ARTIFICIAL TIME INCONSISTENCY AS A REMEDY FOR THE RACE TO THE BOTTOM

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Abstract

A long-standing concern in the literature has been that household mobility implies a serious threat to the viability of redistributive taxation. This paper considers the effects of deferred integration of migrants into the redistributive system of the target country. In a model of symmetric regions, deferred integration introduces a time consistency problem into governments' tax plans which reduces a region's incentive to undercut other regions' tax rates and can bring tax competition to a halt. On the one hand, rich migrants cease to benefit from the lower tax rate in the current period. On the other hand, the region's promise of a continuing low rate in the future is not credible. We also explore the case where poor recipients of social assistance are mobile while the rich are immobile.

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1. Introduction

A long-standing concern in the literature has been that household mobility implies a serious threat to the viability of redistributive policies.[1] For the rich mobility, opens up the possibility of shopping around for the lowest tax rate to avoid becoming net contributors to the redistribution system. Governments in turn are induced to lower taxes on the rich to attract, or at least not to lose, net contributors. This may lead to a downward trend in taxes that may completely erode (decentralized) redistribution. For the poor, mobility enables them to settle where social protection and assistance is highest. A generous welfare system works as a "magnet" (Borjas 1999) for potential immigrants and has adverse effects on the budgets of welfare states. If governments lack instruments to discriminate between the existing population and new immigrants, they have an incentive to reduce transfer levels for the poor as migration makes it more expensive to maintain these transfers.

Migration and globalization are a threat for redistribution policies. But if redistribution is seen as insurance against future income shocks which markets do not provide, the elimination of redistribution can be seen as an allocative problem.[2]

One drastic way to overcome the erosion of the insurance provided by the redistributing welfare state is to preclude emigration altering the tax rate of the rich. For example, it has been suggested that, in Europe, people should be allowed to choose between different redistributive regimes when they are young and do not know what their future income will be. Thereafter, however, leaving the insurance system should be ruled out in order to prevent the rich leaving it ex post (Sinn 1994).

[1] See, for example, Musgrave (1959) or Oates (1972) who suggest for this reason that redistribution should be the domain of the central government of a federation.

[2] The equivalence of redistribution and insurance from an ex ante perspective is discussed by Buchanan and Tullock (1962), Varian (1980), Sinn (1995), and others.

This paper analyses a somewhat less drastic approach. It evaluates the question of whether a limited period for applying the original region's tax or welfare system after a person has emigrated from that region can be sufficient to prevent a race to the bottom.

The idea of delayed integration of mobile labor (henceforth DI) has recently been proposed by the Scientific Council of the German Ministry of Finance (2000) and since then there has been increasing academic interest in this idea. Richter (2003) provides an allocative assessment of this approach, considering it as a compromise between the origin principle and the employment principle for taxing cross-border labor supply. Richter (2004) analyzes DI in a Leviathan model with distortionary taxation. Sinn (2005) shows that a "Principle of Selectively Delayed Integration" would be compatible with a first best migration equilibrium in a two-country setting with different marginal productivities in autarky and social protection. A paper that is closely related to our study is by Michel, Pestieau and Vidal (1998) who consider a subsidy to poor mobile workers if a small open economy can discriminate against new immigrants in the levels of its social benefit. Like in the present study, redistribution in a small open economy may not completely vanish with perfect mobility, but, unlike in the present paper, this is not derived in a strategic context and the issue of time consistency is not modeled.[3]

In this paper we will focus on the strategic effects of DI on tax and transfer setting regions within a federation, something which has not been considered in the papers mentioned above. The intuition for why DI may limit tax competition is that it introduces a time consistency problem into governments' tax plans. When jurisdictions take their decisions in a DI system, a current reduction in the tax rate by a single jurisdiction to below the rate in other jurisdictions is not sufficient to attract rich taxpayers because an immigrant would still be required to pay her former home region's tax rate during the current period. Regions that want to attract rich taxpayers must also promise low tax rates in the future when

[3] Large or asymmetric regions as reasons for free mobility possibly not eliminating redistribution have also been discussed in the literature. See Cremer et al. (1996).

these rates become effective for migrants. However, such a promise is not credible since each region has an incentive to put high taxes on rich residents once they become settled. This incentive again results from the transition rule described: rich taxpayers who are residents of a region that increases its tax rate in the current period cannot evade this tax increase by emigration.

