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# Regional Integration and Welfare State Generosity: A Synthetic Counterfactual Analysis of the EMU

## Abstract

The effects of the introduction of the euro have been broadly studied by scholars in several fields. Recently, research has shifted its focus to the effects of the euro on income inequality in euro-adopting countries. This research commonly argues that the introduction of the euro negatively affected welfare state generosity which in turn negatively affects the inequality of income. However, the effect of the EMU on welfare state generosity has not been studied in detail. Therefore, this paper sets out to answer the question of whether welfare state generosity in EMU countries would have been higher or lower than its current levels, had these countries not adopted the euro as their currency. Using the synthetic control method developed by Abadie and Gardeazabal (2003), I estimate what would have happened to welfare generosity, had the euro not been introduced. The synthetic control method constructs a synthetic counterfactual for each euro-adopting country from a pool of donor countries and thus provides a counterfactual answer to the question of how the adoption of the euro influenced welfare state generosity in EMU countries. Overall, I find no strong evidence supporting the expectation that the introduction of the euro lowered welfare state generosity. This result challenges a widespread assumption about the impact of the euro on welfare states.

*Keywords: European Union, EMU, Welfare State Generosity, Synthetic Control Method*

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## Introduction

In 1999, eleven European countries adopted the euro as their common currency, with Greece joining two years later. Not only was the euro established, but with it the Economic and Monetary Union of the EU (EMU), which was large in the European integration process in an economic and political sense. The macroeconomic effects of this integration step have been subject to many studies since then. A large amount of research focuses on the EMU's effect on income inequality (Beckfield, 2006; Bertola, 2010; Busemeyer and Tober, 2015). While these studies make assumptions on the causal mechanism connecting the EMU with inequality and argue that the EMU affects the welfare state which in turn affects inequality, the EMU's effect on the welfare state has not been thoroughly studied to date. However, this relationship is of utmost importance as welfare states, directly and indirectly, impact the economic and social well-being of individuals by structuring the extent to which income and wealth are redistributed and providing insurance against social hardship (Barr, 2020; Esping-Andersen and Myles, 2011).

To address this gap, I apply the synthetic control method (SCM) which was first proposed by Abadie and Gardeazabal (2003). By constructing a synthetic doppelganger for each euro-adopting country, the SCM provides the opportunity to estimate the potential outcome without the adoption of the euro and to counterfactually analyse the impact of the euro on the welfare state. This provides an answer to the research question: *How has the adoption of the euro influenced welfare state generosity in EMU countries?*

Despite the *acquis communautaire* excluding social policy, the EMU may affect welfare generosity through the channels of economic and political integration. The focus on negative integration (Scharpf, 1998), the decreasing power of labour unions (Huber and Stephens, 2001), increased tax competition (Genschel, Kemmerling and Seils, 2011), strict fiscal rules, the diffusion of policy scripts, and the possibility of blame avoidance (Beckfield, 2019) are all mechanisms through which one may expect the EMU to constrain the welfare state and limit its generosity. Surprisingly however, this study finds no strong divergence of welfare state generosity between the actual trajectory and the synthetic counterparts, suggesting that the introduction of the euro did not significantly decrease welfare state generosity.

The remainder of this paper is structured as follows: First, I will discuss the ways through which the EMU is expected to affect welfare state generosity and derive a theoretical expectation. The next section will introduce the synthetic control method and discuss data and model specifications. Then, I will present the baseline results and the robustness and sensitivity checks that were run. Lastly, I will briefly highlight some possible explanations for the findings and end with some concluding remarks.

## Welfare state generosity and European integration

While welfare states differ significantly across countries in their function and extent, welfare states share two common functions: First, as institutions that aim at relieving poverty and redistributing income and wealth. This first function is commonly referred to as the 'Robin Hood' function. Second, the 'piggy bank' function provides insurance against hardship and spreads income over the life cycle (Barr, 2020).

Among the many socioeconomic factors that have an impact on national welfare states, "it is European integration and [the] economic and monetary union that really count among the most heavily felt recent exogenous pressures" (Ferrera and Rhodes, 2000, p. 2). Although the *acquis communautaire* excludes social policy, several channels exist through which European integration may indirectly affect welfare states. The adoption of the euro represents a significant phase in the European integration process, significantly deepening integration and increasing influence on welfare states, and exacerbating the trilemma between economic integration, democracy, and national sovereignty (Rodrik, 2015). As many scholars have argued, this integration step has pushed euro-adopting countries towards less generous welfare states (c.f., Beckfield, 2006; Bertola, 2010; Busemeyer and Tober, 2015). This paper aims to test this argument empirically and assess counterfactually how welfare state generosity may have developed, had these countries not adopted the euro.

The following section will outline the two dimensions of European integration, economic and political integration, and highlight their potential effect on welfare systems and generosity.

### *Economic Integration*

The first dimension refers to the deepening of economic integration which could have a significant impact on welfare states. As many scholars point out, the process of European integration focuses more on negative integration (i.e., deregulation and the removal of trade barriers) than positive integration (i.e., social regulations with the intent of correcting market dysfunctions) (c.f., Scharpf, 1998). This implies that the construction of the single market through deregulation, the removal of barriers, and limiting state intervention significantly exceeded social regulations within the European Union. Overall, the process of European economic integration has had a strong bias toward economic interests and has severely neglected the social policy dimension (Schelkle, 2017). This asymmetry between positive and negative integration has grown increasingly intense, especially with the establishment of the EMU (Ferrera, 2017), and has undermined member states' sovereignty in the area of social policy and public spending (Herwartz and Theilen, 2014). Thus, regional economic integration puts severe constraints on welfare states as they must become competitive and facilitates competition amongst states within the single market to provide a more market-friendly environment (Ferrera and Rhodes, 2000; Herwartz and Theilen, 2014).

Economic integration within the European Union may also have an indirect impact on the welfare state through its influence on organised labour and labour unions (c.f., Huber and Stephens, 2001). Economic integration strongly increased labour competition due to the creation of an EU-wide labour pool, enhancing the substitutability of workers as firm and wage competition across borders increases. Additionally, economic integration has facilitated intra-EU cross-border trade, the flow of capital, and competition. This lowers profits for unions to capture (Tober and Busemeyer, 2022) and enhances threats of production relocation through outsourcing or off-shoring (c.f., Geishecker, 2006). As Tober (2022) points out, these dynamics cause labour unions to lose control over the supply of labour which is further exacerbated by unions' difficulties to (re-)organise at the European level (Streeck and Schmitter, 1991).

Overall, regional economic integration undermines labour organisation and decreases the bargaining power of labour vis-à-vis capital owners (Dreher and Gaston, 2008). Historically, labour unions have been one of the major forces pushing for the expansion and maintenance of the welfare state. Accordingly, weakened labour unions may result in weakened support for the welfare state (Beckfield, 2019).

Lastly, European economic integration might affect welfare generosity through its effect on tax competition within the single market. Economic integration removes barriers and reduces transaction costs and exchange rate fluctuations, thus facilitating cross-border economic interactions and tax arbitrage. The advances in economic integration have, therefore, fostered tax competition and caused tax rates to fall more quickly in the EU (Genschel, Kemmerling and Seils, 2011). This leads to the expectation that tax competition induced by economic integration poses a serious threat to the welfare state and has a constraining effect on fiscal spending (Sinn, 1997). In conclusion, the expectation arises that economic integration puts pressure on the generosity of welfare states and might lead to a reduction.

### *Political Integration*

The following section will highlight how the second dimension of the EMU, political integration, may affect welfare generosity. By doing so, I closely follow Beckfield (2019) who posits that regional integration may constrain policy options through policy feedback, facilitate blame-avoidance and blame-shifting by national actors for unpopular measures such as welfare state retrenchment, and, lastly, that the EU diffuses policy scripts that pre-determine legitimate policy.

While European economic integration, as outlined above, has strongly favored liberalisation and deregulation over social regulation, political integration and the EMU have brought along strict regulations. In 1992, the Treaty of Maastricht introduced the convergence criteria which needed to be fulfilled by the member states before adopting the euro as a common currency. Amongst other requirements, the convergence criteria imposed strict limits on the annual government budget deficit and debt. In the next step,

the Stability and Growth Pact ensured that fiscal discipline would be maintained once the euro was adopted. Lastly and perhaps most importantly, the third stage of the EMU, the introduction of the euro, made the criteria that was agreed upon in 1992 binding and put several mechanisms in place to ensure enforcement.

These criteria emphasise the EMU's market orientation and impose severe restrictions on member states' fiscal leeway. Therefore, one can expect political integration and the EMU to affect welfare state generosity by limiting available policy choices via policy feedback (Beckfield, 2019; Kerschbaumer and Maschke, 2020). The rigid budgetary rules led to "EMU-induced austerity and spending cuts" (Ferrera, 2017, p. 4) and limited member states' ability to respond to demands for social policy (Tober and Busemeyer, 2022). While many question the European Union's ability to enforce the aforementioned criteria, Koehler and König (2015) show that debt levels amongst member states would have been higher without the EMU, underlining the EMU's constraining effect on fiscal policy and social policy-making. Additionally, because of the EMU and the establishment of the European Central Bank, the euro-adopting member states relinquished their authority to conduct independent monetary policies. This highlights how monetary and fiscal policy were affected by the EMU and how political integration and constraining macroeconomic policies may impose restrictions on welfare state generosity. Furthermore, political integration might facilitate welfare retrenchment as political actors are able to shift blame to the EU when rolling back popular welfare state programs (Beckfield, 2019; Bertola, 2010).

