The Political Representation of Economic Interests: Subversion of Democracy or Middle-Class Supremacy?

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Abstract

Rising inequality has raised concerns that democratic governments are no longer responding to majority demands, an argument we label the Subversion of Democracy Model (SDM). It comes in two varieties. One uses public opinion data to show that policies are strongly biased towards to the preferences of the rich; another uses macro-level data to show that governments are not responding to rising inequality. This paper critically reassesses the SDM. We point to potential biases and propose solutions that suggest a different interpretation of the data, which we label the Representative Democracy Model (RDM). We test the SDM against the RDM on both public opinion data and on a new dataset on fiscal policy and find that middle-class power has remained remarkably strong over time, even as inequality has risen. The rich have little influence on redistributive policies, and the democratic state appears not to be increasingly constrained by global capital.

1. Introduction

A new highly-cited literature on redistribution and economic policy-making paints a gloomy picture of contemporary democracy. It comes in two varieties. One uses public opinion data to show that policies are strongly biased toward the preferences of the rich (e.g., Gilens 2005, 2012; Gilens and Page 2014; Bartels 2008, 2017); another uses macro-level data on inequality, partisanship, and redistribution to show that democratic governments are no longer responding to rising inequality (e.g., Streeck 2011, 2016; Piketty 2014; Hacker and Pierson 2010). For simplicity, we refer to these arguments as the Subversion of Democracy Model (SDM) because they imply that democratic institutions, supposedly representing majority interests, are either serving the rich or bowing to the pressures of global capital.

This paper is a critical reassessment of the SDM. We point to methodological and theoretical issues that can bias the results, and we propose solutions that point to a very different interpretation of the data. We label the alternative interpretation the Representative Democracy Model (RDM) because it suggests that class interests are represented in government policies in rough correspondence with how representative democracy is expected to work. The RDM builds on, but moves beyond, recent work that argues that all classes are (roughly) equally influential (Branham, Soroka, and Wlezien 2017; Enns 2015; Wlezien and Soroka 2011) in that the RDM considers the middle class to be politically pivotal, as implied by its favorable bargaining position at the center of the political coalition game. Since we focus on advanced democracies with well-established party systems, the RDM thesis is related to what is known as the responsible party government model (Schattschneider 1942; Downs 1957), as well as to seminal

work in comparative political economy that emphasizes the critical role of the middle class in the development of the welfare state (e.g., Baldwin 1990; Korpi and Palme 1998; Rothstein 1998).

We make three contributions. First, we show that there is a crucial distinction between enduring class power and short-term spending preferences, which is highly consequential for the choice of empirical model and the interpretation of the evidence. Second, we present an axiomatic approach to the distributive consequences of taxation and spending, which allows us to directly estimate the interest-realization of different classes, as opposed to relying on broad measures of "redistribution" or "social spending". Finally, we offer a strategic test of the SDM against the RDM on both public opinion data and on a new dataset on the distributive effects of fiscal policy by class.

Contrary to much recent scholarship, but consistent with an older literature, we find that government policies and outcomes largely reflect the economic interests of the middle class, and that middle-class power over fiscal policies has remained remarkably stable over time, even though market inequality has risen. The rich have no or little influence on redistributive policies over and above what would be expected from their participation in government coalitions, and it does not appear that the democratic state is increasingly constrained by global capital. The main vehicle for representation remains political parties.

2. The Micro Evidence

2.1. Subversion of Democracy: A Critique

Work by Bartels (2008), Gilens (2005, 2012), and Gilens and Page (2014) on the US, as well as recent work testing and extending their approach to other advanced democracies (Bartels 2017;

Elsässer, Hense, and Schäfer 2018; Peters and Ensink 2015; Schakel Forthcoming) is unapologetically empirical and invites us to forget about pre-conceived notions of democracy and instead examine the evidence. The conclusions they reach about democracy are stark, pessimistic, and provocative. In a nutshell they find that the affluent dominate democratic politics to the point where other income classes do not matter. This is of obvious normative concern, and it also challenges standard models of democracy, which accords a strong role to the middle class.

These findings, however, raise important questions about dynamics. If it is true that the affluent drive public policies, as Gilens (2005, 2012) finds for the US and Bartels (2017) and Peters and Ensink (2015) for Europe, where would that leave us in the long run? The natural answer seems to be that we should expect policies to converge to the preferences of the rich. But how then do we explain the two largest government programs in the US, Medicare and Social Security, which are decidedly middle-class programs? For that matter, how do we account for any aspect of the American welfare state including Welfare, Medicaid, food stamps, or the Earned Income Tax Credit? And why would the top one percent of income earners be paying about 40 percent of the federal income tax bill (IRS 2018)?

The mystery deepens when we consider Western Europe. According to Bartels (2017) and Peters and Ensink (2015) the affluent in Europe have an outsized influence on redistributive policies, but this emphasis on the rich seems at odds with the sheer size of European welfare states. On average close to a third of GDP in Western Europe goes to social spending (OECD 2016), and it is hard to see how countries reached this level of spending if the rich were so powerful; or how such levels of spending could be sustained for so long. Indeed, social spending across all

advanced democracies has been rising from about 18 percent of GDP in 1980 to about 25 percent in 2016, the historical peak.[1]

The SDM also runs counter to long-standing theories of democratic parties and representation from Downs (1957) to Kitschelt (1994, 2000) to Aldrich (1995), and it contradicts standard models of redistribution, from Meltzer-Richard (1981) to Esping-Andersen (1990) to Iversen-Soskice (2006). The most seminal work in social history would also have to be rewritten because the political strength of the center-left is seen in that literature to be a key driver of welfare state expansion (Baldwin 1990; Korpi 1983; Rothstein 1998; Huber and Stephens 2001; Esping-Andersen 1985). While there is an important literature that accords employers a major role in the formation of the welfare state (Swenson 2002; Martin 2000; Mares 2003), no one claims that the welfare state was created by the rich.[2] Nor do Bartels or Gilens, or any of their followers. But how then can the rich figure so prominently in their results?

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[1] This is a simple average of total social spending as percentage of GDP for 21 OECD countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, USA, and United Kingdom.

[2] Rueda (2018) shows that the rich are sometimes driven by altruism to support redistribution. Yet, our data show that (i) the rich are less likely to support redistribution, and (ii) their preferences do not drive policies when they diverge from the middle class. Insurance models of the welfare state (e.g., Moene and Wallerstein 2001) imply that demand for spending is rising in income (a "normal good"), but Rehm (2011) shows that this effect is far outweighed by the fact that the rich are much less exposed to risk.

Part of the explanation may be that the SDM overestimates the influence of the affluent. Critics argue that high similarity and collinearity of class preferences naturally limits political inequality and find little difference in representation across classes (Enns & Wlezien 2011; Soroka & Wlezien 2008; Wlezien & Soroka 2011; see also Bashir 2015; Bhatti & Erikson 2011). Enns (2015), for instance, argues that policies tend to end up roughly in the same place no matter which class exerts more influence. And even when there *is* disagreement, which is relatively rare, the rich only win marginally more often than the middle class (Branham, Soroka, and Wlezien 2017). Lax, Phillips, and Zelizer (2019) further nuance the SDM story, showing that in the US Senate class influence is highly conditional on partisanship.

Yet while critics of the SDM highlight important caveats of the original conclusions, elevating the middle class to a sometimes co-equal with the upper class does not resolve the puzzle of why the rich get their way so much of the time. Overall the affluent appear to exert far more influence on public policies than what is normally ascribed to them by the standard theories of democracy.

To resolve this puzzle, we first revisit the logic behind the estimation models used in the SDM public opinion literature. We focus on government spending and redistribution because it is far more obvious why class should matter in fiscal policy than in, say, foreign policy or reproductive policies. Moreover, unequal representation is naturally quite limited on most policies with no redistributive aim, since class preferences hardly diverge (Soroka and Wlezien 2008). Whether the general argument we present below also holds for non-economic issues can of course be tested in future work.

The main methodological issue we want to draw attention to concerns a crucial distinction between the *responsiveness* of policies to short-term trends in class *preferences* (the association

between policy change and preferences for change) and their *congruence* with long-term class *interests* (the match between the level of policy and the level preferred by income classes) (see Achen 1978; Erikson, Wright, and McIver 1993; Wlezien 2017). We illustrate the issue in Figure 1 using simulated data. We assume that there are three income classes: Low (*L*), Middle (*M*), and High (*H*), and we measure time as 200 periods (N) on the x-axis. The mean preferred level of total government spending, P_i, for each class *i* is captured by a straight horizontal line, where *L* (light grey) wants more than *M* (grey), and *M* wants more than *H* (dark grey).[3] We define spending as a share of GDP, and in this example we assume that the preferred mean levels of spending are $P_H = .1 < P_M = .3 < P_L = .5$ (a ranking consistent with the survey data used below).

[3] Class preferences will be deductively derived in the next section; for now it suffices to note that the ranking follows standard assumptions.

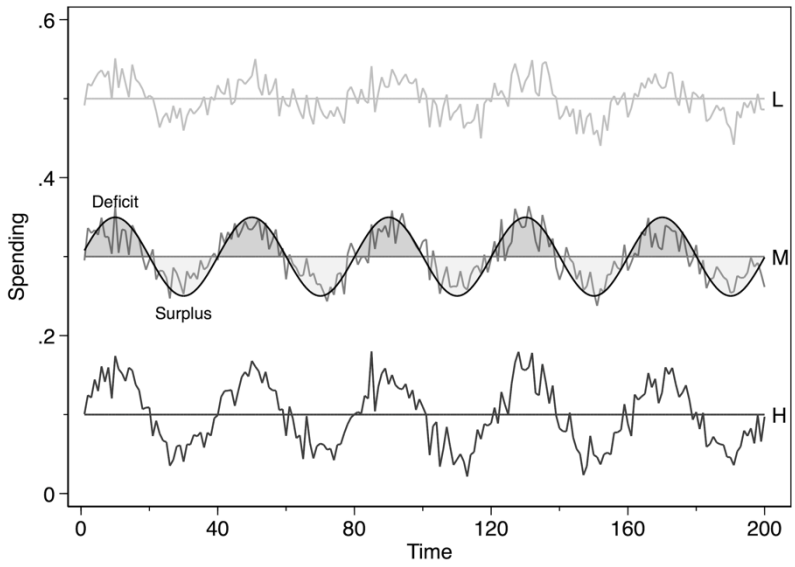

Figure 1

Spending Preferences for Three Groups and Government Spending, when *M* is Politically Dominant.

Note: Based on 200 simulated time observations (N) where the mean preferred spending levels (measured as a share of GDP) of the three groups are set to L=0.5; M=0.3; and H=0.1. The black sine curve is actual spending reflecting the mean preferred spending level of *M* plus a counter-cyclical budget reflecting the business cycle (dark grey=deficit; light grey=surplus). The jagged light grey, grey, and dark grey lines are the preferred spending levels of *L*, *M*, and *H* at each time point.

For the sake of argument, we further assume that *governments only represent the interests of M*, implying that mean spending is perfectly congruent with *M*'s mean spending preference. This could reflect a simple median voter logic, but the justification for this assumption is analytical: we want to be able to examine whether the standard SDM estimation model applied to our fictive

data yields the "correct" answer about representation and policy influence (i.e. that *M* determines policies).