DI is also a possible solution for the race to the bottom problem in social assistance levels for the poor. Beyond this, it is relatively easy to administer and does not violate the spirit of the EU that prohibits "any discrimination on grounds of nationality" (EC-Treaty, Article 12).

Before we proceed with the description of the main model it is worthwhile discussing the relationship between the present paper and the existing literature on time inconsistency and globalization. It has been demonstrated by Kehoe (1989) for the case of mobile capital, and by Anderssen and Konrad (2003) for mobile skilled labor, that globalization may be a solution to hold-up problems. In a simple two-period setting a private investment that is undertaken in the first period risks being exploited or expropriated by the government in the second period. In this context, the possibility of emigration or capital mobility is an exit option for individual and this limits the government in its taxation decisions. This limitation encourages investment in the first period and can enhance welfare. The view proposed in this paper is the reverse: governments are limited in their taxation decisions because of mobility, and the introduction of a time consistency problem (through DI) is the solution rather than the problem. This difference is what is new in this the paper.

The paper is organized as follows. In section 2, we analyze a setting where the immobile poor have a majority in each region and try to tax the rich who can migrate freely between regions. First we consider the static and finitely repeated case of a very simple tax competition game. We then introduce DI and derive its effect on the tax rates in equilibrium. In section 3, we will follow the same order but reverse the setting. Now a majority of altruistic rich people wants to redistribute income to the poor who can move without cost

within the federation. In Section 4 we draw some conclusions and discuss the political feasibility.

2. A Simple Model of Delayed Integration

Assume a federation with z regions. Within this federation live n^r rich individuals with an income of $y^r = 1$. The rich are perfectly mobile within the federation but immobile with respect to the rest of the world. In each region there are $n_i^a > n_i^r$ poor individuals who are immobile within the federation as well as with respect to the rest of the world. Poor individuals earn an (exogenous) income of y^a, where $y^a < y^r$. The assumption $n_i^a > n^r$ guarantees that, in each region, the poor form a political majority, even if the all the rich decide to migrate to one jurisdiction.

Each region i uses a proportional income tax with rate t_i, the proceeds of which are distributed as a lump sum transfer to the poor. Even in autarky, there will be limits towards the taxation of the rich and total expropriation ($t = 1$) will be implausible. We model this by simply assuming bureaucratic inefficiencies: total tax revenue can be written as $T_i = t_i n_i^r y_i^r (1 - \gamma_i t_i / 2)$, where $\gamma_i \geq 1$ reflects the administrative costs associated with tax collection. Irrespectively of the number of rich and their actual income, total tax revenue peaks at $\bar{t}_i = \frac{1}{\gamma_i}$, which will be the maximal tax rate employed by a selfish poor majority. This upper bound $\bar{t}_i$ for the local tax rate may or may not differ across regions.

Given the restriction $t_i \in [0, \bar{t}_i]$, each region acts in the interest of the poor by choosing its tax rate t_i such that local tax revenues that can be distributed to the poor are maximized.

2.1. The Nash Equilibrium in a Static Model

As a starting point, consider a simple static framework that of course cannot incorporate Delayed Integration. Governments in each region simultaneously announce the tax rate on

the rich. Based on these announcements, the rich migrate to their preferred region and are taxed there. In this framework, there clearly exists no Nash equilibrium with positive taxation of the rich. Positive taxation of the rich requires that there is no region in which the tax rate is zero. However, if all other regions have a positive tax rate, it is always profitable for a given region to slightly undercut the other tax rates and to attract all the rich (Bertrand competition). An equilibrium therefore is reached only if there is a zero tax rate in a non empty set of regions and all the rich threaten to escape taxation by moving to a region with zero tax rate.

