MEASURING THE PUBLIC PERCEPTION OF THE EUROPEAN INTEGRATION PROCESS: EVIDENCE FROM THE UNITED KINGDOM AND GERMANY

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ABSTRACT

This paper investigates a new method of measuring public perception of European integration policies. The methodology is based on a monthly frequency of news generating a negative attitude toward the EU integration process in newspapers from 2010:1 to 2018:12. The studies concerning similar topic are mostly based on survey data, which does not allow measuring dissatisfaction with individual political acts. The newly constructed indexes show that the identified spikes correspond to all major European integration events and can capture public disagreement attitude with the implementation of individual policies on a European or national level. The results are compared with the interest of individuals with the use of Google trend data analysis. Indexes may be useful to understand the non-economic cost in policy decision making, the same as in the question of the ambivalence of Europe.

KEY WORDS

public perception, integration, European Union, Google trends, media news

JEL CODES

E70, F02

1 INTRODUCTION

In the beginning, when the European project was mainly focused on trade liberalization, public opinion was viewed as not relevant to the process. Yet, as the European Union has evolved and covering a wide range of areas, public perception is viewed more important than ever.

In terms of the European integration process, it is useful and important to distinguish between two concepts of perception. The first represents support for ideas arising from the constitutional settlement of the European Union and second, the real way how the political elite execute their policies. If these actions do not

meet public expectations, Scharpf (1999) discusses that this is endemic to any regime. Even this dissatisfaction with individual political acts might be the cause for a shift in support for European integration, however such proxy to capture the public's attitude is missing.

In this paper, newly constructed media-news based indexes are presented and are evaluated as relevant proxies for capturing public disapproval with European integration policies. The contribution of these indexes compared to the use of surveys is the flexibility and ability to capture disapproval with individual political actions and may explain the change in attitude for supporting the European integration project. We can also interpret these indexes as a proxy for non-economic costs in policy-decision making. Another interesting insight occurs when we compare news coverage related to the topic in one of the major EU countries, which was the first to leave the European project, and the country which is often referred as to being the driving force of the European Union.

In addition, this study examines the public attitude and interest of individuals separately. This paper is assuming an ambiguous result in the public perception of EU integration compared to individuals' interest. Individuals search volume should be increased in events, which could directly affect an individual's welfare. Therefore, different proxies are used to measure public perceptions and individual interest. To measure individual interest, Google trend analysis is used, which shows the frequency of search terms related to the topic of

the EU. This data provides powerful insight, how people react to information intermediated through the media. Results show that individuals search differs from new indexes. While peaks in individuals search can be observed only in times of European parliament election and Brexit, the newly developed indexes reliably capture peaks in main events related to European integration. The data represents a period from 2010:1 to 2018:12.

When it analyzed the relation between perception of the EU and the real economy, studies suggest numerous economic performance indicators as a significant factor in Eurosceptic opinion shaping. But there are also several authors arguing that adverse expectations or "mood" are more significant variables in perception change than macroeconomic ones.

Finally, in this context, the paper examines the effect of public perception on several macroeconomic variables using the vector autoregression (VAR) models, with the use of response impulse functions. The results suggest that reactions from increased negative perception affects variables within a delay of 2–3 months, however, response shocks are within 90% of confidence intervals bands.

The paper is structured as follows. Section 2 presents the literature review. Section 3 presents a detailed overview of used data and methods. Section 4 presents and discuss the newly constructed indexes as well as indexes from Google trend analysis data. Section 5 provides a robustness analysis. Section 6 concludes this paper. The appendix contains results of VAR models.

2   LITERATURE REVIEW

Recent studies have primarily focused on explaining so-called Euroscepticism, mostly due to recent or still ongoing disintegration pressures (sovereign debt crisis, migration crisis, Brexit, …) and threat it as the dependent variable. Far fewer studies are devoted to the issue of the effects of public perception on European integration. This perception problem is complex, with different degrees of certainty. The

simple one-dimensional approach concerning if there is public support toward the EU seems to be insufficient. The lack of this approach to inherent and complex attitude problem of EU integration suggest several studies (Baute et al., 2018; Boomgaarden et al., 2011; Hobolt and Brouard, 2011; Meijers and Zaslove, 2020; Stoeckel, 2013). The disproportion between various studies explaining the determinants of

public perception and less attention paid to empirical support may be due to the methods used for measuring this concept.

To capture public opinion, Eurobarometer is still the dominant data source and allows cross-national comparison over a large period, even with the issue that several questions were adjusted over time. Despite some advantages of surveys, they are limited by periodicity and generality of questions. This data is useful to refer to approval or disapproval of the integration project, and the main challenges the Union is facing, however, the questions do not bring answers to more policy-oriented, multi-faceted opinions. Eurobarometer data do not allow measuring dissatisfaction with individual political acts.

Since then, it is not possible to obtain most of the information in person, just as it is time-consuming to follow the happening from first-hand sources, the news plays an important role in the process of public perception shaping. The importance of the media's influence on perception shaping is well known and studies suggest direct and indirect effects (e.g. Gunther and Storey, 2003; Wanta et al., 2004). Wanta et al. (2004) network analysis suggests that the more negative media coverage is received, the more likely a negative opinion is created. Interestingly, positive coverage had no effect. From an economic standpoint, public economic perception and media coverage is suggested by Barnes and Hicks (2018), Hobolt et al. (2017), Linn and Kellstedt (2004) and Soroka (2006, 2014), and economy perception and influence related to vote intentions and government elections suggest Soroka et al. (2015) and Nadeau et al. (1994).