Another more subtle and indirect mechanism connecting European political integration to welfare state generosity is the diffusion of policy scripts (c.f., Beckfield, 2019). The EU advances policies concerned with deregulation and market orientation that "define regionally legitimate welfare policy" (Beckfield, 2019, p. 98). States may use these policy scripts that correspond with the market liberalisation agenda to justify changes and avoid blame. By adopting these "technocratic capitalist policy scripts of the EU" (Beckfield, 2019, p. 171), the member states willingly accept constraints on their welfare states and may find ways to legitimise welfare state retrenchment. Overall, regional political integration in the form of the EMU seems to strongly affect welfare state generosity by imposing tight fiscal rules, fostering blame avoidance, and diffusing policy scripts.

### *Summary of the theoretical argument*

While the treaties leave the authority over the welfare states in the hands of the member states, the previous paragraphs have highlighted channels through which European integration, especially the EMU, may have an impact on the welfare state and its generosity. The economic space and the macroeconomic policies that were established by the EMU have encapsulated national welfare states and imposed serious constraints (Ferrera, 2017). On the economic side, deregulation, the weakening of labour unions, and tax competition might constrain welfare state generosity. On the political side, the

binding commitment to low budget deficits and debt levels imposed by the EMU, blame avoidance, and neoliberal policy scripts might constrain welfare state generosity.

Overall, this leads to the conclusion that the political and economic integration brought along by the EMU might severely constrain social policy choices and put pressure on welfare states, potentially even having an eroding effect (Rhodes, 2002). Therefore, I derive the expectation that there may be a negative association between EMU membership and welfare state generosity. In a counterfactual framework, this implies that welfare state generosity may have been higher, had the countries not adopted the euro as their currency. To examine how welfare state generosity may differ and to test whether this expectation holds, I apply the synthetic control method which will be introduced in the next section.

## Methodology: Constructing the doppelganger

### *The synthetic control method*

In a counterfactual framework, measuring the impact of the EMU on welfare state generosity in each county entails comparing the welfare state trends with the introduction of the EMU and in the absence of the EMU. This requires two variables: $Y^T$, denoting the realised outcome in the presence of the EMU in a country, and $Y^C$, the outcome in absence of the treatment in the same country. Accordingly, a gap between the two variables would allow for conclusions on whether the EMU caused a decrease (i.e., if $Y^C > Y^T$) in welfare state generosity or not. Since the counterfactual measurement ($Y^C$) is impossible to observe, difference-in-differences has become the standard method to assess treatment effects in observational studies. These comparative case studies select a comparison unit that is thought to closely resemble the counterfactual development of the country under study without treatment. However, there is always some ambiguity related to the selection of the comparison unit and uncertainty about how well the control group can reproduce the outcome's counterfactual trajectory in the absence of treatment. Oftentimes no unit may be a good comparison for the treated unit (Abadie, 2021; Abadie, Diamond and Hainmueller, 2010; Angrist and Pischke, 2009).

To overcome these problems, I applied the synthetic control method (Abadie, Diamond and Hainmueller, 2010, 2015; Abadie and Gardeazabal, 2003) which has been heralded as "arguably the most important innovation in the policy evaluation literature in the last 15 years" (Athey and Imbens, 2017, p. 9). The SCM is based on the premise that a combination of units does a better job of reproducing the characteristics of the treated unit and the counterfactual trajectory of the outcome in the absence of treatment than any single unit alone (Abadie, Diamond and Hainmueller, 2010, 2015). This combination of units, called the synthetic control unit, is constructed by attributing weights to each country in a donor pool so that the synthetic control unit most closely resembles the actual unit before treatment (Abadie, Diamond and Hainmueller, 2010; Abadie and Gardeazabal, 2003). Due to this resemblance, the synthetic control method assumes that any difference between the treated and synthetic control unit can be

attributed to the effect of the treatment on the outcome (Abadie, 2021). Accordingly, one can simply examine the plotted series and compare the trajectory of the dependent variable of the synthetic counterfactual unit with the actually observed trajectory of the treated unit (Abadie and Gardeazabal, 2003) which makes the synthetic control method easily interpretable (Abadie, 2021).

As highlighted above, the SCM takes a data-driven and systematic approach to constructing a suitable comparison. Thus, it has clear advantages over a difference-in-differences approach, as it employs a clear and transparent selection process to determine the counterfactual while making explicit the composition and similarity of the treated unit and its synthetic control counterpart. Compared to regression analyses that use extrapolation to guarantee a perfect fit, the weighting procedure of the synthetic control method does not require any extrapolation. Therefore, this approach is very transparent about the fit and clarity of the discrepancy between the treated and the synthetic control unit (Abadie, 2021; Abadie, Diamond and Hainmueller, 2010, 2015).

### *Data and model specification*

Because synthetic control methods were "proposed [...] with the aim to estimate the effects of aggregate interventions, that is, interventions that are implemented at an aggregate level affecting a small number of large units [...] on some aggregate outcome of interest" (Abadie, 2021, p. 392). The SCM has been applied in previous empirical studies in the field of European integration to study a variety of relationships: The effect of the euro introduction on income inequality (Bouvet, 2021; Kerschbaumer and Maschke, 2020) and GDP growth (Gabriel and Pessoa, 2020) as well as the effect of the Stability and Growth Pact on government debt (Koehler and König, 2015). Based on the fruitful results provided by these successful implementations, the SCM appears to be a fitting way to assess the impact of the EMU on welfare state generosity. Therefore, I applied the synthetic control method to estimate the counterfactual development of welfare state generosity of the euro members in a scenario without the introduction of the euro, which is derived from the development of countries in the donor pool.

To conduct this analysis, I used annual country-level data from 1960 to 2018. The treatment is defined as the adoption of the euro (i.e., the third and last stage of the EMU) (c.f., Bouvet, 2021; Kerschbaumer and Maschke, 2020). The euro was adopted by eleven countries in 1999 while Greece joined later in 2001. Accordingly, the pre-treatment periods run until 1998 for all countries except Greece. This yields long enough pre-treatment periods, an essential requirement for constructing a synthetic control (Ferman, Pinto and Possebom, 2020). Due to data availability problems, Luxembourg was dropped from the sample. This leaves eleven treated countries to be studied.

When choosing the group of control units, it is essential to guarantee comparability of the control units that did not receive the treatment to the treated units to avoid interpolation biases and overfitting. Furthermore, the selected units must not have been subject to idiosyncratic shocks to the outcome variable during the sample period

(Abadie, 2021; Abadie, Diamond and Hainmueller, 2015). Taking these requirements and data availability into account leads to a donor pool consisting of eight countries, seven of which are OECD countries (Australia, Canada, Japan, New Zealand, Norway, Switzerland, and the United States) and the last one being the United Kingdom, a member of the European Union during the study period. Denmark was not included in the donor pool as it conducts a fixed exchange rate policy with the euro which may induce bias into the model. Sweden was not selected for the donor pool as Sweden was subject to a large idiosyncratic shock in the form of extensive reforms of its welfare state during the study period (c.f., Freeman, Swedenborg and Topel, 2010). Including Sweden in the donor pool may bias the difference between the actual and counterfactual trajectories upwards. However, due to the rather small number of countries in the donor pool, I conducted a robustness check to increase confidence in the results by including Sweden in the model, despite the concerns raised above. Furthermore, countries that adopted the euro later (e.g., Slovenia, Malta, and Croatia) as well as EU member states that have not adopted the euro (e.g., Hungary and Poland) were not included in the donor pool as there is not sufficient data regarding their welfare state generosity to include them in the model.

The synthetic control method is a prediction procedure, therefore, choosing predictors is a "fundamental part of the estimation task" (Abadie, 2021, p. 401). This set of covariates that correlate with the outcome variable are used, together with data on the outcome variable itself, to build the synthetic counterfactual unit (Abadie and Gardeazabal, 2003). Therefore, it is necessary to carefully choose a set of covariates that are predictors of the outcome variable of interest, welfare state generosity. This choice was mainly informed by Beckfield (2019).

On the economic side, I included GDP per capita from the Maddison Project (Bolt and van Zanden, 2020) and the growth of real GDP to account for the relationship between the welfare state and economic development. The openness of the economy is also included to account for retrenchment or expansion pressures stemming from globalisation, not regional integration. To address increased political demand for unemployment benefits, I added the unemployment rate as a predictor. Lastly to include covariates that may constrain welfare state generosity, I added inflation, gross general government debt as a percentage of GDP, and the long-term interest rate on government bonds to the SCM.

