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### Income Growth and Preferences for Redistribution: The Role of Absolute and Relative Economic Experiences

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# **Income growth and preferences for redistribution: The role of absolute and relative economic experiences**

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## **Abstract**

The unequal distribution of economic gains is a prominent factor behind policy preferences and recent electoral outcomes, but often fails to explain trends in preferences over time. This study introduces the distinction between “absolute” and “relative” economic experiences and explore how they shape preferences for redistribution. I argue that absolute and relative experiences have offsetting effects on redistribution preferences. Contrary to political economy theories, I expect that lower absolute income growth reduces demand for redistribution, because only favourable absolute economic contexts that are widely shared create the willingness to finance costly redistributive policies. Support for this expectation is provided in an empirical analysis that combines novel estimates for absolute and relative income growth with longitudinal survey data on redistribution preferences in 20 advanced democracies between 1985 and 2019. The distinction between absolute and relative economic experiences carries broader implications for research in political economy and comparative politics.

**Keywords:** comparative politics; preferences for redistribution; income growth; absolute and relative economic experiences

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## Introduction

The unequal distribution of economic gains is a prominent factor behind policy preferences and recent electoral outcomes in recent research in comparative politics. For example, it has been argued that demand for redistribution increases with adverse income expectations (Rueda and Stegmueller 2019), positional deprivation between groups (Burgoon 2019), and large changes in economic circumstances (Margalit 2019; O’Grady 2019). Income inequality, positional deprivation and adverse economic experiences relative to other groups are also associated with increasing protest and support for radical parties (Kurer et al. 2019; Burgoon et al. 2019; Engler and Weisstanner 2020a, 2020b). By focusing on the dynamics of economic experiences, these studies find more compelling evidence for political consequences of inequality than previous studies looking at static outcomes. However, against the predictions from these studies, neither aggregate redistribution support nor redistribution as a policy outcome increased correspondingly with the rise in economic inequality since the 1980s (Kenworthy and McCall 2008; Pontusson and Weisstanner 2018). Thus, the political effects of unequally distributed economic experiences over time seem more uncertain than predicted by the state-of-the-art research in comparative politics and political economy.

This paper seeks to resolve this puzzle by exploring how citizens’ personal experience of income growth in the past shapes their attitudes towards redistribution. I disentangle “absolute” and “relative” dimensions of economic experiences, which may have offsetting effects on preferences, and present novel empirical estimates of absolute and relative income growth. The theoretical framework is inspired by Mérola and Helgason (2016), who find opposite effects of absolute and relative income shifts in their experimental study of redistribution preferences in the United States, but whose framework does not discuss the joint impact of the two dimensions. The political economy literature generates uncontroversial predictions regarding the *relative* dimension of income growth (relative to other income groups): in line with the Meltzer-Richard model, lower relative income growth is associated with higher support for redistribution. However, this often ignores the paradoxical role of *absolute* income growth levels on redistribution preferences, holding constant the (un)equal relative distribution of growth across different income groups. Based on insights from public opinion literature, I argue that lower (or stagnating) absolute income growth leads to *lower*, not higher, demand for redistribution. This perspective focuses on the shared experiences of absolute economic well-being and argues that the negative experience of low absolute income

growth reduces social affinity between different groups and voters' inclination to help others out with costly redistributive welfare policies.

As an empirical contribution, this paper provides novel estimates for absolute and relative income growth at the bottom, middle and top of the income distribution in advanced democracies over the past decades. These estimates are calculated from Luxembourg Income Study (LIS) and OECD microdata, before combining them with long-term public opinion data on redistribution and welfare preferences from the International Social Survey Programme (ISSP) and European Social Survey (ESS) in 20 advanced democracies between 1985 and 2019. This sample significantly expands the scope of studies using only the ESS, available from 2002 onwards, which misses out on most of the period of rising inequality since the 1980s.

The findings show an almost opposite impact of absolute and relative economic experiences. Lower *relative* income growth – especially relative to top income groups – is associated with higher demand for redistribution, although less strongly than in other studies. But in stark contrast with the political economy literature, the experience of low or stagnating incomes in *absolute* terms is associated with *lower* demand for redistribution. These results generalise and provide external validity to the experimental findings of Mérola and Helgason (2016) from the US case. The offsetting effects of absolute and relative income growth are consistent with the general absence of rising aggregate support for redistribution. The observation that many countries have seen non-inclusive economic growth for long time periods – in the US but also in Europe – would explain how stagnating incomes have reduced the willingness to redistribute resources to others among those voters that have lost out in *absolute* terms, independently from the rise in inequality.

The framework distinguishing between absolute and relative economic dynamics carries broader implications for political economy and comparative politics research. First, this study refines the picture on the political (non-)consequences of rising economic inequality. The framework complements studies on dynamic measures of economic disadvantage that focus purely on the relative dimension (Burgoon et al. 2019; Kurer et al. 2019). Second, the framework corroborates some findings of the economic voting literature, which is often limited to macro-level indicators. This paper's empirical analysis, based on real income changes over a five-year period, provides additional evidence that voters "benchmark" economic performance against dynamic reference points (Aytaç 2018). Third, the framework fruitfully combines political economy and public opinion perspectives. Such a synthesis is in line with calls for an "electoral turn" in political economy research (Beramendi et al. 2015), by taking into

account different underlying motivations of shifts in individuals' economic position. However, far from becoming obsolete, mapping the politics of inequality in a framework of absolute and relative experiences clearly reinforces how economic conditions matter for policy preferences and behaviour. The joint effect of absolute and relative economic experiences might become key in explaining electoral outcomes, including support for radical parties.

## **Theory**

A key motivation of this study is to move research on policy preferences – specifically, attitudes towards redistribution – away from the effects of macro-level economic inequality and instead move towards the effects of individuals' or groups' personal economic experiences. Traditionally, political economy approaches start from Meltzer-Richard's (1981) "median voter hypothesis" in exploring whether economic inequality leads to political demand for redistribution. This model asserts that individuals' tax preferences are a negative function of their current income and predicts larger demand for redistribution as societies become more unequal – specifically, as the distance between the median voters' income and the mean income in society increases. However, the conventional wisdom is that more unequal societies tend to have lower levels redistribution (Moene and Wallerstein 2001; Iversen and Soskice 2009). This lack of cross-national evidence in favour of the median voter hypothesis has been referred to as the "Robin Hood paradox" (Lindert 2004: 15).

Many contemporary studies address this paradox by focusing on the intertemporal dynamics of self-interest-based explanations.<sup>1</sup> Introducing insurance motives abandons the static nature of the Meltzer-Richard model and its assumption that redistribution preferences are largely stable unless there are exogenous changes to the income distribution (see Avgadic 2019). As a result, future income expectations and mobility prospects determine redistribution preferences: holding risk exposure constant, individuals that expect higher future incomes (upward mobility) will be less concerned about redistribution (Bénabou and Ok 2001; Moene and Wallerstein 2001). However, it is tricky to measure income expectations. Researchers either have to rely on strong assumptions about how characteristics like age and experience objectively shape future incomes and expectations over the life-cycle (Rueda and Stegmueller

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<sup>1</sup> Another major strand looks at 'other-regarding preferences' (Dimick et al. 2018). My framework is not incompatible with other-regarding models, insofar as it explicitly situates personal growth experiences in relation to the experience of other groups. However, I argue that the effects of absolute and relative economic experiences are not primarily due to other-regarding preferences, and I provide an empirical test for this claim below.

2019). Or, alternatively, researchers must rely on subjective perceptions. Yet the assumption that respondents have a clear knowledge about actual mobility patterns does not seem to hold; individual-level perceptions are highly inaccurate and, more importantly, misperceptions vary across contexts (Alesina et al. 2018: 533).

In contrast, this paper evaluates the effect of economic experiences as retrospective changes between past and present conditions. To some extent, retrospective economic changes already feature prominently in the study of “economic shocks” (Margalit 2019) as well as the more long-term role of economic experiences from socialization (O’Grady 2019). The economic voting literature also has argued that voters “benchmark” economic outcomes against given “reference points”. They are especially likely to compare current experiences relative to recent past outcomes (Aytaç 2018). Support for this idea comes from the recent literature on “positional deprivation”, which is essentially a purely relative measure for income growth over a five-year period, and which correlates meaningfully with higher support for redistribution and support for radical left and right parties (Burgoon 2019; Burgoon et al. 2019). Relative deterioration of economic prospects has also been found to increase protest activity (Kurer et al. 2019). In this paper, I follow these previous studies and argue that real income growth over the recent past (in this case, over a five-year period) is a theoretically meaningful indicator to study the political impact of economic experiences.

