Democratic Compensation or Winner-Take-All Domination? The Distributional Effects of Tax-and-Transfer Policies in 21ˢᵗ Century Europe

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Abstract

Researchers are raising alarm that democratic institutions may be subverted by the power of money. One part of the literature uses macro-level data to argue that governments do not compensate low-income groups for rising inequality; another argues that this is because redistributive policies are heavily biased toward the preferences of the affluent. We present an original approach to examine political representation and reassess these conclusions. Drawing on microsimulations, we analyze the distributional effects of changes to tax-and-transfer policies in 28 European countries since the mid-2000s. We find little evidence that tax-and-transfer reforms primarily serve the interests of the affluent. To the contrary, the analysis shows that in most countries, governments have implemented progressive policy changes, benefiting low-income groups, particularly when market inequality is high and left parties are in power. These results suggest that democratic institutions are more resilient to rising inequality than much recent work suggests.

Introduction

Market income inequality has risen in affluent democracies since the 1980s, with most of the gains of growth going to well-educated, highly skilled individuals at the top of the income distribution (Atkinson, Piketty and Saez 2011). An increasingly popular interpretation of this development is that not only has the economy become increasingly winner-take-all, but so has politics. Macro-level studies on redistribution argue that governments no longer respond to rising inequality; instead, they implement policies that actually exacerbate it (Hacker and Pierson 2010; Lupu and Pontusson 2023). A related, survey-based literature argues that this outcome is a consequence of affluent groups exerting an outsize influence on public policies (Bartels 2008; Gilens 2012). While this body of scholarship originates from the U.S., a fast-growing comparative literature extends the conclusions to Europe (Elkjær and Klitgaard 2021; Mathisen 2023; Persson and Sundell 2023). Supposedly, the winner-take-all domination of democratic politics is a global phenomenon.

Although one can certainly find examples that fit the narrative, there is reason to be skeptical of these arguments. First, broad measures of redistribution, as used in most existing work, are strongly influenced by structural economic changes, making it difficult to isolate the impact of government policy. Second, while income inequality has been rising almost everywhere, there is a growing recognition that the U.S. is an outlier among affluent democracies, rendering a direct extension of the U.S. evidence to Europe problematic (Elkjær and Iversen 2023; Hacker, Hertel-Fernandez, Pierson and Thelen 2021; Soskice 2021). Finally, while studies of unequal representation continue to produce disheartening conclusions about democracy, it is striking how little they say about the policy consequences. Given the apparent influence of the affluent, it would be natural to think that redistributive policies have become less generous over time. Yet in Bartels (2017) and Peters and Ensink (2015) the outsized influence of the affluent coincides with increased redistributive spending, and in 14 of 20 countries in Schakel, Burgoon and Hakhverdian (2020), with increased generosity of welfare programs. The stronger opinion-policy link for more affluent groups, therefore, does

not appear to be directly associated with less redistributive policies.

In this paper, we develop a theoretical alternative to the winner-take-all domination model, which we refer to as the compensatory democracy model. Building on an established literature on inequality, redistribution, and partisanship under democracy (Esping-Andersen 1990; Huber and Stephens 2001; Iversen and Soskice 2006; Meltzer and Richard 1981), the model posits that the electoral incentives of governments to represent majority interests remain strong in the 21st century. As a result, governments actively use the levers of the tax-and-transfer system to compensate lower-income groups for rising market inequality. The model further predicts that the partisanship of the government remains of crucial importance, with the compensation of lower-income groups being particularly strong under left governments.

Empirically, we examine the competing predictions of the two theoretical models using an original, microsimulation approach. This approach allows us to separate the distributional effects of policy changes from those of structural economic changes, thus overcoming significant limitations of previous studies and giving us a unique opportunity to study whose interests governments actually seek to represent. Specifically, we leverage the European Union's (EU) tax-benefit microsimulation model, EUROMOD, to estimate the distributional effects of changes to tax-and-transfer policies in all 27 EU member states and the United Kingdom since the mid-2000s. The model takes household income data as input and simulates disposable income under different reform scenarios, while keeping economic and demographic changes constant. By comparing the actual reform scenario to a counterfactual no-reform scenario, the model estimates the pure, direct effects of policy changes on the disposable income of different income groups.

Consistent with the compensatory democracy model, the results show that in the last two decades governments in most European countries have implemented progressive changes to their tax-and-transfer system. This result appears to be driven, at least partly, by left governments adjusting tax-and-transfer policies to compensate lower-income groups for rising

market inequality. Beyond responses to market inequality, we also observe a strong direct effect of the partisanship of the government, with left governments, again, being particularly responsive to the interests of the poor. Hungary is an exception, however. Coinciding with the gradual erosion of democratic institutions in the country, policy changes have been strictly regressive, with only households at the top experiencing positive policy-induced income growth.

The paper contributes to several disparate strands of literature on democracy, inequality, redistribution, political representation, and partisanship. First, we contribute to the literature on unequal representation (Bartels 2008; Gilens 2012; Lupu and Pontusson 2023) by introducing a new approach to evaluate which groups governments seek to represent. Instead of relying on (often noisy) measures of subgroup preferences combined with some macro indicator of public policy, or on broad measures of redistribution, such as the change in the Gini coefficient from before to after taxes and transfers, we use microsimulations, which allow for precise measurement of the distributional effects of policies isolated from macro changes in the economy. Second, the results have important implications for our understanding of the political economy of 21$^{\text{st}}$ century capitalist societies, suggesting that in the face of rising inequality European governments actively use the tax-and-transfer system to help ensure that economic growth is broadly shared. This stands in stark contrast to the popular narrative that, also in Europe, governments increasingly ignore the concerns of low and middle-income individuals (Bartels 2017; Lupu and Pontusson 2023; Mathisen 2023; Schakel, Burgoon and Hakhverdian 2020), but it is consistent with recent evidence on the continued redistributive capacity of European welfare states (Blanchet, Chancel and Gethin 2022; Elkjær and Iversen 2023). More broadly, the results suggest that democratic institutions are more resilient to rising inequality than acknowledged by much previous research. Finally, the results have implications for the literature on whether the partisanship of the government remains consequential in the age of rising inequality and globalization (Huber and Stephens 2001; Iversen and Soskice 2019; Pierson 1996; Piketty 2014; Rodrik 2011; Streeck 2016), as well

as for that on how left parties respond to inequality (e.g. Barth, Finseraas and Moene 2015; Pontusson and Rueda 2010; Tavits and Potter 2015), showing that partisanship remains a strong determinant of the distributional profile of policy changes.

We proceed as follows. First, we discuss how our approach to studying political representation compares to other conceptions of representation. We then present two competing theoretical models on the interrelationship between democracy, inequality, and redistribution, on the basis of which we extract a set of distinct expectations. After describing our methodological approach, we then test these expectations against one another using simulated evidence on the distributional effects of tax-and transfer reforms. We conclude with a discussion of the results.

What Constitutes Political Representation?

Two approaches dominate the study of political representation. One uses public-opinion data to investigate the link between policy preferences and outcomes (Bartels 2008; Gilens 2012); another uses macro-level data to examine how redistributive outcomes serve the interests of different economic classes (Elkjær and Iversen 2023; Huber, Huo and Stephens 2019; Lupu and Pontusson 2023; Pontusson and Weisstanner 2018). Our approach differs from both these approaches, since we rely neither on opinion survey data nor on broad measures of redistribution. Instead, we use microsimulations, fed with household-level income data, to estimate the direct distributional effects of changes to tax-and-transfer policies, isolated from structural economic changes. This allows us to examine directly who benefits from policy reforms, offering an unprecedented opportunity to test the competing interpretations of the political economy of 21$^{\text{st}}$ century capitalist societies.

Because we assess representation by examining whose interests policy changes serve, however, our approach is rooted in the same tradition of political representation as the macro-level literature. This tradition is commonly known as 'trustee' or 'selection-based' representation (Mansbridge 2011; Rehfeld 2009). The basic notion is that voters vote for

representatives who share their core values, beliefs, and ideological orientation. Because the voter and her representative share similar underlying political dispositions, representatives are relatively autonomous and can rely on their own expertise and experience to pursue policies that promote their voters' interests. This view of representation contrasts with that of the public opinion literature, which is rooted in the 'mandate' model. The mandate model assumes the preeminence of policy preferences, with voters functioning as principals, who give representatives a mandate to implement certain policies (Mansbridge 2003).

While these different views of representation put primary emphasis on either citizens' preferences or interests, Pitkin (1967) argues that political representation is best understood as a mix of the two. Mandate representation does not qualify as substantive representation because the kind of "transmission belt" representation that it envisages would directly implement the policy wishes of the people (Schwartz 1988), leaving little room for representatives to consult experts or rely on their own expertise to optimize policy responses to pressing problems. In its pure form, trustee representation cannot be regarded as substantive representation either. This is because representatives act wholly independently of the wishes of the people; the people thereby do not take part in defining what its interests are.

For empirical studies, it is hard to appreciate the complexity that political representation is a gray zone between representing preferences and interests (Sabl 2015). Depending on the type of enquiry, studies therefore make certain assumptions (often implicitly) for their results to qualify as representation. In its strongest form, the public opinion literature assumes a general equivalence between preferences and interests (e.g., Gilens and Page 2014); in the weaker form, this assumption is made only for a subset of policies.

Although the 'equivalence assumption' may initially seem harmless, it is in many cases a strong assumption. Low levels of information or misinformation can cause a dealignment between preferences and interests—defined as the counterfactual preference that an individual would have expressed under full information about all available alternatives and their consequences (Dahl 1998). Indeed, empirical studies demonstrate that information has strong

effects on political behavior and preferences (Althaus 2003; Bartels 1996). Pitkin (1967, 140) for that matter is not in doubt: "[t]he fact is that,..., the represented have no will on most issues, and the duty of the representative is to do what is best for them, not what they latently want." Not even utilitarians, like Jeremy Bentham or John Stuart Mill, fully endorsed the view that interests are subjective and equivalent to stated preferences (Pitkin 1967, ch. 9).

The macro-level literature makes a different assumption. Since this literature assesses (interest) representation without probing preferences directly, it assumes that people generally prefer outcomes that maximize their financial gain. This assumption is consistent with a large literature that argues that, although people sometimes have other motivations (e.g. Rueda and Stegmueller 2019), self-interest is a strong individual-level driver of redistributive preferences (Ansell 2014; Iversen and Soskice 2001; Meltzer and Richard 1981).

A significant limitation of macro studies, however, is their reliance on broad indicators of redistribution, such as the difference between the pre- and post-fisc Gini coefficient. Such measures are strongly affected by various structural economic changes relating to demography, employment, the business cycle, and so on. Any conclusions on changes in governments' redistributive effort drawn from such indicators are thus at risk of conflating the effects of policy changes with those of structural economic changes.

Because we use microsimulations to examine directly who benefits economically from policy reforms, we are able to distinguish between the effects of policy changes and structural economic changes. Like other macro studies, however, we must too assume that people prefer the government to implement policies that raise their after-tax-and-transfer incomes. We do not dispute that people sometimes are driven by other motives, but research suggests that, first and foremost, people care about their own personal finances (Rueda 2018). We consequently view the material self-interest assumption, which we make, as less problematic than that of a general equivalence between preferences, as expressed in surveys, and interests, as formulated under full information—as made in the public opinion literature.

Competing Models of Democracy, Inequality, and Redistribution

Our two competing theoretical models both interpret recent decades' increases in market inequality as the result of complex interactions between major global structural economic changes and active political decisions. On the economic side, globalization and technological change are perhaps the two most important drivers. Globalization puts pressure on low-skilled workers in advanced economies through offshoring of jobs, while creating global markets for successful multinational companies (Borjas, Freeman, Katz, DiNardo and Abowd 1997; Wood 1995). Technological change further contributes to widening the income distribution, since it enhances the productivity of highly skilled workers while facilitating the automation of jobs with a high share of routine tasks (Acemoglu and Autor 2011; Autor, Levy and Murnane 2003; Goldin and Katz 2009; Goos and Manning 2007). On the political side, and partly in response to these changes, governments have enacted a range of structural, liberalizing reforms of labor and financial markets. While these reforms implemented what was widely perceived to be the optimal policies to create stable economic growth in the post-Fordist knowledge economy (Hall 1989), they also contributed to rising inequality (Card 2001; Erturk, Froud, Johal, Leaver and Williams 2007; Tomaskovic-Devey and Lin 2011; Witko 2015; Zalewski and Whalen 2010).

But whereas the two models agree that these and other such changes have driven up market inequality, they differ fundamentally in how they interpret the political and democratic consequences. The winner-take-all domination model contends that rising market inequality has increased the political power of the affluent to the point where tax and transfer reforms have turned regressive. The compensatory democracy model, by contrast, argues that governments remain responsive to majority demands for redistribution and have compensated low and middle-income groups for rising market inequality. In the following, we outline the micrologic and key implications of each theoretical model before we turn to an empirical test.

Winner-Take-All Domination

The winner-take-all domination model argues that a vicious cycle exists between economic inequality and political inequality. Rising economic inequality widens disparities between income groups in political participation, descriptive representation, interest group representation, campaign spending, lobbying, and other such factors, with the cumulative effect that the affluent gain political power (see e.g., Elsässer and Schäfer 2023). The affluent use this increased power to influence economic policies in their favor, further exacerbating income disparities. Accordingly, the winners of the economy—generally, well-educated, highly skilled individuals at the top of the income distribution—are seen as having captured not only a rising share of market incomes, but also the political system. While this argument was developed to explain U.S. politics (Bartels 2008; Gilens 2012; Gilens and Page 2014; Hacker and Pierson 2010), comparative work directly extends it to Europe (Bartels 2017; Lupu and Pontusson 2023; Mathisen 2023; Persson and Sundell 2023).

A complementary argument is that deepening globalization has increased the structural power of capital to the extent that government action in the domain of redistribution is wholly symbolic. If taxes and transfers are too high, businesses and high-income individuals will flee, effectively rendering governments unable to tax and redistribute. In the stronger formulation of the argument, countries compete on attracting investments, leading to tax competition and a 'race to the bottom' of ever-lower business and high-income taxes (Piketty 2014; Rodrik 2011; Streeck 2016). Not only does this make governments incapable of compensating the poor, but it also induces them to implement regressive tax-and-transfer reforms that exacerbate market-based inequalities.

A natural extension of these arguments is that the partisanship of the government should be largely inconsequential for which policies are implemented. Because the political system is subverted by the rising powers of the affluent, both left and right parties predominantly represent the interests of higher-income groups. For instance, in the U.S., Gilens (2012) argues that while differences exist between Republicans and Democrats, both overrepresent

the preferences of the affluent (but see Lax, Phillips and Zelizer 2019). Similarly, in Northern Europe, Mathisen, Schakel, Hense, Elsässer, Persson and Pontusson (2022) argue that there is a strong affluence bias, even when left parties are in government.

Compensatory Democracy

In our alternative interpretation, we acknowledge that governments have partly facilitated the increases in market inequality, but we challenge the argument that this has fundamentally changed the politics of redistribution by creating a vicious cycle between rising levels of inequality and increasingly regressive tax-and-transfer reforms. Rather, we argue that governments, especially those on the left, compensate lower-income groups for rising market inequality.

The theoretical foundation of our argument rests on standard models of inequality, redistribution, and partisanship under democracy (Iversen and Soskice 2006; Meltzer and Richard 1981; Moene and Wallerstein 2001). In these models, the political power of economic classes is unaffected by the level of inequality, and policies are always decided by majority rule procedures. Of course, these models rely on simplistic assumptions about the effects of inequality on incentives to mobilize and actively participate in politics, and we acknowledge that inequality might depress political participation, especially among the poor (see e.g., Schlozman, Verba and Brady 2012; Solt 2008). But in our view, it is unlikely that such forces are so strong that they will completely undermine the electoral incentives of parties and governments to be responsive to majority demands.

Our starting point is the canonical Meltzer-Richard (MR) model (1981). The MR model features a proportional tax rate, while government revenues are redistributed as equal lump-sums to voters. In this setup voters with an above-mean income prefer zero taxation, while voters with an income below the mean support a high tax rate that maximizes redistribution. The tax rate is chosen by majority rule procedures, which entails that the median-income voter is decisive. The key implication of the model is that the optimal tax rate is a function

of the skew in the income distribution, causing the median voter to choose a higher tax rate as market inequality goes up. In the MR model, lower-income groups are consequently compensated when market inequality rises.

