The Role of Income Support Systems as Income Stabilizers in Times of Crisis

Mathias Dolls, Max Lay

Key Messages

- This policy brief studies how tax and benefit systems in Europe in general, and unemployment benefits and minimum income support (MIS) systems in particular, perform in terms of income stabilization under comparable shock scenarios.

- Nordic and Continental European welfare states tend to provide higher income stabilization compared to Post-Socialist, Southern European and Liberal welfare states.

- MIS systems play only a limited role in the stabilization of household incomes. The importance of MIS schemes increases when macroeconomic shocks last longer.

- Countries with higher coverage rates of unemployment insurance and MIS systems provide a higher level of income insurance for the unemployed.

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The Role of Income Support Systems as Income Stabilizers in Times of Crisis

Mathias Dolls, Max Lay[*]

As part of a study for the German Federal Ministry of Labor and Social Affairs (Eichhorst et al. 2023), we conducted a microsimulation analysis to examine how minimum income support (MIS) schemes contribute to the stabilization of disposable incomes in times of crisis in Europe. MIS systems act as a "safety net of last resort" in many European welfare states, but to varying degrees. To account for this heterogeneity as well as for differences and similarities across welfare state types, we apply the categorization of welfare states as done in Eichhorst et al. (2023).

For our simulation analysis, we use the EU-wide tax-benefit model EUROMOD to calculate household disposable incomes (see Sutherland and Figari, 2013; Sutherland, 2018).[1] We model two stylized macroeconomic shock scenarios in which employees lose their jobs, to investigate to what extent income support systems, and in particular MIS systems, contribute to social resilience in times of crisis. The simulated shocks differ in size, duration and in the socio-demographic structure of the newly unemployed (Table 1). In addition, we model two variants of the shock, which differ in the timing of shock occurrence.

Scenarios

The main stages of the simulations are the following. First, EU-SILC data are fed into the model. Subsequently, for each tax and benefit instrument, the model constructs corresponding assessment units, ascertains which are eligible for that instrument, and determines the amount of benefit or tax liability for each member of the unit. Finally, after

[1] We make use of the most recent EUROMOD version (I4.0+) and simulate the tax-benefit systems of the year 2020. The simulations are performed using the most recent input data, based on the 2019 EU-SILC wave (income reference year 2018). We apply EUROMOD's add-on to simulate labor market transitions. Since the UK is not included in version I4.0+, we use model version I3.86+ based on 2018 input data for the UK. Comparability to other countries is given as EUROMOD uprates monetary values to fit to the policy year of interest.

all taxes, social insurance contributions and benefits have been simulated, disposable income is calculated.[2]

By controlling for the duration of the respective shock via the two variants, we consider the effect of expiring entitlements to benefits from the unemployment insurance system, as maximum duration of benefit receipt differs substantially across countries. In addition, the maximum duration of unemployment benefit receipt may differ also within countries. We simulate unemployment benefit duration in each country according to the country-specific rules implemented in EUROMOD, which we complement with information from the "Mutual Information System on Social Protection" (MISSOC).

Table 1: Shock scenarios

|	Small shock	Large shock
Increase in unemployment rate	One percentage point	Five percentage points
Duration	One year	Two years
Socio-demographic structure of people losing their job	Corresponds to the socio-demographic structure of those already in unemployment	Corresponds to the socio-demographic structure of those in employment

Coverage Rate

Before we turn to the simulation of the shock scenarios, it is worth examining the extent to which unemployed individuals are covered by unemployment insurance or MIS systems *before* any (simulated) shock hits the economy. Such an analysis may help to rationalize the findings presented below, where most analyses focus on the cushioning effects of unemployment insurance and MIS schemes *after* the stylized macroeconomic shocks have materialized.

The coverage rate is a widely used indicator to measure the strictness of eligibility criteria and the effective reach of unemployment insurance and MIS systems. Figure 1 presents the share of unemployed individuals covered by unemployment insurance

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[2] EUROMOD simulation results are validated extensively against administrative sources.

