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Working Paper

"Economic Discomfort" in Germany 1951 to 2021: Results and policy implications

Working Paper, No. 183

Provided in Cooperation with:

University of Leipzig, Faculty of Economics and Management Science

Suggested Citation: Heilemann, Ullrich; Schuhr, Roland (2025) : "Economic Discomfort" in Germany 1951 to 2021: Results and policy implications, Working Paper, No. 183, Universität Leipzig, Wirtschaftswissenschaftliche Fakultät, Leipzig

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Wirtschaftswissenschaftliche
Fakultät
Faculty of Economics and
Management Science

Working Paper, No. 183

Ullrich Heilemann / Roland Schuhr

**"Economic Discomfort" in Germany 1951
to 2021 – Results and Policy Implications**

Mai 2025

ISSN 1437-9384

"ECONOMIC DISCOMFORT" IN GERMANY 1951 TO 2021 – RESULTS AND POLICY IMPLICATIONS*

Ullrich Heilemann^{**} and Roland Schuhr^{***}

Summary

Okun's misery index (MI), the sum of unemployment rate and inflation rate, is a popular measure of the state of the economy and thus of (macro) "Economic Discomfort" as well as of government performance. We calculate the MI and some augmentations for Germany (until 1990: West Germany) for the period 1951–2021 and test them against a survey-based indicator of government performance ("ZDF-Politbarometer-Index"). The results support *Okun's* choice of variables, but reject its augmentation by the growth rate and the deficit ratio. Just as importantly, the effect of unemployment is almost twice as large as that of inflation, and both change considerably over time, as stability tests show. In assessing the performance of governments, MI rankings differ from those of their augmentations. Since the mid-1970s, however, the differences are limited. *Barro's* Misery Index, a comparative approach to assessing governments that is an alternative to MI, reaches opposite judgments than MI, but lacks empirical support. The implications for policymakers are both sobering and reassuring: as policy simulations and implied *Phillips type* trade-offs reveal, the sensitivity of MIs to macroeconomic policy is very low. This may not only hold for Germany given similar international evidence on MIs. The fact that the MI covers the two main macroeconomic objectives, is based on the latest official data, easy to calculate and internationally comparable makes *Okun's* Misery Index a useful indicator of Economic Discomfort for Germany as well.

Keywords: Macroeconomic discomfort, Misery Index, Barro Misery Index, Government popularity

JEL Classification: C 13, E 63, H 11

* Earlier versions of this paper have been presented at sessions of the *Sonderforschungsbereich 475 der Deutschen Forschungsgemeinschaft, Complexity Reduction in Multivariate Data Structures*, at the Annual meeting of the *Economic Policy Committee* of the *Verein für Socialpolitik* in Düsseldorf, 9 March 2023, at the 37th CIRET Conference, Vienna, 12 September 2024 and at the H.O. Stekler Research Program on Forecasting at the Center for Economic Research, *George Washington University*, Washington, DC, 20 September 2024. Comments and suggestions from the participants are gratefully received. Particular thanks go to *Neil Ericsson*, *Bruno Frey* and *Walter Krämer*. We thank the *Leibniz Institute for the Social Sciences*, Mannheim/Köln, for providing access to the ZDF Politbarometer data from its data archive GESIS. For excellent preparatory work, the authors are indebted to Ms *Mirja Helbig*, MS.

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In 1971, to summarise the state of the US economy, *Arthur Okun* defined an "Index of Economic Discomfort" (IED) as the sum of the current rates of unemployment and inflation (Janssen 1971). He did not say anything about the purpose or the rationale of his indicator.¹ But this did not prevent the Misery Index (MI), as it soon became known, from growing in popularity. After all, it is based on the two main statutory macroeconomic targets, unemployment and inflation, uses the most actual official data and is easy to calculate. From its introduction, however, MI has also been used to assess the performance of governments and politicians.² As for Germany (West Germany until 1990), there is little and no recent work on the descriptive capacity of MI, and only a few efforts to use it for policy evaluation. The present article attempts to fill this gap. Furthermore, the implications of the findings will be explored, which would seem to be necessary for a proper evaluation of MI, but has so far been lacking.

Economic well-being and its determinants are the subject of research in many areas of the social sciences, leading to numerous modifications and augmentations of the MI even *avant la lettre*.³ For the US, these include, without being complete, house and stock prices (Lovell 1975, Council of Economic Advisers 1976, Hufbauer et al. 2008, Cohen et al. 2014), income distribution (Asher et al. 1993), economic growth and the long-term interest rate (Barro 1996, 69 ff, 1999), and real per capita income (Hanke 2014). Other major steps include re-specifications of labour market influences, introducing the expectation-augmented *Phillips Curve* or arguing for a distinction between recessions and expansions (Blanchflower et al. 2014, Cohen et al. 2014). *Okun* himself was quite open to the idea of replacing the unemployment rate in his index with income growth (Okun 1973).

Referring to results of Gallup polls, *Okun* also acknowledged the possibility of shifts of the weights of the two components depending on their levels (Okun 1986). In fact, different substitution rates in the preference function, which are also an interpretation of MI, did not receive much attention until the 2000s.⁴ The following tests of the selection and weighting of MI variables were made using indicators with more or less similar focus. For the US, these were the *University of Michigan's* Consumer Sentiment Index (Lovell and Tien 2000, Bolhuis et al. 2021) and for Europe, the *Eurobarometer* (Di Tella et al. 2001, 2003, Blanchflower et al. 2014, Welsch 2007). Lovell and Tien (2000) also examined the use

¹ Although much of *Okun's* work is about the relationship between unemployment and inflation, there are no references to his index in his writings. *Pechman* (1983, viii) has praise for it in the introduction to his selection of *Okun's* papers, but does not give a source. The exact purpose of the IED and the ideas that guided its construction are thus in the dark, which is surprising for an author as prolific as *Okun*.

² Prominent examples include presidential candidates and presidents *McGovern*, *Carter*, *Mondale*, *Reagan*, and *Clinton* (Greenspan 2007, 61 ff.). The MI was also occasionally cited by the *Council of Economic Advisers* (e.g. 1997, 22 f.) to illustrate the success of the president's policies.

³ On the role of unemployment and inflation in welfare and well-being studies, see Di Tella et al. (2001) and Blanchflower et al. (2014); in econometric election studies, see Fair (1996).

⁴ Not so in the political arena, as Federal Chancellor *Helmut Schmidt* put it in 1972: „Mir scheint, daß das deutsche Volk – zugespitzt – 5 % Preisanstieg eher vertragen kann als 5 % Arbeitslosigkeit.“ [It seems to me that the German people – to put it bluntly – would rather tolerate 5 % price increases than 5 % unemployment.] (*Süddeutsche Zeitung*, 28 July 1972, 8).

of squared rates for unemployment and inflation, as in the literature on Political Business Cycles (Nordhaus 1989, Smyth et al. 1994), but found no evidence. Notwithstanding this criticism in detail, the reductionist, descriptive approach of MI did not meet with any fundamental objections.

Despite this criticism in detail, the reductionist, descriptive approach of MI did not meet with any fundamental objections. This is not the case for its use as a measure of government performance, even though unemployment and inflation have been accepted as major determinants of presidential popularity since at least the 1970s (Mueller 1970, Fair 1996, Berlemann and Enkelmann 2014). But it was *Barro* who countered MI's static view of government performance with his – as he called it – "Barro Misery Index" (BMI) and its comparative, dynamic view on government performance. Its components differ somewhat from those of the MIs (see below), but most of all, the BMI focuses not on their averages over the term of a government or parliament, but on differences from its predecessors. *Barro* also did not provide a justification for his approach, in particular for using both unemployment and growth, two related variables.⁵ Compared with MI (or MI I, as it is referred to below), all augmentations, as well as BMI, are not only less simple, but also less actual and less easy to calculate. While BMI can be calculated for specific periods, it seems more appropriate to calculate it for entire terms of governments or legislatures, as *Barro* did.

For Germany, there are some studies and calculations for MIs (Welsch 2007, 2011, Lechmann 2009, Hanke 2014). For government assessment, there are only occasional journalistic accounts of chancellors (e.g. The Economist 2016, Gersemann 2017). The next section (I) fills this gap by presenting results for MI and two major variants for the period 1951–2021. To test MIs we use the "ZDF Policy Barometer Index" (PBI), a survey-based indicator of the populations' satisfaction with government performance. We look at the descriptive capacity of MIs, the weighting of components and their intertemporal stability. In Section II, governments, i.e. legislatures and chancellors, are first assessed using MIs and BMI. We then ask about the implications of our findings for economic policy, a question that seems to have received little attention so far. The final section (III) summarises results and addresses some emerging issues.

I Misery Indices 1951 to 2021

Starting point is *Okun's* definition:

$$(1) \quad \text{MI } I_t = a_1 \cdot u_t + a_2 \cdot \text{infl}_t$$

where u_t denotes the unemployment rate, infl_t the inflation rate, and $a_1 = a_2 = 1$.

⁵ *Barro* uses a variant of the BMI to assess the macroeconomic performance of British prime ministers (*Barro* 1996, 77 ff.). It adds up the change in the annual rate of inflation, the unemployment rate, the long-term interest rate and the "shortfall in GDP growth" during a Prime Minister's term in office, each compared with the respective results in the last year of his predecessor's term in office.

We also looked at two major augmentations of MI I:

$$(2) \quad \text{MI II}_t = a_1 \cdot u_t + a_2 \cdot \text{infl}_t + a_3 \cdot \text{gdp}_t$$

where gdp_t is the year-on-year rate of change in GDP (here and in the following unless otherwise indicated: real GDP), and

$$(3) \quad \text{MI III}_t = a_1 \cdot u_t + a_2 \cdot \text{infl}_t + a_3 \cdot \text{gdp}_t + a_4 \cdot \text{defq}_t$$

where defq_t is the percentage share of government net lending in nominal GDP, and $a_3 = a_4 = -1$.

With regard to the use of MI for the evaluation of governments, we ignored interest rates as they are not controlled by the German government. In any case, 10-year government bonds proved to be insignificant in all tests.

Data

The unemployment rate is calculated as the number of registered unemployed as a percentage of the dependent civilian labour force; data are from the Bundesagentur für Arbeit (2022). The inflation rate is the year-on-year change rate of the Consumer Price Index.⁶ These and the data on GDP and government net lending ('deficit') (national accounts data) are from the Statistisches Bundesamt (2006, 2022b, 2022c) and own calculations (defq) (Table 1, Appendix). Consistent information on changes in data definitions was only available for GDP⁷, but not for unemployment (definition, benefits, etc.), inflation (weighting schemes) and deficit. We therefore assume that preferences are irreflexive for such changes.