In current times of disintegration pressures, public perception is important more than ever. It may be commonly seen in the growing politicization of integration challenges among the political parties (Hooghe and Marks, 2009) and studies confirm that attitude to the issues, as a determinant of vote choices (Hobolt and de Vries, 2015; Spoon, 2012). When authorities make their policy decisions, they are a priori uncertain and motivated by both economic and non-economic (political) objectives (Pástor and Veronesi, 2013). The public perception that differs from the objectives of politicians represents a non-economic cost. However, identification of these costs remains unresolved, same as there is far less attention to research concerning how public perception shape policy decision-making (Hobolt and de Vries, 2016).

Existing research suggests, that continuously updating information about economics is costly, and people update information about economics occasionally. Mostly when the economic condition is bad, or news tends to be frequent (Doms and Morin, 2004; Lamla and Lein, 2008). Another benefit of news analysis used in this paper is, that even European integration in it's current state involves a wide range of aspects, media news can capture many publicly interesting topics. Usefulness is also confirmed by the growing studies using news-based indexes (e.g., Demir et al., 2018; Drobetz et al., 2018; Gulen and Ion, 2016).

When it analyzed the relation between perception of the EU and real economy variables, Euroscepticism is mainly explained by sensitivity to economic inequalities. Moreover, cost-benefit analysis has been shown to influence support as well, whilst calculation refers to macroeconomic indicators like growth, inflation, unemployment, inflation, budget transfers, or trade relation with other EU members. Besides the effect of performance indicators in explaining changes in domestic EU support (e.g., Gomez, 2015; Kuhn et al., 2013; Nicoli, 2017; Serricchio et al., 2013), some studying argues that developments in other EU member countries can also have an impact. If the other countries have worsened fiscal and economic conditions, this may create a negative expectation and spill-over to the domestic economy (Ioannou et al., 2015; Kang and Oh, 2020). Though, as was mention above and is well known, the perception problem is complex. There are the increasing numbers of studies, that rejecting these economic variables as a main driving force of negative perceptions. They argue that perception change is mostly due to adverse financial expectations and fear of losing cultural identity. Ritzen et al. (2014) classified these factors as "mood variables".

Kang and Oh (2020) pointing out that public perception is essential in analyzing crisis and necessity to a comprehensive analysis of diverse factors combined with "public anxiety".

In this context, beside of the main objective of this article – to better identified public

disapproval with individual political acts, this study examines if captured public attitude affect suggested macroeconomic performance indicators.

3   METHODS AND DATA

The indexes are constructed for two important European countries, these countries being the United Kingdom and Germany, within the period the from January 2010 to December 2018.[1] The methodology approach is based on measuring the frequency of articles in selected newspapers. To generate disapproval attitude with European integration policies is use automated textual search following a specific combination of keywords. The choice of words is to make clear references to the European Union (1), integration (2), disapproval attitude (3). The selected article must therefore fulfill the requirement of at least one word from each category $(1; 2; 3)$. This methodology approach follows Baker et al. (2016), who used this approach to create their economic policy uncertainty index (EPU).

The used data is extracted from digital news archives of the ProQuest database. The newspapers for the UK are Financial Times, The Times, and The Daily Telegraph. Regarding Germany, the newspapers Die Walt and Die Tageszeitung are used. The categories and combination of keywords are following: (1) "Europe" or "European" or "EU" and (2) "integration" or "enlargement" and (3) "problem" or "uncertain" or "uncertainty" or "concern". For German newspapers, their translation is: (1) "Europa" or "EU" or "europäisch" and (2) "integration" or "Erweiterung" and (3) "problem" or "unsicher" or "Unsicherheit" or "Besorgnis" or "sorge".

To aggregate new indexes, collected data is adjusted as:

$$\text{freq}_{i,p,t} = \frac{n_{i,p,t}}{N_{p,t}}, \qquad (1)$$

where n is the number of articles meeting the condition of keyword combination i, p with $1, \dots, p$ represent selected newspaper, where P is a total number of newspapers, t with $1, \dots, T$ denotes time, N represents the total number of articles published in the newspaper p, at time t. Then standard deviation, σ, is computed at time T, for each i. Subsequently expression (1) standardizes as:

$$\frac{\text{freq}_{i,p,t}}{\text{stdev}\,(\text{freq}_{i,p,t})}. \qquad (2)$$

The values of expression (2) are averaged together for every newspaper p, month t, and finally, normalized to have a mean of 100.

To measure individual interest Google trend analysis is used. This data provides the frequency of the search term entered into a the Googles search engine, relatively scaled on a range of 0 to 100. Each data point is divided by the number of sum searches related to the topic. The extracted data represent a similar period from 2010:M1 to 2018:12 and is obtained from both the United Kingdom and Germany. The search term represents the topic – "European Union".[2]

Many of articles showed how the performance of macroeconomic variables affects the perception of European policies. With newly developed indexes, which capture public disapproval

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[1] The limitation of the database is that the articles are listed with a certain time delay. In times of data collecting and due to caution purpose year 2019 was omitted.

