

Delayed (or Accelerated) Integration as a Counterforce to Gerontocracy*

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Abstract

In the presence of a gerontocracy where the immobile old generation has the power to levy taxes on the mobile young generation, this paper focuses on how the integration policy is optimally determined by a constitutional assembly such that the mobility of the young counteracts this gerontocratic power and national welfare is maximised. Some conclusions are then drawn with respect to how this framework relates to the realities in the European Union.

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KEYWORDS: Migration, redistribution, Leviathan, gerontocracy, delayed integration, home-country principle, employment principle

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1 Introduction

European integration implies first and foremost that barriers are dismantled and the movement of factors is unhindered. Whether the movement of labour and capital then leads to an efficient allocation across the Member States of the European Union depends on two aspects: first, the extent to which net returns or net wages in the sending and the destination country differ from the respective marginal productivities due to taxes and other kinds of fees and contributions; second, the extent to which this is relevant for the decision as to where to allocate capital or labour.

Correspondingly, the resulting distortions can be eliminated with the help of two different approaches where in what follows, we restrict our attention to the mobility of labour. One possibility is to harmonize taxes and social security contributions - either at zero, which would imply an abolition of the tax-transfer system, or at a level equal across countries. This would correspond to a neutralisation of the distortionary effects on the allocation of labour. At the same time the employment principle could be retained, i.e. taxation by the country where the individual is employed which in our case corresponds to the country of residence. This approach has already been extensively discussed in the literature (see, e.g., Homburg and Richter, 1993, Breyer and Kolmar, 2002, Uebelmesser, 2004) and will not be the focus here.

The other possible reaction is to isolate migrants from the fiscal and social policy in the destination country. The migration decision is then not affected by differences of taxes and transfers between countries, but depends on the difference in gross wages alone. An efficient allocation of labour results. Following this reasoning, Sinn (1990) proposes to replace the employment principle by the home-country principle. Individuals are allocated to a fiscal and social system of one Member State once for their entire life on the basis of their or of their parents' place of birth, their choice at a certain age or some other mechanism.

While the employment principle might lead to destructive tax competition,¹ the home-country principle relies on the benevolence of the decision-makers. As both alternative principles present rather extreme ways of how to assign migrants to jurisdictions, it has been proposed to opt for a middle course with the principle of delayed integration (Wissenschaftlicher Beirat, 2001, Sinn, 2002, and Richter, 2002). Migrating from one country to another country then results in the assignment to the fiscal and social systems of the destination country with some delay. The shorter the delay, the closer is the principle to the employment principle and the longer the delay, the more similar is it to the home-country principle. Whether less competition should be preferred to more competition or vice versa depends on what one thinks about the general operation of the fiscal and social security systems (Oates, 2002). If we assume that those responsible for the national tax and transfer systems seek to promote social welfare, i.e. if in a closed-economy setting the implemented tax and transfer system would be optimal, the home-country principle is the best solution. If, however, we adhere to the Leviathan belief, i.e. if in a closed-economy setting the fiscal and social system would be inefficiently large in order to benefit the Leviathan, the employment principle has some merits. The advantages and disadvantages of either a regime where migrants are immediately integrated in the tax and transfer system of the destination country or a regime where migrants remain members of their country of origin can then be balanced by choosing the integration policy accordingly. Differences in the national tax and transfer systems then do no longer distort the migration decision for short-term migration and play a smaller role for long-term migration while the reassignment of migrants to the fiscal and social system of the destination country – even though with some delay – works as a counterbalance to potential Leviathan tendencies.

¹This reasoning is based on the presumption that non-cooperative fiscal and social policies will lead to inefficiency. There are, however, circumstances where non-cooperative behaviour results in constrained efficient outcomes. See Kehoe (1989) for mobile capital and Thum and Uebelmesser (2003) for mobile labour.

Contrary to most of the political and economic debate which centres on the question of policies directed towards immigrants and on how the choice of the optimal integration principle by the destination country can avoid inefficient migration from less developed countries to more developed countries, which is primarily motivated by the generous welfare states in the latter, and not by productivity differences, we here analyse a related, and somehow complementary aspect. By choosing the perspective of the home country of emigrants this framework allows us to focus explicitly on the trade-off between the mobility of the tax base and the (non-)benevolence of the decision-makers. In what follows, we will interpret the decision-makers as the old generation with the power to levy taxes on the young generation thus implying some gerontocratic structure. Even though the societies are not yet gerontocratic as the median voter is still a member of the young generation, this might be the relevant scenario for the not so distant future as the forecasts for the demographic development show.² This paper allows seeing how the integration policy should be chosen already today to guard against future changes of the power structure. By fixing an integration policy in the constitution today which allows balancing migration and gerontocracy in the future possible conflicts at a later point in time might be avoided.