Over time, actual spending varies around *M*'s mean preference, P_M, because of the business cycle, which we represent by a sine-function (black line). We assume that spending follows a New Keynesian counter-cyclical pattern so that spending at the trough of the business cycle is at a maximum (because outlays peak and revenues bottom-out), implying a budget deficit, while at the top of the cycle spending is at a minimum (because outlays bottom-out and revenues peak), implying a budget surplus. These budget swings can be interpreted partly as the result of "automatic stabilizers" (most importantly spending on unemployment benefits), and partly as the result of deliberate counter-cyclical fiscal policies – either mechanism suffices for our purposes.[4] Note that this logic is independent of the preferred average level of spending; it is purely a function of optimal macroeconomic policies.

People may hold either a naïve "household budget" understanding of fiscal policy or a sophisticated "Keynesian" understanding. It stands to reason that this distinction is closely tied to incentives to be informed about economic policies, and such incentives are likely related to income and education as argued by Larcinese (2005) and Iversen and Soskice (2015). The reason is that those with high income more often make investment decisions that require accurate predictions about the economy and hence future economic policies, and they typically also have the education to acquire and process the necessary information at low marginal cost. This suggests a sophisticated view on fiscal policies. Those with low income and education, by

[4] It is well-established that fiscal policies follow a counter-cyclical pattern in OECD countries. See Darby and Melitz (2008) and Dolls, Fuest, and Peichl (2012).

contrast, typically have neither the incentives nor the education to be well-informed about economic policies, and they are apt to adopt a common-sense "household budget" understanding of these policies.

The conjectured differences across classes are a matter of degree since, again, class preferences are known to be highly correlated over time. We therefore assume a mix of people in *L* and *M* who adhere to either a Keynesian or household understanding, with more in the *L* group adopting a household understanding (25 percent) compared to *M* (15 percent). For *H* we assume high information and a Keynesian understanding (the specific numbers are unimportant, only the ranking).

In Figure 1 this logic means that the cross-time preferences of the three groups reflect the actual budget cycle to a greater or lesser extent. To add realism, we assume that idiosyncratic factors affect preferences at each time point, which is captured by a weighed combination of random draws from two normal distributions of disturbances (with a mean of 0 and a weight of .5 given to each distribution), added to the preferred spending level at each time point.[5] One distribution is disturbances that *L*, *M*, and *H* have in common, while the other is unique to each group; producing high but not perfect preference correlations.[6]

[5] We could also add random disturbances to government spending, but this would not affect the substantive conclusions.

[6] Class preferences are assumed to have identical levels of disturbance. We could add more disturbance to low and middle-class preferences, as Stimson (2011) suggests that differential

Of course, Figure 1 merely presents one possible scenario. We are not claiming that it is an accurate model of the world, although we have reasons to think it is a plausible one (and present evidence to that effect below). Again, our main purpose is analytical: to present a case where the preferences of governments and all groups are transparent, so we can evaluate whether empirical models correctly identify the relationship between preferences and policies.

We first apply the standard SDM methodology to the simulated dataset and estimate the following model of influence:

$$\Delta S_t = \alpha + \beta_L \cdot \Delta P_{L,t} + \beta_M \cdot \Delta P_{M,t} + \beta_H \cdot \Delta P_{H,t} + \varepsilon_t, \quad (1)$$

where S_t is spending at time t, P_i is the absolute spending preference of group $i = \{L, M, H\}$, and Δ is the first difference operator. This corresponds to the setup of the thermostatic tradition (Erikson, MacKuen, and Stimson 2002; Soroka & Wlezien 2010) and to Gilens' original setup where survey questions ask people to indicate their preferences for changes in policy, and the dependent variable measures actual changes. In Bartels's (2017) analysis of ISSP data, the survey questions are likewise about preferred changes in policy, and all refer to fiscal policies (do people want more or less spending on unemployment, health, old age pensions, and education?).

Model (1) in Table 1 shows the results of estimating equation (1) on our simulated data. It is easy to see that they basically mirror those in Gilens and Bartels: only *H* is found to have a significant impact on policy. But we know that cannot be true since the model is constructed to only reflect

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measurement error in class preferences may partly drive differential responsiveness. But that would not alter the substantive conclusions.

the average preferences of *M*, not *H*. What the result reflects is the fact that *H* is on average better informed about fiscal policy than *M* and *L* and therefore expresses more counter-cyclical preferences, which better reflect changes in actual policies. This does *not* mean that government policies are inattentive to the intertemporal interests of *L* and *M*. If we had precise data about who in each group were, or were not, informed, including this variable would show that the preferences of *informed* members of all groups are equally influential.

Table 1

The Effect of Class Preferences on Spending (Based on Simulated Data Shown in Figure 1)

	(1)	(2)	(3)
	First-difference regression	Prais-Winsten AR (1) regression	LDV regression
Constant	-0.00	0.30*	0.03
	(0.00)	(0.02)	(0.02)
ΔP(L)	-0.01		
	(0.02)		
ΔP(M)	0.01		
	(0.02)		
ΔP(H)	0.07*		
	(0.02)		
P(L)		-0.01	-0.01
		(0.03)	(0.03)
P(M)		0.01	0.05
		(0.02)	(0.03)
P(H)		0.07*	0.10*
		(0.02)	(0.03)
LDV			0.86*
			(0.03)
R-squared	0.07	0.31	0.98
N	199	200	199

Note: * $p<0.05$, + $p<0.1$. Standard errors in parentheses

Yet, without highly accurate measures of information, *even slightly better information* among the rich will produce the result that the rich are more influential (as long as *N* is large enough). In Web Appendix A, we experiment with the shares of informed and uninformed voters in each group, and we show that the bias persists even if "Keynesians" are just slightly more prevalent in group *H* than in *M* and *L* (the estimates are less stable and the standard errors rise with smaller differences in shares, of course, but by far most often the models attribute most influence to *H*). To rule out bias one would need a *perfect* measure of information, which no survey offers.

But *even* if we could measure information perfectly it would still not solve the problem. It would suggest that each class had equal impact, but the key message of Figure 1 is that governments *only* represent the interests of *M*, and that mean spending therefore perfectly matches *M*'s mean preference. To discover this critical "fact", we need a model that uses levels, not changes, in spending and spending preferences (consistent with Plümper, Troeger, and Manow 2005). We therefore estimate the following model:

$$S_t^{'} = \alpha + \beta_L \cdot P_{L,t}^{'} + \beta_M \cdot P_{M,t}^{'} + \beta_H \cdot P_{H,t}^{'} + \varepsilon_t, \quad (2)$$

where the variables have been corrected for first-order autocorrelation using a Prais-Winsten transformation. This model yields the results reported in column (2) of Table 1. At first glance they look almost identical to column (1). This is because the AR1 correlation is so close to 1 that transforming the data is nearly identical to differencing. But there is one crucial difference: the estimated constant of .30 reflects that governments represent the mean preference of *M* and therefore spend 30 percent on average. By comparing the mean preferences of the three classes to the estimated constant, we thus immediately discover that *M*'s interests are better represented than those of either *H* or *L*.

The empirical strategy suggested in equation (2) can be extended to multiple countries where the country-specific intercepts are estimates of average policy preferences influencing government policies in each country. In principle, we can compare these estimates to the expressed preferences of each income group to arrive at conclusions about which income class exerts greater long-term influence.

In Model (3) we include a lagged dependent variable because this is a common way to deal with autocorrelation while explicitly modeling the dynamics. Alas, this model also yields the wrong answer for reasons explained by Achen (2000). When the explanatory variable (here spending preferences) is slow-moving, and in the presence of high autocorrelation, the estimate of the effect of the level variable is biased downwards. In this case the intercept is close to zero and using this model we would make the double mistake of attributing both the level and change in spending to *H*.

The difference we find in our simulated data between (preferences for) *changes* in fiscal policies and (preferences for) *levels* of such policies is related to what we see as an important feature of indirect democracy. The RDM is based on the notion that political parties act as "trustees" of their constituencies and pursue their long-term interests in government (what Mansbridge 2003 refers to as promissory representation). Voters need not be informed about the details of short-run policies but are assumed to learn over time which parties produce good outcomes for their group and vote based on the accumulated reputation of parties. Particular policies, especially short-term changes in policy settings, may not be well understood by voters who are "information misers" (Munger and Hinich 1994; Kitschelt 2000).

If this interpretation of indirect democracy in strong party systems is correct it opens the door for a significant divergence in results when using (preferences for) changes in particular spending policies as opposed to (preferences for) the overall level of spending. Again, even if we had a perfect measure of information, regressing actual policy change on preferences for policy change can yield incorrect conclusions. Making inferences from one mode of analysis to the other is fraught!

This conclusion is not limited to the particular macroeconomic example used in the simulation. Many short-term changes in government policies are responses to volatility in revenues and outlays that most people are inattentive to. If more young people in one year enter into the higher educational system it has consequences for educational spending; if rising property prices produce a windfall in tax receipts it may trigger an adjustment in the property tax rate; if more people in a given year retire early it will affect public pension spending, and so on. Only the best informed will be aware of these dynamics, yet small differences in such awareness can have big consequences for estimates of responsiveness. To draw inferences about the congruence between government policies and long-term class interests we need information about preferences for levels of spending and actual spending.[7]

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[7] The logic of our model setup follows Gilens and Bartels, but it can be interpreted in terms of relative preferences (Soroka and Wlezien 2010). In our notation, relative preferred spending is $R_i = S - P_i$, which is a spatial measure of how far *i* would like to move the status quo. If we estimate model (2) above using R_i instead of P_i we would get identical results subject to multiplying by a constant.

2.2. An Empirical Test: Whose Preferences Actually Count?

To test our conjectures, we rely on two often-used questions from the ISSP that relate to preferences for redistribution. The first question pertains to preferences for *change* and asks *"Listed below are various areas of government spending. Please indicate whether you would like to see more or less government spending in each area. Remember that if you say "much more", it might require a tax increase to pay for it"*.[8] Bartels (2017) uses these questions and we follow him in constructing an index of support for social spending based on preferences for spending on health, education, old age pensions, and unemployment benefits. We use net support as our measure, which is an estimate of the share of people supporting more spending minus the share supporting less spending, so higher values mean stronger support for more spending (similar to Soroka and Wlezien 2010).

As an estimate of preferences for the *level* of redistribution, we rely on the question that asks *"on the whole, do you think it should or should not be the government's responsibility to reduce income differences between the rich and the poor?"*.[9] We code 'definitely should be' and 'probably should be' as 1 and 'probably should not be' and 'definitively should not be' as 0. Some of the ISSP surveys also have a 'neither nor' category, which is coded as 0. The variable thus captures the proportion of people who overall support redistribution, which is unlikely to be related to information about short-term fiscal policies.

[8] We use the Role of Government I-IV surveys.

[9] We use the Role of Government I-V, Environment I-III, and Social Inequality I-IV surveys

We estimate support for redistribution by income class using the procedure proposed by Gilens (2012). For each country-year survey we, first, assign the respondents a score equal to the midpoint of their income category based on the income distribution from the survey. Next, we regress support for (change in or level of) redistribution on the respondents' placement in the income distribution and its squared term in a logistic or linear regression, and use that model to predict the level of support for people at the 10th, 50th and 90th income percentiles.

