The Democratic State and Redistribution: Whose Interests Are Served?

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Abstract

Growing inequality has raised concerns that democratic governments are no longer responsive to popular demands for redistribution, either because the state capacity is eroded by footloose capital, or because the wealthy subvert democracy through the power of money. In this paper we critically assess these arguments against a three-class model of democracy that incorporates long-standing arguments about redistribution and insurance. We test this model against the alternatives on a new comprehensive dataset on income inequality from 17 advanced democracies between 1980 and 2019. We find that before taxes and transfers income inequality has risen markedly everywhere, but government redistribution has played a critical role in compensating the middle class. The United States is a large outlier, however.

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1. Introduction

The sharp rise in income inequality since the early 1980s has attracted much scholarly attention and resulted in an emerging consensus about the limits of democracy in ensuring broad sharing of growing economic prosperity. This gloomy view stands in contrast to the optimistic assessments of the first three post-WWII decades, nostalgically referred to as the "Golden Age", "Trente Glorieuses", and so on. This paper is a critical theoretical and empirical assessment of this emerging scholarly consensus, focusing on the past 40 years. We develop a baseline model of inequality and redistribution, building on classic arguments about democracy and redistribution, and we test this model against competing hypotheses using a new comprehensive dataset on the distribution of national income across advanced capitalist democracies. The results show that the state remains a powerful guarantor of shared prosperity, with one notable exception.

The revisionist interpretation of democratic capitalism comes in at least two flavors. One grows out of the public opinion literature and focuses on the degree of congruence between expressed preferences for redistribution and elite preferences, or indicators for actual redistribution. Most work in this vein find that policies are strongly biased toward the preferences of the rich (e.g., Gilens 2005, 2012; Bartels 2008; Schakel, Burgoon, and Hakhverdian 2020). Another literature arises from a macro political economy perspective, which questions the structural capacity of democracies to redistribute. For Piketty (2014) the globalization of capital makes it impossible for democratic governments to tax and spend without capital flight. In consequence, governments refrain from redistribution and capital accumulates faster than economic growth, producing an ever-greater concentration of income and wealth. Streeck (2011, 2016) sees the

same long-term tendency for footloose capital to subvert the democratic state, rendering democracy and the demand for redistribution increasingly symbolic. Rodrik (2011) succinctly summarizes these and related arguments as a "trilemma" between globalization, democracy, and redistribution: it is not possible to have all three at the same time.

Yet, there are reasons to be cautious about these claims. First, expressed preferences may be a poor guide to whose interests are pursued in economic policies. Lack of information, or voter misinformation can create poor correspondence between preferences and polices, but being uninformed about politics does not preclude voting in line with class interests (Elkjær and Iversen 2020). While voters adopt issue positions that are sometimes fickle and inconsistent, many know enough to vote for a party that represents their interests. Going back to Downs (1954), one of the main functions of political parties is to provide voters with simple informational shortcuts (Hinich & Munger 1994; Lupu 2014); another is to overcome collective action problems and policy inconsistency through tight internal party organization and party discipline (Aldrich 1995; Rosenbluth and Shapiro 2018). New scholarship confirms the role of political parties in forging pro-welfare state electoral coalitions (Gingrich and Häusermann 2015; Schwander, Manow and Palier 2018).

Second, for all the data brought to bear on the relationship between democracy and inequality – congruence between preferences and policies, the rise in market inequality, top-end wealth concentration, deepening poverty, and the role of the state in reducing the Gini coefficient – there are surprisingly few comparative studies examining directly the effect of the democratic state on the interest-realization of particular classes. Piketty's pioneering work on measuring

inequality, for example, still leaves uncertainty about the key claim that capital and the rich have reaped most of the gains of growth. After taking account of destruction of capital and capital taxation, his own results show that the rate of net capital accumulation is *lower* than the rate of growth ($r < g$) for the entire period from 1913 to 2012— that is, basically for the period of democracy (see Piketty 2014, Figures 10.10 and 10.11). Rodrik and Streeck present no data to show that the advanced democratic state has weakened over time, and total government social spending as a share of GDP has in fact risen over the past four decades. Theoretically, Iversen and Soskice (2019) argue that far from increasing mobility of advanced capital, multinationals are increasingly tied down in geographically-rooted knowledge clusters of skilled workers, which gives governments wide scope for redistribution; a view that is also common in economic geography (e.g., Glaeser 2011; Storper 1997, 2013) and in business schools (e.g., Rugman 2012; Iammarino and McCann 2013).

We are left, then, with sweeping new claims about a decline in the capacity and willingness of democratic governments to confront rising inequality, yet little serious engagement with arguments, some with a long pedigree, that suggest otherwise. The recent release of the World Inequality Database (WID) offers an unprecedented opportunity to confront competing arguments with comprehensive new evidence. In doing so, this paper provides fresh answers to the most pressing questions about the role of the democratic state in redistribution: whose economic interests are best reflected in the flow of state resources, from cash transfers to social insurance to in-kind benefits? Is the democratic state less involved in redistribution today than forty years ago? Are redistributive policies increasingly favoring the economic interests of the rich over the middle and the poor? Is globalization undermining the fiscal capacity of the state?

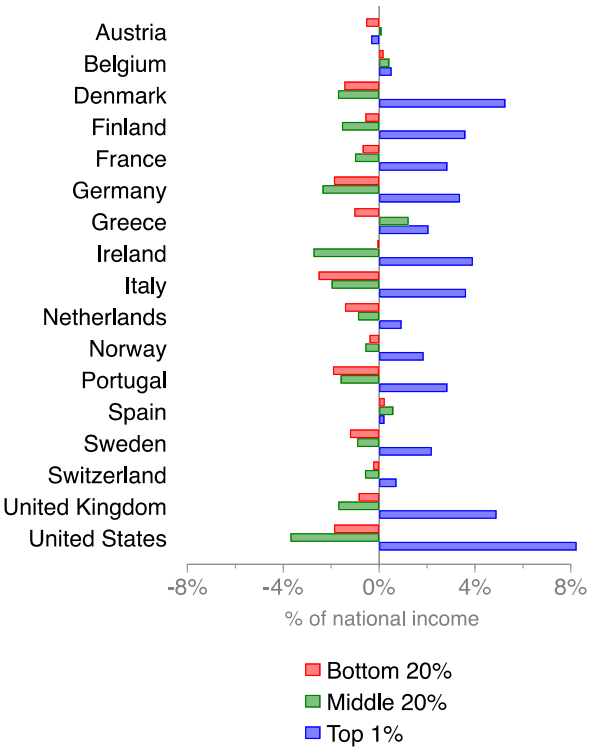
The rest of the paper is divided into four sections. First, we show that the past four decades have indeed been a period of rapid rise in market inequality across rich democracies. It is on this background of rising market inequality that we must understand the contemporary politics of redistribution. Second, we present a simple three-class model of economic interests that encompasses long-standing arguments about the role of the democratic state in redistribution and social insurance. From this model we derive a set of baseline predictions about the role of the democratic state in countering the rise in market inequality and safeguarding (or not) the interests of particular classes. Third, we test these predictions against recent arguments about the rising power of capital and the rich. We find that the middle quintile in most advanced democracies has largely kept up with the overall growth of the economy, and that this is a direct result of a redistributive state. To a degree we did not anticipate, this is also true of the bottom quintile. The US stands out as a major outlier, however, with after-tax and-transfer income growing much more unequal. We consider violations of model assumptions, notably majority rule and the salience of class, which may explain this puzzle.

2. The Context: Four Decades of Rising Pre-Tax Income Inequality

We begin by documenting the rise in pre-tax income inequality using data from the WID, which we will discuss in detail below. Figure 1 displays changes in the shares of total pre-tax income received by the bottom 20%, the middle 20%, and the top 1% from 1980 to 2016 for each of the 17 countries included in our advanced democracy sample. The figure shows that in most countries the top 1% income share has increased markedly; on average by 38% since 1980, corresponding to 2.7% of national income. The increase is most pronounced in the United States,

in which top 1%'s share of income has risen by 80%, which is equivalent to 8.2% of national income.

Figure 1. Changes in the Pre-Tax National Income Shares of the Bottom 20%, the Middle 20%, and the Top 1% From 1980 To 2016.



Note: The years for which change is calculated differs for Austria (2004-2016), Belgium (1991-2016), and Switzerland (1982-2016).

Source: World Inequality Database (wid.world)

For the bottom 20% and middle 20%, we see roughly mirror images of that of the top 1%. On average, the bottom 20% income share has declined by 19% since 1980, which is almost 1% of national income. The middle 20% income share has decreased by 6.6% on average, but from a

higher level than that of the bottom, so in terms of national income it equals a similar loss of 1.1%. Again, the development in the US is more extreme than that in any other country. Here, the bottom 20% income share has been halved (from 3.8% to 1.9% of national income) and that of the middle cut by about a quarter (from 15.3% to 11.6% of national income). In only a very few countries, the bottom and middle quintiles have experienced (slightly) rising pre-tax income shares. Overall, Figure 1 thus displays a now familiar pattern of significantly widening pre-tax income distributions since 1980, especially in the US.

There are many and complex reasons for this widening, which we largely treat as exogenous in this paper. Most are linked to the transition from a Fordist industrial economy to a new knowledge economy, with a rising market premium on skills combined with strong agglomeration dynamics in the successful cities.[1] Some of these changes have caused, and are in turn caused by, changes in market power. The bottom has lost out with the decline of unions, especially in the US and the UK, while the top has benefited from skill-biased technological change (Autor et al. 2003).

We recognize the importance of explaining "predistribution", but like most of the literature on representation and democracy our focus is on fiscal redistribution where political power should matter the most. Esping-Andersen put the matter succinctly more than three decades ago: "The central question…for the entire contemporary debate on the welfare state, is whether, and under

[1] See Iversen and Soskice (2019) and Hassel and Palier (2020) for a discussion of the causes and consequences of this transition, with references to the relevant literature. For classic statements on the rise of cities see Glaeser (2011) and Storper (2013).

what conditions, the class divisions and social inequalities produced by capitalism can be undone by parliamentary democracy" (1990, p. 11). As the quote highlights, the central question that motivates this paper is a long-standing one, but it is one of renewed urgency because of the rise in inequality and the growing pessimism about the effectiveness of the democratic state as a guarantor of majority interests.

3. A Three-Class Model of Redistribution

In Gilens' (2005, 2012) pioneering work, policy influence is compared across income classes. While we have reservations about using expressed preferences in opinion surveys to gauge interests, we agree with Gilens that if the task is to explain policy, we often cannot dispense with income classes, especially not in the domain of redistribution. We need them for the purpose of measurement, as a starting point for defining class interests, and in order to establish base-line predictions.

Virtually every major comparative study of the democratic welfare state accords the middle class a special role. Esping-Andersen is not in doubt: "The political leanings of the new middle classes have, indeed, been decisive for welfare-state consolidation" (1990, 31). Baldwin, writing about the origins of the modern welfare state from the perspective of insurance, concurs: "to the extent that social policy has ever gone beyond economically and politically functional minima, it is hard to deny the role of the middle classes" (1990, 9). Korpi (1983) and Huber and Stephens (2001) interpret social history as a struggle between classes, but they agree with Korpi and Palme's (1998) influential argument that a large redistributive welfare state presupposes middle

class inclusion and consent.[2] New research argues that while the electorate is being transformed by post-industrialization, the new middle classes continue to play a pivotal role (Gingrich and Häusermann 2015; Manow, Palier and Schwander 2018). In the formal model presented below the middle class can form coalitions to either its left or right, and it is therefore in a strong bargaining position (following Iversen and Soskice 2006).

3.1. Class Interests Defined

Like others before us, we use a simple three-class setup where each class is defined as one third of the distribution of pre-fisc income: *L* (bottom third), *M* (middle third), and *H* (top third). We start with the simplest possible case where the goal of each class is to maximize its net income.[3] In the case of *M* this boils down to:

$$\text{Max} \quad y_M^{net} = y_M + t_H \cdot (y_H - \tfrac{1}{2} \cdot \alpha \cdot t \cdot y_H), \tag{1}$$

where t_H is the tax on *H*, and α is a measure of the efficiency loss from taxation – including disincentives to work and invest, the cost of administering redistributive programs, and the possible loss of income and revenue from capital flight.[4] Consistent with the notion of class self-interest, we assume that *M* will not want to tax itself.[5] We also rule out the possibility of

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[2] To be sure, the history of the welfare state is also shaped by the interests of employers (Swenson 2002; Mares 2003), production regimes and skills (Estevez-Abe, Iversen, and Soskice 2001; Huber and Stephens 2001), gender (Orloff 1993), and race (Alesina and Glaeser 2004), but few doubt that class politics is important

[3] We consider spending on public goods and insurance below.

[4] We consider broader interpretations of α below, which also allow for cross-national variance.

[5] We consider the important exception of self-taxation to pay for insurance below.

regressive transfers in the sense that *M* and *H* cannot tax lower classes and transfer proceeds to themselves. Non-regressivity is a standard assumption in models of redistribution in advanced democracies (Iversen and Soskice 2006), and there is no country-year observation in our sample where it does not hold empirically.[6] The specific form of the utility function is for mathematical convenience.

The tax rate on *H* that maximizes *M*'s net income is:

$$t_M^{H*} = \frac{1}{\alpha}.$$

At *M*'s optimal tax rate, *M*'s net income is:

$$y_M^{net*} = y_M + T_M = y_M + \frac{1}{\alpha} \cdot (y_H - \tfrac{1}{2} \cdot y_H) = y_M + \tfrac{1}{2} \cdot \frac{y_H}{\alpha}\ , \tag{2}$$

where T_M is the net transfer to *M*. Correspondingly, *H*'s net income is:

$$y_H^{net} = y_H + T_H = y_H - t \cdot (y_H + \tfrac{1}{2} \cdot \alpha \cdot t \cdot y_H) = y_H - \tfrac{3}{2} \cdot \frac{y_H}{\alpha}\,. \tag{3}$$

Note that *H*'s loss is greater than *M*'s gain because of the efficiency cost of taxation, which reduces *H*'s income without raising *M*'s by an equivalent amount.

We can conveniently express the (observed) transfer to *M* as a proportion of *H*'s net income:

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[6] A simple justification for this assumption builds on Acemoglu and Robinson's (2006) model of democracy. For democracy to be a credible commitment to redistribution, net transfers under democracy cannot be regressive. Stable democracy requires such a credible commitment, and since advanced democracies are stable, it stands to reason that the assumption is satisfied (see Iversen and Soskice 2006 for a further discussion). But again, for our purposes it suffices that there are no instances of regressive net transfers in our data.

$$(4) \qquad \tau_M^{H*} = \frac{-T_M}{y_H^{net}} = \frac{-\frac{1}{2} \cdot \frac{y_H}{\alpha}}{y_H - \frac{3}{2} \cdot \frac{y_H}{\alpha}} = \frac{-1}{2\alpha - 3} \ .$$

We refer to this as *H*'s *transfer rate*, τ_M^{H*}. In an optimal tax model where *M* is pivotal, *H*'s transfer rate is not dependent on the income of either *M* or *H*. [7] Note also that it is always negative, indicating a net loss for *H.* We cannot observe this rate directly since we do not know α , but we can infer that τ_M^H must be independent of relative income:

$$(5) \qquad \tau_M^H \perp y_H^{'} / y_M^{'} \ ,$$

where $y_H^{'} / y_M^{'}$ is the observed pre-fisc income of *H* relative to *M*. This is an important implication because arguments about the power of the rich imply that income buys influence, and more income buys more influence, so that the transfer rate from the rich should be *declining* (in absolute terms) in top-end inequality. The middle class would then lose out. In the baseline model that is not true. Indeed, if top-end income inequality rises, the transfer share of the middle should also rise.

The classic Meltzer and Richard (M&R) (1981) model implies that the transfer rate of rich increases when top-end inequality rises. This is because taxation in that model is constrained to be flat-rate and benefits to be lump-sum. Under these assumptions *M*'s optimal tax rate is:

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[7] The reason we express transfers as a proportion of net income instead of as a proportion of y_H is that we cannot observe gross income in a hypothetical world without taxes. We can however observe the net income of *H*, just as we can observe the net transfer to *M* by comparing the change in the income of the middle from before to after taxes and transfers. This is convenient since the effective tax rate of *H* or *M* is usually not known.

$$t^* = \frac{1}{\alpha \cdot (1 + y_M / y_H)}.$$

Here top-end inequality increases the tax rate and hence *H*'s transfer rate.

The problem with the M&R model is that there is no general justification for why *M* should impose taxes on itself; nor why it would share the proceeds with *L*. And if *M* only redistributes from *H* to itself, top-end inequality does not matter for the chosen tax rate. Nevertheless, the flat-rate/lump-sum conditions approximate the situation for many public goods, which are paid out of general taxation and usually accords equal access for all citizens. Including such goods in the analysis should therefore make the (absolute) transfer rate a *positive* function of top incomes; the more so the greater the share of spending on public goods.

3.2. The Role of Insurance

While *M* will not tax itself for redistributive reasons, it may tax itself for social insurance purposes, just as people may spend some of their income on private insurance (life insurance, property insurance, car insurance, and so on). Social insurance has long been understood as a major component of the welfare state (see, e.g., Baldwin 1990; Moene and Wallerstein 2001; Scheve and Stasavage 2006; Rehm 2016), and it has broad consequences for distributive outcomes because insurance is paid to those who have lost income. Even if *L* has no political power, many in *L* -- including the sick, infirm, and unemployed -- will benefit from *M* supporting spending for purposes of insurance.

We can account for the role of social insurance by assuming that there is a risk of downward mobility, so that *M* benefits in some measure from transfers to *L*. The same is true of *H*, but those in the high-income group tend to be largely shielded from risks (the risk of unemployment, for example, is strongly negatively related to income; see Rehm 2011). In addition, those with high incomes tend to have better access to private insurance, which undermines any incentive of *H* to support public spending (Busemeyer and Iversen 2020).

Opportunities for upward mobility will in principle also shape redistributive preferences (reducing them). Yet, for risk-averse voters, downward mobility has a larger effect on welfare, and since upward and downward mobility cancel out in equilibrium, we focus on the risk of downward mobility.[8]

A simple welfare function that includes insurance motives assumes that transfers to *L* have some insurance value to *M*, and that *M* will spend a portion of net income (including transfers from *H*) on benefits, *b*, that go to *L* :

$$W_M = (1-p)\cdot u\left[(1-t_M)\cdot y_M^{net}\right] + p\cdot u\left[y_L + b\right], \quad (6)$$

where *p* is the probability of *M* falling into the *L* group, *b* is an insurance benefit, and *u* is a standard concave utility function with $u' > 0$ and $u'' < 0$. The benefit *b* is paid out of taxes on

[8] Upward mobility may be important for many other reasons, such as whether middle class people feel that the system works for them (or their children). But in terms of redistributive preferences the main concern should be downward mobility.

the net income of *M*, which includes transfers from *H*. We omit efficiency costs because they add nothing new to the results we have already presented (they will always reduce spending).

Exactly *who* has access to insurance benefits depends on the specific transfer rules. If benefits are restricted to those who have made past contributions (i.e., who have paid t_M), then $b = \frac{1-p_M}{p_M} \cdot t_M \cdot y_M^{net}$.[9] In this case, assuming a simple log utility function,[10] the preferred level of taxation is:

$$t_M^{M*} = p_M \cdot \left(1 - \frac{y_L}{y_M}\right). \quad (7)$$

We see that *M* will increase spending on insurance when (a) the risk of falling into the *L* group increases, and (b) bottom-end inequality rises (i.e., y_L / y_M falls).[11] These basic results also hold if the benefit goes to everyone in the *L* group regardless of past contributions.[12] They stand in

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[9] To see this note that for each insured, the expected payout in each period is $p_M \cdot b$. The cost in each period is $(1-p) \cdot t_M \cdot y_M$, and with a balanced budget these numbers are identical in expectation, so $b = \frac{1-p_M}{p_M} \cdot t_M \cdot y_M$.

[10] A log function satisfies concavity, and the degree of concavity is not important for our purposes.

[11] We implicitly assume that *M* always get the equivalent of *L*'s income in the "bad" state. This would be the case, for example, if *M* loses her full-time, well-paying job and gets a part-time bad-paying job (plus income-graduated insurance benefits). But if *M* becomes unemployed outright, pre-fisc income will be zero and consequently depend only on *p*.

