



Seminar paper

Globalization and the Welfare State

A Panel Data Analysis of 32 OECD Countries (1980–2023)

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Abstract

This paper examines the relationship between globalization and the welfare state using social security transfers across 32 OECD countries from 1980 to 2023. Using a panel fixed effects model with KOF globalization indices, our empirical findings show no robust overall relationship between globalization and the welfare state. When accounting for welfare regime heterogeneity, Mediterranean and liberal welfare regimes differ positively from social democratic regimes. For the marginal effects, only the social democratic welfare regime shows a marginally significant association consistent with the efficiency hypothesis. Rolling regressions further indicate that associations between globalization and welfare spending are historically contingent, with a structural break detected at 2008.

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1 Introduction

Globalization is a central feature of modern economies and has been linked to higher economic growth (Frankel and Romer, 1999). However, its benefits are not evenly distributed, as increased international competition can create adjustment costs for workers and regions (Autor et al., 2013). This raises an important question for the welfare state: does globalization increase the demand for social protection, or does it constrain governments' ability to provide it? This paper examines that question by analyzing the relationship between globalization and social security transfers across OECD welfare regimes.

At the same time, there are also disagreements on the direction of the relationship. The theory points to two opposing hypotheses. The first hypothesis is the compensation hypothesis, which states that more open economies will have larger governments to mitigate external risks Rodrik (1998). The second hypothesis is the efficiency hypothesis, which predicts that globalization reduces the size of the welfare state, because of competition from the global markets.

The empirical literature on these hypotheses remains inconclusive. Some studies find no systematic relationship between globalization and the welfare state, while others report small or inconsistent effects. Several studies further suggest that the relationship depends on institutional and political characteristics, particularly differences across regimes (Dreher, 2006b; Brady et al., 2005; Yay and Aksoy, 2018).

Given these mixed empirical findings, this paper asks: does the association between globalization and social security transfers, particularly across welfare regimes, as found in Yay and Aksoy (2018), remain valid when the sample is extended to 2023?

We employ panel fixed effects models for 32 OECD countries over the period 1980-2023, using data from the Comparative Political Data Set (CPDS) and the KOF Globalization Index. The KOF indices allow us to distinguish among the dimensions of globalization: overall, economic, political, and social.

Our empirical findings provide limited evidence of a robust association between globalization and social security transfers. While social globalization is positively associated with social security transfers in the baseline specifications, the association appears sensitive to reverse causality and should therefore be interpreted cautiously. When examining welfare regimes, Mediterranean and liberal welfare regimes differ from social democratic welfare regimes. For the marginal effects, only the social democratic welfare regime shows a significant association consistent with the efficiency hypothesis.

To assess whether the relationship is stable over time, we estimate rolling regressions using 10-year estimation windows. These indicate that the globalization coefficients are unstable across the sample period, becoming positive and significant only in the windows dominated by post-2008 observations. A Chow test confirms a structural break at 2008, suggesting that the relationship between globalization and welfare spending is historically contingent rather than stable across periods.

Our estimates are correlational rather than causal, as globalization is a global

phenomenon and not randomly assigned. We discuss this further in [subsection 7.5](#).

We organize the remainder of the paper as follows. [section 2](#) provides an overview of the literature on globalization and the welfare state nexus. In [section 3](#), we describe the data. In [section 4](#), we present our empirical approach. In [section 5](#) and [section 6](#), we present our empirical results and the robustness check. [section 7](#) compares the results, relates them to the literature, and criticizes the approach. Finally, [section 8](#) concludes.

2 Literature review

In this section, we review the literature on the relationship between globalization and the welfare state. First, we introduce the two competing theoretical hypotheses that are in the debate: the compensation hypothesis and the efficiency hypothesis. Second, we summarize the empirical findings in the literature on these hypotheses, which are inconclusive. Third, we introduce the classifications of welfare regimes. Finally, we provide the theoretical rationale for including the same control variables as [Yay and Aksoy \(2018\)](#).

2.1 The compensation hypothesis

According to [Bergh \(2021\)](#), the compensation hypothesis states a causal chain: higher levels of economic globalization increase countries' exposure to international markets and external shocks. Such heightened exposure makes domestic economies more volatile, thereby increasing demand for economic security. This volatility channel has some empirical support: [Giovanni and Levchenko \(2009\)](#) find that greater trade openness raises aggregate output volatility on net, as the volatility-increasing effects of sectoral exposure and specialization outweigh the dampening effect of reduced co-movement across sectors.

The findings of [Rodrik \(1998\)](#) suggest a positive correlation between openness and government size, with the association stronger in more open countries. This is attributed to the fact that greater openness heightens external risks from international trade and financial integration, prompting governments to increase spending to offset them. However, [Alesina and Wacziarg \(1998\)](#) challenges this view, arguing that country size is negatively related to both government size and trade openness. Their findings show that the observed positive association between trade openness and government size may be driven by country size, particularly in government consumption. They also demonstrate that openness is more important for explaining government transfers than for overall government spending. [Potrafke \(2015\)](#) shows that globalization increased government spending worldwide, especially in OECD countries. Additionally, globalization, including economic globalization, reduced the relative price of government expenditures.

[Autor et al. \(2013\)](#) show that US local labor markets more exposed to Chinese import competition saw sharp increases in government transfer payments for unemployment, disability, and healthcare.

2.2 The efficiency hypothesis

The efficiency hypothesis, also referred to as the disciplining or race-to-the-bottom hypothesis, predicts that globalization constrains governments' ability to finance the welfare state. As outlined by [Leibrecht et al. \(2011\)](#), increased globalization intensifies competition among countries, pressuring governments to lower taxes to attract capital and curb tax avoidance by firms and investors. This dynamic lowers public revenues and diminishes governments' capacity to maintain or expand welfare spending. Consistent with this tax-competition mechanism, [Devereux et al. \(2008\)](#) find that OECD governments set corporate tax rates strategically in response to one another, competing over both effective marginal rates on capital and statutory rates on profit, which they argue helps explain the fall in statutory corporate tax rates during the 1980s and 1990s.

[Busemeyer \(2009\)](#) finds a clear negative relationship between increased openness and government spending. However, he cautions that this result should not be seen as a straightforward confirmation of the efficiency hypothesis, as the relationship remains insufficiently specified. Moreover, [Marshall and Fisher \(2015\)](#) argues in support of the efficiency hypothesis using data from 23 OECD countries from 1970 to 2007, demonstrating that foreign ownership of capital constrains government spending and thus indirectly reduces voter turnout. In contrast, [Hines Jr and Summers \(2009\)](#) finds that governments of small countries rely less on personal and corporate income taxes and more on consumption taxes, signifying a shift in the composition of taxation rather than an outright reduction in fiscal capacity.

In a similar vein, [Egger et al. \(2019\)](#) show that, across the OECD, globalization shifted the tax burden from mobile factors toward less mobile ones: after 1994 the labor-tax burden of middle-income workers rose while that of the top 1 percent of earners fell. This points to globalization reshaping who finances the welfare state rather than necessarily shrinking it.

2.3 Empirical findings in the literature

There is empirical support for both hypotheses, but the findings are not robust across the studies, and the relationship between globalization and the welfare state remains inconclusive. [Brady et al. \(2005\)](#) analyzes three welfare state measures and an array of economic globalization indicators for 17 affluent democracies from 1975 to 2001. Their analysis suggests that globalization does influence the welfare state to some extent, but most indicators of globalization are not statistically significant, and the effects are smaller than those of domestic political and economic factors. Moreover, the effects of globalization are small and inconsistent across several indicators. According to [Dreher \(2006b\)](#), there is no clear evidence that globalization systematically affects the welfare state. Although globalization appears to influence capital tax rates, its overall impact on government taxation and spending remains limited. [Dreher \(2006b\)](#) also argues that few economic variables robustly influence tax rates, suggesting that tax policy decisions are dominated by political considerations. In contrast, [Meinhard and Potrafke \(2012\)](#) find that globalization positively affects the size of the government sector, with social globalization exerting an especially strong influence.

Yay and Aksoy (2018) find no significant relationship between overall globalization and the welfare state. Splitting their panel into welfare regime groups and using four KOF indices (overall, economic, political, and social), they find that the effects vary across both welfare regimes and globalization indices.

2.4 Welfare regimes

In this section, we introduce the welfare regime classifications, as empirical findings in the literature suggest that the relationship between globalization and the welfare state depends on a country's institutions. Moreover, this classification is important for our heterogeneity analysis in [subsection 5.3](#). The first to divide welfare states into regimes was Esping-Andersen (1990), whose classifications are the most cited in the literature. These include: (i) the social democratic welfare regime, (ii) the conservative-corporatist welfare regime, and (iii) the liberal welfare regime.

The social democratic regime provides universal benefits as a social right, with a strong state role aimed at reducing market dependence and fostering equality; the Nordic countries are the typical example. The conservative-corporatist regime ties social insurance to employment and occupational status, with the family playing a central role, as in Germany, France, and Austria. The liberal regime offers modest, means-tested benefits targeted at those in greatest need, leaving individuals to rely more on private solutions such as savings or private insurance; the United States and United Kingdom are common examples.

Two additional welfare regimes have since been introduced in the literature. Ferrera (1996) introduces the Southern or Mediterranean welfare regime, comprising Greece, Italy, Portugal, and Spain. The welfare state of these countries is highly fragmented and polarized, with generous pensions, a partial departure from corporatist health care traditions through the establishment of National Health Services, a collusive mix of public and non-public actors and institutions, and the persistence of clientelism, sometimes involving selective distribution of cash subsidies. The second is the former Eastern Bloc countries/post-communist countries, comprising Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, and Slovenia (Yay and Aksoy 2018; Leibrecht et al. 2011). These countries formerly had state socialist welfare states but have since moved toward different varieties of capitalism. Bohle and Greskovits (2007) argue that post-communist countries cannot be treated as a single group, given the institutional differences between the Baltic states, the Visegrád countries, and Slovenia.

The empirical findings in the literature on welfare regimes are mixed. According to Kim and Zurlo (2009), welfare regimes respond differently to the impact of globalization. Globalization affects the welfare state in social democratic regimes, while it has a marginal effect in liberal and conservative regimes. On the other hand, Yay and Aksoy (2018) find evidence indicating that the compensation hypothesis dominates in social democratic, conservative, and Mediterranean welfare regimes, while the efficiency hypothesis dominates in liberal welfare regimes. Leibrecht et al. (2011) find that the compensation hypothesis holds in Western Europe, driven by the conservative welfare regime, outweighing the efficiency effect in the social democratic welfare regime. The efficiency

hypothesis dominates in former Eastern Bloc/post-communist countries, and no statistically significant effect is found in liberal or Southern welfare states. The mixed findings motivate us to analyze this welfare regime heterogeneity in [subsection 5.3](#) using a newer time period.

