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## Working Paper

# Minimum Income Schemes indexation in EU-27

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# Minimum Income Schemes indexation in EU-27

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Bornukova, K., Leventi, C., Mazzon, A., Papini, A., Picos, F.

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## **Abstract**

This paper examines the effectiveness of Minimum Income Schemes (MIS) across EU-27 countries during the high inflation period of 2021-2024. Using microsimulation techniques, we analyse how well MIS parameters kept pace with inflation and assess their capacity to protect vulnerable households from monetary poverty. Our results suggest that countries with automatic indexation mechanisms demonstrate superior poverty outcomes with respect to those lacking formal indexation mechanisms or implementing insufficient adjustments. Moreover, in some countries MIS seem able to mitigate a large part of the increase in poverty rates, while in others they have a limited potential to do so, even with optimal indexation conditions. This work demonstrates that the interaction between indexation mechanisms and underlying design features, such as coverage, generosity and eligibility criteria, fundamentally shapes the schemes' distributional outcomes.

## **Acknowledgements**

The results presented here are based on EUROMOD version J1.28. Originally maintained, developed and managed by the Institute for Social and Economic Research (ISER), since 2021 EUROMOD is maintained, developed and managed by the Joint Research Centre (JRC) of the European Commission, in collaboration with Eurostat and national teams from the EU countries. We are indebted to the many people who have contributed to the development of EUROMOD. The authors wish to acknowledge the helpful comments provided by Sarah Schinazi, Brice Ligonnet, Olivier Bontout and other colleagues from DG EMPL, as well as participants of the ESPAnet/AIPRIL workshop on Minimum Income Protection at the University of Antwerp. The results and their interpretation, as well as possible errors, are the authors' responsibility.

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## Executive summary

### ***Policy context***

This report examines Minimum Income Schemes (MIS) indexation across EU-27 Member States during the 2021-2024 inflation surge, supporting the European Pillar of Social Rights and the EU's anti-poverty objectives. The analysis, conducted using EUROMOD microsimulation modeling, addresses the critical policy question of **how social protection systems can preserve adequacy during macroeconomic shocks**. With EU inflation reaching multi-decade highs, ensuring MIS benefits maintain purchasing power for vulnerable households has become essential for preventing deepening poverty. The report provides empirical evidence for ongoing discussions on automatic stabilizers and benefit uprating mechanisms, directly informing policy decisions on social protection adequacy and the design of indexation frameworks across Member States.

### ***Key conclusions***

Countries with **automatic indexation mechanisms** demonstrated markedly superior poverty outcomes compared to those relying on discretionary adjustments or lacking formal indexation.

The analysis reveals that **having indexation mechanisms is necessary but insufficient** - their calibration and implementation quality matter equally. Even countries with automatic mechanisms experienced benefit erosion when indexation failed to match actual inflation. Countries without any indexation framework predictably suffered the most severe deterioration.

Critical policy finding: MIS offsetting potential varies dramatically from near-complete mitigation to minimal impact across the Member States. This variation reflects not just indexation quality but fundamental differences in MIS coverage and generosity. **Narrow targeting inherently limits poverty reduction potential** regardless of indexation effectiveness.

Policy recommendations include implementing comprehensive indexation covering both eligibility thresholds and benefit amounts, with **automatic mechanisms preferred over discretionary adjustments**. However, proactive adjustments exceeding mechanical inflation indexation can achieve superior outcomes. Member States should consider MIS design features holistically - indexation alone cannot compensate for inadequate coverage or low benefit levels. The interaction between indexation mechanisms and underlying program architecture fundamentally determines poverty protection capacity during inflationary periods.

### ***Main findings***

Comparative analysis reveals substantial heterogeneity across Member States in 2019-2024 performance of MIS. Countries with **automatic or discretionary indexation generally maintained or improved poverty reduction capacity**. Spain, Slovakia, Lithuania, Belgium, Croatia, and Ireland outperformed hypothetical HICP indexation scenarios. Germany, Latvia, Luxembourg, and Portugal showed outcomes consistent with full inflation adjustment. Four countries (Cyprus, Greece, Finland, Netherlands) underperformed, with 2024 benefits associated with higher poverty rates than HICP-indexed 2021 benefits would have achieved.

**Benefit adequacy erosion** emerged as the primary driver of increased poverty in underperforming countries, while successful countries achieved balanced improvements. Spain's poverty reduction stemmed equally from expanded eligibility (-1.3 percentage points) and enhanced

adequacy (-1.4 percentage points). This balanced approach proves especially effective for comprehensive poverty mitigation.

Counterfactual simulations demonstrate **wide variation in MIS ability to offset inflation-induced poverty increases**. Full HICP indexation would have prevented 39% of poverty increase in Lithuania but 89% in Slovenia. Spain's actual policies achieved 190% offsetting, reducing poverty beyond pre-inflation levels. Limited offsetting potential in several countries (below 20%) reflects narrow MIS coverage rather than indexation failures, highlighting structural constraints beyond parameter adjustment.

### ***Related and future Joint Research Centre work***

This analysis contributes to JRC's ongoing EUROMOD-based policy analysis work. Future work might examine interactions between MIS and other social protection instruments, assess regional variations in inflation impacts, and develop enhanced methodologies for real-time policy effectiveness monitoring during macroeconomic shocks.

### ***Quick guide***

Minimum Income Schemes provide last-resort social assistance to low-income households. This study uses EUROMOD microsimulation to compare actual 2024 MIS policies against counterfactual scenarios with parameters indexed to inflation. The decomposition methodology separates eligibility effects (coverage changes) from benefit adequacy effects (real value changes). Key assumptions include 100% benefit take-up and exclusion of temporary crisis measures to isolate MIS indexation impacts. The analysis demonstrates how indexation design critically determines poverty protection effectiveness during high inflation periods.

## 1. Introduction

After a prolonged period of low and stable prices, the European Union (EU) experienced a surge in inflation between 2021 and 2024, reaching the highest rates in several decades. This spike in the cost of living has raised urgent concerns about the adequacy of minimum income schemes (MIS) as a last-resort social assistance for low-income households. Evidence suggests that price shocks tend to hit poorer households disproportionately, as a larger share of their income is spent on essential goods (OECD, 2023; Almeida et al., 2025, Amores et al., 2025). In this context, ensuring that MIS benefits keep pace with rising prices is crucial for preventing vulnerable groups from falling into deeper poverty.

Minimum income schemes have long been recognized as a vital tool for poverty alleviation in Europe (Frazer & Marlier, 2016), but their effectiveness relies on the indexation of benefit amounts and eligibility thresholds to inflation. If the scheme's monetary parameters are not adjusted adequately, high inflation can erode the real value of payments and undermine the social protection adequacy that MIS programs aim to guarantee.

Tax-benefit systems that lack automatic indexation of their rules can suffer from benefit erosion, whereby fixed nominal thresholds and benefit amounts do not keep up with the evolution of incomes and prices and, as a consequence, the scheme becomes less generous in real terms over time (Paulus, Sutherland, & Tasseva, 2020; Leventi et al., 2024). On one hand, beneficiaries continue to receive the same nominal income support while prices increase, steadily reducing their purchasing power. On the other hand, nominal wage growth driven by inflation can push low-income individuals above eligibility cut-offs, causing some to lose access to benefits even though their real income has not improved—a phenomenon known as “inflation tax” on the poor (Jaravel & O’Connell, 2020). These two channels of benefit erosion have been documented in prior studies and policy reports (OECD, 2023; World Bank, 2023), and they contribute to a gradual weakening of the systems’ capacity to reduce poverty. Even before the recent inflationary spike, many EU countries’ minimum income benefits were considered inadequate relative to poverty thresholds (Van Mechelen & Marchal, 2013; Frazer & Marlier, 2016). The recent cost-of-living crisis has thus cast new light on this concern: without timely and sufficient indexation, social protection adequacy may be jeopardized.

