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**Short-Term Inflation Expectations in V4 Countries:  
Dynamics and Anchoring**  
**Extended Abstract**

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## **Abstract**

This paper examines short-term household inflation expectations in V4 countries, with an extension to Romania and Slovenia. The analysis focuses on one-year-ahead household expectations and evaluates them relative to country-specific inflation targets. Monthly expectation data are obtained from the European Commission's Joint Harmonised Consumer Survey and transformed into quantitative inflation expectations using the Carlson-Parkin approach modified by Batchelor and Orr. The paper constructs a monthly dataset of inflation targets from official central-bank sources and uses it to calculate target-adjusted expectation gaps. Inspired by Brázdik et al. (2026), these gaps are transformed into a percentile-based de-anchoring indicator distinguishing normal deviations, weakened anchoring, and extreme upward or downward deviations. The proposed measure provides a transparent framework for comparing short-term household expectation anchoring across economies with different monetary-policy regimes and inflation-target histories.

**Keywords:** inflation expectations; household expectations; de-anchoring; inflation targeting; V4 countries.

# 1. Introduction

Inflation expectations play a central role in the transmission of monetary policy and in the maintenance of price stability. In inflation-targeting regimes, the central bank's inflation target serves as the nominal anchor against which private-sector expectations can be assessed. While the literature has traditionally focused on medium- and long-term expectations as indicators of central bank credibility, recent inflationary episodes have renewed interest in short-term household expectations. One-year-ahead expectations may provide timely information on how households perceive current inflation developments, react to salient price changes, and adjust their economic behaviour.

This issue is particularly relevant for Central and Eastern European economies, which experienced substantial inflationary pressures after 2021. The V4 countries, together with Romania and Slovenia, provide a suitable setting for analysing short-term household expectation anchoring because they share a post-transition background but differ in monetary-policy frameworks, inflation-target histories, and euro-area integration. Most of these economies still conduct monetary policy under their own national currency, making the domestic inflation target a relevant benchmark for assessing expectation deviations.

The aim of this paper is to construct a target-adjusted measure of short-term household inflation-expectation de-anchoring. Using monthly data from the European Commission's Joint Harmonised Consumer Survey, qualitative household responses are transformed into quantitative one-year-ahead inflation expectations using the Carlson-Parkin approach modified by Batchelor and Orr. These expectations are then compared with country-specific monthly inflation-target series constructed from official central bank sources. This allows the paper to evaluate expectations not only in absolute terms, but relative to the relevant monetary-policy anchor.

The contribution of the paper is twofold. First, it provides a transparent and comparable framework for identifying short-term household expectation de-anchoring across countries with different inflation-target histories. This is relevant for central banks, as the proposed indicator can serve as an early warning signal of weakening short-term anchoring. It helps identify when household expectations deviate unusually far from the policy-relevant target, thereby indicating which developments central banks should monitor more closely. Second, the constructed de-anchoring indicator will be used in further analysis to examine whether short-term expectation de-anchoring affects household consumption behaviour in the respective country. This step

links expectation anchoring not only to monetary-policy credibility, but also to real economic decisions made by households.

Overall, the paper contributes to the literature by shifting attention from long-term professional expectations to short-term household expectations and by proposing a target-adjusted indicator that is directly relevant to monetary policy analysis.

## **2. Theoretical Framework**

### **2.1. Why do short-term expectations matter?**

The literature on inflation expectations has traditionally focused on medium- and long-term expectations, largely because they are commonly interpreted as measures of central bank credibility and anchoring. However, more recent research increasingly emphasises that short-term household inflation expectations also play an important role in inflation dynamics and monetary policy transmission. In particular, one-year-ahead expectations may contain valuable information about how households perceive current inflation developments, process monetary policy signals, and adjust their economic behaviour in response to inflation shocks.

A growing strand of literature argues that short-term household expectations should not be viewed merely as noisy survey responses, but rather as a relevant component of the inflation process itself. One important contribution comes from Brandão-Marques et al. (2023), who examine whether household inflation expectations help predict future inflation. Using survey-based measures across countries, the authors find that household expectations contain predictive information for future inflation developments beyond standard macroeconomic variables. Importantly, the paper emphasises that not only the average expectation but also the distribution of expectations across households may matter for inflation forecasting. According to the authors, short-term household expectations may therefore provide policymakers with useful information for assessing future inflationary pressures (Brandão-Marques et al., 2023).