Essentially, the regions are facing a prisoners dilemma situation. With binding contracts possible they would agree to a minimum tax $\bar{t}_\ell = \min_i [\bar{t}_i]$.[4] In the absence of binding contracts, however, each region is better off by departing from such an agreement and undercutting other regions' tax rates. At least from the point of view of the regions' decision makers (i.e. the poor), the Nash equilibrium above implies a too low level of redistribution.

2.2. The Nash Equilibrium with a Finite Number of Repetitions

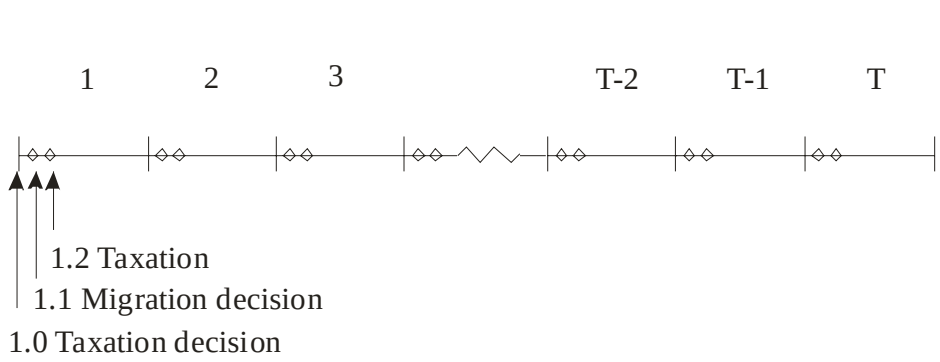
In order to now analyze the effect of a transition period, the above framework has to be extended from a static context to a dynamic one. It is a well known finding that, depending on the players' discount rate and strategies, prisoner's dilemma games may have a cooperative solution if there is an infinite number of repetitions.[5] Therefore, to avoid changing the intensity of tax competition by simply adding an extended time horizon, we will concentrate on finite repetitions of the above tax competition game.

Assume a time horizon of T periods. At the beginning of each period the regions simultaneously announce tax rates. On the basis of these announcements, the rich decide in which region to settle for the current period and taxation occurs thereafter. Figure 1

[4] The tax could be even higher when side payments are possible.
[5] See, e.g., Fudenberg and Tirole (1991, Chap. 5).

illustrates the timing. By using backward induction, it is easy to show that simply adding additional periods does not change the nature of the Nash equilibrium. In the last period *T*, the game has the same structure as in a static framework discussed above and will therefore yield a no taxation outcome. Since everybody anticipates this in period *T*-1, cooperation between regions cannot pay off in *T*-1 and zero taxation also results in this period. A similar argument however can be made for any of the previous periods implying that zero taxation of the rich in all periods continues to be a feature of a subgame perfect Nash equilibrium of the game.

Figure 1: The Timing



2.3. The Nash Equilibrium with Delayed Integration

Following the introduction of a dynamic setting that does not destroy the race to the bottom result of the static model, consider the effect of implementing a transition period into the timing structure of the last paragraph. The transition period is described by the following (centrally administered) policy rule.

POLICY RULE (DELAYED INTEGRATION): In period $k \in \{1...T\}$, a rich person is taxed at the current tax rate of that region *i*, in which she resided at the start of the period, irrespective of

whether, or where to, she migrates during the period. The resulting tax proceeds are handed to region *i*.

Again, the finite time horizon allows the game to be solved by backward induction. At the start of final period *T*, the situation is that of a one shot game. Unlike in the model of section 2.3, however, there will be no "*race to the bottom*". In period *T*, the policy rule ensures that migration does not save a rich person from paying the tax rate of the region in which he resided at the start of period *T*. Hence, any region that hosts at least one rich person at the beginning of period *T* will collect the maximum tax rate $t_{i,T} = \bar{t}_i$.

Now consider the decision problem of a region *i* in period *T*-1. A rich person knows that, if she stays during period *T*-1, she will be subjected to the rate $\bar{t}_i$ in the last period *T*. If *r* denotes the rate at which she discounts future tax payments, then staying in *i* implies a cash value of her tax burden of $M = t_{i,T-1} + (1/(1+r)) \cdot \bar{t}_i$.