The paper lays out a theoretical model with which the trade-off is analysed which exists between a more or less mobile tax base due to faster or slower integration of migrants in the destination country's social and fiscal systems in the presence of more or less (future) benevolent decision-makers. This model is then used to determine the optimal delay of integration. For this, the gerontocratic tendencies of the old generation and the policies of the foreign country are taken into account. By enabling the young generation to escape

²Today the median voter is, for example, 48 years old in Germany and Italy and 47 years in France. Within the next decades, the age of the median voter will increase significantly – reaching 55 years in 2030 in Germany, 58 years in Italy and 53 years in France. The calculations are based on citizens of the year 2000, their descendents and naturalised foreigners (Eurostat, 2000, OECD, 2001, Bundesausländerbeauftragte, 2002). The demographic developments in other EU countries are similar.

the domestic system by migrating - albeit possibly only with some delay, the interests of the old are counterbalanced. Some conclusions are then drawn with respect to how this framework relates to the realities in the European Union.

The setup of the paper is as follows: In the next Section, the related literature is discussed. In Section 3, the model is presented and the choices of the different groups are analysed. Section 4 concludes.

2 Related Literature

There is a large literature about the question whether tax competition is good or bad. While Sinn (1994), Oates (2001) and others stress the danger of a race to the bottom in the absence of policy coordination in the context of the European Union, Brennan and Buchanan (1980) point out that tax competition can be an objective in its own right. Edwards and Keen (1996) explicitly focus on this trade-off between tax coordination and tax competition in the presence of a Leviathan where taxes are levied on mobile capital while the capital owners are immobile. Rauscher (1998, 2000) further elaborates on this. This literature assumes a source-based taxation.

We are here instead interested in taxes levied on mobile labour and the optimal delay of integration. In this respect, the paper closest to ours is Richter (2004) who focuses on immigration and emigration and the optimal delay of integration when national welfare comprises tax payers or natives.³ In the spirit of the literature influenced by Edwards and Keen (1996), Richter (2004) constructs a model with a mobile and an immobile group where the mobile group pays taxes which finance a public good consumed by the immobile group. The provision of this public good by a Leviathan government results in the appropriation of part of the tax revenues for Leviathan consumption. Richter shows

³See also Weichenrieder and Busch (2005) for introducing a limited transition period which - by creating a time-consistency problem - can bring tax competition to a hold. Leviathan tendencies do, however, not play any role.

that delaying integration dominates the home-country principle whenever the propensity of the government to waste tax revenues is strong. However, comparing the home-country principle or the principle of delayed integration to the employment principle does not allow a clear ranking. There is only some weak evidence that the employment principle is the more favoured the more the Leviathan engages in wasteful activities.

The aim of this paper is to extend this framework to allow for an intergenerational interpretation. For this, a simple modelling framework is chosen where the Leviathan is no longer an additional player, but rather the (immobile) old generation with gerontocratic power. Following the terminology of the Leviathan literature cited, one could be tempted to see the tax revenues collected by the old generation as wasteful activity. As both generations are, however, part of national welfare, the issue is not to minimize the transfers to the old but to achieve a level of intergenerational redistribution which corresponds to the optimum from a social point of view.

3 The Model

As already mentioned, there are two groups: one young, mobile group and one old, immobile one. The young group inelastically supplies one unit of labour at home or abroad, earns wage income and pays taxes;⁴ the old group has the power to levy taxes from the young, i.e. we assume a gerontocracy.⁵

As we want to focus on redistribution across the two groups, we assume that both groups are homogeneous with respect to the gross and net income they earn or the transfers

⁴We thus abstract from any inefficiencies which could arise due to distorted labour supply or human capital investment.

⁵We abstract here from an overlapping-generation structure focusing instead on one period only. Both approaches could be reconciled by assuming first, that every individual has one decendent who is born before the migration decision is taken and second, that for the migration decision, only (differences in) net wage income are taken into account.

they receive. This implies in particular with respect to the young generation that we rule out any need for intragenerational redistribution. The tax and transfer system serves alone the purpose of intergenerational redistribution. As (young) migrants are thus net contributors to the system in their working period, the question is not how to prevent migrants from entering a country, but rather how fast migrants should be allowed to or forced to leave the system of the home country upon migration. However, we allow for some heterogeneity among the young as to how much they value living and working abroad.

