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Pieter Vanhuysse, Márton Medgyesi and Róbert I. Gál

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rue Paul Emile Janson 13 / 1050 Bruxelles / tél.: 32 (0)2 537 19 71 / fax: 32 (0)2 539 28 08 / e-mail: info@ose.be

Welfare states as lifecycle redistribution machines: why the piggy bank dwarfs Robin Hood in Europe

Pieter Vanhuysse
Danish Centre for Welfare Studies (DaWS), Department of Political Science and Public Management, Danish Institute for Advanced Study (DIAS) and Interdisciplinary Centre on Population Dynamics (CPop-SAMF), University of Southern Denmark, Odense, Denmark.

Márton Medgyesi
Corvinus Institute for Advanced Studies, Corvinus University, Budapest, Hungary. Child Opportunities Research Group, Centre for Social Sciences, Budapest, Hungary.

Róbert I. Gál
Danish Centre for Welfare Studies (DaWS), Department of Political Science and Public Management, and Interdisciplinary Centre on Population Dynamics (CPop-SAMF), University of Southern Denmark, Odense, Denmark. Corvinus Institute for Advanced Studies, Corvinus University, Budapest, Hungary. Hungarian Demographic Research Institute, Budapest, Hungary.

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Abstract

Social scientists identify two core functions of modern welfare states as redistribution across (a) socio-economic status groups (Robin Hood); and (b) 'the lifecycle' (the piggy bank). But what is the relative importance of these two key functions? Contemporary European welfare states are often maligned as ineffective Robin Hood vehicles riddled with Matthew effects that serve the middle classes at least as much as they serve the poorer or the more needy. However, we find that welfare states are actually better characterized as, first and foremost, inter-age redistribution machines performing an empirically more important task than inter-status redistribution: that is, lifecycle consumption-smoothing. Social policies have evolved to serve multiple goals for multiple historical and political economy reasons in Europe. But here we show that in practice social policies are not primarily responsible for poverty relief and inequality reduction: they are piggy banks, more than Robin Hoods. Nor are they solely responsible. Non-social policies such as economic, fiscal, infrastructural and environmental policies also have significant status-redistributive effects. Hence non-social policies could also be judged by the same yardstick: the extent to which they contribute to reducing inequality and poverty.

1. The welfare state as Robin Hood and piggy bank, beyond metaphor

Welfare states have evolved into sizable and resource-consuming institutions in Europe. According to the Organization for Economic Cooperation and Development's (OECD) Social Expenditure Database (SOCX), total social spending in Europe took up around 28% of Gross Domestic Product (GDP) on average in 2010, and around 66% of total government revenue, and it affects many aspects, and every stage, of citizens' lives. But what do welfare states mostly do? Two social science approaches – not necessarily contradictory – have been dominant in answering this question. Standard economic accounts view welfare states' primary role as resolving market failures, helped by the state's unique ability to avoid moral hazard and adverse selection by pooling risks widely and making participation obligatory (Barr 1987; 1992). Standard sociological, political and public policy accounts, in turn, view the welfare state as a political Robin Hood of sorts; a redeemer of markets and families. Welfare states are seen here primarily as a tool for poverty relief, redistribution from higher socio-economic status (SES) groups to lower-SES groups, and inequality reduction (Le Grand 1982; Esping-Andersen and Myles 2011). Others in this tradition have added that welfare states temper the social costs of market forces through social citizenship rights (Esping-Andersen 1990) and reduce the material dependence of citizens, including women, on markets and families (Esping-Andersen 1999).

Both approaches today incorporate a lifecycle perspective. The social investment paradigm has refocused the attention of public policy scholars on how 'predistributive' social policies such as education, training and activation can boost individuals' ability to earn market incomes, thereby preventing many social problems early ('preparing') rather than dealing with them later ('repairing'). And in economics, Barr (2001) famously added a further key purpose: redistribution 'over the lifecycle.' This is what Barr called the 'piggy bank' ([1]). Such piggy bank redistribution over the lifecycle is made necessary by a fundamental, one might say universal, lifecycle consumption financing problem. Productivity and earning powers are heavily concentrated in the middle of the lifecycle – a hump-shaped curve – but people have to consume in childhood and in old age too, when they do not earn much primary income.