With regards to the political covariates, the model includes the parliamentary seat share of left- and right-wing parties in government as research shows that partisan politics influence welfare state spending (c.f., Huber and Stephens, 2001; Korpi and Palme, 2003). A measurement for constitutional structure accounts for the "expected negative relationship between veto points and welfare-state generosity" (Beckfield, 2019, p. 119). To account for demographic pressures on the welfare state (Hicks and Zorn, 2005), I included the percentage of the population over 65. All these measurements were taken from the CPDS data set (Armingeon, Engler and Leeman, 2022). Lastly, to control for unobserved confounders, the model also includes pre-treatment values of the outcome variable as suggested by Abadie (2021). Here, I follow Kaul *et al.* (2015) and do not

include all pre-intervention outcomes, but only the five years leading up to the treatment.

To measure the outcome variable, welfare state generosity, I used the well-known welfare state generosity index (TOTGEN) which was developed by Allan and Scruggs (2004) and improved by Scruggs (2014). This index combines benefit generosity scores for three social insurance programs, namely unemployment, sickness, and pensions, and provides a comprehensive overview of welfare state generosity. This output-oriented measure of generosity is preferable over an expenditure-based measurement as the latter is highly sensitive to fluctuations in its denominator. Furthermore, index indicators seem to better capture the extent of welfare state retrenchment, especially as demographic trends and unemployment drive spending upward (Beckfield, 2019; Korpi, 2003).

Overall, this provides a balanced data set including twenty countries containing eleven treatment countries and eight potential controls. Accordingly, it is possible to construct a synthetic control unit for each of the eleven countries that joined the EMU and to compare the trajectory of the counterfactual doppelganger's welfare state generosity with the observed trajectory in the post-treatment period. This was done using the '*Synth'* package in R (Abadie, Diamond and Hainmueller, 2011). The results of this application will be reported in the next section.

## EMU and welfare state generosity: Results

Applying the SCM to each of the eleven EMU countries in our sample allows us to create synthetic counterparts for each country. This section starts by presenting the synthetic counterfactuals created by the synthetic control method. Next, I discuss the baseline results for the impact of the EMU on welfare state generosity. Then, I will assess the significance of these results with some sensitivity tests and robustness checks.

**Table 1** displays the weights of all countries included in the donor pool that constitute each synthetic counterpart of the eleven EMU countries studied in this paper. These weights are the results of an optimization problem solved by the *Synth* package in R and are "chosen such that the synthetic control unit best approximates the relevant characteristics of the treated unit during the pretreatment period" (Abadie, Diamond and Hainmueller, 2011, p. 2).

*Table 1:* Country weights of the synthetic controls for the 11 countries under study.

| Donor pool | Aus. | Bel. | Fin. | Fra. | Ger. | Gre. | Ire. | Ita. | Neth. | Port. | Spa. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Australia** | 0 | 0 | 0.417 | 0 | 0 | 0.048 | 0 | 0 | 0 | 0 | 0 |
| **Canada** | 0.303 | 0.099 | 0 | 0 | 0.270 | 0.324 | 0.169 | 0.920 | 0.069 | 0.504 | 0 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Japan** | 0 | 0 | 0 | 0.356 | 0.002 | 0.234 | 0.747 | 0 | 0 | 0 | 0 |
| **New Zealand** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Norway** | 0.430 | 0.787 | 0.583 | 0.577 | 0.499 | 0 | 0.057 | 0.080 | 0.627 | 0.495 | 0.640 |
| **Switzerland** | 0 | 0 | 0 | 0 | 0.001 | 0 | 0.016 | 0 | 0.247 | 0 | 0 |
| **UK** | 0.186 | 0.114 | 0 | 0.056 | 0.228 | 0 | 0.011 | 0 | 0.057 | 0.001 | 0 |
| **United States** | 0.081 | 0 | 0 | 0.010 | 0 | 0.394 | 0 | 0 | 0 | 0 | 0.360 |

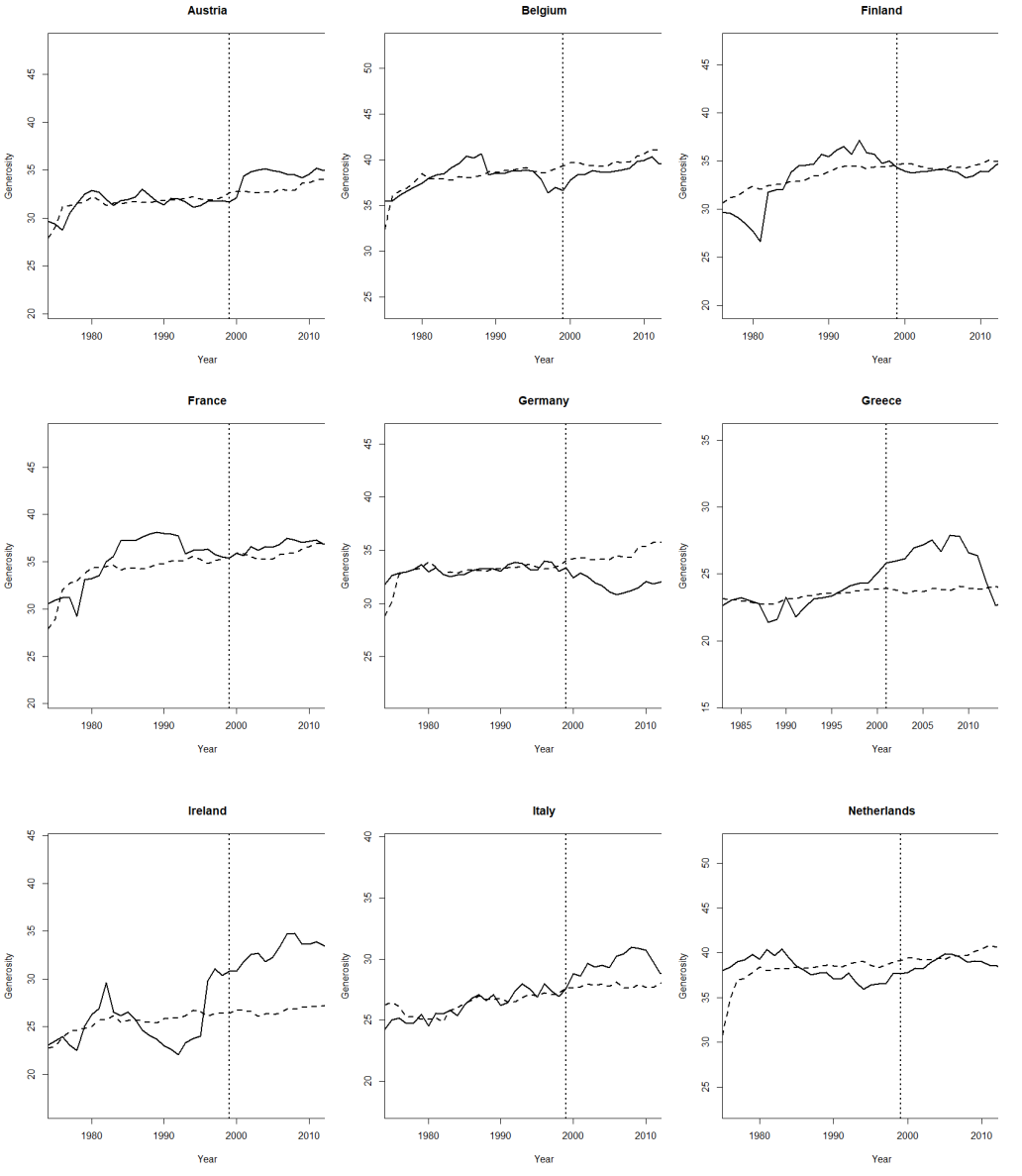
The weights show that each synthetic counterfactual country is built on a different combination of donor pool countries. For instance, the optimal weights for 'synthetic Austria are 0.303 for Canada, 0.43 for Norway, 0.186 for the UK, and 0.081 for the US (and 0 for all other countries in the donor pool). This implies that the synthetic counterfactual for Austria was constructed by using data from Canada (30.3 percent), Norway (18.6 percent), the UK (18.6 percent), and the US (8.1 percent).

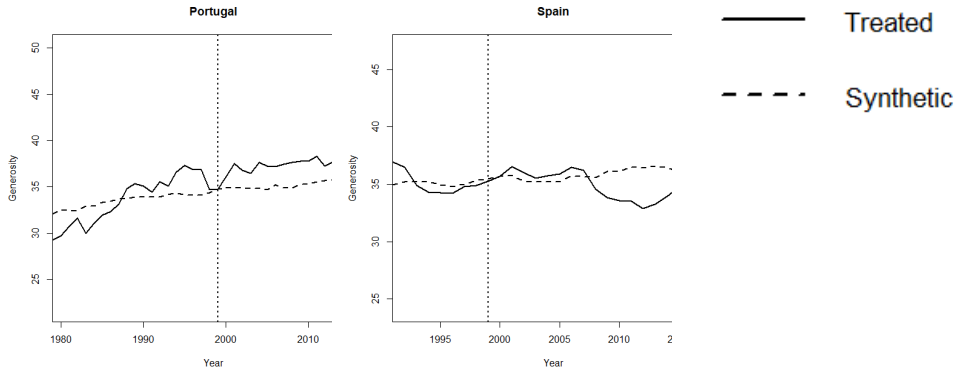
### *Baseline results: Assessing the EMU's impact*

**Figure 1** displays the welfare state generosity trajectory for the eleven EMU countries and their synthetic doppelgangers. Two series are plotted in each subfigure: the solid line resembles the actual development of welfare state generosity for the respective country, while the dashed line shows the estimated counterfactual welfare generosity for the country without the introduction of the euro.