As most of the data is trended, indices have also been calculated using de-trended data. The relations between original index values and trend-adjusted values hardly differ, so original values are used below.⁸ Table 2 shows summary statistics.

Results

MIIs and their components have evolved differently (Figure 1, Panel A). Unemployment is dominating all MIIs. The share of inflation increased until the 1980s, but then declined. Until the first recession (1966/67), unemployment and inflation were more than offset by (positive) growth rates and deficit ratios (Figure 1, Panel B and C). Subsequently, the 'negative' deficit ratios increased Economic Discomfort, except for the years 2012–2019.

⁶ Results change only marginally when absolute values are used, assuming that negative inflation rates increases Economic Discomfort.

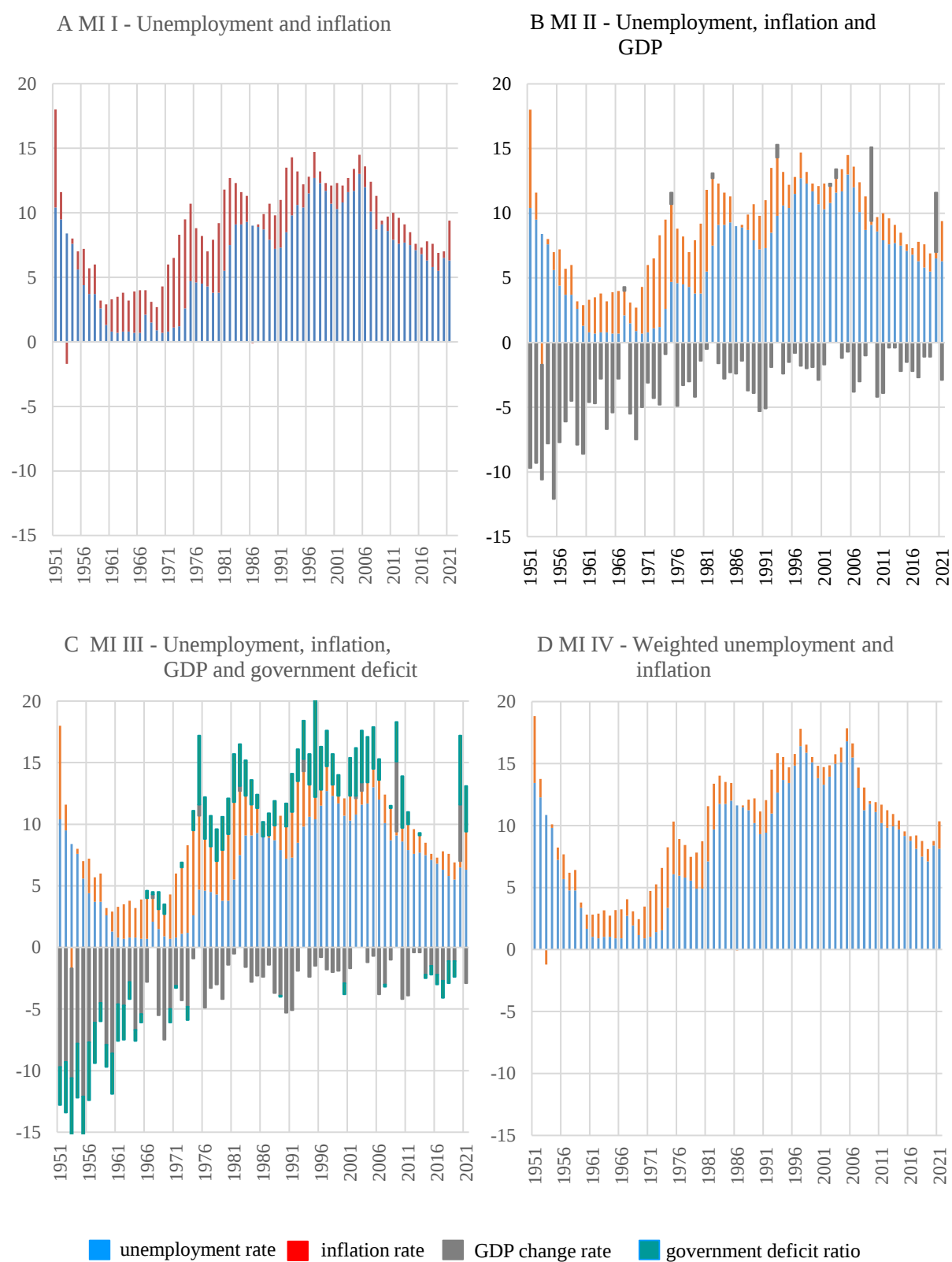
⁷ For the impact of revisions on GDP, especially for the 1966/67 recession, see R  th (2009). For a discussion of the importance of changes in the definition of US inflation for the explanation of the *University of Michigan's Consumer Sentiment Index*, see Bolhuis et al. (2024).

⁸ These, as with all other data and results referred to but not shown here, are available from the authors.

Table 2: Summary statistics

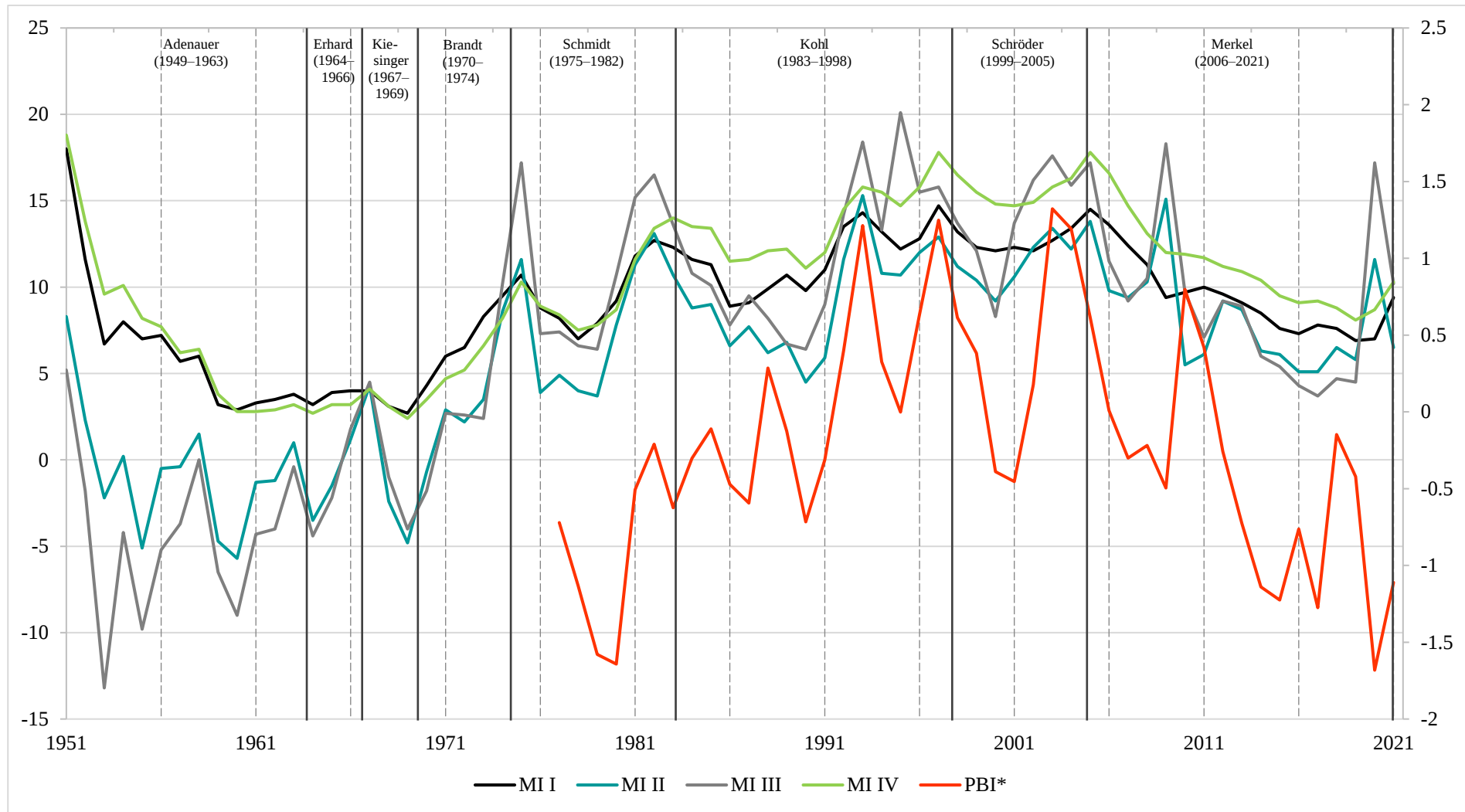
	Minimum	Maximum	Mean	Standard deviation				
Annual data 1951–2021								
u	0.7	13.0	6.6	3.7				
infl	−1.7	7.6	2.5	1.8				
gdp	−5.7	12.1	3.1	3.1				
defq	−9.4	11.0	−0.8	3.1				
MI I	2.7	18.0	9.1	3.5				
MI II	−5.7	15.3	5.9	5.4				
MI III	−13.2	20.1	6.7	7.8				
MI IV	2.4	18.8	10.3	4.5				
Monthly data 1977-3–2021-9								
u	3.3	13.4	8.6	2.4				
Δu^1	−0.7	0.8	0.0	0.1				
infl	−1.0	7.2	2.1	1.5				
gdp	−9.9	9.5	1.7	2.3				
defq	−6.3	2.3	−1.9	1.8				
MI I	6.4	15.3	10.7	2.3				
MI II	−1.0	17.3	9.0	3.3				
MI III	2.0	22.2	10.9	4.4				
MI IV	7.0	18.6	12.6	2.9				
PBI	−1.7	2.1	0.2	0.8				
Correlations, annual data 1951–2021								
	Δu^1	infl	gdp	defq	MI II	MI III	MI IV	PBI
u	0.07 (0.11)	−0.35 (−0.38)	−0.32 (−0.10)	−0.33 (−0.25)				
Δu^1		0.39 (0.36)	−0.63 (−0.48)	−0.56 (−0.48)				
infl			0.02 (0.14)	−0.19 (0.20)				
gdp				0.67 (0.26)				
MI I					0.84 (0.75)	0.76 (0.70)	0.97 (0.96)	— (−0.74)
MI II						0.96 (0.91)	0.83 (0.75)	— (−0.56)
MI III							0.73 (0.67)	— (−0.50)
MI IV								— (−0.79)

Own calculations. Abbreviations see text, data see [Table 1](#) (Appendix). In (...) results for 1977–2021. ¹ Year-on-year differences of unemployment rates.