The time structure is the following: In stage zero, a constitutional assembly determines how fast emigrants can or have to leave the tax and transfer system of their home country and how fast immigrants have to join the tax and transfer system of the foreign country, i.e. to what extent integration or expulsion respectively is delayed or accelerated. The chosen regime implicitly determines the mobility of the migrants as their role of tax-payers is concerned. Taken this delay as given, in the first stage, the old generation fixes the tax rate and in the second stage, the young generation decides about whether to migrate or not.

Solving by backward induction, we first discuss the migration of the young and then the choice of the tax rate of the old before elaborating on the optimal integration policy.

3.1 Stage 2: Migration of the Young

In the second stage, the young individuals compare the net wages in the home country and the net wages in the destination country to decide whether to migrate or not on the basis of the taxes as announced at stage one and given the integration policy as determined at stage zero.

As we want to allow for the extreme cases of the employment principle and the home-country principle as well as for intermediate cases with delayed integration, we choose a flexible formulation of the integration policy. Non-migrants in both countries earn w subject to the domestic tax rate t in the home country and w^F net of the foreign tax

rate t^F in the foreign country. Emigrants from the home country correspondingly receive w^F in the foreign country where the part δ is subject to the tax rate t of their home country and the part $(1 - \delta^F)$ is subject to the tax rate t^F of the foreign country with $0 \leq \delta, \delta^F \leq 1$, while this holds vice versa for emigrants from the foreign country - or respectively immigrants to the home country. The subscript F denotes variables of the foreign country. We thus assume here that countries - or more precisely the respective constitutional assemblies - can decide about the rules governing the tax liability of natives as well as immigrants. Similar to Richter (2004), we assume that the static framework can be interpreted in a dynamic context; emigrants are subject to the tax regime in their home country for the first δ -part of their emigration period and become a member of the tax regime in the foreign country for the last $(1 - \delta^F)$ -part. The home country can thus determine how long the natives who have emigrated are still subjected to the home country's tax system and how soon immigrants are liable to this tax system as well. While we assume that the rules for emigrating natives and immigrating foreigners have to be the same which can be seen as an application of some non-discrimination clause, we permit integration policies to differ across countries thus potentially allowing for double taxation or a temporary exemption from taxation.

We normalize the size of the young to 1 and allow for heterogeneity e related to how much they value the foreign country as a place to live and work. We assume that e is uniformly distributed between 0 and 2. With this, we are able to capture, for example, different non-monetary costs related to moving for $e < 1$ - e.g. individually differing difficulties of integrating themselves socially and culturally in the destination country - as well as preferences for living in a foreign country for $e > 1$.

For proportional taxes, the migration decision is thus given by⁶

$$w(1-t) \stackrel{\leq}{\geq} w^F(1-\delta t - (1-\delta^F)t^F)e. \quad (1)$$

where e is known to the individual and the distribution of e is public knowledge. In what follows, we assume that gross wages in the home and in the destination country are equal. In the absence of taxes, there would be no economically motivated incentives to migrate - only incentives due to non-economic reasons.

The indifferent individual is then characterized by $e^* \in e$ for which (1) holds as an equality

$$w(1-t) = w(1-\delta t - (1-\delta^F)t^F)e^*. \quad (2)$$

Net wages at home are equal to net wages abroad where taxes are a convex combination of the taxes to be paid to the home and foreign country respectively and where the individual disutility of migration is taken into account.

All $e^*/2$ individuals with $e < e^*$ stay in the home country whereas all $(1 - e^*/2)$ individuals with $e > e^*$ emigrate where e^* is given by

$$e^* = \frac{(1-t)}{(1-\delta t - (1-\delta^F)t^F)}. \quad (3)$$

e^* is thus a function of the tax rates at home and abroad as well as of the integration policies in both countries, $e^* = e(t, t^F, \delta, \delta^F)$. Note that $e^* \geq 0$ holds for $t \leq 1$, while $e^* \leq 2$ requires that $\delta \leq \frac{2-2(1-\delta^F)t^F-(1-t)}{2t}$. Comparative statics conveys some ideas about the factors influencing migration. We find that

$$\frac{\partial e^*}{\partial t} = \frac{-(1-\delta) + (1-\delta^F)t^F}{(1-\delta t - (1-\delta^F)t^F)^2} \geq 0 \iff \delta \geq 1 - (1-\delta^F)t^F = \hat{\delta} \quad (4)$$

