher income from work during old age may have a negative impact on k_{t+1} through voluntary savings. This raises the question whether a higher mandatory retirement age is beneficial for growth or harmful to it when bequests are inoperative.

From the non-negative bequest condition (9) and (18) we can derive an upper bound on the mandatory retirement age so that bequests are inoperative if the following inequality holds

$$\rho \leq \frac{\beta(1-\alpha)-\alpha\gamma}{\gamma\chi} \equiv \bar{\rho} \tag{19}$$

Consequently, the case with inoperative bequests occurs if the mandatory retirement age is not too large, i.e. $0 < \rho \leq \bar{\rho}$, which further implies that, by assumption, individuals are not too altruistic as $\bar{\rho} > 0 \Leftrightarrow \gamma < (1-\alpha)\beta/\alpha$. Using (3) and (18) gives

$$k_{t+1}h_{t+1} = \frac{\alpha\beta}{(\alpha+\rho\chi)\delta\gamma}\bar{e}_t h_t \tag{20}$$

which in turn allows us to determine individual savings s_t and consumption c_t (from (12), (6) and (17), (20)):

$$s_t = \frac{\alpha\beta}{\delta\gamma}\frac{1+\rho\chi}{\alpha+\rho\chi}\bar{e}_t h_t \tag{21}$$
$$c_t = \frac{(1-\beta)}{\delta\gamma}\bar{e}_t h_t \tag{22}$$

Plugging (21) and (22) into (1) and solving for $\bar{e}_t$ gives

$$\bar{e}_t = \frac{(1-\alpha)A}{B(\rho)} k_t^\alpha \tag{23}$$

where

$$B(\rho) = \left(1 + \frac{\alpha\beta(1+\rho\chi) + (1-\beta)(\alpha+\rho\chi)}{(\alpha+\rho\chi)\delta\gamma}\right). \tag{24}$$

The dynamics of the physical to human capital ratio k_t with inoperative bequests result from combining (18) and (23)

$$\left[\frac{\delta\gamma D}{\beta\alpha}(\alpha+\rho\chi)k_{t+1}\right]^{\frac{1}{1-\delta}} = \bar{e}_t = \frac{(1-\alpha)A}{B(\rho)} k_t^\alpha \tag{25}$$

which converge monotonically towards a steady state $(k, \bar{e})$.[7] To assess the growth effect of increasing the mandatory retirement age when bequests are inoperative, we first derive the long-run physical to human capital ratio k. It is obtained by rearranging (25) in steady state:

$$k = \left(\frac{\beta\alpha}{\delta\gamma D(\alpha+\rho\chi)}\left[\frac{(1-\alpha)A}{B(\rho)}\right]^{1-\delta}\right)^{\frac{1}{1-\alpha(1-\delta)}} \tag{26}$$

Using (26) and (23), the growth factor of the economy, which equals $g = h_{t+1}/h_t = D\bar{e}^\delta$, can then be derived as

$$g = D\left(\frac{(1-\alpha)A}{B(\rho)}\left[\frac{\beta\alpha}{\delta\gamma D(\alpha+\rho\chi)}\right]^{\alpha}\right)^{\frac{\delta}{1-\alpha(1-\delta)}} \tag{27}$$

Further inspection of equations (19) and (27) reveals:

Proposition 1 *If parents are not sufficiently altruistic towards their child, i.e. $\gamma < (1-\alpha)\beta/\alpha$, then bequests are inoperative and there exists a growth-maximizing mandatory retirement age*

$$\hat{\rho} = \frac{(1-\alpha)\beta - \alpha(1+\delta\gamma)}{\chi(1+\delta\gamma-\beta(1-\alpha))} \tag{28}$$

such that growth increases (decreases) with the retirement age if $\rho < \hat{\rho}$ ($\rho > \hat{\rho}$). This maximum is interior ($\hat{\rho} < 1$) if individuals are neither too impatient nor too patient, i.e.

$$\beta \in \left(\frac{\alpha(1+\delta\gamma)}{1-\alpha}, \frac{(\alpha+\chi)(1+\delta\gamma)}{(1-\alpha)(1+\chi)}\right) \tag{29}$$

Proof: *The logarithmic derivative of $\partial g/\partial\rho$ has the same sign as the function*

$$\Psi(\rho) = \beta(1-\alpha) - \alpha(1+\delta\gamma) - \rho\chi(1+\delta\gamma-\beta(1-\alpha))$$

Solving $\Psi(\rho) = 0$ gives equation (28). Solving $\hat{\rho} < 1$ and $\hat{\rho} > 0$ for β, yields the upper and the lower bound in equation (29), respectively.

