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When the Whip Comes Down

Updating Our Indicators Capturing Inflation and Uncertainty Perception – a Research Note

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When the shit hits the fan/
I'll be sittin' on the can/
When the whip comes down, yeah

Mick Jagger and Keith Richards,
"When the Whip Comes Down" (1978)

1. Introduction

In 2022 we published a first version of the Inflation Perception Indicator (Müller et al., 2022). Today, as a corresponding journal contribution is due to be published (Schmidt et al., 2026), this research note is meant to update the IPI with new data. At the time of writing, in late August 2026, we are at an extraordinary point in time. In the course of a few years, the world economy is again confronted with an energy price shock, as the ongoing blockade of the Strait of Hormuz restrains Gulf exports. Policymakers, investors, businesses, and citizens are asking how persistent price dynamics will prove to be. Given that inflation rates have been above the 2 per cent target in many Western countries for an extended period, agents are forewarned. With inflation expectations elevated from the outset, price developments could turn out to be stickier than in recent decades.

Indeed, the IPI was designed to illuminate the process of inflation expectations formation. Its very idea is to capture price signals emanating from press reports. As agents read more about rising prices, they are more likely to adjust their expectations and behavior. As we have shown, reporting intensity concerning some distinct sources of inflation are related to inflation expectations and the ensuing dynamics. Therefore, updating the IPI may help detect underlying price pressures, information that is of particular interest to central banks at the current juncture. The last IPI update was published more than three years ago (Müller et al., 2023).

Against this backdrop the first research question of this short note is as follows: *Are traces of intensifying inflation signals detectable in recent data?*

To give a preliminary answer: yes, to some extent. This doesn't bode well for a painless return to price stability.

The methodology we use enables us to distinguish between different drivers of inflation, as they are reported in the news. We apply the text mining technique RollingLDA, a dynamic topic modelling approach that allows for the construction of consistent updatable time series while dissecting the content into different thematic aspects. RollingLDA was developed at our research center DoCMA (Rieger et al., 2021) and has proved to be quite useful. Contrary to one-shot topic modeling methods, that lend themselves to (un-reproduceable) backward-looking corpus analyses, we are able to add new chunks of data (i.e., newspaper articles) to the same model. There is some built-in flexibility. News topics are allowed to evolve over time as the vocabulary advances. Collective memory and oblivion are modelled.

Using a related methodology and dataset of (German) broadsheet newspapers we built an Uncertainty Perception Indicator (UPI) prior to developing the IPI (Rieger et al., 2023). Here, the basic notion is that developments in realms outside of markets show up in the media first. The UPI is highly useful since it enables researchers to distinguish between uncertainty shocks coming from different directions. Other news-based uncertainty indicators (e.g., Baker et al., 2016) are systematically unable to differentiate between different unknown sources of uncertainty (and proved largely insignificant in the context of our analyses of German data). Plus, these indicators would only react to known unknowns, e.g., some pre-defined policy areas, trade or monetary policy, say, but not to unknown unknowns – the stuff that really matters in real-world circumstances. The UPI, in contrast, contains several time series that strongly impact macro variables. This is particularly true for political and social developments at the domestic level. Geopolitical shocks may dominate the news at times, but their impact on macroeconomic variables is limited, and indeed insignificant in the context of our research (Müller et al., 2025).

In this note we also provide a brief update of the UPI, guided by the second research question: *How have different uncertainty factors fared recently?*

In brief, we find that uncertainty is at unprecedented levels overall, driven particularly by factors that have impacted the real economy most severely in the past. A series of shocks has likely contributed to the dismal performance of the German economy. Most worryingly this is the case with respect to corporate investment. Depressed levels of investment, in turn, might partly explain why potential growth is trending towards zero (Projektgruppe Gemeinschaftsdiagnose, 2026).