We then merge the preference data with data on public social spending as percentage of GDP (from the OECD Social Expenditure Database)[10] using the year in which the survey data was collected as the matching year (we discuss lag structure below). This gives us a data set that contains information on the following 21 advanced democracies in the period 1985-2016: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, and the United States.[11]

To give a sense of the data, Figure 2 compares preferences for redistribution of low, middle, and high-income groups. The preferences of the lower income group are plotted on the x-axes and those of the higher income group on the y-axes, and for ease of interpretation we include a

[10] We would have preferred to also include a direct measure of redistribution in the analysis, but doing so would greatly reduce the sample size, and it is well-known that social spending is closely related to redistribution (Bradley et al, 2003).

[11] We omit South Korea and Israel due to lack of comparable data on partisanship. The results are substantively similar when these countries are included, but South Korea is an outlier because of its low levels of social spending.

diagonal line. The figure shows (unsurprisingly) that lower income groups are more supportive of redistribution than higher income groups and that preference divergence is greater at the top of the income distribution.[12] Mirroring Soroka and Wlezien's (2008) findings for spending preferences, the figure also shows that preferences are highly correlated, most pronounced between the low and middle classes. These results are consistent with the assumption in the simulation model that and mirror most other studies in the literature.

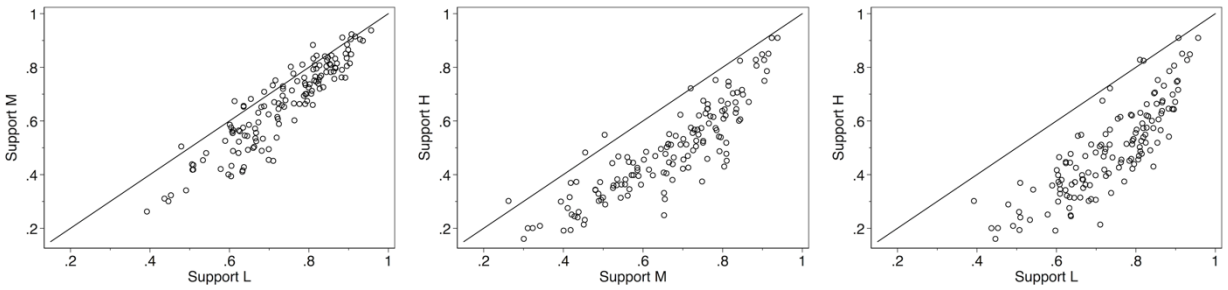

Figure 2

Absolute Support for Redistribution of *L*, *M*, and *H*

Note: N=142. Each circle represents a country-year. The axes describe the share of people in an income class that support redistribution.

Who Influences Changes in Spending and Levels of Redistribution?

We now turn to an empirical test of which income classes policy-makers respond to. We start by estimating representation using *preferences for change and actual changes in spending*, as this relates most closely to the setup of the SDM. In Table 2 we estimate the effect of net support for social spending on subsequent two-year changes in social spending. Consistent with our

[12] Net support for spending is structured similarly by class.

expectations, the results show that only the rich exert independent influence on changes in social spending. This mirrors the stark results of Gilens (2012), and it essentially replicates Bartels's (2017) findings. However, if the poor and uneducated adopt a "household economy" view of the world and the rich and educated adopt a "Keynesian" view, any government pursuing a standard new Keynesian policy would appear to only represent the rich, even if it fully represented the redistributive interests of the poor or the middle. And as we demonstrated above, even in the unlikely case that all classes are equally informed, regressing changes on preferences for change still produce misleading results for the representation of long-run economic interests. Instead, we need to regress levels, not changes, in social spending on preferences for the level of redistribution.

Table 2

The Effect of Net Support for Spending on Subsequent Two-year Changes in Social Spending, by Income Group

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Two-year change in social spending as percentage of GDP							
Low income	2.25*			-0.32	5.51			-1.92
	(0.93)			(2.49)	(3.69)			(6.51)
Middle income		1.94*		-4.57		4.01		-6.60
		(0.78)		(3.82)		(2.54)		(4.90)
High income			2.46*	6.66*			5.64*	12.35*
			(0.80)	(2.85)			(2.41)	(4.71)
Country FE					✓	✓	✓	✓
Constant	-0.72	-0.37	-0.30	0.62	-2.59	-1.38	-1.42	0.51
	(0.54)	(0.38)	(0.33)	(0.59)	(2.12)	(1.24)	(0.85)	(2.34)
R-squared	0.06	0.06	0.12	0.17	0.10	0.09	0.20	0.26
N	43	43	43	43	43	43	43	43

Note: * $p<0.05$, + $p<0.1$. Standard errors clustered by country in parentheses. Preference data not available for Belgium and Iceland, 19 countries included.

Since we do not have direct measures of preferences for levels of spending, we instead turn to expressions of absolute support for redistribution (as shown in Figure 2 above). We model the relationship between the level of social spending and support for redistribution using Prais-Winsten regressions for the reasons discussed above.[13] In Table 3, we first estimate simple bivariate responsiveness models to examine how well social spending aligns with the preferences of the income classes.[14] Models (1) through (3) show that the level of social spending across countries over time is aligned with the preferences of all income classes. The association is strongest for the middle class, which suggests that it is instrumental in setting the level of redistribution. In model (4), we include the preferences of all three classes simultaneously to test which class(es) policy-makers respond to most. Strikingly, the level of redistribution turns out to be influenced *only* by the preferences of the middle class, consistent with the RDM. The preferences of *L* and *H* have no significant effect (and are in the wrong direction).[15] When controlling for differences in the state of the economy across countries and years, spending is

[13] The results are substantively similar when using five-year averages, when lagging preferences by one, two, or five years, and when using OLS with clustered standard errors (results available from authors).

[14] We have imputed two values of social spending for Austria (1986 and 1988) by linear interpolation.

[15] If preferences are partly endogenous to spending, this bias would go against *M* and *L* because they are less informed than *H* (See Web Appendix C). Since we find that *M* is most influential, endogeneity bias would therefore underestimate the observed differences in influence between *M* and *H*.

still only influenced by *M*, while it is not even aligned with the preferences of *H* (see Web Appendix B). These results directly contradict the SDM and specifically Bartels (2017) and Peters and Ensink (2015).

Table 3

The Effect of Support for Redistribution on the Level of Social Spending, by Income Group

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Social Spending as Percentage of GDP							
Low income	12.62*			-6.13	-1.01			-7.93*
	(2.94)			(4.94)	(2.32)			(3.33)
Middle income		12.64*		19.98*		2.75		6.89*
		(2.01)		(4.72)		(2.32)		(3.49)
High income			8.38*	-3.61			2.40	3.00
			(2.01)	(3.50)			(2.29)	(3.10)
Country FE					✓	✓	✓	✓
Constant	11.70*	12.60*	16.87*	14.05*	15.95*	13.83*	14.44*	15.53*
	(2.22)	(1.36)	(1.10)	(2.11)	(1.59)	(1.39)	(1.03)	(1.65)
R-squared	0.58	0.71	0.66	0.72	0.90	0.87	0.87	0.88
N	140	140	140	140	140	140	140	140
N of countries	21	21	21	21	21	21	21	21

Note: * $p<0.05$, + $p<0.1$. Standard errors corrected for heteroscedasticity in parentheses.

It is difficult to be certain that better information about fiscal policies among the rich drives the change results in Table 2, or that a better match of policies to the long-term interests of the middle class drives the level results in Table 3 (as is the case for our simulation). But we can offer some indirect evidence. Using data on preferences for changes in government spending and actual changes in spending, Elkjær (2019) finds remarkably similar differences in responsiveness across income classes in Denmark as those found by Gilens (2012) in the US, and Bartels (2017) and Peters and Ensink (2015) in Europe. While the striking similarity of these findings cannot be explained by structural factors (due to the great differences across the political-economic contexts), Elkjær shows that the rich possess better economic information and that they adjust

their preferences more in line with counter-cyclical fiscal policies compared to lower income classes. This seems broadly true of advanced democracies. In a study of 32 European countries, Kölln (2018) finds that respondents with higher levels of political sophistication adjust their preferences for changes in social policy relatively more counter-cyclically to the business cycle than respondents with lower levels of political sophistication. And from the Comparative Study of Electoral Systems (CSES) dataset, that unlike the ISSP surveys has questions about political information (but not about spending preferences), we can confirm that information is indeed rising in income (and statistically highly significant), also when controlling for education.[16]

Congruence between Policies and Preferences

Regardless of the role of information in fiscal policy, it is of obvious importance to the debate between the SDM and the RDM that democratic governments primarily respond to middle class preferences when setting the *level* of redistribution. At the same time, the results in Table 3 do not convey much direct evidence about the congruency between the actual level of social spending and that preferred by the income classes. Ideally, we would estimate a model with country-specific intercepts and compare the intercepts to the preferred spending levels, as we did for our simulated data. But because we do not have measures of preferred spending as a share of

[16] Going from the lowest income quintile to the highest increases the probability of being highly informed from 19 to 35 percent, while the probability of being uninformed declines from 22 to 10 percent. The CSES dataset covers the same set of countries as the ISSP for the sub-period 1996-2011, see Web Appendix C for specifics on data and estimation.

GDP we are forced to take a more indirect approach and instead estimate how strongly the country-specific intercepts correlate with support for redistribution in different classes.

In models (5)-(8) of Table 3 we therefore add country-specific intercepts to the specification, thereby dividing the total variance into inter-temporal and cross-country variance. The coefficients of these models suggest that the within-country fluctuations in social spending align with the preferences of the middle- and high-income groups and not with those of the poor. This is consistent with our simulated regression results. But we are more interested in how the long-run level of social spending is related to support for redistribution, which is captured by the intercepts and analyzed in Table 4. We are now looking at cross-country differences, and the number of observations is therefore 21.

The bivariate relationships between class preferences and levels of spending across countries are in the expected direction but statistically insignificant (models (1)-(3)). When we include the mean preferences of all three groups simultaneously (model (4)), we find that the preferences of *M* have a positive effect, which is statistically significant at the .1 level, whereas those of *L* and *H* are negatively associated with spending levels (in the case of *H* significantly so). We should of course interpret these results with much caution due to the small sample size and high preference correlations. But, again, they point to the critical role of the middle class. There is no indication that the rich matter for levels of redistribution.

Table 4

The Effect of Class Preferences and Partisanship on the Long-Run Level of Spending

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Estimated Long-Run Level of Social Spending (Intercepts)							
Low income	13.20			-23.48	2.44			-5.74
	(9.66)			(39.46)	(8.86)			(37.21)
Middle income		11.06		63.66+		2.10		31.38
		(7.00)		(32.59)		(6.72)		(33.78)
High income			4.52	-33.09*			-1.09	-21.55
			(6.34)	(15.58)			(5.42)	(15.35)
Government partisanship (right)					-7.05*	-6.96*	-7.46*	-5.51+
					(2.35)	(2.43)	(2.27)	(2.69)
Constant	11.25	13.58*	18.80*	12.32	19.81*	20.19*	22.23*	15.52
	(7.29)	(4.87)	(3.42)	(11.89)	(6.75)	(4.74)	(2.96)	(11.02)
R-squared	0.09	0.12	0.03	0.32	0.39	0.39	0.39	0.46
N	21	21	21	21	21	21	21	21

Note: * $p<0.05$, + $p<0.1$. Standard errors in parentheses. The DV is the intercepts from table 3, model (8). Class preferences are mean support for redistribution between 1985-2016. Government partisanship is measured as the share of government-controlled parliamentary seats held by right parties minus the share held by left parties averaged between 1960-2016 (Portugal: 1976-2016, Spain:1977-2016), using data from the Comparative Political Data Set (Armingeon et al. 2018).

