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Revisiting the Welfare State-Poverty Association

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Diminishing Returns? Revisiting the Welfare State–Poverty Association

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This paper investigates whether the association between welfare state effort and lower poverty remains as strong as previous literature suggests. Extending Scruggs and Allan's (2006) study, we examine the association between social insurance generosity, government spending, and both relative and absolute poverty in 16 OECD countries between approximately 1980 and 2017. Using updated datasets, we reproduce their original models based on pre-2001 data, test their predictive performance in the post-2000 period, and estimate interaction models to assess whether the effects have changed over time.

Our results show diverging poverty trajectories: while absolute poverty has decreased, relative poverty has continued to rise. Moreover, our findings reveal signs of diminishing returns as the association of pension benefit generosity and poverty has weakened considerably after 2000. While absolute living standards may continue to improve despite diminishing effects from traditional social insurance programs like pensions, such progress cannot be expected for relative poverty.

Keywords: welfare state, absolute poverty, relative poverty, comparative political economy

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Introduction

Relative poverty is rising across many OECD countries, raising questions about the contemporary role of the welfare state in reducing poverty and improving living standards. While welfare state retrenchment and permanent austerity are often cited as explanations, the empirical evidence presents a more complex picture. Levels of social expenditure and social insurance generosity have remained relatively stable across welfare regimes (Greve, 2020; Reinprecht et al., 2018; Sowula et al., 2024). This apparent disconnect between stable welfare state effort and deteriorating social outcomes raises an important question: has the empirical association between welfare state effort and poverty really weakened over time? And does this apply to both *relative* and *absolute* measures of poverty?

Revisiting the association between welfare state effort and poverty is necessary for both empirical and substantive reasons. Empirically, the foundation of the welfare state-poverty literature rests strongly on analyses from the 1990s and early 2000s, which were constrained by the data and methods available at the time. Crucial datasets like the Luxembourg Income Studies (LIS) now provide longer, updated series, enabling a re-evaluation of earlier conclusions. Substantively, major developments after the turn of the century, including the dualization of labour markets and welfare states, the rise of new social risks, and the global financial crisis, may have altered the mechanisms linking welfare state effort to poverty outcomes. Testing the stability of these associations over time is therefore essential, yet rarely done (see also Bäckman, 2009).

Moreover, it is equally important to revisit the relationship for both *relative* and *absolute* poverty. Most early comparative research has focused exclusively on relative measures, while "there has been little cross-national research on the relationship between welfare state generosity and absolute poverty" (Kenworthy, 2004, p. 3). However, also considering absolute poverty is crucial for understanding the full scope of social development and possible policy

challenges facing contemporary welfare states. Moreover, although absolute measures are more common in the context of studies of deprivation in the global South (e.g., Ravallion & Datt, 1996), official poverty levels in the United States are set essentially on an absolute poverty basis (Smeeding, 2006). Examining both dimensions thus allows for a more complete understanding of the welfare state's distributive effectiveness.

We address the question of whether welfare state effort is associated with as much poverty reduction as it once was by revisiting and extending Scruggs & Allan's (2006) influential study on the *material consequences of the welfare state.* Their study remains one of the few examples to examine both relative and absolute poverty in relation to social expenditure and institutional generosity over a longer period. First, we reproduce their models to reassess their findings that more generous social insurance benefits (rather than government spending per se) are associated with lower relative and absolute poverty during the period from approximately 1980 to 2000 in 16 OECD countries. Given substantial improvements in data quality and statistical methods since their publication, these earlier findings may require reexamination. Second, we extend the analysis beyond the turn of the century and past the global financial crisis to 2017, examining whether the explanatory power of welfare state generosity and government spending for poverty outcomes has changed over time.

Our analytical strategy proceeds in three steps. First, we describe trends in relative and absolute poverty and reproduce the models from the original study. Next, we apply the coefficients from these models to predict poverty outcomes in the more recent period and compare predicted poverty rates with actual poverty rates for this period. Additionally, we assess whether the effects of key predictors, such as government expenditure and social insurance generosity, have changed over time through model comparisons and interaction terms. Our findings suggest that we are witnessing primarily a relative rather than an absolute poverty crisis. Moreover, the

results point to a weakening association between welfare state effort and poverty outcomes, driven particularly by changes in the effectiveness of pension generosity.

This paper contributes to the existing literature in three ways. First, it reproduces and tests the durability of previous findings on the welfare state–poverty association, contributing to broader efforts to address the replication and reproduction crisis in the social sciences. Second, it provides a more comprehensive account of the welfare state poverty relationship by incorporating both relative and absolute poverty measures. Third, it raises important questions about the continued effectiveness of traditional social policy approaches for poverty alleviation.

Literature Review: Revisiting the welfare state–poverty nexus

Poverty alleviation is recognized as a fundamental goal of all welfare states (Goodin et al., 1999). Accordingly, the relationship between welfare state effort and poverty outcomes has been a prominent topic in comparative social policy literature. Early cross-sectional studies consistently documented a negative association between welfare state effort and relative poverty (e.g., Kenworthy, 1999; Korpi & Palme, 1998; Smeeding et al., 2001). These findings have been reinforced in multilevel analyses that account for both individual-level and macro-level factors (Brady et al., 2009; Brady & Bostic, 2015; Saltkjel & Malmberg-Heimonen, 2017). Moving beyond single-year analyses, panel studies also confirmed the negative association between welfare state effort and relative poverty across a range of advanced economies (Brady, 2003; Caminada et al., 2012; Cammeraat, 2020; Moller et al., 2003).

Progress has also been made in measuring welfare state effort, with studies nowadays using both government spending and institutional indicators. Moving beyond spending is necessary when investigating the welfare state-poverty nexus, as institutional indicators offer a more precise picture of welfare state generosity than government expenditure alone. After all,

economic conditions can strongly drive expenditure-based measures without real improvements in social protection (Esping-Andersen, 1990; Scruggs & Allan, 2006; Sowula et al., 2024). In line with this, research has attributed poverty reduction more to the design of social policy schemes than to spending levels and changes per se (Korpi & Palme, 1998; Scruggs & Allan, 2006). Moreover, studies have identified which specific benefits contribute most effectively to poverty reduction, with scholars pointing to sickness and pension benefits (Scruggs & Allan, 2006), and more recently, public old-age pensions and survivor schemes (Caminada et al., 2021).

While most of the mentioned literature focused exclusively on relative poverty, a smaller body of research highlights a similar association between welfare state effort and absolute[1] improvements in living standards (Bárcena-Martín et al., 2014; Kenworthy, 1999, 2011; Nelson, 2012; Scruggs & Allan, 2006). Focusing also on absolute measurements is necessary, as relative measures alone may obscure real improvements for the worst-off when income gains for others are even larger (Kenworthy, 2011; Scruggs & Allan, 2006). In other words, absolute poverty rates can reveal improvement in living standards that are masked by increases in inequality (e.g., Barth et al., 2021) or deteriorations during economic crises and falling wages (e.g., Salverda, 2021). Conversely, considering only absolute poverty measures may fail to capture social exclusion or relative deprivation and its consequences (Förster & Mira D'Ercole, 2005; Sen, 1983).