[2] Since individuals search is unique, the chosen topic includes all events related to the European Union, even those that the media described negatively. That make it possible to compare, whether the intensity of negative news through media correlates with the increased in the magnitude of individual search and specific events.

with individual political actions, it is possible to examine it reversely, if this attitude has affects suggested macroeconomic variables. The studies using news-based indexes tend to assign negative news with financial frictions, which result in a higher capital cost. As a result, economic activity is depressed. To investigate the link between the perception of the European integration policies and the real economy, the vector autoregression model (VAR) is estimated with the following specification (perception index, cost of borrowing, inflation, industrial production). Data are transformed using annual percentage changes of all variables with a lag estimation of three, based on Akaike information criteria. The results are reported as response impulse functions of one standard deviation of the perception index with 90% confidence bands.[3]

4   EMPIRICAL RESULTS

This section presents new indexes as a proxy to capture the public disapproval toward the European integration policies in the United Kingdom (Fig. 1) and Germany (Fig. 2). The indexes identified spikes in major events related to the European integration, within increase was expected. However, there are differences between the examined countries.

In the perspective of the UK, the highest spike was identified after the result of the referendum in June 2016, when people voted to withdraw from the European Union. Even the referendum outcome showed 52% votes in favour of leaving, the rest represent a large part of the population which was unsatisfied, and it manifested in a series of disapproval protests. Subsequently, a series of difficult negotiations took place between the UK and the EU. The referendum was preceded by a block of EU treaty with a right of veto at the end of the year 2012, which aimed to take actions addressed to the debt crisis. According to many newspapers, the EU has been described as the most divided ever in its 54-year history. The European debt crisis has been a cause for concern in Europe since 2010, but the peak of the crisis came in 2012, same results are suggested by the index. This peak is comparable to the time of Brexit, which is interestingly much larger than in the Fig. 2 for Germany.

The level of identified disapproval in the case of Germany represents a comparable level to the UK, however, no significant peak is observed, not even during the European debt crisis. This can be explained by Germany being the strongest economy in the European Union and it did not have to face a problem directly, but on the contrary, it prospered. Another reason, possibly even more important, could be a more open approach policy to finding a solution to the ongoing problem. This changed at the end of 2015, since the average values of identified disapproval have more than doubled. The reason was the migration crisis which resonated the most. Germany was an attractive opportunity for migrants, and its open policy attitude meant that the nation opened borders for many more migrants than other countries. This immigration policy of a sensitive European issue divided Germany. On one hand, a large part of the public did not agree with the admission of migrants and the other criticized the insufficient involvement of other European Union countries. This period was accompanied by a series of protests, which subsequently resulted in the German government crisis in 2018.

We can observe that the results of the indexes confidently describe the actual happening on a European or national level, related to the integration process. Individual peaks captured all the events that resonated the most in the last decade. Since the integration process is common, the spill-over effect is expected, for example Brexit. Still, we can observe that negative attitudes toward the EU differ in time, same as in the peak levels. In the UK, two peaks are identified, which preceded Brexit, and they

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[3]Computation of VAR models, same as response impulse functions figures, are made in Matlab software.
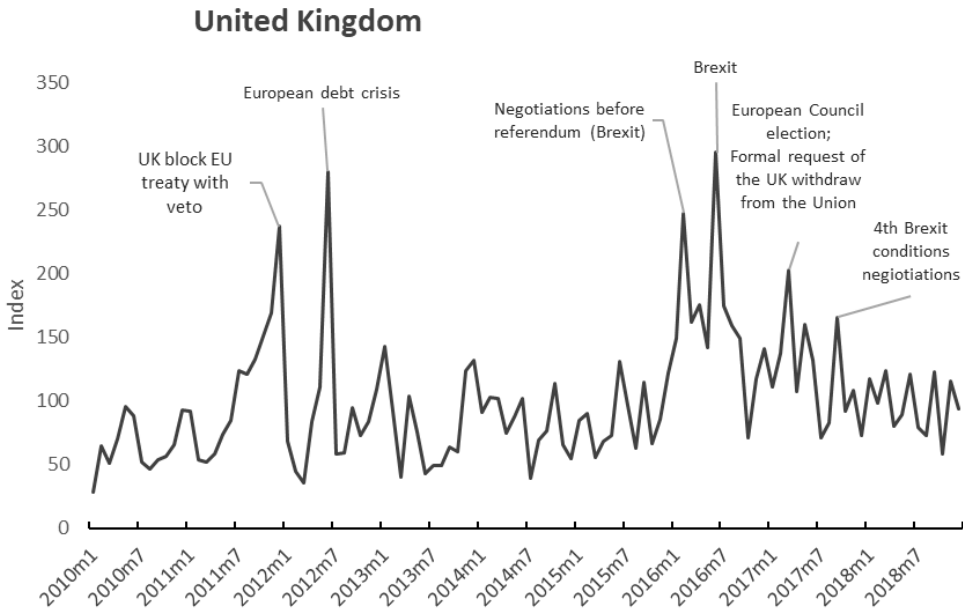
Fig. 1: Public perception index (UK)
Notes: The index represents the normalized frequency of media articles from Financial Times, The Times, The Daily Telegraph containing words (1) "Europe" or "European" or "EU" and (2) "integration" or "enlargement" and (3) "problem" or "uncertain" or "uncertainty" or "concern". The index is at the monthly frequency from 2010:M1 to 2018:12 with a mean of 100.
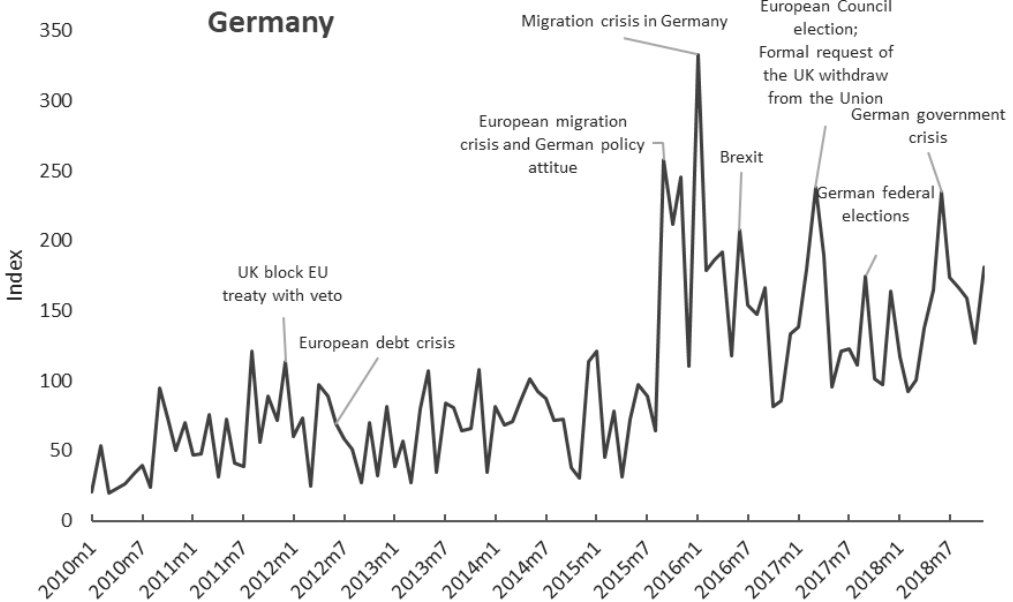