While the results suggest that the level of redistribution is largely decided by the middle class, they do not tell us *how* representation happens. Following a long tradition, the RDM implies that parties are the organizational vehicles for representing class interests, and that policies are a function of who controls the government. If representation takes place through parties and governments, we would expect that the direct effect of preferences on social spending decreases when adding government partisanship to the regression. Models (5)-(8) in Table 4 show this is

precisely what happens.[17] The direct effect drops to zero, which suggests that most representation takes place through parties. The level of social spending is higher in countries which have experienced stronger left party governments, while stronger right party governments are associated with lower levels of social spending. These results are consistent with recent work that try to disentangle the power of money and partisanship (Lax, Phillips, and Zelizer 2019), and they support the RDM.

3. The Macro Evidence

3.1. Weak States in a Globalized World?

The results from our re-analysis of public opinion data and spending indicate that the middle class is far more influential than acknowledged in the recent SDM literature. But the use of public opinion data has limitations. Broad questions about spending and redistribution do not capture the targeting of taxes and spending to particular classes, and it is a problem that we do not have direct measures of voters' preferred spending levels. Perhaps governments do respond to middle-class electorates, but these responses are increasingly constrained and inadequate. New work in comparative political economy highlights macro-trends that appear to show that governments do not respond to rising inequality as predicted by RDMs – a puzzle that is known

[17] Partisanship is measured as an average for the long period 1960-2016 because Huber and Stephens (2001) convincingly argue that partisanship can have long-run consequences by affecting institutions and the structure of spending programs. However, our substantive results are the same if we use the mean for 1985-2016 or even for the period 1960-1984.

as the "Robin Hood Paradox" (following Lindert 2004). Business and the rich may exert veto power behind the scenes, outside the light of public opinion surveys (Hacker and Pierson 2010). Or perhaps governments are so hamstrung by footloose capital that whatever policies are initiated in response to popular demands, these policies end up as woefully inadequate. Prominent proponents of this view are Streeck (2011, 2016), Piketty (2014), and Rodrik (1997, 2018), who all argue that capital mobility has undermined the capacity of governments to tax-and-transfer in response to popular demands.

Yet, there are theoretical reasons to be skeptical of these arguments. Advanced capitalism is based on investment in skill-intensive production, and such production is rooted in local skill clusters (mostly in the successful cities) that are complemented by dense co-located social networks, which are very hard to uproot and move elsewhere (Iversen and Soskice 2019). In this perspective trade and foreign investment reinforce local specialization and raise the dependence of multinational capital on highly location co-specific assets, most importantly highly-skilled labor. Intense market competition, especially in globalized markets, also makes it hard for business to coordinate politically. From this perspective globalization enhances the capacity of democratic governments to be responsive.

To critically reassess the macro evidence, we adopt an axiomatic approach in which class policy preferences ("interests") are derived deductively and then compared to actual tax-and-spend policies over time. Who *are* the winners and losers from government policies, and do policies change over time in a manner that is more consistent with an SDM or RDM interpretation? This approach does not presuppose any particular channel of influence, or whether voters are informed or not, or whether governments have high capacity or not. Instead, it shows who actually gains and loses from government policies.

3.2. Class Preferences over Government Policies

We retain the three-class setup where each class is defined as a third of the distribution of pre-fisc income: *L* (bottom third), *M* (middle third), and *H* (top third). The goal of each class is to maximize net income.[18] In the case of *M* this means that it wants to unilaterally set taxes and transfers to maximize its own net income:

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

where *t* is the tax rate and α is a measure of the efficiency loss from taxation – including the possible loss of income and revenue because of capital flight. Consistent with this maximand, it is assumed that *M* will not want to tax itself.[19] We also rule out the possibility of regressive transfers so that *M* cannot tax *L* and transfer to itself. By a similar logic, *H* cannot tax *M* and use the proceeds for itself. *L,* however, is unconstrained to tax both *M* and *H*. Non-regressivity is a standard assumption in all models of redistribution in advanced democracies, and there is no

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

[19] This however implies a sharp discontinuity between middle and high incomes, which introduces a discontinuous marginal tax rate right around the threshold. For this reason, a more proportional tax rate may be preferable, with income-graduated transfers. The model abstracts from this complication, but the distributive logic would not change with a more proportional tax rate.

country-year observation in our sample where it does not hold.[20] The specific form of the utility function is for mathematical convenience.

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

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

We see that the optimal tax rate depends only on the efficiency losses of taxation, not on the income of either *M* or *H*. Again, *M* does not want to tax itself, so

$$t_M^{M*} = 0.$$

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

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

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

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

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[20] See Iversen and Soskice (2006) for a discussion of the assumption. A simple justification 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. But again, for our purposes it suffices that there are no instances of regressive net transfers in our data.

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 income by the same amount.

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

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

We refer to this as the *rate of transfer*, τ_M^{H*}, and just like the tax rate it is not dependent on the income of either *M* or *H*.[21] In the RDM where the middle class is pivotal – loosely speaking a median voter model – this is therefore the expected transfer rate. We cannot observe this rate directly since we do not know α, but we can infer that τ_M^H will be orthogonal to (independent of) relative income:

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

where $y_H^{'} / y_M^{'}$ is the observed pre-fisc income of *H* relative to *M*.

[21] 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.

This implication of the RDM is important because it means that top-end inequality does not matter, in stark contrast to the SDM. In the SDM the transfer rate, τ_M^H, should respond negatively to the income of *H* relative to *M*:

$$\tau_M^H = f(y_H^{'} / \bar{y}_M^{'}) \ .$$

Money in the SDM begets influence and more money begets more influence, so rising top-end inequality should reduce taxation and transfers from the rich to the middle – a conjecture that corresponds to much contemporary commentary as well as academic scholarship (Hacker and Pierson 2010; Page, Bartels, and Seawright 2013).

A complementary SDM interpretation is that if capital is becoming more mobile, it raises the cost of taxation, α, and the transfer rate should fall as a result (see equation 2). Hence,

$$\tau_M^H = g(\text{capital } \bar{\text{mobility}}).$$

Again, in the "pure" RDM, assuming that the state is strong, neither rising inequality nor growing capital mobility should affect the transfer rate to *M*.

We can generalize the RDM by defining the preferred rate of *L* and allow for government coalitions between any pair of classes.[22] If *M* cannot govern alone, the outcome will reflect the outcome of a coalition bargain, which is a policy vector of taxes and transfers to and from each

[22] In Web Appendix D we show that in a model of pure redistribution, where public goods and insurance do not matter, *H* wants no taxation while *L* wants to tax both *M* and *H* at their maximum rates and transfer the proceeds to *L*. This corresponds to the preference ordering assumed in Figure 1 and shown in Figure 2 above.

class. We show the implications of different coalitions in Web Appendix D, but the results confirm the 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 captured by the share of seats or votes, *M* can ordinarily ensure that it will come out as a net beneficiary, but this is of course an empirical matter. Again, this conclusion only holds if the power of democratic governments is not subverted by money or by the structural power of capital.

3.3. The Role of Insurance and Services

We have focused exclusively on redistribution of income, but many models of the welfare state emphasize the role of insurance and public goods provision (Baldwin 1990; Moene and Wallerstein 2001; Rehm 2011). How do we incorporate these aspects of the welfare state into the analysis? For public goods – health, education, care for the young and elderly, housing, and other in-kind services – the answer is simple in principle: include the net (after tax) value of these services in the disposable income of each class. Below we construct a new dataset that does this based on recent estimates from the OECD and Eurostat.

In the case of insurance, we can indirectly account for its value 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*, although those in the high-income group tend to be shielded from risks in the first place (risk of unemployment, for example, is strongly negatively related to income; see Rehm 2011 for evidence). With a standard concave utility function (which implies risk-aversion), the value to those in the "good" state from transfers to those in the "bad" is proportional to the risk of falling

into the bad state, measured over some politically relevant time-horizon.[23] We can capture this logic by weighting the transfer rate for *M* by the transfer rate for *L*, where the risk of falling into the bad state determines the weight. In the empirical analysis we proxy this risk by the unemployment rate plus the rate of involuntary part-time employment, but we also show that our conclusions are robust to a wide range of weights.

3.4. Estimating Equation

We can put these predictions together in a simple encompassing regression model, using the transfer rate to *M* (including services and insurance) as the dependent variable:

$$\tau^{H}_{M,i,t} = a_i + \beta_1 \cdot \left(\frac{y'_H}{y'_M} \right)_{i,t} + \beta_2 \cdot \left(\frac{y'_M}{y'_L} \right)_{i,t} + \beta_3 \cdot Mobility_{i,t} + \beta_4 \cdot [Right_{i,t} - Left_{i,t}] + \varepsilon_{i,t},$$

where the first two terms measure the direct effects of relative income on the transfer share to *M*; *Mobility* refers to widely used measures of the internationalization of capital (we use capital market openness and trade); and the *Right-Left* variable captures the difference in right and left

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[23] Formally, if we assume a log utility function and that those in the good state make targeted transfers to those in the bad, the utility function to be maximized is:

$$U = \ln[(1-t)\cdot y]\cdot(1-p) + \ln\left(\frac{t\cdot\bar{y}}{(1-\Theta)}\right)\cdot p,$$

where *t* is the tax rate, *y* is income in the good state, $\bar{y}$ is mean income, Θ is the share of the population in the good state, and *p* is the risk of falling into the bad state. The first bracketed term is income in the good state; the second in the bad. The tax rate that maximizes this function is simply *p*. If *M* is in the good state, *M* derives utility of the transfer to *L*, weighted by *p*.

cabinet shares in government. The relative income of *M* to *L* is included as a control to see if the power of income (also) matters at the lower half.

The hypotheses are as follows:

Subversion of Democracy Model: $\beta_1 < 0;\ (\beta_2 > 0);\ \beta_3 < 0;\ \beta_4 = \beta_5 = 0$

Representative Democracy Model: $\beta_1 = \beta_2 = \beta_3 = 0; \beta_4 < 0\ \beta_5 > 0$

The hypothesis $\beta_2 > 0$ (in the SDM model) is in parenthesis because it is not clear that there is any scope for *M* to shape outcomes under SDM assumptions. Needless to say, it is possible that both models capture part of the variance.

3.5. Empirical Analysis: Who Actually Benefits?

In this part of the analysis, we use a new dataset developed for this project that relies on data from the Luxembourg Income Study (LIS), supplemented by OECD and Eurostat data on spending on services and transfers, as well as taxation of property, capital, and consumption. LIS provides an impressive database with household income data stretching as far back as the 1970s across a broad range of countries. We restrict our sample to the following 18 advanced democracies for which data are recorded at more than one point in time between 1974-2016: Australia, Austria, Belgium, Canada, Denmark, Finland, Germany, Greece, Iceland, Ireland, Luxembourg, Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom, and the

United States.[24] In accordance with standard practice we confine the sample of households to those that are active on the labor market and have positive market and disposable incomes.[25]

We measure market income as factor income (labor cash income + capital income) plus private transfers, and disposable income as total cash income minus income taxes and social contributions. Following LIS standards, market and disposable incomes are equivalized by the square root of the number of household members, and they are bottom- and top-coded at one percent of the mean equivalized income and ten times the median unequivalized income. We use market income to calculate inequality indices and to divide households into deciles.