Among the few studies that examine relative and absolute poverty side-by-side (e.g., Kenworthy, 1999; Scruggs & Allan, 2006, Smeeding 2006, Notten and Neuborg 2011), Scruggs and Allan (2006) stand out as they also include both social expenditure and institutional indices over a longer period. Specifically, their analysis investigated the welfare

[1] While there is increasingly more research on the effects of welfare state institutions and configurations on absolute living standards beyond measurements of income (Bárcena-Martín et al., 2014; Nelson, 2012; Saltkjel & Malmberg-Heimonen, 2017), in this paper we will rely on income for reasons of best comparative data availability (Förster & D'Ercole, 2012; Kenworthy, 2011).

state poverty association for 16 OECD countries from approximately 1980 to 2000, using absolute and relative poverty measurements as well as detailed indicators of social insurance generosity and government expenditure. They conclude that social insurance generosity, particularly in pensions and sickness benefits, was strongly associated with lower relative and absolute poverty, whereas overall spending levels were less predictive.

The Assumption of Temporal Stability

Despite these advancements, most of the existing literature rests on the assumption that the association of welfare state effort and poverty is *temporally stable*. Theoretical developments cast doubt on this assumption. Already at the turn of the millennium, scholars argued that traditional policies for addressing poverty may no longer be as effective in the context of post-industrial labor markets (e.g., Esping-Andersen et al., 2002). Since then, research has documented further far-reaching changes, such as the emergence of new social risks (Bonoli, 2005; Taylor-Gooby, 2004) and increasing dualization of labor markets and welfare states (Emmenegger et al., 2012). For example, the *dualization* of labor markets has been argued to create a divide between secure, generously insured *insiders* and a growing share of precarious, poorly insured *outsiders* (Emmenegger et al., 2012; Rueda, 2005). Simultaneously, the new social risks, such as single parenthood and in-work poverty risks among non-EU immigrants, create poverty dynamics that traditional social insurance programs were not designed to address (see also Reinprecht et al., 2018; Sowula et al., 2024).

The potential for such temporal variation in the welfare state–poverty nexus has far-reaching implications for how we study and evaluate social policy effectiveness, suggesting that findings from earlier periods may not generalize to contemporary contexts. Studies on the temporal variation in the welfare state-poverty nexus are rare (see also Bäckman, 2009). Moreover, most research assessing how welfare state effectiveness has evolved does not focus on structural breaks but rather examines market inequality before and after taxes, social-security

contributions, and benefits over time. Among these studies, some report stable or even increased redistribution in the 1990s and 2000s (Caminada et al., 2019; Kenworthy & Pontusson, 2005; Wang et al., 2014), often interpreting this as evidence that progressive tax benefit systems automatically respond to rising market inequality. Others, however, find declining redistributive effectiveness, particularly in insurance-based transfers (Causa & Hermansen, 2017; Immervoll & Richardson, 2011) and case studies show that redistribution through taxes and transfers weakened substantially in countries like Germany and Sweden since the mid-1990s (Sowula et al., 2024).

Brady's (2005) provides a rare exception in this regard by directly examining whether the poverty-reducing effect of welfare effort changed between the 1980s and 1990s. In the analysis, he incorporates interaction terms between welfare state spending variables (social security transfers and public health spending as a share of GDP) and a 1990s dummy and finds no significant period effect. However, his analysis ends before the global financial crisis and the dualization trends we described. Moreover, he did not consider absolute poverty or more refined indicators of institutional generosity. In short, this limits our knowledge of whether and how the welfare state poverty association has changed over time.

In addition to these substantive gaps, major data and methodological updates provide new opportunities for reassessment. Key sources in comparative welfare state research such as the Luxembourg Income Study (LIS), the Comparative Welfare Entitlements Project (CWEP), and the Penn World Table (PWT) have undergone substantial revisions, offering longer time series, broader country coverage, and improved harmonization and measurement quality. These advances make it possible to evaluate whether earlier results remain robust and whether the strength of welfare state effects has shifted over time. The latter resonates with increasing efforts toward replication and open-science practices in political science, which, as a discipline, remains a relative latecomer to reproducibility efforts (Dafoe, 2014; Key, 2016). Recent journal

policies and data-sharing standards have improved transparency (Brodeur, Esterling, et al., 2024; Brodeur, Mikola, et al., 2024), yet few comparative studies have been revisited using updated data.

This study addresses these gaps by replicating and extending the analysis by Scruggs and Allan (2006). Using updated data for 16 OECD countries covering 1980–2017, we reproduce their original models and test whether the association between welfare state effort and poverty has changed over time. By incorporating both relative and absolute measures of poverty, we aim to provide a more comprehensive account of how welfare states continue to mitigate poverty in the context of ongoing structural and institutional change.

Methods

Empirical strategy

We employ a three-step empirical strategy to test whether the association between welfare state effort and poverty has changed over time. Our approach builds directly on Scruggs & Allan (2006), and is designed to evaluate the robustness of their original findings and the temporal durability of the associations they identified.

In the first step, we reproduce the main models from the original study using updated data for the period from approximately 1980 to 2000, using a country-fixed effect model. To examine the relative importance of different welfare state components on relative poverty and absolute poverty, we estimate three model specifications per dependent variable. Model 1 includes market poverty along with the same set of economic and political control variables used in Scruggs and Allan (2006), serving as the baseline model. Model 2 adds social insurance generosity indicators (unemployment, sickness, pensions) to the baseline model. Model 3 adds total government spending as a share of GDP to the political and economic control variables.

In the second step, we test whether associations established in the earlier period hold in more recent years. Using both the country-specific intercepts and coefficients from the pre-2001 country fixed effects models, we generate predicted values for relative and absolute poverty between 2001 and 2017. This *out-of-sample* prediction provides a test of model stability by examining whether the model structure from the earlier period can accurately predict outcomes in a new time period. Model performance is assessed using standard R-squared values, as well as root mean squared error and mean absolute error.

In the final step, we estimate interaction models to test more directly for temporal change in the welfare state-poverty association. Following Brady (2005), we include a post-2000 dummy variable interacted with key welfare state predictors. We estimate two sets of interaction models: one including interactions with the social insurance generosity indicators, and another including an interaction with government spending. These models are estimated on the full dataset (all years). Statistically significant and positive interaction effects would suggest that the poverty-reducing effect of welfare state variables (i.e., insurance generosity and spending) has weakened in the more recent period.