Alternatively, she may move to a "ℓ-type region". A ℓ-type region is characterized by the fact that its maximum tax rate $\bar{t}_\ell$ is not undercut by any other region's *j* maximum tax rate: there exists no jurisdiction j, such that $\bar{t}_j < \bar{t}_\ell$. Moving to a type-ℓ region implies a discounted tax burden of $t_{i,T-1} + (1/(1+r)) \cdot \bar{t}_\ell$, which is always smaller than *M* for $\bar{t}_i > \bar{t}_\ell$. It follows that, if rich persons dwelled in a region *i* with $\bar{t}_i > \bar{t}_\ell$ at the start of period *T*-1, they will move to a type-ℓ region in period *T*-1. Given that all type-ℓ jurisdictions will raise their maximum tax rate in the last period (if some rich people are living there), the rich will be indifferent about the type-ℓ regions. Therefore, the best policy for any type-ℓ region in *T*-1 is to levy its maximum tax rate $\bar{t}_\ell$ since immigration is not discouraged but the tax revenues from previous residents are maximized.

A similar argument can be made subsequently for all other previous periods. At the beginning of each period, the best migration decision for a rich person is always to leave a region *i* with $\bar{t}_i > \bar{t}_\ell$ and the best policy for a type-ℓ region is to levy $\bar{t}_\ell$. This leads to the following proposition.

PROPOSITION 1: Any region that hosts a rich person at the beginning of a period $k \in \{1...T\}$ will levy the local maximum tax rate during that period. The rich will move in period $k = 1$ to one of those regions that have the lowest maximum tax rate. In equilibrium the rich pay the lowest maximum tax rate ($\bar{t}_\ell$) in each period after $k = 1$.

If $\bar{t}_\ell > 0$, the policy rule will dampen tax competition and the income tax is saved from total erosion. Tax revenues, however, are enjoyed only by those regions that have the lowest maximum tax rate.[6]

A striking implication of the above model is that tax competition completely vanishes if regions are identical in the sense that $\gamma_i = \gamma, \ \forall i$. This result comes from a time consistency problem which is introduced by the policy rule. While each region has an incentive to promise a somewhat lower tax rate in the last period than all the other regions, in order to attract all the rich, this promise is not credible. Once a rich has settled in a region this period, the fact that she cannot evade this region's tax rate for the next period locks her in and makes her exploitable. A region that offers a low tax rate today and promises to keep it low in the future will therefore be not successful. On the one hand, the lower tax rate in the current period is irrelevant for a rich person who is still obliged to pay her old region's rate and the promise of a continuing low rate in the future is not credible. On the other hand, lowering the tax rate will reduce the revenues from the rich who were already residents at the start of the current period.

3. Redistribution with perfectly mobile poor

The ability of governments to redistribute is not only reduced by the mobility of rich taxpayers. There is also widespread concern that mobility of the very poor may be a threat to

[6] Given our assumption that $\bar{t}_i$ is determined by the efficiency of the tax collecting authority we reach at the astonishing conclusion that those regions that have the most inefficient bureaucracy redistribute most under tax competition with DI.

the welfare state. The reason is that, from the perspective of the rich and the middle class, the cost of welfare payments to the poor increases if high benefit levels induce immigration by additional poor recipients (for an example see Wildasin 1991). As we will highlight in this section, delayed integration may also be a remedy for this loss in sovereignty.

To model the strategic effects that result from the existence of mobile poor, below we will reverse the mobility assumption. To keep things simple, we stick to a two class economy. The rich continue to earn income $y^r > y^a$, but now they are immobile within the federation as well as with respect to the rest of the world, while the poor are perfectly mobile across the *z* regions of the federation. The assumption $n_i^r > n^a$ ensures that in each region the rich form a political majority regardless of the migration decision of the poor.