Figure 1: Misery indices, 1951–2021

Own calculations. For data, see [Table 1](#) (Appendix).

Figure 2: Misery Indices and Policy Barometer Index¹, 1951 to 2021



Own computations. MI I to MI IV: left scale. – ¹ PBI* = – PBI: right scale. – Terms of federal chancellors: solid vertical lines.

All three MIs paint a similar picture of Economic Discomfort. However, due to high GDP growth, their levels differ considerably in the first two decades ([Figure 2](#)). MI II and MI III are more volatile than MI I, and their upper and lower turning points are also different. As a result of declining growth and rising unemployment since the 1970s, unemployment increasingly dominates all MIs. Local minima and maxima only differ markedly during the financial crisis and the COVID-19 crisis.

Tests

To test the validity of the MIs and their components, we use the PBI, a survey-based indicator designed to measure how people rate their government. The PBI is based on the "Scalometer Government", part of the "Politbarometer" of the Forschungsgruppe Wahlen, conducted on behalf of the Zweites Deutsches Fernsehen (ZDF) since March 1977. It is the longest and most comprehensive non-electoral survey on the attitudes of the German population towards political parties, politicians and the current political agenda (Forschungsgruppe Wahlen, Mannheim 2025). The survey asks a representative sample of the population, at varying intervals throughout the year, to rate the performance of the current federal government on a scale of -5 (strongly disagree) to +5 (strongly agree).

The MIs and their components were tested using three sets of equations ([Table 3](#)). The first set (equations [1], [2] and [3]) looks at direct relationships between MIs and PBI, the second set ([4], [5] and [7]) on the influence of the components of MIs. The third set ([6] and [8]) examines specific extensions of [4] following Mueller (1970) and subsequent modifications (see, for instance, Berlemann and Enkelmann 2012, 2014). A lagged equation is added in sets two and three ([7] and [8]). As in Lovell and Tien (2000) for the US, quadratic rates of unemployment and inflation were rejected.

Data and estimation

The period studied begins in 1977-3 and ends in 2021-9. Since March 1977, the Forschungsgruppe Wahlen has surveyed around 1,000 citizens in West Germany, including West Berlin, and around 500 citizens in the new federal states following reunification in 1990, including East Berlin, on their opinion of the government between five and 16 times a year. As before after federal elections, no survey was conducted immediately after the elections in the fourth quarter of 2021 (the end of *Angela Merkel's* chancellorship). The PBI data used are own calculations of monthly averages of the survey results (GESIS–Leibniz Institute for the Social Sciences data archive, Forschungsgruppe Wahlen Mannheim 2025). The new federal states are heavily over-represented in the sample. To compensate for this, we calculated monthly averages weighted by the shares of the new federal states and West Germany in total resident population in respective years. Up to 2000, shares include only West and East Berlin (Statistisches Bundesamt 2022a). For 1996–1998, for which we could not make this adjustment, unweighted averages were used. Missing data were imputed by linear interpolation.

Monthly unemployment and inflation rates are also taken from official statistics. As seasonally adjusted unemployment rates are not available for the entire period 1977–2021, they have been

calculated using the *Loess* method (Cleveland et al. 1990). Monthly GDP growth and deficit ratio data, also not available from official statistics, were calculated from smoothed (HP filter, $\lambda=1$) quarterly GDP and deficit data.

To test for omitted variables, equations in the third set were augmented by eight 'event variables' and six 'government variables' (Berlemann and Enkelmann 2012). We looked at whether approval increased in times of crises ('Rally-around-the-flag'-effect), whether the first twelve months of a new government saw an increase in approval due to a "stimulus of the new" ('Honeymoon'-effect) and whether approval diminished with length of time in government ('Time-in-office'-effect). The 'Chancellor' variables were introduced to control for chancellors' political agenda and personal characteristics ([Overview](#)). The selection of events particularly focussed on economic crises. Events cover 57 % of the study period. The impact of government variables of all but one of the event variables is captured by dummy (0/1) variables.

Overview: Event and government variables, 1977–2021

Subject	Short description	Specification and dating (Dummy variables)
Event variables		
The period between the fall of the Berlin Wall on 9 November 1989 and to the entry into force of the Unification Treaty on 3 October 1990	Wende	1989-11 to 1990-9
Post-reunification adjustment period	Reunification	Linear decreasing from 1.0 to 0.0, 1990-10 to 2004-9
Crisis of the European Monetary System (EMS)	EMS crisis	1992-9 to 1993-8
Bursting of the speculative bubble concerning the share prices of dotcom companies in 2000	Dotcom bubble	2000-3 to 000-12
Global financial crisis	Financial crisis	2008-9 to 2009-12
Sovereign debt crisis in the Euro area (beginning of the Greek crisis until 'Whatever it takes')	Euro crisis	2010-1 to 2012-12
Migration crisis (from August 2015 until conclusion of the EU agreement with Turkey in March 2016)	Migration crisis	2015- to 2016-3
COVID-19 pandemic (from 27 March 2020 until the end of the study period)	COVID-19	2020-4 to 2021-9
Government variables (time-in- office)		
Helmut Schmidt	Schmidt	1977-3 to 1982-/9
Helmut Kohl	Kohl	1982-10 to 1998-10
Gerhard Schröder	Schröder	1998-11 to 2005-11
Angela Merkel	Merkel	2005-12 to 2021-9
Honeymoon-effect	Honeymoon	First 12 months of a chancellor's first term in office
Number of previous terms-in-office of a chancellor	Time-in-office	Count variable with the values 0, 1, 2 and 3

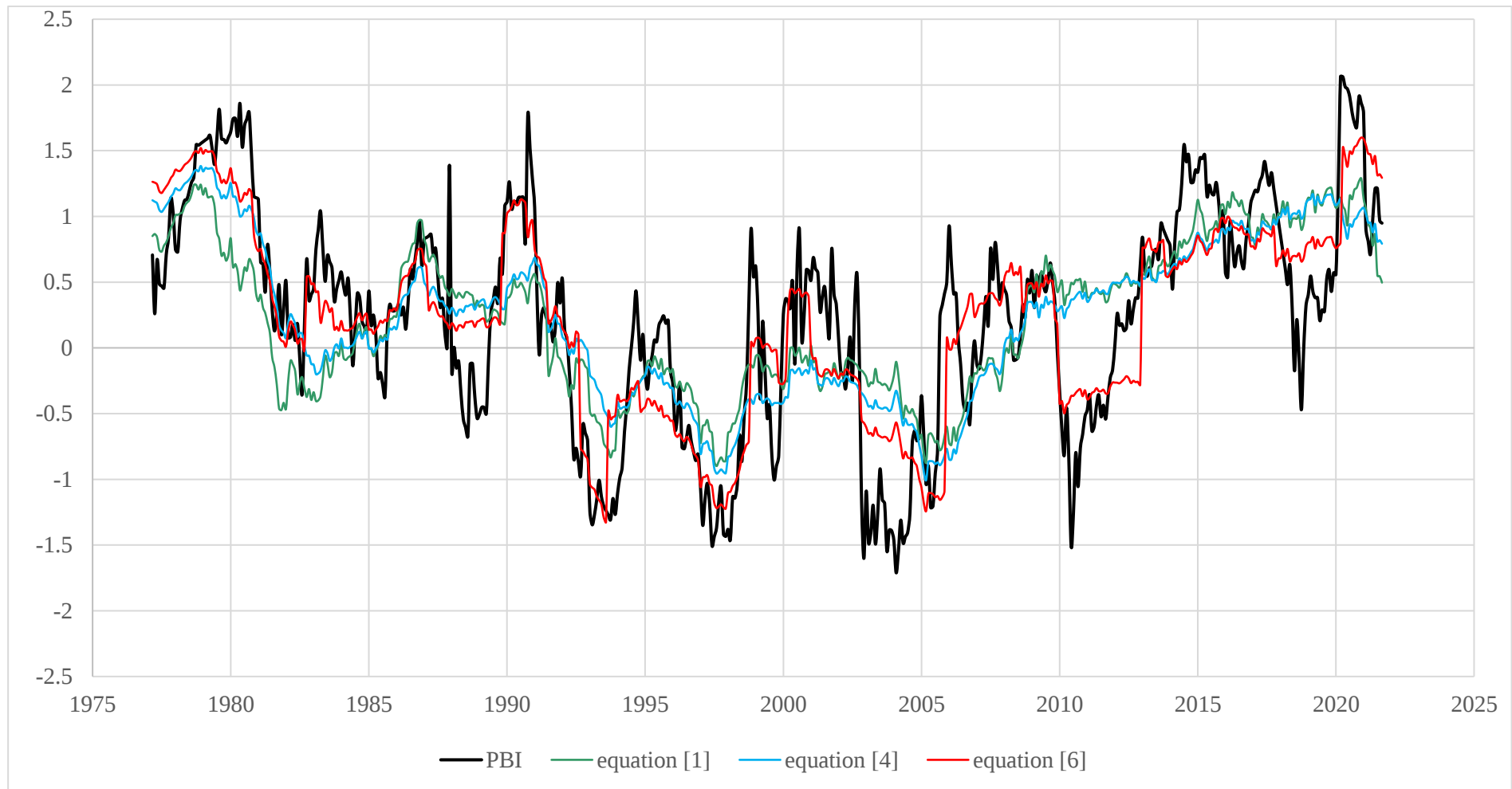
Sources: Heilemann and Kaufhold 2019, daily press and own estimates.