Data and variables

Cases

Our analyses are based on a cross-national dataset covering sixteen OECD countries from approximately 1980 to 2017, including Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Sweden, Switzerland, the United Kingdom, and the United States. The country and year selection follows Scruggs & Allan (2006) to ensure comparability[2].

[2] We follow the original publication in also using years before 1980 in the regression analyses to increase statistical power.

Dependent variables

We use both relative and absolute poverty as dependent variables. Following the original study, relative poverty is defined as the share of individuals with equivalized disposable household income below 40 percent of the national median. The equivalence scale used is the square root of household members. As a robustness check, we also calculate results for the 60% median income threshold as a more commonly used benchmark.

Absolute poverty is measured using an anchored approach (see also Maquet & Stanton, 2012; Nolan & Marx, 2009). We first calculate the 40 percent relative poverty threshold in the U.S for the year 1986, mirroring the baseline year in Scruggs and Allan (2006). This threshold is then indexed for inflation using the US consumer price index from the OECD. Next, we convert the thresholds into local currencies using current OECD purchasing power parities for each country year. Absolute poverty is defined as the share of individuals in each country-year with equivalized income below this fixed threshold.

Independent variables and controls

Welfare state effort is captured through two dimensions. First, we include total government spending as a percentage of GDP, using the govexp indicator from the Comparative Welfare States Dataset (Brady et al., 2020). Second, we use institutional generosity indices from the Comparative Welfare Entitlements Project (CWEP), which provides detailed time-series indicators on unemployment insurance, sickness benefits, and old-age pensions. These indices combine multiple aspects, including replacement rates, benefit duration, eligibility conditions, and coverage, and are aggregated into program-specific generosity scores (see Scruggs & Ramalho Tafoya (2022) for more information).

We follow the original study's approach in controlling for both economic and political factors. Economic controls include market poverty (pre-tax and pre-transfer poverty, calculated by using LIS data[3]), GDP per capita (rdgpna/pop) and a variable measuring a 5-year average of GDP growth per capita. The macroeconomic data are taken from the Penn World Table 10.01 (see also Feenstra et al., 2015). Political controls are based on the Comparative Welfare States Dataset (Brady et al., 2020) and include union density (du), the cumulative share of left parties in government (leftcum), and the number of institutional veto points (veto). All independent variables are lagged by one year to mitigate simultaneity bias and preserve causal ordering.

Results

Descriptive trends: Changes in Relative and Absolute Poverty and Welfare State effort

Table 1 reports levels and changes in relative and anchored absolute poverty alongside key welfare state indicators for 16 OECD countries at three points in time spanning the mid-1980s to the late 2010s. The year choice is based on Scruggs and Allan (2006).

Most notably, relative and absolute poverty have followed diverging trajectories, with relative poverty rising while absolute poverty has fallen substantially. Between the mid-1980s and 2016/17, the share of people with disposable income below 40 percent of the national median rose in most countries (+0.9 percentage points on average). Poverty increases were smaller in the second period compared to the first, as the increase slowed from 0.6 to 0.2 percentage points. Only Ireland, Canada, Finland, and the US were successful in reducing poverty at the 40% threshold over the whole period. The lowest relative poverty rates at the end of the interval are found in Finland (2.3%), Ireland (3.5%), and the Netherlands (3.7%). The highest relative poverty rates are observed in the US (10.4%), Canada (6.7%), and Italy (8.9%). Similar trends are visible for the 60% poverty threshold, where poverty increased 1.8 percentage points over

[3] For some countries (e.g., France, Italy, Belgium) and some years in LIS the "pre-fisc" income is provided only "pre-transfer" and net of taxes. Accordingly, the stated market poverty rate might deviate from the "true" market poverty rate in some instances.

the whole period and also shows smaller increases in the second subperiod (+ 0.4 p.p.) in comparison to the first subperiod (+ 1.4 p.p.).

Absolute poverty, by contrast, fell in most countries, indicating rising material living standards among the worst-off (-5.7 percentage points on average). However, the reductions are slightly smaller in the second subperiod (-2.8 percentage points) compared to the first (-2.9 percentage points). Italy represents the only exception, where absolute poverty increased slightly over the entire period (+0.8 percentage points). By 2017, absolute poverty was lowest in Switzerland (1.2%), Ireland (1.9%), and Finland (2.3%), and remained comparatively higher in Italy (18.5%), the United States (7.2%), and Germany (5.2%). Thus, while fewer people are living below fixed subsistence thresholds, inequality relative to national living standards has continued to grow.

Turning to the welfare state variables, the data provide little support for strong retrenchment and austerity (see also Greve, 2020; Reinprecht et al., 2018). While government spending as a share of GDP decreased across the full period (-3.6 percentage points on average), this trend was more substantial in the first subperiod (-5.1 percentage points) and reversed to some extent in the second (+1.5 percentage points). Moreover, a large share of the spending cuts in the first period is driven by the stark changes in Ireland. The institutional generosity of major social insurance programs even increased on average. While unemployment (+0.2) and sickness benefit generosity (-0.2) remained relatively stable on average, pension generosity increased markedly (+0.7), particularly in the second subperiod (+0.7).

When contrasting the single-year descriptives with absolute and relative poverty (40%) averages until 2000 and from 2001-2017, the picture gets even clearer (see Figure 1). Most countries improved on absolute poverty (blue lines), but not on relative poverty. Only five countries were able to reduce their relative and absolute poverty rates (green lines), which

mostly include countries that had comparatively higher relative poverty rates to begin with, such as Canada, the US, Ireland, and Switzerland. The Netherlands presents an exception. Two countries even worsened on both performance indicators when calculating period averages, namely Germany and Italy (red lines). When contrasting those developments with changes in generosity of at least 0.5 points magnitude, slight trends emerge. In most countries, pension generosity did not change substantially, or it even increased; Belgium is the only country in our dataset with lower average pension generosity in the first period compared to the second. The picture for sickness generosity and unemployment generosity changes is mixed, with some countries having more and some countries less generous benefits.

