MASTER THESIS

The EU as a People Pleaser – What drives public satisfaction with EU democracy?

An empirical study on the influence of perceived input and output legitimacy on satisfaction with democracy in the European Union

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Abstract

This study performs an analysis of the impact of individual perceptions of input and output legitimacy at European Union (EU) level on citizens' satisfaction with EU democracy. Based on data assembled in the "EUI – YouGov Solidarity in Europe" project, individual-level multivariate regressions are computed. The survey was executed in Spring 2019, 2020 and 2021, and the final dataset comprises 25,222 observations. The analysis is based on the input and output dimensions of political legitimacy developed by Easton (1957, 1975) and Scharpf (1999). Following my expectations, both perceived input and output legitimacy have a positive effect on satisfaction with EU democracy. I expect perceived output legitimacy to have a stronger impact than perceived input legitimacy, as EU output is more visible and easier to understand than the input dimension. The hypothesis can also be supported by my results. Contrary to my expectations, the Covid-19 pandemic and the health-related and economic crisis it caused globally did not increase the relative importance of perceived output legitimacy. It cannot be confirmed that people focus more on fast and protective political decisions being taken and their situation getting better during crises. This may be due to an increased solidarity, but also due to citizens' evaluation of the national level. Instead of the hypothesised stronger effect of perceived output legitimacy, the study finds support for the assumption that in general, citizens use their national democracy evaluations to derive a judgment at the EU level instead of their perceived input and output legitimacy. The analysis suggests that this national cue-taking becomes stronger in crises, as national actions are more visible and more accessible for citizens. Further research in this question is needed, but what can be confirmed is the need for more and better public information about EU actions and decisions as well as improved EU output in order to strengthen citizens' satisfaction with EU democracy.

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Introduction

In the last decades, scholarly and political attention has been increasingly directed towards democratic legitimacy in the European Union (EU). Scholars have discussed whether the EU suffers from a democratic deficit (e.g. Follesdal & Hix, 2006; Majone, 2002; Moravcsik, 2002) while EU polity has focussed on strengthening democracy. The European Commission has taken several steps for improving citizens' direct participation. In 2001, a White Paper on European Governance brought up both better involvement of citizens, putting emphasis on providing more information, communicating more directly and ensuring better policies, regulation and delivery (European Commission, 2001b). The introduction of the Citizens' Initiative followed in 2010, giving people a more direct possibility to introduce topics at the European level (European Parliament & the Council, 2011) which was renewed and facilitated in 2019 (European Parliament & the Council, 2019). The Commission lately pushed for further citizen participation in the Conference on the Future of Europe, "giving Europeans a greater say on what the Union does and how it works for them" (European Commission, 2020b, p. 1).

It has become apparent that both scholars and politicians base their assumptions and argumentation on different conceptions of democracy and of what aspects are important for a supranational governance to be democratic. One concept that many scholars have agreed upon and used for their analyses is the input – output legitimacy model developed by Scharpf (1999). The theory splits legitimacy into the possibilities of citizens to participate in a system and influence decisions (input) and the decisions that are taken and effects they produce (output). As perceptions of input and output legitimacy form people's satisfaction with EU democracy (SWEUD), which is part of the EU's legitimacy and important for its persistence, the two types of legitimacy are central to understanding people's preferences about the EU. This study is thus going to focus on those two aspects.

In order to create a strong EU, citizens need to be supportive of decisions taken. Their evaluation of how democracy works, whether they feel heard and whether they are satisfied with decisions thus becomes crucial apart from building the democratic foundation of the union. How do European citizens judge the EU's democracy? Which factors play a role in the evaluation of democracy? Only a few studies deal with the general effect of the EU's perceived input and output legitimacy on satisfaction with democracy. Karp et al. (2003) focused on the economic situation, political knowledge and trust in institutions, finding trust in institutions to be the strongest predictor. Political knowledge plays a big role in determining whether citizens use national evaluations for cue-taking (low-knowledge citizens) or rely on a more diverse set of indicators (high-knowledge citizens). Hobolt's study from 2012 confirmed these findings, supporting a strong impact of perceived input legitimacy and little influence of national evaluations on the EU. Both studies rely on variables that are very closely tied to the national performance for measuring the EU's perceived output, which might explain why they find a stronger effect of perceived input than output legitimacy for satisfaction with EU democracy. The present study thus not only updates the findings from a decade ago but also aims at a more reliable operationalisation of EU-output.

Therefore, this study focusses on citizens' satisfaction with democracy at the EU level between 2019 and 2021, asking the question *To what extent do perceived input and output legitimacy influence citizens' satisfaction with EU democracy?*

Any regime or political system needs legitimacy and public support to persist (DiMaggio & Powell, 1983; Easton, 1975; Frandsen & Johansen, 2013; Suchman & Edelman, 1996). As the EU is a democratic system centred around its citizens, it is crucial that the latter believe in the EU's legitimacy (Linde & Ekman, 2003; Thomassen, 2015), which makes it an important concept both for researchers and the EU. Following Easton (1975) and Norris (1999), public support is among others built on satisfaction with the functioning of the EU. Although a debated concept, academic consensus suggests that SWEUD can be used to measure people's satisfaction with the democratic functioning of the EU and thus a part of what is needed to create public support. People answering questions related to satisfaction with democracy (SWD) might express attitudes on different subjects, but it is argued that SWD measures a regime's performance at a given moment, providing a way for measuring a part of the EU's legitimacy (Linde & Ekman, 2003).

The question needs to be raised what people expect of democracy and what is important to them. Is it perceived input or output legitimacy that citizens focus on? There are different theoretical assumptions, some have argued that increasing input possibilities will not strengthen democracy as citizens are not interested in EU policies (Moravcsik, 2002) or that increasing input legitimacy will decrease output legitimacy, as processes become more complex and compromises are even more difficult to reach (Horeth, 1999). Others suggest that improving input legitimacy, which increases consensus among actors and the feeling to have a say also leads to more satisfaction with the output (Lindgren & Persson, 2010). Schäfer et al. (2022) generate insights about citizens' reform wishes at the EU level, stating that they want a strengthening of both input and output of the EU. Currently, the EU is perceived as being rather distant from voters and voter turnout in elections to the European parliament, although at its highest in decades, is low compared to national elections (European Parliament, 2019). At the same time, recent and current crises such as the Covid-19 outbreak and the Russian invasion of Ukraine have shown that a strong EU is needed and wanted by citizens. The EU needs to be able to take and implement decisions, with countries supporting each other, but also presenting a common voice against external threats if needed. The European Commission expects people to want input legitimacy and thus pushes for more citizen participation in order to increase SWEUD (European Commission, 2020b; European Parliament & the Council, 2019). This thesis will provide insights about whether this assumption is true and how to strengthen EU legitimacy and public support.

In order to detect relevant factors for citizens' evaluation of EU democracy, the study proceeds as follows. The following part summarises past research on the EU's democratic quality from an academic point of view as well as opinion studies about satisfaction with democracy. Then, a theoretical base is established which allows to derive hypotheses. After presenting the operationalisation of data, the methodology is explained. The fifth part presents the analysis' results which are discussed in the last part, finishing with a conclusion.

State of Research

The democratic quality of the European Union has for many years been subject of scientific debate. Historically, the EU did not aim at being a representative democracy that gave citizens an arena for political discussion and included their input. It started as an elite project, first focussing purely on ensuring peace in Europe, then moving over to more regulation of the economy and common politics. Back then, its aim was to produce the best policies for these ends, and the project had

overall popular support. Today, people want, but also have ever more influence on the EU and its decisions and need to be considered in democratic processes (Hobolt, 2012).

EU Democratic Deficit

Before focusing on citizens' perception of and satisfaction with EU democracy, an introduction into theoretical discussions of the EU and its democracy are necessary. Scholars base their judgment of EU democracy on different assumptions, attesting the multi-level system to be sufficiently legitimised or lacking legitimacy (Follesdal & Hix, 2006; Horeth, 1999; Majone, 2002; Moravcsik, 2002). Moravcsik argues that the constitutional constraints are reliable in limiting EU policy to the desired scope, that there is no bias towards neo-liberal policies (as is sometimes criticised) and that the EU is sufficiently legitimate due to the accountability of national governments. He also claims that increasing participation would not solve the problem due to low salience of the topics and popular trust in technocratic institutions that is usually even higher than in elected institutions (Moravcsik, 2002). Majone agrees that there is no democratic deficit. According to him, the EU cannot be directly compared to national systems and their legitimacy due to its sui generis nature, making many arguments of critics obsolete. His main argument is that democracy does not translate to a majoritarian system but is complemented by non-majoritarian elements, which means that the EU's often criticised delegation to independent institutions is acceptable and even necessary. He states that as long as accountability is ensured via procedural and substantive legitimacy, the EU's efficiency-oriented policies should be delegated for continuity and commitment (Majone, 2002). Agreeing with above-mentioned criticism, Scharpf (1999) argues that input-legitimacy is simply not present in the EU, as it relies on participation and consensus which are in his view non-existent: the distance between citizens and representatives is big and decisions are taken by majority. He further explains that for solving problems, common interests are enough, implying that a common identity is not needed for output, and that different mechanisms, such as electoral accountability, expert support, intergovernmental agreements and policy networks ensure the political success of the Union and hence lead to output legitimacy. Follesdal and Hix (2006) disagree about the democratic deficit based on one fundamental aspect, namely that every democracy requires contestation for political leadership and policy, which is absent in the EU. They argue that the institutional design is relevant for ensuring that policy outcomes are not only satisfying now, but also in the future, and that political competition is necessary for having responsive officials as well as opinion formation.