[12] Specifically: $t_M^{M*} = p - (1-p) \cdot \frac{y_L}{y_M^{net}}$.

contrast to Lupu and Pontusson (2011), as well as M&R, since in both models higher low-end inequality should lead to *less* redistribution. From an insurance perspective the opposite should be true.

3.3. The Importance of "Who Governs?"

We have so far only considered the preferences of the middle class under the assumption that it is politically pivotal. This is of course a commonplace assumption, but in our model it does not follow in a simple way from a median voter logic since taxes and benefits can vary non-linearly across the three groups. Because *M*'s interests are better aligned with either *L*'s or *H*'s than *L*'s are with *H*'s, it will typically be in a strong position to participate in majority coalitions with either the left or the right (Iversen and Soskice 2006).

We can generalize the model by explicitly recognizing the role of class coalitions (assuming no class has a majority). Each coalition will reflect a bargain, which is a policy vector of class-targeted taxes and transfers. We show the implications of different coalitions in Online Appendix A, but the results confirm the straightforward intuition that an *LM* coalition will benefit *L* more, and hurt *H* more, than an *MH* coalition. Depending on bargaining power within the coalition, which may be approximated by the share of seats or votes, *M* can ordinarily guarantee that it will emerge as a net beneficiary.

3.4. Summary

The simple 3-class model with *M* as a pivotal and self-interested actor implies, intuitively, that the benefits of redistributive policies will be concentrated in the middle class and mainly paid for

by the rich. The fortunes of the poor are largely a function of middle-class demand for insurance and public goods, as well as government coalitions with *M*. These are the key comparative statics. Our focus, however, is on dynamics because the current debate is mainly about the consequences of neoliberalism and the rise in market inequality over the past four decades. The model speaks to those changes with the following set of observable hypotheses:

H1: (a) The *H* transfer rate is stable in the relative income of *H*; (b) it is mildly rising when including public goods.

H2: When top-end inequality rises, (a) the *M* transfer rate also rises, while (b) the *L* transfer rate only rises when including public goods (assuming that *M* is decisive).

H3: As the share of public goods rises in total spending, *L* benefits more.

H4: Bottom-end inequality leads to more transfers to *L*.

H5: Left governments increase the *L* transfer rate.

A summary dynamic implication of the model is that the middle class, via the democratic state, is able to protect its position in the post-fisc income distribution, despite rising market inequality. This is countered in much contemporary scholarship by the twin conjectures that the political power of the rich is rising with inequality, and that the fiscal state is increasingly constrained by footloose capital.

4. Empirics

4.1. Data and Methods

To examine the dynamics of redistribution to and from different classes, we rely on newly released data from the World Inequality Database (WID). The WID combines data from

household income surveys,[13] tax returns, and national accounts to distribute total national income -- GDP net of capital depreciation plus net foreign income -- to individuals in a harmonized way across a broad range of countries.[14]

We focus on advanced democracies for which data are available on both pre- and post-fisc income. Our sample includes the following countries and years: Austria (2004-2016), Belgium (1991-2016), Denmark (1980-2016), Finland (1980-2016), France (1980-2017), Germany (1980-2016), Greece (1980-2016), Ireland (1980-2017), Italy (1980-2016), Netherlands (1980-2016), Norway (1980-2016), Portugal (1980-2016), Spain (1980-2016), Sweden (1980-2016), Switzerland (1982-2016), United Kingdom (1980-2017), and the United States (1980-2019).

For our purposes, the distributional national accounts series from the WID is superior to household income surveys, which most previous studies use, for several reasons. First, although surveys generally capture household income fairly well, total household income is far lower than total national income, which makes it difficult to compare with macroeconomic aggregates, such as GDP growth. The WID accounts for all of national income, making its income measures consistent with national accounts and enabling us to directly assess the distribution of macroeconomic growth over recent decades.

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[13] The main surveys used are the Current Population Survey, the Luxembourg Income Study, and the European Union Statistics on Income and Living Conditions.

[14] For detailed information about the ways in which WID harmonizes income survey and tax data to make it comparable across countries, see Alvaredo et al. (2020). Piketty, Saez, and Zucman (2018) present methods and estimates specific for the US, while Blanchet, Chancel, and Gethin (2020) do so for Europe.

Second, while surveys tend to provide reasonably accurate measures of the income of the bottom and middle of the income distribution, they underestimate the income of top earners due to a combination of top-coding, and sampling and nonsampling errors (for a detailed discussion of these issues, see Blanchet, Chancel, and Gethin 2020). Combining data from surveys and tax returns alleviates the limitations of surveys in capturing top incomes, while drawing on their strength in capturing the income of individuals below the top.

Finally, surveys capture only direct taxes, leaving out indirect taxes that fall heavily on low-income individuals (such as excise and consumption taxes), and also fail to account for the value of in-kind benefits, such as healthcare, education, child and elder care, defense, police, and other public goods. The WID accounts for all taxes, also indirect taxes, and it imputes the value of public goods and in-kind benefits to individuals, permitting us to assess the full redistributive effects of taxes and transfers.[15] All in all, the WID data permits us to go beyond existing studies and examine the targeting of taxes and transfers to different groups, with and without accounting for the value of in-kind benefits, as well as assess the distribution of economic growth to different classes. That means we are able to measure all the key transfer rates in the theoretical model.

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[15] Although only a few studies of redistribution account for indirect taxes and in-kind spending, the importance of doing so is generally recognized among political economists. As Garfinkel, Rainwater, and Smeeding (2006, 898) note: "[f]rom a theoretical point of view, a measure that counts in-kind transfers and indirect taxes is superior to the conventional measure of cash disposable income as a measure of a household's standard of living."

WID's measures of income all refer to the adult population (20 years or older) and use an equal-split approach to divide income equally between spouses. Since the elderly population, which is typically excluded from analyses of redistribution, is included in the WID, the income measures differ slightly from those used in most previous studies. In addition to labor and capital income, pre-tax income includes replacement income, most importantly pensions and unemployment benefits, net of contributions. Because pensions are the primary income of the elderly (who typically have little or no market income), including pensions in post-tax income would mechanically inflate redistribution in countries and years with older populations, limiting the comparability of redistribution across countries and time.[16]

Unemployment benefits are taxable in most countries and therefore also included in pre-tax income. Including unemployment benefits in pre-tax rather than post-tax income does not matter for our evidence on post-tax income growth, but it slightly biases our measures of redistribution to low-income individuals in a downward direction (since benefits go to workers without market income). Yet, since unemployment spending accounts for only about 1.2% of GDP on average, and since the overall generosity of unemployment programs have remained fairly stable in most of the countries in our sample, whether unemployment benefits are counted as pre-tax or post-tax income have little effect on the trends in our redistribution measures.[17] To account for the little

[16] The alternative is to exclude the elderly from the analysis, which is a common approach in previous studies. Yet, this arbitrarily alters the allocation of individuals to income classes, and it implicitly ignores the interests of a growing group of voters.

[17] We provide empirical evidence in Online Appendix B, in which we show that there has been no general downward trend in the generosity of welfare programs since 1980. In fact, in most of

effect that there might be, we include a control for the unemployment rate in our statistical models.

WID provides two measures of post-tax income, which equal pre-tax income minus taxes (direct and indirect) plus cash transfers. The difference between the two measures is that one excludes the value of in-kind benefits (public goods), whereas the other includes it. The value of in-kind benefits has yet to be fully incorporated into studies of redistribution, and it remains an important task for future research to explore ways of reliably doing so. We allocate public goods and in-kind transfers as an equal lump-sum to all individuals, consistent with recent estimates computed by the OECD.[18] In Online Appendix Figures C1-C3, we examine redistribution under the alternative assumption that only spending on health has redistributive effects, as assumed in the standard WID series: this lowers redistribution, but the trends are very similar compared to the scenario when all public goods are distributed lump-sum.

Based on the pre-tax and post-tax income measures, we calculate two measures of redistribution. The first captures cash transfers, net of taxes, through the tax and transfer system, whereas the second adds the value of in-kind benefits. Each of these measures can be expressed in either

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the countries in our sample, welfare programs, and especially pensions, have become more generous. We see similar patterns in terms of spending.

[18] The only attempt to measure the distributional impact of all in-kind benefits is OECD (2011, ch. 8), which provides a cross-national estimate for a single year (2007). That estimate is very consistent with assuming an equal lump-sum distribution. As Verbist, Förster, and Vaalavuo (2012) conclude in an analysis of the data: "Overall, in-kind benefits are rather evenly distributed over different income groups, with only a very slight orientation towards lower incomes … This pattern is strikingly similar across countries" (p.35).

absolute or relative terms. The absolute transfer share of a group is the difference between the group's pre-tax and post-tax income expressed as a percentage of national income, or simply the difference between the group's pre-tax and post-tax income shares. The relative transfer share expresses net transfers as a percentage of the group's post-tax income.[19] The latter is equivalent to the theoretical definition of transfer rates, and following the theoretical model we calculate transfer shares for three groups: *L*, *M*, and *H*. We define the three groups more narrowly to consist of the bottom 20%, the middle 20%, and the top 1% of the income distribution. Although this grouping does not account for the entire distribution, as in the model, it better enables us to zero in on the targeting of taxes and transfers to and from different income classes. The top 1% has of course also played a central role in the academic and public debates about inequality.[20]

4.2 Redistribution Since 1980

Figure 2 plots the absolute and relative transfer shares of *L*, *M*, and *H* from 1980 to 2016. The red, green, and blue dots (triangles) represent the transfer shares of the bottom 20%, middle 20%, and top 1% exclusive (inclusive) the value of in-kind benefits for all available country-year observations. The colored lines are local polynomial smoothers, illustrating differences in average transfer shares between groups at any one point in time as well as trends over time.

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[19] Since the distribution of income when excluding in-kind transfers and public goods is similar to assuming that in-kind transfers and public goods have no redistributive effects and distributing their value proportionally to post-tax disposable income, the difference between pre-tax and post-tax income shares can be interpreted as a share of national income, also when in-kind benefits and public goods are excluded.

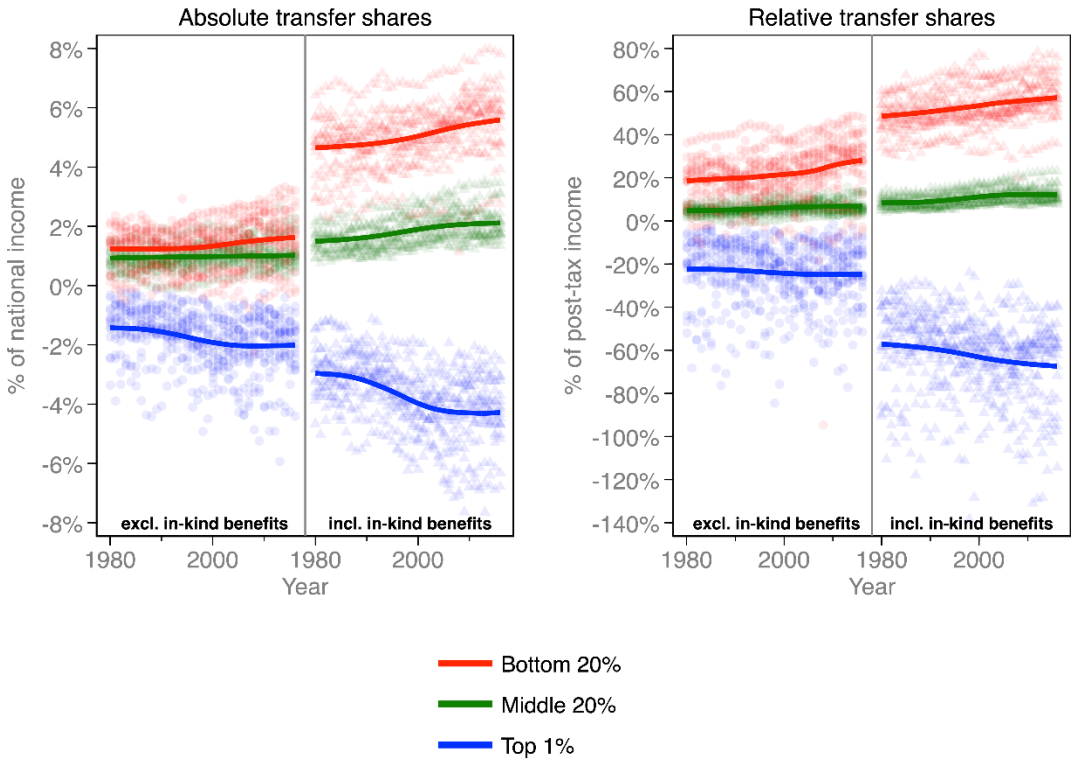
[20] Dividing the entire distribution into three groups (bottom 30%, middle 40%, and top 30%) does not substantively alter any of our conclusions (see Online Appendix D).

Looking first at differences in levels of absolute transfer shares (left panel), we see that, on average, *L* and *M* are net beneficiaries of redistribution, whereas *H* is always a net contributor. We also see that on average transfers are strictly progressive with *L*'s average transfer share being greater than that of *M* in all years. Yet in slightly more than one third of all country-years, the transfer share of *M* is greater than that of *L,* which is mainly due to variation in *L*'s transfer rate (as opposed to in *M*'s). Indeed, transfers to *L* vary a lot more (across both countries and years) than transfers to *M*. From a model perspective, this is consistent with *M* exerting a stable influence on transfer rates, while *L*'s ability to redirect transfers to the bottom depends on its (varying) bargaining power, in particular on its ability to participate in government coalitions.[21]

The figure further shows, as expected, that accounting for the value of in-kind benefits raises *L*'s transfer share significantly. It has a similar, though smaller, impact on transfers to *M*, whereas it increases the share of income that the rich gives up to redistribution. Taking account of the redistributive effects of in-kind welfare programs is therefore important to the study of redistribution.

[21] Transfers to *M* exceed those to *L* in most years in Switzerland and Southern Europe (Greece, Italy, Portugal, and Spain). In the UK and US transfers are more targeted to *M* than *L* in about every third year. By contrast, in all years in Austria, France, the Netherlands, and the Nordic countries transfers target *L* more than *M* (the only exception is 1986 in Norway).

Figure 2. Absolute and Relative Transfer Shares in 17 Advanced Democracies, 1980-2016.



Note: In Switzerland the series starts in 1982, in Belgium in 1991, and in Austria in 2004. The results are highly similar when including only countries for which full time series are available.

A closer look at the trends over time reveals that the top 1% has given up an increasing share of total income to redistribution since the 1980s. Whereas the tax and transfer system reduced the income share of the top 1% by about 1.4% of national income in 1980, its income share was reduced by about 2.0% in 2016. When including the value of in-kind benefits, the drop is more pronounced with an average change from 2.8% to 4.3%. By contrast, the middle quintile has increased its absolute transfer share from around 0.9% of total income in the early 1980s to 1.1% in 2016. Again, when we include the value of in-kind benefits, we see a more pronounced

change from 1.5% of total income in 1980 to about 2.1% in 2016. Finally, the bottom quintile has, on average, experienced the greatest increases in transfer shares. In 1980, the income share of the bottom 20% increased by about 1.2% after the taxes and transfers, whereas it increased by about 1.6% in 2016. These numbers are 4.6% and 5.5% when including the value of in-kind benefits.

If we measure net transfers relative to post-tax income, we get a slightly different pattern because of variation across classes in pre-tax income (see the right panel of Figure 2). For *H* the cash transfer rate is essentially constant, mirroring the model prediction when assuming optimal taxation, but when in-kind benefits are included, the transfer rate has been gradually increasing (in absolute terms) from 57% to 68% of *H*'s post-tax income between 1980 and 2016. This result is as expected because in-kind benefits approximate the Meltzer-Richard model assumption that benefits are lump-sum, and therefore should be rising in inequality.

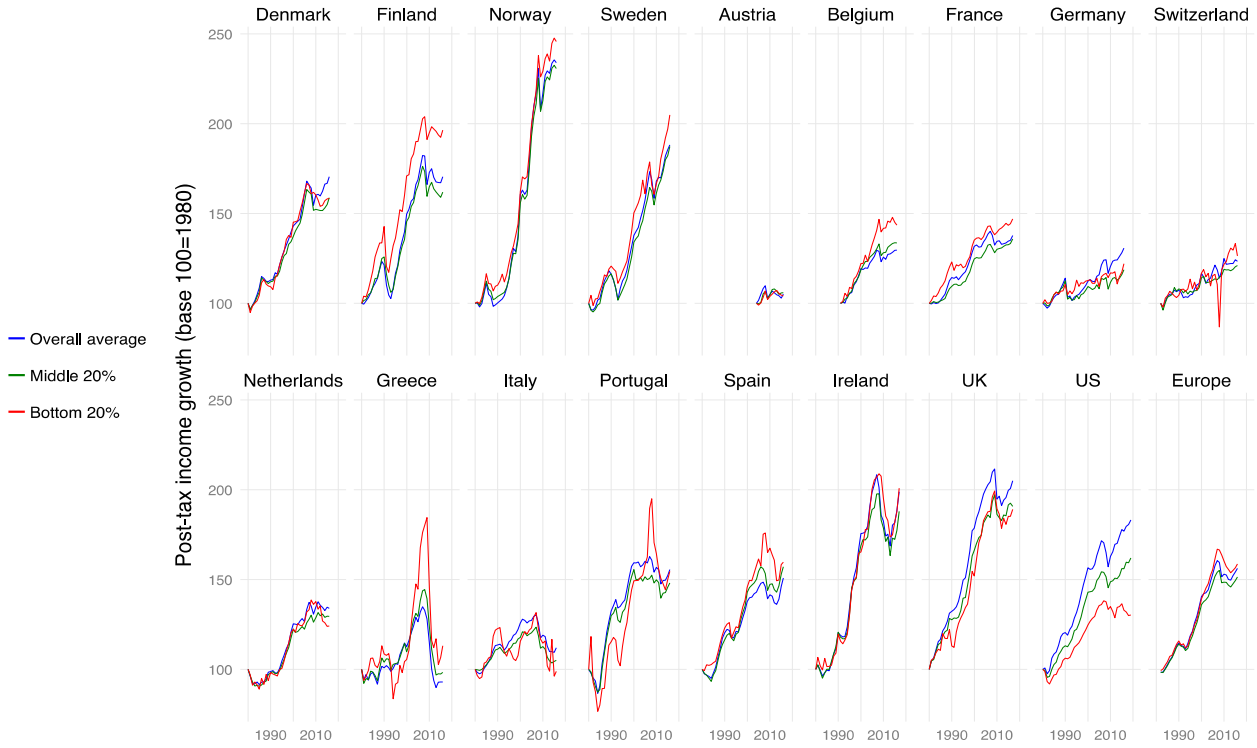
Since the pre-fisc incomes of *L* and *M* have both been trending downward, the increases in absolute shares that we noted above make the trends in relative shares even more pronounced (in contrast to *H*). *M* has experienced an increase in cash transfers from 5% to 7% and *L* from 18% to 27%. The former is again as expected, but the improvement for *L* is more puzzling. Many analyses of labor markets imply that risks are growing more bifurcated, with *M* becoming more secure and *L* less secure, which should lower the importance of insurance motives in the middle class (see Rueda 2007; Rehm 2016; Alt and Iversen 2017). On the other hand, as many in *M* drop into *L* when they retire, *M*'s incentives to insure themselves against illness and old age may be growing with aging populations. Healthcare benefits constitute a large and increasing fraction of

public goods consumption in every country, and they are concentrated among the elderly who tend to live on relatively low retirement incomes. Indeed, the trend for *L* becomes more pronounced when in-kind benefits, such as those related to healthcare and old age, are included.

Overall, we find that the democratic state has played a major role in responding to rising pre-tax inequality since 1980.[22] The rich pay a more or less constant share of their (rising) pre-tax incomes into the transfer system, and as a result *L* and *M* have been able to keep up with the overall expansion of the economy much better than one would have predicted from the evolution of pre-tax incomes. This is evident from Figure 3, which shows the real post-tax income growth of *L* and *M* compared to the mean income growth in each country. On average, for European countries the income growth of *L* and *M* are within 5% of mean income growth (see last panel in Figure 3). Considering the rise in pre-fisc inequality, this has only been possible because of a highly redistributive state.

[22] We get similar results if we measure redistribution as the percentage change in Gini from before to after taxes and transfers: In all countries, redistribution has been maintained (see Online Appendix Figure C4).