The (homogeneous) rich have altruistic preferences towards the poor who live in the same jurisdiction and feel better if the domestic level of welfare assistance is high. These kinds of preferences could be interpreted as the rich not liking to see poverty in their neighborhood (Pauly 1973). Like in Section 2, we assume lump sum taxation of the rich and the time structure is similar to the previous section: at the beginning of each period the regions simultaneously announce per-capita transfers to the local poor. Based on these announcements, the poor decide which region to settle in for the current period. After the migration decision, the rich will be taxed and the transfers paid.

The rich derive utility from their net of tax income that is disposable for consumption purposes and derive utility from a high social welfare level for the poor in their jurisdiction. Let $\tilde{y}_{i,t}^r$ represent the after-tax-income of a rich person in region *i* and period *t* (which equals consumption) and $b_{i,t}$ stands for the per capita benefit of that period which goes to the poor who live in the same region. More precisely, we assume the utility function $U^r(\tilde{y}_{i,t}^r, b_{i,t})$,[7] which is maximized by the decisive rich voter subject to the government budget restriction $n_i^r(y^r - \tilde{y}_{i,t}^r) = b_{i,t} \cdot n_{i,t}^a$. The cost of providing a welfare level $b_{i,t}$ is increasing in the

[7] Both arguments exhibit positive but decreasing marginal returns, i.e. $U_1 > 0, U_2 > 0, U_{11} < 0, U_{22} < 0$ where U_i represents the derivative of U^r with respect to the *i*'th argument.

number of the poor in a jurisdiction. Using the budget constraint, the utility function can be rewritten as:

(1) $$U^r \equiv U^r(y^r - (n^a_{i,t} / n^r_i) \cdot b_{i,t}, b_{i,t})$$

3.1 The Reference Case: immobile Poor

Like in Section 2, in order to create the autarky case as a reference, we will for the moment assume that both groups are immobile. In this case, the benefit level impacts on utility as follows:

(2) $$dU^r_i / db_i = -\partial U^r / \partial(\tilde{y}^r_i) \cdot (n^a_i / n^r_i) + \partial U^r / \partial b_i ,$$

The first term on the RHS measures the marginal cost of an increased benefit level, the second term captures the marginal benefit. In an interior optimum the two effects must add up to zero. Applying straightforward algebra we can rearrange (2) to reflect the well known Samuelson rule for the provision of a public good. This is hardly surprising as redistribution constitutes a local public good in our setting.

3.2 The Nash Equilibrium in the Static Model with Mobility

Let us start the analysis of the migration equilibrium in a one-shot game. In this simple model without mobility costs migration only occurs in an extreme all-or-nothing fashion. If the announced transfer levels are identical across regions, the poor are indifferent between staying at home and migrating elsewhere. However, a small difference in the transfer rates suffices to induce the mobile poor in the whole federation to immigrate into the region which offers the highest welfare payments.

The rich now maximize utility by taking into account the (drastic) migration response of the poor. The utility of a rich is now changed from equation (2):[8]

(3) $$dU^r_i / db_i = -\partial U^r / \partial(\tilde{y}^r_i) \cdot \left[(n^a_i / n^r_i) + (\partial n^a_i / \partial b_i) b_i / n^r_i \right] + \partial U^r / \partial b_i$$

[8] The time index is omitted since for the moment we consider only one period.

The optimum is again found by comparing the marginal costs of providing an extra amount of benefit with the sum of the marginal rates of substitution of the rich (MRS) between own consumption and welfare provision. Unlike in the former autarkic case, the mobility of the poor makes the number of welfare recipients an endogenous variable. This tends to increase the marginal cost of transfers as these also have to paid to emigrants that are attracted by a higher transfer level.