⁶Rewriting the wages net of taxes abroad as $w^F(1-\delta t - (1-\delta^F)t^F) = w^F\delta + w^F(1-\delta^F) - w^F\delta t - w^F(1-\delta^F)t^F + w^F(1-\delta - (1-\delta^F))$ helps to see that the chosen formulation corresponds to a presentation where the total wage income abroad is de facto subdivided into the part $w^F\delta$ subject to the tax rate at home, the part $w^F(1-\delta^F)$ subject to the tax rate in the destination country and a remaining part which captures any part exempted from taxation in both countries (if positive) or doubly taxed (if negative).

which implies that only if it is easily possible to escape the domestic tax and transfer system by migration ($\delta < \widehat{\delta}$) do higher domestic taxes lead to more emigration, while this is not the case if even abroad natives of the home country are still subjected to the home country's system for a long time ($\delta > \widehat{\delta}$). The other comparative statics results straightforwardly follow

$$\frac{\partial e^*}{\partial \delta} = \frac{(1-t)t}{(1-\delta t - (1-\delta^F)t^F)^2} > 0 \quad (5)$$

$$\frac{\partial e^*}{\partial t^F} = \frac{(1-t)(1-\delta^F)}{(1-\delta t - (1-\delta^F)t^F)^2} > 0 \quad (6)$$

$$\frac{\partial e^*}{\partial \delta^F} = \frac{-(1-t)t^F}{(1-\delta t - (1-\delta^F)t^F)^2} < 0 \quad (7)$$

Similarly to the reasoning above, more natives stay in the home country *ceteris paribus* if the integration policy gets closer to the home-country principle (higher δ). The same holds *ceteris paribus* for a higher foreign tax rate while a slower integration of migrants in the tax and transfer system of the foreign country (lower δ^F) increases the number of migrants.

Analogously, we can define the indifferent individual of the foreign country as characterized by $e^{F*} \in e^F$ with

$$e^{F*} = \frac{(1-t^F)}{(1-\delta^F t^F - (1-\delta)t)}. \quad (8)$$

Comparative statics yields

$$\frac{\partial e^{F*}}{\partial t^F} = \frac{-(1-\delta^F) + (1-\delta)t}{(1-\delta^F t^F - (1-\delta)t)^2} \geq 0 \iff \delta \leq 1 - \frac{1-\delta^F}{t} = \widehat{\delta}^F \quad (9)$$

$$\frac{\partial e^{F*}}{\partial \delta^F} = \frac{(1-t^F)t^F}{(1-\delta^F t^F - (1-\delta)t)^2} > 0 \quad (10)$$

$$\frac{\partial e^{F*}}{\partial t} = \frac{(1-t^F)(1-\delta)}{(1-\delta^F t^F - (1-\delta)t)^2} > 0 \quad (11)$$

$$\frac{\partial e^{F*}}{\partial \delta} = \frac{-(1-t^F)t}{(1-\delta^F t^F - (1-\delta)t)^2} < 0 \quad (12)$$

For the analysis that follows it is useful to note that $e \geq e^F \iff \delta \geq 1 - \frac{t^F(1-\delta^F)}{t} = \widehat{\delta}^e$ and thus $\widehat{\delta}^F \leq \widehat{\delta}^e \leq \widehat{\delta}$.

In what follows, we will take the tax and integration policy of the foreign country as given. This is in line with the idea of a "fixed" outside option for natives of the home country and allows us to inquire how this outside option can be made operational by the constitutional assembly as a means to influence the decisions of the old generation.⁷

3.2 Stage 1: Tax Choice of the Old

In the first stage, the old then set the tax rate to maximize the objective function taking the migration behaviour of the young into account

$$\max_t Z = \alpha U + (1 - \alpha)V. \quad (13)$$

U denotes the utility of the old generation and V of the young generation where we assume $U', V' > 0$ and $U'', V'' < 0$. The parameter $\alpha \in [0, 1]$ indicates to what extent the old generation considers the utility of the young generation, i.e. of the tax-payers, when choosing the tax rate t . By this, we are able to capture different degrees of selfishness or different gerontocratic tendencies including the cases of pure gerontocracy with $\alpha = 1$ and of pure altruism with $\alpha = 0$ as well as all intermediate cases (see Edwards and Keen, 1996).