Figure 3. Real Post-Tax Income Growth (Including In-Kind Transfers and Public Goods)



Note: In Austria, Belgium, and Switzerland the base 100 is 2004, 1991, and 1982. The graph for Europe includes all the European countries except Austria and Belgium and has base 100 in 1982.

The US is a major outlier, however. While the overall economy expanded by 77% between 1980 and 2016, *M* and especially *L* experienced much lower growth rates of 56% and 33%. And as opposed to in Europe, *L*'s income growth in the US is largely driven by greater public goods provision. When we allocate in-kind spending on other domains than health proportional to post-tax disposable income, thereby assuming that only in-kind transfers on health have redistributive effects, *L*'s income has grown just 13% in real terms in the last 36 years (that of *M* declines only

slightly from 56% to 51%, see Online Appendix Figure C5).[23] The US is the only country in which greater economic prosperity has been distributed so unequally. We will consider likely causes for these model deviations in section 5.

4.3. The Drivers of Change

What is driving changes in transfer rates over time? To answer this question, and more directly test the hypotheses laid out above, we estimate a set of general error-correction models (ECM). These models enable us to analyze how changes in inequality, public goods provision, globalization, and government partisanship affect the rates of transfers to and from each income class in both the short and long run, and they are therefore well-suited to test our hypotheses. Using ECMs require that all series are either stationary or co-integrated, and Levin-Lin-Chu and Augmented Dickey-Fuller tests indicate that the series are stationary.[24]

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[23] *L*'s weak post-tax income growth in the US is the combined result of stagnant pre-tax incomes and crumbling rates of transfers. Online Appendix Figure C6 shows that the US is not only the country in which *L* has experienced the greatest decline in its pre-tax income share, it is also the country in which *L* has experienced the greatest drop in its cash transfer rate (0.8% of national income). When we include in-kind benefits, the US is the only country in which *L* has experienced a decline in net transfers (0.3% of national income). *M* has done better than *L* and is today receiving 0.9% more of national income in cash transfers and 1.7% more in cash and in-kind transfers combined compared to 1980. But because the US has seen a pronounced "hollowing-out" of the middle in terms of market income (Figure 1), transfers have only partly compensated for this drop (Figure 3).

[24] Note that ECMs are equivalent to autoregressive distributed lag (ADL) models (Beck and Katz 2011, De Boef and Keele 2008). We prefer the EC specification for the simple reason that it directly estimates both short and long-run effects, whereas the ADL specification estimates only short-run effects directly.

We estimate the models by regressing changes in relative transfer shares -- that is, net transfers expressed as a percentage of a group's post-tax income (shown in the right panel of Figure 2) -- on changes in, and lagged levels of, pre-tax income inequality (top and bottom end),[25] measures of capital market integration (Chinn and Ito 2006, 2008) and trade openness (sum of imports and exports as a share of GDP), and a cumulative measure of the partisanship of the government.[26] We also include a measure of the marriage rate to control for changes in family structures over time, and the unemployment rate to account for the effect of automatic stabilizers on net transfers. For the models in which the dependent variable includes the value of public goods and in-kind transfers, we add a variable that captures public goods consumption as a share of national income.[27] In all models, we model the dynamics in transfer rates by including a lagged level of the dependent variable,[28] and to account for heterogeneity across countries, the models also

[25] We measure top-end inequality as the ratio between the pre-tax income share of the top 1% and that of the middle 20%. Similarly, bottom-end inequality is measured as the income share ratio between the middle 20% and bottom 20%.

[26] Specifically, we follow Huber and Stephens (2001), who convincingly argue that partisanship can have long-run effects by altering institutions and the structure of redistributive programs, and measure left partisanship as the cumulative share of government-controlled parliamentary seats held by left parties from 1980 to the year of observation, using data from Armingeon et al. 2019.

[27] To maintain full time series, we have imputed one value on trade openness, thirteen on capital market openness, and 31 on the marriage rate by either inter- or extrapolation. Our results are robust to using the unimputed series (see Online Appendix Table E1).

[28] Bias-corrected LM tests of serial correlation for fixed effects panel data models (see Born and Breitung 2016) indicate that the errors in our models are serially uncorrelated when including one lagged level of the dependent variable. In Online Appendix Tables E4 and E5, we show that our results are robust to including a second lagged level of the dependent variable and using Prais-Winsten regressions, which would remove any potentially remaining serial correlation.

include country fixed effects.[29] While the models presented here do not include time trends, we show in Online Appendix Tables E2 and E3 that our main results are substantively very similar when accounting for time.[30]

Table 1 reports the results.[31] We find that top-end inequality (T1/M20) does not affect *H*'s relative transfer share (models 1 and 2). This is consistent with optimal taxation theory: when the rich get richer, their tax payments rise in absolute terms but remain stable relative to post-tax income (H1). For *M* we see strong immediate and long-term positive effects, corroborating the theoretical prediction that rising top-end inequality drives up transfers to *M* (H2a).

Whereas rising top-end inequality increases redistribution of income from *H* to *M*, the relative cash transfer share of *L* remains unaffected. There is a positive, significant effect only when in-kind transfers are included. Again, this is consistent with expectations (H2b) and suggests that recent decades' increases in transfers to the poor are not a direct compensation for economic

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[29] It is well-known that including a lagged dependent variable alongside unit fixed effects introduces a bias in OLS parameter estimates of the order $1/T$. Yet, Beck and Katz (2011) still recommend using OLS to model dynamics and unit heterogeneity in TSCS data, since the bias is small when $T>20$, and since OLS outperforms more complicated models that seeks to remove the bias. As $T=33$ on average in our models, the bias is indeed small, and we therefore follow the advice of Beck and Katz (2011) in using OLS.

[30] Only the effect of partisanship, when in-kind benefits are included in transfers, turns insignificant when adding time trends; the effect is stable when in-kind benefits are excluded.

[31] *L*'s income dropped massively in the wake of the financial crisis in Switzerland (2008-2009), which makes these years outliers (for visual evidence see Figure 3), and we therefore omit them from the models reported in Table 1. Including the outliers makes the results for *L* stronger, while it does not affect the results for either *H* or *M* (see Online Appendix Table E6).

growth increasingly being concentrated at the top. Instead, they are driven in significant measure by middle-class demand for public goods, from which *L* cannot be excluded (H3).

Rising bottom-end inequality (M20/B20), however, increases transfers to the poor, and it tends to lower *M*'s relative transfer share in the short run. Combined, these results are consistent with the theoretical argument that when bottom-end inequality rises, *M* is willing to pay a higher insurance premium (H4). In particular, *M* is likely to want to ensure that it can always receive generous in-kind benefits, such as care in the case of illness and good education for its children.[32] If the risk for *H* of falling into the *L* group is low, as is almost certainly the case, we will not see similar effects on *H*'s transfer share, and we don't.

[32] Note that this is a total effect of low-end inequality. The effect is mediated by the probability of downward movement as well as by the gap in income between the two states. Assuming the first is negatively affected by inequality (as in the Great Gatsby Curve), the direct effect of bottom-end inequality is larger than estimated because of omitted variable bias.

Table 1. Determinants of the Relative Transfer Shares of *H*, *M*, and *L*

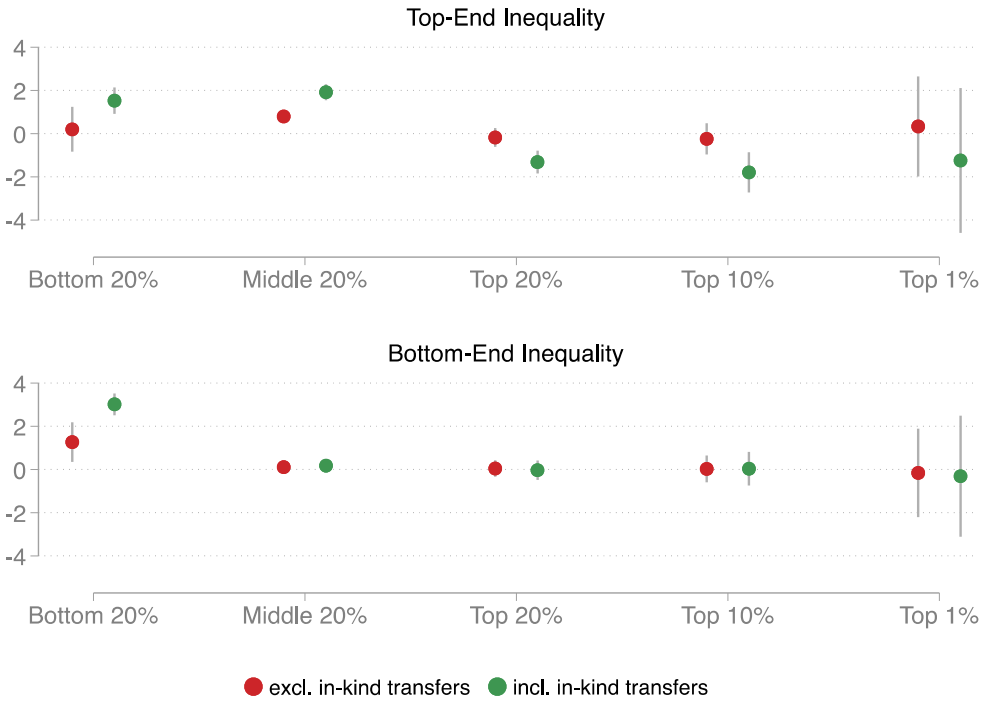
	(1)	(2)	(3)	(4)	(5)	(6)
	Δ *H*'s relative transfer share		Δ *M*'s relative transfer share		Δ *L*'s relative transfer share	
	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers
Relative transfer share$_{t-1}$	-0.31*	-0.29*	-0.35*	-0.25*	-0.49*	-0.32*
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)
Δ T1/M20	2.67	-0.48	4.10*	10.18*	5.51	8.67*
	(5.40)	(7.39)	(0.76)	(0.69)	(3.62)	(1.49)
T1/M20$_{t-1}$	0.74	-2.57	1.97*	3.40*	0.69	3.49*
	(2.25)	(3.30)	(0.37)	(0.54)	(1.72)	(0.71)
Δ M20/B20	0.44	0.73	-0.25*	-0.22*	3.81*	4.79*
	(0.52)	(0.67)	(0.10)	(0.09)	(0.75)	(0.24)
M20/B20$_{t-1}$	-0.08	-0.14	0.06	0.07	1.00	1.56*
	(0.43)	(0.57)	(0.07)	(0.07)	(0.56)	(0.28)
Δ Capital market openness	5.24	5.36	0.24	0.21	-9.92*	-0.18
	(4.33)	(5.44)	(0.76)	(0.63)	(4.93)	(1.61)
Capital market openness$_{t-1}$	-3.71*	-4.87*	0.44	0.40	0.30	0.23
	(1.65)	(2.21)	(0.26)	(0.22)	(1.45)	(0.45)
Δ Trade openness	-7.42	-6.28	1.78	1.21	-3.02	-1.90
	(5.67)	(7.32)	(0.91)	(0.79)	(3.62)	(1.46)
Trade openness$_{t-1}$	1.85	1.75	0.52	0.51	0.55	-0.31
	(2.51)	(3.25)	(0.36)	(0.31)	(1.29)	(0.57)
Δ Partisanship (left)	-0.03	-0.15	0.05	0.04	0.09	-0.07
	(0.82)	(1.05)	(0.11)	(0.09)	(0.59)	(0.19)
Partisanship (left)$_{t-1}$	-0.06	-0.15	-0.00	-0.02	0.23*	0.06*
	(0.10)	(0.12)	(0.02)	(0.01)	(0.06)	(0.02)
Δ Marriage rate	0.44	0.71	-0.18*	-0.14*	0.16	0.05
	(0.45)	(0.63)	(0.06)	(0.05)	(0.36)	(0.14)
Marriage rate$_{t-1}$	-0.55	-0.62	0.05	0.04	0.13	0.12
	(0.38)	(0.53)	(0.06)	(0.06)	(0.34)	(0.13)
Δ Unemployment	0.10	-0.22	-0.04	-0.01	0.20	-0.01
	(0.21)	(0.33)	(0.03)	(0.03)	(0.19)	(0.08)
Unemployment $_{t-1}$	0.07	0.08	-0.04*	-0.03	0.15	-0.04
	(0.09)	(0.13)	(0.02)	(0.01)	(0.09)	(0.03)
Δ Public goods consumption		-70.29		16.19*		66.16*
		(52.37)		(4.68)		(11.01)
Public goods consumption$_{t-1}$		-21.91		3.71		29.03*
		(27.20)		(2.75)		(6.62)
R-squared	0.16	0.16	0.25	0.41	0.33	0.68
N	576	576	576	576	576	576

Note: * $p<0.05$. Panel corrected standard errors in parentheses. All models include country-specific intercepts.

Figure 4 parses the total long-run effects of one standard deviation changes in top- and bottom-end inequality on net transfer rates in more detail. The top panel shows that a one standard deviation change in top-end inequality raises *M*'s transfer rate by about 0.8% of *M*'s post-tax income; including the value of in-kind transfers, the increase in net transfers to *M* is about 1.9%. These effects are equivalent to raising *M*'s transfer share by about 0.1% and 0.3% of national income.[33] As predicted by the theory, and discussed above, *L*'s cash transfer rate is unaffected by rising top-end inequality (H2b). But since *L* also benefits from increased in-kind (non-excludable) transfers to *M*, and since such transfers rise with top-end inequality, rising top-end inequality also raises *L*'s transfer share when such benefits are included. The effect, however, is weaker than for *M*, equaling about 1.5% of *L*'s post-tax income and 0.1% of national income.

[33] The full set of results for absolute income shares are shown in Online Appendix Table E7 and Figure C7.

Figure 4. Long-Run Effects of Top and Bottom-End Inequality on Transfer Shares



Note: The figure shows the total long-run effect of a one standard deviation change in top or bottom-end inequality on the relative transfer share of a group with and without including in-kind transfers. The long-run multipliers are estimated using the Bewley (1979) transformation based on the estimates in Table 1 and Online Appendix Tables E8 and E9.

Rising top-end inequality does not affect the transfer rate of *H* when excluding public goods and in-kind benefits. For the top 20% and top 10%, the long-run multipliers are quite precisely estimated null effects; for the top 1% there is (unsurprisingly) more uncertainty around the estimate. But because top-end inequality has been driven by *H*'s income increases, these null effects are in fact quite substantial in terms of national income. For a one standard deviation rise in top-end inequality, the top 1% pays about 0.2% more of national income into the system. The effects are even stronger in the more realistic scenario where public goods and in-kind benefits

are included. In this scenario, *H*'s transfer rate increases by about 1.2% of post-tax income for the top 1% and about 1.3% and 1.8% for the top quintile and top decile richest individuals, respectively. Again, these effects are large in terms of national income: the top 1% pays 0.6% more of national income into the system when top-end inequality rises by one standard deviation; the top 20% and top 10% pay around 0.8% and 0.9% more.

The bottom panel of Figure 4 shows that rising bottom-end inequality increases transfers to *L* while it has no other effects. A one standard deviation rise in bottom-end inequality increases *L*'s transfer rate by about 1.3% of *L*'s post-tax income when excluding in-kind transfers. When including in-kind transfers, *L*'s transfer rate increases by about 3.0% of its post-tax income, which is equivalent to about 0.1% of national income. These results are consistent with *M* seeking to insure itself against poverty, in particular ensuring that it has access to healthcare and other in-kind benefits in case of downward mobility.

The results for capital market openness and trade openness in Table 1 lend little support to the notion that globalization has undermined the power of the middle class to tax the rich. In fact, greater capital market openness appears to be negatively associated with *H*'s relative transfer share in the long run, meaning that opening up financial systems has gone hand-in-hand with an *increased* share of income that the rich contribute to taxes. The effects for *M* and *L* indicate that stronger globalization is not associated with less transfers to the lower and middle classes over the long run. These results are clearly inconsistent with a simple "race to the bottom" globalization story.

For partisanship the results show that who controls the government still matters in the post-1980 world, as left party governments redirect transfers to *L* (consistent with H5). The magnitude of the effect suggests that a one standard deviation increase in left partisanship increases cash transfers to *L* by about 2.4% of *L*'s post-tax income in the long run, which in terms of national income is a substantial effect of about 0.2%. When we include in-kind benefits, the effect weakens to about 1% of *L*'s post-tax income, yet it remains constant, and thus substantively similar, in terms of national income. This result suggests that the effect of left partisanship primarily reflects increases in cash transfer to *L*, rather than more generous in-kind benefits.[34] The effects for *M* and *H* are statistically insignificant, but in substantive terms those for *H* indicate that rising transfers to *L* under left party rule are paid for by greater tax payments by high-income individuals. This interpretation is supported by the fact that the effect of left partisanship is negative and statistically significant when defining *H* more broadly as the top 10%, 20%, or 30% (see Online Appendix Tables D1, E8, and E9).

Finally, the coefficients on public goods consumption demonstrate the importance of public goods for the transfer rate of *L* (corroborating H3) and helps explain the puzzling increases in transfers to *L* discussed above. The increase in public goods consumption that has occurred in

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[34] Because partisanship mainly affects *L*'s cash transfer rate and because net transfers are expressed as a share *L*'s post-tax income, when we include in-kind benefits in post-tax income the denominator (*L*'s post-tax income) increases, and thus the effect of partisanship appears weaker. If we omit the public goods consumption variable in model 6, the long-run effect of left partisanship rises slightly to 0.27% of national income, which again suggests that most of the effect of left partisanship is due to increased cash transfer payments. We also note that while the effect of left partisanship on *L*'s cash transfer rate is highly robust to alternative specifications, the effect turns insignificant in some specifications when in-kind benefits are included (see Online Appendix E).

most countries since 1980 has benefitted *L.* But the increase is almost certainly not a result of increased power of *L*. Rather, *L* benefits indirectly from the strong position of *M* to demand generous public goods provision, notably education and healthcare, from which *L* typically cannot be excluded. Increases in public goods consumption tend to slightly raise *H*'s transfer payments, meaning that, as opposed to *L* and *M*, *H* is a net contributor of more generous in-kind benefit programs (again the coefficients are more precisely estimated and statistically significant when defining *H* more broadly, see Online Appendix Tables D1, E8, and E9).

In addition to the alternative model specifications already discussed, we show in Online Appendix E that our main results are substantively very similar when (1) using one-way and two-way fixed effects models, (2) distributing only in-kind transfers on health as an equal lump sum, (3) and including additional controls for the share of elderly, female labor force participation, and union density.

5. The US Exception

Our examination of the data from the World Inequality Database, by far the most comprehensive database on income distribution and redistribution, largely supports a simple model of democracy where the middle class is pivotal and the poor benefits indirectly from spending on public goods insurance against downward mobility. Democracy thus lifts all boats and strongly counteracts rising inequality. Yet, the US stands out as a major exception. While the middle class has seen a significant rise in net incomes, it has not kept up with overall economic growth. What accounts for American exceptionalism?

This is not the place for an in-depth analysis, but we can sketch an explanation that draws on existing literature and helps highlight crucial model assumptions.

(1) *Countermajoritarian institutions*. The standard model assumes majoritarian rule with each vote counting equally, but American institutions accord overrepresentation to more conservative rural areas in Congress as well as in the Electoral College (Rodden 2019). Institutions are also designed to make policy-change difficult by creating many veto points (Stepan and Linz 2011; Huber and Stephens 2001; Tsebelis 2002). For this reason, the Republican Party has been able to govern with minority support, or to block majority rule, for long periods of time. This is not a new situation, of course, but it has made redistributive responses to rising inequality politically difficult. In particular, the transition to a knowledge economy has created a deep urban-rural divide with opposition to taxation and redistribution concentrated among the overrepresented rural districts and states (Hacker and Pierson 2020).

(2) *Race*. The model assumes the political preeminence of class, but race is a widely recognized dimension of American politics in general, and redistributive politics in particular (Gilens 2009; Cramer 2016, Alesina and Glaeser 2004). Even though racism has been a constant feature of American politics, we believe it affects our results dynamically for two reasons. First, rising poverty and risk of poverty have been concentrated among minorities, which has undermined the demand for insurance among the majority. Second, a declining marriage rate has been a source of inequality, and the decline has been more pronounced among poor minorities. Single black mothers –

> Reagan's "welfare queens" – get little sympathy among the white majority. European countries have seen a similar decline in marriage rates, but the state has compensated for the implied rise in inequality through increased family allowances and other transfers.
>
> This conjecture finds direct support in the WID data because when the effect of changing marriage rates is eliminated by assigning pre-tax income to each spouse separately, the gap between the disposable income line for *L* and the line for mean income does not increase by nearly as much (see Online Appendix Figure C8).