### ***Absolute and relative economic experiences***

The main argument in this paper expects fundamental differences in the effects of absolute and relative economic experiences on political attitudes and behaviour. Although the distinction between absolute and relative economic outcomes is prominent in the global poverty (Chen and Ravallion 2013) and social mobility literature (Bukodi et al. 2019), only the experimental study by Mérola and Helgason (2016) in the US addresses the relevance of this distinction for redistributive preferences. Building on their work, I define *absolute income growth* as the proportional increase or decrease in an individuals’ income over time. In contrast, *relative income growth* denotes an individuals’ income growth relative to the growth experienced by other groups. In short, I expect that the two logics differ as follows. Absolute growth emphasises shared experiences, which are the basis of social affinity and willingness to provide redistribution towards others. In contrast, relative growth is about group differences and unequally distributed gains (or losses), which triggers self-interested behaviour and leads to polarised preferences.

I begin with *relative income growth*, which leads to straightforward hypotheses from a political economy perspective. If income growth is unequally distributed, some individuals or groups stand to gain more from tax-transfer redistribution than others (Meltzer and Richard 1981). Relative income growth in this view is a zero-sum game, in which each group's gains are matched by the losses of other groups. These relative gains or losses are what defines an individual's economic self-interest, and lead to polarised preferences for redistribution and welfare policy: individuals that have seen relatively higher growth than the average have less to gain from taxation and will demand less redistribution, and vice versa. Note that this should apply irrespective to the levels of current income. Low-income individuals might become opposed to redistribution if they have been catching up over time relative to other groups. Alternatively, high-income individuals might become more supportive (or rather, less opposed) of redistribution if their income growth experience has lagged behind others.

This negative relationship between relative income growth and redistribution preferences might be particularly strong for income growth relative to the top. This is an important insight of the literature on “positional deprivation”, defined as “a situation where the increase (decrease) in disposable income of an individual is smaller (larger) relative to the growth in income of other groups in the same country's income distribution.” (Burgoon et al. 2019: 52). Burgoon et al. (2019) find that deprivation relative to the top tends to increase support for radical left parties, while deprivation relative to the bottom increases support for radical right parties. With respect to redistributive preferences, the literature on the “structure of inequality” also highlights the key role of the distance between middle-class voters relative to the bottom and the top of the distribution (Lupu and Pontusson 2011; Pontusson and Weisstanner 2018). Support for redistribution is especially high when the top grows apart from the rest of the distribution, enabling a coalition between low-income and middle-income groups (Lupu and Pontusson 2011). In line with these arguments, I expect that the association between relative income growth and support for redistribution is stronger (i.e. more strongly negative) if growth is assessed relative to top income groups. In contrast, if growth lags behind relative to bottom income groups, there might still be an average incentive to support redistribution (or, become less opposed to it). But in such situations, voters might also feel resentment against the “undeserving/lazy poor” and turn to non-redistributive political actors like radical right parties (Burgoon et al. 2019: 60). Thus, the effect of relative income growth relative to the bottom might be weaker. Despite these nuances, I generally expect a negative relationship between relative income growth and redistribution preferences:

*H1: Lower relative income growth is associated with higher support for redistribution.*

When it comes to *absolute* income growth, however, different mechanisms apply. The key difference is that, once we account for the relative dimension of economic experiences (inequality between different groups), absolute income growth captures the *shared* trends in income gains across the whole population. In this view, it helps to view the effects of absolute income growth through the lens of a public opinion perspective and in particular the study of “policy mood” popular in the US (see Stimson 2018). Starting with Alt (1979), public opinion research has long emphasised that economic downturns, and the threat it poses to household incomes, can reduce solidarity with other groups. Central to this hypothesis is the observation that left-wing redistributive policy “does not come cheap” (Durr 1993: 159). “While liberal elites may push such policies at all times, such an agenda can only be supported by a healthy economy or (to be more accurate) by a populace enjoying the fruits of a healthy economy.” (*ibid.*). Thus, redistributive welfare policies are seen as a “luxury good”, where the willingness of the public to engage in redistributive spending depends on voters being in a comfortable economic position to pay for these costly policies. The cross-national empirical evidence for the policy mood hypothesis holds generally favourable: aggregate policy preferences move to the left under economic expansions, and to the right in economic downturns (Stevenson 2001; Markussen 2008; Barth et al. 2015: 573; Neundorf and Soroka 2018; Wlezien and Soroka 2019).

However, apart from redistribution being costly, a second element is central to redistribution preferences: the fact that absolute economic experiences tend to be shared in common with other groups and create social affinity between different groups. As Mérola and Helgason (2016: 1111) point out, only situations of positive absolute economic changes create positively connotated perceptions of a common fate: “a feeling of different groups being not only “on the same boat” but also being on a “desirable boat”.” This in turn results in higher social affinity (or reduced social distance), which is positively associated with redistribution preferences (Lupu and Pontusson 2011; Alt and Iversen 2017). In contrast, negative absolute economic experiences – even if they are shared widely – fail to generate any positive group identification and may even prompt individuals to distance themselves from the group given its negative experience. Hence, negative or stagnating absolute economic experiences would lead to reduced support for redistribution.



It is important to note that this leads to the exact opposite prediction to the received wisdom in the political economy literature. In the latter, the consensus is that adverse income shocks increase support for welfare state protection (Blekesaune 2007; Margalit 2013; Guillaud 2013). However, these studies are mainly about the event of becoming unemployed. While unemployment certainly matters, arguably scholars should not forget to look at incremental income growth in times where low levels of unemployment coincide with wage stagnation and low-paid jobs (Thelen 2019). More importantly, though, unemployment only ever affects a part of the population and its *relative* risk is very unequally distributed across the population (Pontusson and Weisstanner 2018). Therefore again, it is important to account separately for both absolute and relative dimensions of economic experiences.<sup>2</sup> In line with the distinction between unemployment and other economic changes, and precisely in line with my framework, a recent study finds that holding the level of unemployment constant, people’s solidarity with the unemployed is lower in economic downturns (Uunk and van Oorschot 2019). This leads to the second hypothesis expecting a positive relationship between absolute income growth and redistribution preferences:

*H2: Lower absolute income growth is associated with lower support for redistribution.*

The reasoning for the second hypothesis generates testable implications about the “shared experiences” mechanism and the interaction between absolute and relative income growth. The condition of a “shared experience”, which underlies H2, implies that the positive effect of absolute income growth should be stronger when growth is distributed equally compared to others and all groups grow at a similar pace. The effect should be weaker if growth is very unequally distributed and the self-interest logic behind relative economic experiences prevails: Groups that grow at a much lower[higher] pace demand more[less] redistribution. I test this idea using non-linear interactions between absolute and relative income growth.

## **Data**

The empirical analysis uses survey data on redistribution preferences from 20 advanced democracies between 1985 and 2019. The long time period stands in contrast to many other

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<sup>2</sup> Wlezien and Soroka (2019) develop a synthesis of the public opinion perspective: Long-term economic growth increases support for welfare policy; inequality dampens support; unemployment has a countercyclical short-term effect. Unfortunately, their synthesis is based on aggregate-level indicators and confined to the US.

studies on redistribution preferences which do not explicitly take a longitudinal perspective.<sup>3</sup> Following earlier literature (Lupu and Pontusson 2011; VanHeuvelen 2017; VanHeuvelen and Copas 2018), this paper combines two survey sources: the International Social Survey Programme (ISSP) and the European Social Survey (ESS). I then match these survey data with estimates for absolute and relative income growth obtained from Luxembourg Income Study and the OECD's Income Distribution Database. The final sample for the working-age population (aged 18-65, see below) encompasses 250,845 individuals from 20 countries nested in 228 country-years (for details, see Supplementary Material 1).

### ***Support for redistribution***

The dependent variable is support for redistribution. Support is measured with the 5-point answer scales from the almost identical questions whether the “*government should take measures to reduce differences in income levels*” (ESS) and “*It is the responsibility of the government to reduce the differences in income between people with high incomes and those with low incomes*” (ISSP). I code redistribution support as an ordinal variable that ranges from 1=“*strongly disagree*”, 2=“*disagree*”, 3=“*neither nor*”, 4=“*agree*”, and 5=“*strongly agree*”. Don't know, refuse and other answers were coded as missing.