This paper investigates how the design of MIS indexation influences poverty outcomes during an inflation shock. While several earlier comparative studies have addressed the role of tax-benefit policies in poverty reduction (Cantillon, Marchal, & Luigjes, 2019) and the adequacy of minimum income guarantees (Nelson, 2013; Marchal & Van Mechelen, 2017), there is limited empirical evidence on the real-time responsiveness of minimum income schemes to high inflation.

Our contribution is twofold. First, we assess empirically how well MIS parameters (both benefit levels and eligibility criteria) in EU countries kept up with the rapid price increases of 2021–2024. In doing so, we directly measure the extent of any benefit erosion or improvement in real terms, filling a gap in the comparative literature on welfare state adjustment to macroeconomic shocks. Second, we evaluate the effectiveness of indexation as a policy tool for poverty mitigation by simulating a counterfactual scenario: what if countries had fully indexed their minimum income benefits and eligibility thresholds to inflation during this period? This analysis speaks to a key policy question faced by governments during the recent cost-of-living crisis, namely how proactive indexation (or the lack thereof) translated into differences in poverty trends.

Methodologically, the paper uses EUROMOD, the EU’s tax-benefit microsimulation model (Sutherland & Figari, 2013), to construct counterfactual scenarios that isolate the impact of

indexation policies. Specifically, we compare the actual 2024 policy scenario - reflecting the indexation (or discretionary adjustments) that countries implemented - against a hypothetical scenario in which 2021 MIS policy parameters are updated to 2024 purely by inflation. By holding all other tax-benefit policies constant, we can measure the impact of deviations from full inflation on household poverty risk. Furthermore, we disentangle the channels through which insufficient indexation affects poverty. In particular, we distinguish between (i) the benefit adequacy effect - the change in poverty due to the decline (or rise) in real benefit levels - and (ii) the eligibility effect - the change in poverty due to shifts in the population eligible for MIS as nominal incomes evolve. This approach provides insight into whether poverty changes are driven more by shrinking benefit amounts or by coverage gaps as incomes outpace eligibility thresholds. To our knowledge, this is the first study to apply such a decomposition in the context of an inflation shock, offering a methodological innovation for analysing distributional impacts of macroeconomic crises.

Given this approach, we address two main research questions. First, how effective were existing minimum income indexation practices in the EU at preserving the real value of benefits and coverage of eligible populations during the 2021–2024 inflation surge? Second, to what extent could a swift and comprehensive indexation of MIS parameters have mitigated the rise in poverty observed over this period, in the absence of other policy changes? These questions allow us to evaluate both the actual policy responses implemented and the potential outcomes under a more ideal indexation policy. They speak directly to current debates in economic policy about protecting the living standards of the most vulnerable during times of macroeconomic volatility (OECD, 2023; Leventi et al., 2024).

Our findings reveal significant differences across countries in the capacity of MIS to protect low-income households from the inflation shock. In several Member States, MIS benefits and eligibility thresholds did not keep pace with prices, resulting in real income losses for beneficiaries and a higher risk of monetary poverty. Countries lacking automatic indexation mechanisms, or those with infrequent discretionary updates, experienced the most pronounced erosion of benefit adequacy. By contrast, a few countries that had robust indexation rules in place managed to prevent large increases in poverty—though often only partially.

The counterfactual simulations suggest that timely and full indexation of minimum income schemes would have materially reduced the poverty impact of inflation, cutting the increase in the at-risk-of-poverty rate considerably in most countries. However, even full inflation indexation would not have entirely averted poverty rises in certain cases. This underscores the fact that indexation, while necessary, is not always sufficient: its effectiveness depends on initial benefit adequacy, coverage of the schemes, and complementary measures in the broader tax-benefit system (Frazer & Marlier, 2016; Cantillon et al., 2019; Almeida et al., 2025). In other words, indexation is a critical tool for maintaining social protection adequacy during inflationary periods, but it must be part of a comprehensive strategy that addresses underlying gaps in minimum income provision.

These insights have important policy implications, as governments seek to balance methodological novelty in analysis with policy relevance: understanding the mechanics of indexation helps design better automatic stabilizers, and evidencing its impact on poverty informs debates on how to update social benefits in a high-inflation environment.

The remainder of the paper is structured as follows. Section 2 outlines the data and methodology, detailing the EUROMOD microsimulation setup and the decomposition approach. Section 3 presents the empirical results, first examining the adequacy of MIS indexation between 2021 and 2024, and then evaluating the potential poverty mitigation from a fully indexed scenario. Section 4 discusses the policy implications of our findings in light of ongoing debates on benefit uprating and anti-

poverty strategy. Finally, Section 5 concludes with a summary of the contributions and suggestions for future research.

## 2. Methodology

The analysis focuses on the period 2021–2024. We use version J1.28 of EUROMOD, the open-source tax-benefit microsimulation model for the EU. The model uses survey data on gross incomes, labour market status and other characteristics of the individuals and households, on which the tax and benefit rules in place are applied in order to simulate direct/indirect taxes, social insurance contributions and entitlements to cash benefits. The components of the tax–benefit system that cannot be simulated (for example, those depending on prior contributions such as pensions) are read off the model’s underlying input data, and, if necessary, uprated. The model’s underlying microdata are based on 2022 EU-SILC (2021 EU-SILC in case of Poland) <sup>(1)</sup> with incomes uprated to mimic the 2024 distribution according to a standard procedure. <sup>(2)</sup> It is important to note that whenever we talk about *incomes*, we refer to market incomes, and all non-simulated contributory benefits (including pensions), which depend on market incomes. Non-simulated contributory benefits are uprated together with market incomes because of the link between the two concepts. Correspondingly, whenever we refer to *policies*, we refer to non-contributory benefits and direct taxes.

To address our first research question, examining the effectiveness of the indexation of MIS policies, we compare the outcomes from the following scenarios:

- A. **2024 baseline:** 2024 policies and incomes. MIS policy as in 2024.
- B. **Indexation counterfactual:** 2024 policies and incomes (as in scenario A), but MIS policies are replaced with *2021 MIS policies with parameters indexed by inflation*.

**Table 1.** Summary of the assumptions for scenarios examining the effectiveness of the indexation of MIS policies

Scenario:	A	B
	2024 baseline	Indexation counterfactual
Incomes (include market incomes and contributory benefits)	2024	2024
MIS	2024	2021 indexed
All other policies	2024	2024

Source: Authors’ own elaboration.

Indexation of 2021 MIS policies implies the indexation of all monetary parameters relevant to the MIS policies by using the change in the Harmonised Index of Consumer Prices (HICP) between 2021

<sup>(1)</sup> The income reference period for 2022 (2021) EU-SILC data is 2021 (2020).

<sup>(2)</sup> The uprating procedure for each country is described in the corresponding EUROMOD Country Report: <https://euromod-web.jrc.ec.europa.eu/resources/country-reports>

and 2024. <sup>(3)</sup> The monetary parameters are typically the benefit calculation parameters like amounts and supplements, as well as eligibility parameters like income thresholds and asset thresholds. The non-monetary parameters (such as age thresholds, rates and shares like income disregard rates) are not indexed.