Fig. 2: Public perception index (DE)
Notes: The index represents the normalized frequency of media articles from Die Walt and Die Tageszeitung containing words (1) "Europa" or "EU" or "europäisch" and (2) "integration" or "Erweiterung" and (3) "problem" or "unsicher" or "Unsicherheit" or "Besorgnis" or "sorge". The index is at the monthly frequency from 2010:M1 to 2018:12 with a mean of 100.

describe a block of the EU treaty with the use right of veto on the issue of a joint solution to the European debt crisis and the peak of that crisis. On the contrary, in Germany, the first peak was observed on policy action to the issue of the migrant crisis. The divergence within Germany can also be seen on the long-term level increase of public disapproval. This event afterwards culminated in the German government crisis.

The description of the sequence of events above does not claim that the peaks mean a negative future progression in the EU integration process, but identification of these peaks can be a useful warning indicator of a possible shift in public perception. The shift in public perception may subsequently represent a rise or decline of non-economic cost in policy decision-making, depending on the political beliefs of the individual country's leaders toward the European Union project.

To extend empirical analysis is to investigate a possible link between the perception of the European integration policies and the real economy. The results are reported as responses of the perception index, costs of borrowing, inflation, and industrial production to one standard deviation perception shock. Separately for both countries (see Fig. 7 for UK and Fig. 8 for DE in the Annex). An increase in negative perception suggests a decrease in the costs of borrowing and a reduction in industrial production within a delay of 2–3 month. The effect on inflation is not clear. However, the shock responses to selected variables are within 90% confidence interval bands and therefore cannot be considered statistically significant.

The newly constructed indexes follow literature review and focus on negative coverage by the news and interpretation focusing on peaks, which are associated with expectation update, more likely in a negative way. The indexes are presented as a proxy for public perception, however, the effect on the individuals' interest in the topic of the European integration may not be clear. Updating information about the economy is costly and an ambiguous result in the public perception of EU integration compared to individuals' interest is expected. Individual search volume should be increased in events, which could directly affect an individual's welfare. To confirm this assumption, data obtained from Google trend analysis is presented, which shows the popularity of searches related to European integration topics in the United Kingdom (Fig. 3) and Germany (Fig. 4).

The results confirm differences between individual search and newly constructed indexes. While new indexes capture peaks in major European events, individual search volume is increased only in times of the European parliament election and Brexit, with one additional peak at the end of a period in Germany. The two most significant peaks are common for the UK and Germany. Brexit is the dominating one, naturally much larger in the UK than Germany. Nation withdrawal from the EU is an unprecedent event and represents an uncertain economic outlook for many citizens. The EU election may represent an increase in the effort to obtain additional information relevant to a direct decision of individuals. Despite this available data, the individual search seems not to be a reliable proxy in the matter of public perception concern, however, they bring interesting insights with comparison to media coverage.