Other scholars join in on different shortcomings in the EU setup while attributing them different levels of importance. Scholars argue that the confidence in representative democracy is declining, making participation at the EU level increasingly important for citizens (Greenwood, 2007). According to scholars, the EU's problems start with the increase in executive power at the EU level without a parallel increase of national parliamentary control. This includes for example the lack of transparency in the Council, where national officials are unsupervised, as they are not accountable to their national government (Follesdal & Hix, 2006; Horeth, 1999; Piattoni, 2013). Then, the European Parliament is criticised as too weak due to the lack of budgetary and legislative control, especially because it has no control over the EU's executive (Cengiz, 2018; Follesdal & Hix, 2006; Greenwood, 2007; Horeth, 1999).

The biggest criticism concerns the European elections, which are often termed "second-order" elections (Follesdal & Hix, 2006) due to the low turnout and the lack of a focus on European topics. There are no European parties that compete for office in an electoral campaign that is centred on

European policies and personalities. Instead, EU political groups are created from elected national parties that focus their campaigns on national topics. Elections thus do not show the opinions of EU citizens on European topics but rather on national policy-making, which means that European leaders cannot be oriented towards citizens' EU preferences (Cengiz, 2018; Follesdal & Hix, 2006; Greenwood, 2007; Hobolt, 2012; Horeth, 1999). In addition to the lack of responsiveness, the lack of competition and European debates is criticised as inhibiting people from forming an opinion on the topics and thus, even if elections were "European", of choosing a veritable representative. Scholars add that institutional arenas for a constructive opposition that presents alternatives to citizens without being anti-EU parties are needed for long-term success (Follesdal & Hix, 2006).

Furthermore, as EU parliamentary elections do not have an influence on the Commission, academics claim an institutional distance between the citizen and politics (Greenwood, 2007; Hobolt, 2012). This distance is accompanied by a psychological distance stemming from the difference of European institutions from the national ones which make it difficult for citizens to understand the system. Moreover, it is criticised that EU institutions have several roles at once, slightly contradicting what people know as separation of powers in their country (Follesdal & Hix, 2006; Hobolt, 2012).

Finally, criticism has been voiced towards the policies decided at the EU level, declaring a policy drift: policies are, as explained above, not necessarily supported by citizens, and member states can adopt policies at the EU level that are not possible under direct popular scrutiny at the national level. According to Follesdal and Hix (2006), in addition to national interests, private interests have more and more direct opportunities to influence EU policies than national policies.

This criticism has been heard by politics to some extent: the Lisbon Treaty is often mentioned as one step for improving democratic legitimacy in the EU, as it not only commits to democratic principles but also strengthens national parliaments and the European parliament and creates new possibilities of citizen participation. EU institutions agreed on making the EU more democratic in order to increase public trust. Nonetheless, it becomes apparent that interinstitutional disagreement about the tradition of democracy led to different ways of pursuing that goal: elements of representative and parliamentary democracy can be found, as well as the goal of a union of states (Bevir & Philipps, 2016).

Satisfaction with (EU) Democracy

These different points of view are important for democratic quality in the eyes of scholars (e.g. Follesdal & Hix, 2006; Horeth, 1999; Moravcsik, 2002). Academia mostly puts citizens at the heart of the democratic system. It is less researched, however, how people perceive EU democracy and which aspects serve as a basis for their evaluation. My analysis is based on satisfaction with EU democracy, moving from theoretical assumptions about what works or does not work in EU democracy to what people actually think. Public support is fundamental for democratic stability, and satisfaction with democracy is mostly used to measure this support. There is no common definition of the concept, and people answering survey questions about it may express general regime support or attitudes about regime performance.

To start with, citizen satisfaction (with democracy) as a concept is often taken for granted and not further described. Heyne (2018) defines it as the gap between what should be and what is: subjective expectations about democracy are the normative model that someone follows, and they

are compared to an evaluation of reality. The resulting judgment of the functioning of democracy is someone's satisfaction with it.

Considering the details of the concept of public support, Easton (1975) introduced the division between specific support, immediate political (dis-)satisfaction based on the connection between citizens' desires and the system's outcomes, and diffuse support. The latter translates to the long-term acceptance of basic political arrangements which can be operationalised as trust and legitimacy and is based on an individual's own moral principles, formed by socialisation and own experience. Dellmuth and Schlipphak (2019) slightly change the order of the argument. They argue that both aspects, self-interested performance evaluations and moral beliefs, are relevant for people's legitimacy beliefs as well as for both specific and diffuse support.

These types of support form a continuum that can be applied to different subjects of political support, including support for the political authorities, the regime and the political community (Easton, 1975). Norris (1999) has refined the model to consist of five instances: support for political actors, regime institutions, regime performance, regime principles and political community. While specific and diffuse support are sometimes aligned to these instances, stating that support for political actors is the most specific and political community the most diffuse (Linde & Ekman, 2003; Norris, 1999), others argue that Easton's framework (1975) suggested that specific and diffuse support can be held for all political objects (Kriesi, 2013).

Linde and Ekman (2003) then argue that SWD is an indicator for a regime's performance, or as they put it "the way democracy works in practice in a particular country at a given point in time" (p. 393), and not for general support of a regime's principles. As this interpretation is supposed to be measured in this study, I can build the analysis on the item. SWD is criticised for being biased by political preferences, as being a supporter of the national governing party is likely to increase national satisfaction with democracy (national SWD) and vice versa (Linde & Ekman, 2003). While this is surely also true at the European level, the effect can be expected to be smaller than at the national level (e. g. Plescia et al., 2021). This might be due to the fact that European elections do not have the same effect on an "EU government" as national elections do on the national government, so the criticism is muted at the EU level. Following theoretical assumptions, the question captures peoples' evaluation of the real functioning of regime procedures, and it is also commonly used in studies on citizens' opinion about their country's democratic legitimacy (Christmann, 2018; Kumlin & Esaiasson, 2012; Linde & Ekman, 2003; Quaranta & Martini, 2016).

The model developed by Norris (1999) also helps to establish the difference between two rather similar concepts. While satisfaction with democracy measures a regime's general performance, including normative expectations, its processes, such as elections and accountability mechanisms, and political decisions, satisfaction with government measures only the political output of the incumbent in a specific position (Grönlund & Setälä, 2007), referring to the instance of support for political actors.

Another important differentiation concerns satisfaction with (EU) democracy and trust. Satisfaction, as mentioned before, includes judgments of the regime processes and performance, while trust, according to Warren (2017) is the "judgment that another person [...], is both motivated and competent to act in the individual's interests and will do so without overseeing or monitoring" (p. 75). It describes the optimism that a system will produce good outcomes when left unmonitored (Easton, 1975). Trust can be created by socialisation and long-term experience, which is expressed

via satisfaction with democracy (Easton, 1975). Complementary to good outcomes and delivering public goods, it also comes from relying on the same institutional norms, from professional identities that imply commitment to certain rules and from institutionally defined sanctions against the trustees (Warren, 2017).

To summarise, satisfaction with EU democracy is neither a more specific form of legitimacy nor translates directly to EU trust. Instead, it measures current regime performance in the EU, which can have both specific and diffuse elements. In the long run, it is necessary to create legitimacy and public support for the EU to persist.

Past empirical studies on satisfaction with (EU) democracy

Many studies have been conducted concerning national SWD. Starting with perceived output legitimacy, perceptions of the national economic performance, also during the financial crisis, are found to be positively correlated to national satisfaction with democracy (e.g. Christmann, 2018; Cordero & Simón, 2015; Kestilä-Kekkonen & Söderlund, 2017; Magalhaes, 2016; Quaranta & Martini, 2016; Quaranta & Martini, 2017; Sirovátka et al., 2019), as well as citizens' future economic prospects (De Simone et al., 2022). Scholars have shed light on the fact that not only the economic performance, but also perceived input legitimacy in the form of judgments of democratic performance and feeling represented have an effect on national SWD (e.g. Christmann, 2018; Dahlberg et al., 2015). Some studies go further into detail on the last aspect, focussing on representational satisfaction and priority congruence between parties, politicians and citizens. They also find a positive correlation with SWD (e.g. Ezrow & Xezonakis, 2011; Kestilä-Kekkonen & Söderlund, 2017; Reher, 2015; Stecker & Tausendpfund, 2016; van Egmond et al., 2020). Another study shifts the focus to the mediating effect of issue diversity on polarisation: polarisation has a weaker influence on SWD when issue diversity is higher (Hoerner & Hobolt, 2020). Governmental performance and policy outputs in general and for specific policy issues such as social security and the environment are also found to be positively correlated (e.g. de Blok et al., 2022; Lühiste, 2014; Wagner & Schneider, 2006). As these analyses have only been conducted at the national level and present interesting influencing factors of SWD, it is necessary to repeat the analysis at the European level in order to confirm or reject certain assumptions in relation to the EU.