(dark blue bar) or MIS systems (light blue bar), respectively, in EU Member States and the UK in the absence of shocks.[3]

Coverage rates of unemployment insurance benefits and minimum income support schemes for unemployed individuals (Baseline/pre-shock simulation)
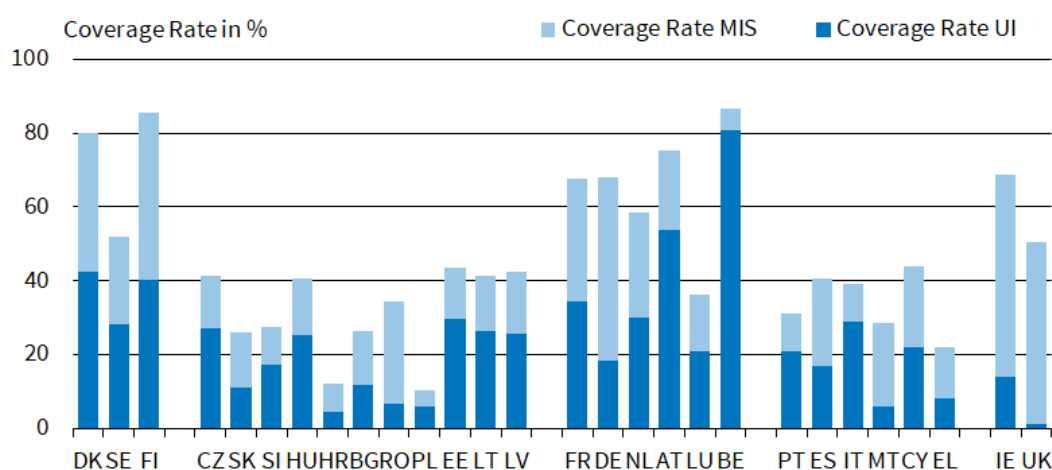
Source: Own calculations on basis of EUROMOD simulations.   © ifo Institute

The figure shows that total coverage rates for the unemployed differ widely both across and within the welfare state clusters. Countries belonging to the Nordic, Continental European and (to a smaller extent) the Liberal clusters have substantially higher total coverage rates than Post-Socialist or Southern European countries. This general pattern also applies largely to the coverage rates of MIS systems on their own. In the Liberal welfare states, a relatively large share of unemployed individuals are covered by MIS schemes compared to unemployment insurance benefits. By contrast, a roughly equal share of unemployed individuals are covered by unemployment insurance and MIS schemes in the Nordic welfare states of Denmark and Finland, but also in Continental European countries such as France.

These examples illustrate that analyzing MIS schemes in isolation without accounting for upstream systems may yield an incomplete picture of the social resilience provided by the different welfare state clusters. In our simulation analysis, we will investigate whether higher coverage rates go hand in hand with a higher cushioning effect of UI and MIS systems.

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[3] Note that these simulated coverage rates can differ slightly from coverage rates that are directly calculated with survey data like EU-SILC. The reasons for this include, among others, (non-) take-up issues and data limitations especially in case of simulating unemployment insurance benefits. For the sake of consistency and comparability with the findings presented in the next section, we focus on these simulated coverage rates.

Stabilizing Effect of Income Stabilizers

To analyze the stabilizing effect of different income stabilizers, we follow Dolls et al. (2012) and Dolls et al. (2022) to calculate an income stabilization coefficient for each country. The coefficient specifies to what extent the two simulated shocks are absorbed by tax-transfer systems. The higher the coefficient, the larger the shock-absorption capacity of the tax-transfer system. Assuming that market incomes decline by EUR100, a coefficient of 0.4 would indicate that disposable incomes only decline by EUR60, and that 40 percent of the loss in market income is absorbed by the tax-transfer system. For the formal definition of the income stabilization coefficient, see the Technical Appendix.

As mentioned above, we consider two variants in each of the two scenarios. In variant 1, there is a steady inflow into unemployment over the duration of the shock. In variant 2, there is a sudden increase in the unemployment rate as all newly unemployed individuals lose their job already in the first month of the shock. These two variants thus differ in how the shock unfolds its impact over time, while the total increase in the unemployment rate is the same for both. In both variants, we account for the maximum duration of unemployment benefits, in order to illustrate the sensitivity of our results with respect to the unfolding of the shock's impact. In variant 2, more people lose their eligibility for unemployment benefits while the shock is still ongoing, since the shock duration exceeds the benefit's maximum duration. This effect is more prevalent for the large shock than for the small one.