The estimated effect of the euro on welfare generosity for any country is captured as the difference between the actual welfare generosity and the welfare generosity for the synthetic counterfactual. A key assumption of the synthetic control method is a good pre-treatment fit which is given when the synthetic control can reproduce the trajectory of the outcome variable for the treated unit for an extended period (Abadie, 2021). When examining the subfigures in **Figure 1**, one can see that this pre-treatment fit is especially good (i.e., the paths of the countries and their doppelgangers overlap) for Austria, Germany, and Italy.

*Figure 1:* Trends in welfare generosity: EMU countries vs. their synthetic counterparts.






**Note:** Each subfigure includes two series: The continuous line shows the actual development for a given country, while the dashed line shows the estimated counterfactual welfare generosity for the same country. The vertical line represents the treatment intake.

The other countries' pre-treatment fit is worse, limiting their significance and pointing toward potential biases if treatment is correlated with unobserved confounders (Ferman and Pinto, 2021).

A comparison of the countries with their synthetic counterparts provides no convincing evidence that the introduction of the euro significantly reduced welfare state generosity. Whereas for some countries (e.g., Belgium) there appears to have been no strong effect at all. Welfare state generosity may have even been lower without the adoption of the euro for other countries such as Austria, Italy, and Portugal. Interestingly, Germany is the only country that appears to be in line with this study's expectation. The curve for the synthetic control unit lies constantly above the actual curve in the post-treatment period, thus hinting towards the fact that welfare state generosity may have been higher had Germany not adopted the euro.

Overall, the baseline results suggest that the expectation of a universal decline of welfare state generosity due to the introduction of the euro may not hold. Whereas for most countries there appears to be no impact at all, the euro may have had a positive impact on welfare generosity in others. **Figure 2** which plots the development of the gap between the treated units and their synthetic counterparts further highlights these findings. The only country that appears to meet the theoretical expectation is Germany.

## Sensitivity analysis and robustness checks

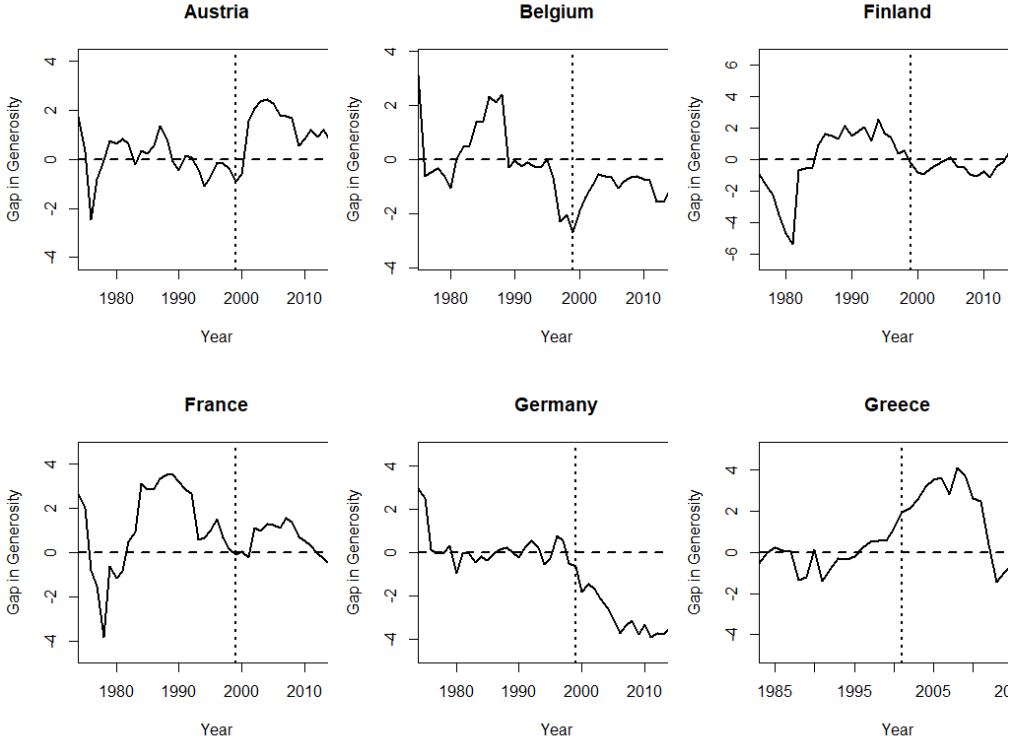
In this section, I present ways to test the robustness and statistical significance of the baseline results discussed in the previous section and test whether the requirements under which the synthetic control model provides suitable estimates are met. Therefore, I will provide some placebo experiments and robustness checks.

### *In-time placebo tests*

First, I conducted a test to check whether the impact of the EMU was felt when the common currency was launched in 1999, or whether the effects stem from a different stage of the integration process. Therefore, I ran an in-time placebo test to "address anticipation effects on the outcome variable before an intervention occurs" (Abadie, 2021, p. 414) and check whether the synthetic control method also produces large effects at dates when the treatment did not occur (Abadie, Diamond and Hainmueller, 2015).

Anticipation effects reduce the relevance of the date of the treatment and might lead to imprecise estimates of the treatment effect. The Maastricht treaty was signed in 1993 and specified the convergence criteria, hence, providing a good date to test for an anticipation effect. Thus, I reassign the treatment to the year the Maastricht treaty was signed.

*Figure 2:* Development of the gap between the treated units and their synthetic counterparts.



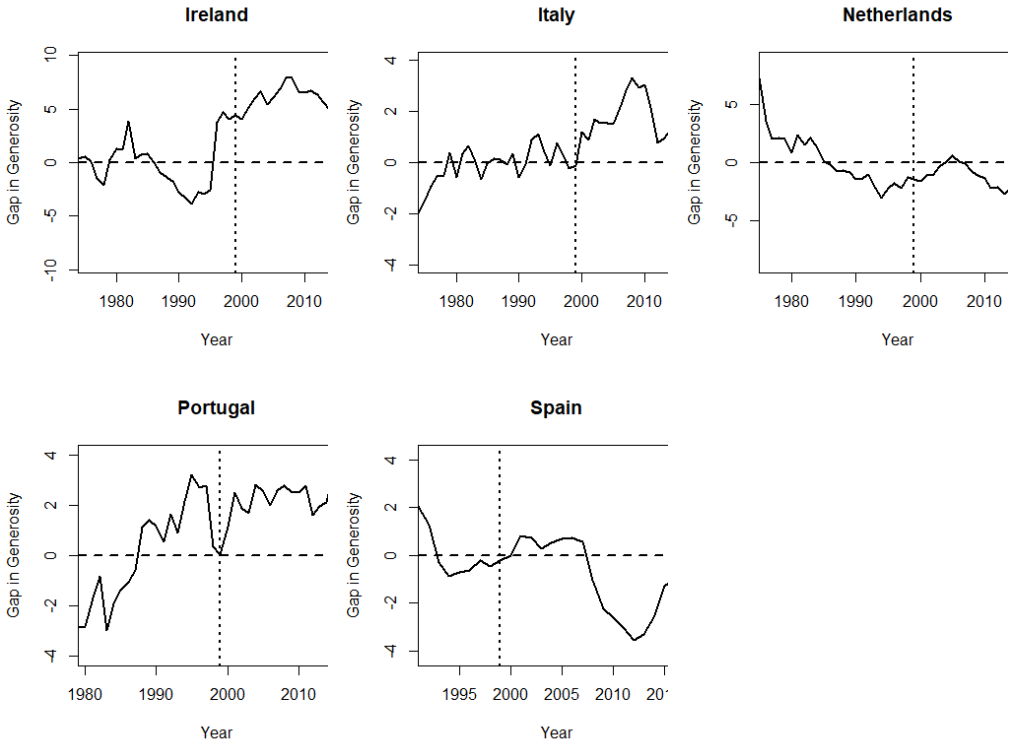



**Figure A1** (in the Appendix) displays the results of this in-time placebo study. While the graphs show some anticipation effects (e.g., Greece), the main conclusions from **Figure 1** and **Figure 2** remain unchanged. There is no evidence for universal welfare state retrenchment as a result of the introduction of the euro with Germany being the sole exception.

## *In-space placebos*

To further test the statistical reliability and significance of the results, I follow Abadie and Gardeazabal (2003) and Abadie et al. (2010, 2015) conducting an in-space placebo test. Hereby, the treatment (the adoption of the euro) is sequentially reassigned to all donor pool countries. For each country, a fictitious doppelganger is estimated using the remaining donor pool countries and the treated unit. If the placebo studies generated effects on welfare generosity similar to those found in the EMU countries, our analysis would not provide robust evidence that the EMU had an impact on welfare generosity in EMU countries.