One issue with the MR model is its limited ability to explain why, in a world in which taxes and transfers can be targeted to specific groups, the median voter will ever support transfers to the poor for purposes of redistribution (Iversen and Goplerud 2018). Iversen and Soskice (2006) address the problem of targeted taxes and transfers by developing a model of redistribution that does not feature a median voter. Instead, society is conceived of as consisting of three equally sized groups—the poor, middle, and rich. Each group wants to maximize their net income, but because no group commands a majority, redistribution to and from the different classes will reflect some bargaining outcome between the groups. The middle class is in a favorable position because both the poor and the rich stand to gain more from forming a coalition with the middle than with each other. A key result of the Iversen-Soskice model is that low-middle income coalitions, represented by center-left governments, will enforce more redistribution than middle-high income coalitions, represented by center-right governments. This implies not only that tax-and-transfer reforms should be more beneficial to the poor when left parties are in government, but also that the compensatory responses to rising inequality should be stronger. This is because left parties seek to protect the position of low-income individuals in the net income distribution. In addition, they are ideologically more averse to inequality than right parties.

It is, of course, true that left parties receive more support from middle-class voters today compared to four decades ago, yet they continue to pursue social policies that serve low-income interests (Gingrich and Häusermann 2015). Left parties also tend to run on political platforms that promote more generous welfare policies when market inequality is high, especially when voter turnout is also high (Pontusson and Rueda 2010; Tavits and Potter 2015, but see Barth, Finseraas and Moene 2015). Any impact of government partisanship also presupposes that governments' ability to tax and redistribute is not impeded by increas-

ing globalization and capital mobility. Iversen and Soskice (2019) provide arguments for why this is the case, emphasizing that multinational companies remain dependent on skilled workers, who are located in urban areas in advanced capitalist democracies. This implies that capital is much more grounded than acknowledged by the winner-take-all domination model, and in turn, that governments continue to have wide scope to tax and redistribute. In sum, there is reason to expect that the partisanship of the government remains important for redistributive policies (see also Beramendi, Häusermann, Kitschelt and Kriesi 2015).

In addition to bottom-end redistribution rising under center-left governments, the poor might also benefit from risk-averse middle-income voters seeking social insurance. If middle-income voters are concerned about downward mobility, they have good reasons to want to target some transfers to the poor as an insurance against bad luck—poor health, injuries, accidents, unemployment, poverty, and so on—which is associated with significant income losses. The rich on the other hand face much lower risk than the middle (Moene and Wallerstein 2001; Rehm 2016), and generally prefer (cheaper) private options when such are available (Busemeyer and Iversen 2020). The literature on social risk has established that the willingness of middle-income individuals to use the tax-and-transfer system to provide social insurance increases with the risk of downward mobility and the distance to the poor (Iversen and Soskice 2001; Moene and Wallerstein 2001; Rehm 2016). This implies that we might observe some compensation of low-income groups even under center-right governments.

While there is strong empirical evidence for an impact of government partisanship (Elkjær and Iversen 2020; Garrett 1998; Hibbs 1977; Huber and Stephens 2001; Iversen and Soskice 2006), the evidence for the compensatory hypothesis is mixed. Across countries higher levels of inequality correlate with less redistribution—what is commonly known as the Robin Hood paradox (Lindert 2004). But within countries, there is a positive association between changes in market income inequality and changes in redistribution, at least in the latter part of the 20th century (Kenworthy and Pontusson 2005; Mahler 2008; Milanovic 2000). Most recently, Elkjær and Iversen (2023) analyze the distributional national accounts series produced by

Piketty, Saez and Zucman (2018) and Blanchet, Chancel and Gethin (2022) and show that, contrary to the U.S., the redistributive responses of governments in Europe since 1980 have been strong enough to ensure broad sharing of economic growth, with both low-and middle-after-tax-and-transfer incomes closely tracking the overall growth of the economy. Unless these patterns are driven entirely by the policies of the golden age of the welfare state, they strongly indicate that European governments have taken direct action to compensate low and middle-income groups.

Theoretical Implications

On the basis of the two competing theoretical models, we extract three sets of distinct implications. First, because 21st century Europe is characterized by high levels of inequality and open economic and financial markets, the winner-take-all domination model would predict that governments in this period have implemented regressive tax-and-transfer reforms. By contrast, the compensatory democracy model would predict progressive, compensatory reforms that have alleviated market-based inequalities:

H1a: Tax-and-transfer reforms have been regressive in the past two decades.

H1b: Tax-and-transfer reforms have been progressive in the past two decades.

The second set of hypotheses relates to the role of rising inequality for the balance of power between income classes and follows naturally from the first. If money yields political influence, and more money yields more influence, as the winner-take-all domination model would predict, the power of high-income groups should be increasing with inequality. We would consequently expect to see more regressive reforms when inequality is higher. The competing prediction of the compensatory democracy model is that since rising inequality does not fundamentally change the electoral incentives of governments to be responsive to

majority demands, more unequal market outcomes should not cause more regressive tax-and-transfer policies. Instead, lower-income groups should be compensated for rising market inequality, especially when left parties are in government:

H2a: Rising market inequality leads to more regressive policies.

H2b: Lower-income groups are compensated for rising market inequality, in particular under left governments.

The final set of hypotheses concerns the direct impact of the partisanship of the government. The winner-take-all domination model ascribes only a small role to government partisanship because the unequal distributions of income and wealth, and all their externalities, incentivize even left governments to overrepresent the affluent. The compensatory democracy model, by contrast, would predict government partisanship to be a powerful predictor of who gets represented.

H3a: Government partisanship is inconsequential for the distributive effects of tax-and-transfer reforms; the reforms will always benefit high-income groups.

H3b: Left governments implement more progressive tax-and-transfer reforms than right governments.

By testing the implications of these competing theoretical models, we can examine whether the winner-take-all domination or compensatory democracy model better account for whose interests governments seek to serve when adjusting tax-and-transfer policies. In turn, that enables us to shed light on the workings of democracies in early 21st century Europe.

Data and Methods

To examine the hypotheses, we leverage EU's tax-benefit microsimulation model EURO-MOD. EUROMOD was developed by social scientists at the Institute for Social and Economic Research at the University of Essex, but is now being maintained and further developed by the European Commission via a collaboration between the commission's Joint Research Centre and Eurostat (Bozio, Figari, Greve, Leventi, Stemitsiotis, Sutherland and Verbist 2021) It is the only cross-national comparative tax-benefit model available in Europe, and it is widely used by both academics, national governments, and various international organizations and supranational institutions like the OECD and bodies of the EU (Sutherland and Figari 2013).

EUROMOD is a static model that allows us to simulate the direct distributional effects of changes to tax-and-transfer policies. The static nature of the model means that it does not capture dynamic, second-order effects that may impact the distribution of market income in the medium-to-long run by changing peoples' economic incentives or behaviors. Yet, since the direct distributional effects are usually quite straightforward to calculate, while the dynamic effects can only be estimated by making (often) strong assumptions about behavioral responses to policy changes, we do not consider the static nature of the model as a major limitation for our purposes.[1] Moreover, a number of studies using microsimulations that account for behavioural responses found these to be small and noted that different behavioral effects can counteract each other and thereby cancel out (Bargain, Dolls, Immervoll, Neumann, Peichl, Pestel and Siegloch 2015; Barrios, Dolls, Maftei, Peichl, Riscado, Varga and Wittneben 2019; Paetzold and Tiefenbacher 2018, see also Klevmarken 2022).

More concretely, we use the policy effects tool that is embedded in EUROMOD. This

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[1]For example, consider the promise of trickle-down economics that cutting taxes on the rich will also benefit poor through increased economic activity. While this was a staunchly held belief in the 1980s, recent research shows that cutting taxes on the rich has no dynamic effects on the incomes of other groups (Hope and Limberg 2022; Piketty, Saez and Stantcheva 2014). In many cases, therefore, the direct effect of policy changes is likely to give the best estimate of whose interests government policy represent.

tool implements the method proposed by Bargain and Callan (2010) to decompose total income growth into different components, one of which is the direct effect of policy changes. The basic intuition of the approach is to isolate the effects of policies from that of structural economic changes by constructing two simulated scenarios for each country-year. The first traces all tax-benefit reforms as implemented by the government and produces a distribution of disposable incomes congruous to what we find in household income surveys. The second constitutes a counterfactual where, ceteris paribus, no reforms take place and tax-benefit policies are held constant (in real terms) from the previous year. The difference in disposable incomes between the two scenarios can then be attributed to the direct, first-order policy effect.

Formally, we can represent total nominal change in disposable income y^d between year t and $t+1$ as:

$$\Delta y^d = f_{t+1}(p_{t+1}, y^m_{t+1}) - f_t(p_t, y^m_t), \tag{1}$$

where y^m is market income, p is the monetary value of the tax-and-transfer parameters that reflect the tax-benefit system (marginal tax rates, tax deductions, eligibility criteria, benefit rules, and so on), and $f(y^m, p)$ is a function that takes market income and the monetary value of the tax-benefit system as input and computes disposable income. Intuitively, total nominal income growth is the difference in nominal disposable income between year t and $t+1$.

Conditional on having data in the initial year, which we have, Bargain and Callan (2010) propose decomposing total nominal income growth into the following three parts:

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\begin{aligned}
\Delta y^d = {} & f_{t+1}(p_{t+1}, \alpha_{t+1} \cdot y^m_t) - f_t(\alpha_{t+1} \cdot p_t, \alpha_{t+1} \cdot y^m_t) && \text{(policy effect)} \\
& + f_{t+1}(p_{t+1}, y^m_{t+1}) - f_{t+1}(p_{t+1}, \alpha_{t+1} \cdot y^m_t) && \text{(demography effect)} \\
& + f_t(\alpha_{t+1} \cdot p_t, \alpha_{t+1} \cdot y^m_t) - f_t(p_t, y^m_t) && \text{(inflation effect)},
\end{aligned}
\tag{2}
$$

where α is an uprating factor that accounts for nominal changes in income and in the

monetary value of the tax-and-transfer parameters.

The first part of Equation (2) is what we are interested in. It estimates the first-order effect of changes in tax-and-transfer policies on changes in disposable income. This is done by keeping the demographic composition of society constant, which is visible from the fact that the same income data (y^m) is used in both year t and $t+1$. This means that any changes in unemployment, inequality, the proportion of children, students, retirees, immigrants, and so on are separated out from the policy effect. The effects of changing demographics on changes in disposable income are instead captured by the second part of the equation. Similarly, since the income data and the policy parameters in the first part of the equation are scaled by α, any changes in disposable income due to nominal changes in income or in the policy parameters are also removed; the effect of inflation is instead captured by the third part of the equation.[2] What is left in the policy effect part of the equation is the direct, first-order effect of policy changes on changes in disposable income.[3]

The policy effect is estimated for each income decile as a percentage of the decile's equivalized disposable income. We are able to estimate the effect for all 27 EU member states and the United Kingdom from the mid-2000s to 2021.[4] We use household-level microdata taken from EU Statistics on Income and Living Conditions (EU-SILC) as income data (y) for the EU-27, and the Family Resources Survey for the UK. To measure α, and thereby account for inflation, we use Eurostat's harmonized index of consumer prices (HICP). The policy parameters of the tax-benefit systems (p) are coded in EUROMOD.

While EUROMOD generally captures only formal changes to policies, it also captures a

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[2]Technically, EUROMOD's policy effects tool computes the policy effect by scaling income rather than the policy parameters, such that $\Delta y^d = 1/\alpha \cdot f_{t+1}(p_{t+1}, \alpha \cdot y_t^m) - f_t(p_t, y_t^m)$. This approach produces equivalent results as long as the tax-benefit system is linearly homogenous; that is, $\alpha \cdot f(p, y^m) = f(\alpha \cdot p, \alpha \cdot y^m)$—an assumption Bargain and Callan (2010) test and find supportive evidence for.

[3]The model generally assumes full take-up of benefits and compliance with tax rules. In some cases, however, where non-take up of certain benefits or non-compliance with certain tax rules are well-known, EUROMOD adjusts the policy effect to reflect that not all households receive the benefits they are entitled to or pay the taxes that they are legally obliged to do.

[4]The exact start and end years for each country are reported in SI Table A1.

specific kind of "policy drift" related to inflation (Hacker 2004). Because the income data is uprated by the HICP, the real value of benefits that are not indexed to consumer prices will thus be affected by inflation. For example, if some benefit remains nominally constant between two years, and there is positive inflation, this would be counted as a policy change that has a negative effect on disposable income, since the real value of the benefit decreases. Similarly, if tax brackets are not adjusted for inflation, growing nomimal income levels will result in higher tax exposure and bracket creep. A similar logic, in that no formal changes of rules are made, applies in cases where benefits are indexed to a factor that grows faster than prices, such as average wages in some years.

To ensure valid and reliable estimates, EUROMOD is continuously validated against a wide range of external statistics. We perform our own validation check in SI Table B1, assessing whether the simulated policy effects translate into higher observed disposable income. Across the income distribution, we observe positive, statistically significant effects of the measures of policy-induced income changes on changes in disposable income, further raising our confidence in the measures.

The Scope of the Microsimulation Model

EUROMOD aims to capture as much of the national tax-benefit systems as possible. The goal of maximizing coverage in each country entails that there is some minor variation across countries regarding the scope of the policy parameters included in the model.

On the tax side, the model fully simulates direct taxes on labor income and social insurance contributions in all countries. In most countries, it also simulates taxes on capital income (rents, dividends, capital gains). In some countries, however, the information contained in the household income surveys does not allow for simulating capital income taxes. Since capital income is concentrated at the top of the income distribution, the omission of these taxes from the model would bias our results in a more progressive (regressive) direction in these countries to the extent that the taxes have decreased (increased). To gauge the

direction of the bias, we examine in SI Figure B1 changes in tax rates on dividend income in the countries for which capital income taxes cannot be simulated, using data from the OECD. In all the countries, tax rates on dividend income have either remained stable or increased, meaning that our results are likely to be biased in a regressive direction in these countries, against the compensatory democracy model. Finally, and with only a few exceptions, the model does not simulate wealth and property taxes, and fully excluded from the model are indirect and business taxes.

On the benefit side, the model fully simulates the effects of policies related to social assistance, family, housing, and income-related benefits. The model also captures policies related to non-contributory public pensions in all countries. It does not, however, capture the policy effects of contributory benefits, most notably old-age pensions and sickness and disability benefits. The reason for this is a lack of information in the micro data on the work and contribution history of respondents, as well as on the nature and severity of sicknesses and disabilities. The partial exception is policies related to unemployment benefits, where information on respondents' work and earnings history can be gauged from benefits received.

A concern about the exclusion of (most) contributory benefit programs from EUROMOD is whether changes to the policies governing these programs have offset the effects of the policy changes that are captured by the model. This would be the case, for example, if governments increase (decrease) the means-tested benefits that are captured by EUROMOD while, at the same time, they decrease (increase) the generosity of sickness or disability benefits, which are mainly paid to low-income households. To probe this concern, we examine in SI Figure B2 changes in the generosity of pension and sickness pay policies, using data from the Comparative Welfare Entitlements Project (Scruggs 2022). While public pensions have become slightly more generous in most of the countries in the sample, there is more variation in changes to the generosity of sick pay policies across the countries. Importantly, however, these changes are uncorrelated with the progressiveness of changes made to the policies captured by EUROMOD, suggesting that the policy effects we observe have not

been offset by corresponding changes to pension, sickness, or disability policies.