The LIS database accounts for cash transfers but not for in-kind services. To include the value of services, we rely on estimates of the combined value of education, health care, social housing, elderly care, and early childhood education and care. The estimates are from the OECD/EU database on the distributional impact of in-kind services and are, to the best of our knowledge, the only available data (OECD 2011, ch. 8). We also rely on an allocation key from this database

[24] Italy and France and some country-years could not be included because data on pre-fisc income are not recorded. South Korea is omitted because it has no information about employment status, and Israel is omitted due to lack of comparable data on the value of services and several independent variables.

[25] Market income inequality and transfers are greatly exaggerated if including non-working households, primarily because of retirees. Studies using LIS data therefore usually restrict the sample to working-age households (e.g., Huber and Stephens 2001).

to distribute the gross value of services to each income decile's disposable cash income.[26] The exact procedure we used is explained in Web Appendix E.

Before estimating the transfer rate, we allocate the costs of transfers and services to the income deciles' disposable income. Transfers and services are financed by tax revenues that mainly come from taxation of income, capital, property, and consumption. The LIS data capture the income tax burden of each income decile. Business taxes are treated as neutral with respect to income classes and simply added to government revenues. The rest is financed by (i) property and wealth taxes, which are paid almost exclusively by those in the top few percentiles and therefore added to the tax burden of the top income decile, and (ii) consumption taxes, which we assume are paid in proportion to each income decile's consumption share. Further details are provided in Web Appendix E.

The sum of disposable cash income and the net value of in-kind services is *the net "extended" income* of each income decile. Subtracting market income from net extended income yields net transfers received. Following the formal logic set out above, the rate of transfers to *M*, our main dependent variable, is net transfers received by the 5th income decile divided by the net extended income of the top income decile. To account for the value of insurance we add the transfer rate to

[26] For more information about these data see Verbist, Förster, and Vaalavuo (2012). We are grateful to these authors for providing us with the estimates.

L weighted by the sum of the unemployment and involuntary part-time employment rates, as explained above (the mean weight is .1).[27]

Figure 3 presents the spatial and temporal variation in net transfers to *M* as a share of the net extended income of *H* (top panel) and *M* (bottom panel) with and without accounting for insurance (left and right panels). The grey lines are country-specific local polynomial smoothers and the black line describes the entire sample of countries and years.

[27] Nine values of involuntary part-time employment were imputed in Australia, the UK, and the US based on trends of countries belonging to the liberal welfare state cluster.

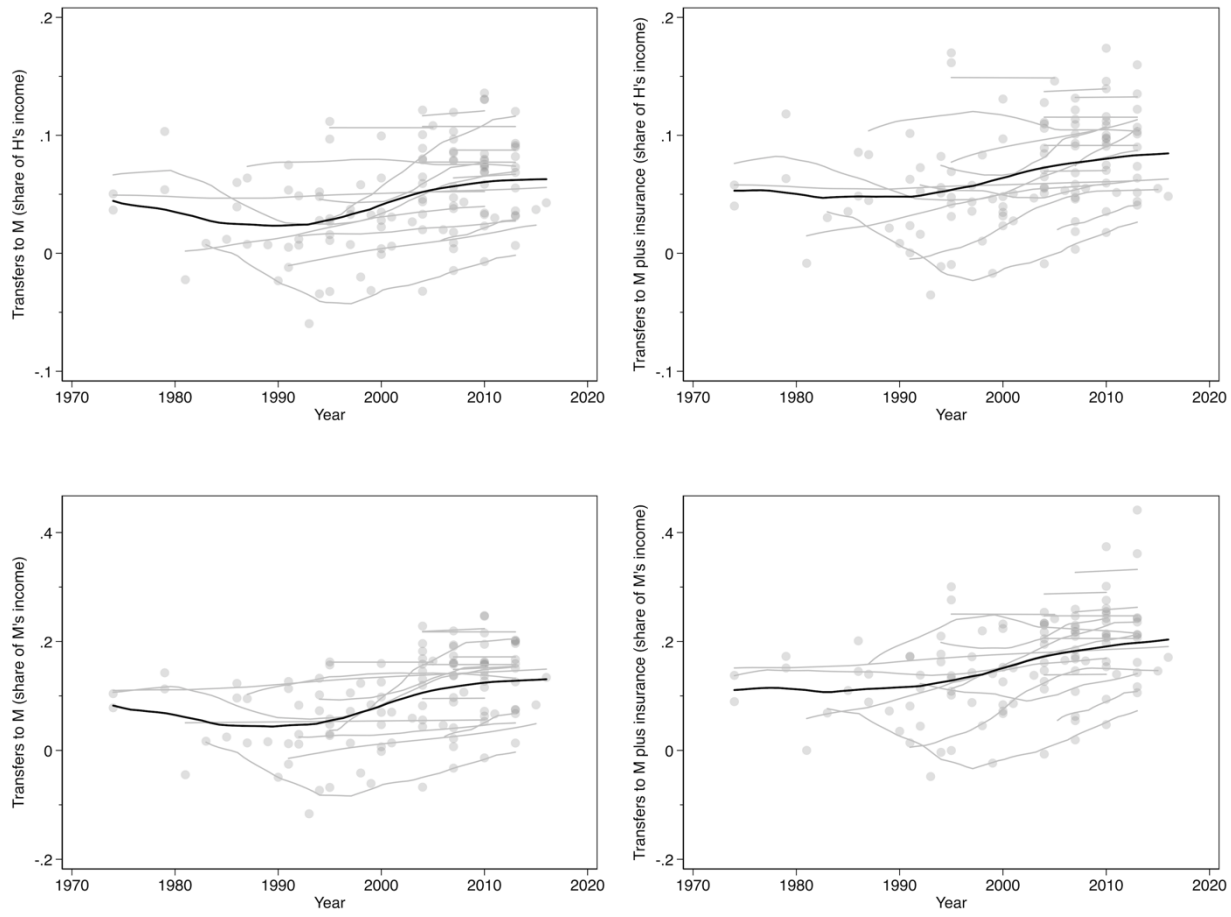

Figure 3

Net Transfers to *M* as a Share of the Net Extended Income of *H* and *M*

Note: N=110.

The panels illustrate that there is considerable spatial and temporal variation in the rate of transfers to *M*. The highest average values are observed in Ireland, Luxembourg, and Sweden and the lowest in the Netherlands and Germany. The average transfer rate to *M* is .05, ranging from -.06 in the Netherlands in 1993 to .14 in Ireland in 2010 (top left panel). The negative values imply that the 5th income decile is a net contributor to spending in a few country-years.

That is the case in Germany in the 1990s, in Netherlands in the 1990s and 2000s, and in Australia in 1981.

Accounting for insurance increases the rate of transfers to *M* on average by .022 and makes the 5th income decile a net beneficiary of spending in Germany already in the mid-1990s and in the Netherlands in the mid-2000s (top right panel). However, we may significantly underestimate the value of insurance. The calculation is based on the twin assumptions that people are mildly risk-averse (RRA=1), and that the risk of falling into the *L* group is equal to the rate of unemployment and underemployment. If people are more risk-averse (as empirical estimates suggest), and if there are risks of falling into the *L* group for other reasons (such as illness or divorce), the value of insurance will increase. More accurately accounting for the value of insurance is an important task for future research, but our substantive results are robust to increasing the weight of *L*'s transfer rate all the way to 50 percent (results are reported in Web Appendix F).

The lower panels show that transfers and services account for a substantial part of *M*'s extended income. On average 9.3 percent of *M*'s extended income comes from transfers and services, topping at 25 percent in Ireland in 2010. Adding the value of insurance increases the average to 16 percent with a maximum of 44.1 percent in Spain in 2013.

The trends in Figure 3 show that during the last forty years, a period of sharply rising inequality, the rate of transfers to *M* has been remarkably stable, and actually slightly increasing over time. This suggests that *M*'s transfer rate is largely orthogonal to relative income, in support of the RDM and contrary to the SDM – a finding that is confirmed by our statistical analysis. That

serves as a first clear-cut indication that increased inequality has not weakened the power of the middle class to tax and redistribute income from the rich.

We test this descriptive result in Table 5, where we regress the rate of transfers to *M* on market income inequality, capital mobility, and partisanship of the government. Capital mobility is measured by Chinn and Ito's (2006, 2008) capital account openness variable and as the sum of imports and exports as a share of GDP (trade openness).[28] Partisanship of the government is a 20-year moving average[29] of the share of government-controlled parliamentary seats held by right parties minus the share held by left parties (Armingeon et al. 2018).[30] We add a time trend to the specification to ensure that our results are not driven by temporal trends.

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[28] We have imputed five values on Chinn and Ito's capital account openness variable. One for Switzerland in 1992 and four values for Luxembourg between 2004-2013. In all cases, we have imputed values equal to 1. The mean for Switzerland is 1 with a standard deviation of 0 and the mean of the EU countries included in our models between 2004-2013 is also 1 with a standard deviation of 0. Two values of trade openness have been linearly extrapolated: Germany 2014 → 2015 and the United States 2014→2016.

[29] The relatively long moving average is again in recognition of Huber and Stephens' (2001) argument that partisanship works over long time periods. A 15-year moving average yields similar results, however.

[30] The Comparative Political Data Set (CPDS) (Armingeon et al. 2018) contains data going back to 1960. That means that the average partisanship of the government in the UK and US in 1974 are only 15-year averages. Trade openness and control variables are also from the CPDS.

Table 5

Determinants of Net Transfers to *M* as a Percentage of *H*'s Net Extended Income

	(1)	(2)	(3)	(4)
	Transfer rate *M* (%)		Transfer rate *M* incl. insurance (%)	
P90/P50	2.80	2.43	3.83	3.44
	(4.69)	(4.40)	(4.17)	(3.88)
P50/P10	1.02	1.34*	2.33*	2.67*
	(0.71)	(0.62)	(0.75)	(0.67)
Trade openness (ln)	-0.11	-0.07	-0.15	-0.11
Mobility	(3.08)	(3.00)	(2.82)	(2.74)
Capital market openness	1.56	1.11	0.84	0.37
	(2.09)	(2.01)	(2.82)	(2.65)
Government partisanship (right)		-3.68*		-3.86*
		(0.95)		(1.17)
Labor force participation	-0.08	-0.14	-0.19	-0.25*
	(0.12)	(0.10)	(0.11)	(0.10)
Trend	-0.36	-0.29	-0.34	-0.27
	(0.22)	(0.19)	(0.23)	(0.20)
$Trend^2$	0.01+	0.01	0.01+	0.01
	(0.00)	(0.00)	(0.00)	(0.00)
Country FE	✓	✓	✓	✓
Constant	3.18	7.19	7.96	12.18
	(20.36)	(19.07)	(18.79)	(17.77)
R-squared	0.34	0.41	0.41	0.47
N	110	110	110	110
N of countries	18	18	18	18

Note: * $p<0.05$, + $p<0.1$. Standard errors clustered by country in parentheses.