These departures of the US system from the model assumptions help explain US exceptionalism. This interpretation is supported by recent developments. While one should not place too much weight on short-run changes, it is notable that the new Biden administration, supported by an electoral majority in Congress and arguably including minorities in the coalition, has implemented swift and significant changes in the direction of more redistribution. The American Rescue Plan is estimated to raise the income of the bottom fifth of households by about 20%, and the middle gains from a combination of lump-sum checks (up to a $150k ceiling for couples) and build-in universal child benefits. These changes would be magnified if the current proposals for infrastructure spending, investment in community colleges, subsidized child care, and paid family leave – paid for by a tax on the rich – are even partially adopted. When majorities are allowed to govern, we observe that the gains from economic expansion are being shared more equally.

6. Conclusion

Thomas Piketty, one of the researchers behind the data we are using, argued in his influential 2014 book that an increasing share of income was going to the richest 1%, and that this implied a growing distortion or even subversion of democracy. This may be a reasonable inference to draw from the rise in market income inequality, but advanced democracies look a lot better when we consider the role of the state in redistribution. Across rich democracies, rising top-end inequality has raised the amount of taxes paid by the rich, while transfers to the middle, and usually also the bottom, have increased. This shift does not appear to be inhibited by economic globalization.

These findings suggest that as the rich become richer, the middle uses the democratic state to ensure that rising prosperity is shared. Relative to mean income the position of the middle in the net income distribution is essentially constant in the majority of countries. The finding mirrors the formal model closely, and it is more consistent with classic notions of democracy than with the idea that capitalism subverts democracy.

Yet, the analysis also highlighted a puzzle and a major outlier. The puzzle is that redistribution to the bottom has been maintained, and even increased, over time in most countries, contrary to the widespread belief that the poor have lost out. The reason can hardly be political power – by all accounts the left and unions are weaker today than 30 years ago – and while the middle class will support transfers to the bottom out of concerns about services and downward mobility, most analyses point to lower mobility and concentration of risks in the bottom half of the distribution. This leaves a great deal of unexplained variance. After years of focusing on the top, renewed scholarly attention to bottom-end inequality is warranted.

The outlier is the US. While the overall transfer rate from the rich has not dropped, the implied redistribution has not been sufficient to sustain the position of the middle class in the post-fisc income distribution. The bottom quintile has fared even worse, and its declining relative position is dramatic in comparison to other advanced democracies. One may see this as validation of some of the more gloomy predictions about capitalism undermining the democratic state. To us the comparative evidence instead points to the continuation of a strong state where majority rule is more important than ever.

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Online appendix A:

Class Preferences and Transfer Rates with Coalition Governments

The preferred taxation of *H* is straightforward since *H* wants to minimize transfers to *M* (or to *L*), and since regressive taxation is ruled out *H* simply sets the tax rate equal to zero

$t_H^* = 0 \quad \Rightarrow \quad \tau_H^{H*} = 0$. *L* wants to tax both *M* and *H* to maximize transfers to itself

$y_L^{net} = y_L + t \cdot (y_M + y_H - \frac{1}{2} \cdot \alpha \cdot t \cdot (y_M + y_H))$, which implies a tax rate of $t_L^{M*} = t_L^{H*} = \frac{1}{\alpha}$, and a net income of $y_L^{net*} = y_L + \frac{1}{2} \cdot \frac{y_M + y_H}{\alpha}$. Total taxation demanded by *L* is greater than for *M,* since *L* wants to tax 2/3 of all income by $1/\alpha$, whereas *M* only taxes 1/3 of all income (again, *H* sets taxes equal to 0). This is the preference ordering assumed in Figure 1 in the main text.

L's optimal transfer as a share of the net income of *M* and *H* (*L*'s transfer rate) is identical to *M*'s optimal transfer rate from *H*: $\tau_L^{M,H*} = \frac{T_L}{y_M^{net} + y_H^{net}} = \frac{\frac{1}{2} \cdot \frac{y_M + y_H}{\alpha}}{(y_H + y_M) \cdot \left(1 - \frac{3}{2\alpha}\right)} = \frac{1}{2\alpha - 3}$.

This completes the definition of preferences for each class. The next question is how political power shapes actual outcomes.

If *M* and *H* share power the observed transfer ratio is a weighted average of the preferred levels by M and H: $\tau_M^H(MH) = w_{M/H} \cdot \frac{1}{2 \cdot \alpha - 1} + (1 - w_{M/H}) \cdot 0 = w_{M/H} \cdot \frac{1}{2 \cdot \alpha - 1}$, where $w_{M/H} = [0,1]$ is a weight that measures the political power of *M* over *H* (*MH* indicates that both *M* and *H* matter politically). Since we cannot observe α we cannot identify $w_{M/H}$, but we can test empirically whether the transfer rate, τ_M^H, responds to the relative income of *M* and *H*, as opposed to who are

in government. If the democratic subversion thesis is correct, we should observe that $\tau_M^H(MH) = f(w_{M/H}) = g(y_M^{'}/y_H^{'})$, where $y_M^{'}/y_H^{'}$ are the observed relative pre-fisc incomes of *M* and *H*. In a model where the middle class is pivotal, as in the main text, the transfer rate is the preferred rate of *M.* As explained in the main text, we can infer that τ_M^H in that case will be orthogonal to $y_M^{'}/y_H^{'}$: $\tau_M^H(M) \perp y_M^{'}/y_H^{'}$. Note that this implication is stark because it means that even if top-end inequality, $y_H^{'}/y_M^{'}$ rises, as it has in most countries, this should have no effect on the transfer rate, which will remain constant (ceteris paribus). Note also that this implication is contrary to the Meltzer-Richard model. The reason is that the M-R model implicitly assumes that the interests of *L* and *M* are aligned so that when *M*'s income falls its preference for taxation rises. As soon as taxes and benefits can be targeted, *M* always wants to tax as much as it can and spend the proceeds on itself.

If government power matters (so the RDM applies) and M cannot govern on its own we need to derive the policy under different government coalitions. We assume such coalitions consist of at most two class parties. In the case of an *MH* coalition the bargain will lie between the optimal tax rate of *M* (which is $\frac{1}{\alpha}$) and the optimal tax rate of *H* (which is 0):

$t_M^{H*}(MH) = w_M \cdot \frac{1}{\alpha} + (1 - w_M^H) \cdot 0 = \frac{w_M}{\alpha}$, where $w_M = [0,1]$ is the bargaining weight of *M* vis a vis *H*. If the parties split their policy differences (i.e., have equal bargaining weights), *M* gets a transfer of $\frac{1}{2 \cdot \alpha} \cdot y_H$. Empirically we may think of w_M^H as the relative seat share of *M* in a coalition government with *H*. The case of an *LM* coalition is more complicated because both *L* and *M* can tax *H*, and *L* can also tax *M*. So *L* and *M* must compromise on both dimensions. The

policy vector is $P_j = \left\{t_L^H, t_M^H, t_L^M\right\}$, but because there is no incentive by either *L* or *M* to tax *H* beyond the point where additional taxation leads to lower revenues, the former two policies lie on a line. The logic is illustrated in Figure D1, where each axis represents a tax rate in the policy space and where the optimal taxation of *H* is constrained to a linear combination of taxes preferred by *L* and *M*.[35] The optimal policies of *L* and *M* are indicated by solid circles. When *L* and *M* form a coalition, they must find a compromise that divide the difference between their preferred policies. If the compromise is a simple 50-50 split, half the taxes on *H* will go to *L* and the other half to *M*, and *M* will only be taxed half the rate of that preferred by *L*. This is the case illustrated in Figure D1. But this may not be a feasible outcome if *M* has the option of allying with *H*, since *M* should then be able get at least as much as it can get from *H* (which is *M*'s outside option). In the split-the-difference scenario above, that means that M must get $T_M = \frac{1}{2 \cdot \alpha} \cdot y_H$, which is the middle of the solid line in Figure D1. Indeed, in any scenario with a binding outside constraint, the *LM* bargain must lie on this line. This implies that *M* gets the same in an *LM* coalition as in an *MH* coalition. In general, both *L* and *M* would be expected to get a share of the "full" taxation of *H* that equals their bargaining weight:[36]

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[35] This assumes that *H* has no economic power to influence policies. We control for such influence in the empirical estimation.

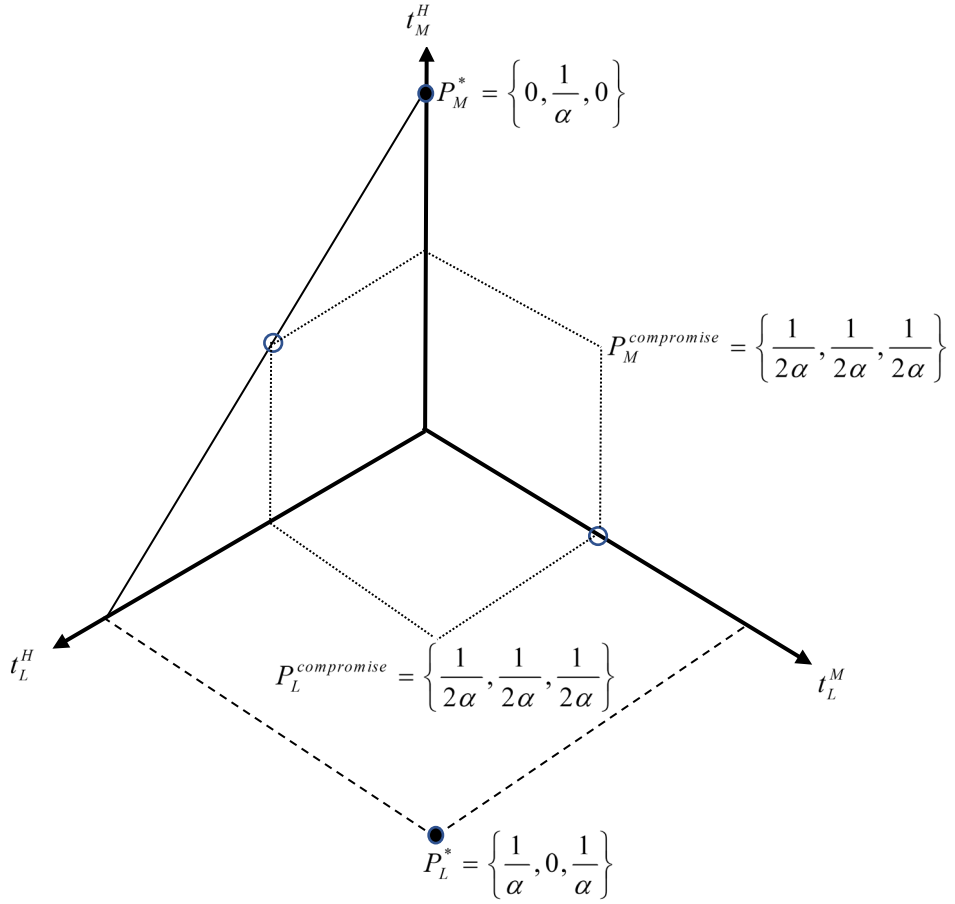
[36] Admittedly, *L* may have bargaining leverage over *M* either because it can offer *M* concessions in other policy areas, or because *H* and *M* cannot fully exclude *L* from sharing the spending in an *MH* coalition (as in Iversen and Soskice 2006). Either way, it would reduce *M*'s transfer rate. We let the data speak to whether that is the case.

$$T_M = w_M \cdot \frac{1}{\alpha} \cdot y_H$$
$$T_L = (1 - w_M) \cdot \frac{1}{\alpha} \cdot y_H$$

, where $w_M = [0,1]$ is again the bargaining weight of *M* relative to *L*. The net transfer rates from *H* to *M* and *L* are then:

$$\tau_M^H(LM) = \frac{T_M}{y_H^{net}} = \frac{w_M \cdot \frac{1}{\alpha} \cdot y_H}{y_H - \frac{3}{2} \cdot \frac{y_H}{\alpha}} = \frac{w_M}{\alpha - \frac{3}{2}}$$
$$\tau_L^H(LM) = \frac{T_L}{y_H^{net}} = \frac{1 - w_M}{\alpha - \frac{3}{2}}$$

Figure A1. The Taxation Policy Space (Example: *LM* Coalition with 50-50 Split of Policy Differences).



Note: The policy vector is $P_j = \left\{t_L^H, t_M^H, t_L^M\right\}$

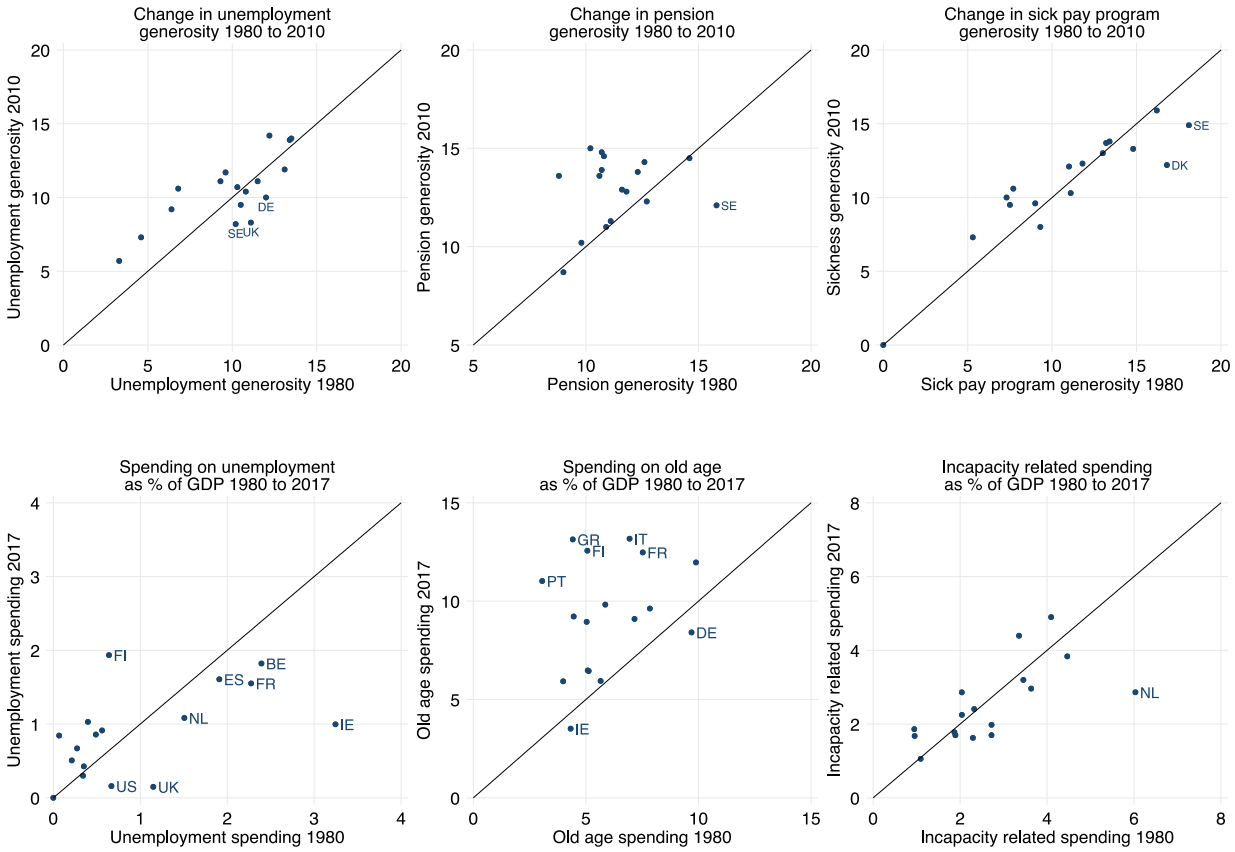
Online Appendix B:

Spending and Generosity of Replacement Income Programs

The top panel of Figure B1 shows that the generosity of welfare programs (unemployment, pension, and sick pay) have been fairly stable since 1980. In fact, in most of the countries in our sample, these programs have become (slightly) more generous, especially pensions. The bottom panel shows spending as percentage of GDP. Again, there is no general downward trend of lower spending in our sample of countries.

In Table B1, we include the measure of unemployment generosity in our main models. The regressions show that the generosity of unemployment programs only has a lasting effect on the transfer shares of *L*. Less (more) generous unemployment programs is associated with more (less) transfers to *L*. In other words, had unemployment benefits been included in post-tax rather than pre-tax income, *L*'s transfer rate would have been higher. We also note that our main results are very similar when controlling for the generosity of unemployment programs.

Figure B1. Changes in The Generosity of (Top Panel) and Spending on (Bottom Panel) Unemployment, Pensions, and Sick Pay Programs.



Note: The top panel shows changes in the generosity of unemployment, pension, and sick pay programs from 1980 to 2010 using data from Scruggs, Jahn, and Kuitto (2017). The bottom panel shows changes in unemployment, old age, and incapacity related spending between 1980 and 2017.

Table B1. Determinants of the Relative Transfer Shares of *H*, *M*, and *L*, Including a Measure of the Generosity of Unemployment Programs.

	(1)	(2)	(3)	(4)	(5)	(6)
	Δ *H*'s relative transfer share		Δ *M*'s relative transfer share		Δ *L*'s relative transfer share	
	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers
Relative transfer share$_{t-1}$	-0.35*	-0.32*	-0.44*	-0.27*	-0.49*	-0.32*
	(0.05)	(0.05)	(0.05)	(0.04)	(0.06)	(0.05)
Δ T1/M20	2.25	-0.01	4.38*	10.31*	6.72	10.63*
	(5.78)	(7.96)	(0.78)	(0.73)	(3.80)	(1.62)
T1/M20$_{t-1}$	-1.42	-5.25	2.42*	3.54*	1.93	3.89*
	(2.84)	(4.13)	(0.43)	(0.59)	(2.05)	(0.84)
Δ M20/B20	-0.01	0.18	-0.27*	-0.24*	4.22*	5.02*
	(0.56)	(0.71)	(0.10)	(0.09)	(0.72)	(0.24)
M20/B20$_{t-1}$	0.00	0.02	0.12	0.14	0.18	1.54*
	(0.50)	(0.66)	(0.08)	(0.07)	(0.58)	(0.30)
Δ Capital market openness	3.86	3.94	-0.13	-0.18	-4.82	0.21
	(4.74)	(5.87)	(0.78)	(0.64)	(4.18)	(1.49)
Capital market openness$_{t-1}$	-3.68	-4.31	0.56	0.50*	1.77	0.66
	(2.00)	(2.56)	(0.30)	(0.24)	(1.65)	(0.50)
Δ Trade openness	-7.51	-6.40	1.54	0.75	-2.16	-1.68
	(5.94)	(7.61)	(0.98)	(0.87)	(3.66)	(1.50)
Trade openness$_{t-1}$	6.91	6.95	-0.02	0.25	-0.37	-0.46
	(3.53)	(4.54)	(0.51)	(0.44)	(1.92)	(0.78)
Δ Partisanship (left)	0.80	0.89	-0.07	-0.04	-0.36	-0.19
	(0.90)	(1.13)	(0.11)	(0.09)	(0.57)	(0.20)
Partisanship (left)$_{t-1}$	-0.08	-0.17	0.00	-0.01	0.18*	0.03
	(0.11)	(0.14)	(0.02)	(0.02)	(0.07)	(0.03)
Δ Marriage rate	0.39	0.80	-0.19*	-0.16*	0.19	0.06
	(0.47)	(0.64)	(0.06)	(0.05)	(0.34)	(0.13)
Marriage rate$_{t-1}$	-0.60	-0.42	0.03	0.00	-0.01	0.13
	(0.43)	(0.62)	(0.07)	(0.06)	(0.35)	(0.14)
Δ Unemployment	0.14	-0.22	0.00	0.03	-0.14	-0.12
	(0.23)	(0.37)	(0.04)	(0.04)	(0.18)	(0.08)
Unemployment $_{t-1}$	0.18	0.15	-0.04*	-0.00	-0.01	-0.05
	(0.11)	(0.15)	(0.02)	(0.02)	(0.09)	(0.04)
Δ Public goods consumption		-68.30		14.09*		79.35*
		(56.13)		(4.85)		(11.32)
Public goods consumption$_{t-1}$		-17.35		2.48		34.64*
		(28.07)		(2.81)		(7.28)
Δ Unemployment generosity	-1.56*	-2.07*	0.11	0.07	0.02	-0.19
	(0.73)	(0.92)	(0.12)	(0.10)	(0.49)	(0.18)
Unemployment generosity $_{t-1}$	-0.27	-0.71	-0.02	-0.01	-0.47*	-0.18*
	(0.35)	(0.46)	(0.05)	(0.04)	(0.22)	(0.09)
R-squared	0.20	0.20	0.31	0.44	0.40	0.72
N	481	481	481	481	481	481

Note: * $p<0.05$. Panel corrected standard errors in parentheses. All models include country-specific intercepts.