Table 3: Policy Barometer Index: regression results, 1977-3 to 2021-9

Variables	Equations							
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Intercept	2.839***	1.301***	0.918***	2.778***	2.764***	2.905***	0.281***	0.460***
MI I	-0.244***							
MI II		-0.120***						
MI III			-0.070***					
u_t				-0.265***	-0.260***	-0.242***	-0.026***	-0.036***
$infl_t$				-0.129***	-0.121***	-0.133***	-0.016*	-0.023**
gdp_t					-0.021			
$defq_t$					0.013			
Wende						0.722***		0.117*
Reunification						0.505**		0.050
EMS crisis						-0.876***		-0.152**
Dotcom bubble						0.493***		0.097
Financial crisis						-0.369***		-0.095*
Euro crisis						-0.988***		-0.165***
Migration crisis						0.116		-0.017
Covid 19						0.839***		0.080
Schmidt						0.181		0.029
Kohl						0.062		0.016
Schröder						-0.431***		-0.084*
Merkel						0.188**		0.038
Honeymoon						0.236		-0.015
Time-in-office						-0.254***		-0.046***
PBI_{t-1}							0.899***	0.838***
N	535	535	535	535	535	535	534	534
$\overline{R^2}$	0.466	0.232	0.216	0.521	0.518	0.708	0.904	0.905
SE	0.608	0.729	0.736	0.575	0.577	0.202	0.258	0.256
F-Statistic	466.6***	162.7***	147.7***	146.3***	144.6***	87.27***	1678***	318.3***
Durbin-Watson	0.215***	0.151***	0.141***	0.215***	0.215***	0.405***	—	—
Durbin-h	—	—	—	—	—	—	0.496	0.058
OLS-CUSUM	3.171***	2.860***	3.084***	1.566**	1.580**	1.127	0.592	0.577

Own computations. Sources see text. [1] to [5]: OLS and *Newey-West* results; [6]: Restricted OLS and *Newey-West* results; [7] and [8]: *Koyck* equations with unrestricted and restricted OLS parameter estimates. Significance code: *** $0 < p \leq 0.01$; ** $0.01 < p \leq 0.05$; * $0.05 < p \leq 0.1$

Figure 3: Policy Barometer Index and explanations, 1977-3 to 2021-9



Own computations. Source [Table 3](#).

Estimations were made with OLS and GLS (including *Cochrane-Orcutt* and *Prais-Winsten* methods). GLS results did not fit well and are not shown here. No significant omitted variables bias was found. Equations [6] and [8] were estimated under the constraint that the coefficients of chancellor-dummies add up to zero.⁹ This allowed dummy coding without specifying a reference category. Due to strongly autocorrelated disturbances, standard errors of coefficients are *Newey-West* HAC estimates.

Estimation results

Equations vary widely in explanatory power (Table 3). Equations [1] to [6] show significant autocorrelations. Lagged effects of single coefficients were not found, but *Koyck* lags were significant. The large θ for PBI_{t-1} implies markedly lower short-term reactions. The mean lag ($\theta/(1 - \theta)$) is nine and five months respectively, which is similar to the findings of Lovell and Tien (2000) for the US and Di Tella et al. (2001) for twelve European countries.

All MIs are significant, but fit is best for MI I by considerable margins (Table 3). In terms of weights, the results are broadly similar. Unemployment is weighted about twice as high as inflation ([4], [6]).¹⁰ Coefficients of both *gdp* and *defq* ([5]) are very small and not significant.¹¹ Event and government variables improve fit ([6]) and coefficients of unemployment and inflation are converging. Altogether, equations [1], [4] and [6] explain PBI well (Figure 3). But crises are only moderately captured, especially with the removal of the event and government variables. Mean elasticities of unemployment and inflation in [4] and [6] are similar (-9.9/-9.0 and -1.2/-1.2, respectively) (Table 4, Appendix). The *Koyck* equations ([7] and [8]) support the earlier results. The mean long-run elasticities of -9.6/-8.1 (*u*) and -1.4/-1.3 (*infl*) are similar to the mean elasticities of [4] and [6].

The intertemporal stability of the equations varies, as OLS CUSUM tests (Ploberger and Krämer 1992) reveal. While the parameters of the *Koyck* equations are stable, those of most other equations vary widely. The null hypothesis (constant parameters) only holds for [6] (Figure 4, Appendix). Nevertheless, 20-year moving window estimates show fluctuating impacts of the variables (Figure 5,

⁹ Computations were made using R (version 4.4.2) and the add-on packages *strucchangeRcpp*, *gets*, *lmtest*, *car*, *orcutt* and *prais*. The restricted OLS estimator follows the *Lagrange* approach of Greene and Seaks (1991).

¹⁰ The null hypotheses of equal weights in equations [4] and [6] are both rejected by *Wald* tests (with HAC covariances) at the 1% significance level ($F = 8.150^{***}$ ([4]) and $F = 6.884^{***}$ ([6])).

¹¹ Based on *Eurobarometer* data from 1992–2002, Welsch (2011) finds a significant negative impact of unemployment and inflation, and a significant positive impact of growth. Using PBI data and our unemployment and inflation data for the same period, we find similar significant influences for all three variables of the "magic triangle". However, this is a one-off exception. Outside this period, the impact on growth is negligible or even negative and not significant.

Appendix).^{12, 13, 14} Inflation outweighs unemployment only between 1994 and 1999. Yet it is unclear whether this reflects the Euro crisis and its aftermath, the sudden jump in unemployment, the difficulties in the database described above, or real changes in preferences.

To account for the different weights of unemployment and inflation, we calculated MI IV using coefficients from [6] and the restriction $a_1^* + a_2^* = 2$:

$$(4) \quad \text{MI IV}_t = a_1^* \cdot u_t + a_2^* \cdot \text{infl}_t$$

where $a_1^* = 0.242 \cdot 5.333 = 1.291$ and $a_2^* = 0.133 \cdot 5.333 = 0.709$.

It is clear that MI IV figures must be higher than those of MI I, especially since 1980, and the two are highly correlated.

Events and governments

Even though the results for the event variable and the government variable are not of immediate interest in this study, they are worth noting. 'Reunification' and 'Covid 19' both generate strong 'Rally-around-the-flag' effects, while the 'Migration crisis' effect is very small, reflecting strongly divided opinions on this event. The impacts of economic crises ('EMS', 'Financial crisis' and 'Euro crises') are highly negative and significant, except for the 'Dotcom bubble', which is highly positive and significant in [6], but insignificant in [8].

For government variables, only results for Schröder (−) and Merkel (+) are significant. The impact is less than the impact of most economic crises. The (overall) 'Honeymoon effect' has a different sign in [6] and [8] and is not significant in either equation, while the 'Time in office'-effect " is both large and significant. At the end of each chancellor's term, PBI falls by 0.25 points, or about 6% of the 3.8 point range of the index.

To sum up: MI I provides a plausible and, since 1977, tested picture of the population's Economic Discomfort. The results support *Okun's* choice of variables, but not his weighting: The response of PBI to unemployment is on average almost twice as strong as to inflation, but this change over time. Finally, while the MIs are based entirely on the latest data, the PBI results suggest a strong memory for the past six months as well.

¹² Lovell and Tien (2000) for the USA and Welsch (2007) for Germany found only one structural break, though for smaller samples.

¹³ Regarding the misery ratio (u/infl), our results differ markedly from those of Blanchflower et al. (2014), which, however, are based on Eurostat data, but their trends are broadly the same.

¹⁴ Results from the impulse indicator saturation method (IIS) and the step-indicator saturation method (SIS) (Pretis et al. 2018) seem to confirm this. Equations [1] to [6] show structural breaks of different sizes, while the *Koyck* equations are stable.

II Government evaluation

A comparison of MIs with government preference functions, which are in any case difficult to formulate in a multi-party parliamentary system such as that in Germany, is not possible as we do not have any information on them.¹⁵ In what follows, we evaluate the performance of legislatures and chancellors using MIs, PBI and a variant of BMI:

$$(5) \quad \text{BMI}_\tau^* = a_1 \cdot \Delta u_\tau + a_2 \cdot \Delta \text{infl}_\tau$$

where Δu_τ and Δinfl_τ denote the changes during the respective legislature/term-in-office (τ) and $a_1 = a_2 = 1$. Results are given in [Table 5](#) (Appendix).

The indicators cover two or three of Germany's four main statutory macroeconomic targets since 1967, when the “Stability Act” came into force, although unemployment and price stability were also key targets before then. Much the same applies to the government deficit targets before the entry into force of the Maastricht Treaty (1993).

For each legislature (Bundestag) (19 periods) and each chancellor (eight periods), average scores were calculated for each indicator. As the scores are not comparable, we look at rankings.

Without going into too much detail, for legislatures the transitions from MI I to MI II and MI III lead to few markedly different rankings ([Table 6](#), Appendix), as might be expected given the high positive correlations of the indices. Regarding transitions from MI I to MI II, the shift of the six ranks for Adenauer I (+) and Merkel IV (-) stand out. Similarly, when comparing the results of MI I with those of MI III, there is a high correspondence between the ranks at the top and bottom of the league table. MI IV rankings, calculated on the assumption that the weights of the components also apply before 1977, differ only slightly from MI I results. MI I and PBI rankings are identical for seven legislatures. Only the Schmidt/Kohl and Merkel II legislatures (slightly apart from MI IV rankings) show major differences. BMI* ranking does not match that of MI I for any single legislature. In particular, Merkel I, Brandt I, Adenauer/Kiesinger, Kohl I and Schröder I differ by ten or more ranks. The much higher BMI* rankings of Merkel I, Schröder I and Kohl I compared to Schröder II, Kohl IV and Schmidt/Kohl are noticeable, also when compared to the results of MI I.¹⁶

The rankings of the chancellors do not differ much from those of the legislatures, but of course the frequency of changes of positions is lower. MI III, in which Adenauer replaces Kiesinger at the top of the list, again shows the greatest differences from MI I. Only twice does the ranking change by more than

¹⁵ The macroeconomic targets stated in the “Stabilitätsgesetz” (Stability Act) have only been quantified occasionally and differently by federal governments. The “Jahreswirtschaftsbericht der Bundesregierung” (Annual Economic Report of the Federal Government) contains only 'projections' of their expected development.

¹⁶ BMI* correlates weakly with MIs. Across all legislatures, the rank correlations are 0.20 (BMI*/MI I), 0.09 (BMI*/MI II), 0.07 (BMI*/MI III) and 0.09 (BMI*/MI IV).

one position (Table 7). Again, BMI* rankings are often very different from those of MIs.¹⁷ Chancellors Merkel and Adenauer are at the top of the list, while Kiesinger and Brandt are at the bottom.

The variance of all MIs within chancellorships is significantly lower than the variance between them, as a one-way ANOVA shows (Table 7).¹⁸ However, differences in chancellor performance narrow considerably over time, especially for MI II and MI III (Figure 2). MI IV is the most discriminating MI from 1977 onwards and also over the whole period.