2.5 The theoretical rationale behind the control variables

In the regressions, we include the same control variables as in [Yay and Aksoy \(2018\)](#) to reduce the risk of omitted-variable bias. We include national economic capacity, fiscal constraints, and demographic structure because these factors themselves are important determinants of welfare effort and plausibly correlated with globalization.

According to [Shelton \(2007\)](#), one of the earliest hypotheses in the literature on government size is that the public sector tends to grow as a society becomes wealthier, commonly known as Wagner’s Law. Wagner gave two main reasons. First, he argued that as societies become wealthier, their economies become more complex, which increases the need for government regulation and social protection. Second, he postulated that public goods, such as education and cultural enhancements, are luxury goods. Thus, the essence of Wagner’s Law is that the ratio of government expenditure (excluding defense spending) to GDP is positively associated with GDP per capita. In addition, GDP per capita is an important control variable in studies of globalization and welfare spending, and its inclusion is generally accepted in the empirical literature (e.g., [Rodrik, 1998](#); [Brady et al., 2005](#); [Busemeyer, 2009](#); [Meinhard and Potrafke, 2012](#); [Yay and Aksoy, 2018](#)). Inflation is included as it might capture macroeconomic instability. Inflation also captures price changes that might affect the value of welfare benefits and one-sided government transfers.

The budget deficit helps account for short-run fiscal pressures. Deficits may increase during recessions, when social spending automatically rises. Excluding deficit risks may therefore conflate cyclical fiscal trends with the effects of globalization. Government debt is a way to measure the medium- to long-run sustainability constraints. A highly indebted country might have a limited ability to expand welfare spending or alter the composition of its government spending.

There is a broad consensus that declining birth rates and increasing life expectancy may exert future pressures on the welfare state and government social spending. Consequently, studies investigating globalization and welfare state regimes typically include demographic variables—such as the dependency ratio, unemployment, elderly population, and total population—as controls (see [Kim and Zurlo \(2009\)](#), [Busemeyer \(2009\)](#), [Meinhard and Potrafke \(2012\)](#)). Following [Yay and Aksoy \(2018\)](#), we include the dependency ratio and population to capture these demographic characteristics.

3 Description of Data

This section covers the data used in our empirical analysis. More detailed sources and definitions are found in the appendix [Appendix A](#). All variables are based on [Yay and Aksoy \(2018\)](#). Our data extends the period covered by

Yay and Aksoy (2018) from 1980-2010 to 1980-2023. The dataset consists of 32 OECD countries (see Table A.4).

The dependent variable is the social security transfer-to-GDP ratio, drawn from CPDS (Armingeon et al. (2025)). This measure captures social assistance grants and welfare benefits paid by the general government, including expenditures on sickness, old-age, and family allowances.

Figure 3.1 shows the development of average social security transfers as a share of GDP from 1980 to 2023. In the 1980s, there was an initial increase, followed by a gradual decline of around 1.4 percentage points by the decade’s end. In the early 1990s, social security transfers rose to a short-term peak of about 15 percent. From 1994 to 2007, there was a general downward trend. Subsequently, a sharp increase of about 2 percentage points occurred during the Global Financial Crisis. Once this period passed, the share declined again until the COVID-19 pandemic, when it rose to 15.4 percent in 2020. Finally, from 2020 to 2023, social security transfers decreased.

Globalization is a multi-dimensional phenomenon and is difficult to measure. For this reason, we use the KOF Globalization Index developed by Dreher (2006a) and ETH Zurich (Gygli et al. (2025)), which is widely used in the literature on globalization and the welfare state (Leibrecht et al., 2011; Meinhard and Potrafke, 2012; Potrafke, 2015; Yay and Aksoy, 2018). The KOF index covers economic, social, and political dimensions, as well as an overall measure of globalization. We use these dimensions to analyze which aspect of globalization might drive the globalization-welfare state nexus.

Economic globalization captures trade and finance, while social globalization combines interpersonal contacts such as migration and tourism, informational flows, and cultural influence, and political globalization reflects indicators such as embassies, memberships in international organizations and NGOs, treaties, and UN peace missions. Overall globalization aggregates these economic, social, and political dimensions, each measured through both de facto and de jure indices. subsection A.3 in the Appendix contains descriptions and links to details of the KOF indices.

Figure 3.2 shows the KOF globalization indices from 1980 to 2023. The indices range from 1 to 100. Higher values indicate greater globalization. All indices show an upward trend. Total globalization rises from about 66 to 82. Economic globalization climbs from 56 to 78. Social globalization increases from 64 to 81. Political globalization rises from 77 to 87.

However, political globalization declined in the late 1980s, likely reflecting the constraints of the Cold War. The subsequent increase after the 1990s coincides with expanded international cooperation Meinhard and Potrafke (2012).

Next, in line with Yay and Aksoy (2018), we employ several control variables, including real GDP per capita, inflation, budget deficit as a share of GDP, and government gross debt as a share of GDP. We also include population and the dependency ratio to account for demographic changes. The macroeconomic variables are obtained from CPDS and the OECD, while population and the dependency ratio are sourced from the World Bank.

The descriptive statistics for all variables are reported in Appendix Table A.1.

Figure 3.1: Average social security transfers as a share of GDP, 1980–2023

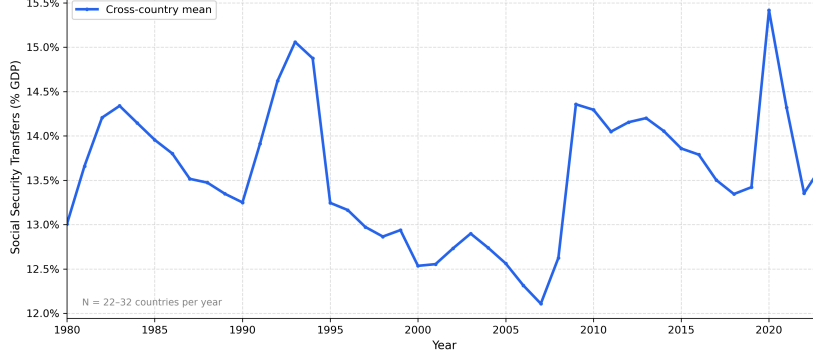
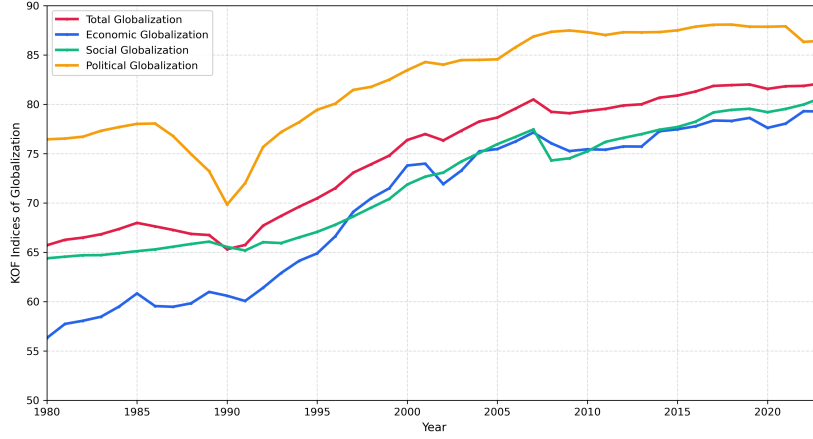


Figure 3.2: KOF Indices of Globalization, 1980-2023



4 Methodology

In this section, we present the empirical methods we use. First, we introduce the baseline specification in [subsubsection 4.1.1](#) and the welfare state-heterogeneity specification in [subsubsection 4.1.2](#). Second, we present the estimator and standard errors in [subsection 4.2](#).

The econometric model employed in this paper is a panel fixed effects model. The methodology follow the one in [Yay and Aksoy \(2018\)](#). To estimate the effects of globalization on the welfare state, we use social security transfers as a percentage of GDP as a proxy for the size of the welfare state in a given country. We denote this variable as WS_{it} . The indicators we use for globalization are the KOF indices. The KOF indices we use in our estimations are: overall, economic, social, and political globalization. To account for cross-country heterogeneity, we use entity-fixed effects and include control variables. The control variables are macroeconomic and demographic variables, chosen because of their effects on the size of the welfare state, as explained in [subsection 2.5](#).

4.1 Empirical specification

4.1.1 Baseline specification

We estimate the baseline specification:

$$WS_{it} = \beta_0 + \beta_1 G_{i,t-1} + \sum_k \beta_k Z_{i,t-1} + \delta_i + \gamma_t + \varepsilon_{it} \quad (4.1)$$

Where $G_{i,t-1}$ denotes a vector of the KOF globalization indices for $k \in \{\text{overall, economic, social, political}\}$. We estimate (4.1) separately for each KOF index k . $Z_{i,t-1}$ is a vector of control variables, which includes log GDP per capita, CPI inflation, the budget deficit, and government debt, log population, and the dependency ratio. All the independent variables are lagged.

4.1.2 Welfare regime heterogeneity specification

After the baseline estimations, we estimate a specification with interaction terms to analyze the welfare regime heterogeneity:

$$\begin{aligned} WS_{it} = & \beta_0 + \beta_1 G_{i,t-1} + \beta_2 (G_{i,t-1} \times \text{Conservative}_i) \\ & + \beta_3 (G_{i,t-1} \times \text{Mediterranean}_i) + \beta_4 (G_{i,t-1} \times \text{Liberal}_i) \\ & + \beta_5 (G_{i,t-1} \times \text{Post-Communist}_i) + \sum_k \beta_k Z_{i,t-1} + \delta_i + \gamma_t + \varepsilon_{it} \end{aligned} \quad (4.2)$$

To analyze how the association between welfare state and globalization differs between welfare regimes, we define the marginal effects for the welfare regimes as those shown in [Table 4.1](#).

Table 4.1: Marginal effect of globalization by welfare regime

Welfare regime	Marginal effect of globalization on WS_{it}
Social Democrat (reference)	β_1
Conservative	$\beta_1 + \beta_2$
Mediterranean	$\beta_1 + \beta_3$
Liberal	$\beta_1 + \beta_4$
Post-Communist	$\beta_1 + \beta_5$

When calculating the marginal effects, we report standard errors clustered by country.