Because of the discontinuity of the migration response function (the migration effect $(\partial n_i^a / \partial b_i)$ is either zero when starting from different benefit levels or equals infinity when starting from the same benefit level across all regions) we can not ensure the existence of an equilibrium in general. To enforce an equilibrium that can serve as a future reference for analyzing DI, we make the following two assumptions about the rich's preferences:

$$A1:\ n^r \cdot MRS\Big|_{b_j=0,\forall j=1,\ldots,z} > n^a$$

$$A2: n_i^r \cdot MRS\Big|_{b_j=0,\forall j=1,\ldots,z} \leq n^a$$

The assumptions have a simple interpretation. From the perspective of a (hypothetical) central planner a positive transfer from the rich to the poor would be optimal (A1). But providing all the poor of the whole federation with a small benefit would be too costly for any single region (A2). Under these assumptions, a zero benefit level across all regions is an equilibrium, from which no jurisdiction has an incentive to deviate.[9] Extending the time horizon to *T* periods does not change this (pessimistic) result. The only subgame perfect Nash equilibrium is the T-fold repetition of the static game. We skip the proof, since it proceeds analogously to section 2.2.

[9] The above assumptions are less restrictive than it might seem at first glance. Our qualitative results carry over to cases where, because of incomplete mobility of the poor, an interior equilibrium exists. The further analysis covers the worst case in which a certain positive degree of redistribution is desirable from an efficiency point of view but no redistribution at all can be achieved due to the threat of mass immigration of the poor, which corresponds to the setting in section 2.

3.2 The Nash Equilibrium with Delayed Integration

We now consider how the situation changes if we introduce a transition rule which holds the former home region of an immigrant responsible for the welfare payment in the first period after emigration.

POLICY RULE (DELAYED INTEGRATION): In period $k \in \{1, \ldots, T\}$ a poor person receives the current transfer of that region *i*, in which she resided at the start of the period, irrespective of whether, or to where, she migrates during the period. The transfer payment has to be paid out of region's *i* budget.

Again, we solve the game by backward induction. At the start of the final period *T*, the rich do not have to take into account the migration response since this does not change the sum of welfare payments in any way. From this it follows that, in the final period, even in the presence of free mobility of the poor the optimality condition of a single region boils down to equation (2) - the Samuelson rule with immobile poor.

Now consider period *T-1*. A poor individual gets the social assistance of her home region, i.e. the region in which she lived at the beginning of the period, irrespective of the migration decision. Therefore, she does not care about the current benefit level but is only concerned about the benefit that she will receive in the next period. Since the rich are homogeneous and have the same preference for redistribution, all regions will fix their benefit level in period *T* by equating (2) with zero. Under fairly general conditions for the utility function of the rich, the best the poor can do in period *T-1* is to distribute themselves proportionally to the immobile rich across the regions in order to maximize their transfer income. To show this, define $p_i \equiv n_i^a / n_i^r$. Setting equation (2) equal to zero and applying the implicit function theorem yields

$$\frac{db_i}{dp_i} = -\frac{-U_1 + bp_iU_{11} - bU_{21}}{p_i(p_iU_{11} - 2U_{21}) + U_{22}}.$$

Since $U_{11}, U_{22} < 0$, a sufficient (though not necessary) condition for $db_i / dp_i < 0$ is that $U_{21} \geq 0$, which, for example, is true for all linear homogenous functions. Hence, the benefit $b_i(p_i)$ is then a decreasing function of the region's proportion of the poor relative to the rich. In the migration equilibrium $b_i = b_j \ \forall i, j$ must hold as otherwise at least some poor have an incentive to move. This, together with the previous finding, implies $p_i = p_j \ \forall i, j$.

The rich, in turn, have no incentive to reduce welfare recipients by cutting benefits at the beginning of period *T-1* since they have to pay for them irrespective of their residence. The threat to also maintain a low benefit level in the last period is not credible because redistribution is in the self-interest of the rich. Moreover, no region has to fear that an increase in the welfare level will attract poor immigrants from the rest of the world because no poor person can improve his own position through moving for the current period. Since the announced benefit $b_{i,T-1}$ does *not* induce *any* migration, the rich will also align their redistributive policy along (2) in period *T-1*.

This argument carries over to all previous periods. At the beginning of each period the rich behave as if the poor were immobile because the transfer does not have to be paid to new immigrants and the future welfare policy of one region lacks credibility. Therefore the current benefit level has no influence on the migration decision of the poor. The poor only seek to maximize the benefit level of the next period and this drives their migration decision during the current period.