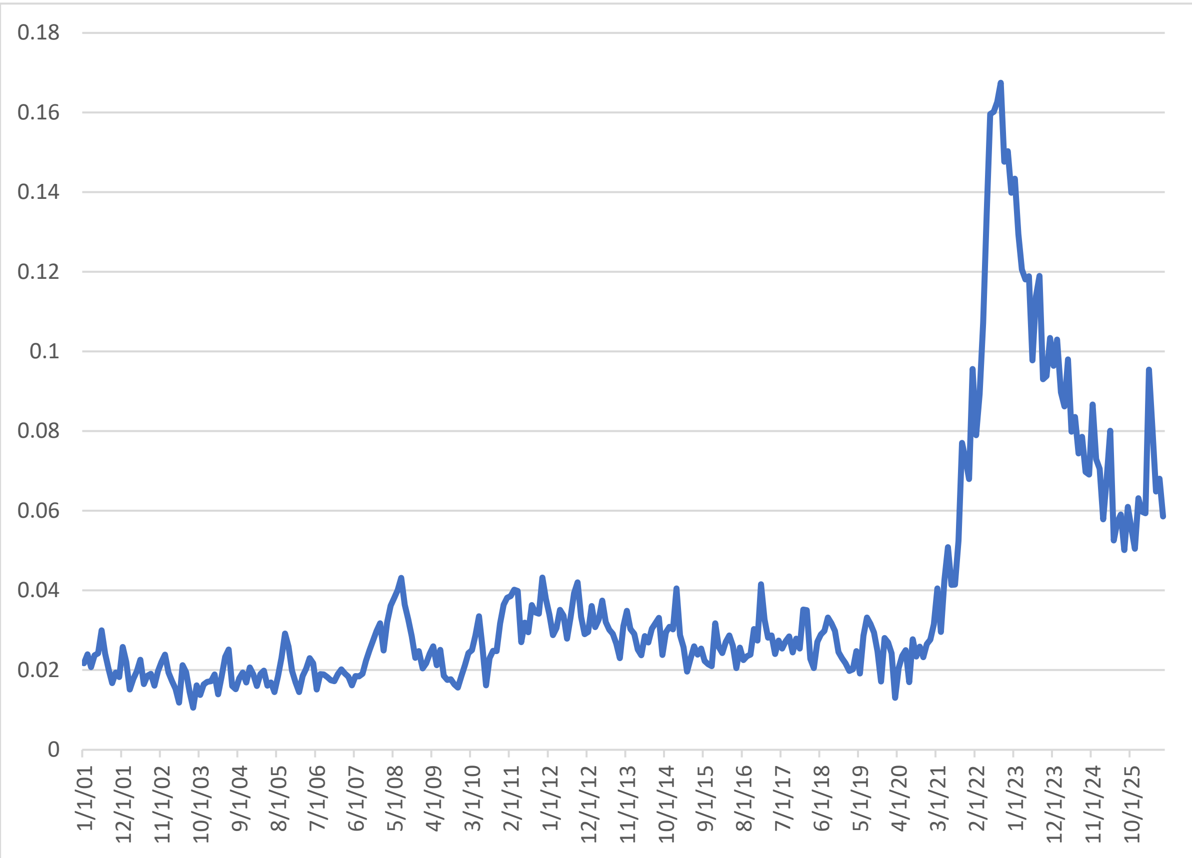
Taken together, the coincidence of elevated inflation, uncertainty and stagnation of the real economy makes for considerable economic and political stress, a clash that has reminded us of the old Rolling Stones song cited above.

This short paper is organized as follows: In section 2 we present some IPI results based on recent data. In section 3 we highlight selected UPI-related developments. Section 4 draws some conclusions.

2. Inflation Perception – watching out for the next brunt

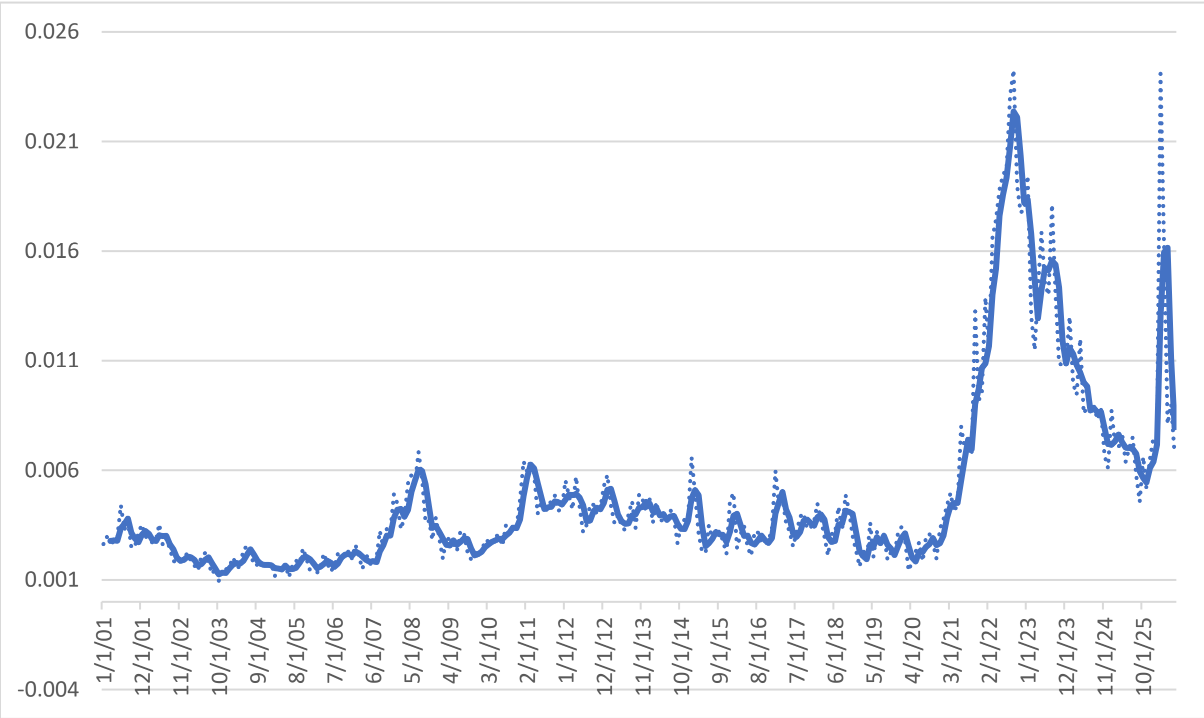
In the spring of 2026, the overall share of inflation-related newspaper coverage reached a local maximum, after the post-Covid/Ukraine war-induced maximum four years before. In March, about 10 per cent of the articles in our multi-newspaper corpus dealt with inflation and related developments. However, the rise seems to be short-lived at the time of writing. By July the share, as captured by the overall IPI, had already declined to just under 6 per cent (Fig 1).