5 ROBUSTNESS ANALYSIS

As mentioned above, the methodology is based on Baker et al. (2016), who they used to construct the economic-policy uncertainty index. Having a shared methodology approach and a possible similarity of some data, since the newly constructed indexes capture wide-range news concerning the European integration, the indexes will be compared together as part of the robustness analysis. First, a comparison of these two indexes is presented and afterwards, for greater detail, a table containing correlation coefficients (Tab. 1) is provided. In
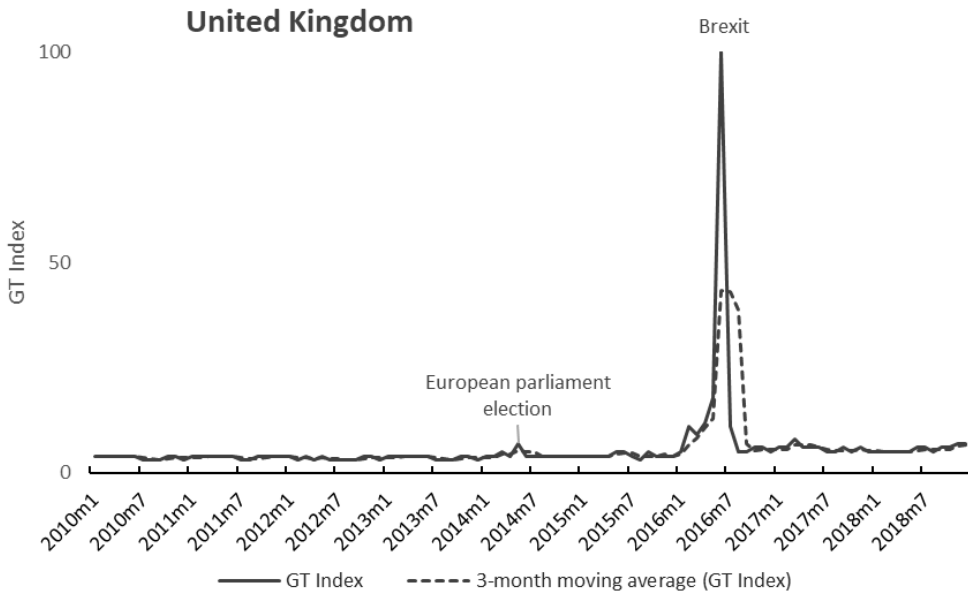
Fig. 3: Google trend analysis "European Union topic" (UK)
Notes: GT (Google Trend) index for topic "European Union" in the United Kingdom. Each data point is divided by the number of sum searches related to the topic and relatively scaled on a range of 0 to 100.
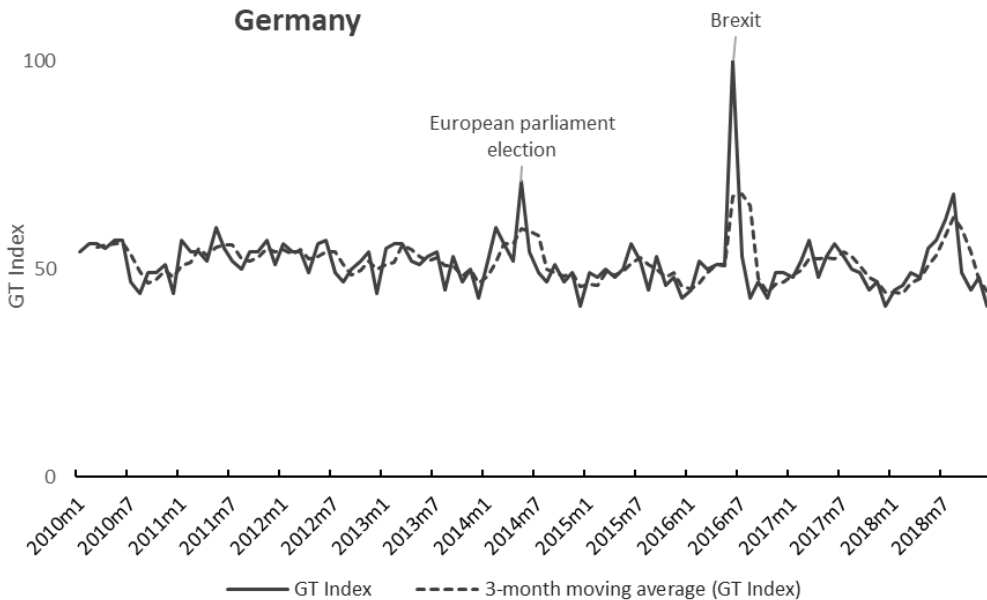

Fig. 4: Google trend analysis "European Union topic" (DE)
Notes: GT (Google Trend) index for topic "European Union" in Germany. Each data point is divided by the number of sum searches related to the topic and relatively scaled on a range of 0 to 100.

addition, the table shows the degree of intensity of correlations before and after Brexit. This event directly affects the European integration process and could represent a change in the intensity of identified rates. The results from the comparison vary at the level of individual states and are presented following as Germany (Fig. 5) and the United Kingdom (Fig. 6).

In the case of Germany, the constructed index represents a constantly lower level compared to EPU until 2015:9. At this time, the mentioned migration crisis started resonating. From this point, the level exceeds the alternative index. The United Kingdom indicates a stronger relation compared to the EPU index. Despite this similarity, it shows significant differences in events such as the UK treaty block and a peak of the sovereign debt crisis. These results are not surprising, since these events are labelled as the events that have divided the European Union the most.

Compared indexes differ in key aspects related to the focused objectives. Despite that, there are several similarities, newly constructed indexes seem to better identify negative public perception toward EU integration and thus fulfil their objectives. The following table provides more detail to the description above and shows the correlation between new indexes and EPU. Results confirm a stronger overall correlation for the UK and in the case of Germany, a

stronger correlation after Brexit is seen. This unprecedented situation increases economic-policy uncertainty as much as an undisputed intervention for the European integration process. This lower correlation of the UK with index EPU after Brexit is not surprising. The economic policy uncertainty is expected to be high due to withdraw of UK and European matters are naturally becoming less essential. This may be seen in the declining trend in the level of perception index. The levels of EPU index remain higher, most likely because of still ongoing negotiations between the UK and EU.