The relevance of short-term expectations is also tied to the behavioural transmission of inflation shocks. Coibion, Gorodnichenko, and Weber (2019) argue that household inflation expectations shape consumption decisions and, in turn, influence aggregate demand dynamics. Their research shows that shifts in inflation expectations can alter households' willingness to spend or delay consumption. The authors further demonstrate that information treatments and central bank communication can significantly affect household expectations, suggesting that these expectations are responsive to monetary policy communication and should therefore be

monitored by policymakers (Coibion et al., 2019). This is particularly important because households typically form expectations differently from professional forecasters, often relying more heavily on salient price changes and personal inflation experiences. Coibion, Gorodnichenko, Kumar, and Pedemonte (2020) further emphasise that inflation expectations may serve as an important transmission channel for monetary policy. The authors argue that household and firm expectations influence economic decisions such as price-setting, wage negotiations, borrowing, and consumption. While long-term expectations remain important for measuring credibility, the paper highlights that short-run expectations may have more immediate macroeconomic consequences because they are more closely tied to current economic behaviour. The authors therefore suggest that central banks should pay greater attention to households' and firms' expectations rather than focusing exclusively on professional forecasters (Coibion et al., 2020).

The importance of monitoring short-term expectations became particularly visible during the post-pandemic inflation surge. Recent BIS analyses argue that household inflation expectations increased substantially following the 2021–2023 inflation shocks and became more sensitive to salient price developments, such as food and energy prices. BIS research also notes that household expectations may become less anchored during periods of elevated inflation volatility, especially when inflation remains persistently above target (BIS, 2024). In this context, short-term expectations may serve as an early warning indicator of weakening anchoring. However, the BIS does not explicitly claim that short-term expectations alone are sufficient evidence of permanent de-anchoring; rather, they are presented as an important signal that central banks should monitor closely (interpretation). This argument is particularly relevant for Central and Eastern European economies. These economies experienced substantial inflation volatility during the post-pandemic period, together with significant increases in food and energy prices. Since households are typically more sensitive to visible, frequently purchased goods, short-term household expectations in these economies may respond strongly to current inflation developments. As a result, analysing short-term expectations may provide useful information about inflation persistence risks and the effectiveness of monetary policy communication (interpretation).

The literature, therefore, suggests that short-term household inflation expectations are relevant for at least three reasons. First, they may contain predictive information about future inflation. Second, they may influence actual economic behaviour through consumption and wage-setting channels. Third, they may provide central banks with an early signal of weakening inflation

anchoring during periods of elevated inflation. Consequently, although long-term expectations remain a standard measure of anchoring, short-term household expectations may also serve as an important policy-relevant indicator that warrants empirical attention.

## **2.2. Inflation target as a reference point**

Inflation-targeting regimes are built on the idea that the central bank's inflation target serves as a publicly announced nominal anchor. In this framework, the target provides a benchmark against which inflation outcomes and expectations can be assessed. For inflation-targeting economies, the relevant policy question is therefore not only whether expected inflation is high or low in absolute terms, but also whether expectations deviate from the central bank's announced objective. This is the logic followed by Brázdik et al. (2026), who construct measures of inflation-expectation deviations by adjusting expectations relative to the inflation target and explicitly argue that ignoring target changes may generate false signals of de-anchoring. However, for households, the role of the target must be interpreted carefully. The literature does not imply that all households are fully informed about the central bank's inflation target. In fact, Coibion, Gorodnichenko and Weber show that many households are inattentive to monetary policy communication. At the same time, the CEPR summary of their evidence states that most households are unaware of inflation targets or monetary policy announcements. At the same time, their randomised information experiment shows that when households receive information about the central bank's inflation target, their inflation expectations respond. This means that the target can influence household expectations when it becomes salient, even if baseline awareness is limited (Coibion et al., 2019).

Evidence from Euro area household surveys also supports the use of the central bank target as a benchmark for assessing anchoring. Galati, Moessner and van Rooij examine whether consumers' long-term euro area inflation expectations are anchored to the ECB's inflation aim. Their analysis explicitly compares consumers' probability distributions with the target-consistent range and finds that household expectations are often above the ECB's inflation aim. This is important for the present study because it shows that household expectations can be empirically evaluated relative to the central bank's target, even when expectations are heterogeneous and not perfectly aligned with that target (Galati et al., 2021). Recent ECB research similarly emphasises that consumer inflation expectations should be assessed relative to the inflation target, while recognising that household expectations are more subjective, heterogeneous, and more sensitive to short-term inflation news than professional forecasts.