The wage income subject to the tax system in the home country is given by $(e^*/2)w + (1 - e^*/2)w\delta + (1 - e^{F^*}/2)w(1 - \delta)$. The first term denotes the income earned by the non-migrating natives while the second term captures the income earned by the emigrants of the home-country during the first δ -part of their migration period and the third term captures the income earned by the immigrants to the home-country during the last $(1 - \delta)$ -part of their migration period. For t , the utility from the share of the old generation amounts to $U = U((e^*/2)wt + (1 - e^*/2)w\delta t + (1 - e^{F^*}/2)w(1 - \delta)t)$ whereas the utility of the young is equal to $V = V((e^*/2)w(1 - t) + (1 - e^*/2)w\delta(1 - t) + (1 - e^{F^*}/2)w(1 - \delta)(1 - t))$.⁸

⁷We will comment on this assumption in section 3.4.

⁸If we adhere to the temporal interpretation as discussed above, this corresponds to a welfare concept which is based on voters - at home and abroad: migrants then remain full members of the home (foreign)

(13) then becomes

$$\begin{aligned} \max_t \alpha U & \left(\frac{e^*}{2} wt + \left(1 - \frac{e^*}{2}\right) w\delta t + \left(1 - \frac{e^{F^*}}{2}\right) w(1 - \delta)t \right) + \\ & + (1 - \alpha)V \left(\frac{e^*}{2} w(1 - t) + \left(1 - \frac{e^*}{2}\right) w\delta(1 - t) + \left(1 - \frac{e^{F^*}}{2}\right) w(1 - \delta)(1 - t) \right), \end{aligned} \quad (14)$$

and the first order condition

$$\begin{aligned} \frac{\partial Z}{\partial t} = \alpha U' & \left(\left(\frac{\partial e^*}{\partial t} - \frac{\partial e^{F^*}}{\partial t} \right) \frac{t(1 - \delta)}{2} + \left(\frac{e^*}{2} - \frac{e^{F^*}}{2} \right) (1 - \delta) + 1 \right) + \\ & + (1 - \alpha)V' \left(\left(\frac{\partial e^*}{\partial t} - \frac{\partial e^{F^*}}{\partial t} \right) \frac{(1 - \delta)(1 - t)}{2} - \left(\frac{e^*}{2} - \frac{e^{F^*}}{2} \right) (1 - \delta) - 1 \right) = 0 \end{aligned} \quad (15)$$

yields the optimal tax rate $t^* = t(\alpha, \delta, e^*(\delta, \delta^F, t^F), e^{F^*}(\delta, \delta^F, t^F))$ from the perspective of the old generation given its gerontocratic tendency, the integration policy in both countries and the foreign tax rate.

3.3 Stage 0: The Optimal Delay

Given the behaviour of the young and the old generation, a constitutional assembly then determines the optimal delay δ in stage zero such that the (future) old generation chooses the tax rate \tilde{t} which reflects the preferences of the constitutional assembly. The delay is thus implicitly given by $t^* = t(\alpha, \delta, e^*(\delta, \delta^F, t^F), e^{F^*}(\delta, \delta^F, t^F)) = \tilde{t}$. Following Casamatta, Cremer and Pestieau (2000) and also Richter (2004), we thus assume that the tax and transfer policy consists of elements which are of a more fundamental nature and which therefore are decided on a constitutional level - in our case the integration policy δ - while other elements like the tax rate t are part of the normal legislative process.

country's fiscal and social system - including the right to vote - for the first δ or δ^F -part of their stay abroad, while they switch to the other country's fiscal and social system - including the right to vote - for the last $(1 - \delta^F)$ or $(1 - \delta)$ part. See Richter (2004) who discusses in addition a welfare concept where natives are the relevant group.

Before analyzing the optimal choice of the integration policy, a closer look at the various effects at work in the presence of a tax increase is in order. For $\delta < \widehat{\delta}$ - which as it will turn out later prevails for all specifications of our numerical example, the mobility of the tax base as given by $\frac{\partial e^*}{\partial t} < 0$ and $\frac{\partial e^{F^*}}{\partial t} > 0$ can be seen as the counterforce of the young to the tax setting power of the old. Analogously, the degree of selfishness of the old can be interpreted as a counterforce of the old to their own power of levying taxes from the young for $\alpha < 1$. It is now well possible that the chosen tax rate t^* deviates from the socially optimal tax rate \widetilde{t} . t^* can be either too high if the tax base is relatively immobile and/or the old generation displays a high degree of selfishness; but t^* can also be too low if the tax base is relatively mobile and/or the old generation takes the effect of the taxes on the net income of the young generation to a large extent into account. In either case, the constitutional assembly can influence t^* via the choice of the integration policy which affects the "institutional" mobility of the young. While there are still no legal barriers to migrate for the young, a high δ makes them "institutionally" immobile in the sense that they cannot easily escape their home country's tax and transfer system by migrating. This reduces their incentives to migrate. The mobility of the tax base is thus reduced which is optimal whenever the chosen tax rate t^* is sub-optimally low. For the case where the tax rate t^* is sub-optimally high, however, it is optimal to increase the mobility of the tax base. This can be achieved with a low δ implying a high "institutional" mobility and thus a high incentive to migrate.