Tab. 1: Correlation coefficients between index EPU and newly constructed indexes

| | New indexes | |
	UK	DE
EPU − Whole period		
2010:1–2018:12	0.4734*** (0.0000)	0.2930** (0.0021)
EPU − Brexit		
2010:1–2016:5	0.4504*** (0.0000)	0.1219 (0.2911)
2016:6–2018:12	0.4556* (0.0100)	0.3244* (0.0750)

Notes: Correlation coefficients between newly constructed indexes and index EPU. The table contains a correlation for the whole period and before and after Brexit. Data for the United Kingdom and Germany. Stars indicate significance level for p-value < 0.05 (*), p-value < 0.01 (**) and p-value < 0.001 (***).

6 CONCLUSIONS

This paper investigates a new method of measuring public perception toward European integration policies. The methodology is based on a monthly frequency of news generating a negative attitude toward the EU integration in newspapers. The data is presented for the United Kingdom and Germany in the period from January 2010 to December 2018. The results show that the spikes correspond to major European integration events and reliably describing European happening. The indexes are able to capture the perception of individuals to a wide range of events from economic

challenges to the individual social policies of the European leaders. The newly developed indexes are compared with the trend in individuals search volume by Google trend data analysis. The most dominating peak by individual interest was identified only in times of Brexit. Thus, individual interest is unlikely to explain changes in the perception of the EU compared to the use of the new methodology. This paper finds a particular correlation between developed indexes and the widely used economic-policy uncertainty index (Baker et al., 2016) but peaks related to European integration are more
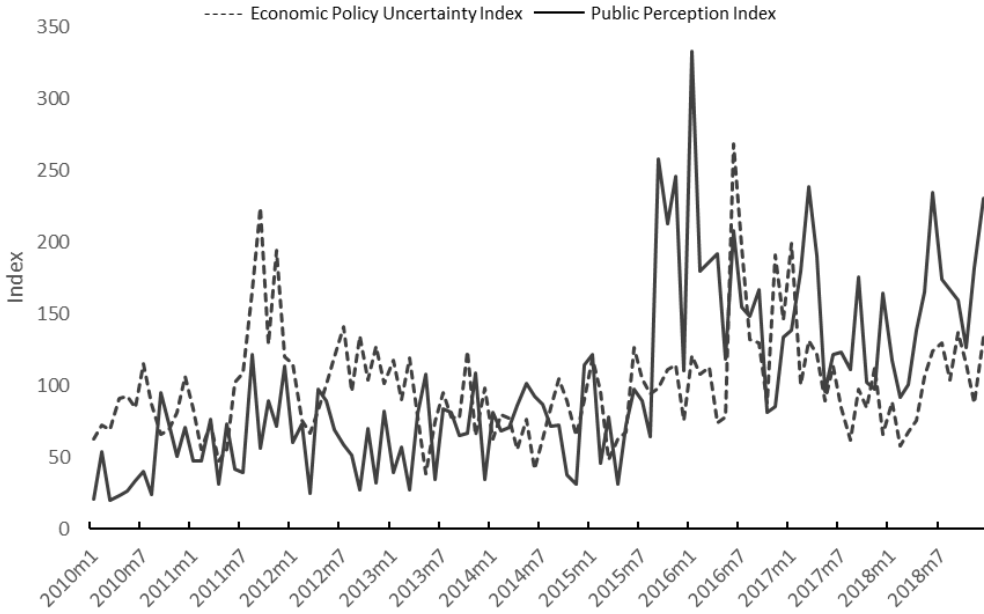
Fig. 5: Comparison with alternative index EPU (GER)
Notes: The index represents the normalized frequency of media articles from Financial Times, The Times, The Daily Telegraph containing words (1) "Europe" or "European" or "EU" and (2) "integration" or "enlargement" and (3) "problem" or "uncertain" or "uncertainty" or "concern". The index is at the monthly frequency from 2010:M1 to 2018:12 with a mean of 100. The economic policy uncertainty index is from Baker et al. (2016).
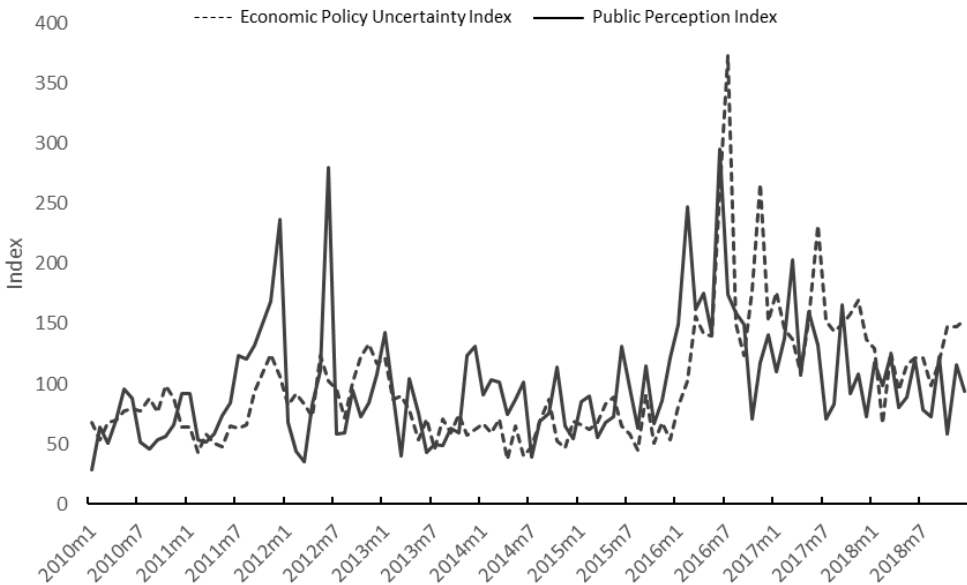