The results of Table 5 suggest that there is *no* association between top-end market income inequality and the rate of transfers to the middle class. In fact, contrary to the prediction of the SDM the coefficient is positive. The coefficient is also positive for bottom-end inequality, which suggests that *M* is becoming politically more powerful with both rising top- and bottom-end inequality. Capital mobility, whether measured by capital account openness or trade openness, has no impact on the rate of transfers to the middle class.

Instead, political power seems to depend heavily on partisanship. In model (2) the coefficient for partisanship of the government suggests that stronger left party participation in government is associated with higher rates of transfers to the middle class. And the size of the effect is substantial. A one standard deviation increase in left (right) partisanship of the government is associated with a 1.4 percentage points increase (decrease) in the rate of transfers to *M* (or .34 sd). As can be seen by comparing model (2) to model (1), partisanship does not affect the estimated effects of other variables.

In models (3) and (4), we include insurance as part of the transfer rate to *M.* Overall, the effects are very similar to those of models (1) and (2). Top-end inequality and capital mobility are not related to the transfer rate, while bottom-end inequality is. The effect size of partisanship remains stable. All in all, accounting for insurance increases the transfer rate to the middle class but the associations between the transfer rate, inequality, capital mobility, and government partisanship remain stable.

In Web Appendix F, we test the robustness of the results using a series of additional model specifications. In all specifications we find that top-end inequality and capital mobility are irrelevant to the transfer rate to *M*, while left (right) partisanship increases (reduces) it. These

results indicate that the power of the middle class is very stable over time, despite the sharp rise in top-end inequality. The rich are becoming richer, but the political power of capital and the rich is only as great as their electoral strength implies (via right parties). This strongly complements the public opinion evidence in the previous section, and it is much more consistent with the RDM than the SDM.

A potential objection is that rising incomes of *H before* taxes and transfers have come at the expense of *M*, perhaps because of declining unionization, rising monopsony power in labor markets, or rising monopoly power in product markets. As in most of the literature our focus is on who influences government policies, but Iversen and Soskice (2019, ch. 1) suggest a simple test of this broader notion of business power, which is to examine the position of the middle class in the overall income distribution over time. If a fall of earnings in the middle – what is referred to as the hollowing-out or polarization thesis (Goos and Manning 2007) – outweighs middle-class power over government spending, it will show up as a decline in median-to-mean net incomes. We test this possibility in Web Appendix G.

It turns out that the middle class has not only been able to secure a more or less constant rate of transfers from the rich; it has also been able (partly as a result) to defend its position in the overall income distribution. From 1985 to 2010, the change in the median-to-mean net income ratio is indistinguishable from zero across 19 advanced democracies for which we have comparable data.[31] This may seem surprising against evidence of the hollowing-out thesis, but

[31] We have comparable LIS and OECD data for Australia, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Israel, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Spain, Sweden, United Kingdom, and the United States. Across these 19 countries

those most affected are clerical jobs and manual jobs in manufacturing that are typically somewhat below the median. The middle class has generally been able to either acquire new skills or rely on government transfers and generous provision of public services (and insurance) to defend its living standard. This should not be taken to mean that the political upheaval over rising inequality and fear of middle-class decline is not real. To the contrary, it is precisely because of such upheaval that the middle class is able defend its position. This is what representative democracy enables.

At the same time, democracy does not guarantee the interests of *L*. In our public opinion results *L* exerts little independent influence over policies, although *L*'s preferences are fairly well-aligned with those of *M*. When they do diverge, *L* depends on participation in government. If we use the transfer rate to *L* as the dependent variable and run the same set of regressions as in Table 5, we find that *L*'s interest in more transfers is at least partly met under center-left governments (results are included in Web Appendix F). A one standard deviation increase in left (right) partisanship increases (decreases) the transfer rate to *L* by 2.5 percentage points (or .30 sd). Since left-leaning governments are almost always supported by center parties, and therefore includes middle-class interests, it is hard to disentangle the effect of middle-class preferences for public goods and social insurance from the political clout of the poor. But "who governs" clearly matters, and unlike *M*, *L* is often excluded from government power. We also note that top-end inequality and capital mobility are negatively related to *L*'s transfer rate, but the effects are imprecisely estimated. Surprisingly, bottom-end inequality has a positive effect on *L*'s transfer

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between 1985-2010, the average change in the median-to-mean net income ratio is -1.2 percent ranging from a decline of 6.8 percent in the UK to an increase of 6.5 percent in Spain.

rate, for which we have no explanation (it is predicted by neither the SDM nor the RDM).

4. Conclusion

The rise in income inequality over the past four decades has created concerns that democracy is being undermined by the rich, by footloose capital, or both – what we have labeled the Subversion of Democracy Model. These concerns have been backed by alarming recent evidence that public policies – especially those pertaining to taxes, social spending, and redistribution – are being dictated by the rich or by the rising structural power of capital. This paper does not assuage the concern over rising inequality, but it does challenge the idea that democratic governments are no longer responsive to majority demands, and in particular to those of the middle classes.

Using both survey evidence for individual policy preferences and macro evidence for transfer rates, we find consistently and unambiguously that policies are much better aligned with the distributive interests of the middle class than with those of either the poor or the rich. The level of spending is closely associated with the expressed preferences of the middle class, and the transfer rate (including the value of services) to the middle class has remained constant or even slightly risen during a period where top-end inequality grew notably. This is not consistent with a view that accords exceptional and rising influence to the rich. Indeed, since we measure transfer rates as a share of the net income of the rich, it is unambiguously the case that net transfers as a share of middle incomes have risen over time. This finding is unacknowledged in the current literature, but it is very much in accordance with a long-standing tradition in the field, which emphasizes the pivotal role of the middle class – what we have referred to as the Representative Democracy Model.

We believe our results gain credibility because we are able to replicate, and explain, the accumulated evidence suggesting that the rich exert outsize influence on public policies. This finding often follows when regressing changes in spending policies (or redistribution) on class preferences for changes in such policies. But this approach can be deeply misleading because it completely discounts preferred levels of spending across classes and will pick up differences in information about short-term fiscal policies. Such differences in information need not be large to cause havoc with the results, as illustrated by our simulations, and when preferred spending levels are used in the empirical analysis we find no evidence that the rich drive policies. Instead, the evidence that the middle class is influential is consistent across micro and macro data, and robust to alternative model specifications.

Our results are thus reassuring about the continued importance of democracy for distributive politics. But it is important to add that democratic politics does not guarantee that inequality is adequately addressed (see e.g., Kelly & Enns 2010). One of the misleading assumptions in much of the contemporary literature is that a working democracy will compensate for inequality, meaning that when we see rising inequality we should also expect to see more redistribution. That is not implied by majority rule. Distributive politics is multidimensional, and political alliances determine who benefit and who do not. Since the middle class and its representatives usually stand at the center of the political coalition game, middle-class interests are generally well-attended to. But that is not true of the poor or the lower middle classes, who depend on participation in government coalitions, on non-excludable public goods, on the insurance concerns of the middle class, or on the generosity of higher classes. The trend since the 1990s towards center-right governments has hurt the poor, and bifurcation of risks may have undermined insurance motives to support bottom-end redistribution. Precisely because

democratic governments are so important for redistribution, explaining partisanship and middle-class preferences remain important tasks for political economy.

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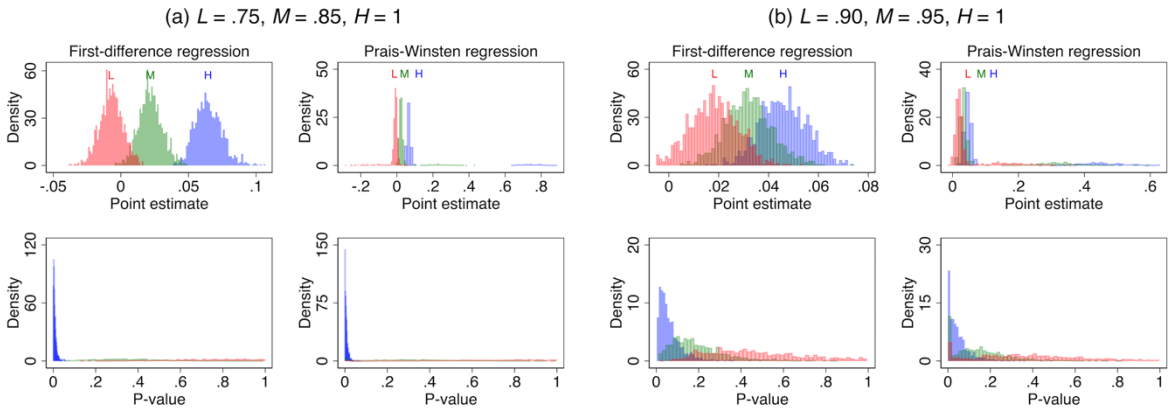
Web Appendix A: Simulating Political Representation

In Figure A1, we present results from 1000 trials of our simulation. Figure A1 (a) shows that with the preference structure assumed in the main text *H* has the strongest positive effect (significantly different from zero at p<0.05) in 99.2 pct. of the trials using first-difference (FD) regression, and that *H* is most influential in 99.5 pct. of the trials (p<0.05) using Prais-Winsten (PW) regression. In 99.1 and 91.3 pct. of the trials *H* is the *only* group that matters using FD and PW regressions, respectively. When differences in information are smaller, the estimates are less stable, because of increased multicollinearity, but the models still produce similar results. In Figure A1 (b), we have lowered the share of people with a household understanding to 10 pct. for *L* and 5 pct. for *M*. Using the FD and PW regressions, *H* comes out as most influential in 49.6 and 59 pct. of the trials (p<0.05), and in 48 and 41 pct. of the trials only *H matters.* In sum, the simulation demonstrates that it only requires a small share of people in *L* and *M* with a household understanding of fiscal policy to produce very consistent findings that *H* is most influential, even when the mean spending level (.3) perfectly reflects the mean preference of *M*.

Figure A1. 1000 Simulation Trials of Political Representation Assuming the Shares of People with Keynesian Preferences Are *L*=.75, *M*=.85, *H*=1 (a) and *L*=.90, *M*=.95, *H*=1 (b).



Note: Time is set to 200 points. The horizontal positions of *L*, *M*, and *H* reflect mean point estimates.

Web Appendix B: Alternative Model Specifications: The Micro Evidence

Models (1)-(4) in Table B1 show that the relative differences between the income-group coefficients persist when controlling for the state of the economy. Models (5)-(8) show that once we include economic controls preferences have no direct impact on over-time, within-country changes in spending, which comports with the assumptions we make in the simulation.