[7] Note that equation (25) can be rearranged so that $k_{t+1} = Ck_t^{\alpha(1-\delta)}$ with $\alpha(1-\delta) < 1$, which in turn ensures convergence towards a unique steady state.

When bequests are inoperative, the relationship between the mandatory retirement age and economic growth exhibits an inverted U-shape. This implies that increasing the retirement age beyond a certain point can adversely affect growth. There are several effects working in opposite directions: First, a higher retirement age reduces savings, thereby lowering physical capital accumulation and wages, as a consequence of increased labor income during old age. This is the main reason for the negative growth effect found in Gonzalez-Eiras and Niepelt (2012) and Fanti (2015). Second, it encourages greater investment in education, given the enhanced returns to human capital. As a result, the net impact on long-term growth is inherently ambiguous. An inverted U-shaped relationship between mandatory retirement and economic growth has also been found by Kunze (2014) and Chen and Miyazaki (2020) in models where individuals invest in their own education during old age but where educational spending on children is absent.

2.2 Operative bequests

Now we turn to the case when bequests are operative. Then, (8) holds with equality and combining (8) and (15) gives

$$I_{t+1} = \frac{1+\rho\chi}{1+\beta/\gamma} A k_{t+1}^{\alpha} h_{t+1} \tag{30}$$

$$d_{t+1} = \frac{1+\rho\chi}{1+\gamma/\beta} A k_{t+1}^{\alpha} h_{t+1} \tag{31}$$

From the assumption of non-negative bequests, $b_{t+1} = I_{t+1} - w_{t+1}h_{t+1} \geq 0$, it follows:

$$\rho \geq \frac{\beta(1-\alpha) - \alpha\gamma}{\gamma\chi} \equiv \bar{\rho} \tag{32}$$

where $\bar{\rho}$ defines a lower bound on the mandatory retirement age. If parents are sufficiently altruistic, i.e. $\gamma \geq (1-\alpha)\beta/\alpha$, it is $\bar{\rho} \leq 0$ and bequests are always operative. Combining (9) and (11) determines private educational spending per unit of human capital, $\bar{e}_t$, as a function of the physical to human capital ratio:

$$\bar{e}_t^{1-\delta} = \frac{(1+\rho\chi)(1-\alpha)\delta D}{\alpha} k_{t+1} \tag{33}$$

which further implies (using (3)):

$$k_{t+1}h_{t+1} = \frac{\alpha}{(1+\rho\chi)\delta(1-\alpha)} \bar{e}_t h_t \tag{34}$$

Equation (33) shows that, for a given stock of capital k_{t+1}, a higher mandatory retirement age has a positive effect on educational spending.

We can now determine individual savings s_t (from (12)) and consumption c_t (from (6) and (31)):

$$s_t = \frac{\alpha}{\delta(1-\alpha)} \bar{e}_t h_t \tag{35}$$

$$c_t = \frac{(1-\beta)}{\delta(\beta+\gamma)(1-\alpha)} \bar{e}_t h_t \tag{36}$$

Inserting (35) and (36) into (1) and solving for $\bar{e}_t$ gives

$$\bar{e}_t = \frac{\gamma(1+\rho\chi)}{(\beta+\gamma)\tilde{B}} A k_t^{\alpha} \tag{37}$$

where

$$\tilde{B} = \left(1 + \frac{\alpha}{\delta(1-\alpha)} + \frac{(1-\beta)}{\delta(1-\alpha)(\beta+\gamma)}\right) \tag{38}$$

Finally, by combining (33) and (37), we obtain the dynamics of the physical to human capital ratio k_t,

$$\left[\frac{(1+\rho\chi)(1-\alpha)\delta D}{\alpha} k_{t+1}\right]^{\frac{1}{1-\delta}} = \bar{e}_t = \frac{\gamma(1+\rho\chi)}{(\beta+\gamma)\tilde{B}} A k_t^{\alpha} \tag{39}$$

which converge monotonically towards a steady state $(k, \bar{e})$ (as in the case with inoperative bequests). Rearranging (39) in steady state determines the long-run physical to human capital ratio:

$$k = \left(\frac{\alpha}{(1+\rho\chi)(1-\alpha)\delta D} \left[\frac{(1+\rho\chi)\gamma A}{(\beta+\gamma)\tilde{B}}\right]^{1-\delta}\right)^{\frac{1}{1-\alpha(1-\delta)}} \tag{40}$$

which in turn allows us to derive the growth factor of the economy with operative bequests using (37)

$$g = D\left(\frac{(1+\rho\chi)\gamma A}{(\beta+\gamma)\tilde{B}} \left[\frac{\alpha}{(1+\rho\chi)\delta D(1-\alpha)}\right]^{\alpha}\right)^{\frac{\delta}{1-\alpha(1-\delta)}} \tag{41}$$