Charalambakis et al. note that consumers' medium- and longer-term expectations often deviate noticeably from central bank targets, and that tracking the anchoring of consumer expectations requires accounting for this heterogeneity. This supports the methodological choice to study household expectations relative to the target and reinforces the need to interpret deviations cautiously (Charalambakis et al., 2024).

Therefore, subtracting the inflation target from household expectations is defensible, but the interpretation should be precise. It should not be presented as evidence that every household consciously forms expectations around the target. Rather, the target-adjusted measure should be interpreted as a policy-relevant deviation from the central bank's nominal anchor. In other words, the target serves as the benchmark of the monetary policy regime, not necessarily as a fully internalised subjective reference point for every household. This distinction is especially important for V4 countries. In economies with changing inflation targets or transitions between monetary policy regimes, raw inflation expectations are difficult to compare across countries and over time. Expressing household expectations relative to the relevant country-specific target makes the measure institutionally comparable. It avoids treating the same numerical expectation as equally anchored in economies with different monetary policy objectives. This is consistent with Brázdik et al.'s target-adjustment logic and provides the basis for constructing a short-term household de-anchoring indicator in the V4 context.

### **2.3. Short-term de-anchoring and household consumption behaviour**

A further reason why short-term household inflation expectations are relevant is their potential impact on household consumption behaviour. While inflation expectations are often studied from the perspective of monetary policy credibility and price-setting, they may also affect real economic decisions made by households. This is particularly important for one-year-ahead expectations, because this horizon is close enough to households' everyday planning decisions, such as durable goods purchases, savings, borrowing, and the timing of consumption.

The theoretical link between inflation expectations and consumption behaviour can operate through several channels. First, higher expected inflation reduces the expected real return on money holdings and may encourage households to bring consumption forward. If households expect prices to rise in the near future, they may decide to purchase goods earlier in order to avoid higher future prices. This mechanism is especially relevant for durable and semi-durable

goods, where the timing of purchase can be adjusted. Second, higher inflation expectations may also reduce expected real income, particularly if households do not expect nominal wages to fully compensate for future price increases. In this case, elevated expectations may lead to precautionary saving and lower current consumption. Therefore, the effect of inflation expectations on consumption is theoretically ambiguous and depends on whether the intertemporal substitution channel or the income/uncertainty channel dominates.

This ambiguity is particularly important in periods of de-anchoring. When short-term household expectations move unusually far above the inflation target, households may no longer perceive inflation as a temporary deviation from the central bank's objective. Instead, they may interpret high inflation as more persistent. Such a change can affect consumption decisions more strongly than ordinary fluctuations in expectations. A target-adjusted de-anchoring indicator may therefore capture not only the level of expected inflation, but also whether expectations have moved outside the range that can be considered normal relative to the monetary-policy anchor.

From a policy perspective, this distinction is important. If short-term household expectation de-anchoring affects consumption behaviour, then central banks should monitor not only long-term expectations and professional forecasts, but also short-term household deviations from the target. Household expectations may influence aggregate demand through consumption decisions and may therefore become part of the monetary transmission mechanism. This is consistent with the broader literature emphasising that household expectations can shape spending decisions and that shifts in expectations may alter households' willingness to consume or postpone consumption. Your current theoretical framework already states that short-term expectations may influence economic behaviour through consumption and wage-setting channels and may provide central banks with an early signal of weakening anchoring.

In this paper, the constructed short-term de-anchoring indicator is therefore not only interpreted as a measure of expectation anchoring. It is also intended for use in further empirical analysis as an explanatory variable for household consumption behaviour in the respective country. This allows the research to examine whether periods of weakened short-term anchoring are associated with changes in household consumption dynamics. The empirical question is whether short-term household expectation de-anchoring has real behavioural consequences, or whether it remains only a survey-based signal of perceived inflation risk.

## 3. Methodology

### 3.1. Data Description

This section describes the data collection for our variables and the modifications applied to our dataset.