For our second research question, assessing the capability of MIS to mitigate the adverse effects of inflation, we compare results from the following scenarios:

- C. **2021 baseline:** 2021 policies (including MIS policies) and 2021 incomes;
- D. **Inflation counterfactual:** 2021 policies (including MIS policies), but incomes at their 2024 levels;
- E. **Inflation and MIS indexation counterfactual:** 2021 policies (except MIS), incomes at their 2024 levels, and MIS policies correspond to 2021 with parameters indexed to inflation up to 2024;
- F. **Inflation and MIS 2024 counterfactual:** 2021 policies (except MIS), incomes at their 2024 levels, and MIS policies as of 2024.

Indexation of MIS in scenario E follows the same rules as in scenario B, namely, it follows changes in HICP and is limited to monetary parameters.

Table 1 provides a summary of the main assumptions for each scenario related to the first research question examining the effectiveness of the indexation of MIS policies (Section 3). Table 2 provides a summary of the main assumptions for scenarios related to the second research question, assessing the capability of MIS to mitigate the adverse effects of inflation (Section 4).

To capture the impact of the core welfare system of countries, we have disabled any extraordinary temporary measures, such as those related to the pandemic or to the cost-of-living crisis. We do so because these policies, being temporary in nature, were available only in certain years and would therefore complicate the interpretation of the results, preventing the possibility of isolating the effect of MIS indexation between 2021 and 2024.

We have also turned off all modelled benefit take-up/calibration adjustments, assuming a 100% take-up rate: this allows to model the policies as they were intended *by design*. In this way, we are able to evaluate the design of MIS and their capacity to offset inflation impacts, rather than the quality of the schemes' implementation. We acknowledge the relevance of take-up corrections in understanding the functioning of MIS, however, these adjustments would introduce another layer of complexity in the interpretation of the results. Moreover, the decomposition analysis separating the effects of MIS indexation into eligibility loss/gain and benefit adequacy loss/gain would be impossible, given the random nature of the modelling of take-up in EUROMOD. It is important to highlight that the lack of take-up/calibration adjustments leads to results of different magnitude, but not of different sign, than an analysis including these adjustments.

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<sup>(3)</sup> Table A.2 in the Annex shows the change in HICP between 2021 and 2024.

**Table 2.** Summary of the assumptions in each scenario related to the second research question, assessing the capability of MIS to mitigate the adverse effects of inflation

Scenario:	C	D	E	F
	2021 baseline	Inflation counterfactual	Inflation and MIS indexation counterfactual	Inflation and MIS 2024 counterfactual
Incomes (include market incomes and contributory benefits)	2021	2024	2024	2024
MIS	2021	2021	2021 indexed	2024
All other policies	2021	2021	2021	2021

Source: Authors' own elaboration.

The different approaches taken by EU Member States to indexation of MIS parameters are outlined in Table 3. The majority of countries have implemented automatic indexation mechanisms, with specific rules and methodology varying across systems. A smaller group of countries relies on discretionary, ad-hoc updates to modify MIS parameters. Conversely, a limited number of countries (Italy, Cyprus, and Greece) do not have any formal indexation system in place, potentially leaving their MIS benefits vulnerable to erosion due to inflation.

**Table 3.** Indexation of MIS parameters across EU Member States

Current approach	Member States
Yearly indexation	BG, DK, DE, ES, FR, LV, LT, MT, AT, PT, RO, SI, SK, FI
Indexation every 6 months	NL
Indexation (other)	BE, LU
Regular updates	DE (5 years), PL (3 years), SI (6 years), FI (4 years), LU (2 years)
No or discretionary indexation or updates	CZ, EE, IE, EL, HR, IT, CY, HU, SE

Source: 2025 Minimum Income Report, Joint report prepared by the Social Protection Committee and the European Commission, Directorate-General for Employment, Social Affairs and Inclusion.

Finally, in some countries, MIS policies underwent reforms beyond parametrical changes between 2021 and 2024. This makes the comparison of the 2024 policy with the indexed 2021 policy more nuanced, as the pools of beneficiaries could differ substantially. Those countries are clearly marked in the below analysis.

### 3. How well were MIS policies indexed over 2021-2024?

Our first set of results concerns the analysis of the indexation of MIS parameters between 2021 and 2024. We computed results for scenarios A and B, as outlined in the methodology section, and compared the following key outcomes: at-risk-of-poverty (AROP) rates, median AROP gap, coverage of individuals receiving MIS, number of MIS beneficiaries, aggregate expenditure on MIS, and average MIS amount (see Table A.3 in the Annex for details).

We first measure differences in AROP rates and gaps across different scenarios, for each country. This comparison aims to identify cases where *actual* changes in MIS parameters have been more effective or less effective in reducing poverty than a *hypothetical* indexation using the HICP. Next, we conduct an in-depth examination of countries where HICP indexation leads to superior or inferior poverty reduction outcomes. For this subset of countries, we decompose the change in AROP rate into two components: the change in benefit entitlement and the change in real benefit amounts.

#### 3.1. MIS in 2024 compared to indexation scenario

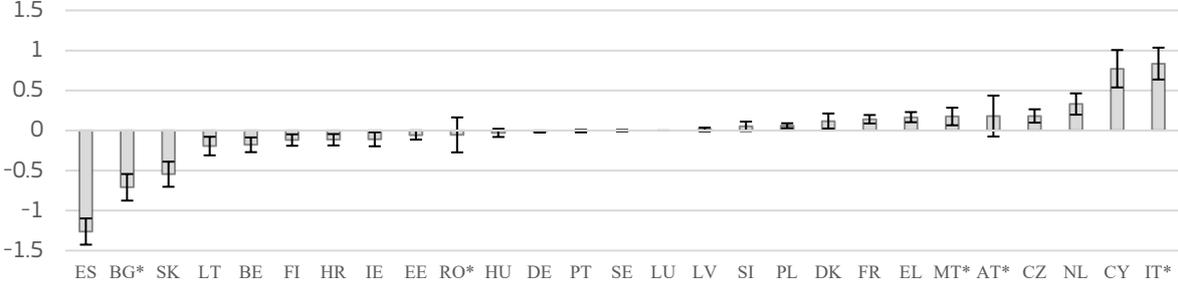
Figure 1 below illustrates the difference of various AROP measures between the 2024 baseline (scenario A in Table 2) and the counterfactual indexed scenario (scenario B in Table 2). Panels a) and b) focus on the AROP rate, computed using poverty lines equivalent to 40% and 60% of the median equivalised disposable income, respectively. The use of two lines allows to see how individuals are dispersed around those thresholds. Panel c) presents the AROP gap based on the 60% poverty line.

A negative (positive) change in AROP rates and gap between the two scenarios indicates that the actual 2024 MIS policies and parameters had a more (less) pronounced poverty-reducing effect compared to the hypothetical HICP indexation scenario. When interpreting the results, it is important to differentiate between two groups of countries: those that implemented significant MIS reforms and those where MIS remained largely unchanged, with only updates in parameters. Countries with significant reforms are denoted by an asterisk (\*) in Figure 1 and include examples like Bulgaria and Italy, which exhibit some of the largest absolute value changes in AROP rates. The interpretation of these results is not straightforward, as the impact of indexation is difficult to disentangle from the effects of MIS reforms. Therefore, we will begin our presentation of results with the countries where changes in AROP can be directly attributed to the evolution of MIS parameters.