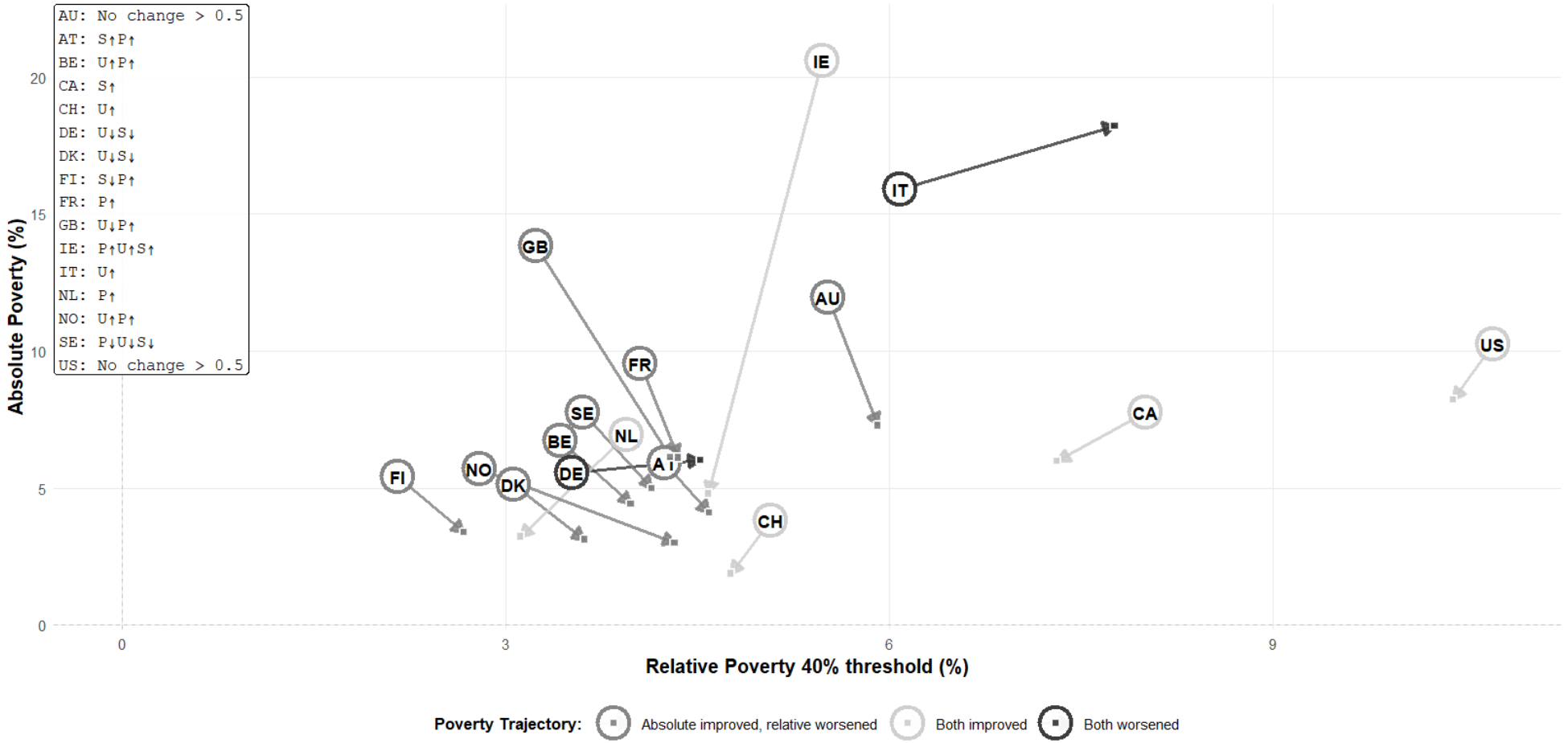
Overall, the temporal comparison of welfare state effort and poverty outcomes provides an initial indication of diminishing returns of welfare state effort for relative and absolute poverty reduction. Despite increasing spending and increasing pension generosity in the second period, absolute poverty was reduced to a lesser extent compared to the first period (-2.9 percentage points vs. 2.8 percentage points), and relative poverty continued to increase (albeit at a slower rate). Moreover, the majority of countries have worse relative poverty rates in the second period compared to the first, although pension generosity was increased in the second period for many countries. Those patterns suggest that the additional effort might have yielded weaker returns in terms of absolute and relative poverty reduction. The following sections formally test whether we observe differences in the welfare state poverty association once economic and political controls are introduced, and whether the welfare state coefficients that explained poverty outcomes until 2000 continue to do so in the subsequent period.