Further analysis of (32) and (41) gives rise to the following proposition:

Proposition 2 *If parents are sufficiently altruistic towards their child, i.e.* $\gamma \geq (1-\alpha)\beta/\alpha$, *then bequests are operative and an increase in the mandatory retirement age is beneficial for growth.*
Proof: *Straightforward calculations show that the sign of the logarithmic derivative of* $\partial g/\partial \rho$ *is always positive.*

A higher mandatory retirement age fosters growth when intergenerational transfers of both physical and human capital are operative in the family as it increases the return to education and thus educational spending (recall equation (33)). A higher mandatory retirement age, all other things being equal, increases parents' lifetime income and allows them to spend more on both their own lifetime consumption and the education of their children as well as to increase savings in order to leave a larger amount of bequest to their children. This result is qualitatively similar to that of Zhang and Zhang (2009) and Masuyama and Ohdoi (2022) in models without intergenerational transfers of physical capital.

2.3 Numerical simulations

Figure 1 illustrates the theoretical cases described in propositions 1 and 2. It depicts how the relationship between the mandatory retirement age and the growth rate varies with the two key preference parameters, β and γ, which capture individuals' degree of patience and altruism, respectively. For the simulation, we set $\alpha = 0.3$, $\delta = 0.33$ (as in Gonzalez-Eiras and Niepelt (2012)), and $\chi = 0.9$. Then, for varying degrees of β and an initial mandatory retirement age $\rho = 0.1$, we plot equation (19), which determines whether bequests are operative or inoperative. As shown in figure 1, the upper-left region corresponds to combinations of β and γ for which bequests are positive ($b > 0$), implying that growth always increases with a higher retirement age. By contrast, the lower-right region represents parameter constellations where bequests are inoperative. In addition, the figure displays the lower and upper bounds for β from equation (29), denoted by $\beta_{\min}(\gamma)$ and $\beta_{\max}(\gamma)$, respectively, each plotted under equality. For relatively low values of β (Case A), an increase in ρ enhances growth, whereas for intermediate combinations of β and γ (Case B), the relationship becomes non-linear. Finally, when β is sufficiently high (Case C), a further rise in ρ reduces growth. For illustration, setting $\gamma = 0.25$ and $\beta = 0.75$ yields threshold values of $\beta \in (0.46, 0.98)$ according to equation (29), and the corresponding growth-maximizing retirement age is $\hat{\rho} = 0.4$.

The numerical values reported in table I illustrate the growth implications of changes in the mandatory retirement age ρ for different levels of old-age productivity χ when bequests are inoperative. The parameters A and D are set to $A = 1$ and $D = 2.8$ in order to generate a balanced-growth path growth rate at $g \approx 1.02$. For all three productivity levels, the balanced-growth rate g initially rises with ρ and reaches a maximum around $\rho \approx 0.4$–0.7 depending on χ, after which it gradually declines. This hump-shaped pattern confirms the theoretical prediction of proposition 1 that, when bequests are inoperative, the relationship between ρ and long-run growth is inverted U-shaped. Comparing across columns, a lower χ, that is, lower relative productivity of the old, shifts the peak of the curve slightly leftward and flattens it, implying that economies with lower old-age labor efficiency reach their growth maximum at a lower retirement age. Overall, the simulated magnitudes are modest but economically meaningful: increasing ρ from 0 to its optimal range raises the long-run growth factor from about 1.007 to roughly 1.037, corresponding to an annual growth acceleration of about 0.3 percentage points when interpreted in yearly terms.

Figure 1: Graphical representation of the different growth effects according to propositions 1 and 2. Parameters: $\alpha = 0.3$, $\delta = 0.33$, $\chi = 0.9$.