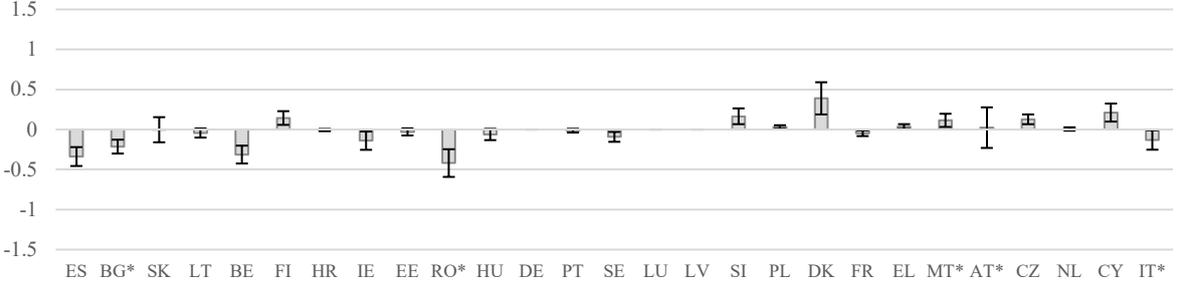
Spain stands out as the country where the reduction in AROP is most significant and consistent across all indicators. The update of MIS parameters in Spain has substantially outperformed our HICP indexation scenario, resulting in notable decreases in both AROP rates and the AROP gap. Other countries with clear improvements in AROP indicators in the baseline scenario are Slovakia, Lithuania, Belgium, Croatia, and Ireland, where the actual changes in MIS parameters have had a more pronounced poverty-reducing effect compared to the hypothetical indexation scenario.

**Figure 1.** AROP rate and AROP gap difference, 2024 compared to indexation counterfactual, percentage points

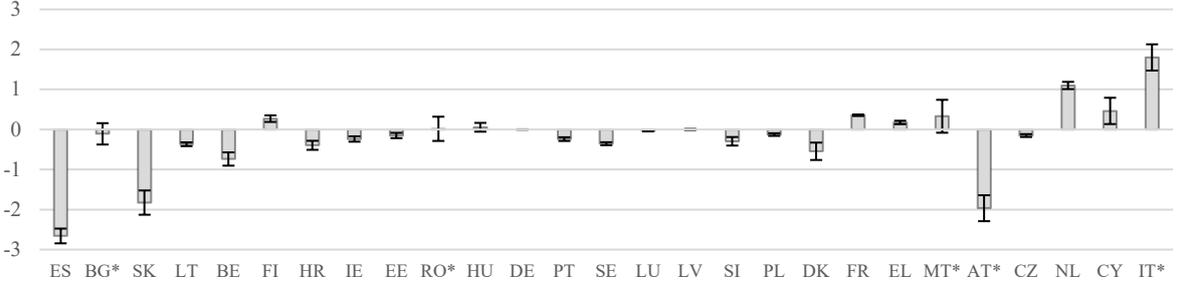
a) AROP rate at 40% of median



b) AROP rate at 60% of median



c) AROP gap at 60% of median



Source: Own computations using EUROMOD version J1.28.  
 Note: Countries are sorted by AROP40 rate difference. Countries with MIS reform between 2021 and 2024 are marked with an asterisk.

A group of countries, including Germany, Latvia, Luxembourg and Portugal= have very similar results across all indicators when comparing the 2024 MIS benefits to the indexed version of 2021 benefits. This suggests that the evolution of MIS parameters in these countries has been consistent with the expected inflation-adjusted increases, maintaining the poverty-reducing effect of MIS across time.

In contrast, in four countries (Cyprus, Greece, Finland, and Netherlands) the 2024 MIS benefits are associated with higher AROP rate(s) and gap compared to the HICP-indexed versions of the 2021

benefits. This result suggests that the indexation mechanisms in place (if any) were insufficient to fully offset the effects of inflation.

Among the countries where no major MIS reform took place, a final group exhibits mixed results with some indicators in the baseline outperforming our indexation scenario, and other underperforming it. For instance, in Slovenia, Czechia and Denmark we observe a moderate deterioration in the AROP40 rate, a more pronounced worsening of the AROP60 rate, and an improvement in the AROP60 gap relative to the HICP indexation scenario. This suggests that in these countries, changes in MIS parameters benefitted those well below the poverty thresholds more than the indexation scenario would have.

**Table 4.** Countries by indexation mechanism and MIS performance in 2024 compared to indexation counterfactual

	Underperformers	Neutral performance	Outperformers	Mixed performance
Yearly indexation	FI	DE, LV, PT	ES, LT, SK	DK, FR, SI
Indexation every 6 months	NL			
Indexation (other)		LU	BE	
Regular updates	FI	DE, LU		PL, SI
No or discretionary indexation or updates	CY, EL		EE, HR, IE, SE	CZ, HU

Source: Authors' own elaboration.

Note: Countries are sorted the following way. First, if a poverty indicator changes by  $\pm 0.035$  percentage points (for example: DE), we consider it as neutral performance. A poverty reduction/increase by more than this threshold is considered as an overperformance/underperformance.

In an effort to combine all three calculated poverty indicators and place countries into the four categories of this table, we first look at the two indicators based on the 60% poverty line; if they agree (such as in ES or CY), a country is placed in the relevant category (underperformer/neutral performer/outperformer). If they don't agree, we distinguish between the following cases:

(a) if one of the two AROP60 indicators is neutral, we check the remaining two indicators (i.e. the non-neutral AROP60 and the AROP40 rate). If they agree (for example, in SK), we place the country in the agreed category. If they don't agree and one of the two is also neutral, the country is placed in the neutral category (as for PT); if none of the two is neutral (as in FR), the country is placed in the mixed category;

(b) if none of the two AROP60 indicators is neutral (like in DK), the country is placed in the mixed category.

The five countries where we observe major MIS reforms between 2021 and 2024 (AT, BG, IT, MT, RO) are not included in the table as their performance is not related to indexation method but rather driven by structural reforms.

Table 4 summarises the performance of actual MIS 2024 policies compared to the indexation counterfactual, by the MIS indexation mechanism in place. By combining the results for countries without significant MIS reforms with the information on their indexation mechanisms, we can identify potential relationships between the design of these mechanisms and the observed poverty outcomes. A key observation is that the vast majority of countries where the 2024 results outperformed our indexation scenario have implemented either automatic or discretionary indexation of MIS parameters. Similarly, countries with 2024 baseline poverty levels that are closely aligned with those calculated for the indexation scenario also have such mechanisms in place. This

suggests that in periods of inflation, timely updates of MIS parameters, whether through automatic or ad-hoc adjustments, are a crucial policy response to prevent the deterioration of poverty indicators. However, our analysis also reveals that having an indexation mechanism in place is not a sufficient condition to prevent increases in poverty: in countries like Finland and the Netherlands, the indexation mechanism failed to keep pace with inflation, resulting in worse poverty indicators in 2024 compared to the HICP indexation scenario. Conversely, the complete absence of an indexation mechanism between 2021 and 2024, as seen in Cyprus and Greece, was associated with a worsening of poverty indicators. These findings highlight the importance of effective indexation mechanisms on poverty outcomes, but also underscore the need for careful consideration of the design and implementation of these mechanisms.