### ***Absolute and relative income growth***

The key explanatory variable is the experience of income growth both in absolute and in relative terms. Following the approach outlined in Nolan and Thewissen (2018; see also Nolan 2018), I assess how real disposable household incomes have evolved at different points of the income distribution from around 1980 to 2017. The two sources are Luxembourg Income Study (LIS 2020) and the OECD Income Distribution Database; the latter for countries where LIS data is missing and the coverage of OECD data is better (see Nolan and Thewissen 2018: 17-21). The underlying income estimates are adjusted for household size (square root equivalence scale) and inflation (consumer price index, 2015=100).

I estimate income growth at three points of the income distribution: the bottom (10<sup>th</sup> percentile), the middle (median) and the top (90<sup>th</sup> percentile). *Absolute income growth* is measured as the average annual percentage-change in real disposable household incomes over

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<sup>3</sup> Other explicitly longitudinal studies use ESS data: Jæger (2013) uses a pseudo panel approach, while Schmidt-Catran (2016) distinguishes between-country and within-country effects. As Gonthier (2017) shows, however, preference dynamics over the time period covered by the ESS are heavily influenced by the Great Recession.

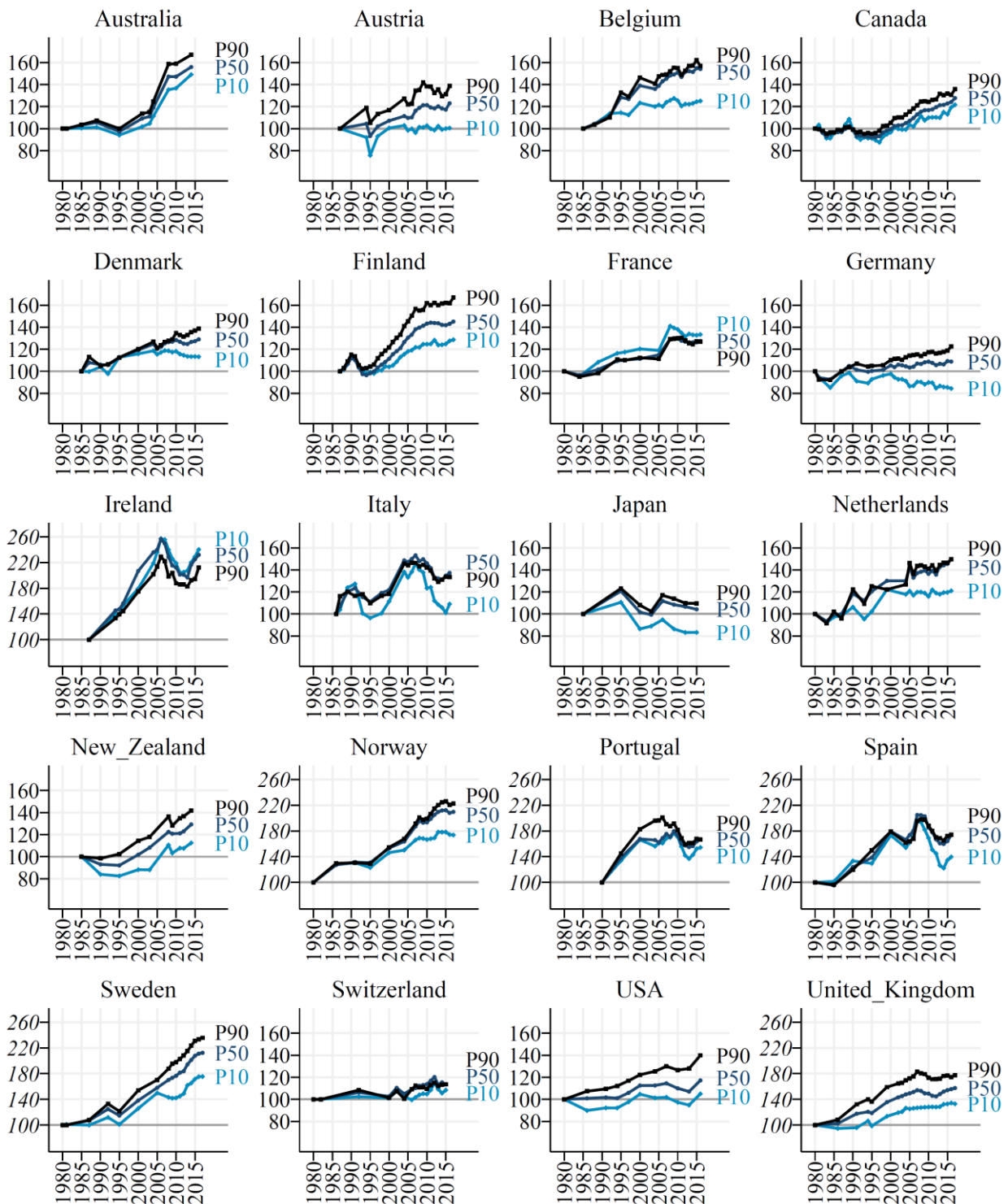
a five-year period (between  $t_0$  and  $t-4$ ).<sup>4</sup> For example, income growth in 2016 is estimated as the average of annual growth rates in 2015-2016, 2014-2015, 2013-2014, and 2012-2013. *Relative income growth* is measured with three different reference frames. (1) Income growth *relative to the average* is the difference between income growth at the bottom, the middle or the top minus the average of the three. (2) Income growth *relative to the top* is the difference between income growth at the bottom, the middle or the top minus the growth at the top. (3) Income growth *relative to the bottom* is the difference between income growth at the bottom, the middle or the top minus the growth at the bottom.

To give an idea about the level and distribution of real income growth, Figure 1 plots its evolution at the bottom, middle and the top of the distribution in each country. The data are indexed in 1980 or the first year available; note that for readability, two different y-axis scales are used. The key message shown in the graph is that there is a large variation in the dynamics of income growth – both in absolute and relative terms. We can roughly distinguish four ideal-typical growth trajectories. First, countries that have seen high levels of absolute growth but unequally distributed in relative terms (“non-inclusive growth”), including the US, the UK (1980-1995), New Zealand, Finland and several other European nations. Second, countries with low absolute growth and unequal relative growth (“non-inclusive stagnation”), such as Germany or Japan. Third, countries with high absolute growth and equally distributed relative growth (“inclusive growth”), which include – at least before the Great Recession – Ireland, Spain, Norway or the UK (1995-2007). Fourth, a cluster with low absolute growth and equal relative growth (“inclusive stagnation”), such as France or Switzerland. These results refer to the working-age population; similar patterns are obtained for real income growth among the entire adult population (Supplementary Material 2).

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<sup>4</sup> A 5-year period is also used by Burgoon et al. (2019: 64), who argue that this is a meaningful time frame to voters assessing income change across the election cycle. I show in Supplementary Material 4 that the findings are robust using 3-year and 4-year periods.

**Figure 1: Real income growth (1980-2017)**



*Notes:* The figures show trends in real incomes among low-income (P10, 10<sup>th</sup> percentile), middle-income (P50, median) and high-income (P90, 90<sup>th</sup> percentile) individuals since 1980 or earliest observation available. Indexed data with 100=1980 or first year available. Two different index scales used. Incomes are real disposable household incomes, adjusted for household size and inflation. The data refer to the working-age population (aged 18-65). Data computed from Luxembourg Income Study (LIS 2020) and OECD Income Distribution Database (see Supplementary Material 1).

## *Statistical analysis*

The next step is to link these income growth estimates with the ISSP/ESS surveys, for which I recode the ISSP/ESS's *current income* variable. Following Donnelly and Pop-Eleches (2018: 358-359), I assign midpoints to each income bracket and apply a correction for imputing the midpoint of the top category. I equalise incomes by dividing by the square root of the number of household members. Finally, I generate five (roughly) equally sized income quintiles. These quintiles provide the link between an ISSP/ESS survey and the LIS/OECD income growth estimates in a given year.<sup>5</sup> The LIS/OECD estimates for absolute and relative income growth at the 10<sup>th</sup> percentile are assigned to respondents in the ISSP/ESS's bottom income quintile, the LIS/OECD growth estimates at the median to respondents in the ISSP/ESS's middle quintile, and the LIS/OECD growth estimates at the 90<sup>th</sup> percentile to respondents in the ISSP/ESS's top quintile. For respondents in the ISSP/ESS's lower-middle income quintile, I assign the average between the LIS/OECD growth estimates at the 10<sup>th</sup> percentile and the median. For respondents in the ISSP/ESS's upper-middle income quintile, I assign the average between the LIS/OECD growth estimates at the median and the 90<sup>th</sup> percentile.