So which of the two core welfare state functions is more important – Robin Hood or piggy bank? Elementary though this question might seem for any proper understanding of how welfare states operate, there is no straightforward answer to it. This is because the piggy bank is largely metaphorical. According to the piggy bank interpretation, the welfare state enables individuals to make transfers between 'their own selves' at different stages of their lives. But the time-travel of resources implied by this is not a well-defined system of quid pro quo exchanges imparting reliable and legally enforceable property rights connecting the same person over time (Offer 2012). As

1. Piggy bank (sometimes penny bank or money box) is the traditional name of a coin container normally used by children.

Paul Samuelson (1958) noted long ago, in reality no direct intertemporal intra-personal links can be established.

Simply put, short of Robinson Crusoe solutions such as stockpiling non-perishable goods (say, cans of tuna), there cannot be any intertemporal reallocations between one single person's selves over his/her lifetime without making inter-age group transactions. In practice, the piggy bank has to operate cross-sectionally, by exchanging one's current production today for a claim on future production by younger generations – either by saving to accumulate 'assets' to be sold later to younger generations (e.g. private pensions), or by obtaining political/policy 'promises' of a share of future production (e.g. public pensions) (Barr 2001; Barr and Diamond 2008).

2. In practice, the piggy bank operates between age groups, not across the lifecycle

The particular solution offered by welfare states uses taxes and promises to exploit the fact that at any given point in time, people who have been born in different years (cohorts) live together (as age groups) in the same society. Hence there are always net 'resource productive' people (typically the working-aged) who can be taxed to finance net transfers downward to children and upward to the elderly (Lee and Mason 2011). To be sure, some welfare programs, such as sickness insurance and unemployment benefits, are predominantly intra-generational rather than inter-generational, but these are less characteristic of what welfare states do as they are typically more short-term and smaller in size than inter-generational benefits such as pensions, long-term care and healthcare (Lindert 2021). Hedging against the risk of declining health and longevity risk requires many more resources than hedging against risks that are pooled by sickness and unemployment insurance. Moreover, welfare state entitlement claims around such inter-generational resource transfers are based not on classical legal contracts but rather on a form of intertemporal trust that successive generations will 'honor' their 'promise' or 'obligation' (Offer 2012). The frequently observed changes over time in pension generosity or benefit formulas, for instance, are just a manifestation of ever-shifting political equilibria between generations (Tepe and Vanhuysse 2012).

In other words, the welfare state solves the endemic problem of lifecycle consumption smoothing by arranging resource reallocations between age groups in cross-section. In recent work, we have therefore reconceptualized the piggy bank function accordingly, to assess its importance relative to the Robin Hood function. Vanhuysse *et al.* (2021) indeed present the first-ever analysis of the joint distribution of socio-economic status and age of (a) all cash and in-kind transfers ('benefits'); (b) financing contributions ('taxes'); and (c) resulting 'net benefits.' We investigate a sample of over 400,000 Europeans from 22 European Union (EU) member states representing 82% of the EU population in 2010.

Admittedly, conclusions based on a single point in time can at best open up avenues for new conceptual insights and further empirical research based on these. They should not be considered ultimate proof, a point to which we return in the conclusions. Our calculations use both EU-Statistics on Income and Living Conditions (EU-SILC) and Household Budget Survey (HBS) data. The latest comparative HBS release is from 2015, and dramatic changes since 2010 are unlikely, due to institutional inertia. While our analysis falls shortly after the 2007-2008 global crisis, our expectation is that on the benefit side, our findings will be even stronger, as the Great Recession hit young people especially hard. Our calculations based on 2010 data probably include relatively more, not fewer, working-age beneficiaries, thereby, if anything, weakening the relative importance of age in our regression. On the taxation side, the effect is more difficult to guess either way, as the consequences of the crisis were financed mainly from debt rather than immediate tax hikes.