**Figure A2** (in the Appendix) reports the results of this placebo test. Each subfigure shows the differences between the treated EMU country and its synthetic counterpart (thick black line) with the same difference for the placebo-treated countries (grey line).

One would find evidence for an impact of the EMU on welfare generosity if the placebo studies showed an unusually large gap estimated for the treated country relative to the gaps for the non-treated countries (i.e., if the black lines lay below or above most of the grey lines). If no difference was found, the actual intervention most likely would have had no effect. Thus, we compare the post- and pre-treatment behavior with the differences between the treated and fictionally treated units. Visually **Figure A2** appears to reinforce the findings presented previously as there is no strong systematic evidence pointing towards a negative treatment effect of the introduction of the euro.

### *Alternative specification*

Furthermore, I ran a sensitivity analysis by changing the dependent variable from the welfare state generosity index (Allan and Scruggs, 2004; Scruggs, 2014) to social security transfers as a percentage of GDP taken from the Comparative Political Data Set (Armingeon, Engler and Leeman, 2022). The results of this SCM, which was run with the same model specifications as the main model, are reported in **Figure A3** (in the appendix). Due to bad pre-treatment fits and strong fluctuations, this robustness test can neither confirm nor deny the previous observations. This, however, points towards the fact that social security transfers as a percentage of GDP are driven by factors other than those included as predictors in this SCM. Future research will have to determine these factors to further our understanding of these trends.

Due to the relatively small number of countries in the donor pool, I ran a sensitivity analysis by changing the donor pool as recommended by Abadie (2021). I added Sweden to the donor pool which was initially excluded due to its extensive welfare reforms (Freeman, Swedenborg and Topel, 2010). I expect that including Sweden in the donor pool may bias the difference between the actual and counterfactual trajectories upwards. The results of this alternative specification are presented in **Figure A4** (in the appendix). As expected, the model specification that excludes Sweden from the donor pool provides a better pretreatment fit. However, adding Sweden to the donor pool lends further support to the initial finding that the introduction of the euro did not significantly decrease welfare state generosity in the euro-adopting countries. For some countries (e.g., Austria, Belgium, and the Netherlands), the treatment effect even appears to be positive, suggesting that without the introduction of the euro, welfare state generosity may have been lower in these countries.

## Discussion of the results

Overall, the robustness checks confirm the baseline result derived from the main model. There appears to be no evidence that the common currency caused a universal decline of welfare state generosity, thus challenging a widely held assumption forming the basis of a lot of research on inequality within the euro area. Despite not conducting further robustness checks recommended by the literature due to data limitations such as

changing the donor pool significantly, changing the sampling period, or changing the chosen predictors (Abadie, 2021; c.f., Abadie, Diamond and Hainmueller, 2015), the finding appears robust. As this finding differs from my theoretical expectation, I will briefly explore some possible explanations for this in the following section. As in the theoretical section, I will first discuss potential explanations related to economic integration and then proceed to political reasons.

### *Economic Integration*

On the economic level, the EMU "did nothing to prevent [...] European economies from reducing their deficits and debts while boosting spending on social and employment policy. Higher taxes, privatisation, and lower interest payments, facilitated by falling interest rates on smaller national debts all allowed welfare states to keep growing" (Rhodes, 2002, p. 44). As a consequence of the EMU, interest rates converged resulting in historically low interest rates for government bonds in many EMU countries (Koehler and König, 2015). Thus, mainly periphery countries had access to 'cheaper' money which promoted higher levels of government expenditure and lowered the costs of government spending (Baumgarten and Klodt, 2010). This explains the observation from **Figure 1** that developing welfare states like Italy and Portugal were able to converge upward, while the trajectory of the advanced welfare states such as France are better described as being stagnant or even declining as in the case of Germany.

Secondly according to Rhodes (2002), tax competition within the European single market did not play out as expected. He argues that investors take many other factors besides taxes into account and that the complexity of the economy makes it impossible for states to rationally calculate the gains of engaging in tax competition. Thus, one of the mechanisms expected to connect economic integration with welfare generosity seems to not play a role. Furthermore, as Koehler and König (2015) point out, some EMU member countries, especially recipient and periphery countries, ended up with higher debt levels than they would have without the EMU, thus making more money available for welfare expenditure. Lastly, while the EMU eliminated the member states' possibility to devalue their currency in response to crises, this might have incentivised states to rely more on welfare systems to dampen the effects. Therefore, one could assume that the positive effects of economic integration outweigh the negative. Overall, these economic factors may provide reasons why the introduction of the euro appears to have no strong effect on welfare state generosity.

### *Political Integration*

On the political level, interest groups, electoral incentives, and historical path dependencies might explain this study's findings. Despite weakened labour unions, interest groups may still play a crucial role in maintaining the welfare state. Resistance to welfare cuts may come from benefit recipients and risk-averse citizens (Korpi, 2003; Korpi and Palme, 2003; Pierson, 1996). Alongside these "entrenched interests" (Ferrera

and Rhodes, 2000, p. 7), the compensation thesis might be at play implying that economic integration triggers insecurity which in turn increases demand for the welfare state (c.f., Burgoon, 2009). Additionally, scholars have pointed out that path dependencies created by the welfare states and historical conditionality increase welfare state resilience (Beckfield, 2019; Korpi, 2003). Lastly, "electoral incentives, institutional stickiness, and the veto points created by powerful vested interests devoted to defending transfer-heavy welfare states [...] make anything other than incremental reform very difficult" (Ferrera and Rhodes, 2000, p. 8). Welfare states represent the status quo and therefore, non-decisions favor the welfare state, especially due to the unpopularity of retrenchment (Pierson, 1996, 2002).

In conclusion, these economic and political reasons are first approaches to explain the findings of this synthetic counterfactual analysis of the EMU's effect on welfare generosity. They highlight why the effect might differ from the initial theoretical expectation and provide indications that the convergence hypothesis might be more fruitful than the expectation of general retrenchment (c.f., Beckfield, 2019; Caminada, Goudswaard and van Vliet, 2010; Rhodes, 2002). Retrenchment, in general, may be difficult due to political reasons, especially in the more advanced and developed welfare states. Economic integration, on the other hand, may have permitted countries with less developed welfare states to increase generosity.

## Conclusion

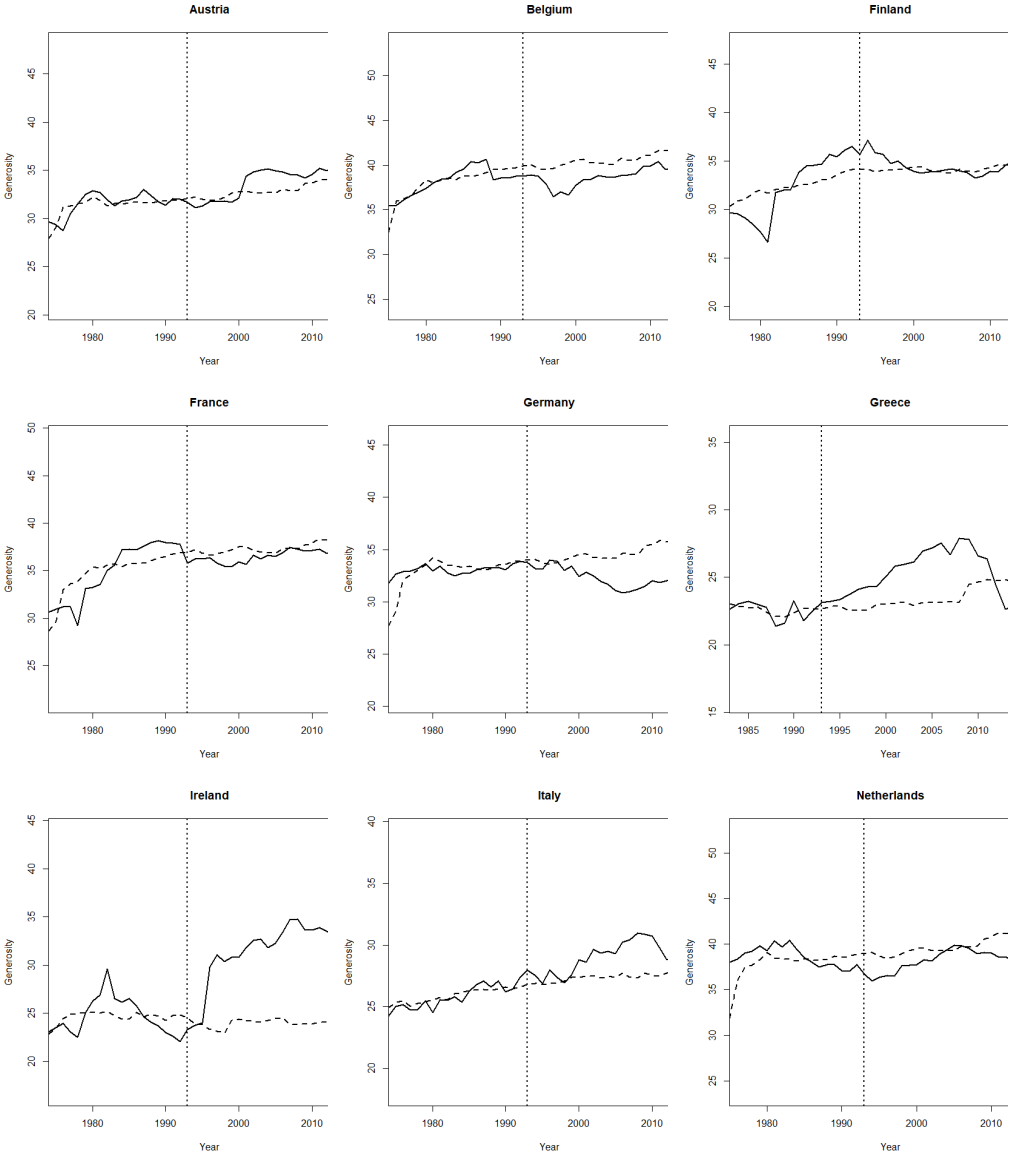
This paper attempted to answer the question of how the adoption of the euro influenced welfare state generosity in EMU countries. To further our understanding of this association, I analysed the effect of the EMU on the welfare state in a counterfactual way. By applying the synthetic control method, I estimated how welfare state generosity may have developed in the countries that adopted the euro in 1999 and 2001, had these countries not adopted the euro. I found no strong evidence that the adoption of the euro influenced welfare state generosity in EMU countries which contributes new evidence to the research on welfare generosity, European integration, and inequality. This finding is robust across placebo tests and alternative specifications. Thus, this counterfactual analysis surprisingly contradicts the commonly held assumption that the dynamics of economic and political integration negatively affected welfare state generosity. While I provide some preliminary explanations for this finding, future research will have to closely examine the individual countries and provide more context to the development of welfare state generosity. Additionally, it may be fruitful to disaggregate the dependent variable by types of benefits as they seem to follow rather different trends (Caminada, Goudswaard and van Vliet, 2010).