Given the proportional distribution of the poor relative to the rich is transfer maximizing, the simple Principle of Delayed Integration actually leads to a pareto-efficient allocation within the federation. Inserting the proportionality expression $n_i^a = (n_i^r / n^r) \cdot n^a$ into equation (2) we get $n^r \cdot MRS = n^a$. Thus, the situation after the introduction of DI

satisfies the Samuelson rule of the integrated federation.[10] We end up in a situation described by the following proposition:

PROPOSITION 2: Under the regime of Delayed Integration any region will set its benefit level according to the Samuelson rule with immobile poor. If the cross derivative of the rich's utility function is not too negative, the poor will move proportionally to the immobile rich between the regions in the first period and stay there for the rest of the game. In this case, overall efficiency will be achieved.

3. Discussion

The reason why Delayed Integration dampens tax competition hinges on a time consistency problem. Therefore, it is clear that possibilities for committing to future tax rates will reintroduce tax competition. For example, jurisdictions may be able to credibly rule out high tax rates by firm constitutional rules. In that case, a central government may need to rule out those rules or erect federation wide rules in order to prevent a race to the bottom.

Even with perfectly symmetric regions, tax competition may not be banned altogether. This may, for example, result from the fact that regions do not only engage in redistribution but typically also provide (public) goods. If those goods are durable, then regions may concentrate strategically on the provision of those goods that are appreciated highly by the rich. More broadly speaking, any instrument that reintroduces the possibility for the regions to commit to their future tax or spending policy (e.g. constitutional tax limit), again exposes them to the race-to-the-bottom.

Given the efficiency enhancing role of redistribution, we should ask if the unilateral introduction of DI by one region brings the whole federation closer to its social optimum.

[10] Wildasin (1993 Proposition 3) reaches a similar efficiency result. Note however that, unlike that study, we do not have to rely on centrally administered subsidies. On the other hand, our approach requires homogeneity of the preferences of the rich.

The disappointing answer is no. Looking at the model with mobile rich, the commitment of one single region to the maximum taxation in the last period through introducing DI does not change the zero taxation result as long as there are at least two regions left that engage in (the Betrand-style) tax competition without DI. A similar, but possibly less drastic, result holds in the case of mobile poor. Any region that adopts the Principle of DI alone would attract all poor. Since A2 stated that providing all poor with a small benefit would be too costly for any single region, the zero benefit result continues to hold. Conversely, cooperation between several regions may support some positive benefit level if they host enough rich taxpayers.

To a considerable extent the continuing relevance of the origin country's tax rate after emigration (instead of the relevance of the destination country's tax rate alone) is already incorporated in various tax laws.[11] The German foreign tax code, for example, provides that a high income earner who leaves Germany and moves to a low income jurisdiction continues to be subjected to German taxation on that part of her income that originates in Germany.[12] An even more radical rule applies to U.S. citizens. The U.S. continues to subject an emigrant to U.S. federal taxation as long as she keeps the U.S. nationality. However, to eliminate double taxation of emigrants, the U.S. grants a tax credit for taxes paid in the destination country.

Another redistribution system, which to some extent is based on descent rather than residence, applies in Switzerland. Until 1979, social welfare payments to a poor person had to be paid by the *Kanton* in which the recipient was born (*Bürgerortprinzip*). In 1979 the system was changed and the payments now come from the *Kanton* of residence. At the same time, however, the *Kanton* of origin reimburses the *Kanton* of residence for its full expenses for the first two years after emigration and for half its expenses for the following eight years (see Feld 2000). Similar institutional rules can be found in other OECD countries such as the US or Austria.

[11] Indeed, as has been pointed out by Spoerer (2002), applications of the nationality principle can even be traced back as far as the Middle Ages in Europe.

[12] Germany claims the right of taxation for ten years after emigration. See *Außensteuergesetz* Para. 2.

While the deemed residence period that will be proposed and analyzed in this paper may differ somewhat from existing rules described above, the fact that, at least in some countries, similar rules are already implemented in the tax code seems to make the coordinated implementation the Principle of Delayed Integration conceivable in, for example, a European context.

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