4.2 The estimator and identification

4.2.1 Fixed versus random effects

We follow [Yay and Aksoy \(2018\)](#) and use fixed effects, which should be the most reasonable specification from a theoretical perspective. This is because institutions and culture affect the development of welfare states [Esping-Andersen \(1990\)](#), which correlate with globalization. We do not, however, test for this using a Hausman test.

4.2.2 Identification

The estimates we obtain from our fixed effects estimator are not causal effects of the globalization indices on social security transfers. This is because globalization is not assigned randomly and exogenously to countries. Hence, we only interpret the estimates as correlational associations. We discuss this limitation in [subsubsection 7.5.1](#).

4.2.3 Test for reverse causality

We test whether the results from the baseline specification in [Equation 4.1](#) are driven by reverse causality, because welfare spending might affect globalization. To analyze this, we estimate a specification with the KOF indices as the dependent variables:

$$G_{it} = \alpha_0 + \alpha_1 WS_{i,t-1} + \sum_k \alpha_k Z_{i,t-1} + \delta_i + \gamma_t + u_{it} \quad (4.3)$$

4.3 Diagnostics

To ensure our method is well specified, we conduct tests for serial correlation, heteroskedasticity, and cross-sectional dependence. We describe the theory behind these tests in [subsection B.1](#).

One concern in our specification is cross-sectional dependence. Cross-sectional dependence occurs when the error terms ϵ_{it} are correlated across the entities in a panel. Cross-sectional dependence is likely a result of globalization: a shock can spread across countries, leading to correlated ϵ_{it} s. All 32 OECD countries in our sample are open economies that trade with one another, so it is unrealistic to assume that such a shock would lead to uncorrelated ϵ_{it} 's. Such global shocks occur in our time sample, including the Global Financial Crisis and the COVID-19 pandemic.

If we reject the null of cross-sectional independence ([subsubsection B.1.3](#)), the standard errors might be biased. This can lead to Type I errors, resulting in false positives. In our estimations in [section 5](#), we cluster the standard errors at the country-level. However, given that our estimators do not identify a causal relationship, we choose to use country-clustered standard errors to ensure that our inference is more conservative.

5 Empirical results

5.1 Baseline regressions

Our baseline regression results are presented in [Table 5.1](#). These regressions are based on [Equation 4.1](#) and do not distinguish between welfare regimes. The coefficients, therefore, capture the average relationship between different measures of globalization and social security transfers across OECD countries, without accounting for differences in welfare state regimes.

The result provides limited evidence on the relationship between globalization and social security transfers. Among the globalization measures, only social

globalization has a statistically significant effect on social security transfers. This finding is consistent with [Meinhard and Potrafke \(2012\)](#), who likewise find that social globalization has a strong effect on the size of the welfare state.

In contrast, the coefficients for overall, economic, and political globalization are statistically insignificant, suggesting that globalization does not have a robust overall relationship with social security transfers. This result is broadly in line with [Yay and Aksoy \(2018\)](#), who also find limited evidence supporting either the compensation or efficiency hypothesis.

Regarding the control variables, GDP per capita, inflation, the budget deficit, government debt, and population are statistically significant, whereas the dependency ratio remains insignificant.

Table 5.1: Estimation results: Baseline regressions

	(1) Overall	(2) Economic	(3) Political	(4) Social
Globalization (t-1)	0.088 (1.391)			
Economic Globalization (t-1)		-0.020 (-0.483)		
Political Globalization (t-1)			0.046 (1.397)	
Social Globalization (t-1)				0.129*** (2.632)
Log GDP per capita (t-1)	-5.028*** (-4.035)	-4.135*** (-3.096)	-4.893*** (-3.889)	-4.985*** (-4.095)
Inflation (t-1)	-0.003*** (-4.064)	-0.004*** (-4.287)	-0.004*** (-4.114)	-0.003*** (-3.177)
Deficit (t-1)	-0.156*** (-5.848)	-0.153*** (-5.485)	-0.153*** (-5.453)	-0.145*** (-5.428)
Government Gross Debt (t-1)	0.027*** (2.989)	0.032*** (3.337)	0.028*** (3.108)	0.028*** (3.269)
Log Population (t-1)	-4.674* (-1.745)	-6.437** (-2.374)	-5.640** (-2.430)	-3.967* (-1.666)
Dependency Ratio (t-1)	-0.031 (-0.610)	-0.044 (-0.937)	-0.039 (-0.823)	-0.020 (-0.439)
Constant	105.00** (2.133)	138.13*** (2.816)	123.29*** (2.927)	90.01** (2.054)
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	996	996	996	996
R ²	0.358	0.352	0.358	0.371

T-statistics in parentheses. Robust standard errors clustered by country. ***, **, * denote statistical significance at the 1, 5 and 10% levels.

Table 5.2: Post-Estimation Residual Diagnostics (Fully Specified Models)

Test	Model Specification (Full Controls)			
	Overall	Economic	Social	Political
Mod. Wald Stat	255.01	245.73	242.43	250.07
Mod. Wald p-val	0.000	0.000	0.000	0.000
Ljung-Box (Lag 1) Stat	595.62	596.97	589.79	597.84
Ljung-Box (Lag 1) p-val	0.000	0.000	0.000	0.000
Pesaran CD Stat	-3.58	-3.64	-3.68	-3.61
Pesaran CD p-val	0.000	0.000	0.000	0.000

5.2 Residual diagnostics

After estimating the baseline models, we conduct three diagnostic tests and report the results in [Table 5.2](#): (i) a Modified Wald test for groupwise heteroskedasticity, (ii) a Ljung-Box test for serial correlation, and (iii) a Pesaran CD test for cross-sectional dependence.

The Modified Wald test rejects the null of homoskedastic errors for all of the model specifications in [Equation 4.1](#). Moreover, we reject the null of no serial correlation in the Ljung-Box test, which indicates that the variables are autocorrelated.

Moving to the Pesaran CD test, we reject the null of cross-sectional independence for every variable at the 1 percent significance level. This is expected as we have 32 OECD countries in our sample that share business cycles because of trade and capital flows.

We use country-clustered standard errors in our estimations and in the the marginal effects to ensure comparability with [Yay and Aksoy \(2018\)](#). These are robust to within-country heteroskedasticity and serial correlation but not to cross-sectional dependence. These are the most conservative standard errors we consider, so that only the most robust coefficients will be significant. In [subsection 6.1](#), we conduct a robustness check where we use [Driscoll and Kraay \(1998\)](#) standard errors. This robustness check shows that the coefficients for overall, political, and social globalization are statistically significant, whereas only the coefficient for social globalization is statistically significant with both standard errors.

5.3 Welfare regime heterogeneity

In [Table 5.3](#), we test whether the relationship between globalization and the welfare state is different across welfare regimes.

Table 5.3: Estimation results: Interaction regressions

	(1) Overall	(2) Economic	(3) Political	(4) Social
Overall G. (t-1)	-0.143			

Continued on next page

Table 5.3 continued

	(1) Overall G.	(2) Economic G.	(3) Political G.	(4) Social G.
	(-0.879) 0.138			
Overall G. (t-1) × Conservative WS				
	(0.970) 0.193**			
	(2.088) 0.231*			
Overall G. (t-1) × Liberal WS				
	(1.759) 0.204			
Overall G. (t-1) × Post-communist WS				
	(1.330)			
Economic G. (t-1)		-0.187 (-1.620)		
Economic G. (t-1) × Conservative WS		0.075 (0.734)		
		0.159**		
Economic G. (t-1) × Mediterranean WS				
		(2.054) 0.199**		
Economic G. (t-1) × Liberal WS		(2.040) 0.167		
Economic G. (t-1) × Post-communist WS		(1.546)		
Political G. (t-1)			-0.084 (-1.046)	
Political G. (t-1) × Conservative WS			0.109 (1.156)	
			0.150**	
Political G. (t-1) × Mediterranean WS				
			(2.715) 0.137	
Political G. (t-1) × Liberal WS			(1.548) 0.133	
Political G. (t-1) × Post-communist WS			(1.444)	
Social G. (t-1)				-0.083 (-0.553)
Social G. (t-1) × Conservative WS				0.112 (0.750)
				0.216**
Social G. (t-1) × Mediterranean WS				
				(2.566) 0.166
Social G. (t-1) × Liberal WS				(1.133) 0.186
Social G. (t-1) × Post-communist WS				(1.218)
Log GDP per Capita (t-1)	-4.750*** (-3.653)	-4.522*** (-3.381)	-4.623*** (-3.788)	-4.538*** (-3.274)
Inflation (t-1)	-0.003*** (-3.789)	-0.003*** (-3.948)	-0.003*** (-4.051)	-0.002*** (-2.805)
Deficit (t-1)	-0.161*** (-6.327)	-0.151*** (-5.652)	-0.165*** (-6.041)	-0.154*** (-5.944)

Continued on next page

Table 5.3 continued

	(1) Overall G.	(2) Economic G.	(3) Political G.	(4) Social G.
Government Gross Debt (t-1)	0.021*** (2.715)	0.024*** (3.081)	0.025*** (2.960)	0.021*** (2.833)
Log Population (t-1)	-4.508 (-1.399)	-6.678** (-2.275)	-4.879* (-1.736)	-2.866 (-0.870)
Dependency Ratio (t-1)	-0.026 (-0.488)	-0.038 (-0.682)	-0.033 (-0.701)	-0.012 (-0.251)
Constant	105.54* (1.860)	146.73** (2.764)	110.07** (2.243)	74.78 (1.316)
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	996	996	996	996
R ²	0.415	0.414	0.397	0.417

T-statistics in parentheses. Robust standard errors clustered by country. ***, **, * denote significance at the 1, 5 and 10% levels.

The only two regimes that have significant coefficients are the liberal and Mediterranean regimes. The Mediterranean regime shows that all four globalization indices have significantly positive coefficients. For the liberal regime, both overall and economic globalization are positively and significantly associated with social security transfers relative to the social democratic regime.

Taken at face value, these results may suggest that globalization is more positively associated with welfare spending in the liberal and Mediterranean welfare regimes relative to the social democratic regime.

It is worth noting that the positive interaction term for liberal regimes measures the effect of globalization relative to the social democratic baseline. A positive and significant coefficient does not necessarily imply that liberal regimes are expanding their welfare states aggressively in response to globalization. It merely implies that their response differs from that of social democratic welfare regimes.