In our research we separate European welfare states' Robin Hood and piggy bank functions in cross section. We apply a multivariate regression framework to compare the relative importance of age and SES in explaining differences in the receipt of benefits, taxes, and the resulting net benefits. Many studies, reviewed in Vanhuysse *et al.* (2021), hold some measure of inequality or poverty as the dependent variable and separate the effects of various components of the welfare state. In our research, however, we are interested in keeping the incidence of taxes or transfers on the left-hand side of the equation. We derive our conclusions from the joint distributions of age, SES and welfare taxes and benefits, as our research question could not have been answered from separate distributions. As we show below, these conclusions about the relative importance of age and status are striking in more than one respect. Our research puts forward the following key findings and policy implications.

3. Empirically, rather than normatively, age is more important than status in how social policies operate

European welfare states are often maligned these days as ineffective Robin Hood vehicles, riddled with Matthew effects: they are alleged to serve the middle class more than the poor, and they are therefore criticized for being insufficiently effective. Yet we find that welfare states are better characterized as inter-age redistribution machines performing a more important (that is, empirically larger) second task rather well: lifecycle consumption smoothing. That is, age is more important than status as an explanatory variable for welfare taxes and welfare benefits: it explains more of the variation, and its effect on access/contribution (but primarily access) is larger. In other words, empirically rather than normatively, more than anything else welfare states are piggy banks in cross-section.

When it comes to welfare benefits, five notable observations stand out. First, when it comes to welfare benefits receipt, age is more prominent than SES. Second, the oldest 30% of people

receive significantly more welfare benefits than any of the younger age groups. In numerical terms, the average 10-to-18-year-old European receives more than three times as much as the average 27-to-33 and 34-to-40-year-old (the two age groups who receive the least). Meanwhile, the average person in the oldest age group gets almost six times as much as 27-to-40-year-olds. In other words, when it comes to the benefit arm of the tax-and-transfer machinery, Europe consists of strongly 'elderly-oriented welfare states' (Tepe and Vanhuysse 2009; 2010; Vanhuysse 2013; 2014; Lindert 2021). There is only a minimal variance in the access to benefits by SES among children and youth, especially among the 10-to-18-year-olds. All status groups receive similar welfare benefits; among the youngest children, welfare benefit receipt is even regressive: there is even a slightly positive correlation between access and status. Fourth, the benefit side of European welfare states is, to a small extent, progressive among working-age people. In working age, benefit receipt is highly progressive for the very lowest-SES group and somewhat progressive for the low-SES groups right until the middle of the SES distribution. But thereafter it is essentialy neutral: benefit receipt in working age barely changes along status lines for the entire upper half of the distribution. However, fifth, the differences grow large and regressive (positively correlated with status) in old age: among those aged above 71, the highest-SES group actually receives 70% more benefits than the lowest-SES group. Clearly these averages reflect the fact that first, more people receive public benefits and services at both ends of the lifecycle than the number of people receiving benefits in mid-life (say, unemployment or sickness benefits), and that second, early and later-life programs (notably pensions, long-term care and end-of-life health care, but also university education) cost a lot more on aggregate to taxpayers than these middle-life programs. This in turn only illustrates how much more resource-consuming the longevity risk is than the risk of temporary loss of job due to illness or job loss. People, or governments, should save a lot more to hedge against the longevity risk than against the risks of unemployment and short-term sickness. The cost of these latter programs is not enough to counteract the influence of these bigger welfare state chapters.

The taxation side of European welfare states presents an altogether different picture. European welfare states are distinctly progressive (redistributive across status) only through their *taxation arm.* The welfare taxes side shows more substantial SES effects than the welfare benefits side. Children only pay indirect taxes, which limits their contributions. Except for the two highest-status groups, the same applies to the elderly. However, in contrast to the welfare benefits side, taxes also go up in working age, especially in the highest SES decile. Yet even here, age is crucial as well. It is the working-aged who pay most taxes in every status group.

Finally, when it comes to the total picture, net welfare benefits (benefits minus taxes), a few observations stand out. First, age again dwarfs SES. In each SES category, the oldest age group receives the most net welfare benefits (and the second oldest gets the second-largest sum except for the highest SES group). Moreover, it is particularly the middle-aged higher SES groups who

contribute most in net terms. All age groups below 18 and all age groups above 63 are net welfare state recipients in every SES category. Lastly, in net terms European welfare states are progressive, and even seem to give a particular priority to the very worst-off. In the lowest status category, all age groups are net beneficiaries. Fifth, the lowest status decile is the highest net beneficiary in all age groups between 10 and 62.