Finally, five countries (Austria, Bulgaria, Italy, Malta, and Romania) implemented significant reforms to their MIS between 2021 and 2024 and should therefore be analysed separately. Bulgaria stands out as the country where the policy change had the most pronounced poverty-reducing effect, outperforming the simple indexation of the previous MIS parameters. The introduction of a new mechanism for attributing eligibility for social assistance in Bulgaria led to a substantial reduction in both AROP40 and AROP60 rates, although the decrease in the AROP60 gap was more modest. Similarly, in Romania, the replacement of the *Venitul minim garantat* with the *Venitul minim de incluziune* in 2024 resulted in a significant reduction in the AROP60 gap, exceeding the expected outcome of indexing the parameters of the older policy.

In Austria, both AROP rates are higher in 2024 compared to the indexation scenario, but the differences are very close to zero. At the same time, AROP gap is actually lower. This suggests that the country's policy change, which included the introduction of a more generous rent allowance, benefited those who are far below the poverty thresholds more than the simple indexation of parameters.

Italy, like Romania, implemented a complete replacement of the MIS between 2021 and 2024, and experienced a worsening of certain poverty indicators. The reform led to a significant increase in the AROP40 rate and the AROP60 gap, compared to what would have been expected under the indexation counterfactual. Finally, in Malta the poverty rate and the poverty gap remained higher than in the indexation scenario even despite the activation of the special COLA mechanism designed to offset the effects of an expenditure shock.

In summary, the analysis highlights the importance of effective indexation mechanisms for the correct functioning of MIS. Countries that implemented automatic or discretionary indexation of MIS parameters, tend to achieve better poverty outcomes between 2021 and 2024, while those without such mechanisms, or with insufficient indexation, experience worsening poverty indicators. However, the design and implementation of indexation mechanisms also matter, as having a mechanism in place is not enough to prevent increases in poverty if it fails to keep pace with inflation. Additionally, significant MIS reforms can have pronounced poverty-reducing effects, outperforming the simple indexation of previous parameters.

### **3.2. Decomposition analysis of MIS indexation effectiveness**

For countries that significantly deviated from the indexation scenario (either outperforming or underperforming) and did not undergo structural reforms, we conducted a decomposition analysis to understand the underlying mechanisms. This analysis distinguishes between two primary factors affecting poverty outcomes:

1. **Eligibility Effect:** As nominal incomes grow, even when their real value remains constant, some households may lose eligibility for MIS if means-test thresholds are insufficiently indexed. Conversely, expanded eligibility criteria can increase coverage.
2. **Benefit Adequacy Effect:** Even when households maintain eligibility, the real value of benefits may erode during periods of high inflation if benefit amounts are not adequately adjusted. Alternatively, benefit amounts that increase beyond inflation rates can improve adequacy.

To isolate these effects, we constructed intermediate synthetic scenarios between the 2024 baseline and the indexation counterfactual. For underperforming countries, we started with the Indexation scenario and applied the following sequential modifications:

- Step 1: We removed benefits from recipients who would qualify under the Indexation scenario but not under the 2024 policies, isolating the eligibility effect.
- Step 2: For households that remain eligible under both scenarios, we replaced the indexed benefit amount with the actual 2024 benefit amount, capturing the benefit adequacy effect.

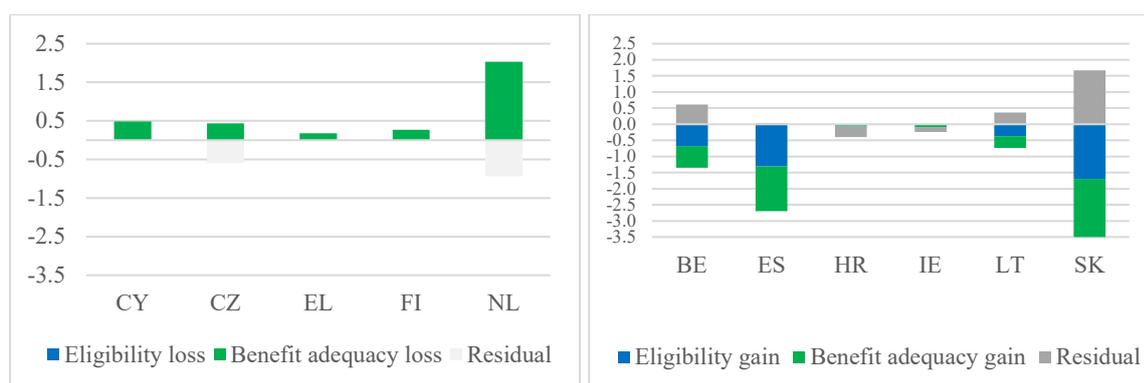
The difference between outcomes in Step 1 and the indexation counterfactual reflects the impact of *eligibility* restrictions. The difference between Step 2 and Step 1 reveals the effect of changes in *benefit adequacy*. Any remaining difference between Step 2 and the 2024 baseline represents *residual effects*, including interactions with other tax-benefit policies, additional beneficiaries unique to the 2024 policies, or changes in the AROP threshold itself.

For outperforming countries, we applied similar steps but in reverse, beginning with the 2024 baseline scenario.

**Figure 2.** Decomposing the impact on AROP60 (in percentage points) into benefit adequacy and eligibility effects

a) Underperforming countries

b) Outperforming countries



Source: Authors' own elaboration.

Figure 2.a presents the decomposition of increased AROP60 rates for the four underperforming countries that did not experience structural reforms. The results reveal that in all of these countries (CY, EL, FI, and NL), benefit adequacy loss was the primary driver of increased poverty risk. This suggests the real value of benefits eroded significantly. At the same time, the erosion of eligibility

criteria was either insignificant, or did not play a significant role in poverty increase (people losing eligibility as result of inflation were not at risk of poverty).

The negative residual values observed mostly in the Netherlands indicate that other elements of the tax-benefit system partially offset the negative impacts of MIS erosion, though not sufficiently to prevent overall increases in poverty risk.

Turning to countries that outperformed the indexation scenario (Figure 2.b), the analysis reveals more balanced contributions from both eligibility gains and benefit adequacy improvements. Spain demonstrates the most substantial poverty reduction, with both expanded eligibility (-1.3 percentage points) and enhanced benefit adequacy (-1.4 percentage points) contributing almost equally to its strong performance.

Belgium, Lithuania, and Slovakia show similar patterns, though with smaller magnitudes. In Croatia and Ireland, other elements of the tax-benefit system contributed the most to poverty decrease; in the remaining outperforming countries residual effects were predominantly poverty-increasing, counteracting the positive impacts of MIS improvements.

These decomposition results offer valuable insights for policymakers seeking to maintain MIS effectiveness during inflationary periods. Strengthening automatic indexation mechanisms for benefit amounts should be prioritised for countries struggling with benefit adequacy (CY, EL, FI, NL).

The success of outperforming countries, particularly Spain, suggests that proactive policy adjustments beyond simple inflation indexation can significantly enhance poverty reduction efforts. The balanced approach of simultaneously expanding eligibility and improving benefit adequacy appears especially effective and underscores the importance of implementing formal indexation for both eligibility thresholds and benefit amounts.