Table 7: Ranks of chancellors and ANOVA results, 1951–2021 (1977–2021)

Chancellors	MI I		MI II		MI III		MI IV		PBI		BMI*	
	Ø	Rank	Ø	Rank	Ø	Rank	Ø	Rank	Ø	Rank	Index	Rank
Adenauer	6.5	4	−0.6	3	−4.4	1	7.6	4	—	—	−1.6 ¹	2
Erhard	3.7	2	−1.3	1	−1.6	2	3	1	—	—	−0.1	6
Kiesinger	3.3	1	−1	2	−0.2	3	3.2	2	—	—	−0.7	4
Brandt	6.3	3	2	4	1.5	4	5	3	—	—	3.5	8
Schmidt	9.5	6	7.7	5	10.8	6	9.4	5	1.0	—	1.2	7
	(9.5)	(2)	(7.5)	(1)	(10.5)	(2)	(9.6)	(1)	(1)	(1)	(4)	(4)
Kohl	11.8	7	9.4	7	12.1	7	13.9	7	−0.1	—	−0.9	3
	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(2)	(2)
Schröder	12.8	8	11.7	8	14.4	8	15.7	8	−0.4	—	−0.4	5
	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(3)	(3)
Merkel	9.2	5	7.9	6	8.8	5	11.0	6	0.5	—	−5.3	1
	(1)	(1)	(2)	(2)	(1)	(1)	(2)	(2)	(2)	(2)	(1)	(1)
Ø	9.1		5.9		6.7		10.3		0.2		—	
ANOVA results												
SST	867.6		2039.4		4248.8		1419.5				—	
	(229.5)		(432.2)		(882.6)		(365.8)		(26.1)			
SSB	508.5		1434.4		3154.3		953.2				—	
	(93.9)		(85.8)		(181.4)		(188.1)		(9.2)			
SSW	359.1		604.9		1094.5		466.3				—	
	(135.6)		(346.4)		(701.2)		(177.7)		(16.8)			
F	12.7		21.3		25.9		18.4				—	
	(9.5)		(3.4)		(3.5)		(14.5)		(7.5)			

Own computations. Assignment of legislatures and governments to years based on the majority of months spent in each year. Results for 1977–2021 in (...). ANOVA variance decomposition: SST: sum of squares of differences between index values and their mean over all terms; SSB: sum of squares between terms; SSW: sum of squares within terms. F-ratio: $F = (SSB/(k-1))/(SSW/(N-k))$ with $N = 71$, $k = 8$ for 1951–2021 and $N = 44$, $k = 4$ for 1977–2021. – ¹ Excluding Adenauer I.

Policy implications

To complete the picture of policy evaluation, its policy implications are examined, an issues that seem to have received surprisingly little attention in the literature so far. The analysis is restricted to MI I. Readers can easily perform the analysis themselves for other MIs or for BMI*, although for the latter

¹⁷ See Barro (1999) for similar results comparing MI I and BMI for the ranking of US Presidents.

¹⁸ As data are autocorrelated, ANOVA requirements are not met. Nevertheless, the F-values indicate substantial differences in government ratings. Critical values for F-ratios (significance level 5 % and 1 %) are 2.159/2.937 (1951–2021) and 2.833/4.299 (1977–2021), respectively.

it is likely to be of less relevance. First, we look at the instrumental implications, asking how large interventions need to be to have a noticeable effect on MI I. Second, we examine the implications of MI I preferences in a *Phillips type* framework.

To answer the first question in an appropriate way would require a detailed structural macroeconometric model.¹⁹ As we did not have that possibility here, we took a shortcut. We used *Okun's Law*, a simplified way of looking at the relationship between growth and the unemployment rate.²⁰ More precisely, we used its difference-in-difference variant:

$$(6) \quad \Delta u_t = u_t - u_{t-1} = \beta \cdot (\text{gdp}_t - \overline{\text{gdp}}) + \varepsilon_t$$

where $\overline{\text{gdp}} = \frac{1}{n} \sum_{t=1}^n \text{gdp}_t$ and ε_t is the error terms with the usual assumptions.

Calculations are restricted to (annual) MI I and to the recession years 1967, 1975, 2009 and 2020. Fiscal policy responded to stabilise growth and employment with stimuli totalling around 1% of nominal GDP spread over up to three years (Heilemann and Wappler 2011). To assess their impact on u , it was (counterfactually) assumed that there were no stimuli. The assumption was that GDP growth in year t would be 1% lower than it actually was – so, from a historical perspective, the assumption was that there had been a very large stimulus. It doesn't matter whether this is achieved through expenditure or revenue measures, as multiplier differences are ignored. As the political-economic changes following reunification had a significant impact on fit and parameters of (6), in 1990 the estimation period was split in two (Tables 8, Appendix).²¹

In both periods, the impacts of the stimuli on u is small (and almost the same), so that the increase in the MI I is only around 0.2 index points (Table 9). The β (*Okun coefficient*) in the second sample is only 60% of that in the first one, but the decline of $\overline{\text{gdp}}$ is twice that in the first sample.

Put differently, to reduce MI I by 1 index point, GDP would have to increase by about 4% (1967, 1975) or 6% (2009, 2020). The stimuli needed for MI IV are somewhat smaller (1967, 1975: 3% and 2009, 2020: 4.5%). For MI II, of course, the effects of stimuli would be much greater.²² This also means, of course, that contractionary measures such as tax increases or cuts in public spending on the usual scale will not markedly increase Economic Discomfort.

¹⁹ The use of macroeconometric models, as in early studies of "political-economic systems" by Frey (1974) and Schneider (1978), still seem to be exceptions.

²⁰ For a detailed discussion of *Okun's Law* and results for advanced economies, see Ball et al. (2017).

²¹ The poor fit for 1991–2021 is attributable to the period 1998–2008 (Table 9, Appendix). For 2009–2021, R^2 improves to 0.76 and β is -0.133 . More breakdowns were not made as the effects for MI would be small, as shown in Figure 5 (Appendix). For explanations of the declining unemployment response to the growth gap after 1990, see Burda and Hunt (2011).

²² For reactions of similar size, see Projektgruppe Gemeinschaftsdiagnose (2010).

Table 9: Okun's Law and MI I: simulation results in recession years

	1967	1975	2009	2020
Model parameters				
$\frac{\beta}{\overline{\text{gdp}}}$	-0.269 4.359		-0.169 1.358	
Basic solutions				
$\text{gdp}_t - \overline{\text{gdp}}$	-4.7	-5.3	-7.1	-6.0
$\Delta u_t = \beta (\text{gdp} - \overline{\text{gdp}})$	1.3	1.4	1.2	1.0
$u_t^B = u_{t-1} + \Delta u_t$	2.0	4.0	9.9	6.5
MI I_t^B	3.9	10.0	10.2	7.0
Memory item: MI I_t	4.0	10.7	9.4	7.0
Simulation solutions				
Assumptions				
$\text{gdp}_t^S = \text{gdp}_t - 1.0$	-1.3	-1.9	-6.7	-5.6
Δinfl	0	0	0	0
Results				
$\text{gdp}_t^S - \overline{\text{gdp}}$	-5.7	-6.3	-8.1	-7.0
$\Delta u_t^S = \beta (\text{gdp}_t^S - \overline{\text{gdp}})$	1.5	1.7	1.4	1.2
$u_t^S = u_{t-1} + \Delta u_t^S$	2.2	4.3	10.0	6.7
MI I_t^S	4.1	10.3	10.4	7.2
MI $I_t^S - \text{MI } I_t^B$	0.2	0.3	0.2	0.2

Own calculations. B: Basic solution; S: Simulation solution. Differences in sums are due to rounding.

As regards inflation, the main policy lever currently available to German policy to have a direct and tangible impact on inflation in the short term is the change in VAT rates. However, nine out of ten VAT rate changes to date have been hikes (to increase revenue) and only one (2020) has been a reduction (to reduce inflation). On average, increase of the VAT rate was 1% point (-3 pp in 2020). The inflation rate increased by around 0.5% points and MI I by 0.5 index points. For MI IV, the effects of growth stimuli and VAT cuts are about the same. Overall, the results of the simulations differ little from those of the macroeconometric models cited. As for the effects of alternative interventions or external developments, the reader can easily calculate these using the above results.

To illustrate the pivotal role of preferences, we follow an approach used by Blanchflower et al. (2014, 133 f.). In a *Phillips type* framework, it shows the implications of inflation and unemployment preferences for monetary policy. Of course, it can also be applied to other policy areas. Assuming that the objective of monetary policy is the minimisation of a quadratic (!) loss function that includes weighted inflation and unemployment rates, subject to the constraint of a linear *Phillips curve* $\text{infl}_t = \gamma \cdot u_t$. The first order condition yields the slope of the curve

$$(7) \quad \gamma = - \frac{u_t}{\text{infl}_t} \bigg/ \frac{\beta}{\alpha}$$

where α and β denote the weights in the loss function.

Non-normalised MI IV weights for α (0.242) and β (0.133) and sample means $\bar{u}$ (8.59) and $\overline{\text{infl}}$ (2.10) result in a very steep *Phillips curve* with $\gamma = -7.45$ (for this and the following, see [Table 10](#), Appendix). A 1% point increase in the inflation rate reduces the unemployment rate by only 0.13% points. A fall in the unemployment rate of the same magnitude raises the inflation rate by 7.45% points, suggesting "a labour market with few and weak rigidities; prices react quickly to movements in aggregate demand" (Blanchflower et al. al. 2014, 134).²³ And even if unemployment and inflation are given an equal weighting (MI I), the resulting slope of -4.1 still is quite steep! The limits of monetary policy, at least when based on the above loss function, become even clearer when the trade-offs of MI I are compared with those of an empirical *Phillips curve*. The estimated slope of a simple *Phillips curve* for 1977-3 to 2021-9 is -0.220 , its implicit weight ratio β/α is 18.61, while those implied by the loss function are -7.45 and 0.55 respectively.

MI I's limited sensitivity to policy is largely due to the unemployment rate, which is difficult for the government to change, not to say manipulate, much in the short run. Given international evidence on weighting of MI components, this applies to most, if not all, developed countries.

Summing up this section: MI and PBI rankings of government performance differ mainly at the top and bottom of the scale, and these differences have narrowed considerably since the 1970s. The choice of indicators depends on whether government performance is to be measured in absolute or relative terms, the macroeconomic targets against which performance is to be measured, and the weighting of their empirical support. The picture given by the BMI* is the opposite of that of MIs. Its policy implications were not explored here, but based on rates of change, BMI*'s sensitivity is of course considerably higher than that of MI I.