Studies that focus on explaining different degrees of satisfaction with democracy at the EU level are rare. Some scholars have chosen specific topics to study citizens' satisfaction with perceived input and output legitimacy in the EU: asymmetric access to (direct) decision-making in the EU is shown to decrease satisfaction with democracy (Schraff, 2020) and the importance of perceived input and output legitimacy for policy processes, taking the example of a chemicals regulation that shows that increasing input legitimacy in a process strengthens output legitimacy (Lindgren & Persson, 2010). Plescia et al. (2021) deal with the influence of elections and electoral outcomes on democracy satisfaction and confirm the expectation that elections increase citizens' satisfaction with EU democracy, with winners more satisfied than losers. Another study that focusses on the influence of short-term changes on satisfaction with democracy analysed the effect of the introduction of the Covid-funds. It finds no significant effect on trust in the EU or satisfaction with the EU's response to the Covid-19 pandemic (Turnbull-Dugarte et al., 2020). These studies, focussing on specific EU-related topics, have shown that both perceived input and output legitimacy influence SWEUD, but only restricted to specific topics. A more general analysis of everyday influences on SWEUD still needs to be performed.

Several scholars have analysed the connections between national SWD and SWEUD. Some find a spillover effect, with national satisfaction taken as a cue for EU satisfaction (Ares et al., 2017; Hobolt, 2012; Karp et al., 2003), others state the opposite, summarising that a positive judgment of national institutions makes it harder for the EU to live up to citizens' expectations (Sánchez-Cuenca, 2000). When research focuses on country-level variables, including the objective economic and governmental performance instead of satisfaction with the national level, effects are reversed: a better quality of national institutions comes with a negative evaluation of EU democracy (Desmet et al., 2012; Hobolt, 2012).

As EU opinion surveys rarely focus on all relevant factors for analysing perceived input and output at the EU level in relation to SWEUD (see Appendix A), only two studies have dealt with the factors in general. Data is absent, because on the one hand, studies do not include questions about the relevant factors or, on the other hand, are included in opinion polls which are rather unreliable and cannot be used scientifically. This lack of data, especially on perceived EU output, has made operationalisation difficult, which indicates the need to replicate the studies. The two examples that take a broader point of view are a study by Karp et al. from 2003 and Hobolt from 2012.

Karp et al. (2003) rely on three theoretical explanations for satisfaction, namely confidence in institutions, economic benefits and political knowledge. Comparing the satisfaction with national and EU democracy, they find a significant correlation but point to the "substantial variation in the correlation of these measures within countries" (Karp et al., 2003, p. 281). These differences convince the authors to search for explanations in individual aspects. The confidence in EU institutions is measured via trust in the institutions and the evaluation of the power of EP influence. Increasing knowledge is found to decrease the satisfaction with EU democracy but to increase national SWD. Lastly, economic benefits are determined via whether a country is a net contributor or beneficiary, where a strong impact on satisfaction with EU democracy is found: net contributors are less satisfied with EU democracy than net beneficiaries. The multivariate analysis adds that low-knowledge citizens use their evaluation of national democracy as a proxy for the EU level while high-knowledge citizens rely on more aspects. Finally, trust in the EU institutions is found to impact satisfaction positively in both groups, more strongly for more informed citizens.

A decade later, Hobolt (2012) performed a similar multi-level study based on the output-oriented and the procedural model. Her multilevel analysis includes individual- and context-level variables for input and performance indicators and finds both input and performance indicators (EP elections participation, confidence in national and EU institutions, positive economic evaluations & government approval) to be positively correlated with higher satisfaction. She finds a spill-over effect from the evaluation of the national to the evaluation of the European level, with higher confidence in national parliament and government leading to more satisfaction at EU level. The country-level analysis finds that the objective quality of governing institutions has negative effects on satisfaction with EU democracy. Hobolt also confirms Karp et al.'s finding that people who know more about the EU will rather judge EU democracy based on their evaluation of the EP and not use the national institutions as a proxy.

Both studies are relatively old and have not considered important developments of the last decade. Different crises have influenced citizens' general standing towards the EU, starting with the refugee crisis in 2015, the Covid-19 pandemic from 2020 and the Russian war in Ukraine, all requiring united European action and crisis management. Nationalist and populist parties have been on the

rise, claiming the EU to be an obstacle. Partly responding to these developments, the EU has tried to strengthen input legitimacy by involving citizens more strongly, especially via the Conference on the Future of Europe in 2021/2022 (European Commission, 2020b). These developments require research on citizens' satisfaction with democracy to be updated, testing whether the findings can still be confirmed today, which has implications for policy design and reform ideas at EU level.

Moreover, even though Hobolt (2012) focusses on the output-dimension of the EU, the chosen variables measuring the retrospective evaluation of the economy and the approval of the government's record focus on national aspects instead of EU performance. Although the EU is a strong actor in economic policy, which directly influences national action, a national economic evaluation does not seem a good fit for evaluating direct EU output.

As crises have become frequent in the last years, studies have increasingly dealt with their impact on public perceptions of the EU, its performance and its democracy. Although several studies have found a negative effect of the economic and refugee crises on public perception of and trust in the European Union (e.g. Braun & Tausendpfund, 2014; Christmann, 2018; Christmann & Torcal, 2017; Harteveld et al., 2017; Hernandez & Kriesi, 2016; Proszowska, 2022; Quaranta & Martini, 2016; Roth et al., 2022), few scholars have analysed whether European crises strengthen the relative importance of input and output indicators.

Considering how different economic factors influence trust in the European Parliament and the Commission, a huge impact of the financial crisis (2008/2009) on the relevance of factors is found. For the EU-15, inflation and government debt are found to lose importance during the crisis while unemployment becomes relatively more important, and for the EU-27, inflation and unemployment have a smaller impact on trust during the crisis while economic growth becomes more important (Roth et al., 2022). Focussing on the impact of crises on the relative importance of input and output indicators, Hobolt and Wratil (2015) confirm identity and utility concerns to be relevant for support for the Euro, with national benefits having a stronger effect on support for the Economic and Monetary Union (EMU) during the crisis while the effect of identity is weaker.

Concentrating on voting behaviour, Singer (2011) argues at the national level that the economy always plays a role in voting decision, but that it becomes more decisive during crises. This effect is confirmed for the European level by Hernandez and Kriesi (2016) who find support that economic considerations have a stronger effect during economic crisis.

Contradicting those findings, Serricchio et al. (2013) do not find individual and aggregate economic indicators during the global financial crisis to be directly related to Euroscepticism, and they also do not support a change in importance. Instead, they find support for the fact that the explanatory power of exclusive national identity and confidence in the EU institutions increases during the crisis while the importance of national institutional confidence for explaining Euroscepticism decreases.

The most encompassing study of the crisis effect on trust in the EU has been performed by Bauer (2018). He differentiates between donor and crisis countries, expecting different effects of the crisis. According to his analysis, in donor countries, European identity becomes more important for explaining trust in the EU during the crisis while both perceived input variables ("My voice counts in the EU") and economic factors decrease in explanatory power. For crisis countries, the importance of perceived input if also identified to decrease for trust evaluations, while both egocentric (judging someone's personal economic situation) and sociotropic (evaluating the EU's or

national economic performance) economic indicators are found to become gradually more important during (2009-2012) and after the crisis (2013-2015).

These studies look into different dependent variables, ranging from support for the EMU and Euroscepticism to trust in EU institutions and in the EU, but none concentrates on whether and how crises influence the importance of such factors for SWEUD. Moreover, the studies are inconclusive, as two find output-oriented variables (mostly economic) to become more important during (economic) crises, while the other two find stronger effects of identity during crises or at least a decrease in the explanatory power of output variables.

Considering the gap in past research, this thesis transfers findings about national SWD to the EU level in order to test whether they are also applicable there. As past studies have been impaired by methodological flaws, such as questionable output legitimacy operationalisation, this thesis chooses new individual-level indicators for judging EU output, aiming at a more robust operationalisation. Seeing that former studies dealing with SWEUD in general have been conducted over a decade ago, this study performs an update that allows to consider political developments of the last years. This thesis also adds a new dimension by including data from 2019, 2020 and 2021. Including the Covid-19 pandemic will shed light on the impact of a crisis on the relative importance of different SWEUD predictors, allowing to see whether they become more or less important under crisis conditions.