Figure. 1.: Inflation Perception Indicator (IPI), overall share of articles



Source: the authors

Fig. 2: Topic "News", three-month moving average and monthly data



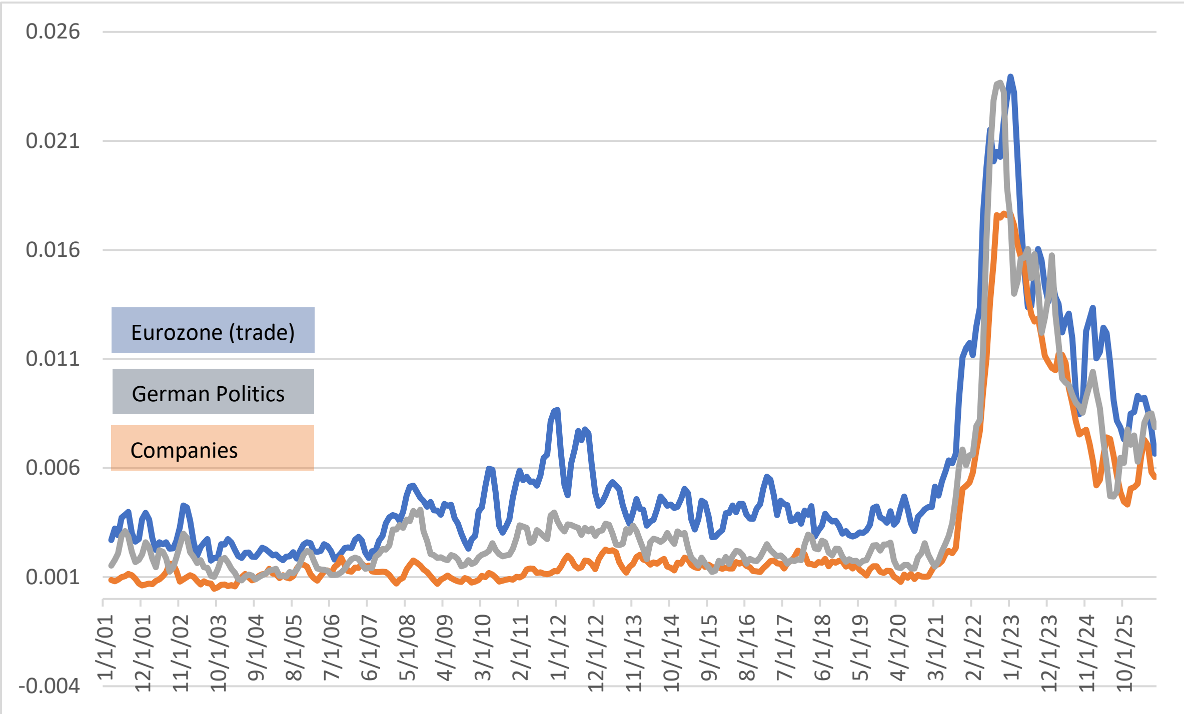
Source: the authors

The IPI model allows us to differentiate between several strands of inflation reporting.[1] As in earlier IPI updates we are particularly interested in two types of topics: those that capture initial causes of inflation, and those that contain reports on its effects. The latter may be indicating second-round price increases. Additionally, the model entails other interesting aspects such as the perception of the central bank in the context of inflation, or financial market reactions, features that are beyond the focus of this research note.