Online Appendix C:

Additional Figures

Figure C1. *H*'s absolute transfer share under different assumptions of the value of in-kind benefits and public goods.

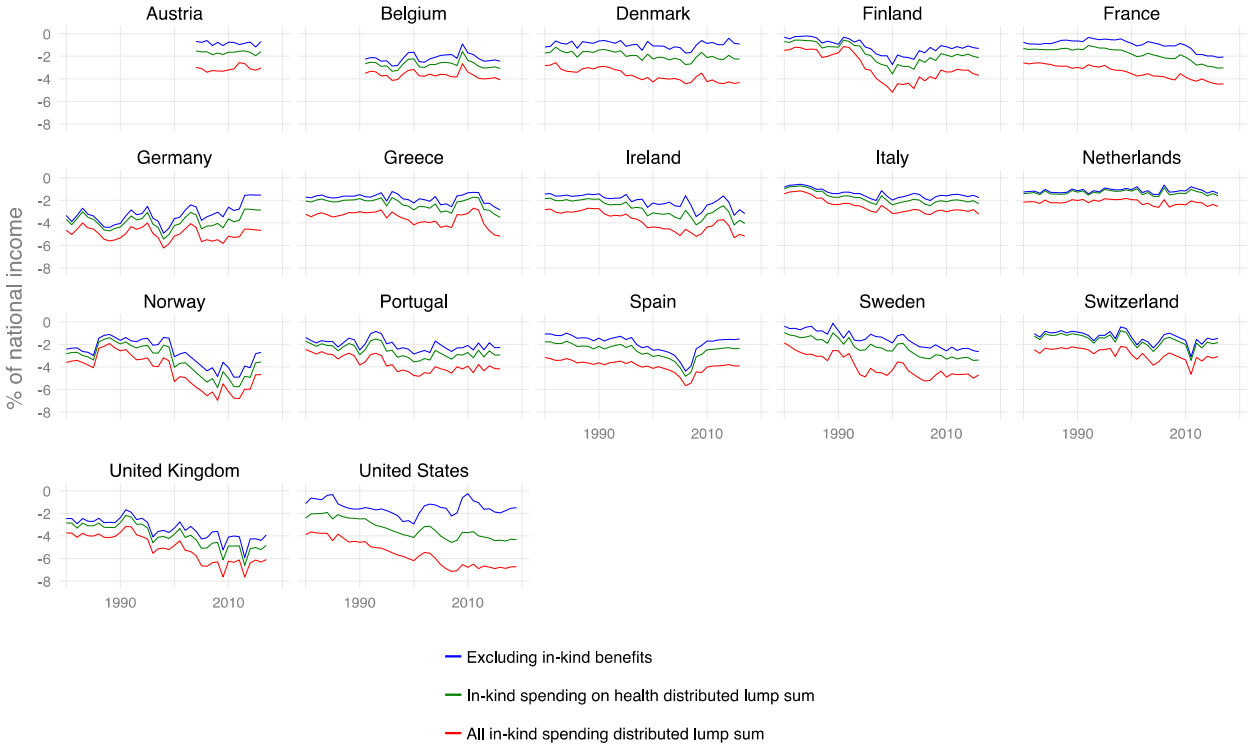


Figure C2. *M*'s absolute transfer share under different assumptions of the value of in-kind benefits and public goods.

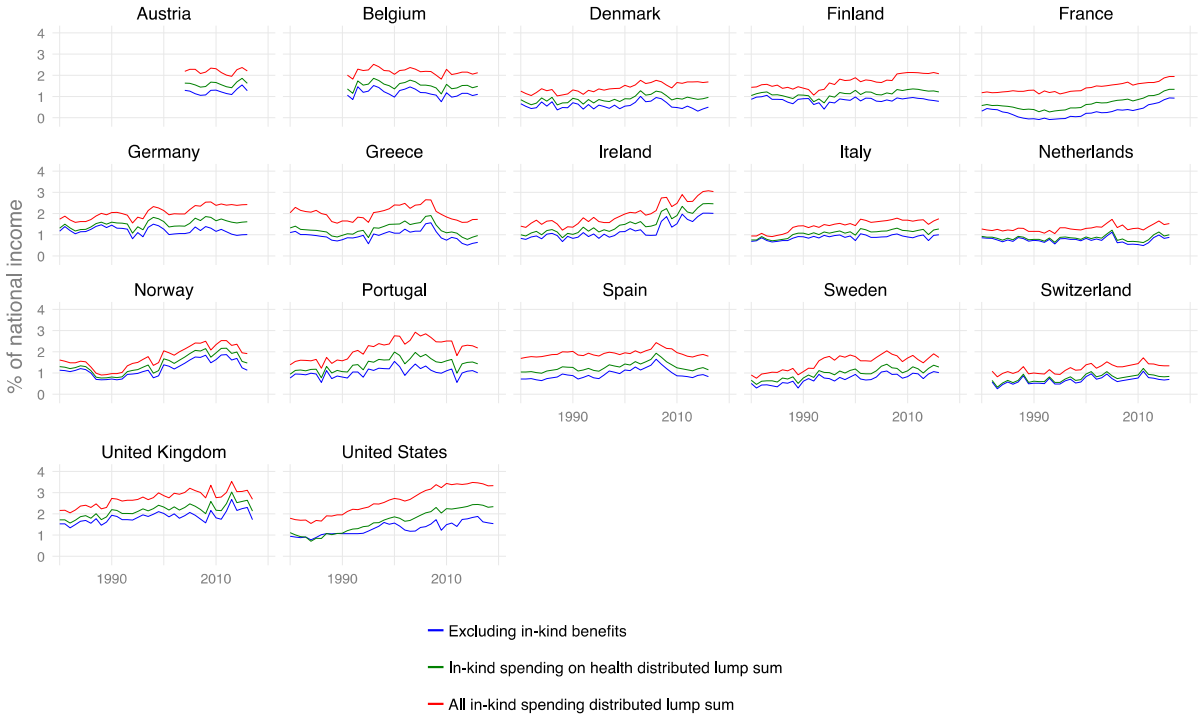


Figure C3. *L*'s absolute transfer share under different assumptions of the value of in-kind benefits and public goods.

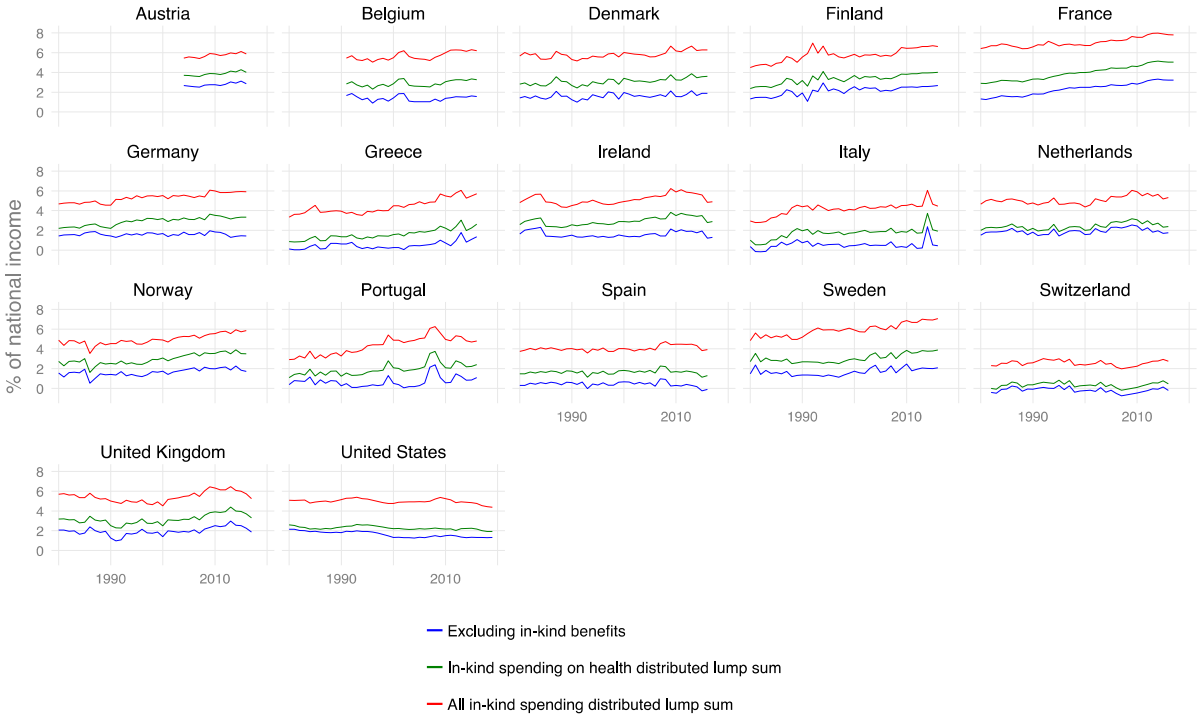
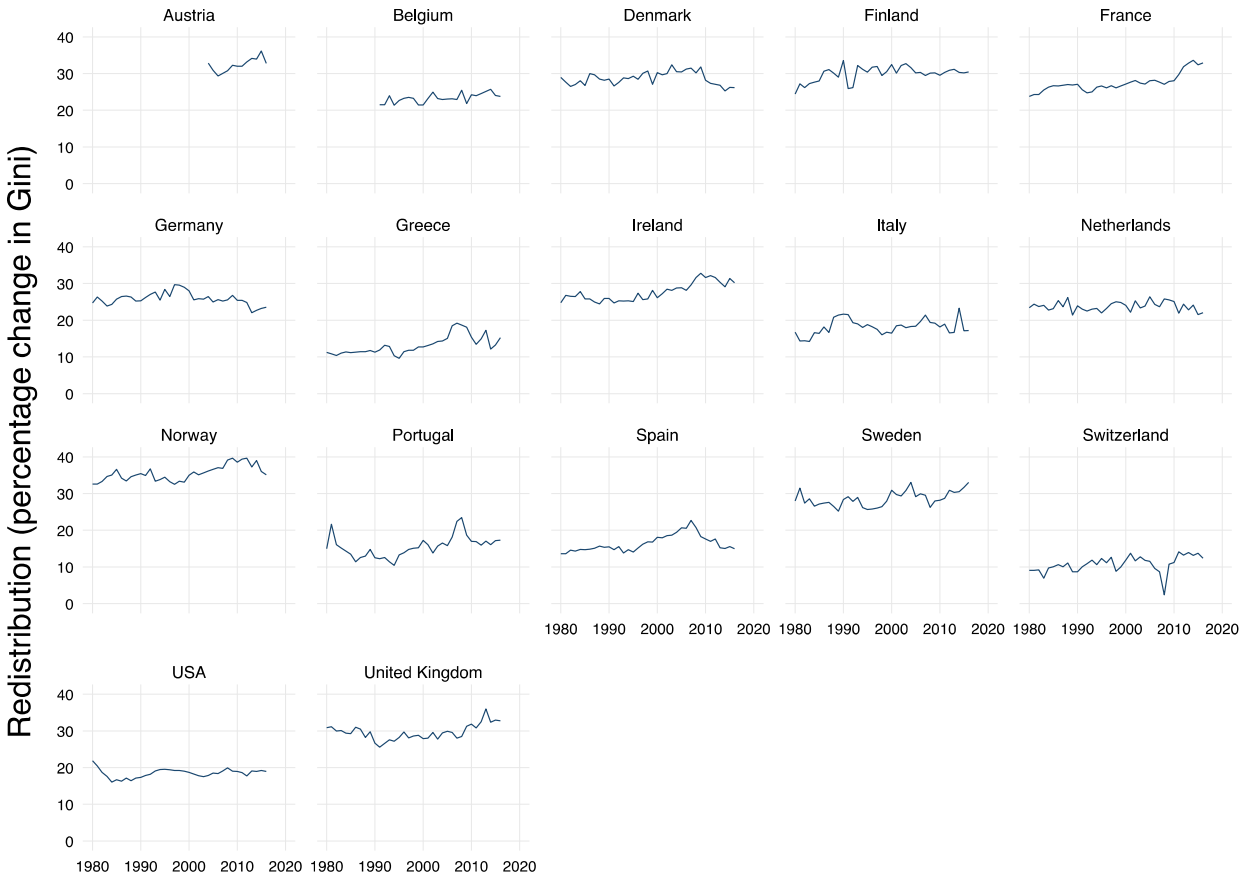
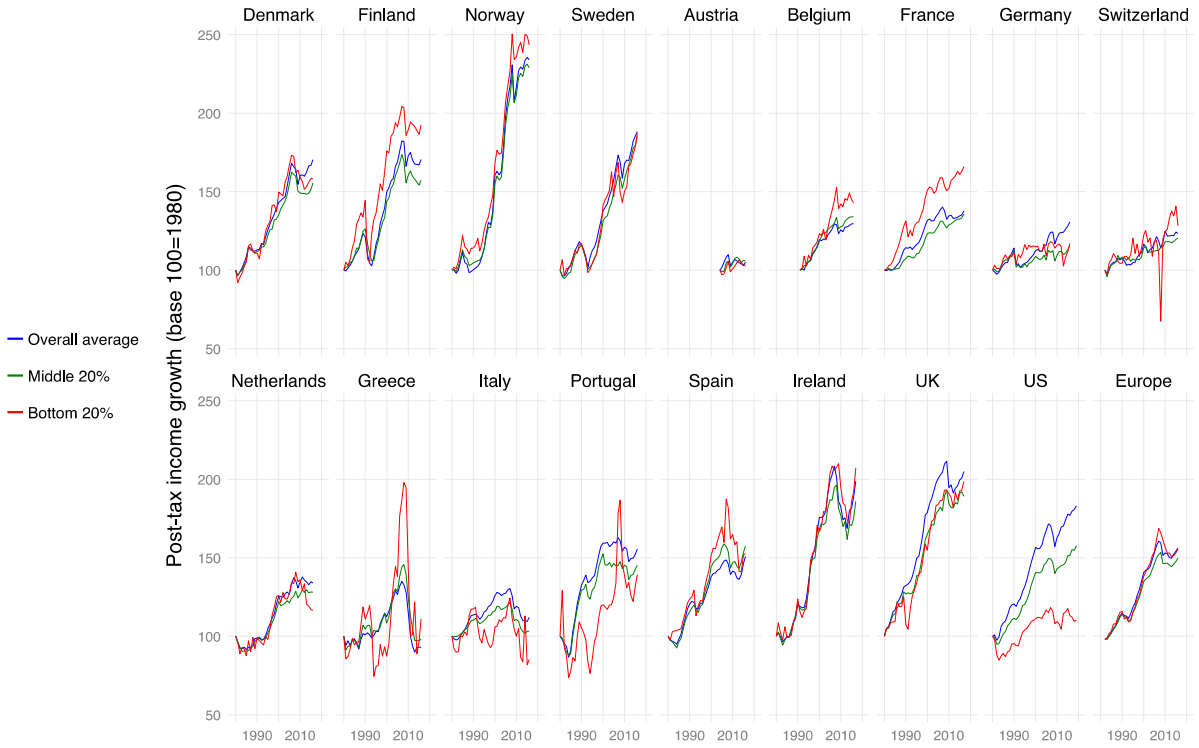


Figure C4. Redistribution measured as percentage change in Gini from before to after taxes and transfers.



Note: The blue lines show percentage changes in Gini from before to after taxes and transfers for the standard WID series that assumes that only in-kind spending on health has redistributive effects.

Figure C5. Real Post-Tax Income Growth (including in-kind spending on health)

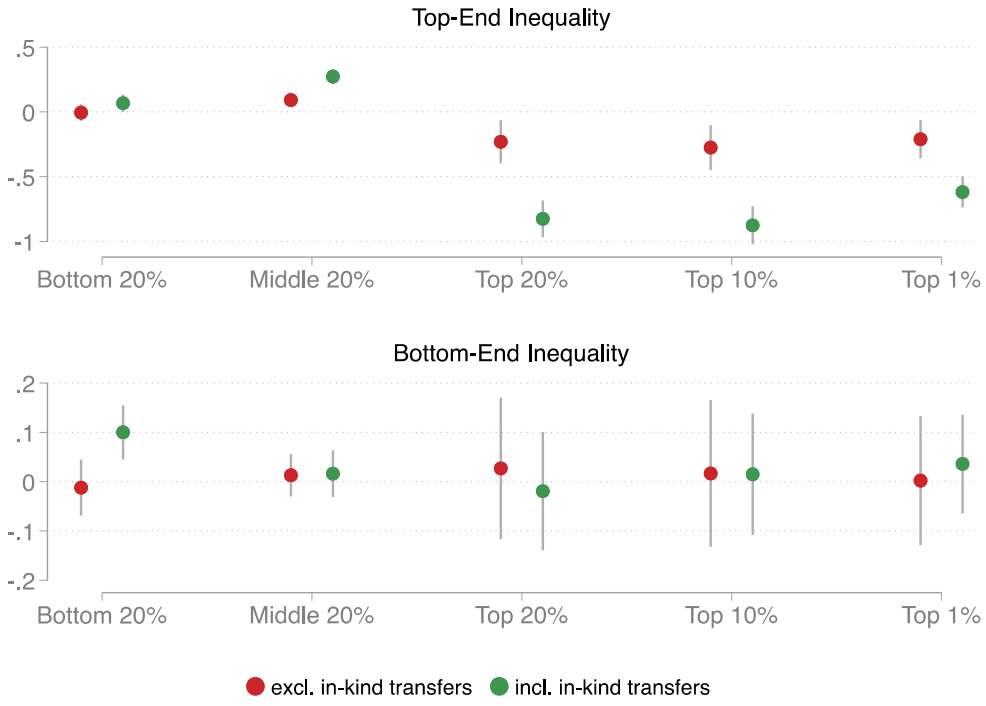


Note: In Austria, Belgium, and Switzerland the base 100 is 2004, 1991, and 1982. The graph for Europe includes all the European countries except Austria and Belgium and has base 100 in 1982.

Figure C6. Changes in absolute transfer shares from 1980 to 2016.

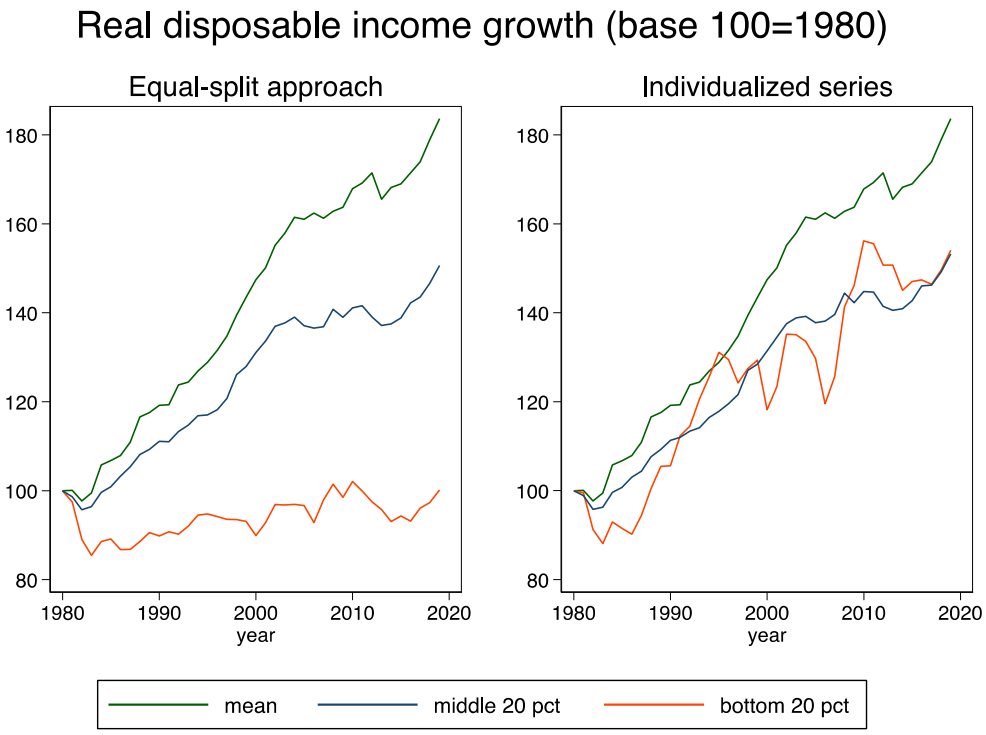
Note: The years for which change is calculated differs for Austria (2004-2016), Belgium (1991-2016), and Switzerland (1982-2016).