#### 4. How good are MIS policies in offsetting inflation effects?

So far, our analysis has focused on assessing the effectiveness of actual MIS parameter updates in keeping pace with inflation between 2021 and 2024, relative to a hypothetical scenario where their growth corresponded to that of the HICP. We now turn our attention to a complementary question: to what extent can MIS serve as a tool against the effects of inflation, and how effective are they in protecting the purchasing power of poorer households?

To investigate the effectiveness of MIS in offsetting inflation effects, we analysed four counterfactual scenarios, described in detail in Section 2 and summarized in Table 3. Our approach involves a three-step analysis. First, we examine the increase in the AROP60 rate between its estimated value in 2021 (scenario C) and the inflation counterfactual where incomes have grown to their 2024 levels, and all policies and their parameters (including MIS) remained unchanged since 2021 (scenario D). This step allows us to quantify the potential increase in poverty due to inflation that would have occurred without any policy changes (aside from the changes in contributory benefits, including pensions, which adjust together with incomes). The inflation impact on AROP60 depends not only on the magnitude of inflation, but also on the role of contributory benefits (which are income-dependent) in offsetting inflation. In the second step, we assess the impact of indexing only MIS parameters to the HICP (scenario E). By comparing the AROP60 rate under this scenario to the previous step, we can isolate the effect of MIS indexation to HICP on poverty rates and determine its potential to offset increases in poverty driven by inflation. Finally, in the third step, we evaluate the AROP60 rate that would have occurred with the 2024 MIS policies (scenario F), while all other policies remained at their 2021 levels. This comparison reveals the potential impact of the realised changes to MIS between 2021 and 2024 in offsetting increases in poverty.

The results of our three-step analysis are presented in the three panels of Figure 3. To illustrate the intuition behind these results, let's consider the example of Lithuania. As shown in panel a), if all policies had remained unchanged between 2021 and 2024, the AROP60 rate in Lithuania would have increased by 1 percentage point. This increase can be attributed, at least in part, to the erosion of benefits, including MIS, and to fiscal drag due to the lack of indexation of their parameters. Focusing on the potential impact of MIS indexation, we find that indexing MIS parameters to the HICP would have offset 39% of the inflation impact on AROP60 (panel b). Finally, the results in panel c show that the actual change in MIS parameters between 2021 and 2024 had a slightly higher offsetting potential, at 48%. This suggests that the actual change of MIS parameters had a larger effect in improving the AROP60 rate than their hypothetical HICP indexation. However, the results also highlight the limited role of MIS in counteracting the negative effects of inflation in Lithuania, as the offsetting potential remains far from 100%.

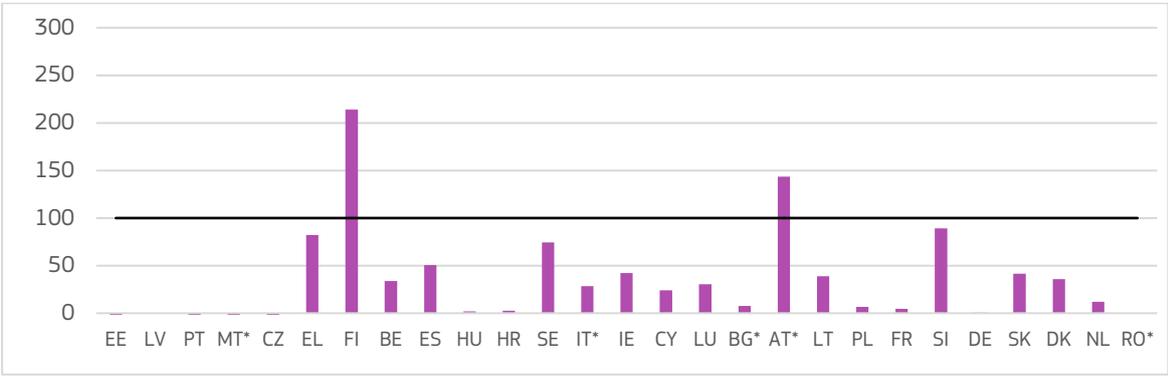
Slovenia is an example of a country where the MIS alone has the potential to almost fully offset the increase in the AROP60 rate caused by inflation. In fact, inflation would have led to a 1.3 percentage points increase in AROP60. The hypothetical offsetting potential through HICP indexation and the actual policy offsetting amount to 89% and 92% respectively. The similarity between these two figures suggests that the update of MIS parameters in Slovenia has been close to our hypothetical HICP indexation. An even more striking example is Spain, where the actual updates to MIS parameters had an offsetting potential of around 190%, not only mitigating the increase in AROP60 but actually leading to a significant AROP60 reduction. Moreover, while some countries such as Finland and Greece exhibit very high offsetting potentials, these are mostly associated with relatively low increases in the AROP60 rate, as seen in panel (a).

**Figure 3.** AROP60 rate change, and potential and actual offsetting, 2021 compared to income and parameters indexation counterfactuals, percentage points (a) and percentage (b, c)

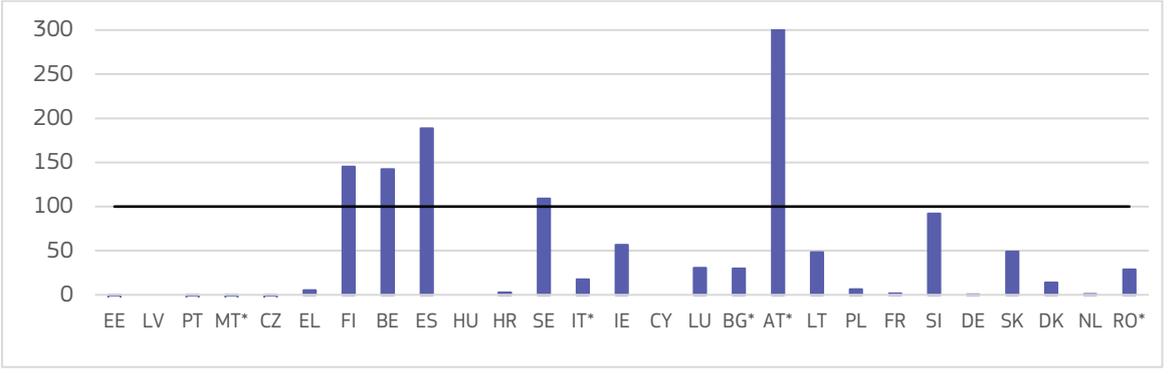
a) Impact of inflation on AROP rate at 60% of median (in percentage points)



b) Offsetting with indexation (2021 MSI parameters indexed)



c) Potential of actual policy offsetting (MIS of 2024)



Source: Own computations using EUROMOD version J1.28.  
 Note: Countries with MIS reform between 2021 and 2024 are marked with an asterisk. Countries in which there was no estimated poverty increase due to inflation are excluded from the chart.

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Our findings show that the offsetting potential of MIS varies significantly across countries. In some cases, MIS can offset a large part of the increase in poverty rates. In contrast, in other countries MIS have a limited potential to offset inflation-driven increases in poverty and should be supported by other policies for this purpose. This analysis complements the results of Section 3 by stressing the importance of indexation mechanisms in MIS, as countries with such mechanisms (e.g., Slovenia) tend to have higher offsetting potentials, while countries without them (e.g., Cyprus) may struggle to mitigate the effects of inflation on poverty rates. At the same time, it highlights the importance of the design of the indexation mechanism, as in some cases (e.g., Spain) they can significantly outperform simple HICP indexation. In other cases, full indexation to HICP of MIS parameters is not enough to mitigate the negative effect of inflation on poverty, when the offsetting potential shown in Figure 3b is significantly smaller than 100%. Another important factor this additional analysis highlights is the intended coverage of MIS policies. In countries where only a narrow subgroup of population at risk of poverty is covered by MIS (those are countries like Germany, Croatia, Poland, Latvia and Hungary - see Table A.3 for more details), MIS cannot offset negative inflation effects even with proper indexation mechanisms in place.