This linking procedure gives rise to two possible caveats. First, the measurement of income growth assumes that there is only limited mobility of individuals between income groups over time. To address this, I limit the main analyses to the working-age population (aged 18-65 years), which dampens the extent of income fluctuations due to retirement and cross-national variation in pension design. Second, the procedure implies that income growth data are estimated at the group level whereas redistribution preferences vary at the individual level. I address this concern by presenting specifications at two different units of analysis. The first models are individual-level ordered logistic regressions with redistribution support (1-5 scale) as the dependent variable. These are complemented with aggregate-level OLS regressions, collapsing at the country-year-quintile level. The dependent variable in this specification is the share of respondents in each quintile that agree or strongly agree to support redistribution (the top two categories on the 5-point scale).

All analyses include country and year fixed effects, to account for unobserved heterogeneity, and a parsimonious set of control variables: age (in years), gender (1=female, 0=male), education (1=tertiary education, 0=non-tertiary), unemployment (1=unemployed,

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<sup>5</sup> Like Burgoon et al. (2019: 61), I interpolate linearly the values between missing LIS/OECD time periods to match the exact ISSP/ESS survey year.

0=other), and survey source (1=ESS, 0=ISSP). To account for intragroup correlation induced by assigning all individuals within an income quintile the same income growth estimates, standard errors are clustered at the country-year-quintile level.<sup>6</sup>

## Findings

Table 1 presents the main regression results of redistribution preferences among the working-age population. I discuss the results for the entire adult population as well as various robustness tests below. The first two models contain individual-level analyses, with redistribution support measured on a 5-point scale and using ordered logistic regressions. Models 3 and 4 then proceed to an aggregate-level analysis where the survey data are averaged at the level of income quintiles. Most control variables are in line with the established literature on redistribution preferences: Support for redistribution is higher among lower income groups and non-tertiary educated, female, older or unemployed respondents.<sup>7</sup>

The main parameters of interest of the individual-level analysis are the coefficients for absolute and relative income growth. The key finding (statistically significant at  $p < 0.001$  across all specifications in Table 1) is that the experience of *absolute* income growth has a positive effect on preferences for redistribution. In line with my second hypothesis, individuals with lower[higher] levels of real income growth over a five-year period are likely to demand less[more] redistribution. This effect is net of their current income rank and net of the relative distribution of income growth.

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<sup>6</sup> This procedure is similar Burgoon et al. (2019: 69). The results are substantively similar with different types of clustering, such as country-year or country-quintile clustering.

<sup>7</sup> Age is not significant in the aggregate-level analysis, and a higher share of unemployment within an income group – a different concept from the individual-level analysis about being an unemployed respondent herself – results in a lower average redistribution support.

**Table 1: Income growth and support for redistribution**

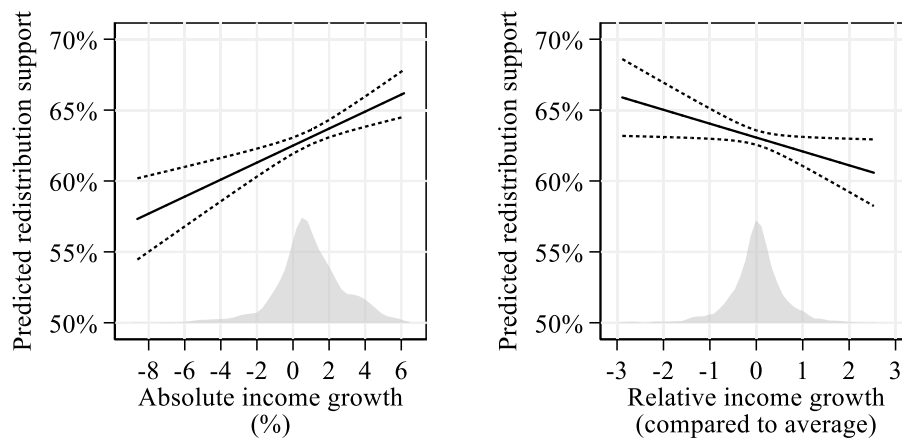
	Individual level		Aggregate level (income quintiles)	
	(1)	(2)	(3)	(4)
Absolute income growth (t-4 to t0)	0.025*** (0.007)	0.024*** (0.007)	0.006*** (0.001)	0.006*** (0.002)
Income growth relative to average (t-4 to t0)	-0.036+ (0.019)		-0.010* (0.005)	
Income growth relative to top (t-4 to t0)		-0.020 (0.013)		-0.008* (0.003)
Income growth relative to bottom (t-4 to t0)		-0.007 (0.010)		-0.001 (0.003)
Current income (2 <sup>nd</sup> vs 1 <sup>st</sup> quintile)	-0.113*** (0.026)	-0.115*** (0.026)	-0.029** (0.009)	-0.030** (0.009)
Current income (3 <sup>rd</sup> vs 1 <sup>st</sup> quintile)	-0.277*** (0.026)	-0.281*** (0.026)	-0.062*** (0.010)	-0.064*** (0.010)
Current income (4 <sup>th</sup> vs 1 <sup>st</sup> quintile)	-0.506*** (0.026)	-0.510*** (0.026)	-0.110*** (0.012)	-0.112*** (0.011)
Current income (5 <sup>th</sup> vs 1 <sup>st</sup> quintile)	-0.856*** (0.030)	-0.861*** (0.030)	-0.179*** (0.016)	-0.180*** (0.016)
Tertiary educated respondent (dummy) (M3-4: share of tertiary educated respondents)	-0.214*** (0.013)	-0.214*** (0.013)	-0.069** (0.025)	-0.074** (0.025)
Female respondent (dummy) (M3-4: share of female respondents)	0.243*** (0.010)	0.243*** (0.010)	0.141** (0.049)	0.139** (0.049)
Age of respondent (years) (M3-4: average age)	0.008*** (0.000)	0.008*** (0.000)	-0.001 (0.001)	-0.001 (0.001)
Unemployed respondent (dummy) (M3-4: share of unemployed respondents)	0.216*** (0.020)	0.215*** (0.020)	-0.158* (0.060)	-0.166** (0.061)
Pseudo R <sup>2</sup> / R <sup>2</sup>	0.05	0.05	0.86	0.86
N observations	250,845	250,845	1,140	1,140
N countries	20	20	20	20
N country-years	228	228	228	228

Notes: +  $p < 0.1$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ . Ordered logistic (M1/M2) and OLS (M3/M4) regressions for the working-age population (18-65 years). Dependent variables: 5-point scale of redistribution support (M1/M2) and average redistribution support by income quintile (M3/M4). Standard errors (in parentheses) clustered by country-year-income quintile. Country and year fixed effects, and ESS survey dummy, included (not shown).

The association between *relative* income growth and redistribution preferences is less clear. Relative income growth compared to the average (of the top, middle and bottom decile's growth) is negatively associated with redistribution support, as expected in the first hypothesis, but only statistically significant at the 90% level in Model 1 and the 95% level in Model 3. In line with political economy theories, high growth relative to the top seems to have a stronger negative association with redistribution preferences than growth relative to the bottom. But the effect is only statistically significant in Model 4 (at the 95% level). Overall, the evidence for relative growth measures – which are also the basis of recent measures for positional deprivation – is weaker than in previous studies with shorter time periods (e.g. Burgoon 2019). In contrast, absolute income growth has a clear positive effect.

To reveal the substantive magnitude of the effect, Figure 2 plots the predicted probabilities from the aggregate-level analysis (Model 3), which can be interpreted as within-group changes. The left-hand panel of Figure 2 shows that moving across the spectre of average annual rates of absolute income growth can result in a noticeable increase in the probability of redistribution support from below 60 percent to above 65 percent. This effect is at least as strong as the predicted magnitude of the effect of relative income growth. In fact, the striking conclusion of Figure 2 is the observation that absolute and relative economic changes have almost exactly opposite and off-setting effects.

**Figure 2: Absolute and relative income growth and predicted support for redistribution**



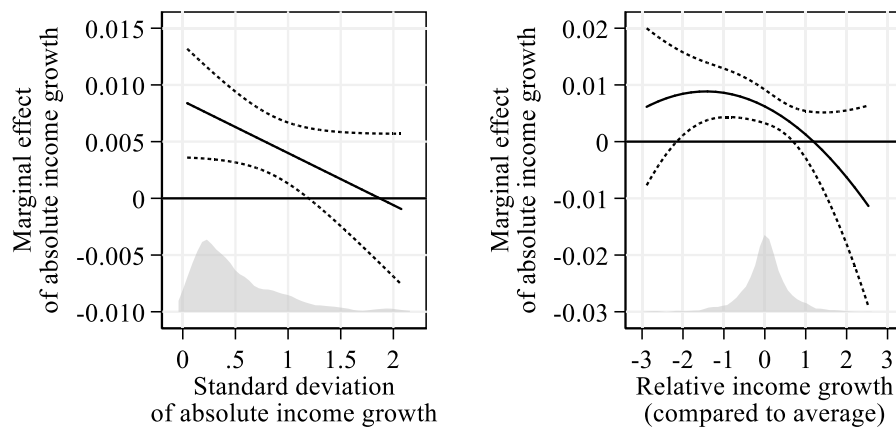
*Notes:* Predicted probabilities from Model 3 in Table 1 (aggregate-level analysis, working-age population). 95% confidence interval (dashed lines) and kernel densities (grey) shown.