Fig. 6: Comparison with alternative index EPU (UK)
Notes: The index represents the normalized frequency of media articles from Die Walt and Die Tageszeitung containing words (1) "Europa" or "EU" or "europäisch" and (2) "integration" or "Erweiterung" and (3) "problem" or "unsicher" or "Unsicherheit" or "Besorgnis" or "sorge". The index is at the monthly frequency from 2010:M1 to 2018:12 with a mean of 100. The economic policy uncertainty index is from Baker et al. (2016).

pronounced in newly presented indexes. These differences are mainly in European important events (e.g. UK treaty block, migration crisis which resonated the most in Germany, negotiations before Brexit, …). Despite well-known index EPU and its focus, newly developed index capturing all expected spikes related to the topic of European integration.

The indexes provide an alternative source for measuring public perception and the main benefit is the possibility of empirical capturing of public disagreement attitude with the implementation of individual policies pursued by authorities on a European or national level. This identification of public reaction to policies may help to alleviate upcoming disapproval peaks. When authorities make their policy decision, they are motivated by economic and non-economic costs. These non-economic costs represent the different public perception of the issue, as can be identified from the indexes. Another insight is provided within a comparison between nations, which may provide data on the question of the ambivalence of European states toward the common project.

These indexes open several paths for future research. For example, it would be interesting to extend the empirical analysis to propose different channels through public perception that could affect the real economy. However, it can also be useful in fulfiling the empirical gap in this specific topic.

7　ACKNOWLEDGEMENT

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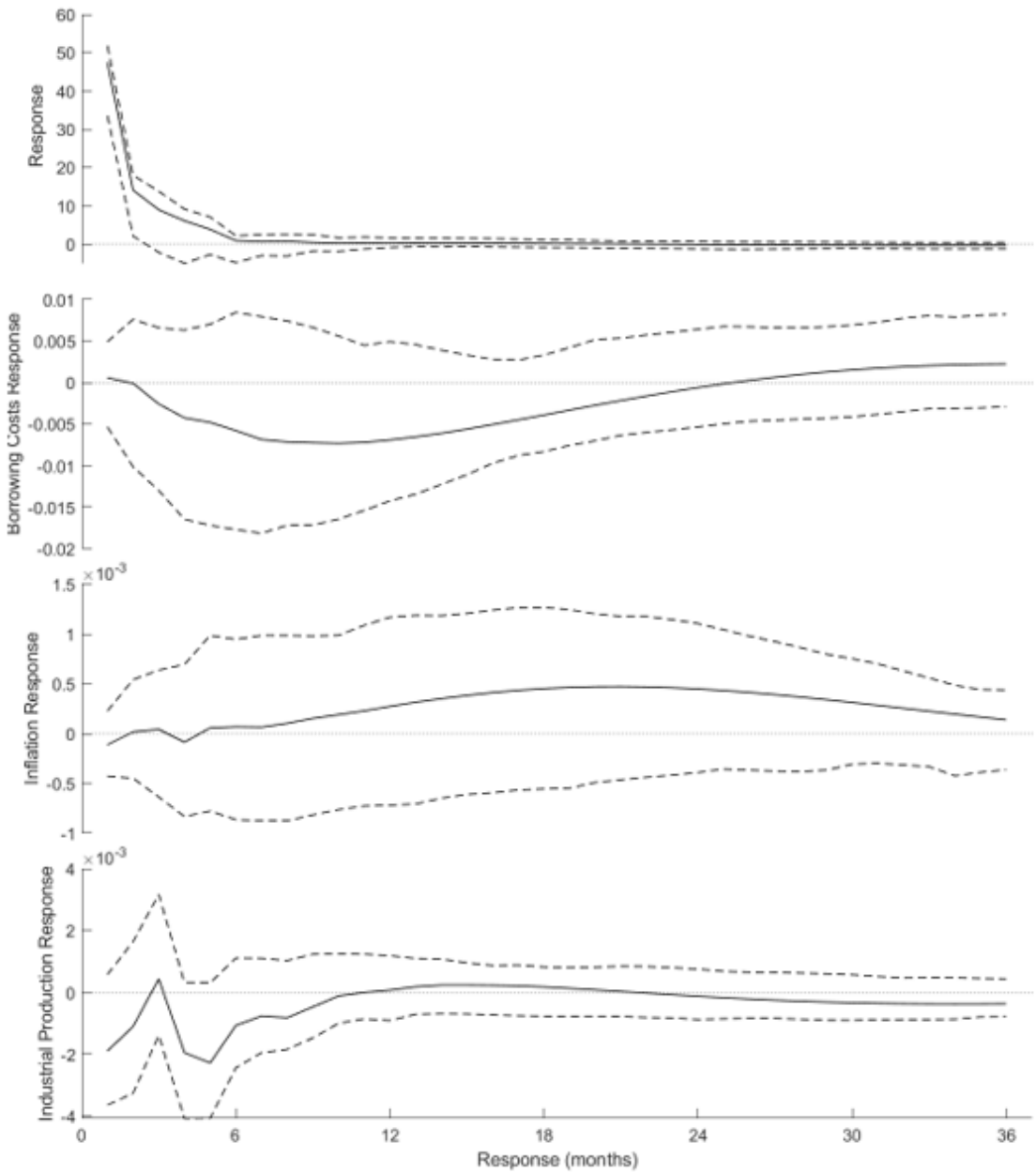
9   ANNEX