#### 3.1.1. Inflation expectations

Short-run household inflation expectations are assessed using the EU's Joint Harmonised Program for Business and Consumer Surveys. The data published by the European Commission (EC) is based on surveys conducted by public and private institutions in member states. Consumer surveys are conducted monthly, with additional questions included in quarterly surveys. The presentation and methods of these monthly and quarterly surveys are the same across all countries, with questions harmonised in line with EU guidelines. The respondents' answers to two questions - question No. 5 and question No. 6 - are analysed. Respondents were asked to assess the current level of consumer prices relative to 12 months ago and to express their opinion on the expected development of prices over the next 12 months.

Two complications arise when processing respondents' answers:

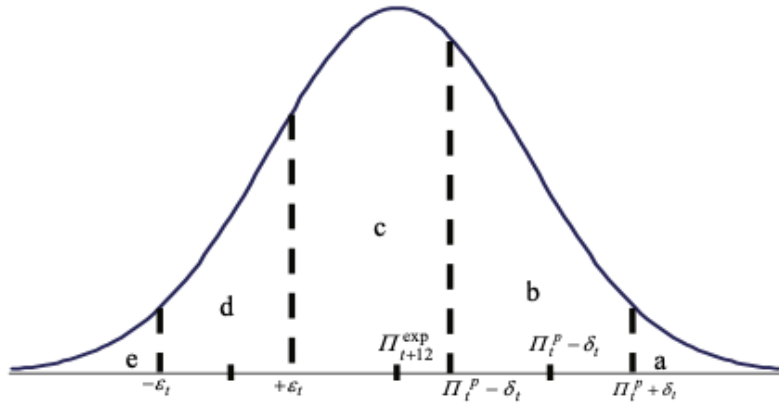
- a. The wording of question 6 presupposes a comparison with the current situation. Therefore, the magnitude of inflation expectations is reflected not only in the answers to question 6 but also in perceptions of the current situation.
- b. The survey data are difficult to interpret because they are not directly comparable with actual inflation. As a result, it would be advantageous to express expected inflation as the expected annual percentage price increase.

This can be remedied by estimates of inflation expectations or quantification methods that transform survey data into an annual percentage rate of price change. In this paper, we use the Carlson-Parkin approach modified by Batchelor and Orr<sup>1</sup> to quantify inflation expectations. Quantification consists of finding the mean value of the joint distribution of inflation expectations  $\pi_{t+12}^{exp} = E(\pi_{t+12}|\omega_1)$ , where  $\omega_1$  is the joint set of information. The proportions of responses to each survey question can be interpreted as maximum-likelihood estimates of the areas under the common density function (see Figure 1).

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<sup>1</sup> Originally, Carlson and Parkin (1975) developed an original technique for quantifying survey results with three response options: "prices will increase," "prices will remain the same," and "prices will decrease." Later, Batchelor and Orr (1988) expanded this original quantification methodology to five response options, which are currently used in surveys.

Figure 1: Aggregate inflation expectations function



Note: prices - a) will rise faster; b) will rise at the same rate; c) will rise slower; d) will remain roughly the same; e) will fall

Source: Batchelor and Orr (1988).

Respondents who selected the answer "I don't know" were proportionally assigned to the other answer categories. To quantify inflation expectations, the Carlson-Parkin approach uses several assumptions. It assumes that near zero, there is a range of price changes that respondents cannot distinguish from constant prices, and near the perceived inflation rate, there is a range of price increases at a rate that cannot be distinguished from the perceived inflation rate. Therefore, the respondent believes that prices will not change and chooses answer d), when the expected inflation is within the dispersion of the base  $-\varepsilon_t$  to  $\varepsilon_t$ , where  $\varepsilon_t$  denotes the variance. If the respondent believes that the annual inflation rate will not change, they choose answer b), when the expected inflation falls within the range  $\pi_t^p - \delta_t$  to  $\pi_t^p + \delta_t$ , where  $\pi_t^p$  represents perceived inflation and  $\delta_t$  the size of the dispersion.