Our analysis confirms that European welfare states function primarily as piggy banks in cross section, exploiting the opportunities offered by the fact that contemporaries tend to be of different ages. More specifically, welfare states serve as a channel through which working-age people of higher status support people of inactive age across all SES groups. Age is much more important in explaining access to welfare state benefits; status is in fact nearly irrelevant for this. Only the taxation arm of European welfare states, not their benefits arm, is distinctly progressive (redistributing strongly from high to low SES). And even here, redistribution across age groups is more important. But in terms of the overall picture of net benefits, redistribution between age groups is clearly much more important than between socio-economic status groups. In terms of this fullest picture, age is again much more important, accounting for as much as 78% of the variance explained by both variables. This shows that welfare states, in actual practice, are not primarily responsible for poverty relief and income equalization – but rather for redistribution along age lines.

4. Policy implications: how we (should) understand and evaluate what social policies do

All in all, European welfare states primarily serve as a channel through which working-age people (especially those of higher status) support younger and older people in inactive ages (across all SES groups). In other words, welfare states, first and foremost, are not status equalizers of sorts, but rather lifecycle redistribution machines: Barr's (2001) piggy banks in cross section. Once again these findings are based on a snapshot analysis. Thus we can only speculate on how subsequent shocks such as, for instance, the Covid-19 pandemic might modify our conclusions based on 2010 data (for National Transfer Accounts-based modeling of Covid-19's generational impacts, see Sanchez-Romero 2022). To the extent that Covid-19 lockdowns and other economically restrictive measures have resulted in unemployment hikes, other labor income reductions, as well as higher income assistance and labor market spending, they are likely to have softened the relative importance of age. On the other hand, health care spending may have tilted even more heavily than usual toward older people, as the population hospitalized by Covid-19 has been disproportionately old (70+) and very old (80+). On the taxation side, the effect is again difficult to surmise, as it depends on the degree to which extra Covid-19 driven state spending (for instance on health policies and economic subsidies) has been financed by debt or rather by immediate tax hikes.

Similarly, whether welfare states have always functioned this way or have evolved to become like this over time would also be very relevant for the shift in analytical focus being proposed here. Peter Lindert (2021), for instance, argues that since around 1910 there has been a long global mission shift in social spending patterns, away from both the young and the poor and toward the powerful and elderly. Analysing a century of social spending support ratios (spending adjusted by target age group sizes, relative to GDP per capita of the working-age population) in eight European and five other OECD countries, Lindert concludes that it is 'as though these societies had come to the conclusion that the kind of insurance they needed most was not insurance against children's having low earning power in later life, or anti-poverty insurance, but rather insurance that the elderly would not run out of money in their retirement years' (Lindert 2021: 111-112). Unfortunately, available empirical time series are simply not long enough to precisely capture the effects of the historical entry and subsequent evolution of the state in the full inter-age tax-and-transfer system. The alternative, which the authors are currently working on, is to develop a backcasting exercise that models the process of the government becoming more active in this field over time by means of simulations.

This said, whether the early European welfare states have started out or evolved over history primarily as an inter-status project (e.g. direct poverty relief and sickness insurance) or as an inter-age project (notably pensions and education), they do appear to be primarily an inter-age project today. Empirically speaking, European welfare states are not primarily responsible for poverty relief and inequality reduction. This carries multiple implications for how we understand and evaluate the functioning of social and non-social policies. Let us highlight four of them here.

Implication 1: The case for giving welfare states a break

A key yardstick for judging the success of European welfare states has typically been to what degree they are effective in reducing poverty and inequality. It has become routine for the OECD, World Bank, and national governments to measure the distributional effects of welfare programs by income. Higher-SES groups are often found to receive as much as or more than lower-SES groups – 'not-only-the-poor' paradoxes or 'Matthew effects' ('to those that have, more shall be given'). Such Matthew effects are real and may be endemic: they may well be inherently hard to eradicate for a host of political economy reasons. But in Vanhuysse *et al.* (2021) we demonstrate that welfare states, in actual practice, are not primarily responsible for poverty relief and income equalization. This should give welfare states a break from frequent criticisms, in the sense of absolving or deflecting some of the mistargeting and ineffectiveness blame leveled at them by many scholars who focus especially on Matthew effects or on empirical evidence of ineffective or insufficient inequality reduction and poverty alleviation. As Lindert (2021: 110) notes, 'the classic anti-poverty "welfare" spending, on which so much attention has focused, remains a small share of social spending in all developed countries.'