The coefficients for the social democratic reference group are statistically insignificant across all specifications in Table 5.3. Consequently, the interaction regressions provide only limited evidence of systematic cross-regime heterogeneity in the relationship between globalization and welfare spending. Moreover, the heterogeneity is not strong enough to generate precisely estimated within-regime effects and should therefore not be interpreted as confirming either the compensation or the efficiency hypothesis.

This could then suggest that the findings of Yay and Aksoy (2018) regarding regime heterogeneity are not robust when the sample is extended to 2023.

Because our sample extends to 2023, the estimates are shaped by two major global shocks, the 2008 GFC and the COVID-19 pandemic, during which many states expanded social protection sharply, visible in Figure 3.1. This makes a single long-run coefficient potentially misleading; we return to this in subsection 7.3.

We find no significant effects for the post-communist countries. A possible explanation is that these countries are moving towards different variants of

capitalism, making it potentially inappropriate to treat them as a single group (Bohle and Greskovits, 2007).

A limitation of interaction terms is that we cannot directly observe whether globalization has any effect within each regime beyond the social democratic reference category. Therefore, we also examine the marginal effects of globalization within each welfare state regime. As shown in Table 5.4, only the social democratic regime shows a significant negative coefficient for economic globalization. This is notable, as it suggests that while the Mediterranean and liberal regimes differ from the social democratic regime, they do not exhibit a significant independent globalization effect of their own, and the negative effect found in the social democratic regime appears to support the efficiency hypothesis.

Taken together, the interaction and marginal-effect estimates provide limited evidence that globalization systematically affects welfare spending across welfare regimes.

Table 5.4: Marginal effects of globalization on social security transfers by welfare regime

	(1) Overall	(2) Economic	(3) Political	(4) Social
Social Dem. (Ref.)	−0.143 (0.153)	−0.187* (0.109)	−0.084 (0.074)	−0.083 (0.146)
Conservative	−0.005 (0.094)	−0.112 (0.080)	0.026 (0.045)	0.030 (0.074)
Mediterranean	0.050 (0.184)	−0.028 (0.133)	0.067 (0.118)	0.133 (0.180)
Liberal	0.088 (0.081)	0.012 (0.067)	0.053 (0.055)	0.083 (0.071)
Post-Communist	0.061 (0.072)	−0.020 (0.043)	0.050 (0.048)	0.104 (0.078)
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Observations	996	996	996	996

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

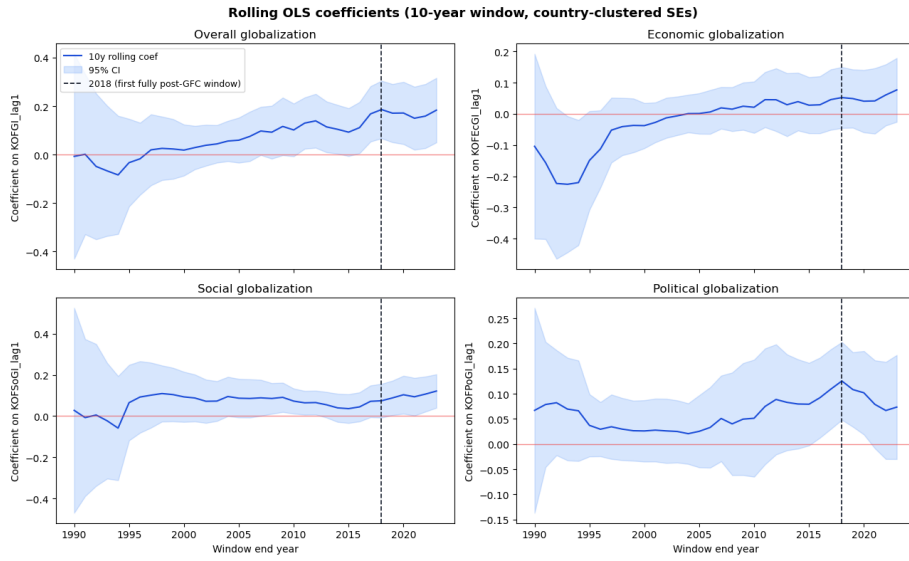
5.4 Parameter instability

The relationship between globalization and the welfare state is dynamic and is likely to be affected by shifts in economic, political, and social factors. Hence, it is plausible that the coefficients from the full sample in subsection 5.1 may not describe a uniform relationship.

To investigate this, we estimate rolling regressions for each of the four KOF globalization indices, which we report in Figure 5.1. Each point estimate on the curve is a separate regression of Equation 4.1, estimated using a 10-year

window ending in the year shown on the x-axis. The first window covers 1980-1989 (plotted at 1989), and the last covers 2014-2023 (plotted at 2023). For example, the coefficient plotted at 2018 is estimated from data covering the period 2009-2018, which is the first window with only post-GFC observations. The shaded bands are 95% confidence intervals, and we again use standard errors clustered at the country-level. We choose a 10-year window to ensure that the estimates will not be primarily driven by the short-run fluctuations in social security transfers. These often act as automatic stabilizers when unemployment rises, fluctuating with the business cycle.

Figure 5.1: Rolling regressions



Together with the figure, we report the coefficients and standard errors for the selected windows in [Table 5.5](#).

Table 5.5: Rolling OLS coefficients at the selected window-end years

Window end	Overall	Economic	Social	Political
1995	-0.0335 (0.0922)	-0.1493* (0.0806)	0.0650 (0.0936)	0.0372 (0.0316)
2000	0.0184 (0.0538)	-0.0379 (0.0369)	0.0931 (0.0621)	0.0261 (0.0311)
2007	0.0972* (0.0507)	0.0190 (0.0341)	0.0884* (0.0447)	0.0509 (0.0434)
2008	0.0921 (0.0557)	0.0149 (0.0359)	0.0854** (0.0380)	0.0402 (0.0520)
2015	0.0923* (0.0503)	0.0276 (0.0459)	0.0360 (0.0356)	0.0792* (0.0419)
2018	0.1856*** (0.0606)	0.0521 (0.0498)	0.0742* (0.0419)	0.1254*** (0.0394)
2020	0.1714** (0.0654)	0.0404 (0.0510)	0.1034** (0.0471)	0.1020** (0.0423)
2023	0.1831** (0.0679)	0.0765 (0.0522)	0.1213*** (0.0415)	0.0735 (0.0528)

Note: 10-year window, country-clustered SEs. Standard errors in parentheses; stars from t_{31} p-values. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

As can be seen, the relationship between globalization and social security transfers becomes more positive when the window years move from the past towards the present. The coefficients for overall, social, and political globalization are either small or statistically insignificant in the window ending before 2015. However, for windows ending in 2018 or later, where the estimation is based mostly on observations from the post-GFC period, the coefficients become positive and statistically significant. On the other hand, the coefficient for economic globalization is statistically significant only in 1995, and it is negative. In the later years, the coefficients become positive but are insignificant.

It would be valuable to estimate marginal effects using rolling regressions, but the sample size for the welfare regimes is too small. For example, the Mediterranean welfare regime group has only 4 countries, which would yield 40 observations per window. Therefore, we split the sample into two sub-periods to analyze how the marginal effects change across periods.

5.5 Structural break at the Global Financial Crisis

5.5.1 Baseline regression for sub-period

The rolling regressions in Table 5.5 suggest that there might be a structural break around the GFC. Therefore, we formally test for this in 2008 using a Chow test. As shown in Table B.1, the presence of a structural break is detected for all of our globalization indices in the year 2008. We therefore split the sample into a pre-GFC period (1980-2007) and a post-GFC period (2008-2023).

Table 5.6: Estimation results: pre-GFC vs. post-GFC period

	Pre-GFC Period				Post-GFC Period			
	(1) Overall	(2) Economic	(3) Social	(4) Political	(5) Overall	(6) Economic	(7) Social	(8) Political
Globalization ($t - 1$)	0.0293 (0.6372)				0.1370 (0.9786)			
Economic globalization ($t - 1$)		-0.0234 (-0.5180)				0.1206 (1.1359)		
Social globalization ($t - 1$)			0.1066 (0.9768)				0.0644 (0.9290)	
Political globalization ($t - 1$)				0.0217 (0.8721)				-0.0031 (-0.0649)
Log GDP p.c. ($t - 1$)	-2.6521 (-1.0036)	-2.5600 (-1.0300)	-3.6035 (-1.1722)	-2.7842 (-1.0791)	-6.4621*** (-2.6251)	-6.1377** (-2.5479)	-6.4836*** (-2.6802)	-6.5640*** (-2.6052)
Inflation ($t - 1$)	-0.0037*** (-5.3017)	-0.0037*** (-5.0330)	-0.0034*** (-4.4865)	-0.0037*** (-5.2275)	0.0973*** (2.6877)	0.0941*** (2.7468)	0.1015*** (2.9782)	0.1007*** (2.9647)
Deficit ($t - 1$)	-0.1449*** (-3.5090)	-0.1413*** (-3.3427)	-0.1399*** (-3.6793)	-0.1424*** (-3.3837)	-0.1363*** (-5.0391)	-0.1445*** (-5.6670)	-0.1363*** (-5.2111)	-0.1363*** (-5.1520)
Debt ($t - 1$)	0.0261** (2.1183)	0.0287** (2.2951)	0.0256** (2.0804)	0.0261** (2.0885)	0.0010 (0.0961)	0.0001 (0.0056)	0.0013 (0.1202)	0.0020 (0.1817)
Log Population ($t - 1$)	8.2018 (1.4365)	6.5269 (1.1030)	9.3300* (1.6560)	7.8370 (1.3834)	-4.5296 (-0.9299)	-4.5816 (-0.9651)	-5.2056 (-1.2209)	-6.1153 (-1.3767)
Dep. Ratio ($t - 1$)	0.0929 (1.1442)	0.0634 (0.6988)	0.0790 (0.9015)	0.0884 (0.9925)	-0.0299 (-0.5537)	-0.0434 (-0.7577)	-0.0100 (-0.2011)	-0.0167 (-0.3156)
Constant	-116.33 (-1.1977)	-84.44 (-0.8205)	-134.94 (-1.4273)	-109.19 (-1.1212)	107.01 (1.1927)	108.86 (1.2583)	123.05 (1.6330)	143.70* (1.7935)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	487	487	487	487	509	509	509	509
R ²	0.3091	0.3099	0.3180	0.3101	0.3220	0.3303	0.3168	0.3128

T-statistics in parentheses. Robust standard errors clustered by country.