Furthermore, it is assumed that the aggregate distribution function follows a normal distribution, which is justified by the Central Limit Theorem (Carlson, Parkin, 1975). According to the Carlson-Parkin approach, the next step is to standardise the key points according to the distribution function ( $\sigma_{t+12}$  is the standard deviation of the joint distribution of inflation expectations):

$$Z_{t+12}^1 = \frac{\pi_t^p + \delta_t - \pi_{t+12}^{exp}}{\sigma_{t+12}} \quad (0)$$

$$Z_{t+12}^2 = \frac{\pi_t^p - \delta_t - \pi_{t+12}^{exp}}{\sigma_{t+12}} \quad (0)$$

$$Z_{t+12}^3 = \frac{\varepsilon_t - \pi_{t+12}^{exp}}{\sigma_{t+12}} \quad ()$$

$$Z_{t+12}^4 = \frac{-\varepsilon_t - \pi_{t+12}^{exp}}{\sigma_{t+12}} \quad ()$$

Assuming a cumulative density function, we can derive estimates for  $Z_{t+12}^i$  from the proportions of responses to question 6. Thus  $\phi Z_{t+12}^1$  is the proportion of respondents who chose answers b) to e),  $\phi Z_{t+12}^3$  is the proportion of those who chose responses d) to e), and  $\phi Z_{t+12}^4$  is the proportion of respondents whose response is e). Where  $\phi(\cdot)$  denotes the cumulative normal distribution function. We now have four unknown variables ( $\pi_{t+12}^{exp}$ ,  $\sigma_{t+12}$ ,  $\delta_t$ ,  $\varepsilon_t$ ) and a system of four equations. Transforming equations (1)-(4) leads to the inflation expectations equation (more detailed information on the derivation of  $\sigma_{t+12}$ ,  $\delta_t$  and  $\varepsilon_t$  can be found in Berk, 1999).

$$\pi_{t+12}^{exp} = - \frac{Z_{t+12}^3 + Z_{t+12}^4}{Z_{t+12}^1 + Z_{t+12}^2 - Z_{t+12}^3 - Z_{t+12}^4} * \pi_t^p \quad ()$$

Since question 6 involves a comparison with the current situation, perceived inflation  $\pi_t^p$  is very important for estimating inflation expectations. Perceived inflation can be estimated in several ways. First, it can be assumed that respondents correctly perceive current inflation, and therefore its rate will correspond to the officially published inflation rate ( $\pi_t^p = \pi_t$ ). The second option is to obtain perceived inflation in a similar way using the Carlson-Parkin approach, which is based on the percentage of responses to question 5.

$$\pi_t^p = - \frac{A_{t+12}^3 + A_{t+12}^4}{A_{t+12}^1 + A_{t+12}^2 - A_{t+12}^3 - A_{t+12}^4} * \pi_t^m \quad ()$$

In this case,  $A_{t+12}^i$  is analogous to  $Z_{t+12}^i$  in equations (1)-(4). The problem, however, is that question 5 has only one "anchor" point, i.e., answer d) (in this case, zero inflation). In the existing literature, answer b) is proposed as the second anchor point, as the second "anchor" for inflation  $\pi_t^m$ , which corresponds to "moderate inflation." The authors of the scientific article that inspired us refer to this inflation as "moderate inflation." However, in our work, we will use the term "subjective anchored inflation" for greater clarity.

To avoid implausibly low estimates highlighted in prior work, we define  $\pi_t^m$  as an average of actual inflation over the last year (12 months). Moreover, evidence from Slovakia shows that household inflation expectations co-move closely with recently realised inflation, supporting anchoring to the recent 12-month inflation when mapping qualitative answers into quantitative expectations (Šíroká, I. et al., 2024). More broadly, recent research shows that household expectations in Europe are highly sensitive to recent inflation news, reinforcing the rationale for a recent inflation anchor in this context.

In this case, we calculate subjectively anchored inflation as:

$$\pi_t^m = \pi_{t-12} \quad ()$$

Graph 1 shows how quantified inflation expectations and actual inflation correlate throughout the entire period under review. We can see that inflation expectations rose sharply during the COVID-19 crisis and the invasion of Ukraine.

**Graph 1. Short-term inflation expectations of households in the V4 area**

### 3.1.2. Inflation targets

This study constructs a monthly dataset of inflation **targets for V4 countries**, covering the period from May 2001. The objective is to provide a consistent measure of the monetary policy anchor that can be directly compared with short-term inflation expectations derived from survey data. As the monetary policy anchor, we use inflation target data drawn from official sources, including historical target announcements, monetary programs, and supporting institutional documents (MNB, n.a.; NBS, n.a.; NBP, n.a.; CNB, n.a.). When direct numerical targets are not consistently reported in a unified format, multiple sources are cross-checked to ensure accuracy and consistency.