Theory

Legitimacy is central to considerations in political theory dealing with democratic systems. It means that citizens believe in an organisation's authority and right to rule, creating the feeling that it is right to obey and accept the system and its authorities because they follow similar normative or moral principles (Easton, 1975). It is also described as the normative justification of procedures and political authority which is derived from the comparison between a democratic ideal and the evaluation of the real functioning of democracy (Kriesi, 2013).

Following neo-institutionalist theory, organisations need legitimacy to persist (Aspinwall & Schneider, 2000; DiMaggio & Powell, 1983; Frandsen & Johansen, 2013; Suchman & Edelman, 1996; Wendling, 2010). Seeing an organisation as legitimate makes people feel an obligation to accept its acts and their bindingness, supporting it both passively and actively. These are prerequisites for an organisation or a regime to effectively provide its goods, such as norms, information and mutually beneficial cooperation (Buchanan & Keohane, 2006; Dellmuth & Schlipphak, 2020; Suchman, 1995).

Theory on regime support also suggests that regimes must be effective and legitimate to be stable, with legitimacy guaranteeing the system to persist in cases when it is not effective (Linde & Ekman, 2003; Thomassen, 2015). Easton (1957) also argues that legitimacy is needed for a system to survive in situations in which the output cannot fulfil the expectations of a critical number of people: even though they are not satisfied by current outputs, they believe in the system to translate their input into good outputs again at some point. Finally, Easton's (1975) framework on public support proposes legitimacy (and trust) to be an expression of diffuse support.

The EU is a democratic regime, and as democracy is built on the will of the people, public support and citizens who believe in the system's legitimacy are especially important (Easton, 1975; Linde & Ekman, 2003). Following Norris' model (1999), support for regime performance is one crucial part

of public regime support. Political legitimacy in this model is a long-term consequence of inter alia people believing in democracy as a principle and the functioning of democracy in a specific place at a specific time (Easton, 1975; Norris, 1999). For the EU, this translates to the current functioning of its democracy, which can be described as satisfaction with EU democracy (Linde & Ekman, 2003).

As shown in the previous chapter, scholars focus on different aspects and declare them to be important in judging EU democracy, which points to the need to categorise determinants of SWEUD. In 1863 already, Abraham Lincoln coined democracy to be "government of the people, by the people, for the people" (Lincoln, 2009). This shows a distinction of different aspects of democracy that was made more explicit a century later by political scientist Easton (1957): he declares a political system to consist of different parts that are related and exert mutual influence, which determines the way in which decisions are taken. He splits the system into inputs and outputs. Inputs are demands made by individuals or groups within society, and support. To function, the system requires a net balance of support, both in action and in attitudes. Outputs are the political decisions taken in the system which are matched to the demands by government. Satisfying demands creates support for the system. Not all demands can be satisfied, but they also do not have to as long as a reserve of support exists (diffuse support). He summarises that an input-output balance is vital for political systems.

Scharpf (1999) created a stronger link between input and output and the legitimacy of political regimes, which helps to classify measures taken and shortcomings. It also allows to determine citizens' focus, looking into which aspects are most important to them. Scharpf's (1999) input-oriented lens turns towards the aspect of government by the people, with legitimacy introduced via the reflection of the will of the people. It describes procedures for citizen involvement in the decision-making process and its control. Support for the system stems from trust in the democratic institutions and equal participation in the process (Hobolt, 2012; Horeth, 1999; Schäfer et al., 2022). The output-oriented system reflects government for the people, primarily promoting common welfare (Scharpf, 1999). Output legitimacy is created by efficiently dealing with political problems. It is assumed that the legitimacy of a system is created via its capacity to fulfil citizens' demands and solve their problems. This dimension relies on a technocratic and utilitarian approach which is traditional for the EU, as its main aim is to promote economic welfare (Horeth, 1999; Schäfer et al., 2022).

As theory suggests perceptions of input and output to be important factors for satisfaction with EU democracy, the analysis focusses on these points. As the thesis deals with citizens' individual satisfaction and their way of judging, perceived input and output are the relevant factors and not the objective quality of the EU's input and output legitimacy.

The theoretical assumptions about legitimacy in the EU lead to the following hypotheses (H1):

H1a: Perceived input legitimacy has a positive impact on citizens' satisfaction with democracy at the EU level.

H1b: Perceived output legitimacy has a positive impact on citizens' satisfaction with democracy at the EU level.

Theory suggests that the "regime's legitimacy is largely determined by its effectiveness to deliver goods to the public" (Linde & Ekman, 2003, p. 400). As SWD is part of a regime's legitimacy, it is in itself strongly related to output evaluations. People are thus inclined to focus on output legitimacy evaluations when forming an opinion on their SWD, which has been confirmed for the

national level (e.g. Christmann, 2018; Dahlberg et al., 2015; Kölln & Aarts, 2017; Vlachová, 2019). Even though the effect has not been confirmed for the EU level in past research (Karp et al., 2003; Hobolt, 2012), I suggest this result to be due to an indirect operationalisation of perceived output legitimacy and expect this thesis to find another effect.

I base that claim on the fact that the above-mentioned focus on output legitimacy evaluations is especially valid in the EU. It has for a long time focussed its actions on output, with the citizens' perspective having only a weak role in determining politics (Bauer, 2018; Hobolt, 2012; Moravcsik, 2002). The discussion on the EU's democratic deficit includes opinions that objective input legitimacy is virtually absent in the EU, which implies that citizens cannot base their SWEUD on input legitimacy (Scharpf, 1999). The intergovernmental and elite-driven character of the EU led to it being legitimised primarily by outputs and national representatives. Although this has changed through the Maastricht treaty in 1992 (Bauer, 2018), it still impacts processes and legitimisation today. As the original setup did not plan for a lot of citizen participation and relied only on good outputs, citizens see perceived output legitimacy as their primary base for democracy evaluation.

Moreover, the EU is (still) rather distant from citizens, and the output, if anything, is more visible. It needs to be considered that the national level also serves as a mediator for the EU's output, for instance looking at the national transposition of EU directives, which decreases its visibility (Bauer, 2018). On the other hand, part of the EU's input legitimacy is ensured by national representation, which creates indirect and complex representative mechanisms (Moravcsik, 2002). As the institutional setting is complex and decisions are taken by purely European as well as by national institutions and their representatives (Bauer, 2018), input legitimacy at the EU level is even more complex for citizens than output legitimacy. While on the one hand, this might lead to lower SWEUD, as citizens are not satisfied with input legitimacy due to its complexity, it also means that they rely more on output legitimacy evaluations for SWEUD.

These insights about the strength of output legitimacy and its perception in the EU lead to the following hypothesis (H2):

H2: Perceived output legitimacy has a stronger influence on satisfaction with EU democracy than perceived input legitimacy.

Short-term changes in satisfaction with democracy might be induced by external pressure, i.e. crises that influence citizens' evaluations via the importance attached to different variables (e. g. Christmann, 2018). According to theory on information processing, as a citizen, receiving more information on a topic can lead to a change in attitudes. Whether this happens depends on a process shaped by the own awareness for the topic, its media presence and individual everyday experiences. These, in turn, can be influenced by crises, which are determined by their salience, location, domain, duration and subjective attribution of responsibility (Bauer, 2018). The Covid-19 pandemic was a highly salient topic which hit the whole EU, having consequences for different areas (such as health, economy, unemployment, education etc.) and has had an impact on political and everyday life for over three years now. As, for instance, preventing the cross-border spreading of the virus in the EU and developing vaccines was a task for cooperation, the EU was at least partly seen as responsible for solving the problem. Hence, the pandemic can be classified as a crisis.

Crises are moments of politicisation of EU integration, as public awareness and information increase significantly. With more information available, people are more likely to base their attitudes and evaluations on the aspect they are informed about (Hobolt & Wratil, 2015; Singer,

2011). The politicisation of the EU has already been seen before, but interest in the EU mainly increased due to constitutional matters or in specific countries. Cross-border crises, on the other hand, increase salience all over the EU and highlight the decisions taken at EU level which otherwise often go unnoticed. The Covid-19 pandemic has a strong impact over different categories: the crisis as well as the EU's attempt to resolve it were highly visible, people felt individual crisis consequences and they were able to and started to assign responsibility to the EU. Moreover, certain groups used the Covid-19 pandemic for creating public conflict both about national and European topics. Research has shown that greater salience of a topic and more information allow and engage people to systematically and analytically evaluate a topic and accept it as a basis for attitude change instead of interpreting information in line with the opinion that already stands (Bauer, 2018; Hobolt & Wratil, 2015).