## 5. Conclusions

This paper examines the effectiveness of indexation mechanisms for Minimum Income Schemes (MIS) across the EU-27 member states during the exceptional inflationary period of 2021-2024. Using EUROMOD, we conduct a comprehensive evaluation of how MIS parameters evolved relative to inflation and assess their capacity to protect vulnerable households from poverty. Our analysis employs counterfactual scenarios to isolate the effects of MIS indexation from other policy changes and structural reforms, providing new insights into the design and implementation of social protection mechanisms during periods of macroeconomic instability.

Our primary findings reveal substantial heterogeneity in the effectiveness of MIS indexation across European welfare states. Countries with automatic indexation mechanisms demonstrated superior poverty outcomes compared to a hypothetical scenario of pure HICP-based indexation. Spain emerges as a particularly noteworthy case, where parameter adjustments exceeded simple inflation indexation, achieving poverty reduction through both expanded eligibility criteria and enhanced benefit adequacy. The decomposition analysis reveals that successful countries achieved balanced improvements across both dimensions, with eligibility gains and benefit adequacy improvements contributing approximately equally to poverty reduction.

Conversely, we identify systematic failures in MIS preservation among countries lacking formal indexation mechanisms or implementing insufficient adjustments. Cyprus, Greece, Finland, and the Netherlands experienced significant deterioration in poverty indicators, with our decomposition analysis attributing these outcomes primarily to benefit adequacy erosion rather than eligibility restrictions. The decline of real benefit values even in countries with automatic indexation mechanisms (Finland and Netherlands) underscores that the mere existence of indexation provisions is insufficient - the calibration and implementation of these mechanisms are equally relevant. Countries without any indexation framework (Cyprus and Greece) predictably experienced the most severe benefit erosion.

A particularly important finding concerns the capacity of MIS to fully offset inflation-induced poverty increases, even under optimal indexation conditions. Our analysis reveals that MIS offsetting potential ranges from near-complete mitigation (Slovenia at 89-92%, Spain exceeding 100%) to minimal impact (Germany, Croatia, Poland, Latvia, and Hungary, all below 20%). This variation is not solely explained by indexation quality but reflects fundamental differences in MIS coverage and generosity. Countries with narrow targeting and limited coverage cannot achieve substantial poverty reduction through indexation alone, regardless of technical implementation quality.

This research makes several contributions to the literature on social protection and inflation adjustment. First, we provide systematic empirical evidence on the performance of alternative indexation mechanisms during a period of high inflation. Second, our decomposition methodology separates eligibility effects from benefit adequacy effects - a distinction particularly relevant for means-tested programs. Third, we demonstrate that the interaction between indexation mechanisms and underlying program design features (coverage, generosity, eligibility criteria) fundamentally shapes poverty outcomes.

Our results strongly support the implementation of comprehensive indexation mechanisms covering both eligibility thresholds and benefit amounts. However, our findings also suggest that discretionary adjustments exceeding mechanical inflation indexation can achieve superior outcomes when implemented proactively.

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## List of abbreviations and definitions

<b>Abbreviations</b>	<b>Definitions</b>
AROP	At-risk-of-poverty
COLA	Cost of Living Adjustment
EU	European Union
EU-SILC	European Union Statistics on Income and Living Conditions
EUROMOD	European Union tax-benefit microsimulation model
HICP	Harmonised Index of Consumer Prices
JRC	Joint Research Centre
MIS	Minimum Income Schemes
OECD	Organisation for Economic Co-operation and Development

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## Annexes

### Annex 1. List of countries and EUROMOD MIS policies

Country	Policy name	EUROMOD policy acronym
AT	Social assistance (sozialhilfe) replaced by Minimum Income Scheme (Mindestsicherung)	Bsa
BE	Integration Income (Revenu d'intégration / Leefloon)	Bsa
BG	Guaranteed minimum income (месечна социална помощ поради ниски доходи)	bsa00
CY	Guaranteed Minimum Income (Ελάχιστο Εγγυημένο Εισόδημα)	Bsamm
CZ	Social Assistance Benefits (dávky v hmotné nouzi)	Bsa
DE	General Social Assistance (Sozialhilfe)	bsa00
DK	Social Assistance (Kontanthjælp; Aktivering af kontanthjælpsmodtagere; Integrationsydelse)	Bsa
EE	Needs-based family benefit (vajaduspõhine lapsetoetus), pensioner's living alone allowance (üksi elava pensionäri toetus)	bsa00, bsape
EL	Guaranteed minimum income (ελάχιστο εγγυημένο εισόδημα)	bsa00
ES	National minimum income (ingreso mínimo vital), regional minimum incomes (rentas mínimas de Insercion)	bsa00, bsarg
FI	Local authority income support (toimeentulotuki)	bsa00
FR	Active Solidarity Income (Revenu de Solidarité Active)	bsa00
HR	Guaranteed Minimum Benefit (Zajamčena minimalna naknada)	Bsa
HU	Social assistance (aktív korúak ellátása)	Bsa
IE	Basic Supplementary Welfare Allowance, Jobseeker's Allowance	bsa00, bunnc
IT	Income support (Rel - reddito di inclusione) replaced by Assegno di Inclusione (Inclusion Allowance) and social card (carta dedicata a te)	bsamm, bsals
LU	Social Inclusion Income (Revenu d'inclusion sociale)	Bsacm
LV	Guaranteed minimum income (garantētā minimālā ienākuma pabalsts)	Bsamm
LT	Social assistance benefit (socialinė pašalpa)	bsa00
MT	Social assistance (ghajnuna soċjali), additional COLA mechanism	bsa, bsamt
NL	Social Assistance (Participatiewet)	bsa00
PL	Social Assistance (pomoc społeczna)	Bsa
PT	Social insertion income (Rendimento social de inserção ou mínimo garantido)	bsa00
RO	Guaranteed minimum income (Venitul minim garantat) replaced by Minimum inclusion income (Venitul minim de incluziune)	bsa, bsa00
SE	Social assistance	Bsamt
SI	Social Assistance (Denarna socialna pomoč), Income Support (varstveni dodatek)	bsa, bsapm
SK	Material Need Benefit (Dávka v hmotnej núdzi)	Bsa

Source: EUROMOD Country Reports available here: <https://euromod-web.jrc.ec.europa.eu/resources/country-reports>

## Annex 2. List of Change in HICP, 2021 to 2024

Country	Change in HICP
HU	1.3992
EE	1.3520
CZ	1.3197
LT	1.3027
RO	1.3012
PL	1.3010
LV	1.2959
SK	1.2837
BG	1.2592
HR	1.2478
AT	1.2041
NL	1.1995
SI	1.1954
DE	1.1813
BE	1.1773
EL	1.1726
PT	1.1683
SE	1.1673
IT	1.1648
IE	1.1525
ES	1.1522
CY	1.1488
MT	1.1477
FR	1.1450
LU	1.1383
DK	1.1354
FI	1.1292

Source: Eurostat HICP - annual data (average index) [prc\_hicp\_aind\$defaultview].