Even though not all tax-and-transfer policies are simulated in EUROMOD, it is important to note that the respective income components still are included in disposable income. For example, even though contribution-based public pensions are not simulated, the income that retirees receive from these pensions is still counted as part of their disposable income. This matters because the policy effect is expressed as a percentage of disposable income, as discussed above.
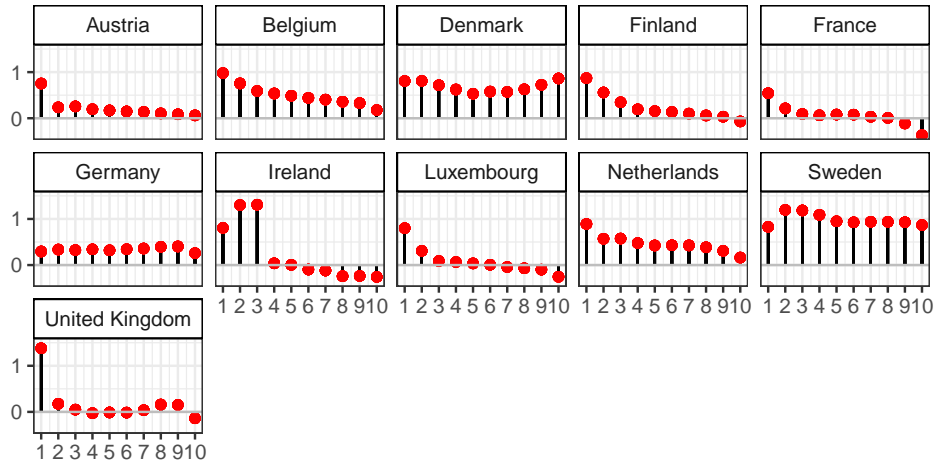
Results

The Distributional Effects of Changes in Tax-and-Transfer Policies

We begin the analysis by examining H1 and the overall pattern of policy-induced income growth in all 28 countries. Figure 1 shows real disposable income growth caused by changes to tax-and-transfer policies by income decile and country, averaged over the entire period covered by the data.

There is obviously variation across countries, but the overall pattern in Figure 1 is one of compensation. Since the mid-2000s, governments in most European countries have made progressive adjustments to their tax-and-transfer systems. This is consistent with H1b and the compensatory democracy model. In some countries, however, the policy-induced income growth curve is relatively flat (Germany, Sweden, and Croatia). And it is slightly u-shaped in Denmark, where a mix of progressive and regressive reforms have been implemented under shifting left and right governments. In the countries most strongly affected by the sovereign debt crisis of the 2010s (Portugal, Ireland, Italy, Greece, Spain, and Cyprus), we observe fiscal contraction lowering the disposable incomes of large parts of the society. Yet, also in these countries, the shape of the overall growth curve is progressive. Indeed, the only country in which welfare reforms did not produce positive income growth at the bottom, and where reforms have been strictly regressive, is Hungary, where democratic institutions have been gradually dismantled in the last 15 years.

Figure 1: Mean Annual Real Income Growth (in % of Disposable Income) Induced by Policy Changes, By Income Decile.
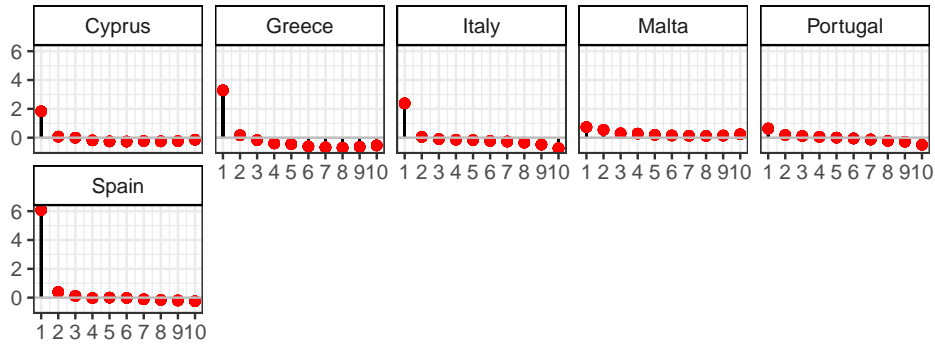
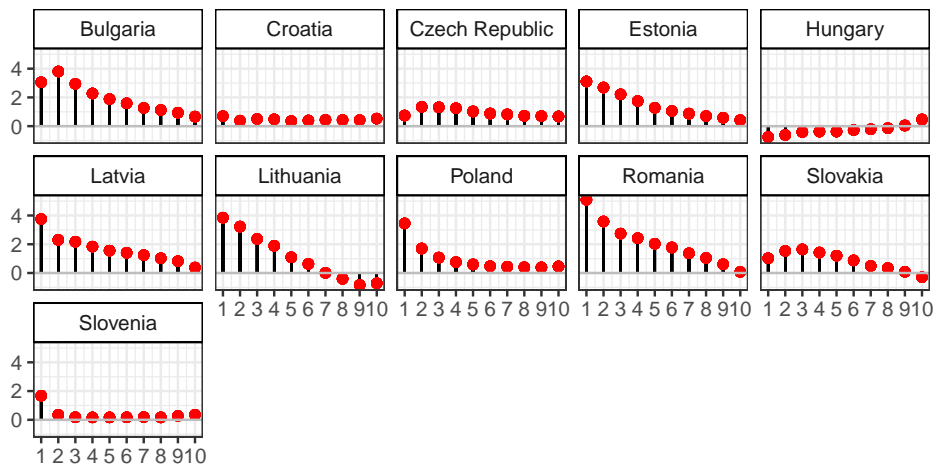In the Supporting Information, we address two concerns relating to Figure 1. First, we show in SI Figure C1 that the results are not driven by strong policy responses to the COVID pandemic. Another concern is whether the results are driven by increases in lump-sum benefits or standard tax allowances that, because the policy effects are measured relative to a decile's disposable income, would show up as larger percentage increases of the incomes of the bottom. Although such policy changes would also be redistributive, they would increase the incomes of all deciles by the same absolute amount. We examine this concern in SI Figure C2 by disaggregating the full policy effect into the effects of changes to i) means-tested benefits, ii) non means-tested benefits, iii) non-contributory pensions, and iv) taxes and social insurance contributions. The results show that the policy-induced income growth at the bottom mainly reflects changes to means-tested benefits and non-contributory public pensions, which typically are received by households at the bottom of the income distribution. This indicates that the progressiveness of the policy-induced income growth curves is driven mainly by targeted policy measures.

We also emphasize that these results (naturally) do not imply that tax-and-transfer reforms are never regressive. As shown in Panel A of Figure 2, in all 28 countries, one can find examples of years of winner-take-all reforms, in which the top income decile benefits relatively more than any other decile. On average across countries, such changes are implemented about every six or seven years. They are implemented much more frequently by right governments (about every four years) than left governments (about every twelve years), however, which is a first indication of the continued importance of the partisanship of the government. As a comparison, Panel B of Figure 2 shows that it is much more common that policy changes disproportionally benefit the bottom income decile. Such progressive reforms are implemented in slightly more than two of every five years, and again with a marked difference between left governments (more frequent than every other year) and right governments (every third year). In sum, while regressive changes to tax-and-transfer systems are sometimes made, especially when right parties are in government, progressive changes are dominant,

Figure 2: Incidence of Tax-and-Transfer Reforms Most Beneficial to the Top (A) or Bottom (B) Income Decile.
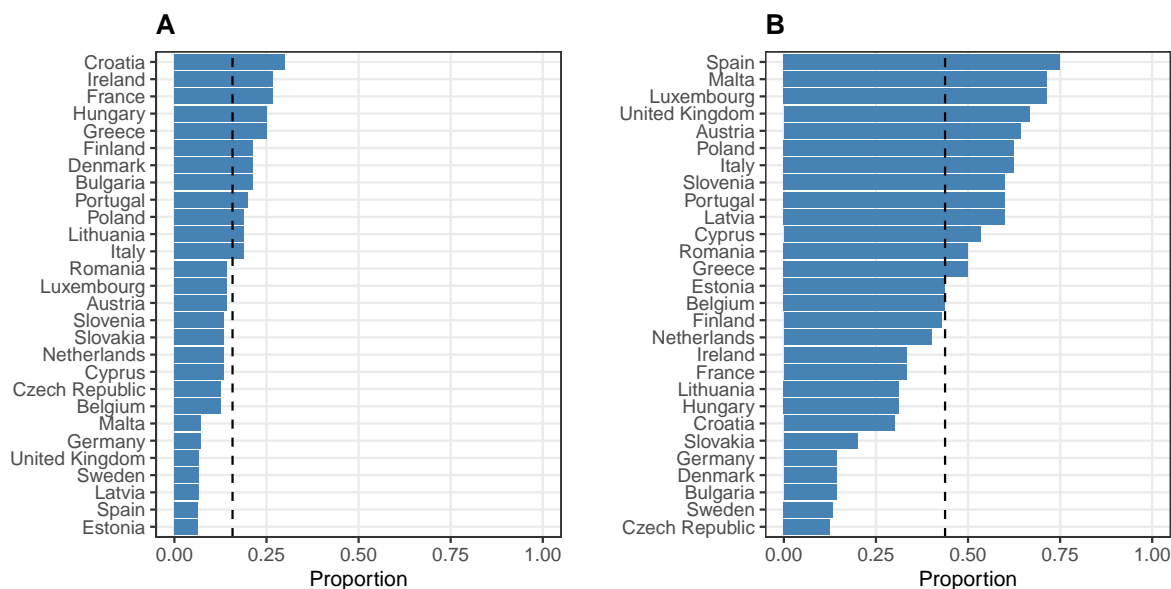
Note: The figure shows the proportion of years in which changes to the tax-and-transfer system increased the incomes of the top (panel A) or bottom (panel B) income decile relatively more than the other nine deciles. The dashed lines show the mean across all countries.

which is consistent with H1b and the compensatory democracy model.

Inspecting the Impact of Inequality and Government Partisanship

We proceed to examine H2 and H3, which relate to the impact of economic inequality and the partisanship of the government on tax-and-transfer reforms. We begin by analyzing these associations descriptively in Figure 3, using locally estimated scatterplot smoothing (LOESS). The unit of analysis in the figure is country-year-decile, and it plots policy-induced income growth on the vertical axes against the income deciles on the horizontal axes.

In Panel A, we show policy-induced income growth in contexts of relatively high and low levels of inequality—defined as the ten percent of country-years with the highest and lowest levels of pre-tax income inequality measured by the Gini coefficient with data from the World Inequality Database. The figure shows that in contexts of relatively low levels of economic inequality, governments on average make changes to tax-and-transfer systems that

Figure 3: Policy-Induced Income Growth by Level of Inequality (A) and Partisanship of the Government (B)
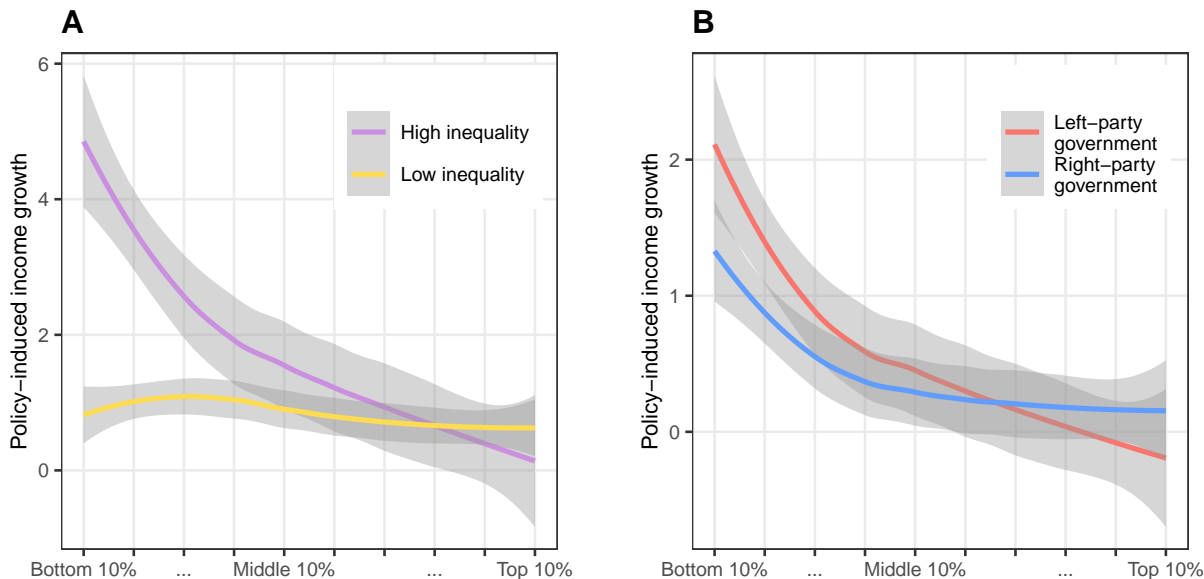
Note: The unit of analysis is country-year-decile, n(A)=820; n(B)=2280. The colored lines are LOESS smoothers with (gray) 95% confidence intervals.

have neutral distributive effects. By contrast, in contexts of high levels of inequality policy changes are highly progressive, raising the incomes of the bottom by close to five percent, while leaving that of the top largely unchanged. This is a first clear-cut indication that governments actively make changes to their tax-and-transfer systems to compensate lower income classes for rising market inequality, which is consistent with H2b.

In Panel B of Figure 3, we provide an initial assessment of H3. The figure displays policy-induced income growth across the income distribution under left and right governments, using data from Armingeon, Engler and Leeman (2022). Again consistent with the compensatory democracy model (H3b), the results show that tax-and-transfer reforms are more progressive when left parties are in power. On average under left governments, the direct effect of policy changes on the disposable income of the bottom income decile is close to one percent larger than under right governments. Moreover, while right governments on average produce very similar levels of income growth for households in the top half of the income distribution,

policy-induced income growth under left governments continue to decrease towards the top, with the top income decile experiencing slightly negative income growth.

It might seem surprising that the policy-induced income growth curve is progressive also when right parties are in government. There are several factors that might account for this result. First, it might partly reflect that some benefits in some countries are indexed to a factor that grows faster than prices in some years. For instance, although it is most common among OECD countries that old-age pensions are indexed to consumer prices, in some countries pensions are indexed to average wages, which often outpace price growth (OECD 2022*a*). We find support for this conjecture in the data, where we observe that stronger wage growth is associated with increased public pensions, especially at the bottom where most pensioners are located, also when right parties are in government. At the same time, wage growth is not associated with policy-induced income growth for other types of benefits (SI Figure C1), which usually are governed by different indexation rules than pensions (OECD 2022*b*). Second, right governments also include middle-income individuals in their governing coalition, and these might still want to transfer benefits to the bottom for social insurance reasons. We also find support for this conjecture in the data, since risk of poverty, also under right governments, predicts the progressiveness of policy changes on both pensions and (especially) means-tested benefits (SI Figure C2). Finally, the multidimensionality of politics means that some socially conservative parties (e.g. the populist radical right in some European countries) look a lot like traditional social democratic parties on the economic dimension, seeking to protect the interests of domestic workers and the elderly, while adopting a strong conservative stance on second-dimension issues (Hooghe and Marks 2009; Kitschelt 1994).

A Formal Test: Model Specification

Having observed initial evidence consistent with H2b and H3b, we are now ready to subject these hypotheses to a more rigorous test. To do so, we estimate a set of nine regressions of

the following form:

$$\Delta Y_{it}^{dn-d10} = \theta I_{it-1} + \beta G_{it-1} + \zeta(I_{it-1} \cdot G_{it-1}) + \lambda \mathbf{X}_{it-1} + \alpha_i + \gamma_t + \epsilon_{it}. \tag{3}$$

In each regression, the dependent variable, $\Delta Y_{it}^{dn-d10} = \Delta Y_{it}^{dn} - \Delta Y_{it}^{d10}$, is the difference in policy-induced income growth of the top income decile, $d10$, and that of a lower income decile, $n = \{d1, d2, \ldots, d9\}$. Higher positive values consequently mean that policy changes are more progressive, benefiting the lower income decile relatively more than the top decile.

To enable a test of H2, we include a measure of market inequality, I, specifically the pre-tax Gini coefficient based on data from the World Inequality Database. This is the most comprehensive measure of pre-tax income inequality available, and it has the clear advantage of being consistent with macroeconomic aggregates (national accounts), capturing the distribution of all pre-tax income for the entire adult population (20 years and older). This means that in addition to labor and capital incomes, it includes imputed rent for homeowner-occupiers, while distributing retained corporate earnings to the owners of capital (Blanchet, Chancel and Gethin 2022). The measure of inequality is interacted with the partisanship of the government, G, which is captured by the share of government-controlled parliamentary seats held by left parties using data from Armingeon, Engler and Leeman (2022).

The two variables are entered in levels, meaning that we are estimating the interactive effect of the level of market inequality and who is in office during the year when policy changes are made on the distributive effects of the policy changes. The winner-take-all domination model predicts that $\theta < 0$ and $\zeta = 0$ (H2a), implying that higher levels of inequality should be associated with more regressive policy changes. The competing prediction of the compensatory democracy model is that $\theta + \zeta > \theta$ (H2b); that is, that left governments make more progressive changes to the tax-and-transfer system when market inequality is relatively high compared to right governments. The two models also differ in their predictions about the direct effect of government partisanship (H3). Here, the critical test is whether $\beta = 0$

(H3a) or $\beta > 0$ (H3b); that is, whether who controls the government in the year in which policy changes are made has an impact on the distributive effects of the policy changes.