In what follows we first look at the case where \widetilde{t} is given before we discuss in some detail how the constitutional assembly might choose \widetilde{t} .

3.3.1 \tilde{t} given

The question is how to determine δ such that (15) holds with $t^* = \tilde{t}$ for given δ^F, t^F . With (3) and (4) and using a linear specification for the utility function, (15) becomes

$$\begin{aligned} \frac{\partial Z}{\partial t} = & \alpha \left\{ \frac{(1-\delta)}{2} \left[\left(\frac{\partial e^*}{\partial t} \Big|_{t=\tilde{t}} - \frac{\partial e^{F*}}{\partial t} \Big|_{t=\tilde{t}} \right) \tilde{t} + (e^* - e^{F*}) \right] + 1 \right\} + \\ & + (1-\alpha) \left\{ \frac{(1-\delta)}{2} \left[\left(\frac{\partial e^*}{\partial t} \Big|_{t=\tilde{t}} - \frac{\partial e^{F*}}{\partial t} \Big|_{t=\tilde{t}} \right) (1-\tilde{t}) - (e^* - e^{F*}) \right] - 1 \right\} = 0 \end{aligned} \quad (16)$$

which gives us the α, δ relation which guarantees that $t^* = \tilde{t}$ is chosen by the old generation. Comparative statics results with respect to α, δ can be found by differentiating $\frac{\partial Z}{\partial t}$ totally with respect to α and δ yielding

$$\begin{aligned} \frac{d\delta}{d\alpha} &= - \frac{\partial(\frac{\partial Z}{\partial t})/\partial\alpha}{\partial(\frac{\partial Z}{\partial t})/\partial\delta} = \\ &= - \frac{\frac{1}{\alpha} \left[\frac{1-\delta}{2} \left[- \left(\frac{\partial e}{\partial t} - \frac{\partial e^F}{\partial t} \right) (1-t) + (e - e^F) \right] + 1 \right]}{\frac{2\alpha-1}{1-\delta} + \frac{1-\delta}{2} \left(\frac{\partial e^2}{\partial t \partial \delta} - \frac{\partial e^{F2}}{\partial t \partial \delta} \right) ((1-\alpha) + t(2\alpha-1)) + \frac{1-\delta}{2} \left(\frac{\partial e}{\partial \delta} - \frac{\partial e^F}{\partial \delta} \right) (2\alpha-1)} \end{aligned} \quad (17)$$

where the last equality follows from substituting (16) after appropriate transformation.

Even though we cannot sign (17) in general, we can state the following:

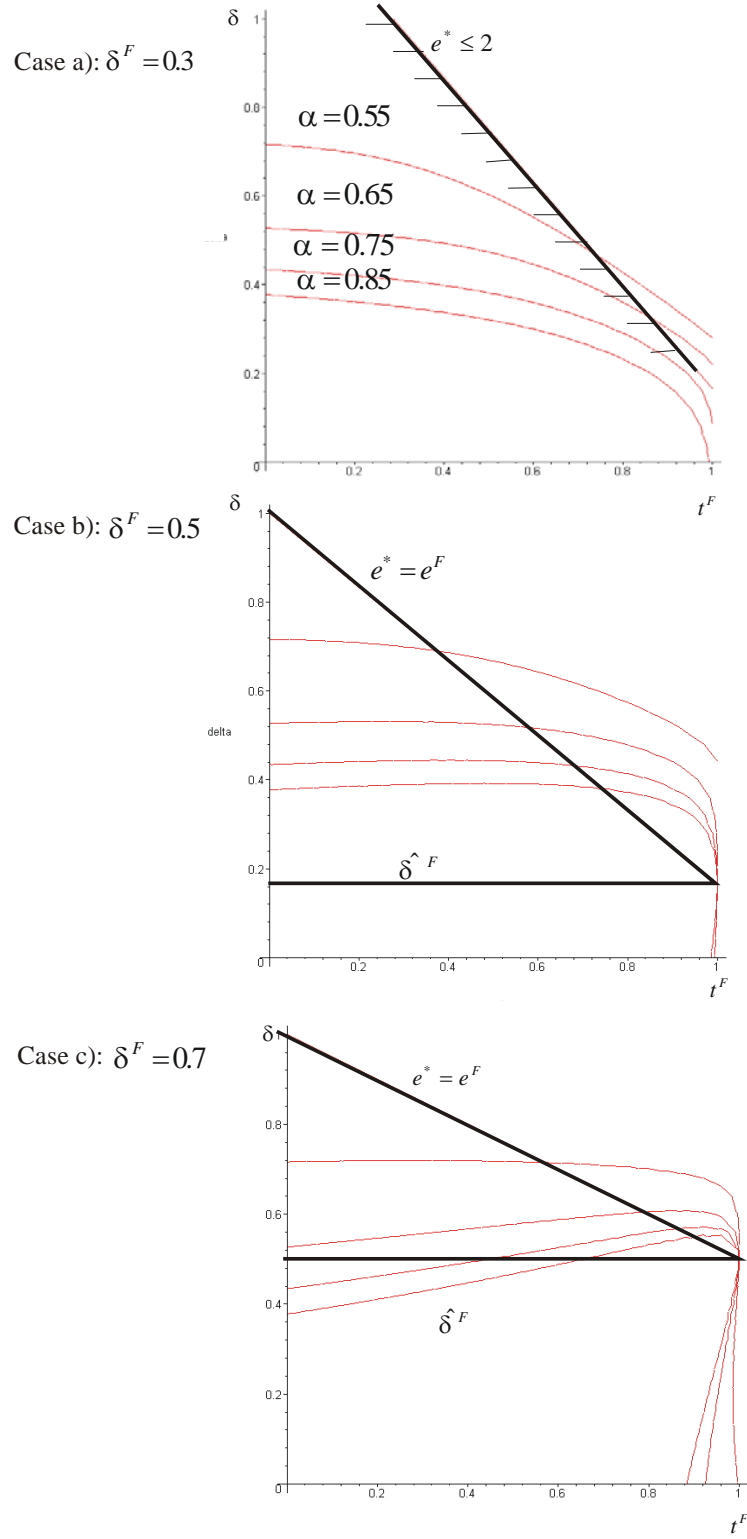
Proposition 1 For $\alpha > \frac{1}{2}$, $\frac{d\delta}{d\alpha} < 0$ if $\max(\underline{\delta}, \widehat{\delta}^e) \leq \delta \leq \widehat{\delta}$, where $\underline{\delta}$ is such that $\frac{\partial e^2}{\partial t \partial \delta} = 0$.

Proof. With (5), (12) and (11), these are sufficient conditions which guarantee that the nominator and denominator are both positive and thus $\frac{d\delta}{d\alpha} < 0$. ■

Illustrations We want to illustrate this with a numerical example. The three graphs (figure 1) show δ as a function of t^F for the cases where $\delta^F = 0.3, 0.5, 0.7$ and where it is assumed that $\tilde{t} = 0.6$ and that $\alpha = 0.55, 0.65, 0.75, 0.85$. This allows us on the one hand to analyse the optimal δ for different α when t^F, δ^F and \tilde{t} are given and on the other hand to see how the optimal δ has to change when t^F increases for given α, δ^F and \tilde{t} .

For easier interpretation of the different effects, the thresholds for δ are added whenever they are relevant where otherwise δ is such that $\max(\underline{\delta}, \widehat{\delta}^e) \leq \delta \leq \widehat{\delta}$ (and thus $\widehat{\delta}^F \leq \delta$) and $e^* \leq 2$ and $e^{F*} \leq 2$.

Figure 1: Optimal integration policy for $\tilde{t} = 0.6$



As we have already noted above, there is only emigration if $e^* \leq 2$. Only then does it make sense to think about an optimal integration policy δ as only then can migration be used to counter a gerontocratic tendency of the old generation. For high values of t^F , the integration policy thus has to lay below the solid black line in graph a). A policy, where the emigrants continue to be subject to the home country's tax and transfer system for a long time in addition to the heavy foreign tax burden they have to bear, is thus no longer feasible if the foreign country is very unattractive.

For an analysis of the optimal interation policy δ for different gerontocratic tendencies α we restrict our attention to the respective areas in the graphs where $\widehat{\delta}^F \leq \delta$. We find that the less selfish the old generation (small α) for a given t^F, δ^F , the closer is the policy to the home-country principle (high δ). A low gerontocratic tendency requires a less restrictive policy in the sense that migrants can remain members of the domestic tax and transfer system for a longer period. For an old generation with a strong gerontocratic tendency (high α), however, the chosen regime is closer to the employment principle (small δ). A high gerontocratic tendency has to be counteracted by allowing migrants to become a member of the fiscal and social system of the foreign country very soon after they have left their home country.