Fig. 7: Response impulse functions (UK)
Notes: Vector autoregression model (VAR) with the following specification (perception index, cost of borrowing, inflation, industrial production). Data is transformed using annual percentage changes including three lags of all variables. The results are reported as response impulse functions of one standard deviation of perception index with 90% confidence bands. Data for the United Kingdom.
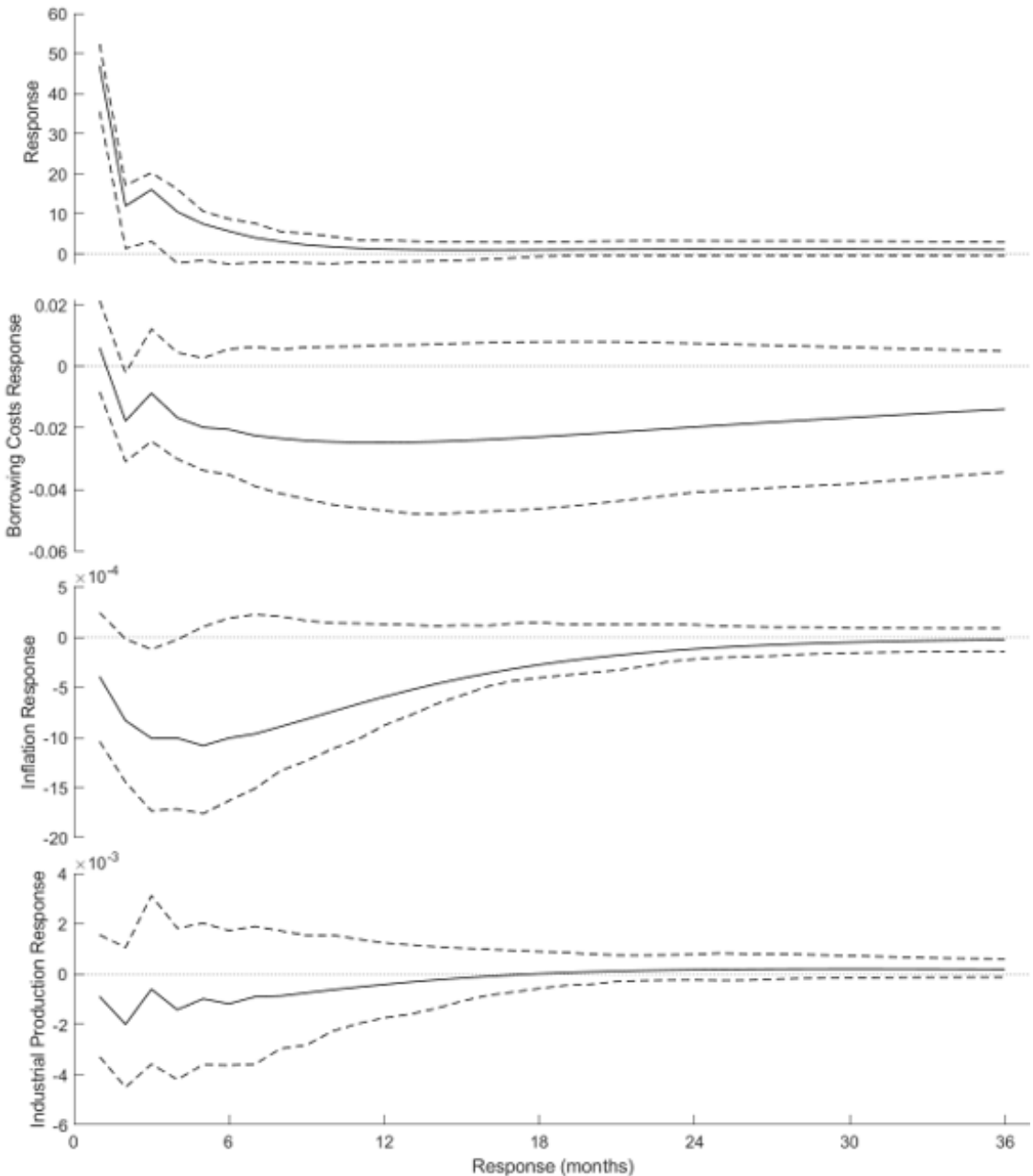
Fig. 8: Response impulse functions (DE)
Notes: Vector autoregression model (VAR) with the following specification, cost of borrowing, inflation, industrial production). Data is transformed using annual percentage changes including three lags of all variables. The results are reported as response impulse functions of one standard deviation of perception index with 90% confidence bands. Data for Germany.

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