To account for time-invariant differences across countries, such as the fact that there is (minor) variation across countries regarding which policies are simulated in EUROMOD, all models include country fixed effects (α_i). In addition, the models include year fixed effects (γ_i), which account for common shocks to policy changes, such as the financial crisis and the COVID pandemic.

Although our standard two-way fixed effects framework ensures that the results are not biased by time-invariant differences across countries or by common shocks to the series, it does not remove bias related to time-varying factors. As covariates, we therefore include a range of time-varying economic and demographic variables that might affect government decisions in any given year. These are captured by the vector $\mathbf{X}$, and like the main independent variables, they are entered in levels. To account for discretionary policy responses to economic cycles, we include a measure of unemployment. Real GDP growth is included to account for the possibility that government activity may be a function of the affluence of a country (Wagner's law). After the COVID pandemic, several governments actively supported low-income households during times of high inflation; we include a measure of the growth in consumer prices to capture this kind of compensation. And because high government deficits constrain government actions, we include a measure of the overall government payment balance.

In the wake of the financial crisis, several European countries faced a severe sovereign debt crisis that forced them to receive financial support from EU institutions. As these bailout programs came with a set of conditionalities that are likely to have affected government decisions (Mushövel 2020), we include a binary variable for whether a country was subject to a bailout program in a given year. We also include a measure of whether a given year was characterized by austerity, drawing on a measure proposed by Alesina and Perotti (1995). We thus code episodes in which the annual increase in the cyclically adjusted budget balance

was higher than 1.5 percent of GDP as hard austerity; episodes of increases by less than 1.5 percent of GDP are coded as 'soft austerity'; and episodes of decreases in the cyclically adjusted budget balance are coded as 'fiscal expansion.'

To account for the possibility that governments may seek to insulate low and middle-income groups for higher risk of poverty, as argued by the literature on social risk (e.g. Bonoli 2007; Rehm 2016), we further include a measure of risk of poverty. The measure captures the proportion of households with incomes under sixty percent of the median equivalized income after social transfers, which is the standard definition of risk of poverty used by the European Union. Finally, we add a measure of the lagged level of disposable income for the lower income decile to account for the fact that percentage changes in income will mechanically be higher (lower) in years in which income is low (high), and a binary variable for three years in Spain (2015-2017), which are outliers in the comparison between the bottom and top income deciles.[5] We present descriptive statistics and data sources for all the variables in SI Table A2.

Following standard practice when modeling time series cross-sectional data, we estimate the regressions using OLS with panel-corrected standard errors, which account for panel heteroskedasticity and cross-sectional dependence in the errors (Beck and Katz 1995; 2011). Yet, because lagged dependent variables are statistically insignificant when included, with coefficients ranging from 0.06 to 0.14, we do not specify dynamic models. Doing so, however, does not affect the results (SI Table E2). We could also account for the weak serial correlation that there might be in the regressions by using a Prais-Winsten correction to purge the errors of first-order serial correlation. The AR(1) terms in these regressions lie in the range of 0.03 to 0.10, again indicating little-to-no first-order serial correlation, and the results are also robust to using this alternative specification (SI Table E3). Another alternative is to ignore the cross-sectional dependence in the errors and, instead of using panel-corrected standard errors, cluster the standard errors at the country-level. This also leaves the conclusions

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[5]We show the results when this binary variable is not included in SI Table E1.

unchanged, and so does using the wild cluster bootstrap inference approach proposed by Cameron, Gelbach and Miller (2008) (SI Figures E1 and E2).

The Effect of Market Income Inequality

Figure 4 displays the effect of the pre-tax Gini coefficient on the difference in policy-induced income growth between the top income decile and the other income deciles. The red point estimates and error bars show the effect when the government is comprised solely of left parties, and the blue point estimates and error bars, when no left parties are in the government. To enable easy interpretation, the pre-tax Gini measure has been standardized with mean equal to zero and standard deviation equal to one.

The results show that the effect of pre-tax income inequality is highly conditional on the partisanship of the government. When left parties are in power, higher levels of income inequality are associated with more progressive changes to the tax-and-transfer system. For the bottom income decile, the policy-induced income growth is 2.8 percentage points higher than that of the top income decile when the pre-tax Gini rises by one standard deviation and left parties are in power. This effect gradually declines as we move up the income distribution, turning statistically indistinguishable from no effect in the top half of the distribution. When left parties are excluded from the government coalition, by contrast, we hardly see any compensation for rising levels of inequality. The effects for all deciles are close to zero and statistically insignificant. These differences in the effect of the pre-tax Gini between left and (centre-)right governments are statistically significant themselves only in the bottom four income deciles, further buttressing the conclusion that low-income groups are compensated for rising inequality only when left parties are in government.[6]

In sum, the results are consistent with H2b and the compensatory democracy model. Lower-income groups appear to be compensated for rising market income inequality by left

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[6]Following Hainmueller, Mummolo and Xu (2019), we show in Figure E3 that the interaction effects are approximately linear and that there is common support across all levels of left-party participation in the government.

Figure 4: Marginal Effects of Pretax Income Inequality on Policy-Induced Income Growth, Conditional on Left-Party Participation in Government
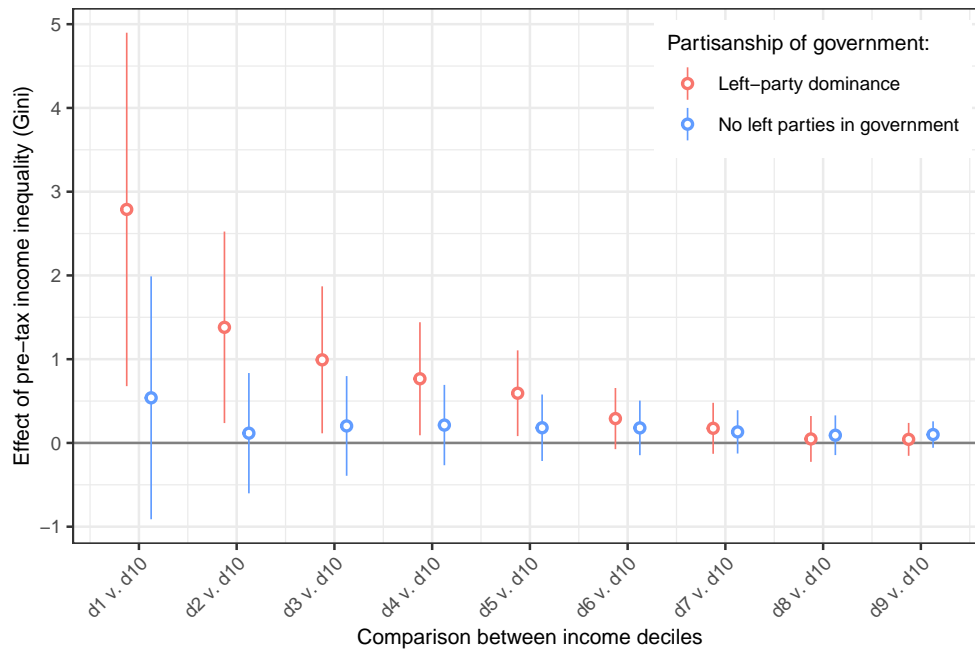
Note: The figure shows estimates of the effect of market income Gini on relative policy-induced income growth, conditional on whether left parties participate in the government, with 95% confidence intervals. See SI Table D1 for full set of results.

governments but not by right governments. We find no evidence in these data for the competing hypothesis H2a that a vicious cycle exists between rising market inequality and increasingly regressive tax-and-transfer reforms.

The Effect of Left-Party Participation in Government

We next examine the final set of hypotheses, which relates to the direct effect of government partisanship. In Figure 5, we show the direct effect of government partisanship on differences in policy-induced income growth, keeping the pre-tax Gini coefficient constant at its mean. The figure shows the full effect of left-party participation in government, meaning the effect of replacing a government without left-party participation to one comprised solely of left parties.

Consistent with H3b and the compensatory democracy model, the results show that

Figure 5: The Effect of Left Party Government on Policy-Induced Income Growth
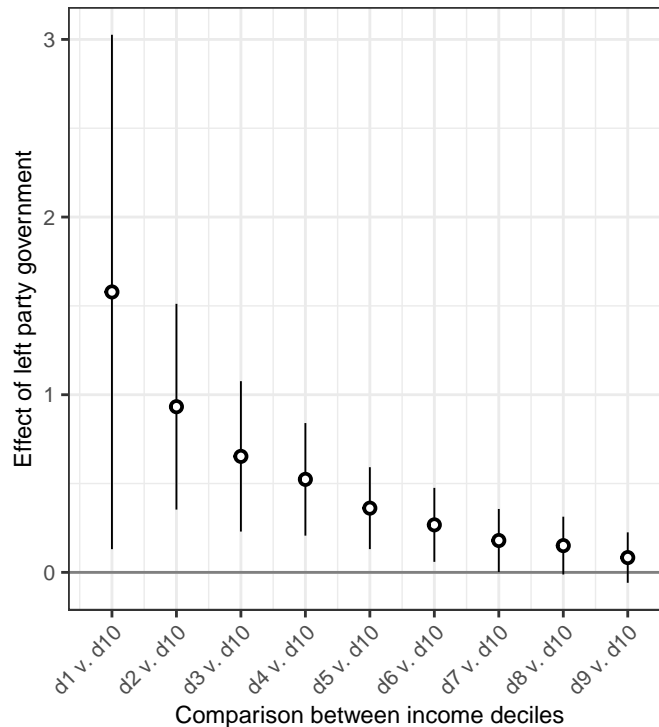
Note: The figure shows estimates of the effect of left-party participation in government on relative policy-induced income growth, with 95% confidence intervals. See SI Table D1 for full set of results.

left governments implement relatively more progressive reforms than right governments. Replacing a government without left-party participation to one comprised solely of left parties is thus associated with an increase in the income of the bottom income decile by about 1.5 percentage points relative to the policy-induced income growth of the top decile. This effect declines towards the top of income distribution, but it is positive, although not statistically significant, for all nine (lower) income deciles. Overall, then, the results suggest that the partisanship of the government continues to play an important role in shaping European countries' tax-and-transfer systems.

Additional Robustness Checks

In the Supporting Information, we further assess the robustness of the results to alternative specifications. First, we show that the results are not driven by any one country or by policy responses to either the financial crisis or the COVID pandemic (SI Figures E4 and E5 and SI Tables E4 and E5). Second, we test the robustness of the results to allowing for heterogeneous shocks, using more flexible interactive fixed effects models, as proposed by Bai (2009). The results remain substantively similar, but right governments appear to be somewhat more responsive to rising inequality in these models—though still significantly less so than left governments (SI Figures E6 and E7). Third, we assess the impact of the indexation of some benefits in some countries to average wages by adding a measure of average annual wage growth to the specification. This also does not alter our conclusions (SI Table E6). Finally, we rerun the regressions using alternative measures of inequality and government partisanship. For inequality, we use a measure of top-end income inequality—the top 10% pre-tax income share. For partisanship, we use a measure of government ideology, using expert-coded data from the ParlGov database (Döring, Huber, Manow, Hesse and Quaas 2023). Using these alternative measures yields substantively similar results (SI Figures E8 and E9).

Conclusion

Inequality is on the rise in affluent democracies. In this context, concerns have been raised over governments' continued ability to tax and redistribute in response to majority interests. Pessimistic views claim that rising market inequality increases the influence of high-income groups over redistributive policies. Optimistic views highlight the significance of middle-class interests, the restricted power of capital, and the continued importance of the partisanship of the government for distributive politics. We have distilled these opposing views into two distinct theoretical frameworks: the winner-take-all domination and the compensatory

democracy models. In a second step we have provided an empirical test of key model predictions, using a novel microsimulation approach. Specifically, we have analyzed the distributive effects of tax-benefit policy reforms implemented by governments in 28 European countries since the mid-2000s.

Our evidence supports a model of democracy in which governments compensate lower-income groups for market-based inequalities. We show that during the last two decades governments in most European countries have made progressive changes to their tax-and-transfer systems, lifting the incomes of the bottom relative to those of the top. These changes are driven notably by left governments, who compensate lower-income groups more strongly than right governments, especially when market inequality is high. We find little evidence that redistributive reforms in Europe have served predominantly the interests of the affluent.

Naturally, it may still be relevant to discuss whether governments should have done even more to compensate the lower-income classes, especially in order to balance out the inequality-increasing effects of various deregulatory measures. However, it is simply not the case that governments have completely ignored the interests of groups at the bottom of the income distribution, as argued by the fast-growing public opinion literature on unequal representation. In fact, had European governments not implemented the tax-benefit reforms they have since the mid-2000s, the poor would have been significantly worse off than they are today. The only exception is Hungary, where democratic institutions have been gradually dismantled during the period we study.

These findings have broad implications for our understanding of the political economy of 21st century European capitalist societies, suggesting that rising market inequality does not increase the power of the affluent over redistributive policies. This adds to the growing body of evidence that raises questions about the validity of directly extending the U.S. experience to Europe (e.g. Elkjær and Iversen 2023; Hacker et al. 2021; Soskice 2021). Moreover, the results may help alleviate concerns that in the age of rising inequality and globalization parties are no longer able to affect distributive outcomes, showing that the partisanship of

the government remains highly consequential for tax-and-transfer reforms. Finally, although there certainly is value in examining how voter preferences translate into policy changes, we think the results suggest that the literature on political representation could benefit from greater attentiveness to whose interests government policy actually serves. Using a novel microsimulation approach, which facilitates direct estimation of who benefits from policy reforms, we find strikingly different results compared to studies that make inferences solely based on survey measures of income-group preferences.

We conclude by emphasizing a critical aspect of our argument. It is well-established that, in attempts to stimulate economic growth, governments across affluent democracies have reformed labor and financial markets and that some of these reforms have contributed to rising market inequality; we do not dispute this. Rather, we have sought to investigate whether the increases in market inequality have increased the power of the wealthy over redistributive politics or whether governments have sought to alleviate rising market inequality by compensating lower-income groups. We find evidence of the latter, which suggests that governments still care about, and are able to attend to, the well-being of large segments of society—and not only the well-being of the winners of the economy. In this sense, democratic institutions appear more resilient to rising inequality than acknowledged by much recent work, with democratically elected governments still responding to majority demands for redistribution.