In countries operating under an explicit inflation-targeting regime, the target variable is defined as the central value of the announced target. When the central bank specifies a tolerance band (e.g.,  $\pm 1$  percentage point), the midpoint of the band is used as the effective inflation target.

This approach aligns with the standard interpretation in the literature, where the midpoint serves as the implicit anchor for inflation expectations.

In the Czech Republic, the central bank employed a linearly declining inflation target band from January 2002 to December 2005. Rather than treating this period as a sequence of discrete annual targets, a monthly series is constructed by linearly interpolating between the initial and final midpoints of the target band. Specifically, the midpoint declines from 4% in January 2002 (corresponding to a 3–5% band) to 3% in December 2005 (corresponding to a 2–4% band). The monthly target is therefore computed as a deterministic linear trend over this period. From 2006 onwards, the Czech National Bank adopted a point target, first at 3% and later reduced to 2% in 2010, which is used directly.

For Poland, inflation targets are taken from the National Bank of Poland's official documents. Early targets were defined as year-end objectives (e.g., 6–8% for 2001, 5%  $\pm 1$  for 2002, and 3%  $\pm 1$  for 2003), after which a continuous inflation target of 2.5%  $\pm 1$  was introduced in 2004. For monthly analysis, annual targets are assumed to apply uniformly throughout the respective year.

Hungary presents a more complex case due to the coexistence of disinflation strategies and inflation targeting in the early 2000s. During the initial phase (2001–2004), inflation targets followed a disinflation path, with declining numerical objectives (e.g., approximately 7%, 5%, and subsequently lower values), reflecting the transition towards a stable inflation-targeting regime. From 2005 onwards, clearly defined targets are available from official sources: 4% ( $\pm 1$ ) for 2005, 3.5% ( $\pm 1$ ) for 2006, and a continuous point target of 3% ( $\pm 1$ ) from 2007 onwards. These values are used directly, and earlier targets are incorporated as announced, without smoothing adjustments, to preserve the policy-relevant information.

Slovakia did not operate under a formal inflation targeting regime before 2005. Instead, monetary policy relied on implicit targeting and indicative inflation ranges within the framework of monetary programming. These ranges represent forecasts rather than explicit policy targets and are therefore not used as the inflation target variable in this study. Consequently, the target variable is treated as missing for the period 2001–2004. From 2005 onwards, inflation targets are based on year-end HICP objectives associated with the ERM II participation and euro adoption process (e.g., 3.5%  $\pm 0.5$  for 2005, 2.5% for 2006, and approximately 2% thereafter). These values are assumed to apply uniformly within each year.

Following the adoption of the euro in 2009, the European Central Bank's definition of price stability (approximately 2%) serves as the relevant benchmark.

Overall, this approach ensures cross-country comparability while preserving institutional differences in monetary policy frameworks. Missing values are treated explicitly rather than imputed, and all transformations (such as interpolation or midpoint calculation) are applied consistently across countries and time.

### **3.2. Method/identification strategy:**

#### **3.2.1. Measuring the de-anchoring**

The first step of the empirical strategy is to construct a country-specific measure of short-term household inflation-expectation de-anchoring. The indicator is based on the idea that household expectations should not be evaluated only in absolute terms, but relative to the relevant monetary-policy anchor. In inflation-targeting economies, this anchor is represented by the central bank's inflation target. Therefore, the main input variable is the target-adjusted expectation gap:

$$Gap_{i,t} = E_{i,t}(\pi_{t+12}) - \pi_{i,t}^{target}$$

where  $E_{i,t}(\pi_{t+12})$  denotes quantified one-year-ahead household inflation expectations in country  $i$  at time  $t$ , and  $\pi_{i,t}^{target}$  denotes the relevant country-specific inflation target. Positive values of the gap indicate that household expectations are above the target, while negative values indicate expectations below the target.

The expectation series is obtained from the European Commission's Joint Harmonised Consumer Survey and quantified using the Carlson-Parkin approach modified by Batchelor and Orr. This transformation is necessary because the original survey responses are qualitative and therefore not directly comparable with actual inflation or the inflation target. The paper also constructs monthly country-specific inflation target series from official central-bank sources. In cases where the central bank announces a target band, the midpoint of the band is used as the effective target. This approach is already consistent with the target construction described in the data section, where the monthly inflation target is treated as the policy-relevant monetary anchor.