Figure C7. Long-Run Effects of Top and Bottom-End Inequality on Absolute Transfer Shares



Note: The figure shows the total long-run effect of a one standard deviation change in top or bottom-end inequality on the absolute transfer share of a group with and without including in-kind transfers. The long-run multipliers are estimated using the Bewley (1979) transformation.

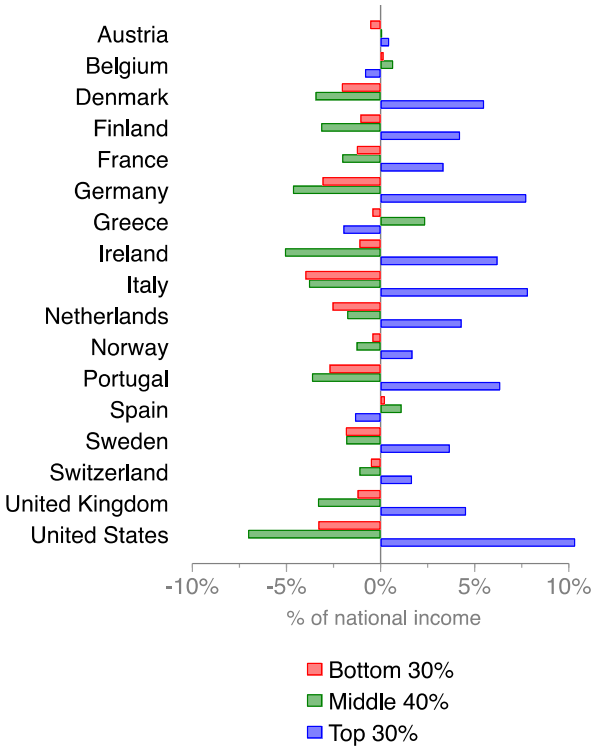
Figure C8. Real Disposable Income Growth in the US, Comparing the Equal-Split Approach and the Individualized Series.



Online Appendix D:

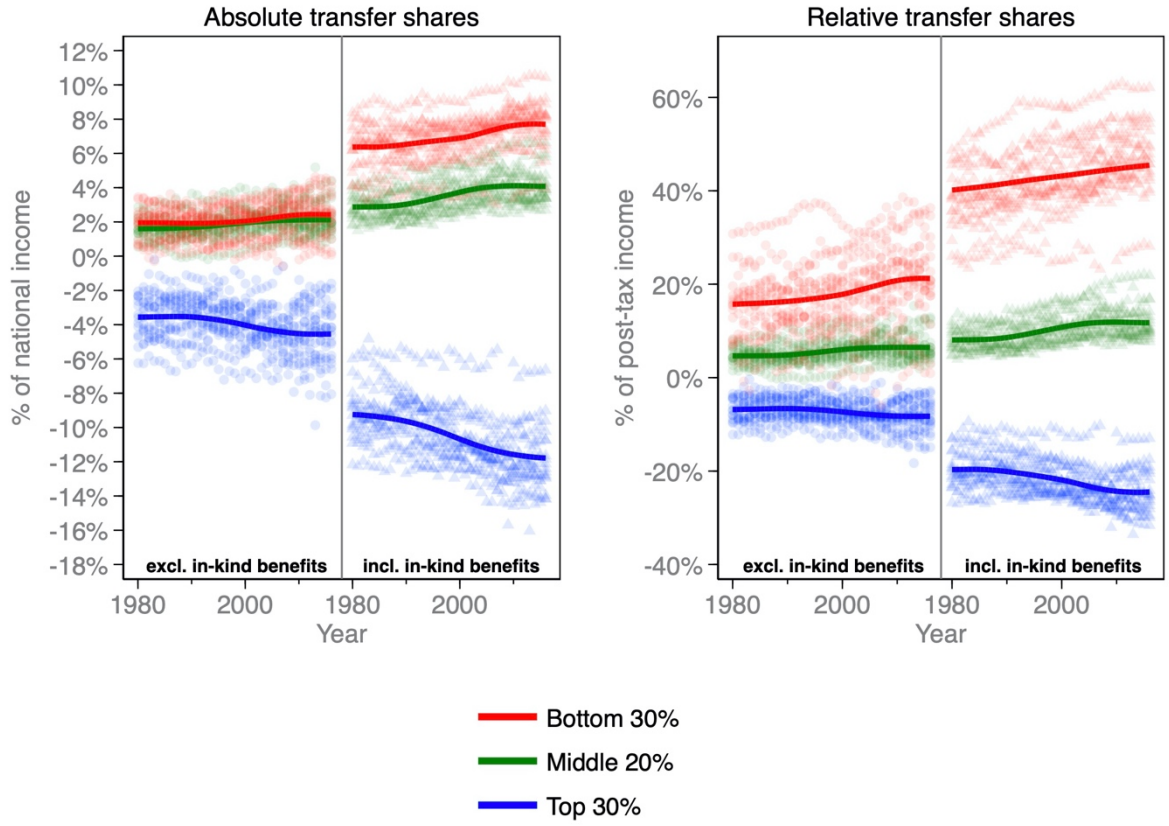
Dividing the Entire Income Distribution in Three Groups: Bottom 30%, Middle 40%, and Top 30%.

Figure D1. Changes in the pre-tax national income shares from 1980 to 2016.



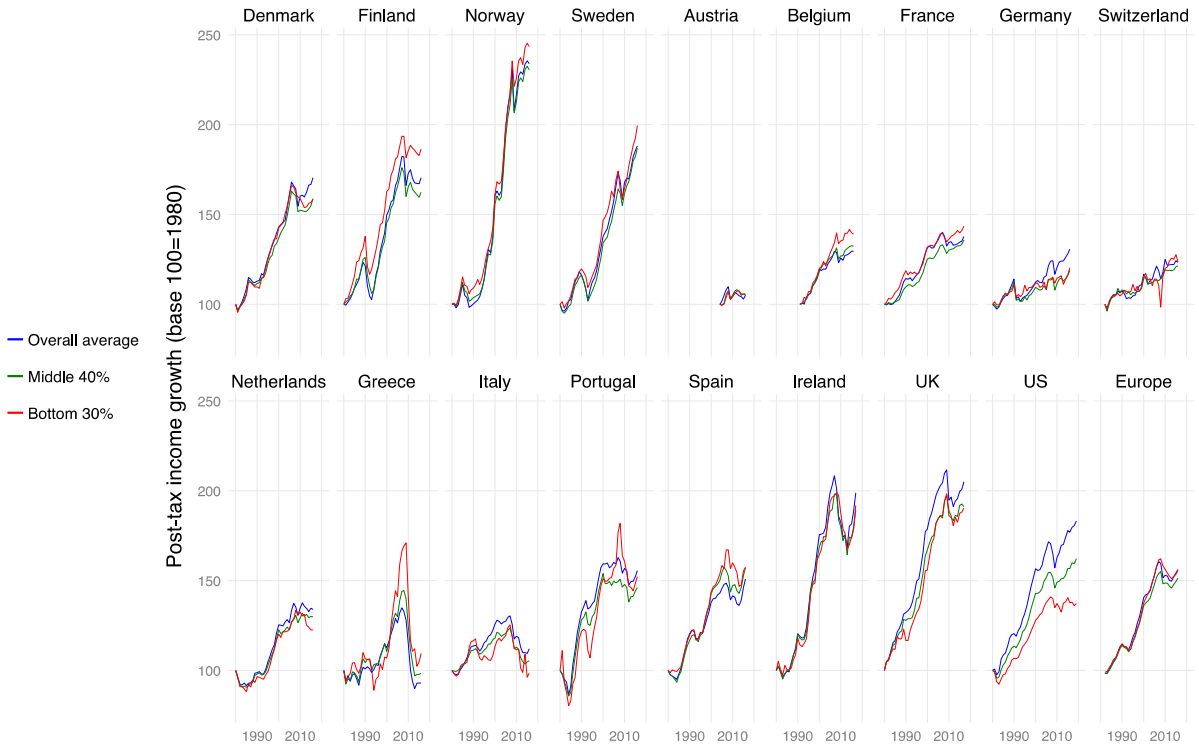
Note: The years for which change is calculated differs for Austria (2004-2016), Belgium (1991-2016), and Switzerland (1982-2016).

Figure D2. Absolute and Relative Transfer Shares in 17 Advanced Democracies, 1980-2016.



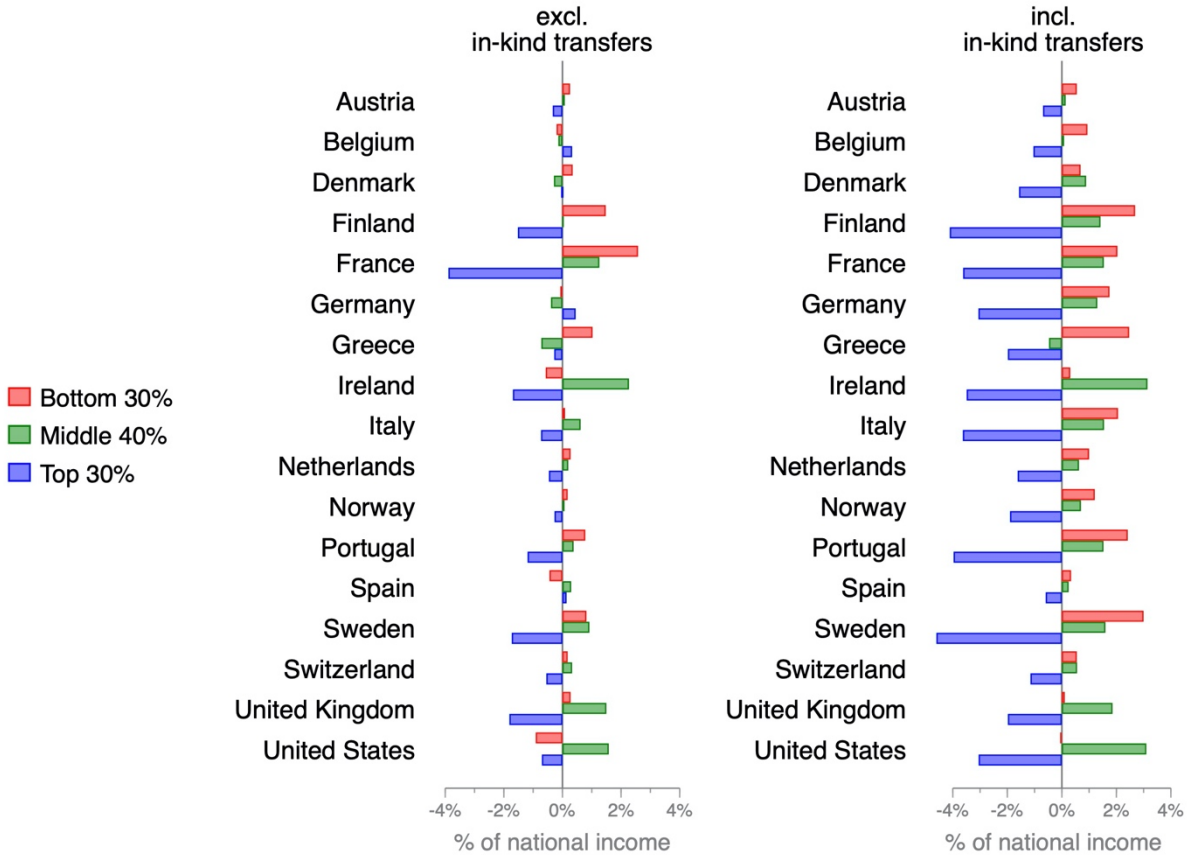
Note: In Switzerland the series starts in 1982, in Belgium in 1991, and in Austria in 2004. The results are highly similar when including only countries for which full time series are available.

Figure D3. Real Post-Tax Income Growth (including in-kind transfers and public goods)



Note: In Austria, Belgium, and Switzerland the base 100 is 2004, 1991, and 1982. The graph for Europe includes all the European countries except Austria and Belgium and has base 100 in 1982.

Figure D4. Changes in absolute transfer shares from 1980 to 2016.



Note: The years for which change is calculated differs for Austria (2004-2016), Belgium (1991-2016), and Switzerland (1982-2016).

Table D1. Determinants of the Relative Transfer Shares of *H*, *M*, and *L*, with *L* defined as the bottom 30%, *M* as the middle 40% and *H* as the top 30%

	(1)	(2)	(3)	(4)	(5)	(6)
	Δ *H*'s relative transfer share		Δ *M*'s relative transfer share		Δ *L*'s relative transfer share	
	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers
Relative transfer share$_{t-1}$	-0.34*	-0.30*	-0.36*	-0.34*	-0.46*	-0.36*
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)
Δ T30/M40	-0.84	-5.00*	5.97*	12.18*	1.73	9.30*
	(0.72)	(0.75)	(0.70)	(0.49)	(2.28)	(0.93)
T30/M40$_{t-1}$	-0.25	-1.82*	1.73*	4.11*	1.60	3.91*
	(0.31)	(0.40)	(0.38)	(0.57)	(0.97)	(0.55)
Δ M40/B30	0.34	0.02	-0.91*	-1.20*	3.82*	7.63*
	(0.24)	(0.25)	(0.25)	(0.17)	(1.00)	(0.38)
M40/B30$_{t-1}$	0.05	-0.08	-0.01	-0.24*	0.70	2.54*
	(0.17)	(0.18)	(0.16)	(0.12)	(0.71)	(0.41)
Δ Capital market openness	0.89	0.64	0.20	0.27	-4.46	-0.91
	(0.77)	(0.77)	(0.64)	(0.43)	(2.68)	(1.02)
Capital market openness$_{t-1}$	-0.39	-0.48	0.41	0.49*	0.33	0.55
	(0.26)	(0.27)	(0.24)	(0.16)	(0.78)	(0.29)
Δ Trade openness	-1.27	-0.66	1.64*	0.94	0.58	-0.68
	(0.74)	(0.76)	(0.82)	(0.58)	(1.94)	(0.83)
Trade openness$_{t-1}$	-0.02	-0.01	0.29	0.24	-0.29	-0.46
	(0.26)	(0.26)	(0.33)	(0.23)	(0.75)	(0.32)
Δ Partisanship (left)	-0.02	-0.03	0.04	0.03	-0.03	0.01
	(0.11)	(0.11)	(0.10)	(0.07)	(0.33)	(0.12)
Partisanship (left)$_{t-1}$	-0.03*	-0.05*	0.01	0.01	0.13*	0.05*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.03)	(0.01)
Δ Marriage rate	0.06	0.07	-0.15*	-0.11*	0.09	0.08
	(0.06)	(0.06)	(0.05)	(0.04)	(0.20)	(0.08)
Marriage rate$_{t-1}$	-0.09	-0.10	0.05	0.00	0.09	0.14
	(0.05)	(0.06)	(0.06)	(0.04)	(0.19)	(0.08)
Δ Unemployment	-0.01	-0.04	-0.04	0.01	0.06	0.00
	(0.03)	(0.04)	(0.03)	(0.02)	(0.10)	(0.05)
Unemployment $_{t-1}$	0.02	0.02	-0.04*	-0.02	0.04	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.04)	(0.02)
Δ Public goods consumption		-45.32*		9.15*		51.23*
		(5.20)		(3.26)		(6.28)
Public goods consumption$_{t-1}$		-14.10*		1.75		25.63*
		(3.57)		(1.95)		(4.33)
R-squared	0.18	0.32	0.31	0.62	0.27	0.71
N	576	576	576	576	576	576

Note: * $p<0.05$. Panel corrected standard errors in parentheses. All models include country-specific intercepts.

Online Appendix E:

Alternative Model Specifications

Table E1. Determinants of the Relative Transfer Shares of *H*, *M*, and *L*, Unimputed Series (Capital Account and Market Openness, and the Marriage Rate)

	(1)	(2)	(3)	(4)	(5)	(6)
	Δ *H*'s relative transfer share		Δ *M*'s relative transfer share		Δ *L*'s relative transfer share	
	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers
Relative transfer share$_{t-1}$	-0.32*	-0.30*	-0.35*	-0.25*	-0.53*	-0.33*
	(0.04)	(0.04)	(0.05)	(0.04)	(0.06)	(0.04)
Δ T1/M20	4.79	1.85	4.14*	10.47*	6.01	9.79*
	(5.63)	(7.43)	(0.80)	(0.71)	(3.86)	(1.59)
T1/M20$_{t-1}$	2.58	-0.91	1.79*	3.33*	0.93	4.30*
	(2.91)	(3.86)	(0.43)	(0.56)	(2.01)	(0.82)
Δ M20/B20	0.61	0.90	-0.28*	-0.22*	3.53*	4.72*
	(0.53)	(0.67)	(0.10)	(0.09)	(0.75)	(0.24)
M20/B20$_{t-1}$	0.12	0.08	0.02	0.05	0.92	1.56*
	(0.46)	(0.61)	(0.08)	(0.07)	(0.58)	(0.29)
Δ Capital market openness	5.11	5.35	0.62	0.38	-12.93*	-0.38
	(5.00)	(6.23)	(0.85)	(0.74)	(5.97)	(1.94)
Capital market openness$_{t-1}$	-4.96*	-6.58*	0.51+	0.46*	-1.07	0.20
	(1.77)	(2.27)	(0.27)	(0.22)	(1.56)	(0.48)
Δ Trade openness	-0.08	-0.07	0.02+	0.01	-0.02	-0.02
	(0.06)	(0.08)	(0.01)	(0.01)	(0.04)	(0.02)
Trade openness$_{t-1}$	0.02	0.02	0.01	0.00	0.01	-0.00
	(0.03)	(0.03)	(0.00)	(0.00)	(0.01)	(0.01)
Δ Partisanship (left)	-0.31	-0.36	0.09	0.07	0.32	-0.07
	(0.87)	(1.11)	(0.11)	(0.09)	(0.63)	(0.21)
Partisanship (left)$_{t-1}$	-0.07	-0.17	0.00	-0.01	0.24*	0.06*
	(0.10)	(0.13)	(0.02)	(0.01)	(0.06)	(0.03)
Δ Marriage rate	0.25	0.43	-0.16*	-0.12*	0.08	0.01
	(0.48)	(0.67)	(0.07)	(0.06)	(0.36)	(0.14)
Marriage rate$_{t-1}$	-0.83*	-1.06+	0.07	0.07	-0.02	0.05
	(0.42)	(0.59)	(0.07)	(0.06)	(0.37)	(0.14)
Δ Unemployment	0.11	-0.17	-0.04	-0.03	0.25	0.00
	(0.22)	(0.33)	(0.03)	(0.03)	(0.20)	(0.08)
Unemployment $_{t-1}$	0.05	0.06	-0.04*	-0.03+	0.17+	-0.04
	(0.09)	(0.13)	(0.02)	(0.01)	(0.09)	(0.03)
Δ Public goods consumption		-75.84		18.39*		67.87*
		(52.72)		(4.71)		(11.14)
Public goods consumption$_{t-1}$		-27.07		4.66		29.45*
		(27.58)		(2.92)		(6.80)
R-squared	0.18	0.18	0.27	0.43	0.35	0.69
N	523	523	523	523	523	523

Note: * p<0.05. Panel corrected standard errors in parentheses. All models include country-specific intercepts.Table

E2. Determinants of the Relative Transfer Shares of *H*, *M*, and *L*, Including Linear Time Trend

	(1)	(2)	(3)	(4)	(5)	(6)
	Δ *H*'s relative transfer share		Δ *M*'s relative transfer share		Δ *L*'s relative transfer share	
	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers
Relative transfer share$_{t-1}$	-0.31*	-0.29*	-0.35*	-0.26*	-0.49*	-0.32*
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)
Δ T1/M20	2.86	0.21	3.97*	9.98*	5.52	8.57*
	(5.47)	(7.49)	(0.76)	(0.69)	(3.61)	(1.49)
T1/M20$_{t-1}$	1.10	-1.39	1.76*	3.21*	0.71	3.33*
	(2.79)	(4.01)	(0.40)	(0.54)	(1.86)	(0.75)
Δ M20/B20	0.45	0.78	-0.26*	-0.23*	3.81*	4.79*
	(0.53)	(0.68)	(0.11)	(0.10)	(0.75)	(0.24)
M20/B20$_{t-1}$	-0.06	-0.09	0.05	0.06	1.00	1.56*
	(0.44)	(0.58)	(0.07)	(0.07)	(0.57)	(0.28)
Δ Capital market openness	5.22	5.31	0.26	0.24	-9.92*	-0.17
	(4.33)	(5.44)	(0.75)	(0.62)	(4.93)	(1.61)
Capital market openness$_{t-1}$	-3.63*	-4.63*	0.39	0.34	0.31	0.20
	(1.66)	(2.20)	(0.26)	(0.22)	(1.49)	(0.47)
Δ Trade openness	-7.20	-5.53	1.64	1.01	-3.01	-2.01
	(5.71)	(7.35)	(0.92)	(0.79)	(3.65)	(1.46)
Trade openness$_{t-1}$	2.26	3.09	0.25	0.14	0.57	-0.51
	(2.84)	(3.59)	(0.41)	(0.35)	(1.46)	(0.62)
Δ Partisanship (left)	-0.02	-0.15	0.04	0.04	0.09	-0.07
	(0.82)	(1.04)	(0.11)	(0.09)	(0.59)	(0.19)
Partisanship (left)$_{t-1}$	-0.04	-0.06	-0.02	-0.04*	0.23*	0.05
	(0.15)	(0.18)	(0.02)	(0.02)	(0.09)	(0.03)
Δ Marriage rate	0.40	0.60	-0.16*	-0.11	0.16	0.06
	(0.47)	(0.64)	(0.07)	(0.06)	(0.37)	(0.14)
Marriage rate$_{t-1}$	-0.61	-0.79	0.08	0.08	0.13	0.14
	(0.41)	(0.56)	(0.07)	(0.06)	(0.38)	(0.14)
Δ Unemployment	0.11	-0.20	-0.04	-0.02	0.20	-0.01
	(0.22)	(0.33)	(0.03)	(0.03)	(0.20)	(0.08)
Unemployment $_{t-1}$	0.07	0.07	-0.04*	-0.02	0.15	-0.04
	(0.09)	(0.13)	(0.02)	(0.01)	(0.09)	(0.03)
Δ Public goods consumption		-68.81		15.74*		65.93*
		(52.48)		(4.69)		(10.99)
Public goods consumption$_{t-1}$		-21.72		3.75		29.14*
		(27.26)		(2.75)		(6.63)
Linear time trend	-0.02	-0.08	0.02	0.02*	-0.00	0.01
	(0.09)	(0.11)	(0.01)	(0.01)	(0.06)	(0.02)
R-squared	0.16	0.16	0.26	0.41	0.33	0.68
N	576	576	576	576	576	576

Note: * p<0.05. Panel corrected standard errors in parentheses. All models include country-specific intercepts.