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Supporting Information: For Online Publication

Contents

A Data Coverage and Descriptive Statistics

Table A1: Start and end years of the countries in the dataset

Country	Start year	End year	Country	Start year	End year
Austria	2007	2021	Italy	2005	2021
Belgium	2005	2021	Latvia	2006	2021
Bulgaria	2007	2021	Lithuania	2005	2021
Croatia	2011	2021	Luxembourg	2007	2021
Cyprus	2006	2021	Malta	2007	2021
Czech Republic	2005	2021	Netherlands	2006	2021
Denmark	2007	2021	Poland	2005	2021
Estonia	2005	2021	Portugal	2006	2021
Finland	2007	2021	Romania	2007	2021
France	2006	2021	Slovakia	2006	2021
Germany	2007	2021	Slovenia	2006	2021
Greece	2005	2021	Spain	2005	2021
Hungary	2005	2021	Sweden	2006	2021
Ireland	2006	2021	United Kingdom	2005	2020

Table A2: Descriptive Statistics

	Obs	Mean	Std. dev.	Min	Max	Source
Left government	415	0.35	0.36	0.00	1.00	Comparative Political Data Set (Armingeon, Engler and Leeman 2022)
Pre-tax Gini	415	0.46	0.04	0.37	0.63	World Inequality Database
At risk of Poverty	415	16.45	3.80	8.60	26.30	Eurostat (table ILC_LI03)
Unemployment	415	8.52	4.36	2.00	27.50	AMECO (variable ZUTN)
Real GDP growth	415	1.59	4.03	-14.80	25.36	OECD and AMECO (variable OVGD)
Overall balance (% of GDP)	415	-2.82	3.73	-32.13	5.11	OECD and Eurostat (table GOV_10DD_EDPT1)
Inflation	415	1.82	2.00	-4.48	15.25	OECD and AMECO (variable ZCPIH)
Bailout program	415	0.07	0.26	0.00	1.00	Coded by the authors
Fiscal expansion	415	0.56	0.50	0.00	1.00	IMF
Soft austerity	415	0.28	0.45	0.00	1.00	IMF
Hard austerity	415	0.16	0.37	0.00	1.00	IMF

B Policy Effects, Welfare Generosity, and Observed Disposable Income

Figure B1: Net Top Statutory Tax Rate on Dividend Income Paid By Shareholders in Countries in which EUROMOD Doesn't Simulate Capital Income Taxes.
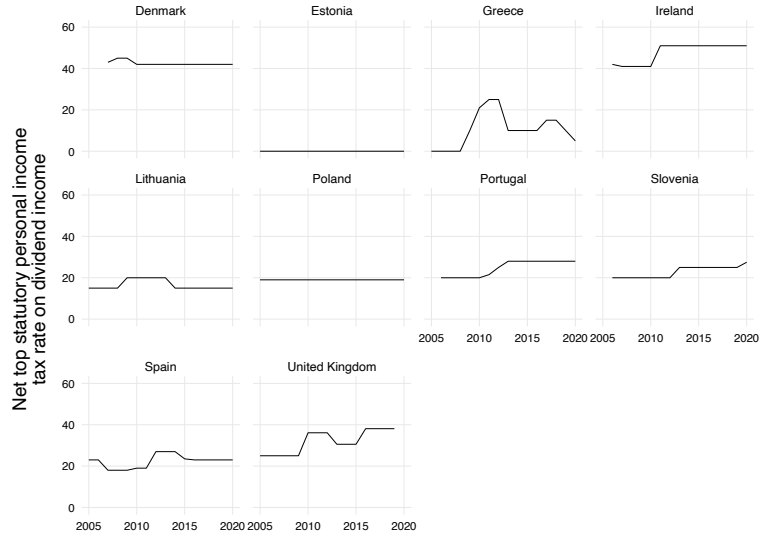
Note: Data is from the OECD Tax Database Table II.4. Overall Statutory Tax Rates On Dividend Income.

Figure B2: Pension Generosity (Top Panels) and Sickness Pay Generosity (Bottom Panels)

2
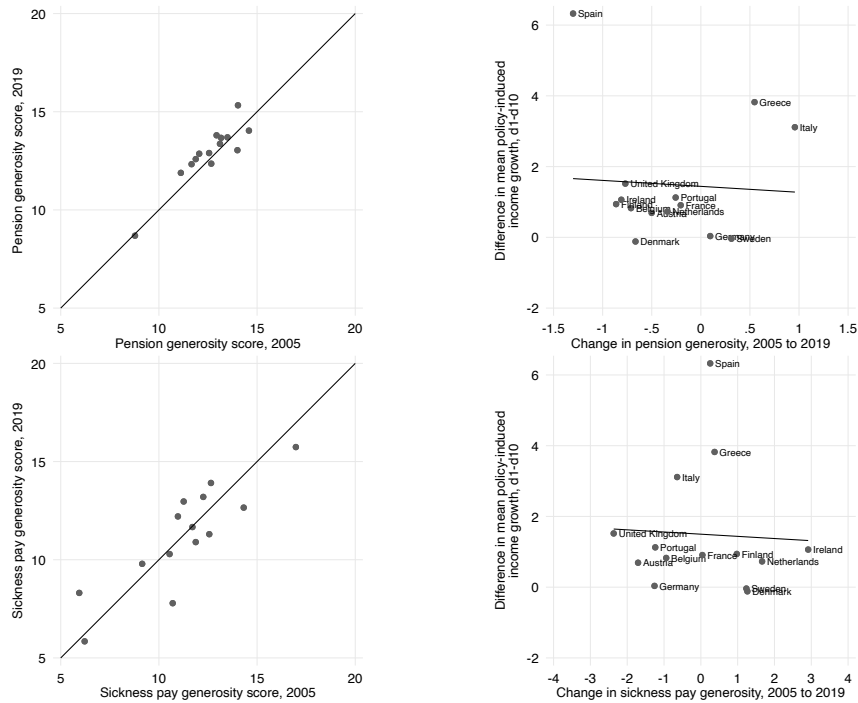
Table B1: The Effect of Policy-Induced Income Changes on Changes in Disposable Income, By Income Decile

	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10
					Changes in Disposable Income					
Decile 1	0.74* (0.09)									
Decile 2		1.15* (0.12)								
Decile 3			1.28* (0.14)							
Decile 4				1.39* (0.16)						
Decile 5					1.39* (0.17)					
Decile 6						1.27* (0.18)				
Decile 7							1.23* (0.19)			
Decile 8								1.07* (0.19)		
Decile 9									0.98* (0.20)	
Decile 10										0.96* (0.22)
Constant	2.14* (0.47)	2.43* (0.34)	2.64* (0.33)	2.86* (0.33)	3.09* (0.34)	3.25* (0.34)	3.35* (0.34)	3.43* (0.34)	3.49* (0.35)	3.57* (0.41)
N	387	387	387	387	387	387	387	387	387	387
R-squared	0.15	0.20	0.18	0.17	0.15	0.12	0.10	0.08	0.06	0.05

Note: * $p < 0.05$. Standard errors in parentheses. Lithuania in 2006 is a major outlier and therefore omitted from the models presented here. The effect sizes increase if we include this observation.

3

C Additional Evidence for the Descriptive Analysis

Figure C1: Real Income Growth Induced by Policy Changes Pre-COVID, By Income Decile.

A. Northern and Western Europe

B. Southern Europe

C. Central and Eastern Europe
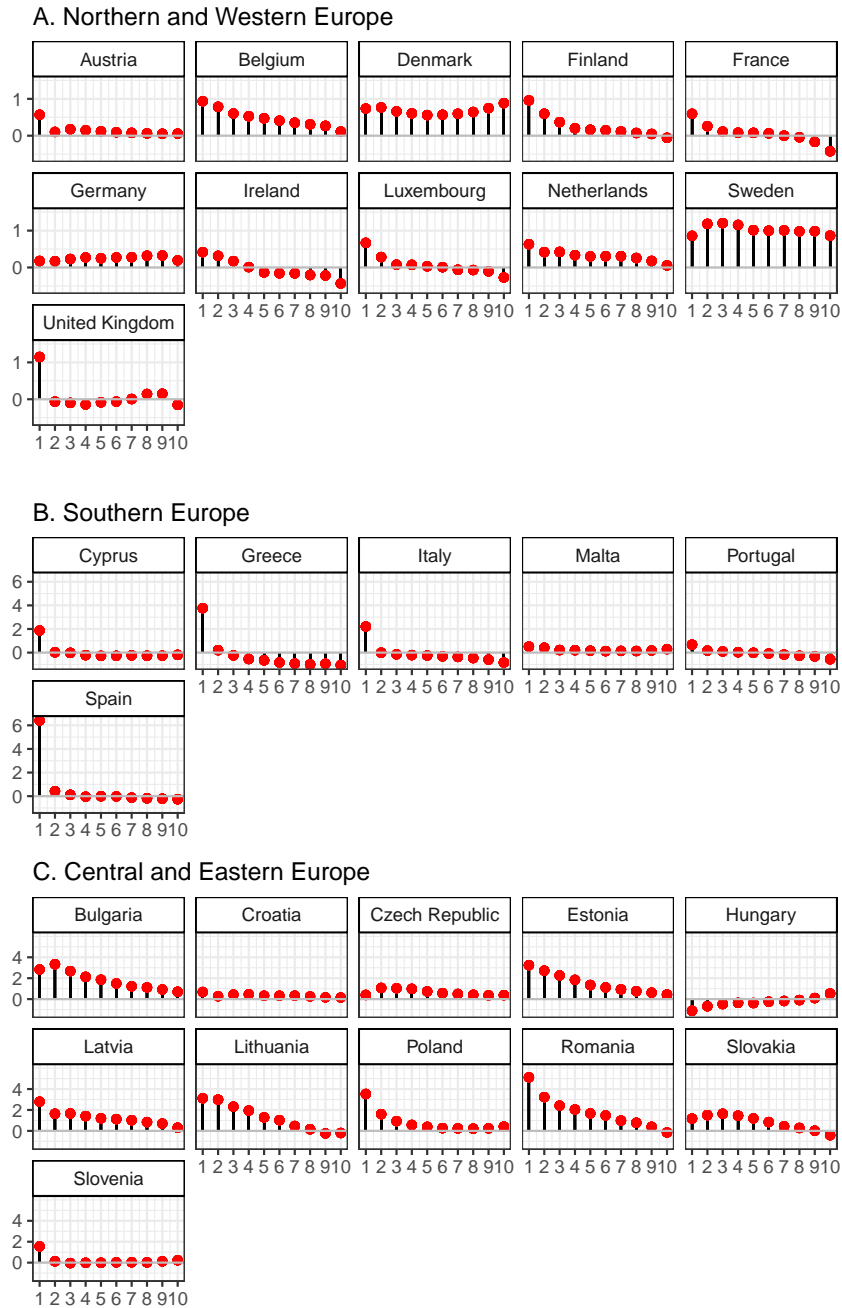
Figure C2: Real Income Growth Induced by Policy Changes, Disaggregated by Policy type, By Income Decile.

A. Northern and Western Europe

B. Southern Europe

C. Central and Eastern Europe

Means–tested benefits   Non means–tested benefits   Public pensions   Taxes and SIC

Table C1: Effect of Average Annual Wage Growth on Policy-Induced Income Growth, by Policy Domain and Income Decile

Policy domain	Coefficient	d1	d2	d3	d4	d5	d6	d7	d8	d9	d10
Pensions	Ave wages	0.04*	0.07*	0.06*	0.05*	0.04*	0.03*	0.02*	0.02*	0.02	0.01
		(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
	Ave wages X left government	0.13*	0.12*	0.12*	0.11*	0.08*	0.06*	0.06*	0.05*	0.05*	0.04*
		(0.03)	(0.04)	(0.04)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)
Means-tested benefits	Ave wages	-0.10	-0.02	-0.01	-0.01	-0.01	-0.00	-0.00	0.00	0.00	0.00
		(0.05)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
	Ave wages X left government	0.05	0.06*	0.04	0.03*	0.03*	0.03*	0.01	0.00	0.00	0.00
		(0.10)	(0.03)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
Non-means-tested benefits	Ave wages	0.03	0.02	0.02	0.01	0.01	0.01	0.01	0.00	0.01	0.01*
		(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
	Ave wages X left government	0.09*	0.06*	0.03	0.04*	0.03*	0.02	0.02	0.03*	0.02*	0.01
		(0.04)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Taxes and SIC	Ave wages	0.05*	0.06*	0.07*	0.08*	0.08*	0.08*	0.08*	0.08*	0.07*	0.06*
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
	Ave wages X left government	-0.14*	-0.17*	-0.19*	-0.23*	-0.26*	-0.27*	-0.29*	-0.30*	-0.30*	-0.29*
		(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)

Note: * $p<0.05$. OLS regressions of policy-induced income growth on annual change in average wages, left government, and the interaction between the two. The reported coefficients of average wages thus show the effect of average wages when right parties are in government, and the coefficients on the interactions show the differences in the effects of average wages between right and left governments. In each regression, N=401. Standard errors in parentheses. Data on average annual wage growth are from Eurostat. Since data is not available for the UK, it drops out of this analysis.

Table C2: Effect of At Risk of Poverty on Policy-Induced Income Growth, by Policy Domain and Income Decile

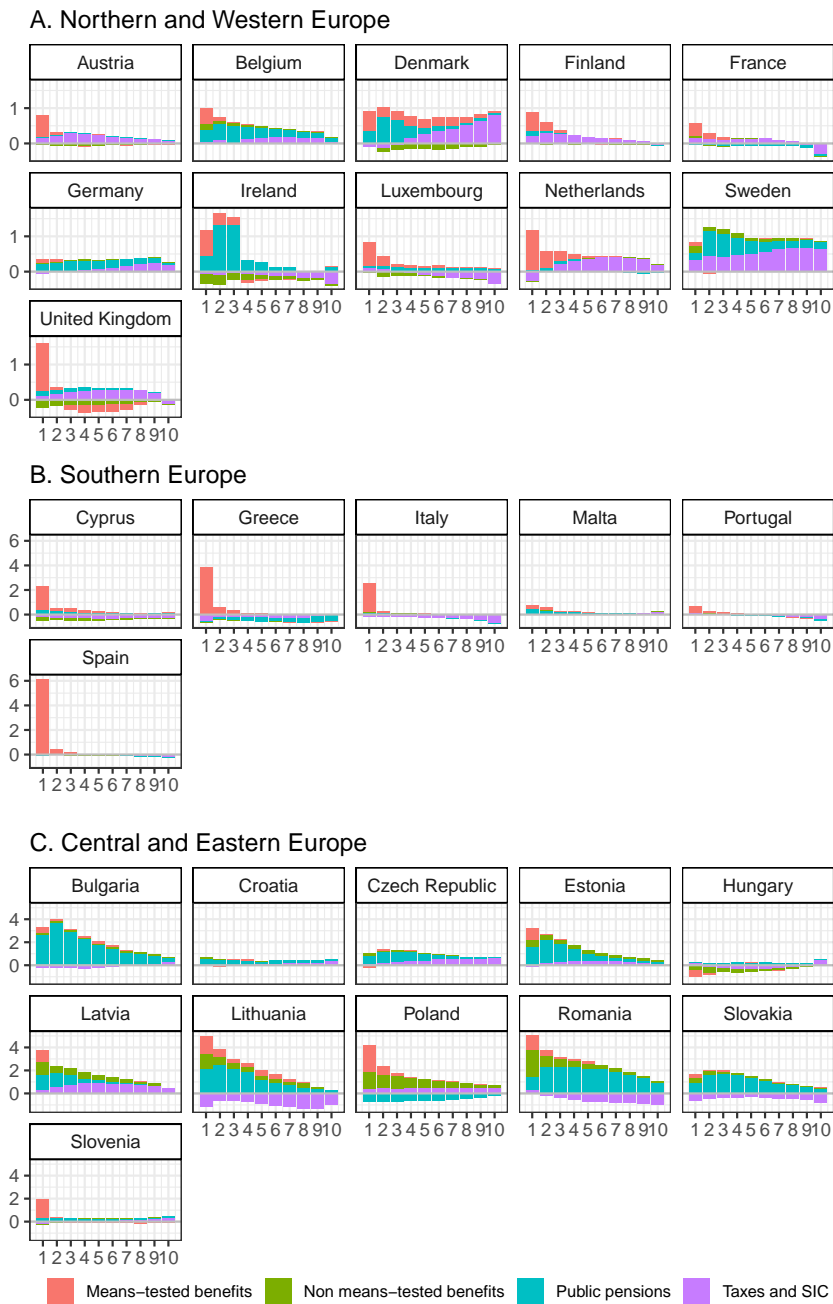| Policy domain	Coefficient	d1	d2	d3	d4	d5	d6	d7	d8	d9	d10
Pensions	At risk of poverty	0.08*	0.10*	0.07*	0.05*	0.04	0.04*	0.03*	0.03*	0.02	0.01
		(0.02)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
	Risk X left government	0.01	0.01	0.02	0.03	0.02	-0.00	0.01	0.01	0.00	0.01
		(0.05)	(0.07)	(0.07)	(0.05)	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)	(0.02)
Means-tested benefits	At risk of poverty	0.21*	-0.00	-0.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00
		(0.07)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
	Risk X left government	0.11	0.11*	0.06	0.02	0.01	0.01	-0.01	-0.01	-0.00	-0.00
		(0.16)	(0.05)	(0.03)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.00)
Non-means-tested benefits	At risk of poverty	0.04	0.01	0.01	0.02	0.01	0.01	0.01	0.00	0.00	-0.01
		(0.03)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
	Risk X left government	0.12	0.08*	0.05	0.04	0.05	0.03	0.02	0.03	0.03*	0.03*
		(0.07)	(0.04)	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)
Taxes and SIC	At risk of poverty	-0.02	-0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00
		(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)
	Risk X left government	-0.01	-0.03	-0.07	-0.10*	-0.13*	-0.13*	-0.15*	-0.17*	-0.17*	-0.15*
		(0.04)	(0.03)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)	(0.07)

Note: * $p < 0.05$. OLS regressions of policy-induced income growth on at risk of poverty, left government, and the interaction between the two. The reported coefficients on at risk of poverty thus show the effect of at risk of poverty when right parties are in government, and the coefficients on the interactions show the differences in the effects of at risk of poverty between right and left governments. In each regression, N=401. Standard errors in parentheses.