Table B1. The Effect of Absolute Support for Redistribution on the Level of Social Spending, by Income Group Including Economic Controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Social Spending as Percentage of GDP							
Low income	4.36+			2.45	-0.41			-1.00
	(2.51)			(5.12)	(1.77)			(2.50)
Middle income		4.52*		11.70*		0.23		1.62
		(2.03)		(4.63)		(1.83)		(2.83)
High income			-0.24	-10.12*			-0.68	-1.07
			(1.85)	(3.47)			(1.49)	(2.32)
Population 65+ (%)	1.08*	1.04*	1.18*	1.06*	0.75*	0.74*	0.75*	0.74*
	(0.13)	(0.13)	(0.13)	(0.12)	(0.08)	(0.08)	(0.08)	(0.08)
GDP pr. capita (ln)	1.79	1.86	1.25	1.77	2.64*	2.68*	2.70*	2.75*
	(1.49)	(1.48)	(1.49)	(1.42)	(1.04)	(1.03)	(1.03)	(1.05)
Unemployment	0.26*	0.24*	0.29*	0.28*	0.40*	0.40*	0.40*	0.40*
	(0.10)	(0.10)	(0.10)	(0.10)	(0.06)	(0.06)	(0.06)	(0.06)
Real GDP growth	-0.21*	-0.18+	-0.16+	-0.21*	-0.23*	-0.24*	-0.23*	-0.23*
	(0.10)	(0.09)	(0.08)	(0.09)	(0.05)	(0.05)	(0.05)	(0.05)
Country FE					✓	✓	✓	✓
Constant	-18.73	-18.55	-11.57	-19.76	-23.07*	-23.72*	-23.77*	-24.31*
	(15.82)	(15.60)	(15.64)	(15.03)	(10.81)	(10.61)	(10.58)	(11.10)
R-squared	0.78	0.79	0.81	0.77	0.95	0.95	0.95	0.95
N	140	140	140	140	140	140	140	140
N of countries	21	21	21	21	21	21	21	21

Note: * p<0.05, + p<0.1. Standard errors corrected for heteroscedasticity in parentheses. Data on the percentage of elderly are from the UN World Population Prospects 2017 database. GDP pr. capita is measured in 2010 US dollars at constant PPP using OECD data. Data on real GDP growth and unemployment are from Armingeon et al. (2018). To maintain a full sample, we have extrapolated nine values of the elderly population, all from 2015 to 2016.

Web Appendix C: Predicting Information by Income Quintile and Level of Education

The estimated is based on the Comparative Study of Electoral Systems (CSES). The period of coverage runs from 1996 through 2011, and we have data for the same 21 advanced democracies as in the ISSP surveys. We measure political information as the number of correct answers to three factual questions about national politics, and we report the results in Table C1. The table shows that information increases with income independently of education. The probabilities reported in the text are based on the results in model (1) of Table C1, since they correspond most directly to the income-based measures of influence used in the main analysis.

Table C1. Ordered Probit Results for the Effect of Income and Education on Information.

	(1)	(2)
	Political Information	
Income Q2	0.19*	0.17*
	(0.03)	(0.03)
Income Q3	0.31*	0.25*
	(0.05)	(0.05)
Income Q4	0.37*	0.27*
	(0.05)	(0.05)
Income Q5	0.51*	0.36*
	(0.07)	(0.06)
Incomplete secondary education		0.14*
		(0.05)
Complete secondary education		0.21*
		(0.05)
Postsecondary vocational or trade school degree		0.25*
		(0.09)
At least some university education		0.52*
		(0.06)
Cutpoint 1	-0.76*	-0.59*
	(0.07)	(0.07)
Cutpoint 2	0.15*	0.33*
	(0.06)	(0.07)
Cutpoint 3	0.89*	1.07*
	(0.07)	(0.09)
Pseudo R-squared	0.01	0.02
N	81,730	80,164

Note: * p<0.05, + p<0.1. Standard errors clustered by country in parentheses. Income Q1 and primary education (or less) are categories omitted in the estimation.

Web Appendix D: 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 $y_L^{net} = y_L + t \cdot (y_M + y_H - \tfrac{1}{2} \cdot \alpha \cdot t \cdot (y_M + y_H))$, which implies a tax rate of $t_L^{M*} = t_L^{H*} = \frac{1}{\alpha}$, and a net income of $y_L^{net*} = y_L + \tfrac{1}{2} \cdot \frac{y_M + y_H}{\alpha}$. 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*: $\tau_L^{M,H*} = \frac{T_L}{y_M^{net} + y_H^{net}} = \frac{\tfrac{1}{2} \cdot \frac{y_M + y_H}{\alpha}}{(y_H + y_M) \cdot \left(1 - \frac{3}{2\alpha}\right)} = \frac{1}{2\alpha - 3}$.

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 $P_j = \{t_L^H, t_M^H, t_L^M\}$, 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*.[32] 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:[33]

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

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

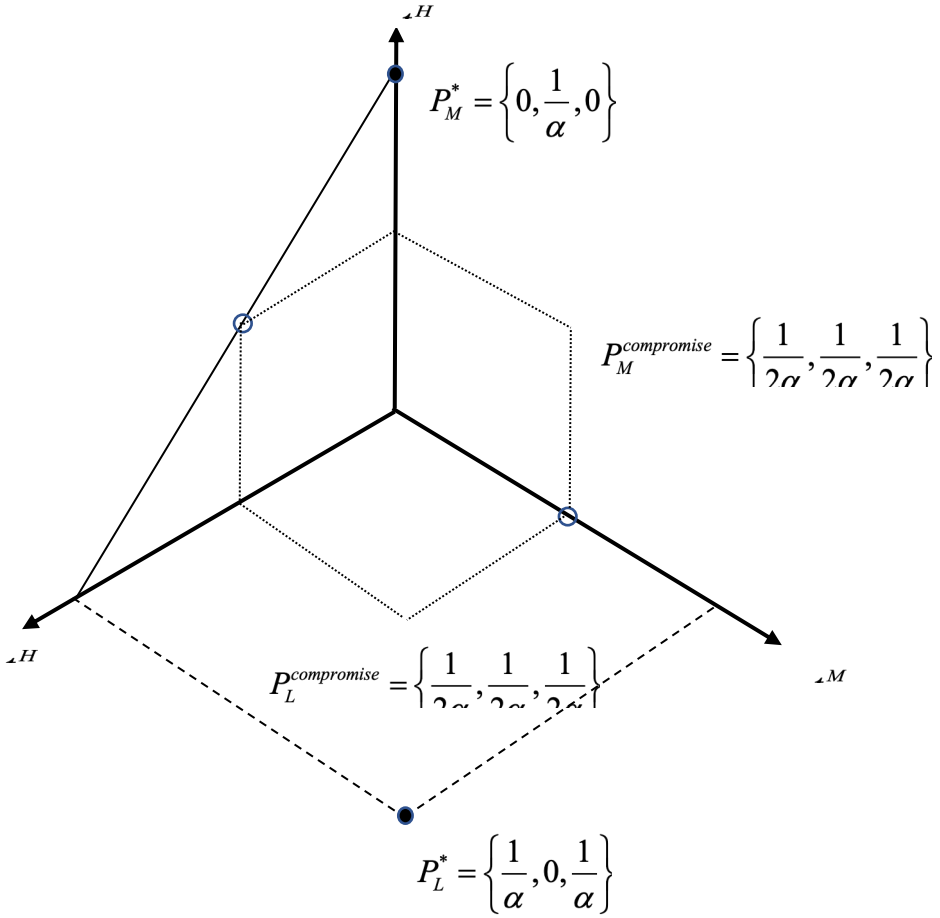
[33] Admittedly, *L* may have bargaining leverage over *M* either because it can offer *M* concessions in other policy areas, or because *H* and *M* cannot fully exclude *L* from sharing the spending in an *MH* coalition (as in Iversen and Soskice 2006). Either way, it would reduce *M*'s transfer rate.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

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 D1. The Taxation Policy Space (Example: *LM* Coalition with 50-50 Split of Policy Differences).



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

Web Appendix E: Allocating the Value of Services and the Cost of Taxation to Each Income Group

As explained in the main text, we include the value of services in the net "extended" income (disposable cash income + the net (after tax) value of services) of the income groups using estimates computed from the OECD/EU database on the distributional impact of in-kind services (OECD 2011, ch. 8). The estimates include the value of education, health care, social housing, elderly care, and early childhood education and care, and are measured as a share of disposable income. For a detailed description of these data, see Verbist, Förster, and Vaalavuo (2012).

Before adding the value of services to the disposable income of the income groups, we made the following adjustments. First, because of missing data for Switzerland we assigned it the average value of countries belonging to the conservative welfare state cluster (Germany, Austria, Italy, and France). Second, country-specific estimates are only publicly available for the overall population. We therefore adjusted the value of services to reflect our working household sample by the ratio of the OECD average value for the working age population (18-65 years) to the overall population, lowering the value by roughly 20 percent in all countries (using estimates from Verbist, Förster, and Vaalavuo 2012, 33-34). Third, the OECD/EU estimates of the value of services are only calculated for 2007 and not all countries have data for 2007 in the LIS database. We therefore matched the OECD/EU estimates to the year closest to 2007 for Australia (2008), Belgium (1997), and Sweden (2005). To get time-varying estimates, we adopted a production cost approach and imputed the value of services in years other than the base-year (2007 or the year closest to it) assuming that the ratio of the value of services/transfers moves proportional to

the ratio of spending on services/transfers.[34] Specifically, we multiplied the country-specific estimates of the value of services as a share of disposable income by total disposable income and divided by total transfers received. Then, this ratio of the value of services/transfers from the base-year was multiplied by the ratio of spending on services/transfers indexed to 1 in the base-year, using OECD data on spending on services and transfers. Finally, we multiplied the ratio of the value of services/transfers by total transfers received to get the total gross value of services for each country-year.

The total gross value of services is distributed to each income group's cash disposable income using an allocation key computed from the OECD/EU database on the distributional impact of in-kind services.[35] The allocation key is only calculated for 2007 but the distributive impact of services is fairly stable over time and seems to be driven almost entirely by changes in level of spending (Verbist, Förster, and Vaalavuo 2012, 60). We therefore assign the country and quintile specific values from 2007 to all years.[36] The quintile specific values are recalculated to fit our deciles using the ratio of the value of services for the first quintile (q1) to the value of services for q1+q2 as a weight for the first decile (d1) and the inverse for d2 and so on. At the top, we assign an equal weight of the value of q5 to d9 and d10. This ensures that services also have a

[34] This is a standard approach to estimate the value of services. The OECD/EU estimates are also calculated using a production cost approach with the exception of social housing, where the value is calculated from the prevailing market rents (Verbist, Förster, and Vaalavuo 2012, 13).

[35] We thank Verbist, Förster, and Vaalavuo (2012) for providing us with these data.

[36] Again, data are missing for Switzerland, which is assigned the mean of countries belonging to the conservative welfare state cluster (Germany, Austria, Italy, and France).

redistributive effect between deciles within a quintile and that it becomes less redistributive towards the upper end of the income distribution, just as the quintile-specific estimates suggest (see Verbist, Förster, and Vaalavuo 2012, 35).

Finally, we need to allocate the costs of transfers and services to the income deciles' disposable income. The costs are paid for by tax revenues that primarily come from taxation of income, capital, property and wealth, and consumption. Income taxes are accounted for in the LIS data. We treat business taxes as neutral with respect to the income classes and simply add it to government revenues. Remaining costs are covered by (i) property and wealth taxes, which are paid almost exclusively by households in the absolute top of the income distribution and we therefore add it to the tax burden of the top income decile, and (ii) consumption taxes, which we assume are paid in proportion to each income decile's consumption share and allocate accordingly.

We rely on OECD data to include revenues from taxation of capital, and property and wealth (OECD Revenue Statistics Database). Data on consumption shares are from the Eurostat Household Budget Survey for EU member states (and Norway) and from national statistics bureaus for non-EU countries (Australia, Canada, Iceland, Switzerland, and the United States). In most countries consumption shares are quite stable over time but data are not available for every country-year. We linearly inter- and extrapolate the series to maintain a full sample. In total, we extrapolate five observations, at most nine years back in time (UK:1988→1979) and three years into the future (Norway 2010→2013). Our results do not change when excluding the extrapolated observations.