***, **, * denote statistical significance at the 1, 5 and 10% levels.

From Table 5.6, we see that when the sample is split into two sub-periods, none of the coefficients for the globalization indices are statistically significant. This suggests that globalization is not associated with social security transfers in the pre- and post-GFC periods. Although this might not contradict our rolling regressions. Splitting our sample into two sections might create two time periods that are long enough for some period-specific relationships to be diluted, rendering the results insignificant.

5.5.2 Welfare regime heterogeneity by sub-period

Table 5.7: Marginal effects of globalization on social security transfers by welfare regime: pre-GFC vs. post-GFC

	Pre-GFC (1980-2007)				Post-GFC (2008-2023)			
	(1) Total	(2) Econ.	(3) Pol.	(4) Soc.	(5) Total	(6) Econ.	(7) Pol.	(8) Soc.
Social Dem. (Ref)	-0.185 (0.160)	-0.180* (0.099)	-0.064 (0.071)	-0.182 (0.194)	-0.102 (0.150)	-0.036 (0.118)	-0.156*** (0.045)	0.066 (0.129)
Conservative	-0.043 (0.105)	-0.081 (0.063)	0.052 (0.081)	-0.016 (0.108)	0.057 (0.135)	0.033 (0.090)	0.009 (0.027)	0.050 (0.100)
Mediterranean	-0.139 (0.186)	-0.150 (0.130)	-0.064 (0.101)	-0.091 (0.246)	-0.152 (0.241)	-0.069 (0.171)	-0.242*** (0.090)	0.025 (0.173)
Liberal	0.031 (0.116)	-0.023 (0.065)	0.067 (0.069)	0.072 (0.113)	0.221 (0.190)	0.117 (0.104)	0.001 (0.130)	0.116 (0.149)
Post-Communist	0.085 (0.063)	0.041 (0.038)	0.052 (0.039)	0.106 (0.118)	0.257 (0.207)	0.258 (0.168)	0.063 (0.084)	0.083 (0.096)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	487	487	487	487	509	509	509	509
R ² (within)	0.333	0.435	0.235	0.250	0.229	0.213	0.203	0.211

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

As shown in Table 5.7, most of the marginal effects for the globalization indices are statistically insignificant. There is a marginally significant coefficient for economic globalization in the social democratic welfare regimes during the pre-GFC period, and two highly significant negative effects of political globalization in social democratic and Mediterranean welfare regimes during the post-GFC period.

In the pre-GFC period, the only significant marginal effect is the negative coefficient for economic globalization for social democratic regimes. This suggests that social democratic welfare states reduced social security transfers in response to economic globalization, consistent with the efficiency hypothesis. However, this result is only statistically significant at the 10 percent level.

In the post-GFC period, only two marginal effects are significant, both negative, and both for political globalization. For the social democratic welfare regime, the coefficient is -0.156^{***} . Moreover, the coefficient for political globalization is equal to -0.242^{***} in the Mediterranean welfare regime.

Although the remaining marginal effects are insignificant, some of the point estimates are worth noting for their magnitude. The marginal effects for the liberal welfare regimes for overall globalization (0.221) and for post-communist regimes (0.257, 0.258 for overall and economic globalization) are large. This likely reflects the fact that these regimes responded to the shocks by increasing social security transfers, but the association is not strong enough to be significant. We interpret the results in subsection 7.2.

Table 5.4 and Table 5.7 together show that the sign, size, and significance of the marginal effects depend on the time period. Hence, the welfare regime-specific

associations are also unstable and not robust.

6 Robustness

In this section, we analyze the robustness of our empirical results.

6.1 Sensitivity to the choice of standard errors

To analyze the sensitivity to the choice of standard errors, we estimate baseline regressions for the entire sample period using country-clustered and [Driscoll and Kraay \(1998\)](#) standard errors. We report the results in [Table 6.1](#).

Table 6.1: Robustness check: Sensitivity of baseline results to choice of standard errors

Index	Country-clustered			Driscoll-Kraay		
	Coef.	(S.E.)	p-val	Coef.	(S.E.)	p-val
Overall	0.088	(0.063)	0.165	0.088***	(0.032)	0.007
Economic	-0.020	(0.041)	0.629	-0.020	(0.020)	0.329
Social	0.129***	(0.049)	0.009	0.129***	(0.029)	0.000
Political	0.046	(0.033)	0.163	0.046**	(0.018)	0.011

Notes: $N = 996$ for all specifications. The table compares standard clustering methods against Driscoll-Kraay errors which are robust to cross-sectional dependence. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

We clearly see differences in the results depending on the standard error used. Using country-clustered data, all coefficients except social globalization are statistically insignificant. However, using [Driscoll and Kraay \(1998\)](#) standard errors, we get statistically significant coefficients for overall, social, and political globalization.

What is interesting is how these new standard errors change the interpretation when we also use them for the marginal effects. Hence, we report the marginal effects using [Driscoll and Kraay \(1998\)](#) standard errors in [Table B.2](#).

Again, we observe that the standard errors are smaller, and a lot of the marginal effects become significant. The negative coefficient for economic globalization in the social democratic welfare regime is now significant at the 1 percent significance level rather than the 10 percent. Furthermore, the negative coefficients for overall and political globalization in this welfare regime are significant at the 1 percent level. For the conservative welfare regime, the negative coefficient for economic globalization is significant at the 1 percent level. In the post-communist welfare regime, the positive coefficient for social globalization is now significant at the 1 percent level.

The marginal effects using [Driscoll and Kraay \(1998\)](#) standard errors suggest support for the efficiency hypothesis in the social democratic and conservative welfare regimes and the compensation hypothesis in the post-communist welfare

regime. Hence, our results for the marginal effects are also sensitive to the choice of standard errors.

6.2 Reverse causality

In this section, we investigate whether there are feedback mechanisms. We do this because we must address the risk of reverse causality, where it is social security transfers that drive future globalization, not the other way around. We conduct feedback regressions to investigate this, following the methodology of [Yay and Aksoy \(2018\)](#). The results from the feedback regressions are reported in [Table 6.2](#).

Table 6.2: Feedback Regressions: Globalization Indices as the response variables

	(1) Overall	(2) Economic	(3) Political	(4) Social
Social Security Transfers (t-1)	0.125 (1.413)	-0.102 (-0.542)	0.253 (1.562)	0.225** (2.147)
Log GDP per capita (t-1)	7.864*** (3.207)	4.361 (1.110)	13.726*** (4.701)	5.564* (1.958)
Inflation (t-1)	-0.003*** (-2.916)	-0.007** (-2.433)	0.003 (1.461)	-0.006*** (-4.000)
Deficit/GDP (t-1)	0.027 (0.685)	0.125 (1.293)	-0.013 (-0.207)	-0.029 (-0.674)
Government gross debt (t-1)	0.034*** (3.723)	0.063*** (3.275)	0.030* (1.751)	0.008 (0.626)
Log population (t-1)	-13.786** (-2.577)	-22.547*** (-2.680)	-4.840 (-0.649)	-14.142** (-2.328)
Dependency ratio (t-1)	-0.119 (-1.550)	-0.152 (-0.801)	-0.044 (-0.461)	-0.161* (-1.794)
Constant	267.38*** (2.684)	424.38*** (2.787)	97.424 (0.772)	282.89** (2.537)
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	996	996	996	996
R ²	0.514	0.349	0.274	0.361

T-statistics in parentheses. Robust standard errors clustered by country. ***, **, * denote statistical significance at the 1, 5 and 10% levels.

The overall, economic and political globalization indices (columns (1) to (3)) show that the coefficients for lagged social security transfers are statistically insignificant. These findings suggest that welfare spending does not drive globalization in these dimensions, indicating no association in either of the directions between these globalization dimensions and social security transfers.

However, column (4) shows that reverse causality might be a concern for social globalization. The coefficient for lagged social security transfers is positive and significant ($\beta = 0.225, t = 2.147$). This finding indicates that higher welfare spending in the past year is associated with greater social globalization. Much of the literature focuses on how globalization affects the welfare state, but this

finding suggests that the welfare state also affects social globalization. Welfare spending might affect social globalization through migration according to the welfare magnet hypothesis, which we discuss in [subsection 7.4](#).

In conclusion, this robustness check suggests that the results for [section 5](#) are generally robust and not a result of reverse causality. However, our results for social globalization are not robust, and we should interpret them carefully, given reverse causality.

6.3 Coefficient stability across specifications

This section presents a sensitivity analysis in which control variables are introduced sequentially. The aim is to assess the stability of the coefficients and the risk of omitted variable bias. Moreover, because we found that economic and political factors were overall insignificant, this also allows us to identify which macroeconomic or demographic variables absorb the explanatory power of the globalization indices.

6.3.1 Overall, economic and political globalization

The coefficient for overall globalization ([Table 6.3](#)) remains statistically significant in columns (1)–(6), but loses significance once the dependency ratio is included in column (7). This suggests that variation in social security transfers is more closely related to the demographic pressures associated with population composition than to overall globalization.

Although a thing to note is that the number of observations decreases as we include more variables. Meaning that we change both the regressor and the sample at the same time. So the fact that the overall globalization becomes insignificant, might be attributable to a sample-composition effect.

A similar pattern emerges for economic ([Table 6.4](#)) globalization. The coefficient is statistically significant in columns (1)–(4), but it becomes insignificant once government debt is introduced in column (5). It remains insignificant also after the demographic controls are added.

Table 6.3: Sequential Inclusion of Controls: Overall Globalization

	(1) Baseline	(2) + ln_gdppc	(3) + inflation	(4) + deficit	(5) + debt	(6) + population	(7) + dep. ratio
Globalization (Overall) $_{t-1}$	0.1457** (2.0456)	0.2945*** (4.1125)	0.2835*** (3.9107)	0.2573*** (3.3021)	0.1365* (1.9551)	0.1165* (1.6995)	0.0882 (1.3905)
Log GDP per capita $_{t-1}$		-7.8644*** (-6.9373)	-8.0145*** (-7.0935)	-7.2165*** (-5.9201)	-4.6596*** (-3.2007)	-5.0308*** (-3.6229)	-5.0275*** (-4.0346)
Inflation $_{t-1}$			-0.0031*** (-3.9203)	-0.0024*** (-3.9368)	-0.0043*** (-4.6817)	-0.0038*** (-3.2890)	-0.0032*** (-4.0637)
Deficit $_{t-1}$				-0.1919*** (-4.8390)	-0.1500*** (-3.8811)	-0.1605*** (-4.4221)	-0.1564*** (-5.8475)
Debt $_{t-1}$					0.0290*** (3.0252)	0.0271*** (2.6049)	0.0268*** (2.9891)
Log Population $_{t-1}$						-2.9847 (-1.0586)	-4.6738* (-1.7447)
Dependency Ratio $_{t-1}$							-0.0307 (-0.6096)
Constant	2.4677 (0.4558)	27.765*** (4.4116)	29.355*** (4.5832)	27.014*** (4.1558)	22.514*** (3.3363)	74.383 (1.4631)	105.00** (2.1329)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1243	1239	1232	1209	1187	1187	996
R ²	0.0359	0.2320	0.2346	0.3150	0.3778	0.3842	0.3583

T-statistics in parentheses. Robust standard errors clustered by country. ***, **, * denote statistical significance at the 1, 5 and 10% levels.