D Regression Results from Figures 4 and 5

Table D1: Relative Income Growth by Decile

Relative income growth bw/ deciles :	d1-d10	d2-d10	d3-d10	d4-d10	d5-d10	d6-d10	d7-d10	d8-d10	d9-d10
Left government	1.58*	0.93*	0.65*	0.52*	0.36*	0.27*	0.18*	0.15	0.08
	(0.74)	(0.30)	(0.22)	(0.16)	(0.12)	(0.11)	(0.09)	(0.08)	(0.07)
Pre-tax Gini	0.54	0.12	0.20	0.21	0.18	0.18	0.13	0.09	0.10
	(0.74)	(0.37)	(0.30)	(0.24)	(0.20)	(0.17)	(0.13)	(0.12)	(0.08)
Left gov X Gini	2.25*	1.26*	0.79*	0.55*	0.41	0.11	0.04	-0.04	-0.06
	(0.82)	(0.46)	(0.36)	(0.28)	(0.23)	(0.18)	(0.14)	(0.13)	(0.09)
Disposable income d1/d9	-12.08*	-3.38	-1.12	-0.90	-0.21	0.15	0.02	0.07	-0.04
	(4.51)	(1.74)	(1.14)	(0.74)	(0.52)	(0.38)	(0.29)	(0.22)	(0.15)
At risk of Poverty	0.68*	0.36*	0.22*	0.20*	0.15*	0.12*	0.10*	0.06	0.06*
	(0.23)	(0.11)	(0.09)	(0.08)	(0.06)	(0.06)	(0.04)	(0.04)	(0.03)
Unemployment	-0.08	-0.16*	-0.09	-0.08	-0.04	-0.01	-0.01	-0.00	-0.00
	(0.15)	(0.08)	(0.06)	(0.05)	(0.04)	(0.03)	(0.03)	(0.02)	(0.02)
Real GDP growth	0.02	0.07	0.09	0.04	0.03	0.03	0.01	0.01	-0.01
	(0.11)	(0.06)	(0.05)	(0.04)	(0.03)	(0.02)	(0.02)	(0.02)	(0.01)
Overall balance (% of GDP)	0.04	-0.01	-0.02	-0.04	-0.04	-0.04*	-0.05*	-0.04*	-0.02*
	(0.12)	(0.05)	(0.05)	(0.03)	(0.03)	(0.02)	(0.02)	(0.01)	(0.01)
Inflation	0.22	0.15	0.14	0.06	0.06	0.01	0.01	0.01	-0.01
	(0.21)	(0.13)	(0.10)	(0.08)	(0.07)	(0.06)	(0.05)	(0.04)	(0.03)
Bailout program	2.21	1.20	0.81	0.46	0.18	0.01	-0.08	-0.13	-0.13
	(1.41)	(0.70)	(0.58)	(0.45)	(0.38)	(0.33)	(0.29)	(0.23)	(0.16)
Soft austerity	0.83	0.07	-0.16	-0.18	-0.17	-0.19	-0.18	-0.16	-0.09
	(0.47)	(0.25)	(0.21)	(0.18)	(0.16)	(0.14)	(0.11)	(0.10)	(0.07)
Hard austerity	-0.33	-0.57	-0.59*	-0.57*	-0.49*	-0.48*	-0.41*	-0.29*	-0.09
	(0.81)	(0.38)	(0.30)	(0.24)	(0.20)	(0.17)	(0.14)	(0.12)	(0.09)
Country FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	415	415	415	415	415	415	415	415	415
R-squared	0.44	0.35	0.30	0.32	0.29	0.28	0.24	0.20	0.16

Note: * $p<0.05$. Panel-corrected standard errors in parentheses.

E Alternative Model Specifications

Figure E1: Marginal Effects of Pretax Income Inequality on Policy-Induced Income Growth, Conditional on Left-Party Participation in Government, With Cluster-Robust (left) and Wild Cluster Bootstrap (right) Confidence Intervals
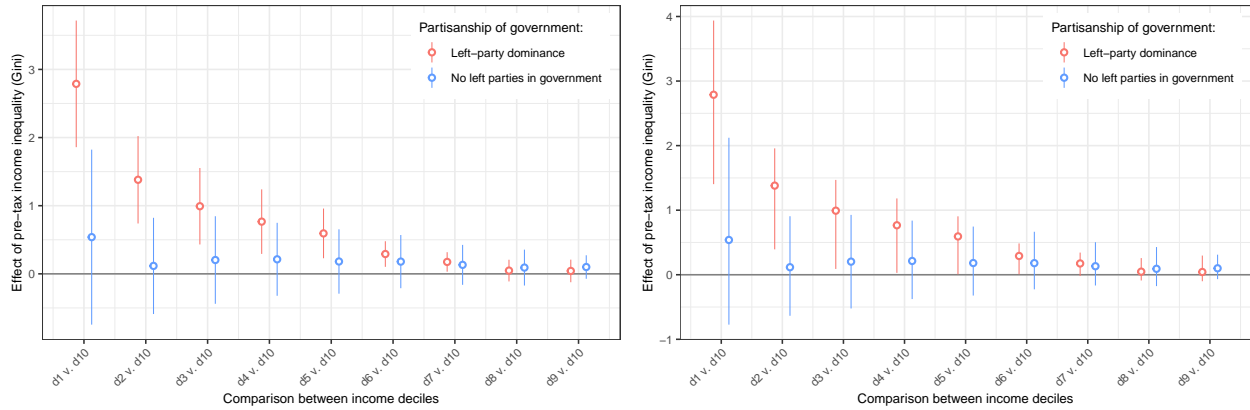
Figure E2: The Effect of Left Government on Policy-Induced Income Growth, With Cluster-Robust (left) and Wild Cluster Bootstrap (right) Confidence Intervals
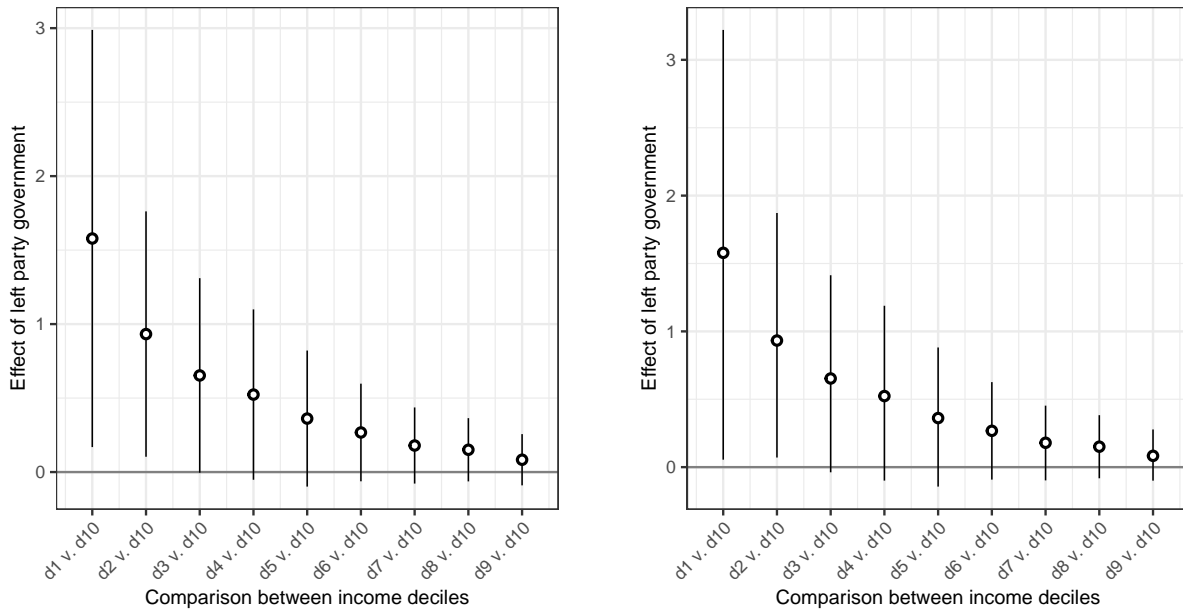
Figure E3: Marginal Effects of Pretax Income Inequality on Policy-Induced Income Growth, Conditional on Left-Party Participation in Government as Categorical Variable.
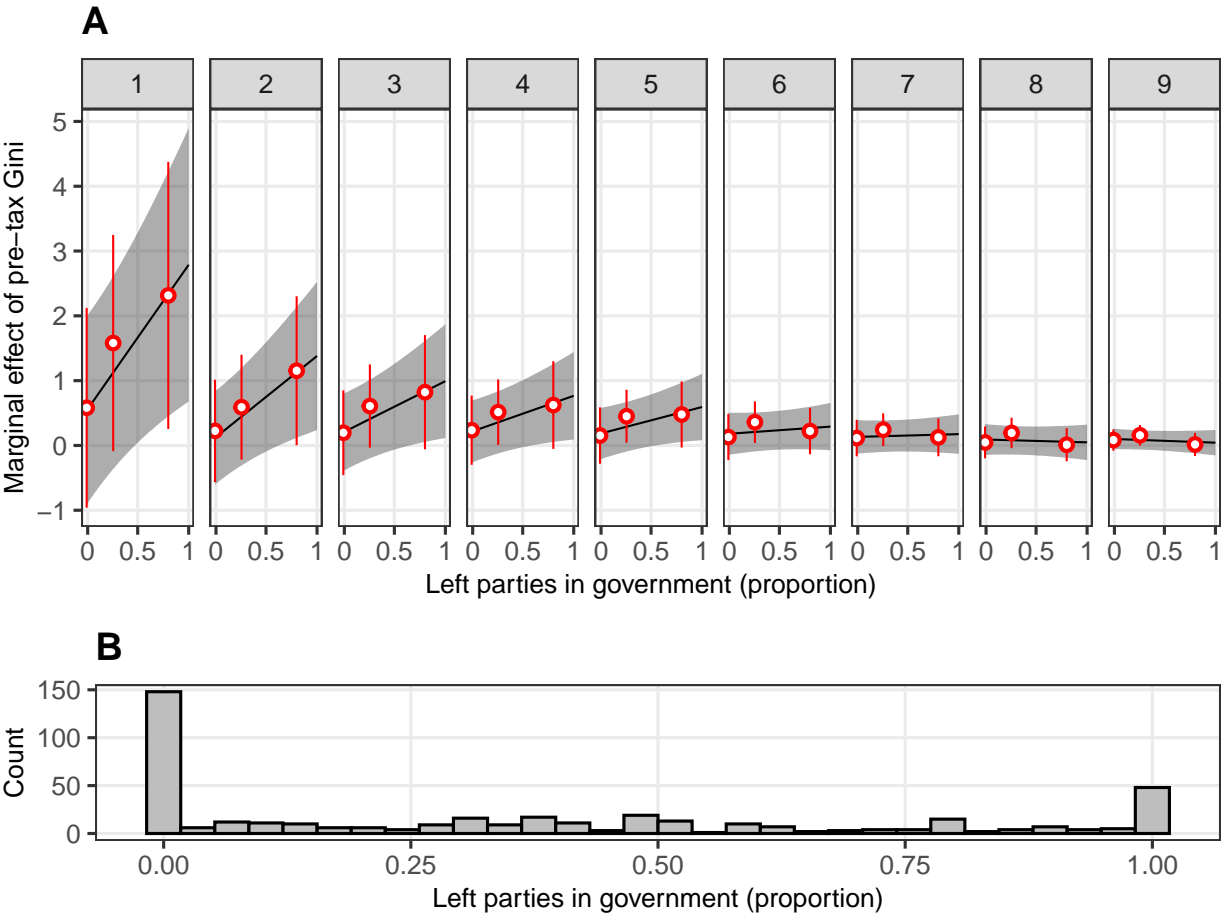
Figure E4: The Effect of Left Party Government on Policy-Induced Income Growth, Robustness to Omitting Any One Country from the Sample
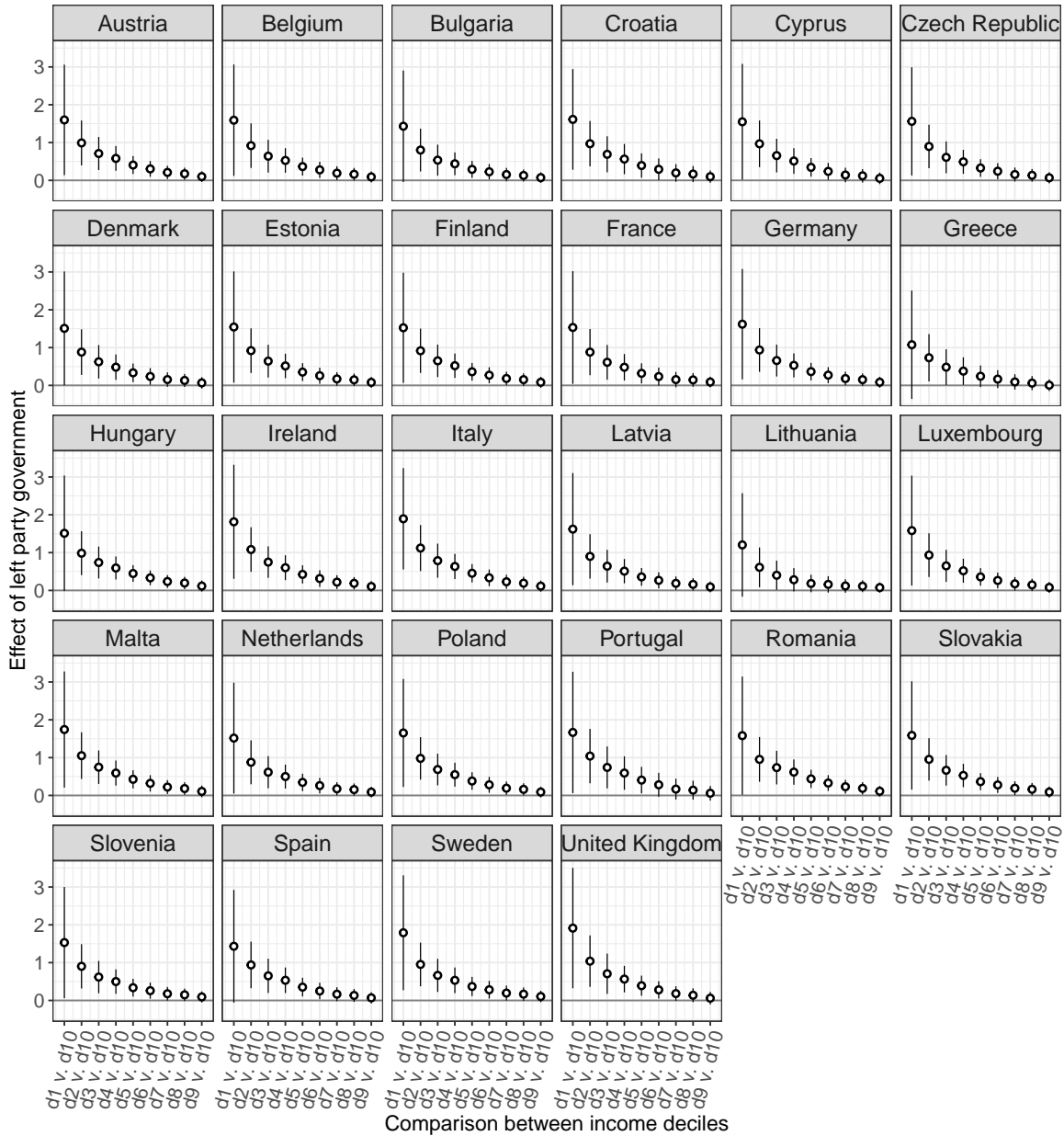
Note: The figure shows estimates of the effect of left-party participation in government on relative policy-induced income growth, with 95% confidence intervals, when omitting any one country from the sample. The country name in the subtitle thus presents the results when removing that country from the sample.