Economic voting theory also suggests that economic considerations are more salient for voters during a crisis, with electoral punishment found to be stronger than usually during the Great Recession (Hernandez & Kriesi, 2016). The increasing importance of economic output for voting decisions in the economic crisis can be applied to other crises: the relevant output dimensions, such as economic and health-related factors, have more explanatory power for SWEUD in a health crisis that influences the economic situation, e.g. the Covid-19 pandemic. Output evaluations are clearly crucial for SWEUD in times of crises and seem to be more important than under more calm circumstances.

Knowledge about individuals and their shifting focus in times of crises leads to the following hypothesis (H3):

H3: During the Covid-19 pandemic (2020 and 2021), perceived output legitimacy has a stronger effect on satisfaction with EU democracy than in the pre-crisis situation (2019).

These theory-based hypotheses about the impact of perceived input and output legitimacy on SWEUD and changes that occur during crises will be tested in the following chapters. In order to perform an empirical analysis, in the next step, data and variables are described and operationalised in order to derive linear regression models.

Figure 1

Theoretical Model
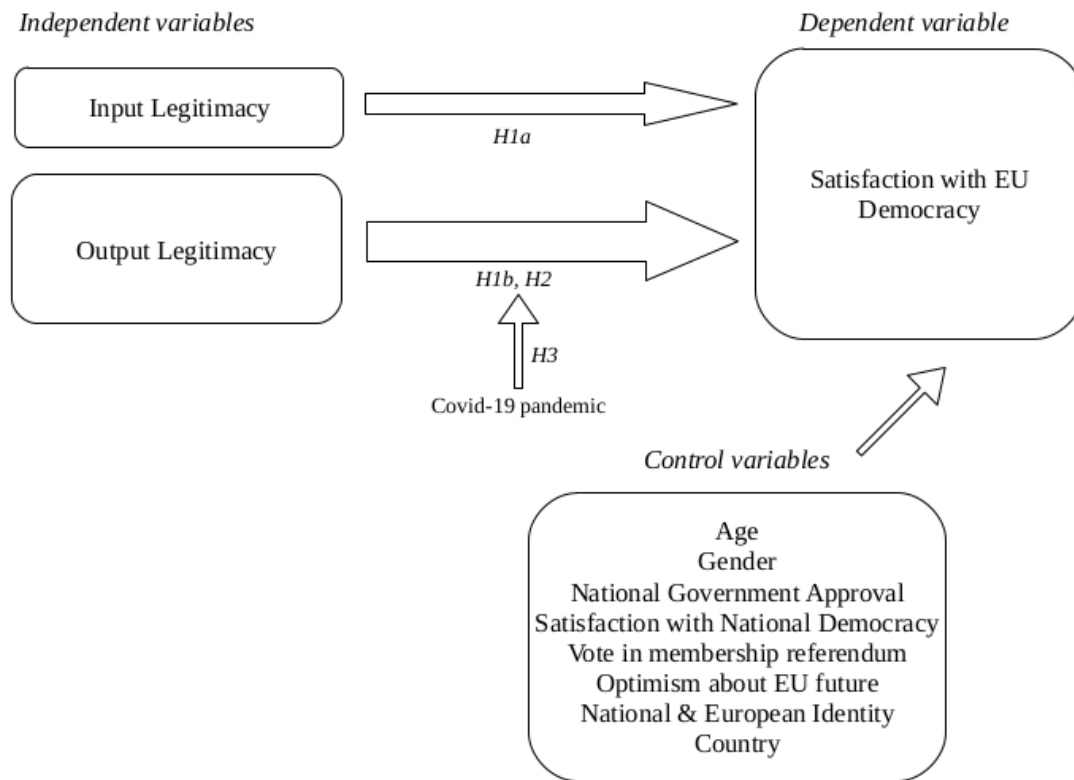
Note: Thickness of arrows symbolises the expected effect sizes.

Data and Operationalisation

The BMS ethical committee of the University of Twente has approved this research and the use of data. The analysis is based on data collected in the European University Institute (EUI) project "Solidarity in Europe" (Hemerijck et al., 2019; Hemerijck et al., 2020; Hemerijck et al., 2021), which is executed by the market research company YouGov. The dataset allows for an analysis of three consecutive years, including two years impacted by the Covid-19 pandemic, and provides items that allow for a robust operationalisation of the input and output variables. It has been chosen as the most suitable after comparison to the Eurobarometer, the Parlemeter, the European Social Survey (ESS), the European Values Study (EVS), the European Election Studies (EES) and the Comparative Study of Electoral Systems (CSES). The EVS, CSES and ESS do not include the questions that measure the dependent variable satisfaction with EU democracy. Having decided based on theoretical assumptions that items covering the EU's perceived input and output legitimacy are needed, this was the second criterion. The Parlemeter focuses on the perceived input dimension and mostly the European Parliament, while any operationalisation of perceived output legitimacy would have been very weak. The same applies to the EES. The Eurobarometer either focuses on the crises of the last years to measure EU performance or formulates questions in terms of how things should be, which also leads to a weak operationalisation of perceived output (see Appendix A). As crucial variables are missing from the datasets or difficult to operationalise,

another survey is chosen: the EUI YouGov survey includes items on perceived input and output legitimacy in a quite balanced way and allows for a more direct operationalisation of both variables.

The dataset includes 12 countries in 2019: Denmark, Finland, France, Germany, Great Britain, Greece, Italy, Lithuania, Poland, Romania, Spain, Sweden. I exclude Great Britain from the dataset due to Brexit, in the following years, the Netherlands and Hungary have to be excluded as they are missing in 2019. A merged dataset comprising all years provides 25,222 observations[1].

Dependent variable

As described above, asking about satisfaction with democracy has been criticised due to the ambiguity and multiple possible interpretations of the question, for instance related to whether it captures citizens' opinion on current regime performance or general democracy support. As Linde and Ekman (2003) have argued, SWD is used to measure people's satisfaction with the regime and not democracy in general, meaning that the concept I want to measure in this study is described by the item. SWD is also the most commonly asked survey question when dealing with democratic quality of a country or the EU (see Appendix A) and used in empirical studies to measure citizens' specific support for the regime and its performance (Cordero & Simón, 2015; Karp et al., 2003; Lühiste, 2014; Quaranta & Martini, 2017; Stecker & Tausendpfund, 2016; van Egmond et al., 2020), which means that it can be used to measure citizens' evaluations of the EU's current democratic status. The item wording is as follows: "And in the EU? On a scale of 0 to 10, on the whole, how satisfied are you with the way democracy works in the EU?" (11-point scale, end points verbalised). A single item measure is used in the analysis even though some scholars argue that due to the multiple layers of the concept, indices summarising different dimensions of democratic performance are a better fit (Christmann, 2018; Desmet et al., 2012). The single item has still been shown to be a reliable indicator of democratic performance and is widely used (Cordero & Simón, 2015; Hobolt, 2012; Karp et al., 2003; Plescia et al., 2021; Quaranta & Martini, 2016). Compared to dichotomous and categorical alternatives which are sometimes used, this discrete measure, treated like a continuous one, is trusted to be more precise (Cordero & Simón, 2015). As all variables are rescaled for the comparability of effect sizes, the variable is rescaled ranging from 0 to 1.

Independent variables

Different studies have shown that at the individual level, the perceptions of political and economic factors are important and have the strongest correlations with SWEUD, and not so much objective measures of economic growth and the quality of institutions. Individual evaluations can result in different images than objective judgments, as people judge responsibilities differently or understand different things depending on their expectations and norms (Christmann, 2018; Christmann & Torcal, 2017; Quaranta & Martini, 2017), which is why this analysis relies on people's individual judgments.

The first independent variable is perceived input legitimacy. The variable is a mean index of two items asking about the perceived individual influence at the EU level and national influence at the EU level, both on a four-point scale, with all answer points verbalised. The wording of the first question slightly changes from 2019 to 2020: "How much of a voice do you think people like you have in the EU?" (2019) to "Please tell us how far you agree or disagree with the following

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1   Denmark: 10.74%, Finland: 6.84%, France: 10.36%, Germany: 11.84%, Greece: 7.32%, Italy, 10.85%, Lithuania: 6.27%, Poland: 6.74%, Romania: 7.56%, Spain: 11.09%, Sweden: 10.40%

statement. People like me have a voice in the EU" (2020/2021). The wording of the relevant phrase "have a voice in the EU" is unchanged and overall, the questions are very similar, allowing us to use them to measure the same concept. The second question asks "Please tell us how far you agree or disagree with the following statement. Our country is influential in European affairs". The item scales are rescaled to 0 to 1 before computing the mean. As there are only two items, a factor analysis is not needed. Cronbach's Alpha of the index is 0.66, which is acceptable. The two items measure both direct representation of citizens, following the input model, and their indirect representation via the national level of elected representatives, which is argued to be an important factor for EU legitimacy (Moravcsik, 2002; Rohrschneider & Loveless, 2010).