III Summary and conclusions

As a descriptive measure, *Okun's misery index*, i.e. the sum of the rates of unemployment and inflation, provides a plausible picture of the Economic Discomfort of the German people. The index and two augmentations are tested over the years since 1977, with economic growth and the government deficit playing no role. But the tests also suggest that the weight of unemployment is about twice that of inflation, which is broadly in line with international evidence. The impact of both variables varied over time, but the dominance of inflation was brief and modest. In terms of a measure of government performance, MIs produce very different rankings, especially for the top and the bottom of the league table. Again, since the mid-1970s, the rankings have remained more or less the same. This is not the case with a modified version of the "Barro Misery Index", whose pictures of government performance are opposite to those of the MIs and the PBI. Thus, as with indicators in general, their choice depends

²³ Incidentally, this does not differ much from the slope calculated by Blanchflower et al. (2014) for their "Happiness Indicator" estimated using Eurobarometer and Eurostat data for 31 European countries for the period 1975-2013 ($\gamma = -7.14$).

on the users' preference regarding empirical evidence, timeliness of the data, ease of calculation and international comparability. But whichever one is chosen, its implications – their low sensitivity to macroeconomic policy - are as sobering as they are reassuring for policymakers.

Questions remain. Old ones such as the role of the levels of unemployment and inflation in MIs. But also new ones, such as testing MIs with data before 1977 and explaining the change in weights, for which their structural relativisation by using PBI microdata could provide guidance. However, the key issue seems to be the comparison of assumed or inferred MI preferences with results from other, more straightforward methods.

But already now, Okun's misery index seems to be a useful indicator for Germany, both of economic discomfort as commonly understood by economists and, to a lesser extent, of government performance. Of course, reducing complexity comes at a price. But as for *Okun's* index, for many its advantages may outweigh its deficiencies – "All indicators are wrong, but some are useful".

References

- Asher, M. A., Defina, R. H. and Thanawala, K. (1993). The misery index: only part of the story. *Challenge*, 36(2), 58–62.
- Ball, L., Leigh, D. and Loungani, P. (2017). Okun's Law: fit at 50? *Journal of Money, Credit and Banking*, 49(7), 1413–1441.
- Barro, R. J. (1996). *Getting it right – markets and choices in a free society*. Cambridge, MA: MIT press.
- Barro, R. J. (1999). Reagan vs. Clinton: who's the economic champ? *Business Week*, February 22, 1999.
- Berleemann, M. and Enkelmann, S. (2012). The economic determinants of U.S. presidential approval – a survey. CESifo Working Paper No. 3761, Munich: CESifo.
- Berleemann, M. and Enkelmann, S. (2014). The economic determinants of U.S. presidential approval: a survey. *European Journal of Political Economy*, 36, 41–54.
- Blanchflower, D. G., Bell, D. N. F., Montagnoli, A. and Moro, M. (2014). The happiness trade-off between unemployment and inflation. *Journal of Money, Credit and Banking*, 46(2), 117–141.
- Bolhuis, M. A., Cramer, J. N. L., Schulz, K. O. and Summers, L. H. (2024). The cost of money is part of the cost of living: new evidence on the consumer sentiment anomaly. NBER Working Paper Series, Working Paper 32163, Cambridge, MA.
- Bundesagentur für Arbeit (2022). Statistik der Bundesagentur für Arbeit. Arbeitslosigkeit im Zeitverlauf: Entwicklung der Arbeitslosenquote, Juli 2022. Nürnberg: IAB.
- Burda, M. and Hunt, J. (2011). What explains the German labor market miracle in the Great Recession? *Brookings Papers on Economic Activity*, 2011, 1, 273–335.
- Cleveland R. B., Cleveland W. S., McRae, J. E. and Terpenning, I. (1990). STL: A seasonal-trend decomposition procedure based on loess. *Journal of Official Statistics*, 6(1), 3–73.
- Cohen, I. K., Ferretti, F. and McIntosh, B. (2014). Decomposing the misery index: a dynamic equation. *Cogent Economics & Finance*, 2(1).
- Council of Economic Advisers (1976). *The Annual Report*. In: *Economic Report of the President – Transmitted to the Congress January 1976*. Washington, DC: Government Printing Office.

- Council of Economic Advisers (1997). The annual Report. In: Economic Report of the President – Transmitted the Congress January 1997. Washington, DC: Government Printing Office.
- Di Tella, R., MacCulloch, R. J. and Oswald, A. J. (2001). Preferences over inflation and unemployment: Evidence from surveys of happiness. *American Economic Review*, 91(1), 335-341.
- Di Tella, R., MacCulloch, R. J. and Oswald, A. J. (2003). The macroeconomics of happiness. *The Review of Economics and Statistics*, 85(4), 809-827.
- The Economist (2016). Daily chart: America's misery index – a presidential ranking. *The Economist*, Feb 23rd 2016. <https://www.economist.com/blogs/graphicdetail/2016/02/daily-chart-13>
- Fair, R. C. (1996). Econometrics and presidential elections. *Journal of Economic Perspectives*, 10(3), 89-102.
- Forschungsgruppe Wahlen, Mannheim (2025). Politbarometer 1977-2022 (Partielle Kumulation). GESIS, Köln. ZA2391 Datenfile Version 15.2.0. <https://doi.org/10.4232/1.14479>
- Frey, B. S. (1974). The politico-economic system: a simulation model. *Kyklos*, 27, 227-254.
- Gersemann, O. (2017). Diese Kanzler konnten Wohlstand. *Die Welt*, 17.6.2017, 9.
- Greene, W., Seaks, T.G. (1991). The restricted least squares estimator: a pedagogical note. *The Review of Economics and Statistics*, 73(3), 563-67.
- Greenspan, A. W. (2007). *The age of turbulence: adventure in a new world*. New York: Penguin Press.
- Hanke, S.H. (2014). Measuring misery around the world. Cato Institute: Globe Asia, May 2014. <http://www.cato.org/publications/commentary/measuring-misery-around-world> (2023, 3, 1)
- Heilemann, U. und Kaufhold, M. (2019). *Wirtschaftspolitische Chronik der Bundesrepublik Deutschland 1949–2019*. München: UVK-Verlag.
- Heilemann, U. and Wappler, S. (2011). Die Rückkehr der Fiskalpolitik – zu ihrer Effizienz und Effektivität 2008 ff. In: P. J.J. Welfens (Hrsg.), *Zukunftsfähige Wirtschaftspolitik für Deutschland und Europa*. Heidelberg: Springer, 75-100.
- Hufbauer, G. Kim, J. and Rosen, H. (2008). *The augmented Misery Index*. Washington, DC: Peterson Institute.
- Janssen, R.F. (1971). Appraisal of current trends in business and finance. *The Wall Street Journal*, 4 January 1971, 10.
- Lechmann, E. (2009). Okun's and Barro's misery index as an alternative poverty assessment tool. Recent estimations for European countries. MPRA Paper 37493, Munich: University Library.
- Lovell, M. C. (1975). Why was the consumer feeling so sad? *Brookings Papers on Economic Activity*, 6(2), 473-479.
- Lovell, M. C. and Tien, P.-L. (2000). Economic discomfort and consumer sentiment. *Eastern Economic Journal*, 26(1), 1-8.
- Mueller, J. E. (1970). Presidential popularity from Truman to Johnson. *American Political Science Review*, 64(1), 18-34.
- Nordhaus, W. D. (1989). Alternative equations to the political business cycle. *Brookings Papers on Economic Activity*, 20(2), 1-68.
- Okun, A. M. (1973). Comments on Stigler's paper. *American Economic Review*, 63(2), 172-177.
- Okun, A. M. (1976). Conflicting national goals. In: Eli Ginzberg (ed.), *Jobs for Americans*. Englewood Cliffs, NJ: Prentice Hall, reprinted in: Pechman, J. A. (1983), 221-249.
- Pechman, J. A. (ed.) (1983). *Economics for policymaking – selected essays of Arthur M. Okun*. Cambridge, MA: MIT Press, VII-XII.
- Ploberger, W. and Krämer, W. (1992). The CUSUM test with OLS residuals. *Econometrica*, 60(2), 271-285.

- Pretis, F., Reade, J. J. and Sucarrat, G. (2018). Automated general-to-specific (GETS) regression modelling and indicator saturation for outliers and structural breaks. *Journal of Statistical Software*, 86(3), 1-44.
- Projektgruppe Gemeinschaftsdiagnose (2010). Erholung setzt sich fort – Risiken bleiben groß, Gemeinschaftsdiagnose Frühjahr 2010. Essen.
- Räth, N. (2009). Rezessionen in historischer Betrachtung. *Wirtschaft und Statistik*, 3/2009, 203-208.
- Schneider, F. (1974). Politisch-ökonomische Konjunkturzyklen: Ein Simulationsmodell. *Schweizerische Zeitschrift für Volkswirtschaft und Statistik*, 110, 519-549.
- Smyth, D. J., Dua, P. and Taylor, S. W (1994). Voters and macroeconomics: are they forward looking or backward looking? *Public Choice*, 78(3/4), 283-293.
- Statistisches Bundesamt (2006). Volkswirtschaftliche Gesamtrechnungen. Inlandsproduktberechnung. Revidierte Vierteljahresergebnisse. 1970 bis 1991. Fachserie 18, Reihe S.27. <https://www.destatis.de/DE/Themen/Wirtschaft/Volkswirtschaftliche-Gesamtrechnungen-Inlandsprodukt/Publikationen/Downloads-Inlandsprodukt/inlandsprodukt-revidiert-vierteljahr-2189027919005.html> (2023, 3, 1).
- Statistisches Bundesamt (2022a). Bevölkerung nach Gebietsstand (ab 1990), <https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Bevoelkerung/Bevoelkerungsstand/Tabellen/liste-gebietstand.html> (2023, 3, 2).
- Statistisches Bundesamt (2022b). Preise. Verbraucherpreisindizes für Deutschland. Lange Reihen ab 1948. Wiesbaden. Statistisches Bundesamt. <https://www.destatis.de/DE/Themen/Wirtschaft/Preise/Verbraucherpreisindex/Publikationen/Downloads-Verbraucherpreise/verbraucherpreisindex-lange-reihen-pdf-5611103.html> (2023, 3, 1).
- Statistisches Bundesamt (2022c). Volkswirtschaftliche Gesamtrechnungen. Inlandsproduktberechnung. Lange Reihen ab 1970. Fachserie 18, Reihe 1.5, Wiesbaden 2021 (Rechenstand 2022). <https://www.destatis.de/DE/Themen/Wirtschaft/Volkswirtschaftliche-Gesamtrechnungen-Inlandsprodukt/Publikationen/Downloads-Inlandsprodukt/inlandsprodukt-lange-reihen-pdf-2180150.html> (2023, 3, 1).
- Welsch, H. (2007). Macroeconomics and life satisfaction: revisiting the misery index. *Journal of Applied Economics*, 10(2), 237-251.
- Welsch, H. (2011). The magic triangle of macroeconomics: how do European countries score? *Oxford Economic Papers*, 63(1), 71-93.