Figures 2 (a, b) and 3 (a, b) present the decomposition of the income stabilization coefficients into its components. Several findings stand out:

1) First, on average **income stabilization coefficients are larger in case of the small shock as compared to the large one** and in variant 2 (immediate inflow into unemployment) as compared to variant 1 (steady inflow into unemployment). The larger cushioning effect of the tax-benefit system in case of the small shock as compared to the large one can be explained by the fact that more people lose their unemployment benefits in a prolonged recession such as the one assumed in the latter scenario. In other words, on average the unemployment insurance system absorbs a larger fraction of the income losses in the shorter, small shock compared to the longer, larger shock scenario.
   Conversely, for both shock scenarios we find a larger cushioning effect of the tax-benefit system in variant 2, even though the share of people who lose their unemployment benefits is larger in this variant due to the immediate inflow into unemployment. We observe that in variant 1, on average, roughly 41 percent of the decline in market income is absorbed by tax-benefit systems in the small shock scenario and roughly 36 percent in the large shock scenario. For variant 2, we

observe a cushioning effect for 52 percent of the decline in income for the small shock and 43 percent for the large one. The reason for the larger stabilization effect in variant 2 is due to unemployment benefits being paid over a longer period on average compared to variant 1, with its constant inflow into unemployment throughout the shock. In other words, unemployment benefits play a larger role in cushioning the shock in variant 2 than in variant 1.

2) Second, we find considerable **heterogeneity in the cushioning effect of the tax-benefit system across countries**. Coefficients range from 0.24 for Malta in variant 1 of the large shock scenario, to 0.8 in variant 2 of the small shock scenario for Sweden. Again, the stabilization capacities follow a certain pattern across welfare state types, with more pronounced income stabilization in Nordic (mean of 0.57 in variant 2 of the longer shock) and Continental European countries (mean of 0.56 in variant 2 of the longer shock). In these countries unemployment insurance benefits absorb a substantial part of the income loss thanks to the benefit's longer maximum duration, while these capacities are less developed in Post-Socialist (mean of 0.36 in variant 2 of the large shock) and Liberal welfare states (mean of 0.35 in variant 2 of the large shock). In the latter group, our analysis suggests that MIS plays a more central role in the UK's tax-benefit system as a "safety net of last resort". Mediterranean countries can be further divided into two groups, with Portugal, Spain and Italy as a 'Southwestern' welfare type on the one hand, with longer unemployment benefit duration boosting the stabilizing effect, and Greece, Cyprus and Malta on the other hand, where MIS tends to play a more pronounced role.

3) Third, **MIS plays only a small role in stabilizing incomes**, **with unemployment insurance benefits being the most important income stabilizers in most countries**. There are two main reasons for the MIS schemes' relatively small stabilizing effect. First, the total amounts paid out by MIS are substantially lower than benefits from unemployment insurance schemes, which are typically calculated as a fraction of previous labor earnings. Second, the fact that in most EU countries entitlements to unemployment insurance benefits expire over time does not necessarily lead to the receipt of MIS benefits once UI benefits cease. Most schemes assess eligibility based on total household income or similar aggregate income concepts. Even if one household member loses their labor income, total household income may still be too high for MIS eligibility.[4] In the conclusion of this policy brief we document a positive correlation between total coverage rates of unemployment insurance and MIS schemes on the one hand, and income stabilization coefficients on the other.

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[4] In Germany, for example, only about 30 percent of the unemployed whose entitlement to unemployment insurance benefits expires during the longer shock scenario receive MIS afterwards.