The second independent variable is perceived output legitimacy, also measured as a mean index created from four-point scales, with all answer points verbalised. This index is formed from several items, asking "How much do you trust the EU to make things better in the following areas?". These areas include economy, employment opportunities, own financial situation, military defence, protection against terrorism, protection against crime, climate change, quality healthcare, immigration. The formulation of the item creates the need for discussion: the question asks about trust in the EU, which can be argued to be the outcome of high satisfaction with democracy, inverting the causal order. At the same time, as the question is related to specific policy areas and not about general trust in the EU, people need to focus on their current satisfaction with, for instance, quality healthcare, and reflect on recent EU performance in the field. Concentrating the evaluation on specific fields measures people's satisfaction with performance in that field and thus creates an output measurement. This is supported by theories of survey item response, stating that citizens' responses to survey questions are based on the most salient and immediate considerations they have at hand (Desmet et al., 2012). Apart from the fact that in this question formulation, emphasis does not lie with "trust" but rather with "making things better", many scholars have argued that trust is more specific than SWD. Following this argument, process evaluations can be approximated with trust in a representative institution and used as a predictor for SWD (De Simone et al., 2022; Kölln & Aarts, 2017; Linde & Ekman, 2003). It would have still been a clearer formulation to ask for instance how satisfied someone was with the way in which an issue, e.g. terrorism, was dealt with in the EU (for the national performance, see Hemerijck et al., 2019, Question "issuesatisfaction"), making operationalisation easier. Nevertheless, compared to other surveys (see Appendix A), the measure used in the EUI/YouGov survey is most suitable for assessing perceived EU output.

Taking a closer look at the individual items, bivariate correlations between output items point to the possibility of building an index (Appendix B). The Kaiser-Meyer-Olkin test gives a value of 0.94, meaning that a factor analysis is possible. The analysis shows that there are no clear-cut factors. Even though two factors could be defined, the factor loadings show that almost no item can be clearly assigned to only one factor. This factor explains 58% of variance (Appendix C). Hence, not two, but one index can be constructed from a choice of items in order to decrease missing values (Dellmuth & Schlipphak, 2020; Kühnel & Krebs, 2014). Considering the highest factor loadings (reached for economy, crime, terrorism and healthcare) and the high similarity between crime and terrorism as well as the number of missing values for the two items, three items are included in the output index: economy, terrorism and healthcare. Cronbach's Alpha for the index is 0.82, which is a very good and means that the index can account well for the different output evaluations.

All scales are rescaled to 0 to 1[2]. For all independent variables, scales are inverted to make 1 represent a positive evaluation. The same is applicable for all control variables that originally had the most negative evaluation represented by the highest number. For all control variables, all answer points were given in the survey.

Control variables

I control for socio-demographic influences, including gender and age for all years, as it has been shown that these variables can have an impact on satisfaction (Eichhorn et al., 2016; Hobolt, 2012; Hobolt & Wratil, 2015; Kuhn & Stoeckel, 2014; Ruiz-Rufino & Alonso, 2017). Unfortunately, political interest and knowledge as well as education cannot be controlled for, as they are not included in the dataset, even though scholars have found significant effects on SWEUD before (Hobolt, 2012; Karp et al., 2003).

Several studies have confirmed a negative impact of exclusive national identity on EU attitudes, which creates a necessity to include the aspect as well (Hobolt, 2012; Hobolt & Wratil, 2015; Hooghe & Marks, 2004). Intuitively, citizens' general attitude towards the EU will also influence their evaluations. Hobolt (2012) and Karp et al. (2003) include the aspect, measured via the support for unification in general or the discrepancy between the desired integration speed and the perceived integration speed. These items are not available in the chosen dataset, instead, citizens' optimism about the EU's future and their vote in a hypothetical membership referendum are used.

Considering that the EU is a multi-level system and that the influence of national institutions on EU perceptions has been found to be relevant (Karp et al., 2003; Hobolt, 2012), apart from including the countries as controls, satisfaction with national democracy and governmental performance are considered as control variables. The evaluation of satisfaction with EU democracy is sometimes criticised to be mirroring satisfaction with national democracy, as several studies have found strong correlations (e.g. Karp et al., 2003), which is why national democracy satisfaction is controlled for. The same applies for national government approval, because people can take the national level as a cue for the EU level or have to do so because they are not informed enough to make an independent evaluation (e.g. Ares et al., 2017; Hobolt, 2012; Karp et al., 2003). Denmark is chosen as the reference point as it is placed at the negative end of the scale and makes comparison of the other countries easier.

The following table describes the variables used in the analysis, summarises the transformations that were performed and presents the exact question wordings.

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2   Age is the only exception, for simplicity it is included in the linear regression as a continuous variable ranging from 1 to 5.

Table 1

Description of Variables

	Description	Question EUI YouGov
Dependent variable		
eu.dem.satisfaction	Measure of SWEUD, measuring how satisfied citizens are with the way democracy works in the EU, original scale 0-10 (11-point scale, only end points verbalised) rescaled to 0-1, 1 = most satisfied	On a scale of 0 to 10, where 0 means extremely dissatisfied and 10 means extremely satisfied, on the whole, how satisfied are you with the way democracy works in the European Union?
Independent variables		
input.index (influence.country & eu.voice)	Measure of perceived input legitimacy, the perceived representation of individuals at the EU level, mean index of two items measuring the evaluation of the country's weight at EU level and the impact of the own voice at the EU level, original scale 1-4 (4-point scale, all points verbalised), rescaled to 0-1, 1 = best input	Please tell me how far you agree or disagree with the following statement: [COUNTRY] is influential in European affairs. How much of a voice do you think people like you have in the European Union? 2020/21: Please tell me how far you agree or disagree with the following statement: People like me have a voice in the European Union.
output.index (output.economy, output.terrorism, output.healthcare)	Measure of perceived output legitimacy, evaluation of the EU's output in different areas, mean index of three items measuring evaluation of economy, terrorism, healthcare, original scale 1-4 (4-point scale, all points verbalised), rescaled to 0-1, 1 = best output	And how much do you trust the European Union to make things better in the following areas? The economy (2020/21: economic situation), climate change, military defence, protection against terrorism, protection against crime, employment opportunities, your own financial situation, access to quality healthcare, immigration
Control variables		
age.group	Age groups: 1 = 18-24, 2 = 25-34, 3 = 35-44, 4 = 45-54, 5 = 55+	
gender	0 = male, 1 = female	
nationality.european	Measure for general EU attitude: an exclusively national vs. exclusively European identity, original scale 1-4 (4-point scale, all points verbalised), rescaled to 0-1, 0 = exclusively national, 1 = exclusively European, none of these & don't know coded as missing	Do you see yourself as [NATIONALITY] only, [NATIONALITY] and European, European and [NATIONALITY], European only, none of these?

eu.future	Measure for general EU attitude: optimism about the EU's future, original scale 1-4 (4-point scale, all points verbalised), rescaled to 0-1, 1 = very optimistic	Would you say that you are very optimistic, fairly optimistic, fairly pessimistic or very pessimistic about the future of the European Union?
referendum.membership	Measure for general EU attitude: vote in membership referendum, 0 = vote leave, 1 = vote remain, would not vote & don't know coded as missing	If there was a referendum on [COUNTRY'S] membership of the European Union, how would you vote?
country	1 = Denmark, 2 = Finland, 3 = France, 5 = Germany, 6 = Greece, 7 = Italy, 8 = Lithuania, 9 = Poland, 10 = Romania, 11 = Spain, 12 = Sweden	
nat.dem.satisfaction	Measure of national SWD, original scale 0-10 (11-point scale, only end points verbalised), rescaled to 0-1, 1 = satisfied	On a scale of 0 to 10, where 0 means extremely dissatisfied and 10 means extremely satisfied, on the whole, how satisfied are you with the way democracy works in [COUNTRY]?
government.approval	National government approval, binary variable, 1 = disapprove, 2= approve, rescaled to 0-1 2019: recoded to binary, unsatisfied and very unsatisfied = disapprove (1), very satisfied and satisfied = approve (2), neither nor and don't know coded as missing	Thinking about the [COUNTRY] government, how satisfied are you with the way it is doing its job? 2020/21: Do you approve or disapprove of the [COUNTRY] Government's record to date?

Analysis

All analyses were performed using R Statistical Software (v4.3.0, R Core Team, 2023) in the Integrated Development Environment Rstudio (Posit team, 2023). The following R packages were used: car (Fox & Weisberg, 2019), lmtest (Zeileis & Hothorn, 2002), psych (Revelle, 2023), sandwich (Zeileis, 2004; Zeileis et al., 2020), sensemakr (Cinelli et al., 2021) and tidyverse (Wickham et al., 2019). The documentation of the analysis can be found in Appendix D.