In other words, if indeed European welfare states are first and foremost inter-age reallocation machines serving the function of income-smoothing over the lifecycle, then the effectiveness of welfare states should logically be measured primarily according to that yardstick. We could ask, then, whether tax-and-transfer policies effectively increase 'the knowledge capital of nations' (Hanushek and Woessmann 2015; Lindert 2021), for instance by boosting the productive capabilities of a sizable next generation through high-quality early childhood education for as many children as possible (Heckman 2013; Vanhuysse 2015); and through more extensive assistance for parents as they reproduce society, thereby privately producing an essential public good (Gál, Vanhuysse and Medgyesi 2022; Gornick and Meyers 2003). By the same token, if goals such as inequality reduction are deemed societally worthy or democratically desirable, then non-social policies could also be judged according to whether they contribute to these goals. For while welfare states are not primarily responsible for poverty relief or inequality reduction, as we note next, neither are they solely responsible for achieving these goals.

Implication 2: The case for modeling also how non-social policies affect inequality

Inequality measured in cross-section is always in part the result of age-specific, hump-shaped, productivity. Hence, differences in the age composition of society, as captured in population pyramids, affect cross-sectional inequality irrespective of how welfare states operate (Pestieau 1989; Goerres and Vanhuysse 2021). Equally importantly, our key finding that (empirically) welfare states are primarily piggy banks, not Robin Hoods, does not imply that (normatively) social policies ought not to be used for poverty relief and inequality reduction. Rather, it implies that other forms of government activity (non-social policies) could also be drafted into the same effort and be judged according to how much they, too, help achieve inequality reduction.

For example, road-construction and other infrastructure projects also strongly impact equality, as do safety regulations, air pollution standards, public investment in air traffic, monetary and exchange rate policy, and carbon taxes, to name just a few. President Macron's fuel tax increase announced in France in 2018 led to massive gilets jaunes ('yellow vests') protests, as it was (quite correctly) perceived to be a non-social policy with significant regressive effects. In other words, since social policies primarily operate as an inter-age reallocation system, they should not be singled out as the sole institution to shoulder the blame for imperfectly alleviating poverty and mitigating inequality. If these goals are deemed societally worthy, non-social policies could also be judged according to the same yardstick.

Implication 3: The case for understanding welfare states more explicitly along age lines

Our findings point to the need to reinterpret what welfare states mostly do – by taking inter-age group redistribution more seriously. For many, welfare states are viewed as the primary remedy of poverty and inequalities. For others, they are a market-correcting institution, stepping in where

markets fail, and to de-commodify individuals. For yet others, they make individuals, notably women, less resource-dependent on their families. We do not take issue with these functions: welfare states have evolved for multiple historical reasons to perform multiple functions in 21st century Europe.

But we do urge, on empirical grounds, a shift in analytical focus. The underlying problem is not states versus markets and/or versus families. Esping-Andersen's (1999) and Lee and Mason's (2011) fundamental pleas for a new analytical focus on how states, markets and families interact (substitute or complement each other) as triads applies with equal force here. Welfare states should primarily be viewed as an institutionalized way to solve a logically and historically prior problem: the fundamental lifecycle consumption financing problem. This problem confronts every member (irrespective of age, gender, or ideology) of every generation (irrespective of period) in every multi-generational society (irrespective of riches, welfare regime type, political economy model, or even age or degree of democracy).