Consider the topic News. It includes shortish articles mostly triggered by data releases, written in a plain, matter-of-factly style. Among the topic's most characteristic words between March and July were: *percent, prices, oil, gas, hormuz, considerably.* The topic laid dormant with very low salience until the bout of inflation of 2022/23. In recent months, related articles largely dealt with the immediate fallout from the US-Israeli war against Iran and the subsequent blockade of the Strait of Hormuz. In March, the frequency curve showed a local peak only slightly below the all-time high of August 2022 (Fig. 2).

[1] In Schmidt et al. (2026) we use a slightly different model with adjusted parameter settings.

Figure 3: Topics dealing with the effects of Inflation, three-month moving averages



Source: the authors

Turning to the effects of inflation, three topics in particular are of interest (Fig. 3). The topic Eurozone points to economic policy developments at the EU level. A second topic, German Politics, clusters content that deals with re-distributional policies at the national level. Companies is concerned with firms' role in the process of price setting.

The topic Eurozone was fairly prominent during the sovereign debt crisis of the early 2010s, but ebbed away later on. Back then articles mainly dealt with fiscal policy. Deteriorating public finances were portrayed as potentially inflation-inducing by German media. This has changed completely. Major issues of policy making at the Eurozone level now include international trade as well as measures to reduce climate-related emissions. With respect to trade policy there are three major news items at play: the U.S. president's "Liberation Day" (aka 2 April 2025) tariffs against friends and foes of America and the question how Europe should respond; new EU trade deals with partners like Mercosur and India; and counter measures against China flooding the EU with cheap imports. Trade deals are generally considered to dampen inflation. Retaliatory tariffs, whether against U.S. assertiveness or Chinese dumping, could lead to fueling domestic inflation. Stricter emission trading rules, for their part, may also push up prices, as could the Carbon Border Adjustment Mechanism.

In sum, the topic's content does not indicate second round effects, as the cited policy objectives are largely unrelated to the initial inflation shock. However, if the two coincide – rising oil prices plus retaliatory tariffs, say – the influence on inflation expectations may well be aggravated.

The topic labeled German Politics, in contrast, is dealing with debates about mitigating inflation shocks by introducing redistributive policies, e.g., raising pensions or government support for families and the poor. While reasonable from a political perspective, these policies tend to prolong inflation. Even though this feedback loop is often not made explicit in newspaper articles. Readers need some prior economic literacy to catch the hints of a causal connection. One way or another, plausibly an increase in the salience of the topic German Politics might harden convictions regarding elevated future inflation.

The topic Companies provides insights into how firms are affected by, and dealing with, inflation. In the spring of 2026 monthly top words of the topic included firms like chemicals giant BASF, consumer brands group Mondelez, sportswear producer Adidas and German housing group Vonovia. In so far as the content is portraying suppliers of consumer goods as actors who are inclined to pass on rising production costs to their customers, reading this kind content is likely to reinforce perceptions of persistent inflation due to second round effects. That the topic has received more attention in March and April, but less so from May to July, is due to the earnings season and shareholder meetings when CEOs convey their outlook.

In a nutshell, the IPI time series indicate some potential for second round effects. As people are reading more frequently about rising prices, the information feeds into the formation of inflation expectations. In addition to being confronted with higher prices personally, e.g., at the petrol station, the media-transmitted perception of widespread price dynamics adds to people's individual calculus.