In a first step, the relevant columns from the years 2019, 2020 and 2021 were integrated, renaming all questions to similar variable names. The variables "country", "age.group" and "gender" were coded as a categorical variable and included in the analysis as dummy variables. For 2019, exact ages needed to be grouped into the age groups used in 2020 and 2021. Great Britain was excluded, missing values and "Don't Know" answers were coded as NA according to the codebooks. The variable "government.approval" was compressed to a binary scale in 2019 to match the other years. As explained above, scales were flipped and rescaled where necessary. In 2020 and 2021, Great Britain, Hungary and the Netherlands were excluded, as they were not included in the 2019 survey. Missing values were coded as in 2019. Scales were reversed and rescaled to range from 0 to 1 as explained above. Then, a merged dataset of all years was created.

To get a first overview of the dataset, the complete observations were analysed. Correlations between the output as well as the input items were calculated and a factor analysis of the output items was implemented in order to detect how many indices were needed for the independent variables. As explained above, the factor loadings and numbers of observations were used to determine three items that were included in the output index, while the two input items were used for the input index (Kühnel & Krebs, 2014). Cronbach's Alphas was calculated for both indices, giving acceptable results, as mentioned before. Finally, the mean, standard deviation, minimum and maximum as well as number of observations for all variables were determined as the summary statistics and exported into a document.

Regression models were computed. As the response variable is numeric (i.e. can be treated as such), linear regression, more specifically ordinary least squares (OLS) regression, was used. It was chosen because OLS as an optimisation strategy produces unbiased estimators for the real life alpha and beta. When certain assumptions are met (and they are, see below), the risk of outliers and multicollinearity is almost zero and the best linear unbiased estimators (BLUE) result from the regression (Backhaus et al., 2016). Due to the nested structure of the data, with people clustered in countries, multi-level analysis would have been an alternative approach (Cordero & Simón, 2015), but the problem of country-effects was resolved by including them as control variables. Regression diagnostics (see below) will also show that multinomial logistic regression could have been an appropriate approach.

Eight models were calculated:

one model with the two explanatory variables (**M1**),

$$\widehat{SWEUD}_i = \hat{\beta}_0 + \hat{\beta}_1 * input.index_i + \hat{\beta}_2 * output.index_i + \varepsilon_i$$

one model with only control variables (**M2**),

$$\widehat{SWEUD}_i = \hat{\beta}_0 + \hat{\beta}_1 * age.group_i + \hat{\beta}_2 * genderFemale_i + \hat{\beta}_3 * government.approval_i + \hat{\beta}_4 * nat.dem.satisfaction_i$$
$$+ \hat{\beta}_5 * referendum.membership_i + \hat{\beta}_6 * eu.future_i + \hat{\beta}_7 * nationality.european_i + \hat{\beta}_8 * country_i + \hat{\beta}_9 * year_i + \varepsilon_i$$

one model adding the input index (**M2a**),

$$\widehat{SWEUD}_i = \hat{\beta}_0 + \hat{\beta}_1 * input.index_i + \hat{\beta}_2 * age.group_i + \hat{\beta}_3 * genderFemale_i + \hat{\beta}_4 * government.approval_i$$
$$+ \hat{\beta}_5 * nat.dem.satisfaction_i + \hat{\beta}_6 * referendum.membership_i + \hat{\beta}_7 * eu.future_i$$
$$+ \hat{\beta}_8 * nationality.european_i + \hat{\beta}_9 * country_i + \hat{\beta}_{10} * year_i + \varepsilon_i$$

one model adding the output index (**M2b**),

$$\widehat{SWEUD}_i = \hat{\beta}_0 + \hat{\beta}_1 * output.index_i + \hat{\beta}_2 * age.group_i + \hat{\beta}_3 * genderFemale_i + \hat{\beta}_4 * government.approval_i$$
$$+ \hat{\beta}_5 * nat.dem.satisfaction_i + \hat{\beta}_6 * referendum.membership_i + \hat{\beta}_7 * eu.future_i$$
$$+ \hat{\beta}_8 * nationality.european_i + \hat{\beta}_9 * country_i + \hat{\beta}_{10} * year_i + \varepsilon_i$$

one model with both input and output indices (**M3**),

$$\widehat{SWEUD}_i = \hat{\beta}_0 + \hat{\beta}_1 * input.index_i + \hat{\beta}_2 * output.index_i + \hat{\beta}_3 * age.group_i + \hat{\beta}_4 * genderFemale_i$$
$$+ \hat{\beta}_5 * government.approval_i + \hat{\beta}_6 * nat.dem.satisfaction_i + \hat{\beta}_7 * referendum.membership_i$$
$$+ \hat{\beta}_8 * eu.future_i + \hat{\beta}_9 * nationality.european_i + \hat{\beta}_{10} * country_i + \hat{\beta}_{11} * year_i + \varepsilon_i$$

and one model with additional interaction effects between the output index and the years (**M4**)

$$\widehat{SWEUD}_i = \hat{\beta}_0 + \hat{\beta}_1 * input.index_i + \hat{\beta}_2 * output.index_i + \hat{\beta}_3 * age.group_i + \hat{\beta}_4 * genderFemale_i$$
$$+ \hat{\beta}_5 * government.approval_i + \hat{\beta}_6 * nat.dem.satisfaction_i + \hat{\beta}_7 * referendum.membership_i$$
$$+ \hat{\beta}_8 * eu.future_i + \hat{\beta}_9 * nationality.european_i + \hat{\beta}_{10} * country_i + \hat{\beta}_{11} * year_i + \hat{\beta}_{12} * (year * output.index_i) + \varepsilon_i$$

to test the third hypothesis. As the third hypothesis dealt with a health crisis, M4 was also calculated with the output.healthcare item instead of the output index (M4a). Due to the results of M4, another model was added, including the interaction effects between the input index and the years (**M5**).

$$\widehat{SWEUD}_i = \hat{\beta}_0 + \hat{\beta}_1 * input.index_i + \hat{\beta}_2 * output.index_i + \hat{\beta}_3 * age.group_i + \hat{\beta}_4 * genderFemale_i$$
$$+ \hat{\beta}_5 * government.approval_i + \hat{\beta}_6 * nat.dem.satisfaction_i + \hat{\beta}_7 * referendum.membership_i$$
$$+ \hat{\beta}_8 * eu.future_i + \hat{\beta}_9 * nationality.european_i + \hat{\beta}_{10} * country_i + \hat{\beta}_{11} * year_i + \hat{\beta}_{12} * (year * input.index_i) + \varepsilon_i$$

Regression diagnostics were performed for the full models (M3, M4 and M5), testing for linearity, homoscedasticity, normality of residuals and "high leverage" points. The analyses gave qualitatively similar results, which is why one exemplary model (M3) is described (plots for M4 and M5 in Appendix E).

In order to test linearity, a residual vs. fitted plot was used (top left). The red line should be flat around zero. The plot shows diagonal rows which could be explained by treating a discrete variable (eu.dem.satisfaction) as numeric. This means that a more sophisticated approach like multinomial logistic regression might be more appropriate (Backhaus et al., 2016). As OLS regressions are the standard approach for this type of analysis (e.g. Cordero & Simón, 2015; Roth et al., 2022; Schlipphak et al., 2022; Sirovátka et al., 2019; Stecker & Tausendpfund, 2016), they could still be used for the analysis and the linearity criterion was fulfilled.

A scale-location plot (bottom left) was used to test homoscedasticity. The plot should show no pattern, the worst case would be a cone shape. In this case, there is some kind of pattern, which is likely due to exclusively using discrete variables which were technically treated like continuous ones. The results from the plot were thus inconclusive and I used the Goldfeld-Quandt test to reach more secure results. The test defined homoscedasticity as H0 and heteroscedasticity as H1, the p-value in this case was 1 meaning I could not reject H0 which pointed to homoscedasticity. Heteroscedasticity would distort standard errors and thus significance tests which could be solved by using robust standard errors which are not affected by heteroscedasticity. In order to be safe, as the plot and the test gave inconclusive results, I still used robust standard errors for the models, which, again, is the standard approach (e.g. Cordero & Simón, 2015; Roth et al., 2022; Sirovátka et al., 2019; Stockemeyer et al., 2020).

Normality of residuals was tested by using a Normal Q-Q (Quantile, Quantile) plot (top right). The dashed line shows a normal distribution, meaning that the points should follow the dashed line.

They mostly do, just showing a slight "S"-shape which means that the underlying distribution is a heavy distribution. It still follows mostly a normal distribution, with values between -2 and 2 particularly important. As they are on the dashed line, normality of residuals could be confirmed.

Lastly, the residuals vs. leverage plot (bottom right) controlled for "high leverage" points. A legend entry for Cook's distance is visible, if there were bad points, a curved line in the top right corner with points beyond it would be visible. As I cannot even see it, there is no problem.

The assumptions for using OLS regression were thus fulfilled. The next step was to introduce robust standard errors in the models and calculate them accordingly (Backhaus et al., 2016; Kühnel & Krebs, 2014).