Decomposition of income stabilization coefficient in small shock scenario (variant 1)
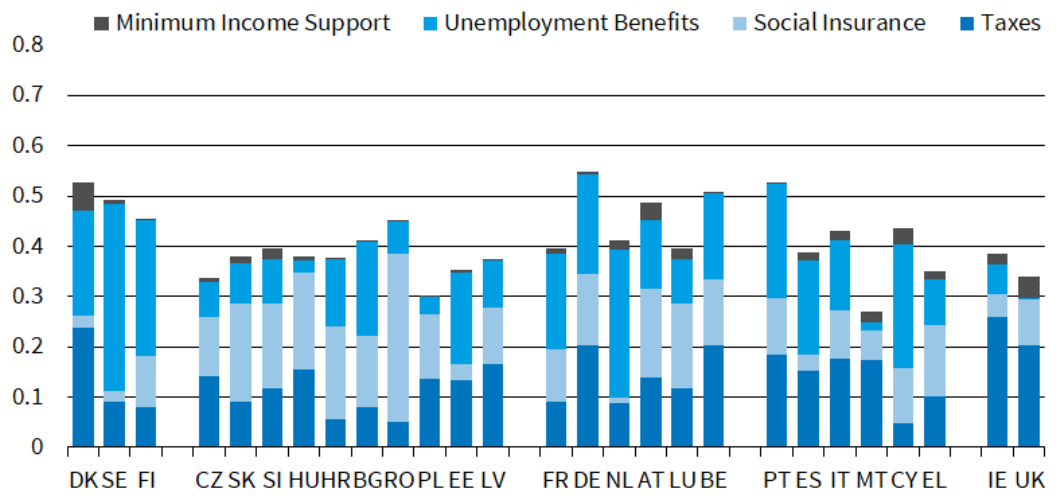
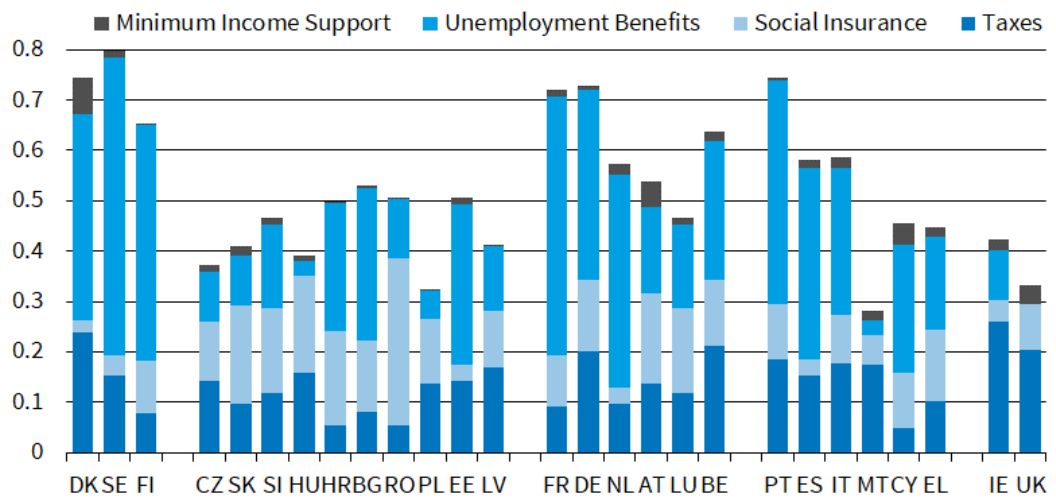Source: Own calculations on basis of EUROMOD simulations.   © ifo Institute

Figure 2b:

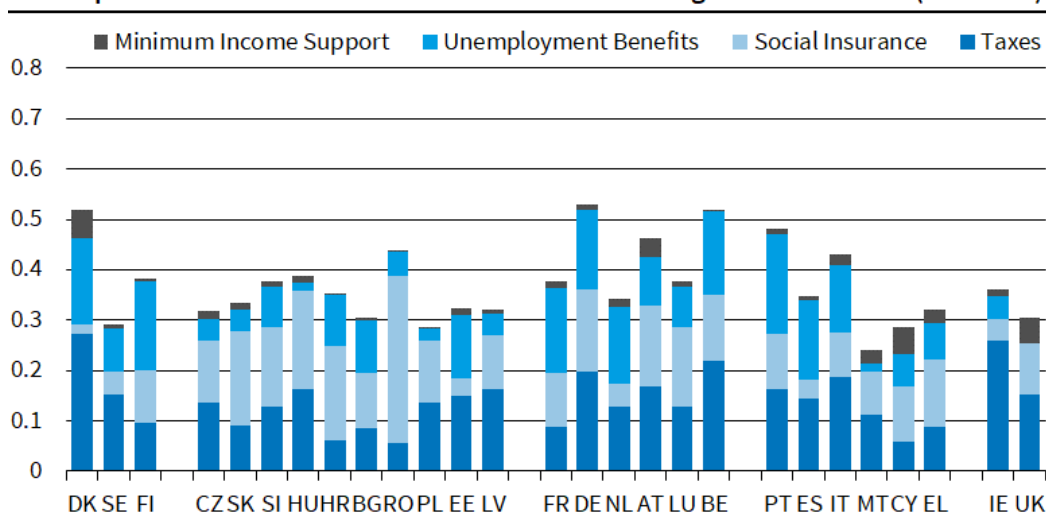## Decomposition of income stabilization coefficient in small shock scenario (variant 2)