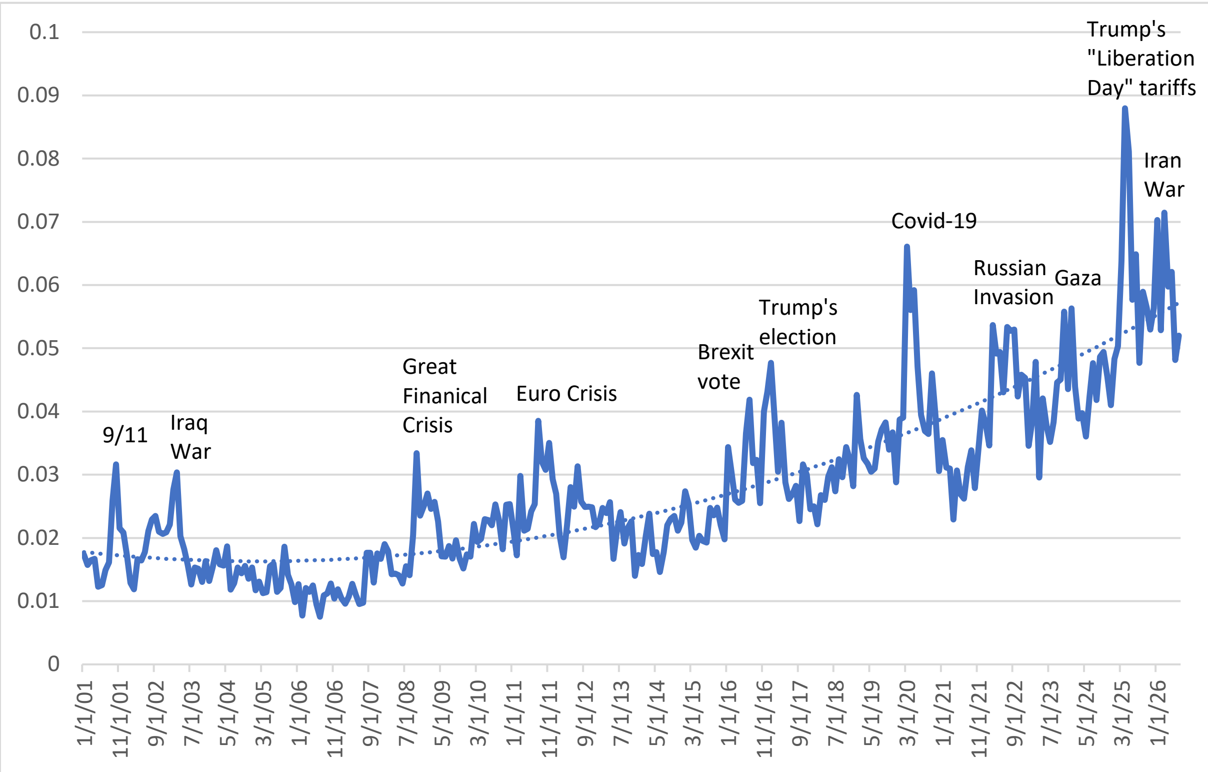
Indeed, according to surveys commissioned by Deutsche Bundesbank, consumer price inflation expectations in Germany have crept up a bit of late (Deutsche Bundesbank, 2026). Moreover, people see inflation as the nation's biggest problem ever since the bout of price level rises of 2022/23. According to surveys conducted on behalf of the European Commission the percentage of respondents saying that inflation was one of the two most important issues in Germany increased by a quarter between the fall of 2025 and the spring of 2026 (Eurobarometer, 2026; Data Annex, pp. 41-45).

3. Economic Uncertainty – climbing the shock-by-shock ladder

As indicated in the introduction, we employed the same corpus of newspaper articles used for the construction of the IPI for our Uncertainty Perception Indicator (UPI). Methodology and research strategy are similar while, naturally, specifics and parameter settings differ.[2]

In recent years a series of major uncertainty shocks has hit: the Covid-19 lockdowns (March 2020), the Russian invasion of Ukraine (February 2022), the Hamas attacks on Israel (October 2023) and the subsequent Israeli destruction of Gaza, U.S. president Trump's pursuit of tariffs against virtually the whole world (April 2025), the U.S.-Israeli campaign against Iran and the ensuing oil and gas price increases (March 2026). All these events are represented as local maxima in the UPI curve (Fig. 4), whose frequency follows a rising trend since 2008, the year of the great financial crisis.

Figure 4: Uncertainty Perception Indicator (monthly values, polygonal trend, selected events)