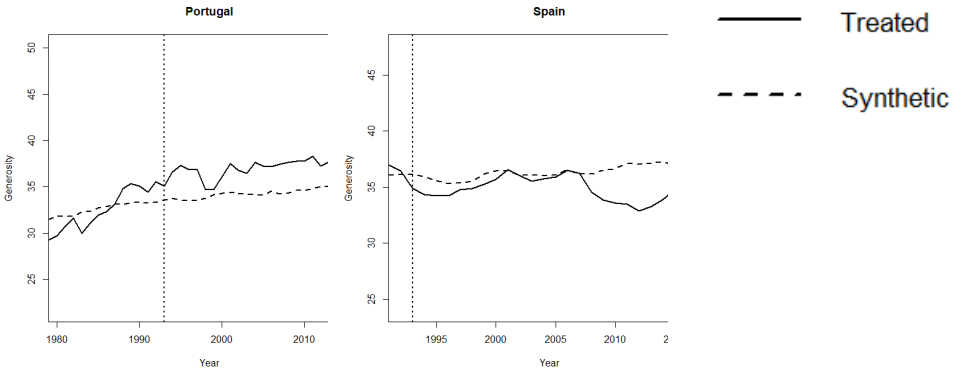
This study implies that the effect of the EMU on the welfare state may not be as grim as expected. The positive economic side effects of the EMU may outweigh the negative and an upward convergence to higher levels of welfare generosity may be possible. Despite the weakening of labour unions, strong support and electoral incentives may make retrenchment difficult. Furthermore, globalisation may be a stronger constraint on

welfare generosity than expected as the synthetic doppelgangers without the EMU did not increase their generosity and, in some cases, decreased it. All these implications provide promising pathways for future research to examine the complex association between the euro and the welfare state.

# Appendix

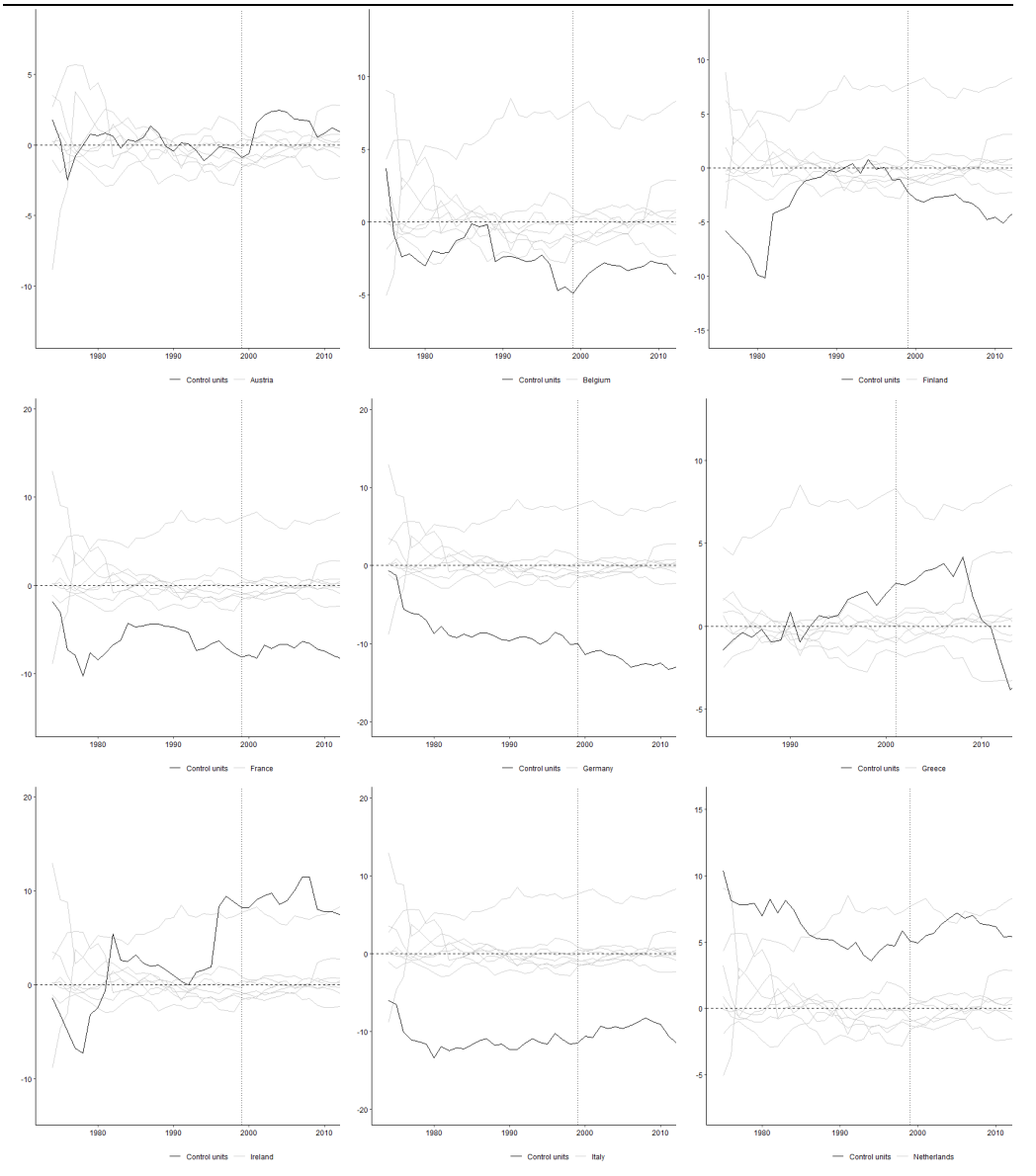
*Figure A1:* Trends in welfare state generosity: EMU countries vs. their synthetic counterparts with the Maastricht Treaty as treatment.

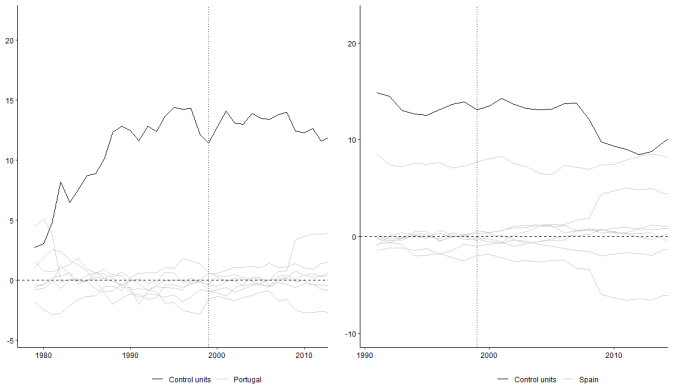





**Note:** Each subfigure includes two series: The continuous line shows the actual development for a given country, while the dashed line shows the estimated counterfactual welfare generosity for the same country. The vertical line represents the treatment intake.