The condition of a “shared experience” was hypothesized to be an important mechanism that underlies the effect of absolute growth. The data allows us to test the plausibility of this mechanism in two ways, both based on the idea that we should see a stronger effect of absolute income growth in contexts where growth has been relatively equally distributed. First, this should be the case in situations where the variation of absolute income growth is lower. Indeed, the left-hand panel in Figure 3 shows that if we interact absolute income growth with the standard deviation of relative income growth, the effects of absolute income growth are stronger where the variation is closer to zero and growth is more equally distributed. Second, if we interact absolute and relative income growth (the latter in a quadratic form), we see that the effect of absolute income growth takes the form of an inverted u-curve: Its effects are most precisely estimated if relative income growth is around zero, that is, if a respondents’ income group has grown at about the same pace as the other income groups. In contrast, if a group is



doing far better than others (high levels of relative income growth), then the condition of a “shared experience” is not given and absolute income growth does not make people more supportive of redistribution. Overall, both results in Figure 3 are fully consistent with the theoretical mechanism that positive absolute income growth may increase social affinity, if the experience is shared with other groups, and from this sense of group identification increase the willingness to help out others with expensive redistributive policies. The opposite applies to declining or stagnating absolute incomes, which may lead individuals to want to disassociate themselves from the groups’ negative experience, reducing their support for redistribution.

**Figure 3: The effect of absolute income growth conditional on “shared experience”**



*Notes:* Predicted probabilities based on Model 3 in Table 1 (aggregate-level analysis, working-age population), with interactions added: between absolute income growth and a measure of standard deviation of absolute income growth (left-hand panel); between absolute income growth and a quadratic term of relative income growth added (right-hand panel). 95% confidence interval (dashed lines) and kernel densities (grey) shown. Full results: Supplementary Material 3.

The main results – notably, the strong effects of absolute income growth – are robust to several alternative specifications, including using binary logistic regression or alternative income growth measures (Supplementary Material 4). The results are substantively similar dropping a country each. Most importantly, the results are substantively similar for subset samples of both tertiary educated and non-tertiary educated respondents. This is an important finding that allows us ruling out the alternative explanation that the effects of absolute income growth are a function of altruistic or other-regarding preferences. Such preferences are more strongly adopted among higher-educated people, who tend to express more concern toward other groups like the elderly, the sick and immigrants (Paskov and Dewilde 2012). As the results hold up for both education groups separately, several other alternative mechanisms can be rejected that

involve either the distribution of current socio-economic resources or values and social preferences that vary along educational lines.

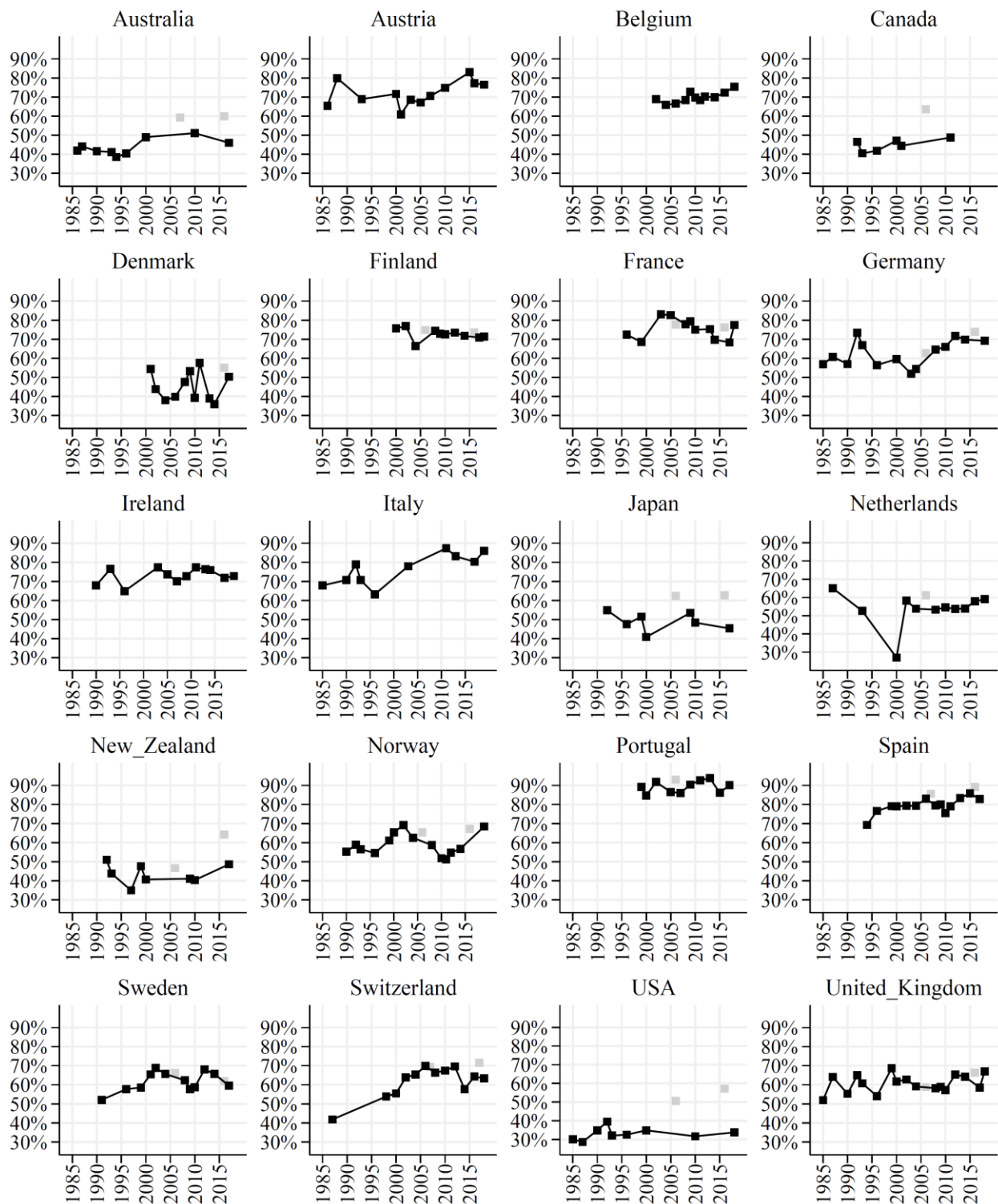
### **Implications for aggregate support for redistribution**

Distinguishing the opposite political effects of absolute and relative growth measures may eventually help us in solving one of the most prominent puzzles in comparative politics: the lack of rising redistribution support in an era of rising inequality. According to recent state-of-the-art research, we should see increasing demand for redistribution in contexts where inequality rises and income expectations lag behind (Rueda and Stegmueller 2019) or individuals experience “positional deprivation” (Burgoon 2019; Burgoon et al. 2019), for example. However, as Figure 4 shows, aggregate support for redistribution among the working-age population<sup>8</sup> did not increase in many of the places where such developments were found to happen, like the US, the UK, Japan or New Zealand, but also Germany, Finland or Sweden. In all these countries, income inequality has increased, and relative income growth has been very unequally distributed across income groups (see Figure 1). But Figure 4 shows that average support has not increased noticeably in these countries for most of the period since the 1980s.

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<sup>8</sup> Results are similar for the total population, see Supplementary Material 2.

**Figure 4: Aggregate support for redistribution**



*Note:* Percentage of respondents that “agree” or “strongly agree” that government should reduce income differences. Average of the working-age population (18-65 years). Grey: 4-point scale measure (ISSP 2006/2016).  
*Source:* Own calculations based on ISSP and ESS surveys.