Source: the authors

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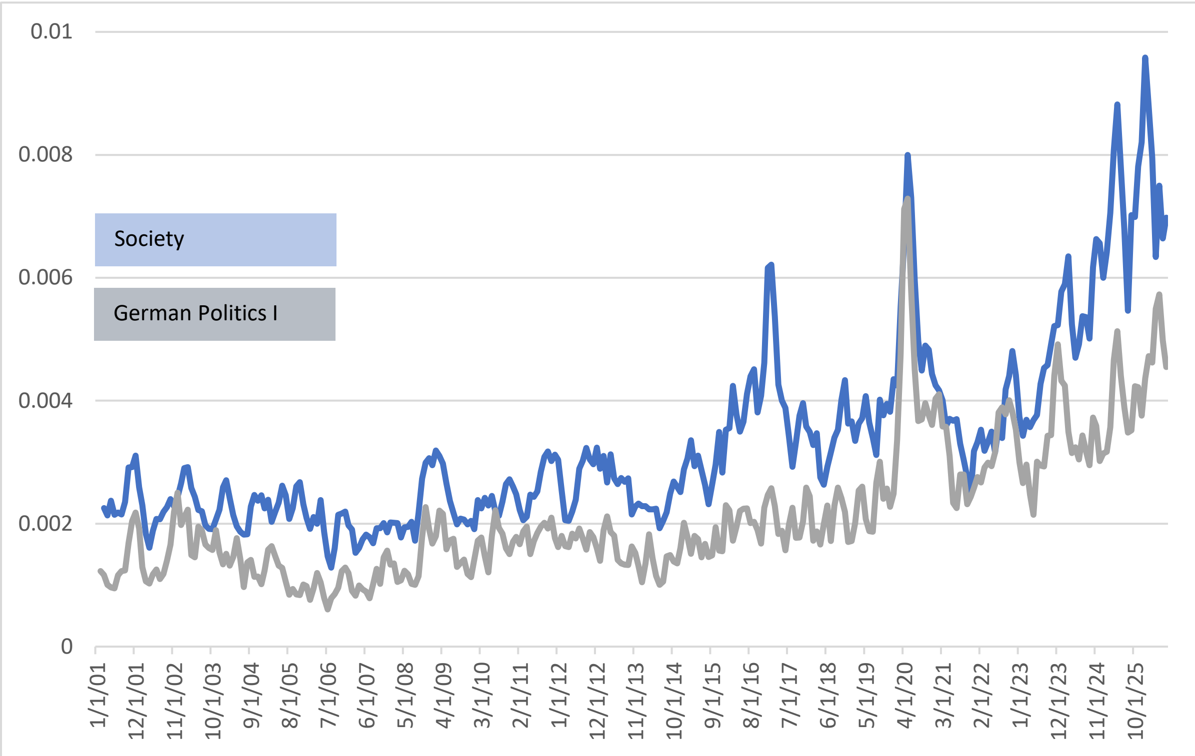
[2] For specifics see https://github.com/JonasRieger/upi/ and https://github.com/JonasRieger/ipi/

Figure 5: Selected Domestic Topics, three-month moving averages



Source: the authors

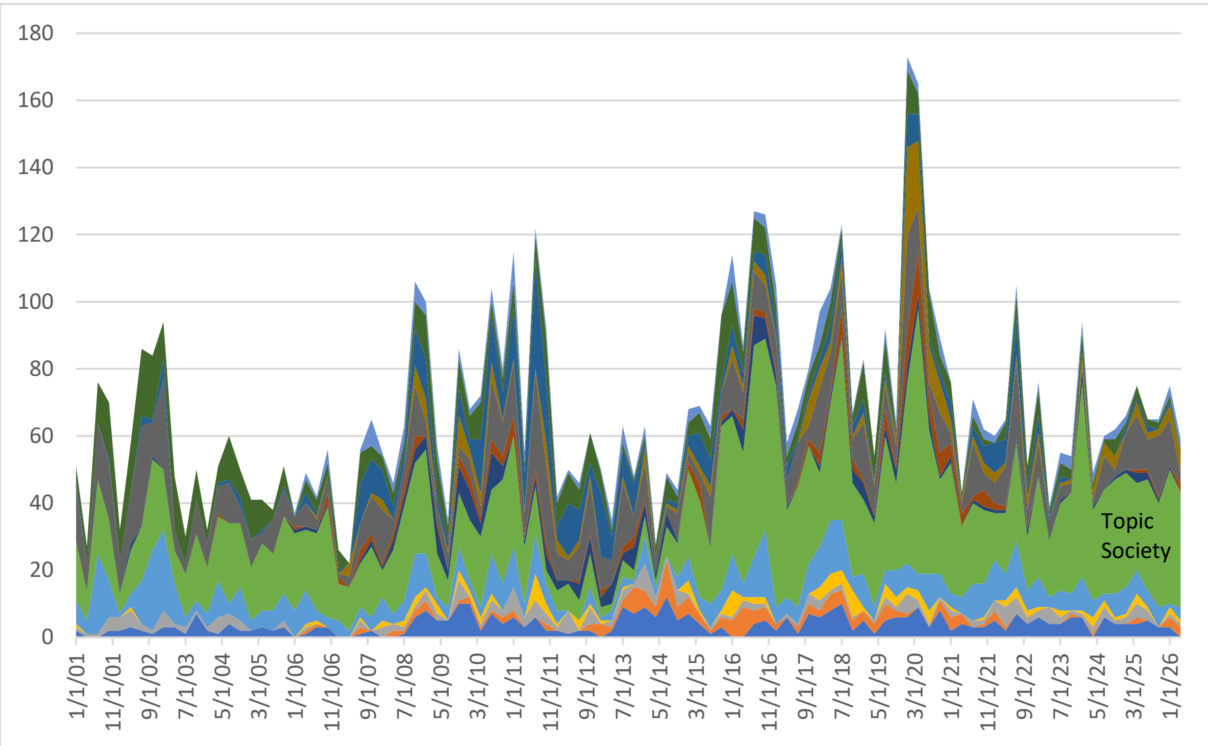
In the econometric analysis presented in Müller et al. (2025) we found that two topics were of particular relevance: German Politics I and Society. The former deals with debates about economic policy measures, for instance, looming changes in taxation or regulation that stoke uncertainty. The latter topic ponders more fundamental issues of social cohesion, identity, justice and relates to grand discourses such as the nature of globalization, immigration, or capitalism. Both time series induce significant effects within the framework of our SVAR analysis.