After calculating the target-adjusted expectation gap, the next step is to transform it into a de-anchoring indicator. The procedure follows the logic of Brázdik et al. (2026), who evaluate

deviations in inflation expectations relative to the inflation target. However, the present paper applies a percentile-based operationalisation suitable for cross-country comparison. Instead of identifying thresholds visually through histogram breaks, the thresholds are defined using the empirical distribution of absolute target-adjusted gaps:

$$|Gap_{i,t}| = |E_{i,t}(\pi_{t+12}) - \pi_{i,t}^{target}|$$

For each country, the 75th percentile of the absolute gap distribution is used to define the boundary of the normal target-relative range, while the 95th percentile is used to define the threshold for extreme deviations. The baseline thresholds are calculated using a pre-shock reference period, such as 2001M05–2019M12, to capture normal historical behaviour and prevent the post-2021 inflation shock from being included in the estimated normal range.

The de-anchoring indicator is then defined in three zones. If the absolute gap is below the 75th percentile, expectations are treated as remaining within the normal target-relative range and the indicator takes the value zero. If the absolute gap lies between the 75th and 95th percentiles, the indicator captures weakened anchoring and increases gradually in magnitude. If the absolute gap exceeds the 95th percentile, the indicator reaches the value +1 or –1, depending on the direction of the original gap. Positive values indicate upward de-anchoring, while negative values indicate downward de-anchoring.

Formally, the indicator can be written as:

$$DA_{i,t} = \begin{cases} 0, & \text{if } |Gap_{i,t}| \leq P75i \\ \frac{Gap_{i,t} - \text{sign}(Gap_{i,t})P75i}{P95i - P75i}, & \text{if } P75i \leq |Gap_{i,t}| \leq P95i \\ \text{sign}(Gap_{i,t}), & \text{if } |Gap_{i,t}| \geq P95i \end{cases}$$

where  $P75i$  and  $P95i$  denote the country-specific 75th and 95th percentiles of the absolute target-adjusted gap distribution. This construction produces a symmetric directional indicator ranging from –1 to +1. Values close to zero indicate normal target-relative deviations, values between zero and one indicate weakened anchoring, and values equal to one indicate extreme upward de-anchoring. Analogously, negative values indicate downward deviations.

This measure should be interpreted as a short-term target-relative warning signal rather than definitive evidence of permanent de-anchoring. This distinction is important because household expectations are heterogeneous, volatile, and sensitive to recent inflation experience. The purpose of the indicator is therefore to identify periods in which household expectations move unusually far from the relevant monetary-policy anchor.

### 3.2.2. Proposed VAR framework: de-anchoring and household consumption

The second step of the empirical strategy is to examine whether short-term household expectation de-anchoring has real behavioural consequences. In particular, the paper proposes to test whether the constructed de-anchoring indicator affects household consumption behaviour in each country. The motivation is that short-term inflation expectations may influence the timing and composition of consumption decisions. If households expect inflation to remain high or to move persistently away from the central bank's target, they may adjust spending, saving, and durable goods purchases.

To study this relationship, the paper proposes a country-specific vector autoregression model. The VAR framework is appropriate because the relationships among inflation expectations, consumption, inflation, and macroeconomic conditions are likely to be dynamic and mutually interdependent. A VAR model allows the analysis to capture lagged responses and feedback effects without imposing a strict single-equation causal structure at the initial stage.

For each country  $i$ , the baseline VAR can be specified as:

$$ConsumptionShare_{i,t} = A_0 + A_1 Y_{i,t-1} + \dots + A_p Y_{i,t-p} + \varepsilon_{i,t}$$

where  $Y_{i,t}$  is a vector of endogenous variables. The proposed baseline vector includes:

$$Y_{i,t} = \begin{bmatrix} DA_{i,t} \\ Inflation_{i,t} \\ PolicyRate_{i,t} \end{bmatrix}$$

where  $ConsumptionShare_{i,t}$  denotes the share of household consumption in total expenditure or GDP,  $DA_{i,t}$  denotes the short-term de-anchoring indicator,  $Inflation_{i,t}$  captures actual inflation developments,  $PolicyRate_{i,t}$  controls for monetary-policy conditions. The dependent variable of interest is the household consumption share. The key explanatory variable is the short-term de-anchoring indicator. Inflation is included because household consumption may respond not only to expected inflation but also to realised price developments. The policy rate captures the monetary-policy response and affects consumption through borrowing costs, saving incentives, and aggregate demand. Unemployment is included as a control for income uncertainty and labour-market conditions, which may influence households' willingness to consume.