This puzzling lack of rising demand for redistribution can partly be explained when we look at absolute income growth. Real incomes have stagnated or even declined in the US, the UK, New Zealand and Germany for non-negligible shares of voters in the past decades (see Figure 1). If citizens' economic perspectives lag behind relative to others, this certainly introduces a rational incentive for them to support expanding redistributive and welfare policies. But at the same time, these groups are affected by a salient sense of stagnation in absolute terms. This stagnation, as argued based on public opinion perspectives, can reduce group identification and solidarity with others. The same might be true in Japan, France, or Switzerland, where real incomes have stagnated for almost the entire population. Perhaps then, despite rising inequality, the absence of rising demand for redistribution in countries where significant shares of voters have seen stagnating absolute economic fortunes is no coincidence. Admittedly, Figure 4 is somewhat suggestive, as it only shows average levels of support and is purely descriptive. Moreover, it does not necessarily show a clear pattern of rising support for redistribution in countries with high, and equally shared, levels of absolute growth, like Norway or pre-crisis Ireland or Spain. That said, Figure 4 provides quite compelling evidence about the lack of increasing aggregate political demand for redistribution in many countries where major groups of voters were affected by stagnation of absolute economic conditions.

## **Conclusion**

This paper has used extensive comparative survey data from the mid-1980s to assess how economic experiences shape redistributive policy preferences in advanced democracies. While the relationship between growth and equality is a classical topic in political economy, I have argued that a careful distinction between absolute and relative economic experiences is important to better understand how voters' policy preferences evolve in times of rising economic inequality. The results suggest that absolute and relative economic experiences are associated in opposite direction with redistribution preferences.

The main intuition behind this argument is that absolute economic well-being, to the extent that the favourable experience is shared with others, is a pre-condition for the willingness to provide resources to the benefit of other groups. This intuition has found robust support in public opinion research on the factors shaping policy mood (Durr 1993; Stevenson 2001), as well as in the pioneering experimental research by Mérola and Helgason (2016). Nevertheless, it will be necessary to refine the framework on absolute and relative economic experiences and test its broader implications on a larger set of policy preferences as well as on voting behaviour.

Such a framework on absolute and relative economic experiences matters for broader debates in comparative politics and political economy in at least two ways. First, a longitudinal examination of aggregate-level policy preferences can fruitfully combine insights from both political economy and public opinion approaches. Considering the diverging effects of absolute and relative income growth, the absence of rising aggregate-level demand for redistribution is not so puzzling. Future work could extend this longitudinal perspective by taking into account additional survey sources with similar policy items (Caughey et al. 2019) and/or constructing “pseudo panels” with synthetic cohorts of socio-demographic groups (Jæger 2013). The latter approach could mitigate some worries about the cross-sectional nature of the surveys, which assumes that representative individuals at the bottom, middle and top do not move their income position over a few years’ time.

The second implication is to re-examine the claim that absolute economic hardship leads to more pro-redistributive political attitudes and behaviour. This ubiquitous assumption in political economy might be true regarding changes in unemployment (Wlezien and Soroka 2019) but not regarding more gradual changes of voters’ real incomes. A negative association between adverse economic changes and redistribution support might be limited to the relative dimension – “positional deprivation” relative to other groups (Burgoon 2019; Burgoon et al. 2019). The growing evidence for such fine-grained economic distinctions shows how a framework on absolute versus relative experiences may prove relevant for electoral politics beyond the issue of redistribution, especially with regard to support for radical parties (Engler and Weisstanner 2020a, 2020b). The answer to the question whether voters “left behind” in their income and living standards turn towards political alternatives that offer radical economic and non-economic platforms might be the exact opposite depending on whether we mean “left behind” in absolute or relative terms.

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## Supplementary Material 1: Sample details

Surveys used:

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**European Social Survey** (<http://www.europeansocialsurvey.org/>):

Rounds 1 (ed. 6.6), 2 (ed. 3.6), 3 (ed. 3.7), 4 (ed. 4.5), 5 (ed. 3.4), 6 (ed. 2.4), 7 (ed. 2.2), 8 (ed. 2.1), 9 (ed. 1.1)

**International Social Survey Programme** (<https://www.gesis.org/issp/home>):

ISSP 1985 (Role of Government I, ZA1490), ISSP 1987 (Social Inequality I, ZA1680), ISSP 1990 (Role of Government II, ZA1950), ISSP 1992 (Social Inequality II, ZA2310), ISSP 1993 (Environment I, ZA2450), ISSP 1996 (Role of Government III, ZA2900), ISSP 1999 (Social Inequality III, ZA3430), ISSP 2000 (Environment II, ZA3440), ISSP 2009 (Social Inequality IV, ZA5400\_v4-0-0), ISSP 2010 (Environment III, ZA5500\_v3-0-0), ISSP 2017 (Social Networks, ZA6980\_v2-0-0)

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*Note:* ISSP 2006 (Role of Government IV, ZA4700) and ISSP 2016 (Role of Government V, ZA6900\_v2-0-0) not used in the main analysis because redistribution preferences only available as a 4-point scale.

Country-years used (year when majority of the fieldwork was conducted):

ISSP	ESS
- AUS1986 AUS1987 AUS1990 AUS1993 AUS1994 AUS1996 AUS2000 AUS2010 AUS2017;	- AUT2003 AUT2005 AUT2007 AUT2015 AUT2016 AUT2018;
- AUT1988 AUT1993 AUT2000 AUT2001 AUT2010 AUT2018;	- BEL2002 BEL2004 BEL2006 BEL2008 BEL2011 BEL2012 BEL2014 BEL2016 BEL2018;
- BEL2009 BEL2010;	- CHE2002 CHE2004 CHE2006 CHE2008 CHE2010 CHE2012 CHE2014 CHE2016 CHE2018;
- CAN1992 CAN1993 CAN1996 CAN2000 CAN2001 CAN2011;	- DEU2003 DEU2004 DEU2006 DEU2008 DEU2010 DEU2012 DEU2014 DEU2016 DEU2018;
- CHE1987 CHE1998 CHE2000 CHE2008;	- DNK2002 DNK2004 DNK2006 DNK2008 DNK2010 DNK2013 DNK2014;
- DEU1985 DEU1987 DEU1990 DEU1992 DEU1993 DEU1996 DEU2000 DEU2010 DEU2018;	- ESP2002 ESP2004 ESP2006 ESP2008 ESP2011 ESP2013 ESP2015 ESP2017;
- DNK2001 DNK2009 DNK2011 DNK2017;	- FIN2002 FIN2004 FIN2006 FIN2008 FIN2010 FIN2012 FIN2014 FIN2016 FIN2018;
- ESP1994 ESP1996 ESP1999 ESP2000 ESP2009 ESP2010 ESP2017;	- FRA2005 FRA2006 FRA2008 FRA2010 FRA2013 FRA2014 FRA2016 FRA2018;
- FIN2000 FIN2009 FIN2010 FIN2017;	- GBR2002 GBR2004 GBR2006 GBR2008 GBR2010 GBR2012 GBR2014 GBR2016 GBR2018;
- FRA1996 FRA1999 FRA2009 FRA2010 FRA2017;	- IRL2005 IRL2007 IRL2009 IRL2011 IRL2013 IRL2014 IRL2017 IRL2019;
- GBR1985 GBR1987 GBR1990 GBR1992 GBR1993 GBR1996 GBR1999 GBR2000 GBR2009 GBR2010 GBR2017;	- ITA2003 ITA2013 ITA2017 ITA2019;
- IRL1990 IRL1993 IRL1996;	- NLD2002 NLD2004 NLD2006 NLD2008 NLD2010 NLD2012 NLD2014 NLD2016 NLD2018;
- ITA1990 ITA1992 ITA1993 ITA1996 ITA2011;	- NOR2002 NOR2004 NOR2006 NOR2008 NOR2010 NOR2012 NOR2014 NOR2016 NOR2019;
- JPN1992 JPN1996 JPN1999 JPN2000 JPN2009 JPN2010 JPN2017;	- PRT2002 PRT2005 PRT2007 PRT2009 PRT2013 PRT2015 PRT2017;
- NLD1987 NLD1993 NLD2000;	- SWE2002 SWE2004 SWE2006 SWE2008 SWE2010 SWE2012 SWE2014 SWE2016
- NOR1990 NOR1992 NOR1993 NOR1996 NOR1999 NOR2000 NOR2010 NOR2011;	
- NZL1992 NZL1993 NZL1997 NZL1999 NZL2000 NZL2009 NZL2010 NZL2017;	
- PRT1999 PRT2000 PRT2009;	
- SWE1991 SWE1996 SWE1999 SWE2001 SWE2009 SWE2010 SWE2017;	
- USA1985 USA1987 USA1990 USA1992 USA1993 USA1996 USA2000 USA2010 USA2018	