Consider the graphs in Fig. 5. Both indicate that domestic conditions were quiet until the mid-2010s. (In Müller et al. 2018, we dubbed this period "Merkel's calm", after the long-term chancellor of the Federal Republic.) Things changed with the surge in immigration of 2015/16 and the following electoral success of the extreme-right AfD party. Ever since, societal conditions have stayed volatile. In the period following the Covid shock of 2020, debates about anti-pandemic measures ensued, pushing the frequency curve of the topic Society to a peak. Instead of quickly returning to the old normal of relative calm, the topic has stayed at levels indicating an animated social condition. Russia's full-scale invasion of Ukraine in 2022 put difficult questions concerning rearmament to a nation that had turned pacifist during the post-cold war decades.

Domestic Politics in a more traditional sense have also contributed to overall uncertainty. Federal elections with hardly predictable outcomes triggered local peaks in the topic's curve progression. Intense but often inconclusive policy debates have come to dominate the topic. In 2024 first a new law to cut heating emissions, and quarrels over fiscal policy later that year, featured prominently. Towards the end of the observation period welfare state reforms dominated the content.

More recently, crumbling affluence in a stagnant economy has also become an issue. Like domestic political topics, the salience of the topic German Economy within the uncertainty corpus has been following a rising trend for years. "Angst" (fear) has been part of the Society topic's characteristic vocabulary, as Fig. 6 illustrates.

Figure 6: The Fear Gauge: mentions of the word "Angst" by topic per month



Source: the authors

4. Conclusion – acting without knowing

In this short research note we updated the Inflation Perception Indicator (IPI) and the Uncertainty Perception Indicator (UPI). Both remain at elevated levels, with recurrent spikes indicating considerable economic and societal stress, like lashes of the whip. Looking deeper into the topic structure we find that

– inflation coverage is not only dealing with the exogenous shock of rising oil prices due to the war against Iran but also with issues indicating other inflation-reenforcing factors such as second round effects;

– uncertainty is mainly driven by domestic developments which is particularly worrying, as the economic effects of asymmetric uncertainty shocks tend to be more severe the closer they occur to home.

To put things in a wider perspective, our results underline the notion that narratives matter. Narratives offer a mental model linking causes and effects. They add meaning to observations by putting them in a broader context and by pointing to likely future developments. They serve as *folk models* – convincing, albeit rudimentary, explanations of economic reality (Roos and Reccius, 2024), formulated and popularized not least by the media (Müller, 2025).

Once a story – whether about on-going price increases or about the unmooring of the political framework – becomes ingrained, and people start acting accordingly, personal experience and media-transmitted perception reenforce one another. As expectations are being formed on this basis, it is getting harder to overwrite a gloomy narrative with a another, more benign version.

As far as inflation is concerned, the implications for policy makers are evident. Intervening early on is required to contain the spread of overly negative expectations. Hence, central bankers need to counter inflation narratives by communicating their goals and intentions as clearly as possible. This is a strong argument against the tight-lipped communication approach of Kevin Warsh, the new chair of the U.S. Federal Reserve who has pushed back against the instrument of forward guidance. But talking the talk is insufficient – central bankers need to walk it, too. Tightening monetary policy decisively in a timely manner is essential to signal intentions and augment them with material weight.

Uncertainty, in turn, needs to be mitigated by private and public institutions that are both robust and adaptable. Here, too, decisive (political) actions need to be coupled with effective communication. For example, at the time of writing it seems crucial that the German federal government's reform efforts are yielding some meaningful results soon, given the relevance of domestic sources of uncertainty, with regard to private investment decisions in particular.