Table 6.4: Sequential Inclusion of Controls: Economic Globalization

	(1) Baseline	(2) + ln_gdppc	(3) + inflation	(4) + deficit	(5) + debt	(6) + population	(7) + dep. ratio
Economic Globalization $_{t-1}$	0.1096** (2.0221)	0.1440*** (3.3095)	0.1405*** (3.2661)	0.1216*** (2.7273)	0.0450 (1.0223)	0.0312 (0.6966)	-0.0199 (-0.4833)
Log GDP per capita $_{t-1}$		-6.2343*** (-4.2212)	-6.6030*** (-4.6384)	-5.7783*** (-3.8940)	-3.4777** (-2.2525)	-4.0782*** (-2.7717)	-4.1346*** (-3.0957)
Inflation $_{t-1}$			-0.0037*** (-4.1474)	-0.0030*** (-4.2422)	-0.0050*** (-4.6930)	-0.0043*** (-3.3428)	-0.0035*** (-4.2871)
Deficit $_{t-1}$				-0.2060*** (-5.1257)	-0.1503*** (-3.6782)	-0.1619*** (-4.2753)	-0.1527*** (-5.4850)
Debt $_{t-1}$					0.0344*** (3.1897)	0.0316*** (2.7434)	0.0315*** (3.3372)
Log Population $_{t-1}$						-3.6036 (-1.2044)	-6.4374** (-2.3739)
Dependency Ratio $_{t-1}$							-0.0439 (-0.9367)
Constant	5.7374 (1.4865)	32.325*** (4.5195)	34.354*** (4.9208)	31.235*** (4.4699)	23.885*** (3.3994)	86.391 (1.6146)	138.13*** (2.8161)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1243	1239	1232	1209	1187	1187	996
R ²	0.0409	0.1820	0.1920	0.2711	0.3645	0.3738	0.3523

T-statistics in parentheses. Robust standard errors clustered by country. ***, **, * denote statistical significance at the 1, 5 and 10% levels.

Table 6.5: Sequential Inclusion of Controls: Political Globalization

	(1) Baseline	(2) + ln_gdppc	(3) + inflation	(4) + deficit	(5) + debt	(6) + population	(7) + dep. ratio
Political Globalization _{t-1}	0.0485 (1.1899)	0.1153** (2.3994)	0.1092** (2.2256)	0.1104** (2.2433)	0.0457 (1.2128)	0.0413 (1.1610)	0.0458 (1.3971)
Log GDP per capita _{t-1}		-6.7597*** (-4.2799)	-6.9551*** (-4.4638)	-6.3660*** (-4.1371)	-3.7642** (-2.5052)	-4.4770*** (-3.0820)	-4.8930*** (-3.8891)
Inflation _{t-1}			-0.0046*** (-3.3117)	-0.0037*** (-3.6922)	-0.0053*** (-5.0775)	-0.0044*** (-3.2303)	-0.0035*** (-4.1138)
Deficit _{t-1}				-0.1888*** (-4.5721)	-0.1427*** (-3.6349)	-0.1577*** (-4.2104)	-0.1532*** (-5.4532)
Debt _{t-1}					0.0343*** (3.7061)	0.0304*** (2.8388)	0.0282*** (3.1084)
Log Population _{t-1}						-3.8374 (-1.3665)	-5.6396** (-2.4302)
Dependency Ratio _{t-1}							-0.0387 (-0.8231)
Constant	9.4831*** (2.7801)	35.373*** (5.0056)	36.847*** (5.1283)	33.396*** (4.7771)	24.598*** (3.5108)	90.871* (1.8160)	123.29*** (2.9267)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1243	1239	1232	1209	1187	1187	996
R ²	0.0102	0.1621	0.1698	0.2665	0.3654	0.3765	0.3579

T-statistics in parentheses. Robust standard errors clustered by country. ***, **, * denote statistical significance at the 1, 5 and 10% levels.

For political globalization in Table 6.5, the coefficient is statistically insignificant in column (1), indicating no association with social security transfers as a share of GDP. When GDP per capita is included in column (2), the coefficient becomes significant. This result remains when inflation and the budget deficit are added in columns (3) and (4). However, once government debt is included in column (5), the coefficient becomes insignificant, and this remains the case when population and the dependency ratio are added in columns (6) and (7).

Overall, the results show that the coefficients for the macroeconomic control variables, including GDP per capita, inflation, and budget deficit, remain statistically significant across model specifications, indicating that their associations are more robust.

In contrast, the coefficient for political globalization is sensitive to model specification and not robust, making it difficult to draw a conclusion about the association between political globalization and social security transfers, and thus the welfare state.

Table 6.6: Sequential Inclusion of Controls: Social Globalization

	(1) Baseline	(2) + ln.gdppc	(3) + inflation	(4) + deficit	(5) + debt	(6) + population	(7) + dep. ratio
Social Globalization _{t-1}	0.1146 (1.6216)	0.2977*** (4.1620)	0.2858*** (3.8633)	0.2480*** (3.3749)	0.1614*** (3.1120)	0.1419*** (2.8726)	0.1288*** (2.6324)
Log GDP per capita _{t-1}		-7.9231*** (-6.4514)	-8.1088*** (-6.7888)	-7.1126*** (-5.3516)	-4.6631*** (-3.6016)	-5.0357*** (-3.9209)	-4.9845*** (-4.0949)
Inflation _{t-1}			-0.0021* (-1.7236)	-0.0016* (-1.6489)	-0.0038*** (-3.7715)	-0.0034*** (-2.8714)	-0.0027*** (-3.1766)
Deficit _{t-1}				-0.1873*** (-4.3099)	-0.1400*** (-3.3750)	-0.1512*** (-3.8206)	-0.1449*** (-5.4279)
Debt _{t-1}					0.0322*** (3.5395)	0.0298*** (2.9138)	0.0283*** (3.2685)
Log Population _{t-1}						-2.7876 (-0.9928)	-3.9673* (-1.6663)
Dependency Ratio _{t-1}							-0.0202 (-0.4394)
Constant	5.1607 (0.9984)	28.660*** (4.5736)	30.443*** (4.8333)	27.991*** (4.4363)	20.943*** (3.1825)	69.540 (1.3730)	90.013*** (2.0539)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1243	1239	1232	1209	1187	1187	996
R ²	0.0175	0.2064	0.2110	0.2892	0.3837	0.3892	0.3706

T-statistics in parentheses. Robust standard errors clustered by country. ***, **, * denote statistical significance at the 1, 5 and 10% levels.

6.3.2 Social globalization

In contrast to the other globalization indices, social globalization (Table 6.6) appears more robust. While it is not statistically significant in column (1), the coefficient becomes positive and statistically significant from column (2) onwards after the inclusion of macroeconomic controls. This suggests that the effect is robust to the sequential inclusion of control variables.

At the same time, the coefficient declines as additional controls are added, indicating some sensitivity in magnitude to the model specification.

7 Discussion

In this section, we relate our findings to existing literature and discuss the limitations of our empirical analysis.

7.1 Interpretation of the aggregate results

Our empirical results suggest no clear association between globalization and social security transfers-or the welfare state-except for social globalization, which shows a statistically significant positive effect. However, our robustness check suggests that this result may be subject to reverse causality, warranting caution in interpretation.

The positive effect of social globalization is nonetheless consistent with [Meinhard and Potrafke \(2012\)](#), although they measure overall welfare state size, whereas we focus specifically on social security transfers.

Our main findings broadly align with [Yay and Aksoy \(2018\)](#), who find no direct

link between globalization and the welfare state, although social globalization stands out as an exception in our analysis.

This pattern of mixed effects is also consistent with [Brady et al. \(2005\)](#), who analyze 17 affluent democracies from 1975 to 2001 and show that globalization does influence the welfare state, but that these effects are inconsistent and generally smaller than those of domestic political and economic factors.

7.2 The role of welfare regimes

The interaction regressions show that overall and economic globalization have positive, statistically significant effects in the Mediterranean and liberal regimes, whereas political and social globalization are significant only in the Mediterranean regime. This indicates that these two regimes differ from the social democratic reference group on those indices and, taken at face value, points toward the compensation hypothesis being particularly relevant in Mediterranean countries and, to a lesser extent, in liberal welfare regimes. The interaction terms only measure differences relative to the social democratic baseline, so we turn to the marginal effects to assess whether globalization has an effect within each regime. Here, the social democratic regime shows a negative relationship between economic globalization and social security transfers, consistent with the pre-GFC results and partially consistent with the efficiency hypothesis. This aligns with [Kim and Zurlò \(2009\)](#), who find that globalization negatively affects the welfare state in social democratic regimes. Notably, the liberal and Mediterranean regimes do not exhibit a significant independent effect, so the cross-regime differences in the interaction terms are not matched by precisely estimated within-regime effects. In the post-GFC period, political globalization has a negative coefficient in both the social democratic and Mediterranean welfare regimes. This is partly consistent with [Yay and Aksoy \(2018\)](#), who also report a negative coefficient (-0.183^{**}) for political globalization in the social democratic regime. We do not analyze what caused this change, but a plausible institutional explanation is the EU's response to the sovereign debt crisis, which reinforced fiscal rules and coordination through mechanisms such as the European Semester, the Fiscal Compact, and a strengthened Stability and Growth Pact. The Mediterranean countries—Greece, Italy, Portugal, and Spain—were especially affected: Greece and Portugal had conditional lending programs, while Italy and Spain were subject to EU-level surveillance, and these policies led to welfare retrenchment across the region. The negative coefficient for political globalization in the Mediterranean regime therefore likely reflects the institutional consequences of the sovereign debt crisis rather than a general globalization effect, which may also explain why it does not appear in [Leibrecht et al. \(2011\)](#), whose sample ends in 2006.