The (mostly) decreasing profil for increasing t^F can be explained as follows: A higher foreign tax rate implies that the outside option becomes less attractive. For the case where $\widehat{\delta}^F < \delta < \widehat{\delta}$, we know from (6) and (9) that this decreases the number of emigrants and increases the number of immigrants from the point of view of the home country. Both raises the tax base for the old generation of the home country. In order to reestablish the original balance of power in the home country, it is then necessary to increase the "institutional" mobility of the natives by implementing an integration policy which is closer to the employment principle. A smaller δ leads to more emigrants and fewer immigrants for the home country (cf. (5) and 12)).

3.3.2 Determination of \tilde{t}

We have so far been elusive as to the constitutional assembly and the derivation of the socially optimal tax rate \tilde{t} . The procedure developed above can be applied independently from how \tilde{t} is chosen and by whom. For illustrative purposes, however, we briefly discuss some examples:

Similar to how the old generation determines their optimal tax rate t^* , the constitutional assembly could derive the tax rate on the basis of a utilitarian welfare criterion where then β would constitute the weight. If the constitutional assembly consisted of all tax payers and transfer recipients, one could think, for example, of β as the population share of both groups. The tax rate preferred by the old generation t^* would then be different from the socially optimal tax rate as determined by the constitutional assembly \tilde{t} for $\alpha \neq \beta$, i.e. if the old did not take the young into account according to their share.

Alternatively, the constitutional assembly could be thought of as consisting of all natives behind the veil of ignorance, i.e. before knowing whether they would belong to the young or to the old generation. Again, it would be likely to expect the level of intergenerational redistribution and thus the tax rate \tilde{t} determined by the constitutional assembly to differ from the tax rate t^* chosen by the old generation.

Following the terminology of the Leviathan literature, it is possible to refer to the tax rate which exceeds \tilde{t} and the resulting transfers as wasteful activities or transfers not justifiable on the basis of the applied welfare criterion. Taxes up to \tilde{t} , on the contrary, are in line with the preferences of the constitutional assembly despite the resulting distortions of the migration decision for $\delta < 1$.

In these cases as well as in other cases which have not been discussed here, the constitutional assembly can adjust the constitutional framework δ to correct - completely or partially - for deviations of the preferences of the old generation from its preferences.

3.4 Application to the European Union

As already pointed out, we have put the focus on the home country of emigrants for our analysis of the trade-off between mobility of the tax base with fast integration and possible exploitation of the tax-payers with slow integration - even though the model captures migration flows originating in both countries. In the European Union, migration policy so far is mainly decided in an uncoordinated way on the national level despite the apparent spillovers.⁹ Applied to our framework, this would imply that a constitutional assembly in each Member State determines the socially optimal tax from the respective country's point of view in an uncoordinated way. It is evident that different integration policies could emerge as discussed above with δ , δ^F . It would then be a natural extension of the present framework to explicitly allow for interactions between the countries when choosing their optimal intergration and/or tax policies while so far, we have considered the foreign country's policies as given for the home country.

A harmonization of the integration policies can of course be reached by establishing a central European constitutional assembly. This would rule out double taxation or temporary exemption from taxation of parts of the migrants' income. The drawback, however, would be that national differences could then no longer be taken into account which might be important if countries are very heterogeneous; and that when adjusting the integration policy to changes of the relevant parameters, the effects on both countries would have to be taken into account.

If one is willing to accept that integration policies for immigrants and emigrants might vary across countries, one could thus think about leaving the respective responsibilities with the Member States while free movement of labour and in particular free access to

⁹While emigration policy does not play a very prominent role so far for the Member States of the European Union, policies with respect to immigrants from third countries as well as the rules applicable to immigrants from the new EU Member States are part of the national responsibilities (see Boeri and Brücker, 2005).

the respective labour markets could be agreed upon on the European level. Countries would then have an individual instrument which they can use to influence immigration and emigration and - by doing so - to counterbalance non-benevolent decision makers.

4 Conclusion

For our setting where both the old and the young generation are part of national welfare, we have shown that the integration policy is a useful instrument to counterbalance gerontocratic tendencies of the old generation by influencing the mobility of the tax base.

[To be completed]

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