All societies need to solve this lifecycle consumption smoothing problem. Welfare societies specifically solve it through inter-age-group resource transfers. As Barr's piggy banks in cross section, they tax away surplus resources from the working-aged to finance childhood and old age. European welfare societies engage in a specific division of labor to solve the problem. They are 'pro-elderly welfare states within child-oriented societies' (Gál, Vanhuysse and Vargha 2018); societies, at that, which implicitly burden parents rather heavily (Gál, Vanhuysse and Medgyesi 2022). Societies elsewhere solve the same problem otherwise. Contemporary tax burdens on working-age people are, unsurprisingly, much higher in 'statist,' de-familialized Sweden compared to 'familialist' Taiwan. Nevertheless, the combined weight of net public and net private transfers is nearly identical in both countries. Swedish workers pay taxes to their government and trust it to provide for their parents; a heavily socialized solution. Taiwanese workers provide for their own family members directly; a heavily familialized solution (Vanhuysse and Gál 2022).

The Sweden-Taiwan comparison illustrates that the welfare state is an integral part of a multi-channel intergenerational transfer flow system. The various channels of Esping-Andersen's (1999) or Lee and Mason's (2011) states-markets-families triad act in different contexts as functional equivalents in terms of resources transmitted from one age group to the other. But of course they are not equivalent in how they affect other important aspects of welfare and wellbeing. For instance, operating a heavily familialized transfer system may be cheaper in terms of transaction costs but requires strong social norms as the legal enforcement of the terms is difficult. A familial system is less effective in mitigating inequalities than a public-transfers system can be. As we show in Gál, Vanhuysse and Medgyesi (2022), both familial and public systems are prone to gender inequality by undervaluing or even ignoring important contributions, such as unpaid care work, that do not generate rights and eligibilities for women. However, it is often easier to adjust

eligibility rules of a public system to the aims of gender equality than it is to change the social norms and entrenched power asymmetries governing the domestic division of labour (Esping-Andersen 2009; Folbre 2020). Within the family realm, the resources that men contribute are better measured, valued, and protected by property rights; those that women contribute, especially at home in terms of unpaid household labour (time), largely are not (Burggraf 1997; Folbre 2020). This may negatively affect the intra-household bargaining power of women even when anti-discrimination laws are in place and the legal standing of genders is formally equal (Goldin 2021; Iversen and McCall Rosenbluth 2010).

Implication 4: The case for a political economy of intergenerational sustainability

European welfare states solve the problem of lifecycle consumption smoothing given incomplete contracts about the future by, as it were, sequentially sidestepping the future. But of course, the shadow of the future looms large, in the form of ever-contingent power balances between successive generations over time (Offer 2012; Vanhuysse *et al.* 2021). Political sustainability is key: younger generations must eternally follow older generations – and must remain willing, politically, to finance the older generations' consumption (Samuelson 1958; Weil 2008). The key requirement for the continued functioning of any intertemporal redistribution vehicle is productivity-adjusted demographic continuity (Rangel 2003). At a fundamental level therefore, lifecycle consumption financing depends less on property rights or state vs. market solutions than on how successive cohorts of voters use their relative bargaining power.

Demonstrating that the welfare state primarily is an inter-age project does not, as such, have straightforward implications for its sustainability (or intergenerational fairness). In and of itself, it does not suggest, say, gender (or anti-gender) policies, or policies to increase (or decrease) birthrates or immigration as a means of ensuring the sustainability of a lifecycle-consumption smoothing welfare state. However, this perspective does bring more centrally into focus the question of equity in what welfare states offer to different birth cohorts over their lifetime (Chauvel and Schröder 2014; Lee *et al.* 2017). For instance, the perspective implies logically, rather than ideologically, that any cohort violating the equilibrium conditions of a sustainable inter-generational link by significantly reducing the productivity-adjusted size of the next generation must also accept lower standards of living for either its own old age, or for the next generation (Rangel 2003). In the same vein, the perspective logically implies that more generously and more comprehensively valuing how carers, mainly women, reproduce society by rearing children would be likely to strengthen the sustainability of society's intergenerational links by boosting the productivity-adjusted size of the next generation (Folbre 2020).

In sum, we need political economy theories of how, why, when, and where successive generations agree (or do not agree) to participate in the process of lifecycle income smoothing over time. Future research should conceptualize intergenerational justice more consistently in terms of inter-

cohort resource equality, political sustainability and the forward and backward linkages that bind overlapping cohorts. A clearer understanding of the cross-sectional operation of the piggy bank leads to a more urgent focus on sustainability and equity among cohorts: the political economy of time and the generations.

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