Source: Own calculations on basis of EUROMOD simulations.   © ifo Institute

Figure 3a:

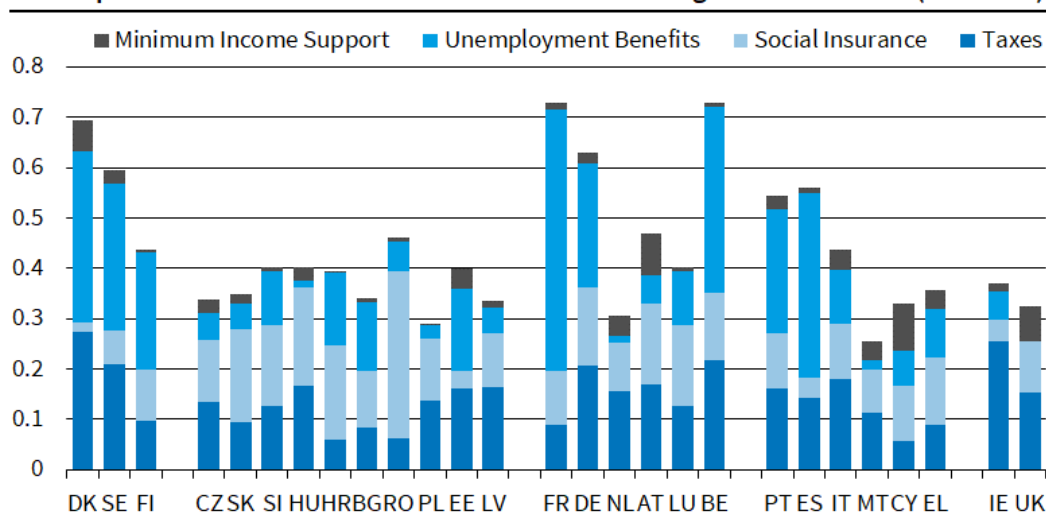## Decomposition of income stabilization coefficient in large shock scenario (variant 1)

Source: Own calculations on basis of EUROMOD simulations.

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Figure 3b:

Decomposition of income stabilization coefficient in large shock scenario (variant 2)

Source: Own calculations on basis of EUROMOD simulations.

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However, some differences of the MIS schemes' stabilization effects can be observed across shock scenarios. As expected, it is larger for the large shock scenarios due to expiring unemployment insurance benefits. In variant 1, its stabilizing effect amounts to 1.4 percent on average across all countries in the small shock, and roughly 2 percent in the large shock. This effect is more pronounced for variant 2, since as individuals become unemployed at the beginning of the shock more people end up benefiting from MIS towards the end of the shock. In this variant, MIS cushions roughly 1.7 percent of the income loss due to unemployment under the small shock and 3 percent in the large one.

Policy Conclusion

Our results from the simulation of stylized unemployment shocks hitting labor markets suggest that the tax-transfer system overall contributes to income stabilization in periods of crises. However, the MIS schemes' individual contribution is relatively small, especially as set against the unemployment insurance system.

Across the different welfare state clusters, the highest stabilization effects are found for countries having the Nordic and Continental welfare state types. Our findings can be explained by varying social policy designs in the different welfare state types, the more successful approaches resulting from focusing first on a strongly developed unemployment insurance system, and then on MIS. As a result, these two country clusters exhibit strong income stabilization. Shocks translate more strongly into income losses in Post-Socialist countries, in Southern Europe and in Anglo-Saxon welfare states. In the Anglo-Saxon group, MIS has greater importance than in the other clusters, achieving a medium overall income stabilization.

Finally, we return to the question of how key indicators of social resilience coincide with the coverage rates discussed at the beginning of this policy brief. Figure 4 depicts the relationship between total coverage rates and the income stabilization coefficient, showing that coverage rates and income stabilization coefficients are positively correlated. These results demonstrate clearly that higher coverage rates coincide with improved social resilience. A policy conclusion from these findings is that income stabilization in case of macroeconomic shocks can be tackled by relaxing eligibility criteria for unemployment insurance and MIS systems.