Appendix

Table 1: Annual data, 1951–2021

	u	infl	gdp	defq	MI I	MI II	MI III	MI IV	PBI
1951	10.4	7.6	9.7	3.1	18.0	8.3	5.2	18.8	-
1952	9.5	2.1	9.3	4.1	11.6	2.3	-1.8	13.8	-
1953	8.4	-1.7	8.9	11.0	6.7	-2.2	-13.2	9.6	-
1954	7.6	0.4	7.8	4.4	8.0	0.2	-4.2	10.1	-
1955	5.6	1.4	12.1	4.7	7.0	-5.1	-9.8	8.2	-
1956	4.4	2.8	7.7	4.7	7.2	-0.5	-5.2	7.7	-
1957	3.7	2.0	6.1	3.3	5.7	-0.4	-3.7	6.2	-
1958	3.7	2.3	4.5	1.5	6.0	1.5	0.0	6.4	-
1959	2.6	0.6	7.9	1.8	3.2	-4.7	-6.5	3.8	-
1960	1.3	1.6	8.6	3.3	2.9	-5.7	-9.0	2.8	-
1961	0.8	2.5	4.6	3.0	3.3	-1.3	-4.3	2.8	-
1962	0.7	2.8	4.7	2.8	3.5	-1.2	-4.0	2.9	-
1963	0.8	3.0	2.8	1.4	3.8	1.0	-0.4	3.2	-
1964	0.8	2.4	6.7	0.9	3.2	-3.5	-4.4	2.7	-
1965	0.7	3.2	5.4	0.7	3.9	-1.5	-2.2	3.2	-
1966	0.7	3.3	2.8	-0.6	4.0	1.2	1.8	3.2	-
1967	2.1	1.9	-0.3	-0.2	4.0	4.3	4.5	4.1	-
1968	1.5	1.6	5.5	-1.4	3.1	-2.4	-1.0	3.1	-
1969	0.9	1.8	7.5	-0.8	2.7	-4.8	-4.0	2.4	-
1970	0.7	3.6	5.0	1.1	4.3	-0.7	-1.8	3.5	-
1971	0.8	5.2	3.1	0.2	6.0	2.9	2.7	4.7	-
1972	1.1	5.4	4.3	-0.4	6.5	2.2	2.6	5.2	-
1973	1.2	7.1	4.8	1.1	8.3	3.5	2.4	6.6	-
1974	2.6	6.9	0.9	-1.6	9.5	8.6	10.2	8.2	-
1975	4.7	6.0	-0.9	-5.6	10.7	11.6	17.2	10.3	-
1976	4.6	4.2	4.9	-3.4	8.8	3.9	7.3	8.9	-
1977	4.5	3.7	3.3	-2.5	8.2	4.9	7.4	8.4	0.72
1978	4.3	2.7	3.0	-2.6	7.0	4.0	6.6	7.5	1.13
1979	3.8	4.1	4.2	-2.7	7.9	3.7	6.4	7.8	1.58
1980	3.8	5.4	1.4	-2.9	9.2	7.8	10.7	8.7	1.64
1981	5.5	6.3	0.5	-3.9	11.8	11.3	15.2	11.6	0.51
1982	7.5	5.2	-0.4	-3.4	12.7	13.1	16.5	13.4	0.21
1983	9.1	3.2	1.6	-2.9	12.3	10.7	13.6	14.0	0.62
1984	9.1	2.5	2.8	-2.0	11.6	8.8	10.8	13.5	0.30
1985	9.3	2.0	2.3	-1.1	11.3	9.0	10.1	13.4	0.11
1986	9.0	-0.1	2.3	-1.2	8.9	6.6	7.8	11.5	0.47
1987	8.9	0.2	1.4	-1.8	9.1	7.7	9.5	11.6	0.59
1988	8.7	1.2	3.7	-2.0	9.9	6.2	8.2	12.1	-0.29
1989	7.9	2.8	3.9	0.1	10.7	6.8	6.7	12.2	0.13
1990	7.2	2.6	5.3	-1.9	9.8	4.5	6.4	11.1	0.72

Table 1: cont.

	u	infl	gdp	defq	MI I	MI II	MI III	MI IV	PBI
1991	7.3	3.7	5.1	-3.1	11.0	5.9	9.0	12.0	0.31
1992	8.5	5.0	1.9	-2.6	13.5	11.6	14.2	14.5	-0.40
1993	9.8	4.5	-1.0	-3.1	14.3	15.3	18.4	15.8	-1.21
1994	10.6	2.6	2.4	-2.5	13.2	10.8	13.3	15.5	-0.33
1995	10.4	1.8	1.5	-9.4	12.2	10.7	20.1	14.7	0.00
1996	11.5	1.3	0.8	-3.5	12.8	12.0	15.5	15.8	-0.64
1997	12.7	2.0	1.8	-2.9	14.7	12.9	15.8	17.8	-1.25
1998	12.3	0.9	2.0	-2.5	13.2	11.2	13.7	16.5	-0.62
1999	11.7	0.6	1.9	-1.7	12.3	10.4	12.1	15.5	-0.38
2000	10.7	1.4	2.9	0.9	12.1	9.2	8.3	14.8	0.39
2001	10.3	2.0	1.7	-3.1	12.3	10.6	13.7	14.7	0.45
2002	10.8	1.3	-0.2	-3.9	12.1	12.3	16.2	14.9	-0.18
2003	11.6	1.1	-0.7	-4.2	12.7	13.4	17.6	15.8	-1.32
2004	11.7	1.7	1.2	-3.7	13.4	12.2	15.9	16.3	-1.19
2005	13.0	1.5	0.7	-3.4	14.5	13.8	17.2	17.8	-0.61
2006	12.0	1.6	3.8	-1.7	13.6	9.8	11.5	16.6	-0.01
2007	10.1	2.3	3.0	0.2	12.4	9.4	9.2	14.7	0.30
2008	8.7	2.6	1.0	-0.2	11.3	10.3	10.5	13.1	0.22
2009	9.1	0.3	-5.7	-3.2	9.4	15.1	18.3	12.0	0.50
2010	8.6	1.1	4.2	-4.2	9.7	5.5	9.7	11.9	-0.80
2011	7.9	2.1	3.9	-1.0	10.0	6.1	7.1	11.7	-0.42
2012	7.6	2.0	0.4	0.0	9.6	9.2	9.2	11.2	0.26
2013	7.7	1.4	0.4	-0.2	9.1	8.7	8.9	10.9	0.73
2014	7.5	1.0	2.2	0.3	8.5	6.3	6.0	10.4	1.14
2015	7.1	0.5	1.5	0.7	7.6	6.1	5.4	9.5	1.22
2016	6.8	0.5	2.2	0.8	7.3	5.1	4.3	9.1	0.76
2017	6.3	1.5	2.7	1.4	7.8	5.1	3.7	9.2	1.28
2018	5.8	1.8	1.1	1.8	7.6	6.5	4.7	8.8	0.15
2019	5.5	1.4	1.1	1.3	6.9	5.8	4.5	8.1	0.42
2020	6.5	0.5	-4.6	-5.6	7.0	11.6	17.2	8.7	1.68
2021	6.3	3.1	2.9	-3.7	9.4	6.5	10.2	10.3	1.11

Sources see text, own calculations. u: unemployment rate; infl: inflation rate; gdp: change rate of real GDP; defq: government deficit ratio; MI: Misery indices for definitions see text; PBI: Policy Barometer Index.

Table 4: Mean elasticities of PBI explanations, 1977-3 to 2021-9

Variables	Equations					
	[4] $\bar{e}$	[5] $\bar{e}$	[6] $\bar{e}$	[7] $\bar{e}$	$\bar{e}^L$	[8] $\bar{e}$
u_t	-9.9	-9.9	-9.0	-1.0	-9.6	-1.3
infl_t	-1.2	-1.1	-1.2	-0.1	-1.4	-0.2
gdp_t		-0.1				
defq_t		0.0				
λ				8.9		5.2

Own calculations based on Table 3. Mean elasticity: $\bar{e} = \gamma \cdot \frac{\bar{X}}{\bar{PBI}}$. Mean long-term elasticity: $\bar{e}^L = \frac{\theta}{1-\theta} \cdot \frac{\bar{X}}{\bar{PBI}}$. Mean lag: $\lambda = \frac{\theta}{1-\theta}$. γ is the regression coefficient and $\bar{X}$ is the arithmetic mean of X. $\bar{PBI}$ is the arithmetic mean of PBI and θ is the regression coefficient of PBI_{t-1} .

Table 5: BMI*, data and results, 1951–2021

	Δu	Δinfl	BMI*	Rank
Legislatures				
Adenauer I ¹	-1.6	9.1	7.5	19
Adenauer II	-3.1	3.3	0.2	10
Adenauer III	-1.6	-0.2	-1.8	2
Adenauer/Erhard	-0.1	0.4	0.3	12
Erhard/Kiesinger	0.6	-1.1	-0.5	7
Brandt I	0.0	2.9	2.9	16
Brandt/Schmidt	2.2	0.6	2.8	15
Schmidt I	-0.5	-0.2	-0.7	6
Schmidt/Kohl	2.7	0.3	3.0	17
Kohl I	1.6	-3.3	-1.7	3
Kohl II	-0.8	1.8	1.0	13
Kohl III	1.9	1.4	3.3	18
Kohl IV	1.1	-1.1	0.0	9
Schröder I	-1.4	0.4	-1.0	5
Schröder II	1.3	0.1	1.4	14
Merkel I	-3.0	0.2	-2.8	1
Merkel II	-1.1	1.3	0.2	11
Merkel III	-0.8	-0.5	-1.3	4
Merkel IV	-0.3	0.2	-0.1	8
Chancellors				
Adenauer II-V ²	-5.3	3.6	-1.6	2
Erhard	-0.1	0.0	-0.1	6
Kiesinger	0.8	-1.5	-0.7	4
Brandt	0.0	3.5	3.5	8
Schmidt	3.4	-2.2	1.2	7
Cabbage	2.0	-2.9	-0.9	3
Schröder	-0.9	0.5	-0.4	5
Merkel	-5.3	0.0	-5.3	1

Own calculations. Legislatures and chancellors are assigned to years according to the number of months in which they dominate. The change rates Δu_t and Δinfl_t are calculated as the difference between the average of the MI component in the legislature period/term in office τ and the value of the last year of the previous legislature/term in office $\tau-1$. ¹ Approximate changes within legislature. ² Without legislature Adenauer I.