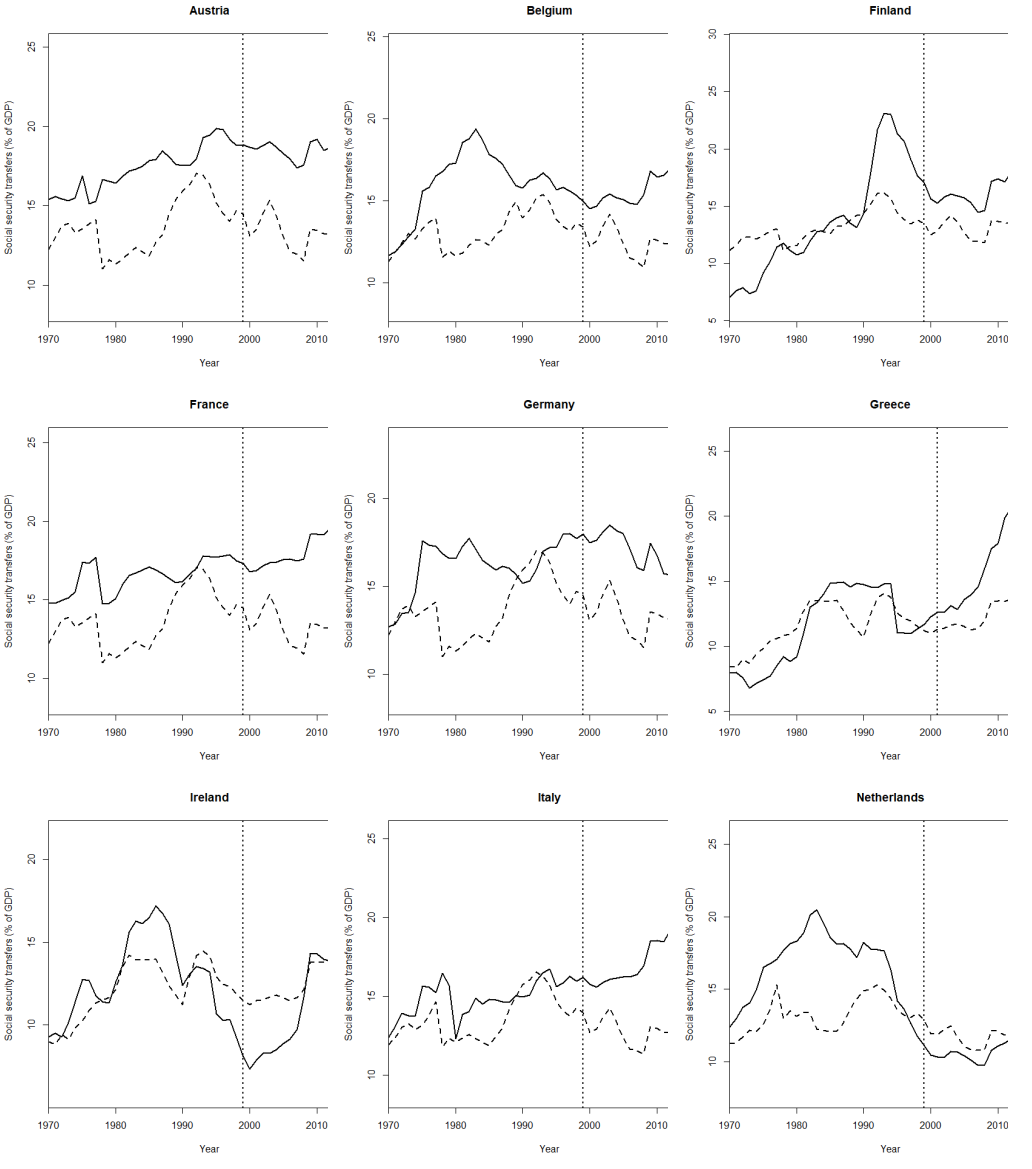
*Figure A2:* Treated countries vs. EMU countries for welfare generosity.

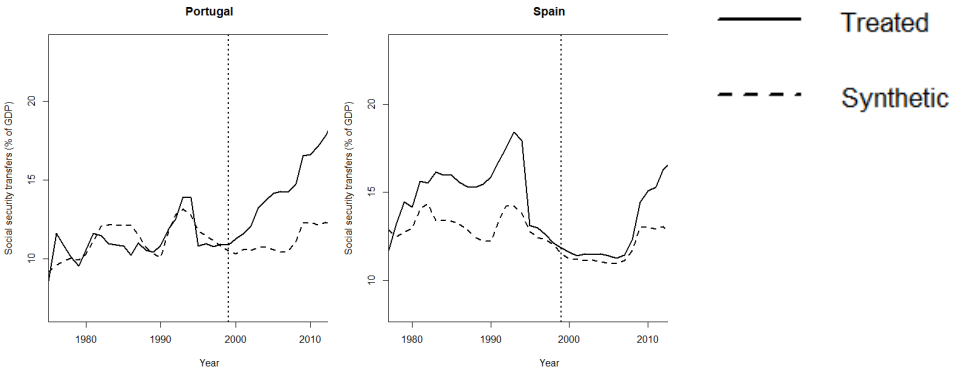





**Note:** The graph reports the differences, in terms of welfare generosity, between treated EMU countries and their synthetic control (thick black line), as well as the same differences for the donor countries for which I imposed a fictitious Euro adoption.

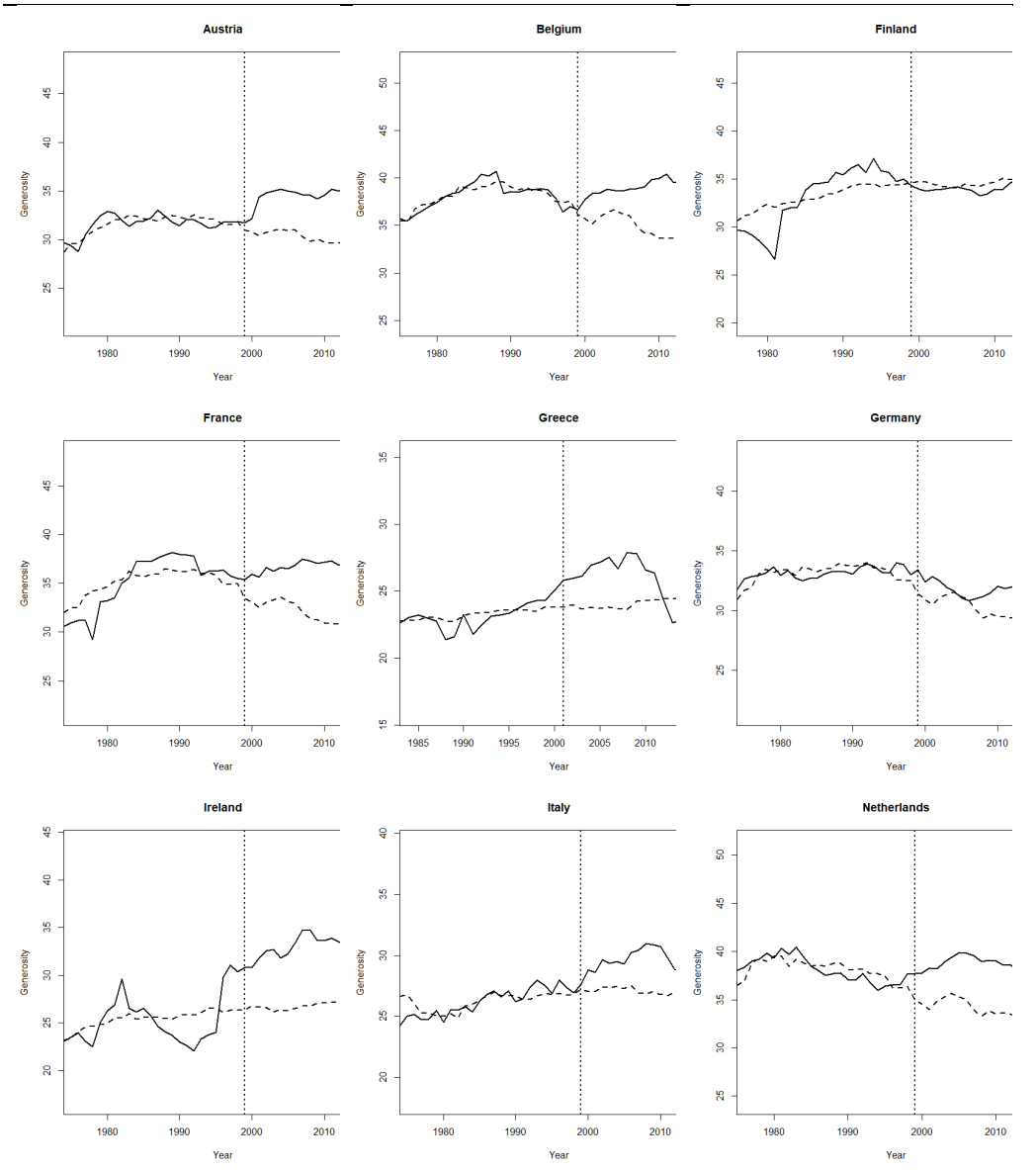
*Figure A3:* Trends in social security transfers: EMU countries vs. their synthetic counterparts.