Figure E5: Marginal Effects of Pretax Income Inequality on Policy-Induced Income Growth, Conditional on Left-Party Participation in Government, Robustness to Omitting Any One Country from the Sample
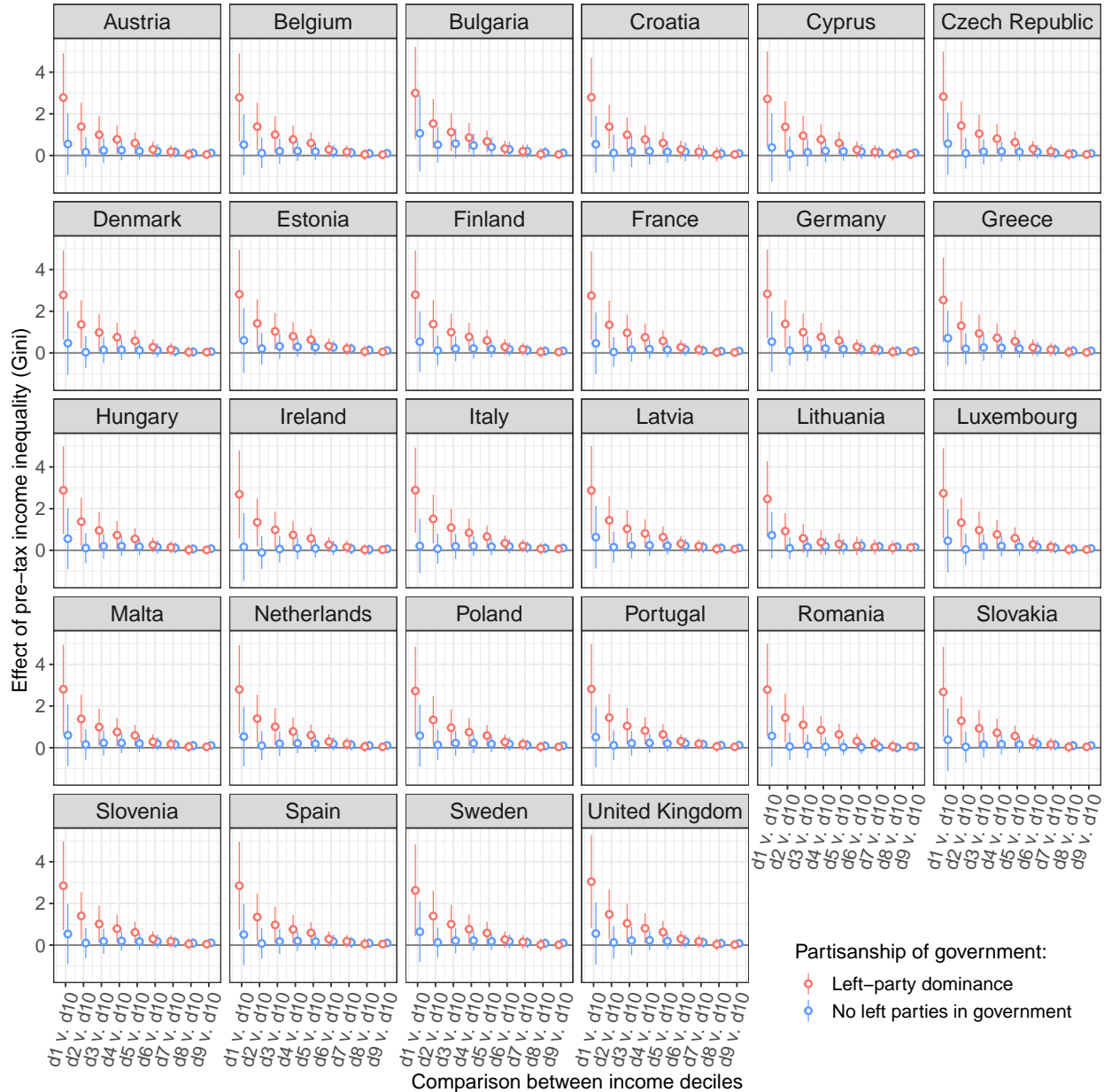
Note: The figure shows estimates of the effect of market income Gini on relative policy-induced income growth, conditional on whether left parties participate in the government, with 95% confidence intervals, when omitting any one country from the sample. The country name in the subtitle thus presents the results of the entire sample when removing that country from the sample.

Figure E6: Marginal Effects of Pretax Income Inequality on Policy-Induced Income Growth, Conditional on Left-Party Participation in Government, Interactive Fixed Effects
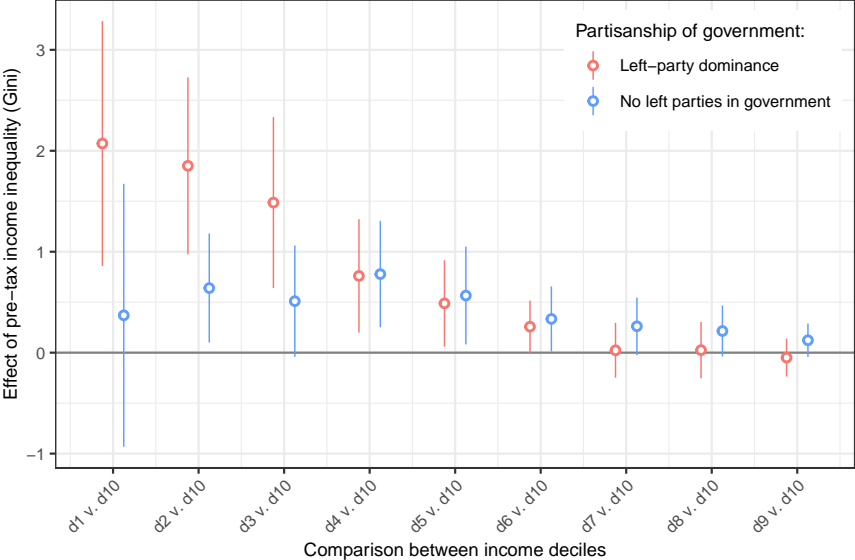
Figure E7: The Effect of Left Party Government on Policy-Induced Income Growth, Interactive Fixed Effects
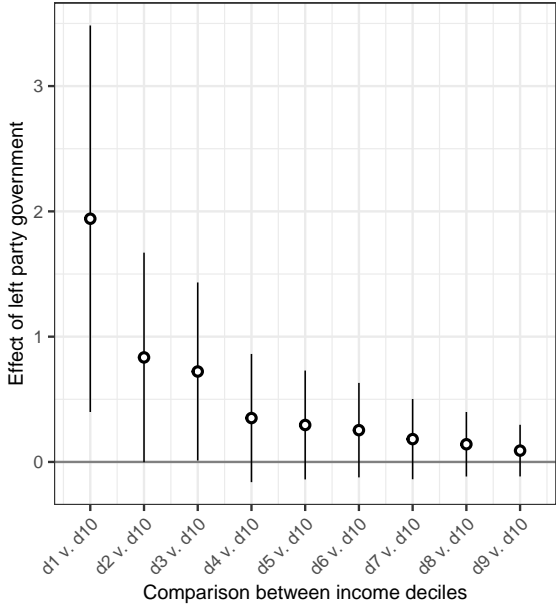
Figure E8: Robustness Check to Using An Alternative Measure of Inequality (The Top 10% Pretax Income Share)
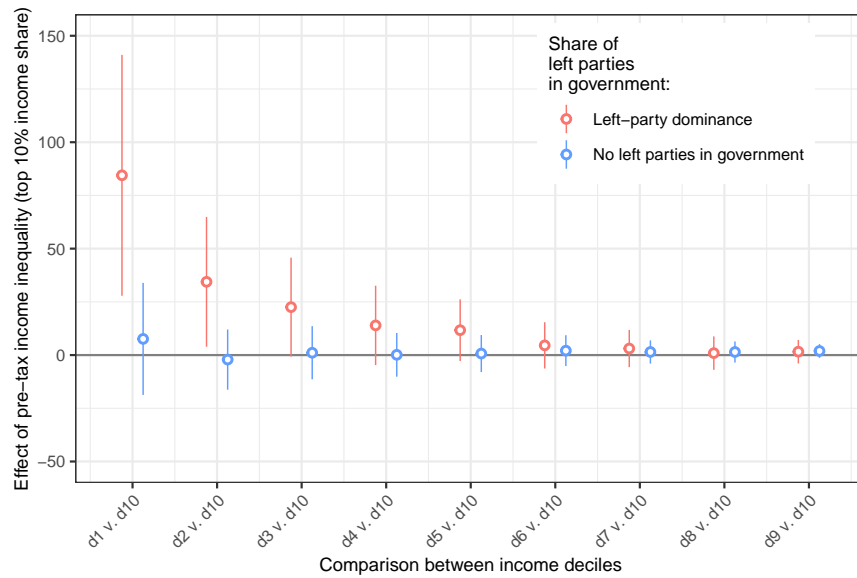
Figure E9: Robustness Check to Using A Measure of Government Ideology Instead of One of Government Partisanship
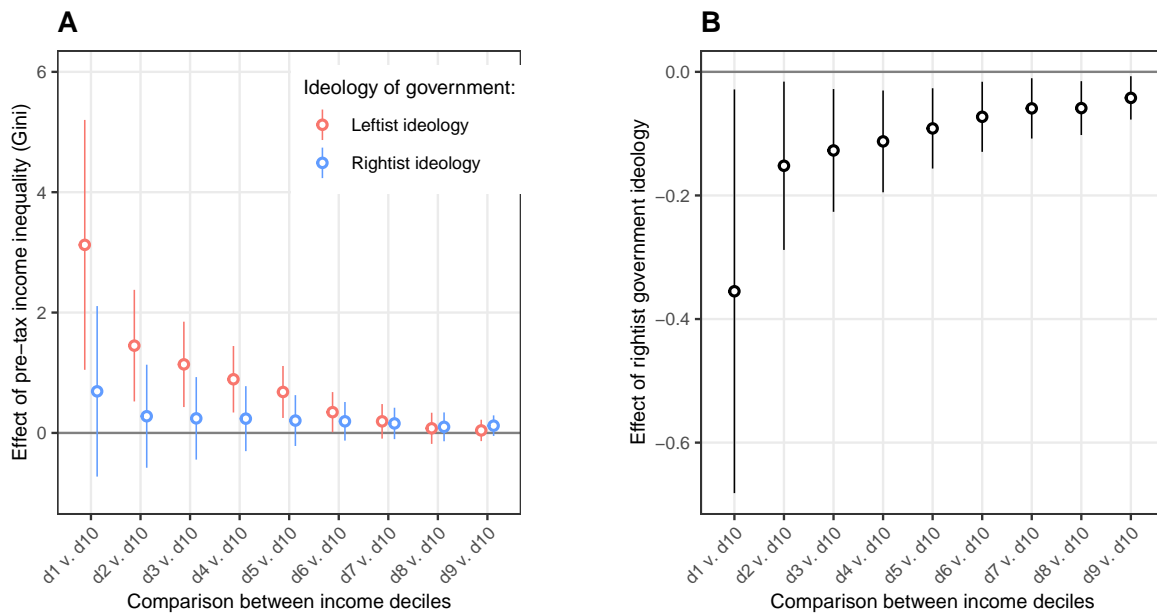
Note: The overall ideology of the government is measured as the mean ideology of the government parties, weighed by their share of parliamentary seats held by the government.

Table E1: Relative Income Growth by Decile, Omitting the Binary Variable for the three Spanish Outlier Years (2015-2017)

Relative income growth bw/ deciles :	d1-d10	d2-d10	d3-d10	d4-d10	d5-d10	d6-d10	d7-d10	d8-d10	d9-d10
Left government	0.40	0.93*	0.68*	0.55*	0.38*	0.28*	0.20*	0.16*	0.09
	(0.98)	(0.28)	(0.20)	(0.15)	(0.11)	(0.10)	(0.09)	(0.08)	(0.07)
Pre-tax Gini	0.79	0.12	0.20	0.21	0.18	0.18	0.13	0.09	0.10
	(0.77)	(0.37)	(0.30)	(0.24)	(0.20)	(0.17)	(0.13)	(0.12)	(0.08)
Left gov X Gini	2.24*	1.26*	0.79*	0.55*	0.41	0.11	0.04	-0.04	-0.06
	(0.87)	(0.46)	(0.36)	(0.28)	(0.23)	(0.18)	(0.14)	(0.13)	(0.09)
Disposable income d1/d9	-11.25*	-3.38	-1.13	-0.91	-0.23	0.14	0.01	0.06	-0.05
	(5.41)	(1.74)	(1.13)	(0.73)	(0.52)	(0.38)	(0.29)	(0.22)	(0.15)
At risk of Poverty	0.79*	0.36*	0.22*	0.20*	0.15*	0.12*	0.09*	0.06	0.06*
	(0.23)	(0.11)	(0.09)	(0.08)	(0.06)	(0.06)	(0.04)	(0.04)	(0.03)
Unemployment	0.05	-0.16*	-0.10	-0.08	-0.04	-0.02	-0.02	-0.00	-0.00
	(0.19)	(0.08)	(0.06)	(0.05)	(0.04)	(0.03)	(0.03)	(0.02)	(0.02)
Real GDP growth	0.04	0.07	0.09	0.04	0.03	0.03	0.01	0.01	-0.01
	(0.12)	(0.06)	(0.05)	(0.04)	(0.03)	(0.02)	(0.02)	(0.02)	(0.01)
Overall balance (% of GDP)	0.03	-0.01	-0.02	-0.04	-0.04	-0.04*	-0.05*	-0.04*	-0.02*
	(0.13)	(0.05)	(0.05)	(0.03)	(0.03)	(0.02)	(0.02)	(0.01)	(0.01)
Inflation	0.33	0.15	0.13	0.06	0.05	0.01	0.01	0.00	-0.01
	(0.22)	(0.13)	(0.10)	(0.08)	(0.07)	(0.06)	(0.05)	(0.04)	(0.03)
Bailout program	1.22	1.19	0.84	0.48	0.19	0.02	-0.06	-0.12	-0.12
	(1.64)	(0.69)	(0.58)	(0.45)	(0.37)	(0.33)	(0.29)	(0.23)	(0.16)
Soft austerity	0.22	0.06	-0.15	-0.16	-0.16	-0.18	-0.17	-0.16	-0.09
	(0.57)	(0.24)	(0.21)	(0.18)	(0.16)	(0.14)	(0.11)	(0.10)	(0.07)
Hard austerity	-0.71	-0.57	-0.58	-0.56*	-0.48*	-0.48*	-0.40*	-0.29*	-0.09
	(0.95)	(0.37)	(0.30)	(0.24)	(0.20)	(0.17)	(0.14)	(0.12)	(0.08)
Country FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	415	415	415	415	415	415	415	415	415
R-squared	0.30	0.35	0.30	0.31	0.29	0.28	0.24	0.20	0.16

Note: * $p<0.05$. Panel-corrected standard errors in parentheses.