Figure 4: Correlation between total coverage rate and income stabilization coefficient
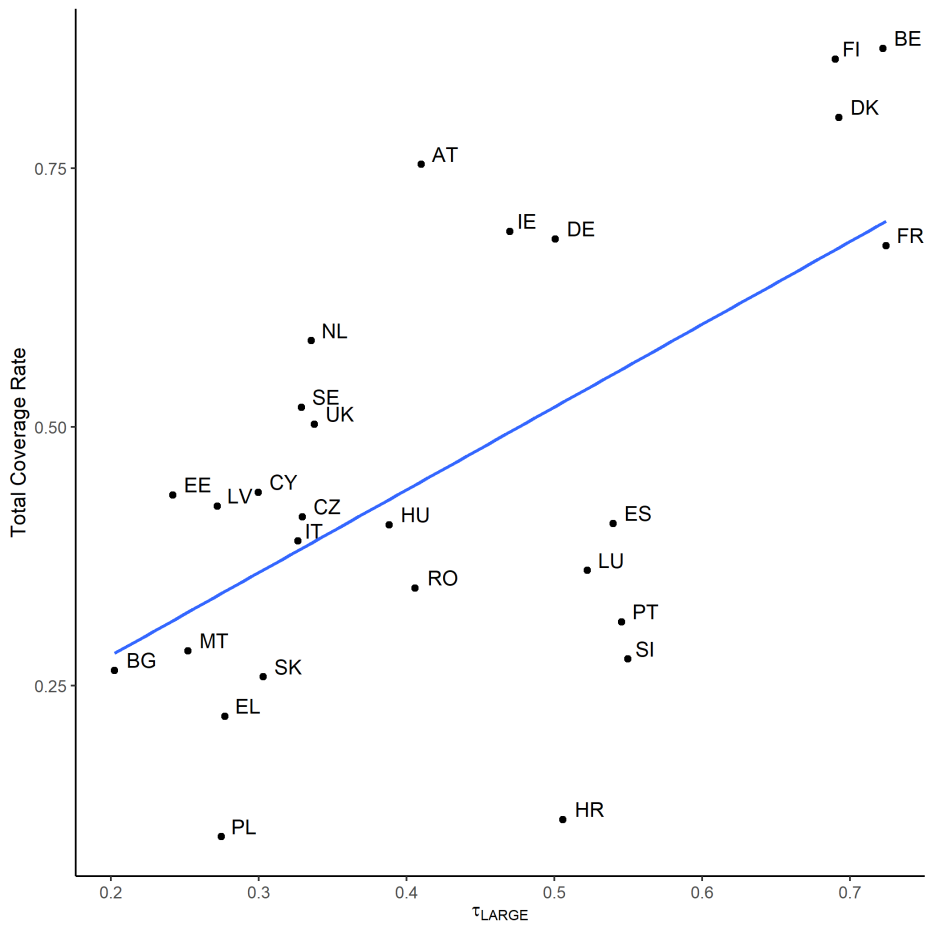
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Technical Appendix

The income stabilization coefficient τ^I is formally defined as follows:

$$\tau^I = 1 - \frac{\sum_i \Delta Y_i^D}{\sum_i \Delta Y_i^M} = \frac{\sum_i (\Delta Y_i^M - \Delta Y_i^D)}{\sum_i \Delta Y_i^M} = \frac{\sum_i \Delta G_i}{\sum_i \Delta Y_i^M} = \frac{\sum_i (\Delta T_i + \Delta S_i - \Delta B_i)}{\sum_i \Delta Y_i^M}$$

where Y_i^D is the disposable income of individual i, Y_i^M their market income, and G_i the net governmental intervention. G_i here comprises direct taxes T_i, social insurance contributions S_i and benefits B_i.

In our study we add a further decomposition of B_i to separate the effects of minimum income schemes MIS_i from unemployment insurance schemes UI_i. The income stabilization coefficient can then be decomposed as follows:

$$\tau^I = \frac{\sum_i (\Delta T_i + \Delta S_i - \Delta UI_i - \Delta MIS_i)}{\sum_i \Delta Y_i^M}$$

τ_{TAX}, τ_{SIC}, τ_{UI}, τ_{MIS} and τ_{ResB} represent the stabilization effects stemming from the different components of the tax-transfer system.