Table 1: Poverty and welfare state effort developments

		Relative Poverty 40%				Relative Poverty 60%				Absolute Poverty				Unemployment Generosity				Sickness Generosity				Pension Generosity				Government Spending			
			Δ				Δ				Δ				Δ				Δ				Δ				Δ		
Country	Year	Level	1st	2nd	Total	Level	1st	2nd	Total	Level	1st	2nd	Total	Level	1st	2nd	Total	Level	1st	2nd	Total	Level	1st	2nd	Total	Level	1st	2nd	Total
	1985	5,4				19,8				11,5				7,0				5,9				7,3				36,7			
Australia	2001	5,9	0,4	-0,3	0,1	21,8	2,0	-1,9	0,1	12,0	0,5	-8,3	-7,8	7,8	0,8	-0,7	0,2	6,5	0,7	-0,5	0,1	7,6	0,2	0,3	0,6	36,1	-0,6	0,6	0,0
	2016	5,6				19,9				3,8				7,1				6,0				7,9				36,7			
	1987	NA				NA				NA				10,2				11,5				11,3				54,1			
Austria	2000	3,5	NA	1,4	NA	13,7	NA	1,6	NA	5,6	NA	-2,2	NA	10,1	-0,1	0,7	0,6	9,2	-2,3	3,6	1,3	12,9	1,5	0,8	2,3	51,0	-3,0	-1,9	-4,9
	2017	4,9				15,3				3,3				10,8				12,8				13,7				49,2			
	1985	2,2				10,5				6,1				14,3				14,8				10,4				58,4			
Belgium	2000	5,8	3,6	-1,4	2,2	20,5	10,0	-2,1	7,9	4,8	-1,3	-2,4	-3,7	13,7	-0,6	1,0	0,4	12,5	-2,3	0,9	-1,4	11,5	1,1	0,9	1,9	49,1	-9,3	3,1	-6,3
	2017	4,4				18,4				2,4				14,7				13,5				12,4				52,1			
	1985	8,9				20,5				8,6				8,9				4,0				12,1				48,1			
Canada	2000	7,2	-1,7	-0,4	-2,2	18,7	-1,8	0,7	-1,0	7,7	-0,9	-3,2	-4,1	8,9	0,0	0,0	0,0	4,7	0,8	1,5	2,2	12,5	0,4	0,1	0,5	41,2	-6,9	-0,2	-7,1
	2017	6,7				19,5				4,5				8,9				6,2				12,6				41,0			
	1982	4,7				13,8				2,9				13,9				12,4				10,4				30,1			
Switzerland	2000	3,7	-1,0	1,7	0,8	13,8	0,0	2,1	2,2	2,8	-0,2	-1,5	-1,7	13,5	-0,4	0,5	0,1	12,0	-0,4	0,4	0,0	10,3	-0,1	0,3	0,2	33,8	3,7	0,4	4,1
	2017	5,4				16,0				1,2				14,0				12,4				10,6				34,2			
	1984	3,8				13,6				5,8				11,1				12,9				8,7				50,3			
Germany	2000	3,9	0,1	1,9	2,0	12,7	-0,9	4,3	3,4	6,3	0,5	-1,1	-0,6	11,5	0,4	0,0	0,3	12,1	-0,8	0,4	-0,4	8,8	0,2	0,1	0,3	44,7	-5,6	-0,8	-6,4
	2017	5,8				17,1				5,2				11,5				12,5				8,9				43,9			
	1987	4,3				17,6				7,2				10,8				13,4				12,0				54,0			
Denmark	2000	2,0	-2,3	2,6	0,4	13,1	-4,5	0,8	-3,7	2,8	-4,4	0,9	-3,6	11,1	0,3	-1,5	-1,2	12,9	-0,5	-1,5	-2,0	11,2	-0,7	1,5	0,8	52,7	-1,3	-1,5	-2,8
	2017	4,7				13,9				3,7				9,6				11,4				12,8				51,2			
	1987	2,3				10,7				5,1				8,5				13,4				12,7				47,7			
Finland	2000	2,2	-0,1	0,1	-0,1	12,7	2,0	-0,1	1,9	6,3	1,1	-4,0	-2,9	9,3	0,7	0,4	1,2	12,3	-1,1	-0,9	-2,0	12,4	-0,3	1,7	1,4	48,0	0,3	7,9	8,2
	2016	2,3				12,6				2,3				9,7				11,4				14,1				55,9			
	1984	4,4				13,5				9,2				12,4				11,5				13,3				51,7			
France	2000	3,7	-0,6	0,9	0,3	14,9	1,4	0,4	1,8	7,9	-1,3	-3,0	-4,3	10,7	-1,7	0,0	-1,7	11,7	0,2	0,1	0,3	13,6	0,3	0,5	0,7	51,7	0,0	4,8	4,8
	2017	4,6				15,3				4,9				10,7				11,8				14,0				56,5			
	1985	1,6				17,6				14,4				7,0				6,4				10,1				45,6			
United Kingdom	2000	5,3	3,8	-0,7	3,1	20,8	3,3	-3,7	-0,5	10,4	-3,9	-6,0	-9,9	6,3	-0,7	-0,4	-1,1	6,1	-0,4	1,3	0,9	10,4	0,3	1,6	1,9	35,4	-10,1	5,5	-4,6
	2017	4,7				17,1				4,4				5,9				7,3				12,0				41,0			
	1987	4,5				20,0				32,4				7,4				6,5				10,7				47,5			
Ireland	2000	11,3	6,9	-7,9	-1,0	22,7	2,7	-5,5	-2,8	13,1	-19,4	-11,2	-30,5	9,8	2,4	-1,0	1,4	9,9	3,4	-2,1	1,4	11,1	0,3	1,8	2,2	30,9	-16,6	-4,6	-21,2
	2017	3,5				17,2				1,9				8,8				7,9				12,9				26,3			
	1986	5,3				16,0				17,7				2,9				9,2				14,7				50,5			
Italy	2000	8,0	2,7	0,9	3,6	20,1	4,1	0,9	5,0	18,9	1,2	-0,4	0,8	5,4	2,5	2,7	5,2	8,9	-0,3	0,6	0,3	14,5	-0,2	-1,3	-1,5	46,6	-3,8	2,4	-1,4
	2016	8,9				21,1				18,5				8,1				9,6				13,2				49,0			
	1987	2,5				8,4				6,3				12,1				13,1				12,4				58,5			
Netherlands	1999	2,8	0,3	1,0	1,3	13,1	4,7	1,2	5,9	3,0	-3,3	0,0	-3,3	12,5	0,5	-0,4	0,1	13,4	0,3	-0,4	-0,1	11,8	-0,6	1,2	0,6	43,4	-15,1	-0,9	-16,0
	2017	3,7				14,4				3,0				12,1				13,0				13,0				42,5			

	1986	2,5				12,9				5,4				12,6				16,8				12,4				46,0			
Norway	2000	3,1	0,6	1,6	2,1	12,4	-0,5	1,8	1,3	2,9	-2,5	0,2	-2,3	14,0	1,5	-0,7	0,7	17,0	0,3	-0,3	0,0	12,7	0,4	2,2	2,5	42,0	-3,9	8,7	4,8
	2016	4,6				14,2				3,1				13,3				16,8				14,9				50,8			
	1987	3,7				11,5				9,9				12,1				18,9				15,9				59,3			
Sweden	2000	2,9	-0,8	2,2	1,4	11,7	0,2	7,1	7,3	6,1	-3,8	-1,8	-5,6	11,3	-0,8	-2,8	-3,6	16,5	-2,3	-0,8	-3,1	12,7	-3,2	-0,4	-3,5	53,3	-6,0	-3,8	-9,9
	2017	5,1				18,8				4,3				8,5				15,7				12,4				49,4			
	1985	11,4				23,9				11,8				10,2				0,0				10,7				37,3			
USA	2000	10,3	-1,1	0,1	-1,0	23,5	-0,4	1,1	0,7	7,8	-4,0	-0,6	-4,6	10,2	0,0	0,7	0,7	0,0	0,0	0,0	0,0	11,0	0,3	-0,1	0,2	34,3	-3,0	3,7	0,6
	2017	10,4				24,5				7,2				10,9				0,0				10,9				38,0			
	1st	4,5				15,3				10,3				10,1				10,7				11,6				48,5			
Mean All	2nd	5,1	0,6	0,2	0,8	16,6	1,3	0,5	1,8	7,4	-2,9	-2,8	-5,7	10,4	0,3	-0,1	0,2	10,4	-0,3	0,2	-0,2	11,6	0,0	0,7	0,7	44,2	-4,3	1,9	-2,5
	3rd	5,3				17,2				4,6				10,3				10,5				12,3				46,1			

Figure 1 Absolute and relative poverty trajectories (pre-2001 averages vs 2001-2017 averages)



Note: Country codes: AU = Australia, AT = Austria, BE = Belgium, CA = Canada, CH = Switzerland, DE = Germany, DK = Denmark, FI = Finland, FR = France, GB = United Kingdom, IE = Ireland, IT = Italy, NL = Netherlands, NO = Norway, SE = Sweden, US = United States. Policy indicators: U = Unemployment Benefit Generosity, S = Sickness Benefit Generosity, P = Pension.

Replication and reproduction analysis (Pre-2001)

The original results from Scruggs and Allan (2006) employed OLS regressions with country-clustered standard errors. Their analysis identified significant associations between more generous sickness and pension benefits and lower poverty rates. For absolute poverty, they found negative effects for both sickness (β = -0.94, SE = 0.24) and pension generosity (β = -0.43, SE = 0.24). Similarly, for relative poverty at the 40% threshold, both sickness (β = -0.43, SE = 0.074) and pension generosity (β = -0.29, SE = 0.05) showed significant negative associations. Neither unemployment generosity nor government spending showed statistically significant associations in their models. The original study reported R-squared values of 0.84 (generosity model) and 0.72 (spending model) for relative poverty, and 0.72 (generosity model) and 0.68 (spending model) for absolute poverty.