No doubt, we live in interesting times. "Managing the unexpected" requires "both anticipation and resilience, a combination that we call *mindful organizing*", as management scientists Karl Weick and Kathleen Sutcliffe (2015, p. vii, italics in original) have stressed. Mindfulness in this sense presupposes imagination: the ability to connect tiny bits of information that may point to future calamities, and then act early on. To achieve this, obtaining and monitoring finely grained data is a precondition. What economists call uncertainty, or an exogenous shock, in effect means that individuals, societies and their institutions are repeatedly confronted with situations characterized by complex interdependencies they do not fully understand. Yet, *when the whip comes down,* they must act. To do so they need a theory of what's going on. If they cannot resort to a well-established theory, a sensible narrative will do (e.g., Tuckett and Nicolic, 2017). Our indicators strive to help decipher economically relevant social narratives, even if these stories are only latently present in public discourse.

References

Azqueta-Gavaldón, A., Hirschbühl, D., Onorante, L. & Saiz, L. (2023). Sources of economic policy uncertainty in the euro area. *European Economic Review* 152. https://doi.org/10.1016/j.euroecorev.2023.104373.

Baker, S.R., Bloom, N., & Davis, S. J. (2016). Measuring economic policy uncertainty. *Quarterly Journal of Economics* 131(4), 1593–1636, https://doi.org/10.1093/qje/qjw024.

Deutsche Bundesbank (2026): Studie zu Inflationserwartungen von Konsumenten. (accessed June 10, 2026) https://www.bundesbank.de/de/bundesbank/forschung/studie-zu-erwartungen-von-privatpersonen-bop-hh/inflationserwartungen-849084.

European Commission (2026). Standard Eurobarometer Survey. QA3, various volumes. https://europa.eu/eurobarometer/surveys/detail/3378.

Müller, H. (2025). Narratives and the media. In: I. Köhler, L. Lenel, A. Nützenadel und J. Streb (Hrsg.), The Routledge Handbook of Economic Expectations in Historical Perspective, Routledge, London.

Müller, H., Blagov, B., Rieger, J., Schmidt, T. & Jentsch, C. (2025). The macroeconomic impact of asymmetric uncertainty shocks. *The Journal of Economic Asymmetries* 31. https://doi.org/10.1016/j.jeca.2025.e00410.

Müller, H., Schmidt, T., Rieger, J., Hornig, N. & Hufnagel, L. M. (2023). The inflation attention cycle. Updating the Inflation Perception Indicator (IPI) up to February 2023 – a Research Note. *DoCMA Working Paper* #13. http://doi.org/10.17877/DE290R-23141.

Müller, H., von Nordheim, G., Boczek, K., Koppers, L. & Rahnenführer, J. (2018). Der Wert der Worte – Wie digitale Methoden helfen, Kommunikations- und Wirtschaftswissenschaft zu verknüpfen. *Publizistik* 63(4), 557–582. https://doi.org/10.1007/s11616-018-0461-x.

Projektgruppe Gemeinschaftsdiagnose (2026). Energiepreisschock überlagert Fiskalimpuls – Wachstumskräfte versiegen. *Gemeinschaftsdiagnose #1-2026*. https://gemeinschaftsdiagnose.de/wp-content/uploads/2026/04/IfW_Kiel_GD_1_2026_final.pdf.

Rieger, J., Hornig, N., Schmidt, T. & Müller, H. (2023). Early warning systems? Building time consistent perception indicators for economic uncertainty and inflation using efficient dynamic modeling. *Proceedings of the 3rd Workshop on Modelling Uncertainty in the Financial World*. https://drive.google.com/file/d/1HAszdA2IE_3JiWJhthxIc5egQ6C-SLie/view?usp=share_link.

Rieger, J., Jentsch, C. & Rahnenführer, J. (2021). RollingLDA: An update algorithm of latent Dirichlet allocation to construct consistent time series from textual data. *Findings of the Association for Computational Linguistics: EMNLP 2021*, 2337–2347. http://dx.doi.org/10.18653/v1/2021.findings-emnlp.201.

Roos, M. & Reccius, M. (2024). Narratives in economics. *Journal of Economic Surveys* 38, 303–341. https://doi.org/10.1111/joes.12576.

Schmidt, T. (2025). Narrating inflation: How German economic journalists explain post-Covid price rises, *DoCMA Working Paper* #14. http://dx.doi.org/10.17877/DE290R-25380.

Schmidt, T., H. Müller, J. Rieger, T. Schmidt & C. Jentsch (2026). Changing inflation perception and the propagation of news shocks. *Empirical Economics* 71(30). https://doi.org/10.1007/s00181-026-02964-9.

Tuckett, D. & Nikolic, M. (2017). The role of conviction and narrative in decision-making under radical uncertainty. *Theory & Psychology* 27.4, 501–523. https://doi.org/10.1177/0959354317713158.

Weick, K. & Sutcliff, K. (2015). Managing the unexpected. Sustained Performance in a Complex World. Third Edition. Wiley