Table E2: Relative Income Growth by Decile, Including a Lagged Dependent Variable

Relative income growth bw/ deciles :	d1-d10	d2-d10	d3-d10	d4-d10	d5-d10	d6-d10	d7-d10	d8-d10	d9-d10
Left government	1.59	1.02*	0.78*	0.63*	0.49*	0.39*	0.29*	0.28*	0.16*
	(0.86)	(0.33)	(0.23)	(0.18)	(0.13)	(0.12)	(0.10)	(0.09)	(0.08)
Pre-tax Gini	0.26	-0.41	-0.25	-0.25	-0.22	-0.18	-0.14	-0.12	-0.02
	(0.82)	(0.42)	(0.35)	(0.28)	(0.23)	(0.19)	(0.14)	(0.12)	(0.09)
Left gov X Gini	2.37*	1.51*	1.05*	0.82*	0.67*	0.39*	0.26	0.13	0.05
	(0.90)	(0.46)	(0.36)	(0.28)	(0.23)	(0.17)	(0.13)	(0.12)	(0.09)
Lagged DV	0.07	0.12	0.09	0.13	0.13	0.14	0.13	0.06	0.10
	(0.11)	(0.10)	(0.09)	(0.08)	(0.08)	(0.09)	(0.09)	(0.09)	(0.09)
Disposable income d1/d9	-14.28*	-4.76*	-2.01	-1.62	-0.67	-0.16	-0.14	-0.02	-0.06
	(4.54)	(1.81)	(1.24)	(0.83)	(0.58)	(0.43)	(0.32)	(0.24)	(0.16)
At risk of Poverty	0.67*	0.35*	0.21*	0.19*	0.14*	0.11	0.09	0.06	0.07*
	(0.26)	(0.13)	(0.10)	(0.09)	(0.07)	(0.06)	(0.05)	(0.04)	(0.03)
Unemployment	-0.14	-0.19*	-0.12	-0.09	-0.05	-0.02	-0.02	-0.01	-0.00
	(0.17)	(0.08)	(0.07)	(0.05)	(0.04)	(0.04)	(0.03)	(0.02)	(0.02)
Real GDP growth	0.04	0.09	0.10	0.05	0.04	0.03	0.02	0.01	-0.00
	(0.12)	(0.07)	(0.06)	(0.04)	(0.03)	(0.02)	(0.02)	(0.02)	(0.01)
Overall balance (% of GDP)	0.06	0.00	-0.01	-0.03	-0.03	-0.04	-0.04*	-0.04*	-0.02*
	(0.13)	(0.06)	(0.05)	(0.03)	(0.03)	(0.02)	(0.02)	(0.01)	(0.01)
Inflation	0.24	0.21	0.19	0.12	0.10	0.06	0.04	0.03	0.01
	(0.23)	(0.14)	(0.11)	(0.09)	(0.08)	(0.07)	(0.05)	(0.04)	(0.03)
Bailout program	2.40	1.32	0.95	0.47	0.21	0.03	-0.06	-0.09	-0.15
	(1.36)	(0.69)	(0.57)	(0.43)	(0.35)	(0.30)	(0.26)	(0.21)	(0.16)
Soft austerity	0.79	0.07	-0.12	-0.13	-0.10	-0.12	-0.12	-0.11	-0.05
	(0.51)	(0.27)	(0.22)	(0.19)	(0.17)	(0.15)	(0.12)	(0.10)	(0.07)
Hard austerity	-0.12	-0.40	-0.47	-0.47	-0.37	-0.40*	-0.35*	-0.24*	-0.05
	(0.84)	(0.38)	(0.31)	(0.24)	(0.20)	(0.17)	(0.14)	(0.12)	(0.09)
Country FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	388	388	388	388	388	388	388	388	388
R-squared	0.46	0.38	0.33	0.36	0.33	0.30	0.26	0.20	0.17

Note: * $p < 0.05$. Panel-corrected standard errors in parentheses.

Table E3: Relative Income Growth by Decile, Using Prais-Winsten Regression

Relative income growth bw/ deciles :	d1-d10	d2-d10	d3-d10	d4-d10	d5-d10	d6-d10	d7-d10	d8-d10	d9-d10
Left government	1.57*	0.92*	0.65*	0.52*	0.36*	0.26*	0.17	0.15	0.08
	(0.79)	(0.30)	(0.22)	(0.16)	(0.12)	(0.11)	(0.10)	(0.09)	(0.08)
Pre-tax Gini	0.50	0.10	0.19	0.21	0.18	0.18	0.14	0.10	0.10
	(0.76)	(0.38)	(0.31)	(0.25)	(0.21)	(0.18)	(0.14)	(0.13)	(0.08)
Left gov X Gini	2.15*	1.23*	0.77*	0.54	0.39	0.10	0.03	-0.05	-0.07
	(0.84)	(0.47)	(0.36)	(0.28)	(0.23)	(0.18)	(0.14)	(0.13)	(0.09)
Disposable income d1/d9	-12.81*	-3.48	-1.17	-0.92	-0.22	0.16	0.05	0.09	-0.02
	(4.78)	(1.79)	(1.17)	(0.75)	(0.53)	(0.40)	(0.30)	(0.22)	(0.15)
At risk of Poverty	0.69*	0.36*	0.22*	0.20*	0.15*	0.12*	0.09*	0.06	0.06*
	(0.24)	(0.12)	(0.09)	(0.08)	(0.07)	(0.06)	(0.04)	(0.04)	(0.03)
Unemployment	-0.09	-0.16	-0.09	-0.08	-0.03	-0.01	-0.01	-0.00	-0.00
	(0.16)	(0.08)	(0.06)	(0.05)	(0.04)	(0.04)	(0.03)	(0.02)	(0.02)
Real GDP growth	0.03	0.07	0.09	0.04	0.03	0.03	0.01	0.01	-0.01
	(0.11)	(0.06)	(0.05)	(0.04)	(0.03)	(0.02)	(0.02)	(0.02)	(0.01)
Overall balance (% of GDP)	0.03	-0.01	-0.02	-0.04	-0.04	-0.04	-0.04*	-0.04*	-0.02*
	(0.12)	(0.05)	(0.05)	(0.03)	(0.03)	(0.02)	(0.02)	(0.01)	(0.01)
Inflation	0.22	0.16	0.14	0.06	0.06	0.02	0.01	0.01	-0.01
	(0.22)	(0.13)	(0.10)	(0.08)	(0.07)	(0.06)	(0.05)	(0.04)	(0.03)
Bailout program	2.19	1.12	0.76	0.40	0.11	-0.09	-0.14	-0.17	-0.16
	(1.45)	(0.71)	(0.59)	(0.46)	(0.38)	(0.34)	(0.29)	(0.24)	(0.16)
Soft austerity	0.79	0.08	-0.16	-0.17	-0.16	-0.18	-0.17	-0.16	-0.09
	(0.48)	(0.25)	(0.21)	(0.18)	(0.16)	(0.14)	(0.11)	(0.10)	(0.07)
Hard austerity	-0.14	-0.50	-0.55	-0.55*	-0.46*	-0.46*	-0.40*	-0.29*	-0.09
	(0.79)	(0.37)	(0.30)	(0.24)	(0.20)	(0.17)	(0.14)	(0.12)	(0.09)
Country FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
AR(1) parameter (ρ)	0.10	0.06	0.04	0.03	0.06	0.08	0.07	0.05	0.05
N	415	415	415	415	415	415	415	415	415
R-squared	0.41	0.33	0.29	0.31	0.28	0.26	0.23	0.19	0.15

Note: * $p < 0.05$. Panel-corrected standard errors in parentheses.

Table E4: Relative Income Growth by Decile, Post-Financial Crisis Period (After 2009)

Relative income growth bw/ deciles :	d1-d10	d2-d10	d3-d10	d4-d10	d5-d10	d6-d10	d7-d10	d8-d10	d9-d10
Left government	1.30	0.90*	0.70*	0.63*	0.46*	0.38*	0.26*	0.25*	0.15
	(0.87)	(0.33)	(0.24)	(0.17)	(0.14)	(0.13)	(0.11)	(0.11)	(0.10)
Pre-tax Gini	0.51	-0.19	-0.15	-0.12	-0.12	-0.17	-0.16	-0.20	-0.12
	(0.92)	(0.49)	(0.41)	(0.33)	(0.28)	(0.24)	(0.18)	(0.17)	(0.11)
Left gov X Gini	2.61*	1.59*	1.00*	0.87*	0.63*	0.37	0.17	0.13	0.05
	(0.98)	(0.51)	(0.40)	(0.32)	(0.26)	(0.21)	(0.16)	(0.16)	(0.10)
Disposable income d1/d9	-23.35*	-5.78*	-1.79	-2.19*	-1.11	-0.47	-0.39	-0.32	-0.22
	(5.93)	(2.18)	(1.43)	(0.94)	(0.76)	(0.60)	(0.46)	(0.37)	(0.24)
At risk of Poverty	0.72*	0.51*	0.32*	0.31*	0.24*	0.19*	0.16*	0.12*	0.12*
	(0.35)	(0.16)	(0.13)	(0.11)	(0.09)	(0.07)	(0.06)	(0.05)	(0.04)
Unemployment	-0.19	-0.34*	-0.28*	-0.21*	-0.15*	-0.10*	-0.07	-0.04	-0.03
	(0.19)	(0.09)	(0.08)	(0.06)	(0.05)	(0.04)	(0.04)	(0.03)	(0.02)
Real GDP growth	-0.04	0.08	0.09	0.02	0.02	0.03	0.02	0.01	0.01
	(0.12)	(0.07)	(0.06)	(0.04)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)
Overall balance (% of GDP)	0.12	0.03	0.01	-0.02	-0.03	-0.04	-0.04*	-0.02	-0.01
	(0.13)	(0.06)	(0.06)	(0.04)	(0.03)	(0.03)	(0.02)	(0.02)	(0.01)
Inflation	0.05	0.07	0.03	0.01	0.02	-0.03	-0.03	-0.03	-0.06
	(0.36)	(0.21)	(0.16)	(0.12)	(0.10)	(0.09)	(0.07)	(0.06)	(0.04)
Bailout program	2.97*	2.47*	2.03*	1.35*	0.93*	0.54	0.37	0.20	0.08
	(1.50)	(0.73)	(0.63)	(0.49)	(0.42)	(0.39)	(0.34)	(0.28)	(0.21)
Soft austerity	0.86	0.10	-0.13	-0.12	-0.10	-0.13	-0.15	-0.13	-0.08
	(0.56)	(0.29)	(0.25)	(0.20)	(0.18)	(0.16)	(0.13)	(0.12)	(0.08)
Hard austerity	0.01	-0.40	-0.53	-0.48	-0.41	-0.42*	-0.40*	-0.29*	-0.08
	(0.86)	(0.40)	(0.32)	(0.27)	(0.22)	(0.19)	(0.16)	(0.14)	(0.09)
Country FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	306	306	306	306	306	306	306	306	306
R-squared	0.50	0.42	0.36	0.42	0.39	0.35	0.31	0.25	0.22

Note: * $p<0.05$. Panel-corrected standard errors in parentheses.

Table E5: Relative Income Growth by Decile, Pre-COVID Period

Relative income growth bw/ deciles :	d1-d10	d2-d10	d3-d10	d4-d10	d5-d10	d6-d10	d7-d10	d8-d10	d9-d10
Left government	1.67*	0.99*	0.68*	0.53*	0.37*	0.29*	0.21*	0.19*	0.12
	(0.82)	(0.29)	(0.19)	(0.15)	(0.11)	(0.10)	(0.09)	(0.08)	(0.06)
Pre-tax Gini	0.46	-0.12	0.03	0.06	0.10	0.14	0.13	0.12	0.14
	(0.66)	(0.29)	(0.27)	(0.22)	(0.20)	(0.17)	(0.13)	(0.12)	(0.07)
Left gov X Gini	2.41*	1.21*	0.69	0.40	0.31	0.06	0.03	0.01	0.01
	(1.00)	(0.50)	(0.39)	(0.31)	(0.27)	(0.22)	(0.18)	(0.17)	(0.12)
Disposable income d1/d9	-12.88*	-3.58	-1.25	-0.64	-0.03	0.29	0.06	0.08	-0.13
	(5.55)	(2.07)	(1.31)	(0.86)	(0.63)	(0.47)	(0.35)	(0.25)	(0.15)
At risk of Poverty	0.73*	0.37*	0.24*	0.19*	0.16*	0.12	0.09	0.05	0.05*
	(0.26)	(0.13)	(0.10)	(0.09)	(0.08)	(0.06)	(0.05)	(0.04)	(0.03)
Unemployment	-0.06	-0.13	-0.07	-0.06	-0.02	0.00	-0.00	0.01	0.00
	(0.16)	(0.08)	(0.06)	(0.05)	(0.05)	(0.04)	(0.03)	(0.02)	(0.02)
Real GDP growth	0.03	0.04	0.05	0.05	0.04	0.04	0.02	0.01	-0.00
	(0.12)	(0.06)	(0.05)	(0.04)	(0.03)	(0.03)	(0.02)	(0.02)	(0.01)
Overall balance (% of GDP)	0.01	-0.03	-0.05	-0.04	-0.04	-0.04	-0.04*	-0.03*	-0.02*
	(0.12)	(0.05)	(0.04)	(0.03)	(0.03)	(0.02)	(0.02)	(0.01)	(0.01)
Inflation	0.30	0.21	0.18	0.08	0.07	0.02	0.01	0.01	-0.01
	(0.22)	(0.13)	(0.10)	(0.08)	(0.07)	(0.06)	(0.05)	(0.04)	(0.03)
Bailout program	2.08	1.00	0.62	0.40	0.14	-0.07	-0.15	-0.21	-0.23
	(1.41)	(0.69)	(0.56)	(0.47)	(0.41)	(0.37)	(0.32)	(0.26)	(0.17)
Soft austerity	0.91	0.08	-0.15	-0.19	-0.17	-0.21	-0.18	-0.18	-0.10
	(0.50)	(0.27)	(0.23)	(0.20)	(0.17)	(0.15)	(0.12)	(0.10)	(0.07)
Hard austerity	-0.32	-0.64	-0.67*	-0.60*	-0.50*	-0.50*	-0.43*	-0.31*	-0.10
	(0.84)	(0.39)	(0.31)	(0.25)	(0.21)	(0.17)	(0.14)	(0.12)	(0.08)
Country FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	360	360	360	360	360	360	360	360	360
R-squared	0.46	0.34	0.31	0.29	0.27	0.26	0.22	0.19	0.16

Note: * $p<0.05$. Panel-corrected standard errors in parentheses.

Table E6: Relative Income Growth by Decile, Adding Measure of Average Annual Wage Growth

Relative income growth bw/ deciles :	d1-d10	d2-d10	d3-d10	d4-d10	d5-d10	d6-d10	d7-d10	d8-d10	d9-d10
Left government	1.89*	1.01*	0.68*	0.54*	0.37*	0.27*	0.17	0.13	0.05
	(0.81)	(0.34)	(0.27)	(0.18)	(0.13)	(0.12)	(0.10)	(0.09)	(0.08)
Pre-tax Gini	0.62	0.22	0.29	0.29	0.24	0.23	0.16	0.10	0.10
	(0.75)	(0.38)	(0.34)	(0.23)	(0.19)	(0.16)	(0.13)	(0.12)	(0.09)
Left gov X Gini	2.42*	1.25*	0.74	0.51	0.37	0.07	0.01	-0.07	-0.08
	(0.85)	(0.47)	(0.39)	(0.28)	(0.23)	(0.18)	(0.15)	(0.13)	(0.10)
Disposable income d1/d9	-11.20*	-2.21	-0.28	-0.19	0.39	0.59	0.41	0.37	0.15
	(4.48)	(2.02)	(1.60)	(0.79)	(0.57)	(0.43)	(0.33)	(0.28)	(0.19)
Average annual wage growth	0.09	0.11*	0.09*	0.08*	0.07*	0.05*	0.04*	0.03*	0.02*
	(0.07)	(0.04)	(0.03)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
At risk of Poverty	0.75*	0.36*	0.21	0.19*	0.14*	0.11	0.09	0.05	0.06
	(0.24)	(0.13)	(0.11)	(0.08)	(0.07)	(0.06)	(0.05)	(0.04)	(0.03)
Unemployment	-0.05	-0.13	-0.07	-0.05	-0.02	0.00	0.00	0.01	0.00
	(0.14)	(0.08)	(0.07)	(0.05)	(0.04)	(0.03)	(0.03)	(0.02)	(0.02)
Real GDP growth	-0.03	0.01	0.04	-0.00	-0.00	0.00	-0.01	-0.01	-0.02
	(0.11)	(0.08)	(0.08)	(0.04)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)
Overall balance (% of GDP)	0.05	-0.01	-0.02	-0.04	-0.04	-0.04*	-0.04*	-0.03	-0.02
	(0.11)	(0.08)	(0.08)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Inflation	0.20	0.16	0.14	0.06	0.06	0.01	0.00	0.00	-0.02
	(0.20)	(0.13)	(0.11)	(0.08)	(0.07)	(0.06)	(0.05)	(0.04)	(0.03)
Bailout program	2.32	1.25	0.85	0.50	0.22	0.05	-0.03	-0.09	-0.09
	(1.46)	(0.82)	(0.75)	(0.47)	(0.39)	(0.33)	(0.29)	(0.24)	(0.18)
Soft austerity	0.80	0.07	-0.17	-0.19	-0.18	-0.21	-0.19	-0.17	-0.09
	(0.47)	(0.27)	(0.26)	(0.17)	(0.15)	(0.13)	(0.11)	(0.10)	(0.07)
Hard austerity	-0.58	-0.73	-0.72	-0.70*	-0.60*	-0.58*	-0.50*	-0.36*	-0.14
	(0.80)	(0.42)	(0.37)	(0.25)	(0.21)	(0.18)	(0.15)	(0.13)	(0.09)
Country FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	400	400	400	400	400	400	400	400	400
R-squared	0.45	0.38	0.33	0.35	0.34	0.32	0.28	0.23	0.19

Note: * $p < 0.05$. Panel-corrected standard errors in parentheses. Data on average annual wage growth are from Eurostat. Since data is not available for the UK, it drops out of this analysis.