Note: Countries are ordered in descending order of change in HICP.

### Annex 3. Outcomes for 2024 baseline and indexation counterfactual

	AROP, 40% of the median		AROP, 60% of the median		AROP gap, 60% of the median		Coverage of AROP, 60% of the median		Number of beneficiaries		Average benefit		MIS spending	
	2024	Indexation	2024	Indexation	2024	Indexation	2024	Indexation	2024	Indexation	2024	Indexation	2024	Indexation
AT*	0.88	0.70	15.09	15.07	11.77	13.73	63.70	61.97	166 167	177 897	739	665	316.56	282.42
BE	1.26	1.44	10.74	11.06	15.77	16.51	32.08	24.93	794 700	736 979	862	750	209.17	177.59
BG*	7.32	8.03	22.83	23.04	24.49	24.60	18.27	10.51	117 879	77 476	373	117	34.67	9.09
CY	1.94	1.17	15.49	15.28	15.44	14.97	20.19	27.45	77 950	79 081	344	450	7.90	11.62
CZ	2.16	1.97	9.23	9.11	15.74	15.89	22.06	22.97	86 177	90 497	6926	7432	596.82	650.91
DE	2.20	2.22	14.73	14.73	16.80	16.80	1.44	1.24	144 479	170 579	491	461	65.68	55.56
DK	3.96	3.84	12.33	11.94	19.05	19.59	21.07	24.01	715 874	797 810	7039	8051	1519.17	2048.85
EE	4.37	4.42	18.93	18.96	16.77	16.92	44.97	44.12	177 098	170 850	102	94	12.36	11.38
EL	4.46	4.29	15.22	15.18	19.55	19.37	12.11	15.25	171 791	161 775	143	168	18.76	22.67
ES	6.50	7.77	19.23	19.57	23.63	26.29	62.09	30.38	3,251,404	1 770 718	513	428	862.26	531.01
FI	0.79	0.91	12.42	12.28	14.65	14.38	48.40	49.74	709 567	717 575	292	296	88.40	90.37
FR	2.50	2.36	12.85	12.89	19.10	18.75	38.61	38.90	2,347,440	7 771 640	471	487	1106.19	1143.84
HR	7.21	7.32	19.02	19.03	25.18	25.58	9.89	5.86	77 577	74 070	216	145	5.80	3.48
HU	6.47	6.50	14.41	14.47	29.97	29.91	15.78	18.46	197 185	777 777	25404	38676	5009.26	7804.68
IE	3.00	3.11	20.46	20.60	18.17	18.41	33.46	32.41	791 794	787 775	573	550	167.09	155.83
IT*	7.25	6.41	19.48	19.61	24.06	22.26	33.24	17.32	1,992,161	1 141 755	458	669	419.33	616.72
LT	5.14	5.33	17.58	17.62	22.22	22.58	22.51	21.19	60 591	56 779	253	231	14.27	13.01
LU	0.44	0.44	12.59	12.59	13.70	13.73	62.04	62.04	77 646	77 646	1038	1036	24.55	24.51
LV	8.70	8.69	21.93	21.93	26.57	26.57	11.00	11.25	44 887	45 917	62	65	2.77	2.91

MT*	2.31	2.13	13.50	13.39	13.54	13.21	96.13	96.36	1 05 571	1 05 716	47	51	4.96	5.44
NL	2.82	2.49	12.73	12.72	16.60	15.50	29.70	30.27	578 058	544 537	875	962	462.29	508.30
PL	4.39	4.33	13.88	13.85	20.94	21.07	8.89	10.56	734 678	761 763	741	710	173.95	172.87
PT	3.94	3.95	15.60	15.62	18.96	19.20	18.60	16.37	104 067	90 706	300	266	27.37	24.09
RO*	10.09	10.14	21.59	22.01	30.24	30.22	49.08	57.74	885 086	1 009 896	777	330	432.53	293.34
SE	2.85	2.85	13.12	13.22	19.58	19.93	48.27	46.06	506 974	488 531	5423	5250	2652.65	2564.80
SI	2.28	2.23	12.71	12.54	15.06	15.36	56.80	56.70	157 385	160 930	342	343	53.07	54.10
SK	1.59	2.14	10.94	10.94	17.85	19.67	64.24	60.10	706 997	197 370	213	189	41.62	36.70

Source: Own computations using EUROMOD version J1.28.

Notes: At-risk-of-poverty rates (AROP) are computed using 40% and 60% of the median equivalised disposable income as the poverty threshold; in percent

AROP gap is the relative median poverty gap; in percent

Coverage is defined as a share of persons at-risk-of-poverty (before receiving MIS benefit) covered by MIS benefit; in percent

Number of beneficiaries is the number of persons receiving the MIS benefits

Average benefit is calculated across joint beneficiaries (those who are eligible for MIS both in 2024 and Indexation scenarios) to avoid composition effects; monthly amount in national currency

MIS spending reflects aggregate spending on MIS benefits, mn on national currency

#### Annex 4. Inflation impact on AROP40 and the potential of MIS policies to offset it

	AROP40 rates, by scenario				Inflation impact (D-C)	Offsetting with indexation $(D-E)/(D-C)*100$	Offsetting with 2024 policy $(D-F)/(D-C)*100$
	C	D	E	F			
AT*	0.62	2.06	0.53	0.41	1.44	106.5	114.6
BE	1.35	1.84	1.28	1.00	0.49	115.1	172.1
BG*	8.25	8.64	8.62	8.07	0.39	4.0	147.2
CY	1.24	2.30	1.59	2.30	1.07	66.8	0.0
CZ	2.32	2.64	2.07	2.28	0.32	177.5	110.8
DE	3.18	4.21	4.07	4.10	1.03	13.8	11.1
DK	3.77	4.10	3.93	4.04	0.33	50.6	16.1
EE	5.08	5.33	4.83	4.70	0.25	197.5	249.6
EL	4.12	4.22	4.01	4.19	0.10	209.3	30.2
ES	7.72	8.40	7.79	6.73	0.68	89.4	245.2
FI	1.02	1.31	0.74	0.71	0.28	200.7	210.5
FR	2.42	3.37	2.36	2.48	0.95	106.6	93.5
HR	7.26	7.58	7.58	7.57	0.32	1.0	4.5
HU	6.26	6.43	6.29	6.43	0.16	83.0	0.0
IE	3.77	6.11	5.46	5.18	2.34	27.6	39.4
IT*	7.74	7.81	7.23	8.00	0.07	799.6	-255.6

LT	6.59	7.69	7.13	7.11	1.10	50.5	52.7
LU	0.40	0.85	0.43	0.43	0.45	94.0	94.0
LV	9.01	9.11	8.78	8.78	0.09	350.3	350.3
MT*	2.50	3.00	2.52	2.51	0.50	95.8	96.9
NL	3.38	4.56	3.80	3.93	1.17	64.6	53.1
PL	4.36	4.85	4.71	4.82	0.49	28.7	6.0
PT	4.91	5.71	5.58	5.49	0.80	16.1	27.3
RO*	9.28	12.36	11.97	11.76	3.08	12.4	19.5
SE	3.18	3.44	2.80	2.68	0.26	248.3	294.8
SI	2.05	3.45	1.96	1.93	1.40	106.7	108.4
SK	2.50	3.86	3.44	2.63	1.36	31.1	90.8

Source: Own computations using EUROMOD version J1.28.

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