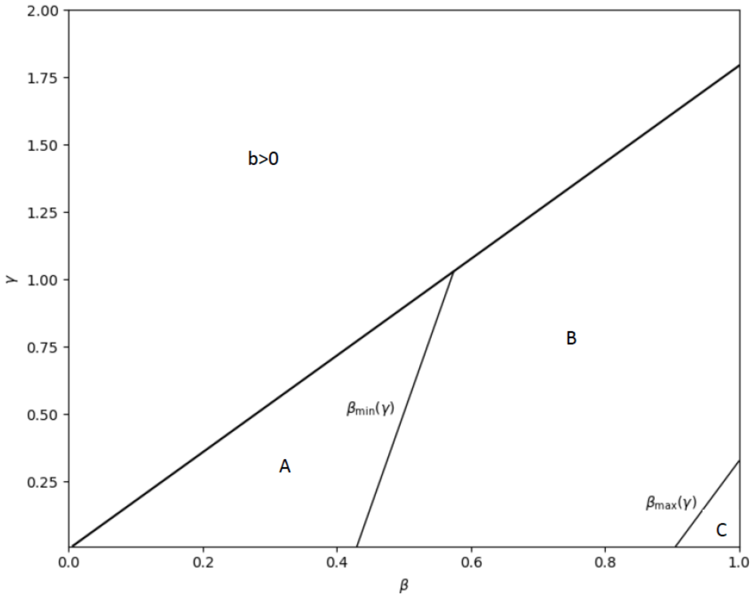

Table I: Balanced-growth rate g with inoperative bequests by mandatory retirement age ρ and old-age labor productivity χ.

	g		
ρ	$\chi = 0.9$	$\chi = 0.7$	$\chi = 0.5$
0.0	1.007	1.007	1.007
0.1	1.024	1.021	1.017
0.2	1.032	1.029	1.025
0.3	1.036	1.034	1.030
0.4	1.037	1.036	1.033
0.5	1.036	1.037	1.035
0.6	1.034	1.036	1.036
0.7	1.032	1.035	1.037
0.8	1.029	1.034	1.036
0.9	1.025	1.032	1.036
1.0	1.022	1.029	1.035

3. Conclusion

This paper shows that the relationship between the mandatory retirement age and economic growth is inverted U-shaped when bequests are inoperative whereas the effect is unambiguously positive when bequests are operative. It thereby highlights the importance of intergenerational transfers in the form of bequests in determining the growth effects of a higher mandatory retirement age, a channel which has not been addressed in the literature so far. In view of the current reform efforts in many OECD countries and the prevalence of intergenerational wealth transfers (see Nolan et al. (2022) and references therein)[8], these findings are highly relevant from a policy perspective. Cross-country evidence, e.g., shows that retirement age reforms have significantly increased older workers' labor force participation (Boeri et al., 2022). At the same time, intergenerational wealth transfers appear not to discourage labor supply among heirs (Tur-Sinai et al., 2022), suggesting that extended working lives and private transfers can complement rather than substitute each other. Recent U.S.-based evidence further shows that bequests and parental earnings risks are empirically linked, with children's saving behavior adjusting to anticipated transfers and pension coverage of their parents (Shao and Zhang, 2024). These dynamics underline the relevance of incorporating both retirement incentives and familial transfers into the macroeconomic assessment of retirement reforms.

Beyond the growth implications derived above, the welfare effects of a higher mandatory retirement age merit closer examination. In our framework, where leisure is not a direct argument in utility, the welfare-maximizing retirement share ρ^W equates the marginal gains from longer working life, through higher old-age income and stronger incentives to invest in children's human capital, with the marginal losses due to lower private saving and the induced decline in capital accumulation. In practice, however, ρ is chosen in a politico-economic equilibrium rather than by a social planner. Gonzalez-Eiras and Niepelt (2012)'s probabilistic-voting benchmark shows that the political process lacks commitment and systematically under-

[8]Their estimates indicate that intergenerational wealth transfers -whether through inheritance, gifts, or both -are most common in France and the United Kingdom, where approximately 36.1% and 34.7% of households, respectively, have received such transfers. In contrast, the prevalence is lowest in the United States at 19.1%, while countries such as Germany, Ireland, Italy, and Spain fall in an intermediate range.

weights long-horizon productivity benefits that accrue beyond voters' lifetimes. In the context of our model, this implies that the politically chosen ρ would tend to fall short of ρ^W (and need not coincide with it), because voters neglect part of the long-run human-capital channel that a higher ρ activates. Consequently, while raising ρ can increase output, it need not be intertemporally welfare-improving once political constraints are recognized. Identifying the political and institutional conditions under which extensions of working life are both growth-enhancing and welfare-improving remains a promising avenue for future research.