Luxembourg Income Study (LIS) or OECD Income Distribution Database sources used:

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Australia: LIS

Austria: LIS 1987-2000, OECD (new series) 2004-2017

Belgium: LIS 1985-2000, OECD (new series) 2004-2016

Canada: OECD (new series)

Switzerland: LIS 1982-2004, OECD (new series) 2006-2015

Germany: LIS

Denmark: OECD (old series) 1985/90/2005-10, LIS 1987-2004, OECD (new series) 2011-16

Spain: LIS 1980-2000, OECD (new series) 2004-2016

Finland: OECD (new series)

France: LIS 1978-2005, OECD (old series) 1996/2008-10, OECD (new series) 2011-16

United Kingdom: LIS 1974-1999, OECD (new series) 2002-17

Ireland: LIS 1987-2000, OECD (new series) 2004-2016

Italy: LIS 1986-2000, OECD (new series) 2004-2016

Japan: OECD (old series) 1985-2006, OECD (new series) 2009-2015

Netherlands: OECD (old series) 1977/85/90/95/2005-09, LIS 1983-2004, OECD (new series) 2010-16

Norway: LIS 1979-2007, OECD (new series) 2008-2017

New Zealand: OECD (old series) 1985-2009, OECD (new series) 2011-2014.

Portugal: OECD (old series) 1990-2000, OECD (new series) 2004-2016.

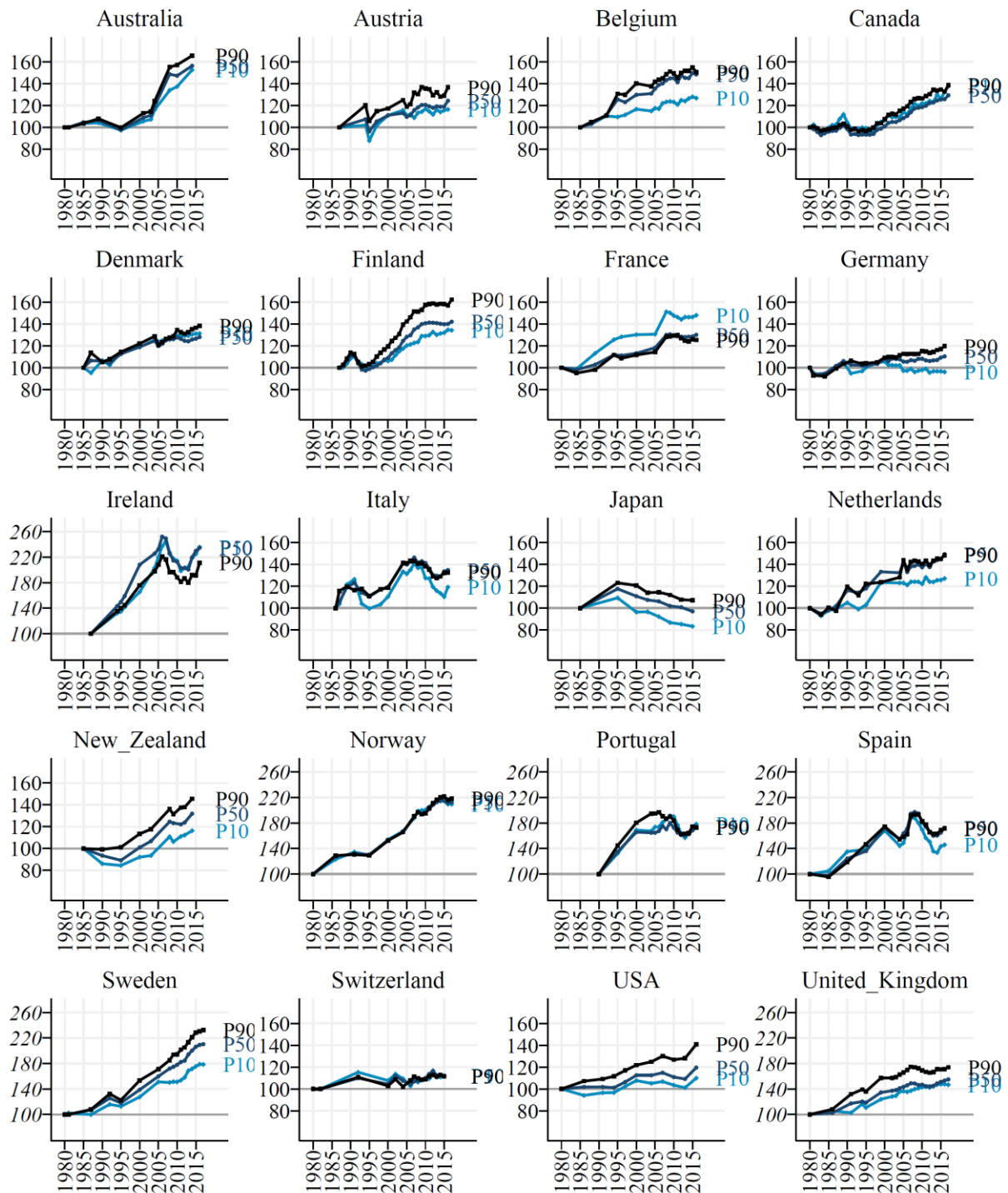
Sweden: LIS 1975-2005, OECD (old series) 2008-2010, OECD (new series) 2011-2017

USA: LIS

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## Supplementary Material 2: Main findings for the entire population (18-99 years)

**Figure S2a: Real income growth (1980-2017) – total population**



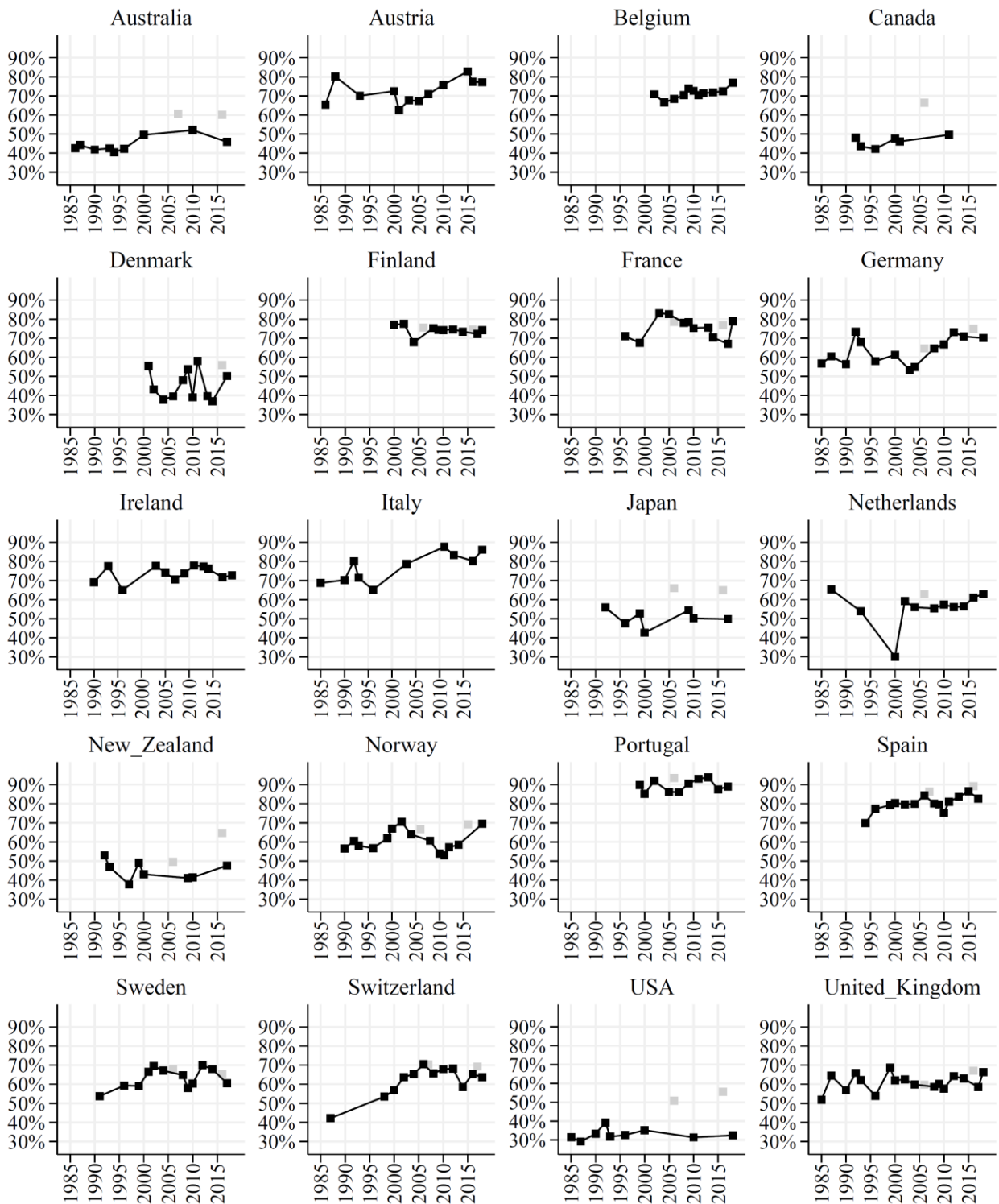
Notes: see Figure 1.