Table 2 presents our reproduction results for the pre-2001 period using updated datasets and country-fixed effects models instead of the original OLS specification. We departed from the original OLS specification with country-clustered standard errors as our initial replication attempt, that is, using the original method with new data, yielded substantially different and sometimes implausible results[4]. Consequently, we turned to country-fixed effects models with cluster standard errors as a more appropriate modelling strategy for the panel structure of our data, while still being able to predict poverty outcomes in the second period (which is not possible with country-year fixed effects). One likely explanation for the divergence of results between our initial replication attempt and the original study is data revisions and updates in our main data sources. The latter happened for CWEP (version 3), the Penn World Table (10.1 versus the original 6.1), and LIS (e.g., Austrian data from 1987 was removed during our analysis

[4] When applying the original OLS method with clustered standard errors to our updated data, we partly obtained implausible results, including a positive association between pension generosity and relative poverty at the 40% threshold (β = 0.397, SE = 0.15, $p < 0.05$), contradicting both theory and prior evidence. For absolute poverty, neither sickness (β = 0.03, SE = 0.15) nor pension generosity (β = -0.03, SE = 0.20) showed significant effects, while unemployment generosity (β = -0.67, SE = 0.18) and spending (β = -0.26, SE = 0.06) did. Particularly, the positive pension coefficient for relative poverty led us to adopt the fixed-effects specification with country-clustered standard errors. Full replication results are available in Appendix A1.

period). Accordingly, we proceeded with what we consider a methodologically superior approach in comparison to the original modelling strategy to analyze unbalanced panel data. Additionally, since our focus centers on welfare state variables rather than political partisanship, we include the cumulative left government share (cumleft) as a control in all baseline models. This slightly deviates from the original specification in Scruggs and Allan (2006), which added cumleft only in the spending model.

Despite the different model specifications, several key patterns emerge that both confirm and challenge the original findings. First, the generosity models consistently outperform spending models in terms of variance explained, mirroring the original study. Most notably, we confirm the robust association between higher pension generosity and lower poverty. Higher pension generosity is significantly associated with lower absolute poverty ($\beta = -0.76$, SE = 0.31, $p < 0.05$), relative poverty at the 40% threshold ($\beta = -0.77$, SE = 0.28, $p < 0.05$), and the 60% threshold ($\beta = -0.70$, SE = 0.30, $p < 0.05$). Unemployment generosity shows no association with relative poverty at the 40% level, consistent with the original findings, but is marginally significantly associated with lower relative poverty at the 60% level ($\beta = -0.46$, SE = 0.24, $p < 0.1$).

At the same time, important differences emerge in contrast to the original paper's conclusion. First, we cannot confirm the association of sickness generosity and poverty in the pre-2001 sample. However, this likely reflects limited statistical power, as full-sample analyses presented below (Table 4) do find significant effects consistent with the original study. Second, contrary to the original findings, government spending shows significant associations with relative poverty (40%: $\beta = -0.12$, SE = 0.03, $p < 0.01$; 60%: $\beta = -0.16$, SE = 0.04, $p < 0.01$) but not absolute poverty ($\beta = -0.07$, SE = 0.05, n.s.). These reproduction results highlight both the robustness of certain core findings (e.g., pension generosity) and the sensitivity of others to data updates and methodological choices.

Table 2 Revisiting of pre-2001 regression models

Independent Variables	Dependent Variable								
	Abs. Pov.	Abs. Pov.	Abs. Pov.	Rel. Pov. 40% (DHI)	Rel. Pov. 40% (DHI)	Rel. Pov. 40% (DHI)	Rel. Pov. 60% (DHI)	Rel. Pov. 60% (DHI)	Rel. Pov. 60% (DHI)
Rel. Pov. (Market)				0.1611*	0.2650**	0.1936*	0.3925***	0.3758***	0.4257***
				(0.0719)	(0.0709)	(0.0759)	(0.0873)	(0.0869)	(0.0752)
Abs. Pov. (Market)	0.5413***	0.6214***	0.5577***						
	(0.0478)	(0.0835)	(0.0517)						
Income per Capita growth (5-year avg)	0.3151.	0.2194	0.1961	0.2853**	0.1754.	0.0640	0.6840***	0.4930**	0.3606*
	(0.1736)	(0.1958)	(0.1775)	(0.0714)	(0.0843)	(0.0945)	(0.1494)	(0.1220)	(0.1458)
Income per Capita (t-1)	-0.224**	-0.192**	-0.219**	-0.036	-0.008	-0.027	-0.082	-0.044	-0.074
	(0.0677)	(0.0560)	(0.0651)	(0.0747)	(0.0646)	(0.0628)	(0.0542)	(0.0476)	(0.0432)
Union Density (t-1)	-0.1061.	-0.1086.	-0.0926	-0.1012.	-0.1058*	-0.0770.	-0.1658**	-0.1479**	-0.1354***
	(0.0583)	(0.0564)	(0.0608)	(0.0547)	(0.0477)	(0.0386)	(0.0457)	(0.0427)	(0.0303)
Cum. Left Government Share (t-1)	-0.0482	-0.0184	-0.0330	-0.0369	-0.0293	-0.0119	-0.0089	0.0646	0.0356
	(0.0724)	(0.0680)	(0.0718)	(0.0945)	(0.0770)	(0.0688)	(0.0796)	(0.0694)	(0.0649)
Institutional Veto Points (t-1)	1.266***	1.888**	1.075***	1.105***	1.482***	0.6816***	3.432***	3.347***	2.884***
	(0.1724)	(0.5234)	(0.2371)	(0.1627)	(0.2773)	(0.0929)	(0.1098)	(0.2871)	(0.1823)
Pension Generosity (t-1)		-0.7628*			-0.7703*			-0.6966*	
		(0.3161)			(0.2848)			(0.3046)	
Unemployment Generosity (t-1)		-0.1477			-0.0727			-0.4649.	
		(0.1683)			(0.1980)			(0.2438)	
Sickness Generosity (t-1)		0.6806			0.5804			0.1784	
		(0.4320)			(0.5000)			(0.4292)	
Total Gov Spending (t-1)			-0.0657			-0.1174**			-0.1649**
			(0.0480)			(0.0332)			(0.0442)
Fixed Effects: Country	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
S.E.: Clustered	by: country	by: country	by: country	by: country	by: country	by: country	by: country	by: country	by: country
Observations	171	170	171	171	170	171	171	170	171
R2	0.90085	0.90997	0.90253	0.89002	0.90786	0.90179	0.92243	0.93550	0.93385
Within R2	0.59030	0.62743	0.59726	0.31196	0.43500	0.38562	0.63081	0.69543	0.68514
Caption:	Signif. codes: 0 '***' 0.001 '**' 0.0 '*' 0.05 '.' 0.1 '								

Predictions of relative and absolute poverty based on original estimates

The second analytical step provides a first test of temporal stability by using pre-2001 model estimates to predict post-2000 poverty rates. We apply both the country-specific intercepts (fixed effects) and coefficients from the earlier period to generate predictions for 2001-2017. Our test logic is as follows: if the welfare state-poverty relationship remained stable over time, models incorporating welfare state variables should predict post-2000 outcomes at least as accurately as baseline models containing only economic and political controls.