Our results differ from [Yay and Aksoy \(2018\)](#) in the overall pattern. They find support for the compensation hypothesis in the social democratic, conservative, and Mediterranean regimes and for the efficiency hypothesis in the liberal regime, whereas we find only limited evidence for the efficiency hypothesis, in the social democratic regime and, to some extent, the Mediterranean regime. The contrast with our liberal-regime interaction result, where the positive coefficient is more consistent with compensation, likely reflects our extended sample and the post-GFC and pandemic shocks discussed in Section 7.3. [Leibrecht](#)

et al. (2011) find evidence for the efficiency hypothesis in the social democratic regime—broadly consistent with our full-sample finding—and no significant effect for the liberal or Southern/Mediterranean regimes. Part of the latter difference may stem from how Southern countries are defined, as their sample includes Cyprus and Malta, but it more likely reflects the time period, since their sample ends in 2006 and excludes the major global shocks in ours.

7.3 Parameter instability and historical contexts

One of our main findings is that the association between globalization and social security transfers is unstable across our sample period. This finding implies that the empirical literature should interpret estimations of this relationship using a long sample with caution. To our knowledge, rolling regressions have not been used in the literature to illustrate parameter instability. The reason for this can be due to the fact that rolling regressions become more informative with longer sample periods. Most papers, including Yay and Aksoy (2018); Brady et al. (2005); Meinhard and Potrafke (2012) estimate a single coefficient over a long time period to analyze the relationship. However, our results indicate that such coefficients tend to be either statistically insignificant or not robust because the relationship is not uniform but depends on the time period in question. For example, Yay and Aksoy (2018) find insignificant aggregate results in their baseline regressions that end in 2010, which according to our rolling regressions was before the relationship became positive for overall, political, and social globalization.

The GFC and the COVID-19 pandemic both produced large increases in social security transfers at a time when the globalization indices were also rising, which mechanically pushes the post-2015 windows toward positive coefficients. Complicating interpretation further, both shocks are themselves partly consequences of globalization, financial integration in the case of the GFC, cross-border mobility in the case of COVID-19, so the rising transfers cannot be cleanly separated from the rising globalization measures. Future work could model this period dependence directly, for example by interacting the globalization indices with indicators of global shocks.

7.4 Reverse causality and welfare magnets

Most of the literature focuses on how globalization affects welfare spending, but our feedback regressions (Table 6.2) point in the opposite direction for social globalization: lagged social security transfers predict social globalization with a coefficient of 0.225. To identify what drives this, we decompose social globalization into its interpersonal, informational, and cultural under-components, each split into de facto and de jure measures in Table B.3. Of these six under-components, only de jure interpersonal globalization is significantly associated with lagged social security transfers, with a positive coefficient of 0.355, significant at the 5 % level. Its de facto counterpart is small and insignificant (0.044), as are the informational and cultural components in both their de facto and de jure forms. De jure interpersonal globalization is built from telephone and mobile subscriptions, the degree of visa freedom for foreign visitors, and the density of airports with international connections, all relative to population.

It therefore captures a country’s institutional and infrastructural openness to cross-border contact, rather than the realized flows of migrants and tourists measured by the de facto component.

This indirectly relates to the welfare magnet hypothesis. [Agersnap et al. \(2020\)](#) provide micro-level evidence from a Danish welfare reform, estimating an elasticity of migration with respect to benefits of approximately 1.3. As they note, such responsiveness can generate a race to the bottom: if policymakers perceive low-income immigrants as a negative net fiscal burden, each country has a locally optimal incentive to cut welfare spending to deter them, and because the allocation of immigrants is largely zero-sum, neighboring countries may follow to avoid becoming the new welfare magnet. We caution, however, that the welfare magnet mechanism operates through realized migration, which the de facto interpersonal index captures and finds insignificant. The significant channel is instead de jure openness, so our macro-level results are at most suggestive of welfare-magnet dynamics and may also reflect that more generous welfare states tend to be more institutionally open economies in general.

The findings from [Table 6.2](#) suggest that lagged social security transfers does not affect political globalization. However, the literature does find examples where welfare retrenchment has affected political globalization. Using micro-level data and a causal research design, [Fetzer \(2019\)](#) finds that welfare retrenchment increased support for UKIP and for the Leave referendum in 2016. Moreover, he argues that without welfare retrenchment, the majority would have voted remain. The Leave referendum ultimately led to Brexit, which primarily reduced economic and political globalization.

7.5 Limitations

7.5.1 Correlational, not causal

A limitation in the wider literature on the compensation and efficiency hypotheses, which our paper also faces, is that globalization is not randomly or exogenously assigned to countries. The variation in our empirical analysis comes from within-country movements in the globalization indices, but we cannot interpret it as causal because of the risk of reverse causality and omitted variable bias.

There is no available counterfactual, as globalization is a global phenomenon which makes it difficult to find a non-globalized control group. Moreover, the world’s least globalized economies usually lack the institutional capacity to provide high-quality longitudinal data. While our sample period (1980-2023) includes variation in the level of globalization, as shown in [Figure 3.2](#), there is no exogenous shock to globalization. For example, the fall in economic globalization in 2020.

7.5.2 Aggregation and omitted variables

Our empirical analysis uses macro-level data that is aggregated both at (i) the country-level and at (ii) the year-level. This approach offers several advantages: it is intuitive and well-suited for analyzing hypotheses involving government budget constraints. The disadvantage is the aggregation bias, as we treat all

spending as equivalent which ignores the composition and quality of welfare [Esping-Andersen \(1990\)](#).

Although we use macroeconomic and demographic control variables that are theoretically grounded and used in the literature, the risk of omitted-variable bias persists. Variables such as government ideology, trade union density, voter turnout, and partisan composition of government are well-established determinants of welfare spending in the comparative politics literature, but are not included in our baseline specification. To the extent that these variables are correlated with globalization, their omission may lead to biased estimates of the globalization coefficients.

7.5.3 Measurement

Our dependent variable, social security transfers as a share of GDP, captures only one dimension of welfare state generosity. It does not account for the quality of benefits, means-testing, eligibility rules, or in-kind services such as healthcare and education, nor can it distinguish whether globalization affects pensions, unemployment benefits, and other transfer types differently. We therefore cannot tell whether our results reflect changes in the size of the welfare state or in the composition of its spending.

The KOF indices are widely used in the empirical literature as a measure of globalization, but they are not without limitations. First, the aggregate indices we use are calculated using under-components for each index with time-invariant weights. These weights are determined using principal components analysis [Gygli et al. \(2025\)](#). A consequence of this is that it is difficult to compare analyses if different weights are used. This is the case for our analysis, as the new KOF indices which we use are calculated using the newest revision [Gygli et al. \(2025\)](#), and [Yay and Aksoy \(2018\)](#) use an older revision. Second, the KOF indices are a combination of *de facto*- and *de jure* under-components. *De jure* under-components measures policy intentions and not actual changes in globalization. Hence, if *de facto* globalization decreases but *de jure* globalization increases more than the globalization index will be net positive, even though actual globalization has decreased. Third, the KOF indices ranges between 0 and 100, which means that the indices varies little when they approach 100, as shown in [Figure 3.2](#). Therefore, our fixed-effects estimator gets its variation from countries that are already highly globalized.

7.5.4 External validity

The external validity of our findings is limited. First, the relationship depends on the time period in question. Second, our findings cannot be used to describe the relationship in countries that are classified as middle-income or developing. This is because our sample consists of 32 OECD countries, which is broad but it is restricted to relatively wealthy countries, most of which are European. The relationship between globalization and welfare spending may differ substantially in middle-income or developing countries, where welfare state institutions are weaker, and exposure to global markets takes different forms.

8 Conclusion

This paper revisits the relationship between globalization and the welfare state by extending the analysis of [Yay and Aksoy \(2018\)](#) to the period 1980–2023. Overall, our findings suggest no clear relationship between globalization and the welfare state, with the effect appearing more sensitive to the time period and welfare regime than to globalization itself. The regime heterogeneity found by [Yay and Aksoy \(2018\)](#) does not hold robustly when the sample is extended to 2023.

The baseline results reveal no statistically significant relationship between globalization and social security transfers, and thereby the welfare state. However, social globalization has a positive, statistically significant effect, though this may be driven by reverse causality and should therefore be interpreted with caution.

When accounting for welfare regimes, the interaction regressions show statistically significant results for both Mediterranean and liberal regimes, indicating that globalization differs in these regimes compared to social democratic regimes. Looking at marginal effects to analyze the effect of globalization across welfare regimes, we find that only economic globalization has a negative effect on social democratic regimes, providing some support for the efficiency hypothesis.

Our rolling regressions show parameter instability in the relationship between globalization and the welfare state, suggesting that a single long-run estimate averages over sub-periods rather than capturing a stable relationship. The coefficients for overall, social, and political globalization have a positive trend over time and become statistically significant in the later windows, which are based mostly on post-GFC observations. Economic globalization is the exception: its coefficient is significantly negative in the earliest window and insignificant thereafter. A Chow test suggests that there is a structural break at 2008 for all four globalization indices ([subsection 5.5](#)).

At the aggregate level, none of the coefficients for the globalization indices are significant in either the pre-GFC or post-GFC period. However, the marginal effects show that, during the pre-GFC period, only the coefficient for economic globalization is significant, with a negative magnitude for social democratic welfare regimes, similar to the marginal effects found for the whole period. In the post-GFC period, only the coefficient for political globalization is significant, with negative coefficients for social democratic and Mediterranean welfare regimes. The sovereign debt crisis likely explains these associations.

All in all, our results provide limited evidence for either the compensation or the efficiency hypothesis. This reflects the fundamental difficulty of capturing a relationship that appears to be period-dependent with a single aggregate estimate over a long sample period. Future work could therefore address this by using more disaggregated welfare state proxies or by modeling period dependence more explicitly.

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Appendix A Data appendix

A.1 Descriptive analysis

Table A.1 presents the summary statistics. There is substantial variation in welfare state size across the 32 countries, as reflected in social security transfers, which have a mean of 13.53 and range from 4.34 to 23.90 percent of GDP.

Inflation (CPI) shows a large outlier, with a mean of 10.16 and a maximum value of 1281.44, likely reflecting episodes of hyperinflation in the early 1990s.