**Table S2: Income growth and support for redistribution – total population**

	Individual level		Aggregate level (income quintiles)	
	(1)	(2)	(3)	(4)
Absolute income growth (t-4 to t0)	0.016* (0.007)	0.016* (0.007)	0.003** (0.001)	0.004** (0.001)
Income growth relative to average (t-4 to t0)	-0.038+ (0.021)		-0.010+ (0.005)	
Income growth relative to top (t-4 to t0)		-0.032* (0.013)		-0.010** (0.003)
Income growth relative to bottom (t-4 to t0)		0.009 (0.012)		0.002 (0.003)
Current income (2 <sup>nd</sup> vs 1 <sup>st</sup> quintile)	-0.101*** (0.024)	-0.102*** (0.024)	-0.029** (0.009)	-0.030** (0.009)
Current income (3 <sup>rd</sup> vs 1 <sup>st</sup> quintile)	-0.257*** (0.024)	-0.260*** (0.024)	-0.063*** (0.009)	-0.064*** (0.009)
Current income (4 <sup>th</sup> vs 1 <sup>st</sup> quintile)	-0.484*** (0.024)	-0.488*** (0.024)	-0.111*** (0.011)	-0.113*** (0.011)
Current income (5 <sup>th</sup> vs 1 <sup>st</sup> quintile)	-0.827*** (0.029)	-0.832*** (0.028)	-0.179*** (0.015)	-0.180*** (0.015)
Tertiary educated respondent (dummy) (M3-4: share of tertiary educated respondents)	-0.210*** (0.012)	-0.211*** (0.012)	-0.082** (0.027)	-0.087** (0.026)
Female respondent (dummy) (M3-4: share of female respondents)	0.215*** (0.009)	0.215*** (0.009)	0.132* (0.051)	0.128* (0.050)
Age of respondent (years) (M3-4: average age)	0.005*** (0.000)	0.005*** (0.000)	-0.000 (0.001)	-0.000 (0.001)
Unemployed respondent (dummy) (M3-4: share of unemployed respondents)	0.233*** (0.020)	0.232*** (0.020)	-0.193* (0.079)	-0.207* (0.081)
Pseudo R <sup>2</sup> / R <sup>2</sup>	0.05	0.05	0.88	0.88
N observations	309,412	309,412	1,140	1,140
N countries	20	20	20	20
N country-years	228	228	228	228

Notes: +  $p < 0.1$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ . Ordered logistic (M1/M2) and OLS (M3/M4) regressions for the total adult population (18-99 years). Dependent variables: 5-point scale of redistribution support (M1/M2) and average redistribution support by income quintile (M3/M4). Standard errors (in parentheses) clustered by country-year-income quintile. Country and year fixed effects, and dummy for ESS survey, included (not shown).

**Figure S2b: Aggregate support for redistribution – total population**



Notes: see Figure 4.

### Supplementary Material 3: Interaction models (Figure 3)

	Aggregate level (income quintiles)	
	(1)	(2)
Absolute income growth (t-4 to t0)	0.009*** (0.003)	0.006*** (0.001)
Relative income growth (vs average) (t-4 to t0)	-0.008+ (0.004)	-0.006 (0.004)
Standard deviation of relative income growth (vs average)	-0.003 (0.007)	
Absolute income growth * standard deviation of relative income growth (vs average)	-0.005+ (0.003)	
Absolute income growth * relative income growth (vs average)		-0.004* (0.001)
Relative income growth (vs average) * relative income growth (vs average)		0.001 (0.004)
Absolute income growth * relative income growth (vs average) * relative income growth (vs average)		-0.001 (0.001)
Current income (2 <sup>nd</sup> vs 1 <sup>st</sup> quintile)	-0.029** (0.009)	-0.031** (0.009)
Current income (3 <sup>rd</sup> vs 1 <sup>st</sup> quintile)	-0.063*** (0.010)	-0.065*** (0.010)
Current income (4 <sup>th</sup> vs 1 <sup>st</sup> quintile)	-0.110*** (0.012)	-0.113*** (0.012)
Current income (5 <sup>th</sup> vs 1 <sup>st</sup> quintile)	-0.179*** (0.016)	-0.181*** (0.016)
Share of tertiary educated respondents	-0.069** (0.026)	-0.070** (0.025)
Share of female respondents	0.146** (0.050)	0.136** (0.049)
Average age of respondents	-0.001 (0.001)	-0.000 (0.001)
Share of unemployed respondents	-0.159* (0.061)	-0.146* (0.061)
Pseudo R <sup>2</sup> / R <sup>2</sup>	0.86	0.86
N observations	1,140	1,140
N countries	20	20
N country-years	228	228

Notes: +  $p < 0.1$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ . OLS regressions for the working-age population (18-65 years). Dependent variable: average redistribution support by income quintile. Standard errors (in parentheses) clustered by country-year-income quintile. Country and year fixed effects, and dummy for ESS survey, included (not shown).

### Supplementary Material 4: Robustness tests (individual level analysis)

	(1) Logit (including 4- point scale)	(2) Logit (excluding 4- point scale)	(3) 3-year growth measures	(4) 4-year growth measures	(5) Tertiary educated respondents only	(6) Non-tertiary educated respondents only
Absolute income growth (t-4 to t0)	0.031*** (0.006)	0.032*** (0.007)	0.023*** (0.005)	0.026*** (0.006)	0.030*** (0.009)	0.023** (0.007)
Income growth relative to average (t-4 to t0)	-0.029 (0.019)	-0.031 (0.020)	-0.026* (0.012)	-0.025+ (0.015)	-0.030 (0.024)	-0.034+ (0.020)
Current income (2 <sup>nd</sup> vs 1 <sup>st</sup> quintile)	-0.103*** (0.027)	-0.101*** (0.029)	-0.115*** (0.025)	-0.116*** (0.026)	-0.091* (0.041)	-0.122*** (0.027)
Current income (3 <sup>rd</sup> vs 1 <sup>st</sup> quintile)	-0.293*** (0.028)	-0.274*** (0.029)	-0.279*** (0.025)	-0.282*** (0.025)	-0.278*** (0.042)	-0.283*** (0.027)
Current income (4 <sup>th</sup> vs 1 <sup>st</sup> quintile)	-0.520*** (0.028)	-0.508*** (0.029)	-0.509*** (0.025)	-0.512*** (0.025)	-0.477*** (0.040)	-0.524*** (0.028)
Current income (5 <sup>th</sup> vs 1 <sup>st</sup> quintile)	-0.869*** (0.030)	-0.851*** (0.031)	-0.860*** (0.029)	-0.864*** (0.030)	-0.866*** (0.041)	-0.853*** (0.035)
Tertiary educated respondent (dummy)	-0.213*** (0.014)	-0.217*** (0.014)	-0.213*** (0.013)	-0.213*** (0.013)		
Female respondent (dummy)	0.268*** (0.011)	0.262*** (0.011)	0.241*** (0.010)	0.243*** (0.010)	0.355*** (0.018)	0.204*** (0.011)
Age of respondent (years)	0.008*** (0.000)	0.008*** (0.000)	0.008*** (0.000)	0.008*** (0.000)	0.008*** (0.001)	0.008*** (0.000)
Unemployed respondent (dummy)	0.218*** (0.023)	0.207*** (0.023)	0.216*** (0.019)	0.216*** (0.020)	0.197*** (0.043)	0.218*** (0.021)
Pseudo R <sup>2</sup> / R <sup>2</sup>	0.08	0.08	0.05	0.05	0.04	0.05
N observations	277,989	250,845	252,634	250,845	66,572	184,273
N countries	20	20	20	20	20	20
N country-years	243	228	230	228	228	228

Notes: +  $p < 0.1$ ; \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ . See Table 1.