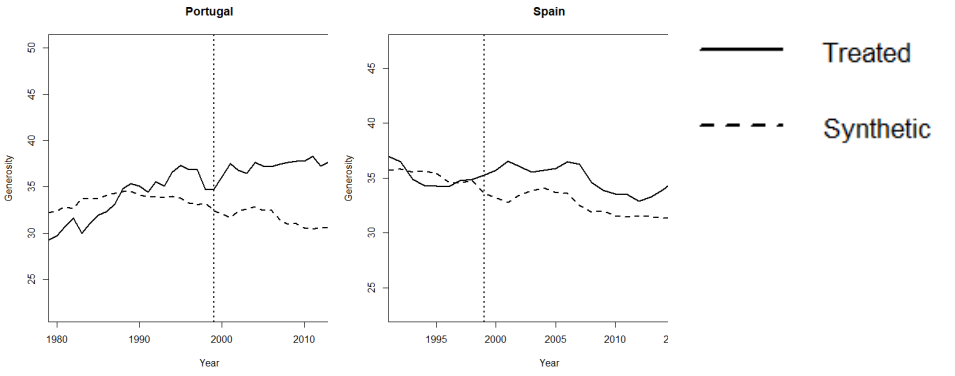





**Note:** Each subfigure includes two series: The continuous line shows the actual development for a given country, while the dashed line shows the estimated counterfactual welfare generosity for the same country. The vertical line represents the treatment intake.

*Figure A4:* Trends in welfare generosity: EMU countries vs. their synthetic counterparts including Sweden in the donor pool.






**Note:** Each subfigure includes two series: The continuous line shows the actual development for a given country, while the dashed line shows the estimated counterfactual welfare generosity for the same country. The vertical line represents the treatment intake.

## References

Abadie, A. (2021). Using Synthetic Controls: Feasibility, Data Requirements, and Methodological Aspects. Journal of Economic Literature, 59(2), 391–425.

Abadie, A., Diamond, A., & Hainmueller, J. (2010). Synthetic Control Methods for Comparative Case Studies: Estimating the Effect of California's Tobacco Control Program. Journal of the American Statistical Association, 105(490), 493–505.

Abadie, A., Diamond, A., & Hainmueller, J. (2011). Synth: An R Package for Synthetic Control Methods in Comparative Case Studies. Journal of Statistical Software, 42(13), 17.

Abadie, A., Diamond, A., & Hainmueller, J. (2015). Comparative Politics and the Synthetic Control Method. American Journal of Political Science, 59(2), 495–510.

Abadie, A., & Gardeazabal, J. (2003). The Economic Costs of Conflict: A Case Study of the Basque Country. The American Economic Review, 113–132.

Allan, J.P., & Scruggs, L. (2004). Political Partisanship and Welfare State Reform in Advanced Industrial Societies. American Journal of Political Science, 48(3), 496–512.

Angrist, J.D., & Pischke, J.S. (2009). Mostly harmless econometrics: an empiricist's companion. Princeton University Press, Princeton.

Armingeon, K., Engler, S., & Leeman, L. (2022). Comparative Political Data Set 1960-2020.

Athey, S., & Imbens, G.W. (2017). The State of Applied Econometrics: Causality and Policy Evaluation. Journal of Economic Perspectives, 31(2), 3–32.

Barr, N. (2020). Economics of the welfare state. Oxford University Press, USA.

Baumgarten, M., & Klodt, H. (2010). Die Schuldenmechanik in einer nicht-optimalen Währungsunion. Wirtschaftsdienst, 90(6), 374–379.

Beckfield, J. (2006). European Integration and Income Inequality. American Sociological Review, 71(6), 964–985.

Beckfield, J. (2019). Breaking the Mold. In Beckfield, J., Unequal Europe. Oxford University Press, 92–173.

Bertola, G. (2010). Inequality, integration, and policy: issues and evidence from EMU. The Journal of Economic Inequality, 8(3), 345–365.

Bolt, J., & van Zanden, J.L. (2020). Maddison Project Database, version 2020: Maddison style estimates of the evolution of the world economy. A new 2020 update.

Bouvet, F. (2021). Regional integration and income inequality: a synthetic counterfactual analysis of the European Monetary Union. Oxford Review of Economic Policy, 37(1), 172–200.

Burgoon, B. (2009). Social nation and social Europe: Support for national and supranational welfare compensation in Europe. European Union Politics, 10(4), 427–455.

Busemeyer, M.R., & Tober, T. (2015). European integration and the political economy of inequality. European Union Politics, 16(4), 536–557.

Caminada, K., Goudswaard, K., & van Vliet, O. (2010). Patterns of Welfare State Indicators in the EU: Is there Convergence?. JCMS: Journal of Common Market Studies, 48(3), 529–556.

Dreher, A., & Gaston, N. (2008). Has Globalization Increased Inequality?. Review of International Economics, 16(3), 516–536.

Esping-Andersen, G., & Myles, J. (2011). 639 Economic Inequality and the Welfare State. In Nolan, B., Salverda, W., & Smeeding, T.M., The Oxford Handbook of Economic Inequality. Oxford University Press.

Ferman, B., & Pinto, C. (2021). Synthetic controls with imperfect pretreatment fit. Quantitative Economics, 12(4), 1197–1221.

Ferman, B., Pinto, C., & Possebom, V. (2020). Cherry Picking with Synthetic Controls. Journal of Policy Analysis and Management, 39(2), 510–532.

Ferrera, M. (2017). The Stein Rokkan Lecture 2016 Mission Impossible? Reconciling economic and social Europe after the euro crisis and Brexit. European Journal of Political Research, 56(1), 3–22.

Ferrera, M., & Rhodes, M. (2000). Recasting European welfare states: An introduction. West European Politics, 23(2), 1–10.

Freeman, R.B., Swedenborg, B., & Topel, R.H. (2010). Reforming the welfare state: Recovery and beyond in Sweden. University of Chicago Press, Chicago.

Gabriel, R.D., & Pessoa, A.S. (2020). Adopting the Euro: A Synthetic Control Approach. SSRN Electronic Journal.

Geishecker, I. (2006). Does Outsourcing to Central and Eastern Europe Really Threaten Manual Workers' Jobs in Germany?. World Economy, 29(5), 559–583.

Genschel, P., Kemmerling, A., & Seils, E. (2011). Accelerating Downhill: How the EU Shapes Corporate Tax Competition in the Single Market. JCMS: Journal of Common Market Studies, 49(3), 585–606.

Herwartz, H., & Theilen, B. (2014). Partisan influence on social spending under market integration, fiscal pressure and institutional change. European Journal of Political Economy, 34, 409–424.

Hicks, A., & Zorn, C. (2005). Economic globalization, the macro economy, and reversals of welfare: Expansion in affluent democracies, 1978–94. International Organization, 59(3), 631–662.

Huber, E., & Stephens, J.D. (2001). Development and crisis of the welfare state: parties and policies in global markets. University of Chicago Press, Chicago.

Kaul, A. et al. (2015). Synthetic control methods: Never use all pre-intervention outcomes together with covariates.

Kerschbaumer, F., & Maschke, A. (2020). European Monetary Union and Inequality: A Synthetic Control Approach. SSRN Electronic Journal, 35.

Koehler, S., & König, T. (2015). Fiscal Governance in the Eurozone: How Effectively Does the

Stability and Growth Pact Limit Governmental Debt in the Euro Countries?. Political Science Research and Methods, 3(2), 329–351.

Korpi, W. (2003). Welfare-State Regress in Western Europe: Politics, Institutions, Globalization, and Europeanization. Annual Review of Sociology, 29(1), 589–609.

Korpi, W., & Palme, J. (2003). New Politics and Class Politics in the Context of Austerity and Globalization: Welfare State Regress in 18 Countries, 1975–95. American Political Science Review, 97(03), 22.

Pierson, P. (1996). The New Politics of the Welfare State. World Politics.

Pierson, P. (2002). Coping with Permanent Austerity: Welfare State Restructuring in Affluent Democracies. Revue francaise de sociologie, 43(2), 369–406.

Rhodes, M. (2002). Globalization, EMU and Welfare State Futures. In Heywood, P., Jones, E., & Rhodes, M. Developments in West European politics.

Rodrik, D. (2015). The future of European democracy. In van Middelaar, L., & van Parijs, P., After the storm: How to save democracy in Europe. Tielt, Lannoo.

Scharpf, F. (1998). Negative and Positive Integration in the Political Economy of European Welfare States. In Rhodes, M., & Mény, Y., The Future of European Welfare: A New Social Contract? Palgrave Macmillan, London, 157–177.

Schelkle, W. (2017). The Political Economy of Monetary Solidarity: Understanding the Euro Experiment. Oxford University Press.

Scruggs, L. (2014). Social welfare generosity scores in CWED 2: A methodological genealogy.

Sinn, H. W. (1997). The selection principle and market failure in systems competition. Journal of Public Economics, 66(2), 247–274.

Streeck, W., & Schmitter, P.C. (1991). From National Corporatism to Transnational Pluralism: Organized Interests in the Single European Market. Politics & Society, 19(2), 133–164.

Tober, T. (2022). European institutional integration, trade unions and income inequality. Socio-Economic Review, 20(1), 351–371.

Tober, T., & Busemeyer, M.R. (2022). Breaking the link? How European integration shapes social policy demand and supply. Journal of European Public Policy, 29(2), 259–280.