Table E3. Determinants of the Relative Transfer Shares of *H*, *M*, and *L*, Including Country-Specific Time Trend

	(1)	(2)	(3)	(4)	(5)	(6)
	Δ *H*'s relative transfer share		Δ *M*'s relative transfer share		Δ *L*'s relative transfer share	
	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers
Relative transfer share$_{t-1}$	-0.44*	-0.40*	-0.47*	-0.34*	-0.62*	-0.49*
	(0.05)	(0.05)	(0.05)	(0.04)	(0.06)	(0.05)
Δ T1/M20	2.30	-0.29	3.76*	9.70*	3.64	7.59*
	(5.52)	(7.49)	(0.76)	(0.70)	(3.56)	(1.46)
T1/M20$_{t-1}$	0.87	-1.33	1.79*	3.41*	-5.70*	3.66*
	(4.46)	(5.86)	(0.57)	(0.62)	(2.73)	(1.06)
Δ M20/B20	0.44	0.87	-0.27*	-0.23*	3.48*	4.73*
	(0.52)	(0.68)	(0.11)	(0.10)	(0.73)	(0.23)
M20/B20$_{t-1}$	-0.31	-0.27	0.06	0.08	0.85	2.33*
	(0.45)	(0.61)	(0.09)	(0.08)	(0.60)	(0.31)
Δ Capital market openness	7.13	7.75	0.07	0.05	-9.57	0.11
	(4.23)	(5.35)	(0.71)	(0.60)	(4.95)	(1.58)
Capital market openness$_{t-1}$	-0.85	-2.21	0.13	0.32	-0.83	0.37
	(2.09)	(2.65)	(0.34)	(0.30)	(2.21)	(0.70)
Δ Trade openness	-10.33	-9.60	2.10*	1.11	-0.59	-1.61
	(5.65)	(7.35)	(0.94)	(0.82)	(3.81)	(1.50)
Trade openness$_{t-1}$	-1.89	-0.45	0.84	0.09	6.00*	0.14
	(4.08)	(5.10)	(0.69)	(0.58)	(2.86)	(1.11)
Δ Partisanship (left)	-0.24	-0.47	0.10	0.09	0.21	-0.28
	(0.82)	(1.05)	(0.11)	(0.09)	(0.58)	(0.19)
Partisanship (left)$_{t-1}$	0.40	0.56	-0.05	-0.03	0.36*	-0.02
	(0.31)	(0.38)	(0.04)	(0.03)	(0.18)	(0.06)
Δ Marriage rate	0.65	1.06	-0.16*	-0.13*	0.27	0.03
	(0.45)	(0.61)	(0.07)	(0.06)	(0.35)	(0.14)
Marriage rate$_{t-1}$	-0.08	0.15	0.06	0.02	0.28	0.05
	(0.51)	(0.69)	(0.08)	(0.07)	(0.37)	(0.15)
Δ Unemployment	0.17	-0.18	-0.04	-0.04	0.11	-0.03
	(0.22)	(0.34)	(0.03)	(0.03)	(0.19)	(0.08)
Unemployment $_{t-1}$	0.18	0.19	-0.05*	-0.04*	0.14	-0.06
	(0.10)	(0.14)	(0.02)	(0.02)	(0.09)	(0.03)
Δ Public goods consumption		-74.65		16.91*		66.65*
		(51.03)		(4.64)		(10.73)
Public goods consumption$_{t-1}$		-21.98		5.66		44.78*
		(29.38)		(2.98)		(7.50)
Country-specific time trend?	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.23	0.23	0.31	0.44	0.40	0.71
N	576	576	576	576	576	576

Note: * $p<0.05$. Panel corrected standard errors in parentheses. All models include country-specific intercepts.

Table E4. Determinants of the Relative Transfer Shares of *H*, *M*, and *L*, Two Lagged DV's

	(1)	(2)	(3)	(4)	(5)	(6)
	Δ *H*'s relative transfer share		Δ *M*'s relative transfer share		Δ *L*'s relative transfer share	
	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers
Relative transfer share$_{t-1}$	-0.38*	-0.37*	-0.43*	-0.35*	-0.53*	-0.44*
	(0.06)	(0.06)	(0.05)	(0.05)	(0.06)	(0.05)
Relative transfer share$_{t-2}$	0.10	0.11*	0.12*	0.13*	0.07	0.13*
	(0.06)	(0.06)	(0.05)	(0.04)	(0.06)	(0.03)
Δ T1/M20	2.07	-0.76	4.11*	9.94*	5.36	8.16*
	(5.41)	(7.39)	(0.75)	(0.69)	(3.61)	(1.42)
T1/M20$_{t-1}$	0.83	-2.26	1.84*	3.18*	0.66	3.25*
	(2.33)	(3.48)	(0.39)	(0.55)	(1.78)	(0.70)
Δ M20/B20	0.30	0.56	-0.20	-0.17	3.70*	4.63*
	(0.52)	(0.66)	(0.10)	(0.09)	(0.76)	(0.23)
M20/B20$_{t-1}$	-0.23	-0.43	0.11	0.13	0.93	1.63*
	(0.43)	(0.57)	(0.07)	(0.07)	(0.59)	(0.28)
Δ Capital market openness	5.20	5.40	0.50	0.39	-10.11*	-0.97
	(4.41)	(5.50)	(0.76)	(0.63)	(5.02)	(1.58)
Capital market openness$_{t-1}$	-3.73*	-4.78*	0.55*	0.46*	-0.24	-0.41
	(1.76)	(2.33)	(0.27)	(0.23)	(1.52)	(0.45)
Δ Trade openness	-5.69	-3.59	1.42	1.00	-1.17	-0.74
	(5.76)	(7.53)	(0.89)	(0.79)	(3.61)	(1.49)
Trade openness$_{t-1}$	2.35	2.76	0.35	0.35	1.31	-0.10
	(2.66)	(3.44)	(0.37)	(0.32)	(1.30)	(0.57)
Δ Partisanship (left)	0.13	0.03	0.02	0.04	0.19	0.00
	(0.83)	(1.07)	(0.11)	(0.09)	(0.60)	(0.19)
Partisanship (left)$_{t-1}$	-0.07	-0.14	-0.01	-0.02	0.23*	0.08*
	(0.10)	(0.13)	(0.02)	(0.01)	(0.06)	(0.02)
Δ Marriage rate	0.41	0.67	-0.17*	-0.13*	0.18	0.08
	(0.45)	(0.63)	(0.06)	(0.06)	(0.34)	(0.13)
Marriage rate$_{t-1}$	-0.58	-0.65	0.05	0.04	0.15	0.20
	(0.39)	(0.55)	(0.06)	(0.06)	(0.35)	(0.12)
Δ Unemployment	0.18	-0.12	-0.05	-0.02	0.20	0.04
	(0.22)	(0.33)	(0.03)	(0.03)	(0.20)	(0.08)
Unemployment $_{t-1}$	0.07	0.10	-0.04*	-0.03	0.14	-0.04
	(0.09)	(0.13)	(0.02)	(0.01)	(0.09)	(0.03)
Δ Public goods consumption		-62.60		14.16*		65.47*
		(52.71)		(4.70)		(10.77)
Public goods consumption$_{t-1}$		-20.13		3.72		28.43*
		(27.57)		(2.70)		(6.73)
R-squared	0.18	0.18	0.28	0.43	0.35	0.70
N	559	559	559	559	559	559

Note: * p<0.05. Panel corrected standard errors in parentheses. All models include country-specific intercepts.

Table E5. Determinants of the Relative Transfer Shares of *H*, *M*, and *L*, Prais-Winsten Regression

	(1)	(2)	(3)	(4)	(5)	(6)
	Δ *H*'s relative transfer share		Δ *M*'s relative transfer share		Δ *L*'s relative transfer share	
	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers
Relative transfer share$_{t-1}$	-0.26*	-0.24*	-0.33*	-0.21*	-0.47*	-0.27*
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)
Δ T1/M20	2.39	-0.19	4.08*	10.10*	5.30	8.51*
	(5.35)	(7.32)	(0.75)	(0.68)	(3.62)	(1.46)
T1/M20$_{t-1}$	0.44	-2.64	1.87*	3.03*	0.68	3.08*
	(2.08)	(2.99)	(0.36)	(0.51)	(1.68)	(0.65)
Δ M20/B20	0.37	0.66	-0.24*	-0.20*	3.78*	4.75*
	(0.52)	(0.66)	(0.10)	(0.09)	(0.75)	(0.24)
M20/B20$_{t-1}$	-0.14	-0.28	0.07	0.08	0.94	1.32*
	(0.40)	(0.52)	(0.07)	(0.07)	(0.55)	(0.26)
Δ Capital market openness	5.94	6.38	0.24	0.25	-9.91*	-0.18
	(4.26)	(5.32)	(0.75)	(0.62)	(4.91)	(1.58)
Capital market openness$_{t-1}$	-3.32*	-4.17*	0.42	0.36	0.33	0.14
	(1.52)	(2.01)	(0.25)	(0.21)	(1.42)	(0.42)
Δ Trade openness	-7.48	-5.93	1.75	1.16	-2.82	-1.84
	(5.64)	(7.27)	(0.91)	(0.79)	(3.62)	(1.44)
Trade openness$_{t-1}$	1.81	1.97	0.49	0.44	0.55	-0.26
	(2.33)	(2.99)	(0.35)	(0.29)	(1.26)	(0.53)
Δ Partisanship (left)	0.09	0.04	0.04	0.03	0.09	-0.05
	(0.76)	(0.96)	(0.11)	(0.08)	(0.58)	(0.18)
Partisanship (left)$_{t-1}$	-0.05	-0.11	-0.00	-0.02	0.22*	0.05*
	(0.09)	(0.11)	(0.01)	(0.01)	(0.06)	(0.02)
Δ Marriage rate	0.52	0.84	-0.18*	-0.13*	0.15	0.03
	(0.45)	(0.63)	(0.06)	(0.06)	(0.36)	(0.13)
Marriage rate$_{t-1}$	-0.55	-0.66	0.05	0.05	0.12	0.12
	(0.34)	(0.48)	(0.06)	(0.05)	(0.33)	(0.12)
Δ Unemployment	0.15	-0.10	-0.04	-0.01	0.19	-0.00
	(0.20)	(0.31)	(0.03)	(0.03)	(0.19)	(0.08)
Unemployment $_{t-1}$	0.06	0.08	-0.04*	-0.02	0.14	-0.04
	(0.08)	(0.12)	(0.02)	(0.01)	(0.09)	(0.03)
Δ Public goods consumption		-65.59		15.73*		66.03*
		(50.90)		(4.60)		(10.71)
Public goods consumption$_{t-1}$		-20.98		3.35		24.93*
		(24.73)		(2.57)		(6.09)
R-squared	0.14	0.14	0.24	0.40	0.32	0.67
N	576	576	576	576	576	576

Note: * p<0.05. Panel corrected standard errors in parentheses. All models include country-specific intercepts.

Table E6. Determinants of the Relative Transfer Shares of *H*, *M*, and *L*, Including Three Outliers (CH08-CH09)

	(1)	(2)	(3)	(4)	(5)	(6)
	Δ *H*'s relative transfer share		Δ *M*'s relative transfer share		Δ *L*'s relative transfer share	
	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers
Relative transfer share$_{t-1}$	-0.31*	-0.29*	-0.35*	-0.25*	-0.60*	-0.34*
	(0.04)	(0.04)	(0.04)	(0.04)	(0.08)	(0.04)
Δ T1/M20	1.89	-1.08	3.89*	10.00*	17.11*	10.12*
	(5.29)	(7.29)	(0.75)	(0.68)	(5.17)	(1.60)
T1/M20$_{t-1}$	0.72	-2.56	1.98*	3.43*	1.19	3.70*
	(2.25)	(3.30)	(0.37)	(0.54)	(2.04)	(0.75)
Δ M20/B20	0.48	0.76	-0.24*	-0.21*	3.16*	4.71*
	(0.52)	(0.67)	(0.10)	(0.09)	(0.75)	(0.24)
M20/B20$_{t-1}$	-0.07	-0.14	0.06	0.07	1.21*	1.68*
	(0.43)	(0.57)	(0.07)	(0.07)	(0.59)	(0.28)
Δ Capital market openness	5.25	5.36	0.24	0.21	-11.20*	-0.21
	(4.33)	(5.43)	(0.75)	(0.63)	(5.10)	(1.61)
Capital market openness$_{t-1}$	-3.68*	-4.86*	0.44	0.40	0.48	0.30
	(1.66)	(2.21)	(0.26)	(0.22)	(1.72)	(0.46)
Δ Trade openness	-7.07	-5.86	1.91*	1.34	-10.88	-3.64*
	(5.57)	(7.18)	(0.91)	(0.78)	(5.63)	(1.68)
Trade openness$_{t-1}$	1.79	1.70	0.54	0.52	-0.25	-0.41
	(2.48)	(3.21)	(0.36)	(0.31)	(1.94)	(0.66)
Δ Partisanship (left)	-0.03	-0.16	0.04	0.04	0.16	-0.06
	(0.82)	(1.05)	(0.11)	(0.09)	(0.61)	(0.19)
Partisanship (left)$_{t-1}$	-0.07	-0.15	-0.00	-0.02	0.31*	0.07*
	(0.10)	(0.13)	(0.02)	(0.01)	(0.07)	(0.02)
Δ Marriage rate	0.44	0.71	-0.18*	-0.14*	0.11	0.03
	(0.45)	(0.63)	(0.06)	(0.05)	(0.37)	(0.14)
Marriage rate$_{t-1}$	-0.56	-0.62	0.05	0.03	0.25	0.12
	(0.38)	(0.53)	(0.06)	(0.06)	(0.37)	(0.13)
Δ Unemployment	0.09	-0.23	-0.04	-0.01	0.31	0.01
	(0.21)	(0.32)	(0.03)	(0.03)	(0.21)	(0.08)
Unemployment $_{t-1}$	0.07	0.08	-0.04*	-0.03	0.14	-0.05
	(0.09)	(0.13)	(0.02)	(0.01)	(0.10)	(0.03)
Δ Public goods consumption		-68.99		16.56*		61.86*
		(52.17)		(4.67)		(11.06)
Public goods consumption$_{t-1}$		-21.46		3.73		31.46*
		(27.20)		(2.77)		(6.95)
R-squared	0.16	0.16	0.25	0.41	0.35	0.65
N	579	579	579	579	579	579

Note: * p<0.05. Panel corrected standard errors in parentheses. All models include country-specific intercepts.

Table E7. Determinants of the Absolute Transfer Shares of *H*, *M*, and *L*

	(1)	(2)	(3)	(4)	(5)	(6)
	Δ *H*'s absolute transfer share		Δ *M*'s absolute transfer share		Δ *L*'s absolute transfer share	
	÷ in-kind benefits	+ in-kind benefits	÷ in-kind benefits	+ in-kind benefits	÷ in-kind benefits	+ in-kind benefits
Absolute transfer share$_{t-1}$	-0.30*	-0.30*	-0.36*	-0.29*	-0.50*	-0.43*
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)
Δ T1/M20	-1.83*	-4.51*	0.44*	1.44*	0.18	0.26
	(0.35)	(0.29)	(0.13)	(0.12)	(0.24)	(0.22)
T1/M20$_{t-1}$	-0.45*	-1.31*	0.24*	0.56*	-0.02	0.21*
	(0.15)	(0.21)	(0.06)	(0.09)	(0.11)	(0.10)
Δ M20/B20	0.03	0.04	-0.04*	-0.04*	0.07	0.18*
	(0.04)	(0.03)	(0.02)	(0.02)	(0.03)	(0.03)
M20/B20$_{t-1}$	0.00	0.02	0.01	0.01	-0.01	0.07*
	(0.03)	(0.03)	(0.01)	(0.01)	(0.03)	(0.02)
Δ Capital market openness	0.30	0.17	0.04	0.05	-0.52	-0.33
	(0.27)	(0.21)	(0.13)	(0.11)	(0.28)	(0.23)
Capital market openness$_{t-1}$	-0.21*	-0.24*	0.08	0.09*	0.04	0.03
	(0.10)	(0.08)	(0.05)	(0.04)	(0.08)	(0.07)
Δ Trade openness	-0.62	-0.26	0.32*	0.23	-0.18	-0.25
	(0.36)	(0.27)	(0.16)	(0.14)	(0.25)	(0.20)
Trade openness$_{t-1}$	0.13	0.10	0.09	0.10	-0.04	-0.04
	(0.16)	(0.12)	(0.06)	(0.06)	(0.09)	(0.08)
Δ Partisanship (left)	-0.04	-0.03	0.01	0.01	0.00	-0.00
	(0.05)	(0.04)	(0.02)	(0.02)	(0.04)	(0.03)
Partisanship (left)$_{t-1}$	-0.01	-0.01*	0.00	-0.00	0.02*	0.02*
	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Δ Marriage rate	0.03	0.02	-0.03*	-0.02*	0.03	0.02
	(0.03)	(0.02)	(0.01)	(0.01)	(0.03)	(0.02)
Marriage rate$_{t-1}$	-0.04	-0.03	0.01	0.01	0.03	0.03
	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.02)
Δ Unemployment	0.02	-0.01	-0.01	-0.00	0.02	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Unemployment$_{t-1}$	0.01	0.00	-0.01*	-0.00	0.01	-0.00
	(0.01)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)
Δ Public goods		-0.45		2.49*		11.37*
		(1.91)		(0.84)		(1.57)
Public goods consumption$_{t-}$		-0.30		0.68		6.51*
		(0.99)		(0.49)		(1.05)
R-squared	0.22	0.48	0.23	0.35	0.27	0.38
N	576	576	576	576	576	576

Note: * p<0.05. Panel corrected standard errors in parentheses. All models include country-specific intercepts.