Depending on data availability, the model can be extended by additional controls, such as:

EnergyInflation, FoodInflation, ConsumerConfidence, RealWageGrowth,  
IndustrialProduction...

Food and energy inflation are particularly relevant because households tend to react strongly to salient and frequently purchased goods. Consumer confidence may capture broader sentiment and expectations about future economic conditions. Real wage growth accounts for purchasing power, while industrial production can serve as a proxy for the business cycle.

The main object of interest will be the dynamic response of household consumption to a shock in the de-anchoring indicator. This can be examined using impulse response functions. If an upward de-anchoring shock leads to higher consumption in the short run, this would be consistent with an intertemporal substitution channel, where households bring consumption forward in anticipation of higher future prices. If the response is negative, this would suggest that income uncertainty, precautionary saving, or concerns about real purchasing power dominate. Therefore, the sign and persistence of the response are empirical questions rather than assumptions.

The model will be estimated separately for each country. This country-specific approach is preferred because the selected economies differ in monetary-policy regimes, inflation histories, euro-area membership, and household expectation distributions. Estimating separate VAR models allows the effect of de-anchoring on consumption behaviour to vary across countries instead of imposing a common coefficient structure.

The proposed VAR analysis, therefore, extends the measurement part of the paper. The first step identifies when short-term household expectations become weakly anchored relative to the inflation target. The second step examines whether these episodes are associated with changes in household consumption behaviour. This links the de-anchoring indicator not only to monetary policy monitoring but also to real household decisions.

### **3.3.**

## **4. Findings**

The arguments and preliminary findings are described in this section. The preliminary results suggest that the post-pandemic inflation episode was associated with a substantial weakening of short-term household inflation-expectation anchoring in all countries included in the sample.

After the COVID-19 shock and during the subsequent inflation surge, quantified one-year-ahead household inflation expectations moved markedly away from their respective country-specific inflation targets. When evaluated through the proposed target-adjusted de-anchoring indicator, these deviations exceeded the extreme-deviation threshold in each country.

This finding indicates that the inflation shock was reflected not only in actual inflation developments but also in households' short-term inflation outlook. The result is particularly relevant because short-term household expectations may respond strongly to salient, frequently observed price increases, such as those in food and energy. In this sense, the constructed indicator captures a period when household expectations moved outside the historically normal range relative to the monetary policy anchor. At the same time, the preliminary evidence suggests important cross-country heterogeneity. Although all countries experienced an episode of upward short-term de-anchoring during the post-pandemic inflation period, the timing, persistence and intensity of the signal differ across countries. This supports the use of country-specific thresholds rather than a single common threshold. Countries with historically more volatile inflation and more dispersed household expectations naturally require wider bands, while countries with more stable pre-shock expectation distributions generate narrower thresholds.

The results also show that the indicator is symmetric. While the most recent episode is mainly characterised by upward de-anchoring, earlier periods in some countries may be associated with downward deviations, when household expectations were substantially below the relevant inflation target. This confirms that the proposed measure does not mechanically identify only inflationary episodes, but more generally captures unusually large deviations from the policy-relevant nominal anchor.

Overall, the main preliminary finding is that the post-pandemic inflation surge generated target-relative de-anchoring signals in short-term household expectations across the analysed economies. However, these signals should be interpreted as evidence of weakened short-term anchoring, not as definitive proof of permanent de-anchoring. This distinction is important because household expectations are typically more volatile, heterogeneous and sensitive to recent inflation developments than professional forecasts.

## **5. Conclusions**

The paper concludes that short-term household inflation expectations can provide a useful early warning signal for central banks, especially when evaluated relative to the relevant

inflation target. The main contribution is a target-adjusted, country-specific de-anchoring indicator that enables comparisons across economies with different monetary policy frameworks and inflation-target histories. The main limitation is that the current stage of the research focuses on measurement rather than causal identification. The next step is to test whether short-term de-anchoring affects household consumption behaviour using country-specific VAR models. This will allow the analysis to assess whether de-anchoring is only a survey-based signal or whether it has real behavioural consequences for households.

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