Table 3 presents the results of this analysis. Overall, the results challenge expectations of temporal stability, at least for the absolute poverty models and the relative poverty models using the 40% threshold. Across those poverty measures, models that include welfare state variables (generosity or spending) perform worse than baseline models in predicting post-2000 poverty rates. For absolute poverty, the baseline model shows poor predictive performance (R-squared = -0.45), indicating that even economic and political factors from the earlier period do not explain post-2000 patterns well. Crucially, adding welfare state variables worsens rather than improves predictions. Including generosity indices nearly doubles the prediction error (R-squared = -0.86, RMSE = 3.90), while adding government spending also worsens performance (R-squared = -0.48, RMSE = 3.49).

Relative poverty models at the 40% threshold show a similar pattern. While the baseline model maintains reasonable predictive power (R-squared = 0.78, RMSE = 0.97), adding generosity indices worsens poverty predictions (R-squared = 0.40, RMSE = 1.60). Government spending performs somewhat better but still reduces model fit (R-squared = 0.66, RMSE = 1.20). The picture is somewhat different for the 60% poverty threshold, where adding generosity and spending slightly increases predictions and reduces error in comparison to the baseline model.

Overall, the prediction analysis points to a pattern where models for absolute poverty and relative poverty at the 40% threshold become less accurate when we include welfare state generosity and spending variables. This suggests that the relationship between welfare state effort and poverty might have changed, particularly for those two measures.

Table 3: Out-of-Sample Prediction Performance (2001-2017)

Absolute poverty			
Model	R-Squared	RMSE	MAE
Baseline	-0.45	3.45	2.45
With Generosity	-0.86	3.90	2.64
With Spending	-0.48	3.49	2.40
Relative poverty (40%)			
Model	R-Squared	RMSE	MAE
Baseline	0.78	0.97	0.73
With Generosity	0.40	1.60	1.21
With Spending	0.66	1.20	0.92
Relative poverty (60%)			
Model	R-Squared	RMSE	MAE
Baseline	0.34	2.64	2.06
With Generosity	0.47	2.37	1.91
With Spending	0.35	2.61	2.00

Interaction models on full sample

To directly test welfare state-poverty associations over time, Table 4 presents interaction models estimated on the complete dataset (all years). The models include a post-2000 dummy interacted with the welfare state variables.

The results align with the hypothesis of diminishing returns suggested by our *prediction* analysis. Most notably, across all poverty models, pension generosity shows significantly

weakened effects after 2000. The interaction coefficient for absolute poverty ($\beta = 0.40$, SE = 0.19, $p < 0.05$) indicates that while a one-unit increase in pension generosity was associated with a reduction in absolute poverty by 1.02 percentage points before 2001, this is reduced to 0.62 percentage points after 2000. Similar patterns are visible for relative poverty at the 40% threshold ($\beta = 0.20$, SE = 0.11, $p < 0.10$), although only at the 10% significance level. Moreover, the analysis does not show a significant main effect of pension generosity changes and relative poverty at the 40% level anymore. For the 60% poverty threshold models, pension generosity changes are significantly associated with lower relative poverty ($\beta = -0.98$, SE = 0.29, $p < 0.01$). At the same time, the model displays a marginally significant positive interaction ($\beta = 0.34$, SE = 0.21, $p < 0.10$).

Other welfare state indicators show mixed patterns. Government spending maintains a modest negative association with relative poverty at the 40% threshold ($\beta = -0.07$, SE = 0.03, $p < 0.10$) and the 60% threshold ($\beta = -0.15$, SE = 0.08, $p < 0.10$), though only at marginal significance levels. Interestingly, more generous sickness benefits, which showed no association in the pre-2001 subsample, are significantly associated with lower absolute poverty ($\beta = -0.53$, SE = 0.24, $p < 0.05$) and relative poverty at the 60% threshold ($\beta = -0.45$, SE = 0.24, $p < 0.1$). There is no significant association of unemployment generosity (main effect) and the poverty variables.

Table 4 Interaction models with post-2000 period dummy

Independent Variables	Dependent Variable								
	Abs. Pov.	Abs. Pov.	Abs. Pov.	Rel. Pov. 40% (DHI)	Rel. Pov. 40% (DHI)	Rel. Pov. 40% (DHI)	Rel. Pov. 60% (DHI)	Rel. Pov. 60% (DHI)	Rel. Pov. 60% (DHI)
Rel. Pov. (Market)				0.1053*	0.1285**	0.1236*	0.1624	0.2153*	0.2065.
				(0.0470)	(0.0379)	(0.0523)	(0.1258)	(0.0929)	(0.1161)
Abs. Pov. (Market)	0.4582***	0.4784***	0.4906***						
	(0.1075)	(0.0981)	(0.0997)						
Income per Capita growth (5-year avg)	0.5387*	0.3730.	0.4231	0.1852.	0.1439	0.0819	0.5051*	0.3291*	0.3074
	(0.1966)	(0.2001)	(0.2642)	(0.0892)	(0.0885)	(0.1168)	(0.1848)	(0.1386)	(0.1979)
Income per Capita (t-1)	-0.1767.	-0.2065*	-0.1710	-0.0591**	-0.0433	-0.0392.	-0.0429	-0.0120	-0.0166
	(0.0895)	(0.0866)	(0.1247)	(0.0194)	(0.0284)	(0.0208)	(0.0465)	(0.0353)	(0.0757)
Union Density (t-1)	0.0417	-0.0623	0.0561	-0.0926*	-0.1111**	-0.0829**	-0.1219	-0.1640***	-0.0992
	(0.0779)	(0.0595)	(0.0765)	(0.0317)	(0.0328)	(0.0267)	(0.0724)	(0.0356)	(0.0642)
Cum. Left Government Share (t-1)	-0.0099	0.0242	-0.0244	0.0456	0.0626	0.0513.	0.0636	0.0341	0.0529
	(0.1470)	(0.1530)	(0.1587)	(0.0321)	(0.0563)	(0.0278)	(0.1114)	(0.0732)	(0.1156)
Institutional Veto Points (t-1)	0.6915*	0.0862	0.4043	0.9633***	1.097***	0.7733**	3.565***	3.268***	3.169***
	(0.3070)	(0.5720)	(0.3000)	(0.2096)	(0.2454)	(0.2070)	(0.3785)	(0.3970)	(0.2113)
Pension Generosity (t-1)		-1.023*			-0.3666			-0.9807**	
		(0.3681)			(0.2227)			(0.2912)	
Post-2000 Period		-9.168*	-1.975		-3.019.	-1.576		-7.717.	-3.825
		(3.296)	(4.561)		(1.654)	(1.377)		(3.654)	(4.181)
Unemployment Generosity (t-1)		-0.0416			-0.0001			-0.2510	
		(0.2974)			(0.0757)			(0.2196)	
Sickness Generosity (t-1)		-0.5304*			-0.0353			-0.4454.	
		(0.2430)			(0.1660)			(0.2429)	
Post-2000 Period X Pension Generosity (t-1)		0.4049*			0.2005.			0.3443.	
		(0.1884)			(0.1079)			(0.1853)	
Post-2000 Period x Unemployment Generosity (t-1)		0.5747.			0.0430			0.3374	
		(0.2944)			(0.0867)			(0.2174)	
Post-2000 Period x Sickness Generosity (t-1)		-0.1700			-0.0290			-0.0151	
		(0.1502)			(0.0491)			(0.0630)	
Total Gov Spending (t-1)			-0.0994			-0.0654.			-0.1509.
			(0.0823)			(0.0331)			(0.0800)
Post-2000 Period x Spending (t-1)			0.0422			0.0224			0.0689
			(0.0862)			(0.0297)			(0.0792)
Fiexed-Effects: Country	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
S.E.: Clustered	by: country	by: country	by: country	by: country	by: country	by: country	by: country	by: country	by: country
Observations	372	371	372	372	371	372	372	371	372
R2	0.81997	0.86015	0.82497	0.88788	0.89563	0.89490	0.84352	0.89194	0.85850
Within R2	0.58641	0.67906	0.59789	0.29321	0.35093	0.33746	0.35140	0.55433	0.41348
Caption:	Signif. codes: 0 '***' 0.001 '**' 0.0 '*' 0.05 '.' 0.1 '								