The globalization indices also display considerable variation across countries, indicating differences in the degree of global integration. The KOF indices show that economic globalization has the lowest mean (70.42), followed by social globalization (72.28), while political globalization is the highest (82.60). This may reflect the widespread participation of countries in international organizations and agreements.

Table A.1: Summary statistics

Variable	Obs	Mean	Std	Min	Max
<i>Dependent Variable</i>					
Social Security Transfers (% GDP)	1266	13.53	3.70	4.34	23.90
<i>Main Independent Variables</i>					
KOF Globalization Index	1340	75.10	9.30	41.34	89.19
KOF Economic Globalization	1340	70.42	12.19	35.18	93.01
KOF Social Globalization	1340	72.28	8.79	40.05	90.54
KOF Political Globalization	1340	82.60	13.37	24.71	98.06
<i>Control Variables</i>					
Budget Deficit (% GDP)	1251	-2.58	4.38	-32.15	25.45
Government Debt (% GDP)	1228	67.26	39.29	6.80	240.82
Log Population	1408	16.13	1.51	12.34	19.64
Log GDP per Capita	1292	4.65	0.38	3.36	5.69
Inflation (CPI)	1311	10.16	67.44	-4.45	1281.44
Dependency Ratio	1088	50.61	4.64	38.54	70.26

Notes: Summary statistics for the 32 OECD countries (1980-2023). Social security transfers, budget deficit, and government debt are expressed as percentages of GDP. KOF indices range from 0 to 100. The extremely high max value for inflation comes from a period of hyperinflation in the former Yugoslav countries around the fall of Yugoslavia.

A.2 Data sources

Table A.2: Variables and data sources

Variable	Data source
Dependent variable	
Social security transfers over GDP (%)	CPDS (variable name: ssstran)
Globalisation variables	
Overall globalisation	KOF Globalisation Index
Economic globalisation	KOF Globalisation Index
Political globalisation	KOF Globalisation Index
Social globalisation	KOF Globalisation Index
Macroeconomic control variables	
Log GDP per capita	OECD Data Explorer
Inflation (CPI)	OECD Data Explorer
Budget deficit over GDP (%)	CPDS (variable name: deficit)
Government debt over GDP (%)	CPDS (variable name: debt)
Demographic control variables	
Log population	World Bank
Dependency ratio	World Bank

Note: [CPDS codebook](#) for CPDS variable explanations. Links to KOF variable explanations can be found in [Table A.3](#).

A.3 Explanations for the KOF globalization indices

Economic globalization is measured through trade and financial globalization. Trade globalization reflects the intensity and diversification of trade, as well as trade restrictions. Financial globalization captures international capital flows, foreign investment, and countries' external financial assets and liabilities.

Social globalization is measured by three sub-dimensions: interpersonal, informational, and cultural. Interpersonal globalization captures cross-border contacts, such as migration and tourism. Informational globalization reflects the flow of information between countries. Cultural globalization measures the spread of cultural influence across nations.

Political globalization is measured by indicators such as the number of embassies, membership in international organizations, and participation in international NGOs. Other indicators include international treaties, UN peace missions, and investment treaty partners.

Finally, overall globalization combines the economic, social, and political dimensions, each measured by de facto and de jure indices.

Table A.3: KOF Globalisation Index documentation links

Document	Link
Structure / components / weights (PDF)	Link
Variables & definitions (PDF)	Link
Method of calculation (PDF)	Link
The KOF Globalisation Index - Revisited (PDF)	Link

A.4 Countries in this paper and their welfare categories

Table A.4: Welfare-regime classification used in the paper (four regimes + post-communist group)

Social democratic	Conservative	Liberal	Mediterranean	Post-communist
Denmark	Austria	Australia	Greece	Bulgaria
Finland	Belgium	Canada	Italy	Czech Rep.
Norway	France	Ireland	Portugal	(Czechia)
Sweden	Germany	Japan	Spain	Estonia
Iceland	Luxembourg	New Zealand		Hungary
	Netherlands	U.K.		Latvia
	Switzerland	United States		Lithuania
				Poland
				Slovakia
				Slovenia

Appendix B Empirical appendix

B.1 Diagnostics

B.1.1 Serial correlation test

We test for serial correlation in the residuals using a Ljung-Box test. The hypotheses are:

$$\begin{aligned}\mathcal{H}_0 : \rho_k &= 0 \quad \text{for all } k \\ \mathcal{H}_1 : \rho_k &\neq 0 \quad \text{for at least one } k\end{aligned}$$

A rejection of $\mathcal{H}_0$ indicates that the residuals are autocorrelated. ρ_k is the autocorrelation of the residuals at lag k .

B.1.2 Heteroskedasticity test

We test for group-wise heteroskedasticity by using a Modified Wald test. The hypotheses are:

$$\begin{aligned}\mathcal{H}_0 : \sigma_i^2 &= \sigma^2 \quad \text{for all } i \\ \mathcal{H}_1 : \sigma_i^2 &\neq \sigma^2 \quad \text{for at least one } i\end{aligned}$$

A rejection of $\mathcal{H}_0$ indicates that the error variances differ across countries. σ_i^2 is the error variance for country i .

B.1.3 Cross-sectional dependence test

To formally test for cross-sectional dependence, we use a [Pesaran \(2004\)](#) CD test. The null- and alternative hypotheses are:

$$\mathcal{H}_0 : \text{cov}(\epsilon_{it}, \epsilon_{jt}) = 0 \quad \forall t \wedge i \neq j \quad (\text{B.1})$$

$$\mathcal{H}_1 : \text{cov}(\epsilon_{it}, \epsilon_{jt}) \neq 0 \quad \text{for at least one pair of } i, j \quad (\text{B.2})$$

A rejection of $\mathcal{H}_0$ indicates that there is cross-sectional dependence in the residuals.

We report the results for all tests in [Table 5.2](#).

B.2 Chow test for a structural break

Table B.1: Chow Structural Break Test (break year = 2008). $\mathcal{H}_0$: No structural break. Rejection at $p < 0.05$ implies parameter instability at the candidate date.

Index	Obs (pre)	Obs (post)	F-Stat (break=2008)	p-value	Verdict
Overall	487	509	9.888	0.000	Break detected
Economic	487	509	8.690	0.000	Break detected
Social	487	509	4.946	0.000	Break detected
Political	487	509	6.969	0.000	Break detected

B.3 Robustness appendix

In this robustness appendix, we include a table for the marginal effects using [Driscoll and Kraay \(1998\)](#) standard errors and using feedback regressions for the under-components of social globalization in [subsubsection B.3.2](#).

B.3.1 Marginal effects with [Driscoll and Kraay \(1998\)](#) standard errors

We report the marginal effects using [Driscoll and Kraay \(1998\)](#) standard errors in [Table B.2](#).

Table B.2: Marginal effects of globalization on social security transfers by welfare regime

	(1) Overall	(2) Economic	(3) Political	(4) Social
Social Dem. (Ref.)	−0.143*** (0.039)	−0.187*** (0.038)	−0.084*** (0.021)	−0.083 (0.078)
Conservative	−0.006 (0.036)	−0.112*** (0.031)	0.026 (0.027)	0.030 (0.025)
Mediterranean	0.050 (0.122)	−0.028 (0.090)	0.067 (0.103)	0.133 (0.127)
Liberal	0.088 (0.054)	0.012 (0.034)	0.053 (0.043)	0.083* (0.048)
Post-Communist	0.061 (0.040)	−0.020 (0.016)	0.050* (0.029)	0.104*** (0.040)
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Observations	996	996	996	996

Notes: Driscoll-Kraay standard errors in parentheses. Point estimates are identical to those in [Table 5.4](#); only the standard errors differ. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

B.3.2 Feedback regressions: Under-components of social globalization

To analyze which under-components of social globalization that might drive the reverse causality relationship where social security transfers affect social globalization, we estimate [Equation 4.3](#) but for the under-components of social globalization: interpersonal-, informational-, and cultural globalization with each split into de facto and de jure components. We report the results in [Table B.3](#).

Table B.3: Feedback regressions: Under-components of social globalization on social security transfers (de facto vs. de jure)

	(1) Interpersonal (de facto)	(2) Interpersonal (de jure)	(3) Informational (de facto)	(4) Informational (de jure)	(5) Cultural (de facto)	(6) Cultural (de jure)
Social Security Transfers (t-1)	0.044 (0.175)	0.355** (0.178)	0.251 (0.248)	0.052 (0.179)	0.314 (0.393)	0.310 (0.212)
Public Debt (t-1)	-0.017 (0.024)	0.026* (0.015)	0.008 (0.023)	0.038** (0.019)	-0.030 (0.043)	0.020 (0.016)
Budget Deficit (t-1)	-0.006 (0.072)	0.012 (0.076)	-0.072 (0.137)	0.007 (0.077)	-0.200 (0.159)	0.097 (0.068)
Dependency Ratio (t-1)	-0.398* (0.216)	-0.118 (0.113)	-0.055 (0.231)	0.019 (0.097)	-0.182 (0.202)	-0.227* (0.131)
Inflation (CPI) (t-1)	-0.001 (0.002)	0.002 (0.002)	-0.003 (0.003)	-0.010*** (0.002)	-0.016*** (0.005)	-0.005*** (0.002)
ln(GDP per capita) (t-1)	5.068 (5.363)	10.706*** (3.059)	-13.568** (6.032)	11.393*** (2.781)	18.229** (8.116)	1.618 (3.584)
ln(Population) (t-1)	-27.160*** (10.144)	-21.337*** (7.308)	-14.786 (14.620)	-7.641* (3.993)	7.256 (15.528)	-20.429*** (6.003)
Constant	505.482*** (193.885)	368.644*** (130.015)	378.214 (254.752)	136.869* (71.002)	-119.082 (274.253)	414.746*** (115.656)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	996	996	996	996	996	996
No. of Groups	32	32	32	32	32	32
R ²	0.393	0.417	0.138	0.205	0.138	0.158
Residual Std. Error	1.967	2.060	1.690	1.578	2.418	1.411
F-Statistic	85.457***	94.691***	21.104***	34.151***	21.086***	24.833***

Standard errors reported in parentheses. Robust standard errors clustered by country. ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

As shown in Table B.3, the only statistically significant under-component of social globalization is de jure interpersonal globalization. The coefficient for de jure interpersonal globalization is statistically significant at the 5 % significance level and positive with a coefficient of 0.355. De jure Interpersonal globalization is a measure of telephone subscriptions, freedom to visit, and international airports.