Web Appendix F: Alternative Model Specifications: The Macro Evidence

Table F1. Determinants of Net Transfers to *M* as a Percentage of *H*'s Net Extended Income, Including Extra Controls

	(1)	(2)	(3)	(4)
	Transfer rate *M* (%)		Transfer rate *M* incl. insurance (%)	
P90/P50	2.09	3.19	2.01	3.40
	(3.30)	(4.66)	(2.51)	(3.59)
P50/P10	1.61	1.32	2.95*	2.70*
	(1.03)	(0.88)	(0.92)	(0.88)
Trade openness (ln)	3.18	1.45	2.82	1.55
	(2.61)	(2.19)	(2.55)	(2.38)
Capital market openness	1.13	2.72	0.81	2.37
	(2.99)	(2.24)	(2.38)	(2.06)
Government partisanship (right)	-5.07*	-3.92*	-5.46*	-4.50*
	(1.56)	(1.14)	(1.76)	(1.52)
Labor force participation	-0.23*	-0.07	-0.33*	-0.19*
	(0.07)	(0.07)	(0.07)	(0.09)
Real GDP growth	-0.21	-0.09	-0.28*	-0.19+
	(0.13)	(0.09)	(0.12)	(0.10)
Population 65+ (%)	-0.00	-0.38	0.06	-0.24
	(0.48)	(0.51)	(0.46)	(0.46)
Voter turnout	0.04	0.11+	0.09*	0.14*
	(0.04)	(0.06)	(0.04)	(0.06)
Union density	0.03	0.03	0.07	0.06
	(0.10)	(0.06)	(0.09)	(0.07)
Bargaining Coverage (adjusted)	-0.01	-0.06	-0.03	-0.07
	(0.07)	(0.06)	(0.06)	(0.06)
Trend		-0.48*		-0.42+
		(0.22)		(0.21)
$Trend^2$		0.01*		0.01+
		(0.00)		(0.00)
Country FE	✓	✓	✓	✓
Constant	-4.72	-4.57	-2.36	-3.96
	(10.34)	(14.48)	(10.12)	(12.28)
R-squared	0.42	0.53	0.55	0.61
N	104	104	104	104
N of countries	18	18	18	18

Note: * p<0.05, + p<0.1. Standard errors clustered by country in parentheses.

Table F2. Determinants of Net Transfers to *M* as a Percentage of *H*'s Net Extended Income, Random Effects Models

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Transfer rate *M* (%)				Transfer rate *M* incl. insurance (%)			
P90/P50	5.02+	6.21+	4.95	4.38	4.42	6.46*	5.10+	5.40+
	(2.73)	(3.63)	(3.01)	(4.06)	(2.73)	(2.85)	(2.88)	(3.13)
P50/P10	1.67*	1.36*	1.91*	1.69*	2.84*	2.64*	3.18*	2.98*
	(0.48)	(0.45)	(0.59)	(0.60)	(0.43)	(0.44)	(0.50)	(0.55)
Trade openness (ln)	1.39	1.48	2.56*	1.29	1.22	1.61+	1.93	1.21
	(1.04)	(1.17)	(1.25)	(1.56)	(0.82)	(0.96)	(1.18)	(1.32)
Capital market openness	-2.96+	0.01	-1.50	1.41	-3.99*	-1.41	-2.34	0.91
	(1.61)	(2.11)	(2.17)	(1.99)	(2.00)	(2.99)	(1.94)	(2.35)
Government partisanship (right)	-3.09*	-2.92*	-4.12*	-3.52*	-3.12*	-3.19*	-4.11*	-3.61*
	(1.21)	(1.04)	(0.98)	(0.71)	(1.25)	(1.14)	(1.05)	(0.88)
Labor force participation	-0.10	-0.03	-0.08	-0.04	-0.18*	-0.10	-0.13	-0.08
	(0.07)	(0.08)	(0.08)	(0.08)	(0.07)	(0.07)	(0.08)	(0.07)
Real GDP growth			-0.15	-0.06			-0.19	-0.14
			(0.14)	(0.11)			(0.13)	(0.12)
Population 65+ (%)			-0.44+	-0.58+			-0.50*	-0.56*
			(0.24)	(0.32)			(0.19)	(0.24)
Voter turnout			-0.02	0.03			0.01	0.06
			(0.03)	(0.05)			(0.03)	(0.04)
Mod. PR (AU)			-1.70	-3.32			-1.90	-2.85
			(1.69)	(2.05)			(1.93)	(1.95)
PR			-1.35	-0.93			-0.48	-0.14
			(1.91)	(1.76)			(1.89)	(1.64)
Trend		-0.35*		-0.38*		-0.31*		-0.37*
		(0.13)		(0.19)		(0.13)		(0.18)
Trend^2		0.01*		0.01*		0.01+		0.01*
		(0.00)		(0.00)		(0.00)		(0.00)
Constant	-6.43	-12.21	-5.59	-3.04	1.14	-8.44	-2.29	-4.89
	(9.34)	(12.87)	(9.71)	(14.29)	(8.47)	(10.12)	(8.98)	(10.86)
N	110	110	107	107	110	110	107	107
N of countries	18	18	18	18	18	18	18	18

Note: * p<0.05, + p<0.1. Standard errors clustered by country in parentheses.

Table F3. Determinants of Net Transfers to *L* as a Percentage of *H*'s Net Extended Income

	(1)	(2)	(3)	(4)
	Transfer rate *L* (%)			
P90/P50	-6.30	-6.45	-6.17	-8.63
	(5.97)	(7.25)	(6.44)	(7.60)
P50/P10	5.01*	4.55*	5.61*	5.38*
	(0.77)	(0.95)	(0.92)	(1.03)
Trade openness (ln)	-5.08	-7.68+	-3.15	-6.32
	(3.48)	(4.24)	(4.39)	(3.77)
Capital market openness	-5.89	-4.34	-1.51	-1.66
	(3.83)	(5.72)	(3.92)	(4.01)
Government partisanship (right)	-7.49*	-6.48*	-9.27*	-8.08*
	(2.28)	(2.10)	(3.24)	(2.48)
Labor force participation	-0.15	-0.11	-0.15	-0.03
	(0.10)	(0.20)	(0.15)	(0.20)
Real GDP growth			-0.31	-0.16
			(0.19)	(0.21)
Population 65+ (%)			-0.04	-0.56
			(0.62)	(0.55)
Voter turnout			0.23*	0.31*
			(0.10)	(0.12)
Union density			-0.01	0.09
			(0.10)	(0.10)
Bargaining Coverage (adjusted)			0.07	-0.00
			(0.06)	(0.07)
Trend		-0.25		-0.38
		(0.31)		(0.34)
Trend^2		0.01		0.01
		(0.01)		(0.01)
Country FE	✓	✓	✓	✓
Constant	60.04*	70.05*	26.99+	40.39+
	(9.86)	(27.93)	(15.09)	(19.66)
R-squared	0.37	0.40	0.46	0.52
N	110	110	104	104
N of countries	18	18	18	18

Note: * p<0.05, + p<0.1. Standard errors clustered by country in parentheses.

Table F4. Determinants of Net Transfers to *M* as a Percentage of *H*'s Net Extended Income, Weighed by .5 of *L*'s Transfer Rate

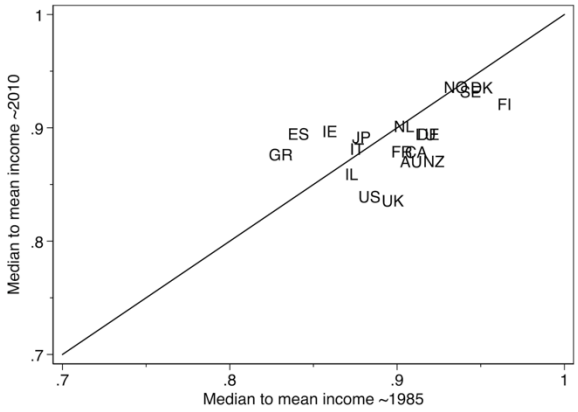
	(1)	(2)	(3)	(4)
	Transfer rate *M* with .5 weight to *L*'s Transfer Rate (%)			
P90/P50	-2.53	-2.01	-1.81	-2.65
	(4.52)	(5.55)	(4.53)	(5.65)
P50/P10	3.42*	2.95*	3.75*	3.39*
	(0.60)	(0.70)	(0.99)	(0.89)
Trade openness (ln)	-1.58	-3.88	-1.79	-3.41
	(2.57)	(3.42)	(3.22)	(2.41)
Capital market openness	-3.31	-1.62	-2.47	-0.39
	(2.26)	(3.67)	(3.10)	(3.72)
Government partisanship (right)	-6.05*	-5.08*	-7.37*	-5.99*
	(1.66)	(1.45)	(2.18)	(1.67)
Labor force participation	-0.18*	-0.12	-0.24*	-0.06
	(0.08)	(0.14)	(0.11)	(0.14)
Population 65+ (%)			0.16	-0.43
			(0.46)	(0.47)
Voter turnout			0.14+	0.21*
			(0.07)	(0.09)
Union density			-0.03	0.04
			(0.10)	(0.06)
Bargaining Coverage (adjusted)			0.04	-0.03
			(0.06)	(0.06)
Trend		-0.27		-0.47+
		(0.24)		(0.27)
Trend^2		0.01		0.01*
		(0.00)		(0.01)
Country FE	✓	✓	✓	✓
Constant	32.09*	38.62+	20.82	22.60
	(7.91)	(22.04)	(15.41)	(18.40)
R-squared	0.37	0.41	0.42	0.53
N	110	110	104	104
N of countries	18	18	18	18

Note: * p<0.05, + p<0.1. Standard errors clustered by country in parentheses.

Web Appendix G: Median to Mean Net Incomes

Figure G1 displays median-to-mean net income ratios for 19 countries around 1985 and 2010. The figure shows that the median net income relative to the mean net income has been stable over this period of time (the mean change is not significantly different from zero). There is some modest variance around the 45-degree line: Spain, Greece, and Ireland have all seen increases of 4.4-6.5 percent, while Australia, Canada, Finland, New Zealand, the United Kingdom, and the United States have all experienced declines of 3.5-6.8 percent. In all cases the relative drop (about 4.8 percent on average) is outpaced by the rise in median (real) incomes (about 34 percent on average).

Figure G1. The Median Net Income Relative to Mean Net Income, 1985 – 2010.



Note: The measures for AU, CA, DK, FI, FR, DE, IE, IL, IT, LU, NL, NO, ES, UK, and the US are the disposable income of the median relative to the mean (working households) from the LIS database (authors' calculations). For GR, JP, NZ, and SE the measures are the disposable income of the median relative to the mean (working-age population) from the OECD income distribution database. The start and end points of the countries are; AU: 1985-2010, CA: 1987-2010, DK: 1987-2010, DE: 1984-2010, ES: 1985-2010, FI: 1987-2010, FR: 1984-2010, GR: 1986-2010, IE: 1987-2010, IL: 1986-2010, IT:1986-2010, JP: 1985-2009, LU: 1985-2010, NL: 1983-2010, NO: 1986-2010 NZ: 1985-2009, SE: 1983-2010, UK: 1986-2010, US: 1986-2010.