Discussion and conclusion

This study aims to contribute to the question of whether welfare state effort remains as effective in reducing poverty as previous research suggests. Using updated datasets and extending Scruggs and Allan's (2006) analysis on the *material consequences of the welfare state*, we investigated the temporal stability of the welfare state-poverty nexus across 16 OECD countries from approximately 1980 to 2017.

Our analysis has three main findings. First, we document diverging trajectories for absolute and relative poverty. While absolute poverty has declined across countries (-5.7 percentage points on average), relative poverty has increased in most countries (+0.9 percentage points at the 40% threshold, +1.8 percentage points at the 60% threshold). This pattern holds despite relatively stable sickness and unemployment benefits and more generous pensions.

Second, the effort to replicate pre-2001 models using updated data and the same methods from the original publication failed. We therefore chose a more appropriate statistical method for the panel structure (country fixed effects with clustered standard errors), which confirmed some of the original conclusions. Most notably, more generous pension benefits are significantly associated with lower absolute and relative poverty rates. However, other than in the original publication, we only find a statistically significant association of sickness benefits and poverty in the full sample analysis, not in the pre-2001 subsample. Moreover, we find a negative association of government spending and relative poverty, which was not visible in the original publication.

Third, our predictions analysis reveals that models estimated on pre-2001 data perform poorly when predicting post-2000 poverty rates. Moreover, models including social insurance generosity indices and spending often reduce rather than improve predictive accuracy, suggesting some change in the welfare state-poverty nexus. Interaction models confirm that the

poverty-reducing effect of pension generosity has weakened significantly in the post-2000 period. The interaction coefficients indicate that the effect size has been reduced by up to half after 2000.

Our findings thus point to diminishing returns in the welfare state-poverty nexus. The weakening association between pension generosity and poverty outcomes likely reflects changes in labor market structures and the composition of populations reaching retirement age. Traditional social insurance programs assume stable, full-time careers that generate substantial contribution records. Yet increasingly, retirees include individuals with interrupted or incomplete contribution histories (e.g., lone parents or workers with nonstandard employment trajectories) and others affected by *new social risks* (Bonoli, 2005; Taylor-Gooby, 2004). These groups likely accumulate fewer pension entitlements and are less effectively protected by traditional social insurance schemes designed for standard employment relationships. This interpretation also aligns with the broader literature on welfare state *dualization*. As Emmenegger et al. (2012) argue, labor market and welfare state *insiders* continue to be relatively well protected, while *outsiders* in precarious work lack adequate social protection.

Our results could be a consequence of this dualization, meaning that simply expanding benefit levels within existing social insurance systems could not be enough to address contemporary poverty, at least in terms of relative poverty. While absolute poverty levels continued to decline despite signs of diminishing returns, relative poverty continues to increase in most countries. Welfare states thus may require more fundamental adaptation, which might include shifting from contribution-based to more universal benefits or developing new forms of protection for non-standard work (see also the conclusion in Seeleib-Kaiser & Sowula, 2020).

From a methodological perspective, the failure of our replication attempt raises important questions about the robustness of comparative welfare state research. When updated data can

substantially alter or even reverse key findings despite using identical methods and countries, researchers should be more cautious about previous results. Moreover, this highlights the need for more replication and reproduction efforts in the social sciences.

Lastly, we need to mention some limitations. Our analysis only focuses on income-based poverty measures, potentially missing multidimensional forms of deprivation (see also Besharov & Couch, 2012). Similarly, our absolute poverty measurement, which is largely influenced by a 1986 US benchmark, should be tested against other alternatives. Moreover, while we speculated about potential impacts leading to diminishing returns, we have not identified the precise mechanisms driving our results, whether this is due to changes in the composition of the populations, labor markets, or social policy designs.

Overall, our analysis demonstrates that welfare states still matter for absolute and relative poverty reductions, but they matter less than they did in previous decades. The diminishing returns we identify suggest that traditional social insurance programs, particularly pensions, have become less effective at alleviating absolute and relative poverty levels over time. This declining effectiveness will likely increase as cohorts with more fragmented work histories reach retirement age in the coming decades. The challenge for contemporary welfare states seems thus not only to preserve existing regulations against austerity and retrenchment but rather to design new forms of social protection for more modern contexts (see also Cantillon, 2022). Whether welfare states can successfully achieve this will depend on the political will to reform and develop new forms of social protection that match the realities of 21st-century labor markets and societies.

Data source information

For our analysis, we relied on data from the OECD, the Comparative Welfare State Dataset (Brady et al., 2020), Comparative Welfare State Entitlement Project (CWEP), Penn World

Table (Feenstra et al., 2015), and Luxembourg Income Studies (Luxembourg Income Studies (LIS), 2025).

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