Table E8. Determinants of the Relative Transfer Shares of *H*, *M*, and *L*, with *H* defined as top 10%

	(1)	(2)	(3)	(4)	(5)	(6)
	Δ *H*'s relative transfer share		Δ *M*'s relative transfer share		Δ *L*'s relative transfer share	
	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers
Relative transfer share$_{t-1}$	-0.34*	-0.30*	-0.34*	-0.30*	-0.49*	-0.38*
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)
Δ T10/M20	-1.63	-5.84*	3.33*	7.15*	-0.21	5.44*
	(1.01)	(1.16)	(0.44)	(0.34)	(2.40)	(0.86)
T10/M20$_{t-1}$	-0.32	-2.07*	1.05*	2.29*	0.16	2.83*
	(0.43)	(0.58)	(0.22)	(0.33)	(1.00)	(0.42)
Δ M20/B20	0.40*	0.48*	-0.29*	-0.32*	3.84*	4.72*
	(0.18)	(0.21)	(0.10)	(0.08)	(0.75)	(0.24)
M20/B20$_{t-1}$	0.02	0.02	0.02	-0.04	1.03+	1.73*
	(0.15)	(0.17)	(0.07)	(0.05)	(0.57)	(0.28)
Δ Capital market openness	1.86	1.41	0.19	0.12	-9.97*	-0.52
	(1.60)	(1.74)	(0.73)	(0.54)	(4.92)	(1.58)
Capital market openness$_{t-1}$	-1.22*	-1.57*	0.37	0.37*	0.35	0.11
	(0.60)	(0.68)	(0.25)	(0.19)	(1.44)	(0.44)
Δ Trade openness	-2.54	-1.33	1.52+	0.92	-1.72	-2.22
	(1.86)	(2.12)	(0.89)	(0.70)	(3.57)	(1.42)
Trade openness$_{t-1}$	0.24	0.17	0.47	0.49+	0.55	-0.56
	(0.74)	(0.81)	(0.36)	(0.28)	(1.32)	(0.55)
Δ Partisanship (left)	-0.01	-0.04	0.03	0.02	0.07	-0.17
	(0.27)	(0.30)	(0.11)	(0.08)	(0.59)	(0.19)
Partisanship (left)$_{t-1}$	-0.06+	-0.10*	0.00	-0.00	0.22*	0.07*
	(0.03)	(0.04)	(0.01)	(0.01)	(0.06)	(0.02)
Δ Marriage rate	0.26+	0.32+	-0.17*	-0.13*	0.17	0.09
	(0.14)	(0.16)	(0.06)	(0.05)	(0.36)	(0.13)
Marriage rate$_{t-1}$	-0.20+	-0.19	0.06	0.03	0.09	0.20
	(0.12)	(0.15)	(0.06)	(0.05)	(0.34)	(0.12)
Δ Unemployment	0.03	-0.10	-0.04	0.01	0.17	0.02
	(0.07)	(0.09)	(0.03)	(0.03)	(0.19)	(0.08)
Unemployment $_{t-1}$	0.05	0.04	-0.04*	-0.02	0.16+	-0.02
	(0.03)	(0.04)	(0.02)	(0.01)	(0.09)	(0.03)
Δ Public goods consumption		-57.73*		12.94*		61.98*
		(14.34)		(3.87)		(10.43)
Public goods consumption$_{t-1}$		-17.03*		2.69		34.11*
		(8.47)		(2.26)		(6.51)
R-squared	0.19	0.23	0.28	0.55	0.33	0.69
N	576	576	576	576	576	576

Note: * p<0.05, + p<0.1. Panel corrected standard errors in parentheses. All models include country-specific intercepts.

Table E9. Determinants of the Relative Transfer Shares of *H*, *M*, and *L*, with *H* defined as top 20%

	(1)	(2)	(3)	(4)	(5)	(6)
	Δ *H*'s relative transfer share		Δ *M*'s relative transfer share		Δ *L*'s relative transfer share	
	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers
Relative transfer share$_{t-1}$	-0.33*	-0.29*	-0.35*	-0.33*	-0.49*	-0.39*
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)
Δ T20/M20	-0.74	-3.55*	3.09*	6.32*	-1.05	4.74*
	(0.51)	(0.55)	(0.38)	(0.27)	(2.12)	(0.73)
T20/M20$_{t-1}$	-0.19	-1.25*	0.95*	2.10*	0.12	2.52*
	(0.21)	(0.29)	(0.19)	(0.29)	(0.86)	(0.37)
Δ M20/B20	0.28*	0.24*	-0.31*	-0.37*	3.87*	4.69*
	(0.11)	(0.12)	(0.10)	(0.07)	(0.75)	(0.24)
M20/B20$_{t-1}$	0.03	-0.01	0.01	-0.06	1.05+	1.77*
	(0.09)	(0.10)	(0.07)	(0.05)	(0.57)	(0.28)
Δ Capital market openness	1.34	1.05	0.21	0.19	-10.00*	-0.52
	(1.02)	(1.05)	(0.72)	(0.50)	(4.92)	(1.57)
Capital market openness$_{t-1}$	-0.61+	-0.77*	0.38	0.45*	0.37	0.17
	(0.37)	(0.39)	(0.25)	(0.18)	(1.43)	(0.44)
Δ Trade openness	-2.07+	-1.22	1.49+	0.84	-1.44	-2.37+
	(1.07)	(1.12)	(0.87)	(0.65)	(3.53)	(1.40)
Trade openness$_{t-1}$	-0.11	-0.08	0.40	0.39	0.55	-0.74
	(0.39)	(0.40)	(0.35)	(0.26)	(1.33)	(0.56)
Δ Partisanship (left)	-0.04	-0.04	0.04	0.03	0.05	-0.17
	(0.16)	(0.17)	(0.11)	(0.08)	(0.59)	(0.19)
Partisanship (left)$_{t-1}$	-0.04*	-0.06*	0.01	0.00	0.22*	0.08*
	(0.02)	(0.02)	(0.01)	(0.01)	(0.06)	(0.02)
Δ Marriage rate	0.13	0.14	-0.16*	-0.12*	0.17	0.11
	(0.09)	(0.09)	(0.06)	(0.04)	(0.36)	(0.13)
Marriage rate$_{t-1}$	-0.12+	-0.13	0.06	0.02	0.09	0.20+
	(0.07)	(0.08)	(0.06)	(0.05)	(0.34)	(0.12)
Δ Unemployment	0.00	-0.06	-0.04	0.01	0.16	0.02
	(0.04)	(0.05)	(0.03)	(0.03)	(0.19)	(0.08)
Unemployment $_{t-1}$	0.03	0.03	-0.04*	-0.02	0.16+	-0.02
	(0.02)	(0.02)	(0.02)	(0.01)	(0.09)	(0.03)
Δ Public goods consumption		-51.89*		9.92*		59.41*
		(7.72)		(3.62)		(10.24)
Public goods consumption$_{t-1}$		-15.52*		2.18		34.48*
		(5.01)		(2.15)		(6.49)
R-squared	0.19	0.28	0.30	0.59	0.33	0.70
N	576	576	576	576	576	576

Note: * p<0.05, + p<0.1. Panel corrected standard errors in parentheses. All models include country-specific intercepts.

Table E10. Determinants of the Relative Transfer Shares of *H*, *M*, and *L*, One-Way Fixed Effects Models

	(1)	(2)	(3)	(4)	(5)	(6)
	Δ *H*'s relative transfer share		Δ *M*'s relative transfer share		Δ *L*'s relative transfer share	
	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers
Relative transfer share$_{t-1}$	0.63*	0.64*	0.54*	0.53*	0.42*	0.27*
	(0.07)	(0.06)	(0.06)	(0.06)	(0.09)	(0.04)
Relative transfer share$_{t-2}$	0.09	0.11	0.12*	0.12*	0.09	0.14*
	(0.06)	(0.06)	(0.06)	(0.05)	(0.09)	(0.04)
T1/M20	1.02	-0.84	2.23*	5.15*	-0.12	4.87*
	(2.05)	(3.14)	(0.40)	(0.60)	(2.19)	(0.92)
M20/B20	-0.06	-0.26	0.01	0.03	1.78*	3.50*
	(0.43)	(0.58)	(0.09)	(0.08)	(0.64)	(0.22)
Capital market openness	-3.84*	-4.88	0.72*	0.75*	-1.42	-0.70
	(1.87)	(2.54)	(0.32)	(0.30)	(2.18)	(0.68)
Trade openness	1.57	3.22	0.41	0.46	1.62	-0.43
	(3.34)	(4.21)	(0.41)	(0.38)	(1.53)	(0.67)
Partisanship (left)	-0.05	-0.14	-0.02	-0.04*	0.28*	0.13*
	(0.12)	(0.16)	(0.02)	(0.01)	(0.07)	(0.03)
Marriage rate	-0.31	-0.21	-0.02	-0.05	0.20	0.16
	(0.39)	(0.56)	(0.07)	(0.06)	(0.38)	(0.12)
Unemployment	0.07	0.16	-0.03	-0.02	0.12	-0.10*
	(0.10)	(0.13)	(0.02)	(0.02)	(0.12)	(0.04)
Public goods consumption		-27.46		6.22*		57.68*
		(27.31)		(2.62)		(7.14)
R-squared	0.81	0.83	0.90	0.96	0.85	0.97
N	559	559	559	559	559	559

Note: * $p<0.05$. Panel corrected standard errors in parentheses. All models include country-specific intercepts.

Table E11. Determinants of the Relative Transfer Shares of *H*, *M*, and *L*, Two-Way Fixed Effects Models

	(1)	(2)	(3)	(4)	(5)	(6)
	Δ *H*'s relative transfer share		Δ *M*'s relative transfer share		Δ *L*'s relative transfer share	
	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers
Relative transfer share$_{t-1}$	0.63*	0.65*	0.56*	0.54*	0.41*	0.26*
	(0.07)	(0.06)	(0.07)	(0.06)	(0.09)	(0.04)
Relative transfer share$_{t-2}$	0.09	0.10	0.14*	0.13*	0.09	0.15*
	(0.07)	(0.06)	(0.07)	(0.05)	(0.09)	(0.04)
T1/M20	1.78	0.80	2.13*	4.73*	0.15	4.39*
	(2.62)	(3.86)	(0.44)	(0.60)	(2.59)	(0.90)
M20/B20	-0.09	-0.34	0.02	0.03	1.85*	3.45*
	(0.41)	(0.56)	(0.09)	(0.08)	(0.64)	(0.22)
Capital market openness	-4.12+	-4.79	0.74*	0.57+	-0.13	-0.22
	(2.26)	(3.32)	(0.36)	(0.34)	(2.34)	(0.58)
Trade openness	3.64	6.17	0.21	0.26	-0.20	-1.35+
	(4.19)	(5.35)	(0.58)	(0.52)	(1.89)	(0.81)
Partisanship (left)	-0.00	0.03	-0.02	-0.05*	0.22*	0.08*
	(0.19)	(0.24)	(0.03)	(0.02)	(0.11)	(0.04)
Marriage rate	-0.38	-0.50	-0.02	-0.02	0.23	0.20
	(0.44)	(0.61)	(0.08)	(0.07)	(0.42)	(0.14)
Unemployment	0.08	0.12	-0.04+	-0.02	0.11	-0.12*
	(0.12)	(0.15)	(0.02)	(0.02)	(0.11)	(0.04)
Public goods consumption		-21.62		5.99+		45.89*
		(33.08)		(3.22)		(7.45)
R-squared	0.82	0.84	0.91	0.96	0.86	0.97
N	559	559	559	559	559	559

Note: * p<0.05. Panel corrected standard errors in parentheses. All models include country and year fixed effects.

Table E12. Determinants of the Relative Transfer Shares of *H*, *M*, and *L*, Only In-Kind Spending on Health is Distributed as an Equal Lump Sum.

	(1)	(2)	(3)	(4)	(5)	(6)
	Δ *H*'s relative transfer share		Δ *M*'s relative transfer share		Δ *L*'s relative transfer share	
Relative transfer share$_{t-1}$	-0.31*	-0.31*	-0.30*	-0.31*	-0.45*	-0.46*
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)
Δ T1/M20	5.16	5.97	6.39*	6.14*	5.73*	5.36*
	(6.32)	(6.41)	(0.76)	(0.76)	(2.48)	(2.48)
T1/M20$_{t-1}$	-0.30	1.11	2.83*	2.53*	3.23*	2.60*
	(2.76)	(3.40)	(0.46)	(0.47)	(1.13)	(1.23)
Δ M20/B20	0.48	0.55	-0.22*	-0.24*	5.26*	5.23*
	(0.57)	(0.57)	(0.10)	(0.10)	(0.41)	(0.41)
M20/B20$_{t-1}$	-0.21	-0.15	0.09	0.07	2.39*	2.40*
	(0.48)	(0.49)	(0.07)	(0.07)	(0.41)	(0.41)
Δ Capital market openness	4.93	4.88	0.28	0.32	-3.35	-3.33
	(4.65)	(4.65)	(0.70)	(0.70)	(2.79)	(2.78)
Capital market openness$_{t-1}$	-4.78*	-4.51*	0.48+	0.41+	1.37	1.24
	(1.89)	(1.88)	(0.25)	(0.25)	(0.83)	(0.85)
Δ Trade openness	-5.55	-4.68	1.58+	1.33	-3.27	-3.69
	(6.29)	(6.32)	(0.90)	(0.90)	(2.43)	(2.44)
Trade openness$_{t-1}$	1.15	2.70	0.57	0.12	0.18	-0.55
	(2.80)	(3.09)	(0.35)	(0.40)	(0.93)	(1.00)
Δ Partisanship (left)	-0.06	-0.05	0.02	0.02	0.03	0.02
	(0.89)	(0.89)	(0.10)	(0.10)	(0.34)	(0.34)
Partisanship (left)$_{t-1}$	-0.12	-0.02	-0.01	-0.04*	0.15*	0.11*
	(0.11)	(0.16)	(0.01)	(0.02)	(0.04)	(0.05)
Δ Marriage rate	0.66	0.53	-0.19*	-0.15*	-0.01	0.05
	(0.51)	(0.52)	(0.06)	(0.06)	(0.22)	(0.23)
Marriage rate$_{t-1}$	-0.35	-0.55	-0.01	0.05	0.00	0.10
	(0.44)	(0.47)	(0.06)	(0.07)	(0.21)	(0.22)
Δ Unemployment	-0.12	-0.10	-0.01	-0.02	-0.01	-0.02
	(0.28)	(0.28)	(0.04)	(0.04)	(0.14)	(0.14)
Unemployment $_{t-1}$	0.14	0.13	-0.04*	-0.04*	-0.06	-0.05
	(0.11)	(0.11)	(0.02)	(0.02)	(0.06)	(0.06)
Δ Public goods consumption	59.90	61.64	3.74	3.16	7.71	6.88
	(44.89)	(44.98)	(5.16)	(5.16)	(17.90)	(17.92)
Public goods consumption$_{t-1}$	15.89	16.49	-0.83	-1.00	23.69*	23.69*
	(22.85)	(22.97)	(2.96)	(2.95)	(9.37)	(9.35)
Linear time trend		-0.09		0.03*		0.04
		(0.09)		(0.01)		(0.04)
R-squared	0.16	0.17	0.29	0.30	0.51	0.51
N	576	576	576	576	576	576

Note: * p<0.05. Panel corrected standard errors in parentheses. All models include country-specific intercepts.

Table E13. Determinants of the Relative Transfer Shares of *H*, *M*, and *L*, Including Extra Controls

	(1)	(2)	(3)	(4)	(5)	(6)
	Δ *H*'s relative transfer share		Δ *M*'s relative transfer share		Δ *L*'s relative transfer share	
	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers	Excl. in-kind transfers	Incl. in-kind transfers
Relative transfer share$_{t-1}$	-0.34*	-0.32*	-0.38*	-0.27*	-0.50*	-0.37*
	(0.04)	(0.04)	(0.04)	(0.04)	(0.06)	(0.05)
Δ T1/M20	4.29	0.27	4.22*	10.50*	7.11*	9.84*
	(5.59)	(7.61)	(0.78)	(0.71)	(3.55)	(1.45)
T1/M20$_{t-1}$	4.58	1.11	1.75*	3.64*	-1.31	3.71*
	(2.78)	(3.83)	(0.41)	(0.56)	(1.99)	(0.78)
Δ M20/B20	0.33	0.51	-0.21	-0.20*	4.12*	4.93*
	(0.57)	(0.73)	(0.11)	(0.10)	(0.76)	(0.24)
M20/B20$_{t-1}$	-0.44	-0.60	0.12	0.09	0.79	1.71*
	(0.49)	(0.64)	(0.08)	(0.08)	(0.61)	(0.29)
Δ Capital market openness	3.79	3.76	0.03	0.01	-7.33	-0.09
	(4.55)	(5.78)	(0.78)	(0.64)	(5.07)	(1.61)
Capital market openness$_{t-1}$	-6.91*	-8.56*	0.60*	0.45	0.90	0.31
	(2.01)	(2.62)	(0.29)	(0.24)	(1.46)	(0.47)
Δ Trade openness	-10.56	-10.48	1.71	1.17	-1.49	-2.15
	(5.67)	(7.37)	(0.93)	(0.80)	(3.76)	(1.46)
Trade openness$_{t-1}$	0.58	0.01	0.48	0.26	2.66	-0.26
	(2.87)	(3.65)	(0.45)	(0.38)	(1.77)	(0.71)
Δ Partisanship (left)	-0.35	-0.45	0.07	0.04	0.06	-0.13
	(0.83)	(1.06)	(0.11)	(0.09)	(0.56)	(0.18)
Partisanship (left)$_{t-1}$	-0.23*	-0.35*	0.01	-0.02	0.27*	0.05*
	(0.11)	(0.14)	(0.02)	(0.01)	(0.07)	(0.02)
Δ Marriage rate	0.81	1.16	-0.19*	-0.13*	0.13	0.07
	(0.47)	(0.65)	(0.06)	(0.06)	(0.35)	(0.13)
Marriage rate$_{t-1}$	0.27	0.42	0.03	0.05	-0.04	0.13
	(0.45)	(0.63)	(0.07)	(0.06)	(0.35)	(0.13)
Δ Unemployment	0.19	-0.01	-0.05	-0.02	0.06	-0.04
	(0.23)	(0.34)	(0.04)	(0.03)	(0.20)	(0.08)
Unemployment $_{t-1}$	0.29*	0.30	-0.04*	-0.02	0.12	-0.01
	(0.12)	(0.17)	(0.02)	(0.02)	(0.11)	(0.04)
Δ Public goods consumption		-95.49		19.31*		67.01*
		(52.91)		(4.72)		(10.82)
Public goods consumption$_{t-1}$		-35.20		5.34		30.14*
		(27.51)		(2.75)		(6.79)
Δ Share of elderly (65+)	-3.92	-4.41	0.34	0.43	0.38	0.54
	(2.12)	(2.70)	(0.28)	(0.23)	(1.36)	(0.49)
Share of elderly (65+) $_{t-1}$	0.67*	0.94*	-0.10*	-0.02	-0.00	0.10
	(0.28)	(0.36)	(0.04)	(0.03)	(0.18)	(0.07)
Δ Female labor force particip.	0.14	0.14	0.07	0.05*	-0.18	-0.10
	(0.26)	(0.32)	(0.04)	(0.03)	(0.18)	(0.06)
Female labor force particip $_{t-1}$	0.09	0.11	0.01	0.01	-0.13*	-0.04*
	(0.06)	(0.07)	(0.01)	(0.01)	(0.04)	(0.01)
Δ Union density	0.21	0.16	0.01	-0.03	0.47*	0.12
	(0.35)	(0.45)	(0.05)	(0.04)	(0.22)	(0.08)
Union density $_{t-1}$	-0.08	-0.08	0.00	-0.00	-0.08	-0.05*
	(0.08)	(0.10)	(0.01)	(0.01)	(0.06)	(0.02)
R-squared	0.19	0.18	0.28	0.43	0.36	0.71
N	562	562	562	562	562	562

Note: * p<0.05. Panel corrected standard errors in parentheses. All models include country-specific intercepts.