Two simplifying assumptions underlying the model are exogenous fertility and identical households. Relaxing these assumptions would not overturn the qualitative results but would introduce additional transmission channels.

Allowing fertility to respond to economic incentives would mainly affect the level, not the sign, of the growth-retirement relationship. If fertility declines with higher parental time devoted to work in old age or with higher education expenditures, then an increase in the mandatory retirement age ρ could reduce fertility. Lower fertility raises the capital-labor ratio and amplifies the human-capital channel in equations (25) and (39), thereby shifting the growth-maximizing $\hat{\rho}$ to a slightly higher level. This mechanism resembles the demographic-capital deepening effect emphasized by Gonzalez-Eiras and Niepelt (2012): when retirement is postponed, the smaller young cohort increases per-capita investment. Conversely, if higher household income at later ages stimulates fertility, the additional consumption demand would partly offset the positive growth effect of delayed retirement. In both cases, fertility endogeneity affects transitional dynamics but not the fundamental distinction between the inoperative-bequest (inverted U-shaped) and operative-bequest (monotonic) regimes identified in propositions 1 and 2.

Introducing heterogeneity in altruism γ or wealth would segment the population into households with and without operative bequests. More altruistic or wealthier families would remain in the operative-bequest regime, while others would behave as in the inoperative case. Aggregate growth would then be a weighted average of the two regimes, with the economy's growth response to ρ depending on the distribution of γ and inherited assets. Greater inequality in altruism or wealth would thus flatten the overall growth response, as some households experience positive and others negative effects from a higher retirement age. Endogenizing this heterogeneity through, for instance, dynastic shocks or differential education technologies could further generate transitional dynamics in which the operative-bequest group expands over time, making the long-run effect of increasing ρ more positive.

Taken together, endogenizing fertility and allowing for heterogeneity would enrich the model's empirical relevance without altering its core theoretical insight: the growth effect of raising the mandatory retirement age depends critically on the strength and distribution of intergenerational transfer channels in the economy.

References

Bethencourt, C., Kunze, L., Perera-Tallo, F., 2025. Partially funded social security and growth. Metroeconomica 76, 297–310.

Boeri, T., Garibaldi, P., Moen, E.R., 2022. A clash of generations? Increase in retirement age and labor demand for youth. Journal of Population Economics 35, 45–77.

Chen, H., Miyazaki, K., 2020. Labor productivity, labor supply of the old, and economic growth. Economics Bulletin 40, 277–285.

Fanti, L., 2015. Growth, PAYG pension systems crisis and mandatory age of retirement. Economics Bulletin 35, 1160–1167.

Gonzalez-Eiras, M., Niepelt, D., 2012. Ageing, government budgets, retirement, and growth. European Economic Review 56, 97–115.

Kunze, L., 2012. Funded social security and economic growth. Economics Letters 115, 180–183.

Kunze, L., 2014. Mandatory retirement and economic growth: An inverted U-shaped relationship. Economics Bulletin 34, 885–891.

Lambrecht, S., Michel, P., Vidal, J.P., 2005. Public pensions and growth. European Economic Review 49, 1261–1281.

Masuyama, M., Ohdoi, R., 2022. The relationship between mandatory retirement and patterns of human capital accumulation. Economics Bulletin 42, 1192–1202.

Nolan, B., Palomino, J.C., Kerm, P.V., Morelli, S., 2022. Intergenerational wealth transfers in Great Britain from the Wealth and Asset Survey in comparative perspective. Fiscal Studies 43, 179–199.

OECD, 2023. Pensions At a Glance 2023: OECD and G20 Indicators. OECD Publishing, Paris, https://doi.org/10.1787/678055dd-en .

Piketty, T., 2014. Capital in the Twenty-First Century. Harvard University Press, Cambridge, MA.

Shao, L., Zhang, J., 2024. Retirement wealth, earnings risks, and intergenerational links. Economic Inquiry 62, 1494–1519.

Tur-Sinai, A., Ayalon, L., Benyamini, Y., Lowenstein, A., 2022. The effect of intergenerational transfers on older adults' workforce participation: evidence from SHARE. European Journal of Ageing 19, 1317–1327.

Zhang, J., Zhang, J., 2009. Longevity, retirement, and capital accumulation in a recursive model with an application to mandatory retirement. Macroeconomic Dynamics 13, 327–348.