Table 6: Legislatures ranked by MIs, BMI* and PBI, 1951–2021 (1977–2021)

Legislatures	MI					PBI				
	I	II	III	IV	BMI*	I	IV	BMI*	actual	estimated
	1951–2021					1977–2021				
Adenauer I	12	6	3	13	19	-	-	-	-	-
Adenauer II	5	2	1	5	10	-	-	-	-	-
Adenauer III	3	1	2	3	2	-	-	-	-	-
Adenauer/Erhard	2	3	4	1	12	-	-	-	-	-
Erhard/Kiesinger	1	4	5	2	7	-	-	-	-	-
Brandt I	4	5	6	4	16	-	-	-	-	-
Brandt/Schmidt	9	10	12	7	15	-	-	-	-	-
Schmidt I	8	7	9	6	6	3	1	5	1	1
Schmidt/Kohl	16	18	17	12	17	9	6	11	4	6
Kohl I	13	13	13	14	3	6	7	2	6	7
Kohl II	11	9	8	11	13	5	5	9	5	4
Kohl III	17	15	16	16	18	10	9	12	10	10
Kohl IV	18	17	18	18	9	11	11	7	11	11
Schröder I	15	14	15	17	5	8	10	4	8	8
Schröder II	19	19	19	19	14	12	12	10	12	12
Merkel I	14	16	14	15	1	7	8	1	7	5
Merkel II	10	11	10	10	11	4	4	8	9	9
Merkel III	7	8	7	9	4	2	3	3	2	3
Merkel IV	6	12	11	8	8	1	2	6	3	2

Own calculations. Allocation of years to chancellors by predominant share in year. PBI: Ranking by PBI and by fitted values from equation [4].

Table 9: Estimation results for *Okun's Law*, 1952–2021

	1952–2021	1952–1990	1991–2021
β	-0.183***	-0.269***	-0.169***
Memory item: $\overline{\text{gdp}}$	3.03	4.36	1.36
N	70	39	29
R ²	0.41	0.74	0.21
SE	0.67	0.47	0.74
F-value	46.60***	106.2***	7.65***
DW statistics	0.80***	1.10***	0.86***

Own calculations. OLS and Newey-West results. Significance code: *** $0 < p \leq 0.01$, ** $0.01 < p \leq 0.05$, * $0.05 < p \leq 0.1$.

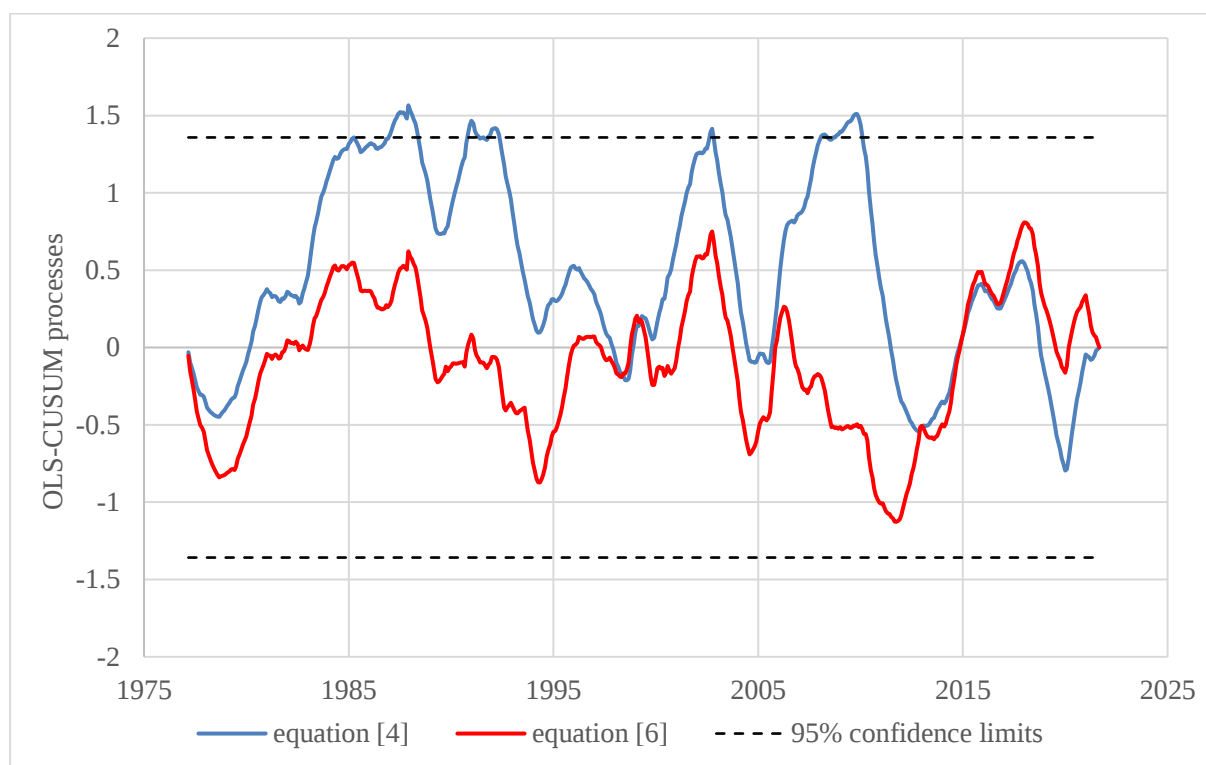
Table 10: Phillips curves – calculations and estimates, 1975–2021

		Sample period	Periodicity	$\bar{u}$	$\overline{\text{infl}}$	$\bar{u}/\overline{\text{infl}}$ (Misery ratio)	α (weight u)	β (weight infl)	β/α (weight ratio)	γ (Phillips curve gradient)
1	Blanchflower et al. 2014 ¹	1975–2013	half-yearly	-	-	1.90	-	-	0.26	-7.14
2	Heilemann and Schuhr ²	1977-3–2021-9	monthly	8.59	2.10	4.10	0.242	0.133	0.55	-7.45
3	MI I ³	1977–2021	yearly	8.59	2.10	4.10	1.00	1.00	1.00	-4.10
4	Neutral ⁴	1977–2021	yearly	-	-	1.00	-	-	1.00	-1.00
5		1977–2021	yearly	8.56	2.15	3.97	-	-	16.22	-0.245
6		1980–2021	yearly	8.87	2.06	4.31	-	-	19.26	-0.224
7		1990–2021	yearly	9.18	1.80	5.09	-	-	133.4	-0.038
8	Regressions ⁵	2000–2021	yearly	8.71	1.49	5.86	-	-	n.d.	+0.015
9		2010–2021	yearly	6.97	1.41	4.95	-	-	52.59	-0.094
10		1977-3–2021-9	monthly	8.59	2.10	4.10	-	-	18.61	-0.220

Sources: Table 1 and own computations. – ¹ Authors report only the ratios $\bar{u}/\overline{\text{infl}}$, β/α and γ . ² Parameters: see Table 3. ³ Equal weights. ⁴ Equal Misery ratio and weight ratio.

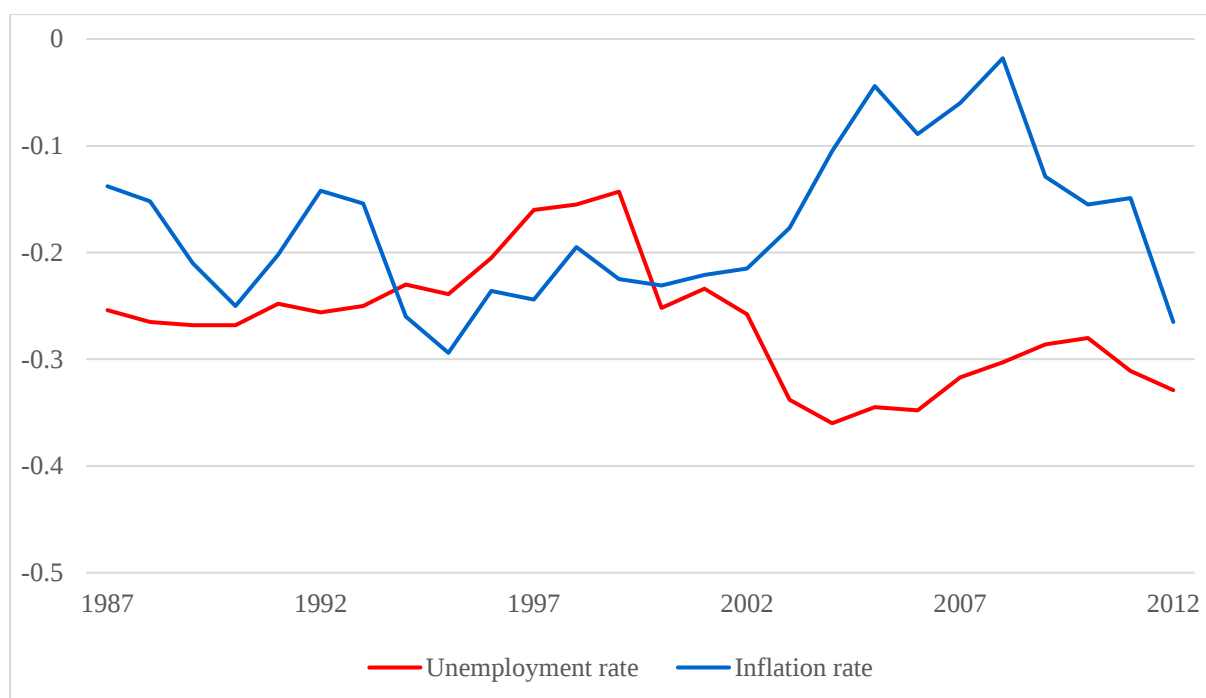
⁵ Linear regressions of infl_t with respect to u_t .

Figure 4: OLS-CUSUM tests, results for equations [4] and [6], 1977-3 to 2021-9



Own computations based on [Table 3](#).

Figure 5: Unemployment and inflation coefficients, equation [6], 20-year moving windows, 1973-3 to 2021-9



Own computations. Coefficients assigned to the centres of the windows.

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