Figure 2

Regression diagnostics plots for M3
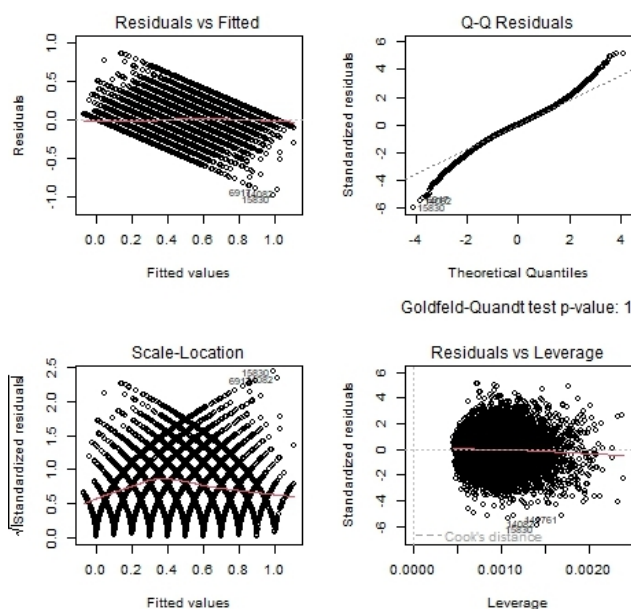
In a last step, I tested for multicollinearity using the variance inflation factor. Following Fox and Monette (1992), the $GVIF^{(1/(2 \times Df))}$ was used and interpreted. When squared, $GVIF^{(1/(2 \times Df))}$ can be treated like the VIF, which means very moderate and acceptable correlations from 1 to 5 (Backhaus et al., 2016; Kühnel & Krebs, 2014). All squared $GVIF^{(1/(2 \times Df))}$ were smaller than 2, meaning that no model had a multicollinearity problem (see Appendix F for results).

Results

Starting with the descriptive statistics of the data, the average person is neither satisfied nor unsatisfied with democracy at the EU level. They are slightly more satisfied with national democracy. They do neither evaluate input nor output positively, and the same applies to national government approval, they do not approve of national performance. The average person identifies as "national and European". Even though the average person is not very satisfied with input or output and democracy in the EU, they would vote for remaining in the EU. On average, people are also slightly more optimistic about the EU's future.

Table 2 shows the minimum and maximum, mean and standard deviation as well as number of observations for the continuous variables. Table 3 adds the number of observations for the categorical variables.

Table 2

Descriptive Statistics for Continuous Items

	min	max	mean	sd	N
eu.dem.satisfaction	0	1	0.51	0.27	25,222
input.index	0	1	0.44	0.26	25,222
output.index	0	1	0.42	0.24	25,222
nat.dem.satisfaction	0	1	0.54	0.30	25,222
government.approval	0	1	0.48	0.50	25,222
nationality.european	0	1	0.26	0.22	25,222
referendum.membership	0	1	0.72	0.45	25,222
eu.future	0	1	0.51	0.28	25,222

Note: Own standardisation to 0-1 performed.

Table 3

Number of Observations for Categorical Items

country	N	gender	N	age.group	N
Denmark	2,710	male	13,755	18-24	1,788
Finland	1,726	female	11,467	25-34	3,677
France	2,612			35-44	4,269
Germany	2,986			45-54	4,722
Greece	1,846		N	55 plus	10,716
Italy	2,736	year			
Lithuania	1,582	2019	5,106		
Poland	1,699	2020	10,206		
Romania	1,906	2021	9,910		
Spain	2,797				
Sweden	2,622				

M1, only including the explanatory variables input and output, already hints at a confirmation of the first two hypotheses, with both variables having a positive effect on SWEUD and perceived output being stronger. The model has an adjusted R^2 of 0.419.

M2 shows that women are a little more positive towards EU democracy while age only has a minuscule impact. Only looking at the control variables, satisfaction with national democracy has the strongest positive effect on SWEUD, followed by optimism about the EU's future, which has a stronger effect than someone's identity or their voting in a referendum. Contrary to national SWD, national government approval has a minimal negative effect on SWEUD. Looking at the different countries, I find Lithuania, Poland and Romania to be much more satisfied than the reference

country, Denmark (lowest SWEUD), but also the other countries. The Covid-19 pandemic had an effect on SWEUD: it was lower in 2020 and 2021 compared to 2019.

The third model which introduces the explanatory variables (for individual effects of the input index and output index, see Table 5) shows clear positive effects of perceived input and output legitimacy on SWEUD. Both assumptions of the first hypothesis (H1a and H1b) can be confirmed. Perceived output legitimacy has a stronger effect on SWEUD than perceived input legitimacy, the effect is about twice as big. When perceived input legitimacy increases from 0 to 1, SWEUD increases by 0.109, a complete increase in perceived output legitimacy increases SWEUD by 0.213. M2a and M2b also show that not only the effect of perceived output is bigger, but also its explained variance (M2b has a bigger R^2 than M2a). This confirms the second hypothesis. When both explanatory variables are included, age becomes non-significant for explaining SWEUD, while gender remains significant, with women slightly more satisfied. National democracy satisfaction has a significant, and overall the biggest, positive effect on SWEUD, with a maximum increase in national SWD leading to a 0.374 increase in SWEUD. The effect of optimism about the EU's future is also positive and slightly stronger than both explanatory variables, amounting to 0.219. Interestingly, it has a much stronger effect than someone's own identity, where moving from exclusively national to exclusively European can only account for a 0.06 increase in SWEUD, which is minimal. The same applies to the decision in a membership referendum which only minimally increases SWEUD moving from voting leave to voting remain. To summarise, someone's general attitude towards the EU has a positive effect on SWEUD. With Denmark taken as the reference country, three clusters can be distinguished: Germany, France and Sweden derive only minimally positively from Denmark's satisfaction levels, the next group consisting of Finland, Greece, Italy and Spain is a little more positive and citizens from Lithuania, Poland and Romania evaluate EU democracy the most positively. Looking at how well the model fits, the adjusted R^2 is 0.623, which indicates a very good fit of model.

Turning to M4 which adds the interaction effects between the output index and SWEUD, even though the effect is minimal, it is negative and significant for both 2020 and 2021 which contradicts the third hypothesis. The relative explanatory power of perceived output decreases in both years. As the crisis in 2020 and 2021 was a health crisis, a second version of M4 is presented, only including the healthcare-item (M4a). The effect becomes smaller but stays negative, meaning that the judgment of EU performance in the healthcare sector does not become more important for people's SWEUD during the crisis.

Reacting to these findings, an additional model (M5) was calculated for the interaction of the input-index and the years in order to examine whether perceived input legitimacy becomes more decisive for SWEUD. The regression shows that while the effect is positive for 2020 and negative for 2021, it is even smaller than the interaction effect of perceived output legitimacy and the years. Moreover, the interaction effect between the input-index and the years is not significant, thus negligible.

Discussion of the study's power

The thesis was based on a large N-dataset, and almost all effects were found to be highly significant ($p < 0.01$), which requires to test the study's power. Using the G*Power tool, the power of the F-test of the regressions (M3, M4, M5) and the t-tests for both independent variables were calculated. The

power for all models is almost one (see Appendix G), which is very high and points to an over-powered study.

Over-powered studies can be problematic for the interpretation of effects. In large-N studies, the probability of finding significant effects is disproportionately high (compared to smaller studies). In these large studies, very small effects are found to be highly significant although they have a limited real-life importance. In over-powered cases, the interpretation must consider the fact that the statistical significance (which is very high) does not equal the scientific significance (which can still be rather low), which means that effect sizes are important for interpreting results.

In my thesis, some highly significant and small effects have been found, but not for the independent, most relevant variables. They can thus be interpreted without special caution. However, the effect found for the interaction between the output index and the years is small compared to the independent variables, meaning that the negative effect may not have a real significance and could rather be interpreted as no effect. As the third hypothesis expected a positive effect of the interaction, it still has to be rejected.

Table 4

Regression Results for Main Models

	Model 1	Model 2	Model 3	Model 4	Model 5
Independent Variables					
input.index	**0.327 (0.007) ***		**0.109 (0.006) ***	**0.108 (0.006) ***	**0.111 (0.011) ***
output.index	**0.476 (0.007) ***		**0.213 (0.007) ***	**0.245 (0.012) ***	**0.213 (0.007) ***
Control Variables					
age.group		-0.004 (0.001) ***	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)
genderFemale		0.014 (0.002) ***	0.017 (0.002) ***	0.017 (0.002) ***	0.017 (0.002) ***
government.approval		-0.017 (0.003) ***	-0.029 (0.003) ***	-0.029 (0.003) ***	-0.029 (0.003) ***
nat.dem.satisfaction		**0.418 (0.007) ***	**0.374 (0.007) ***	**0.374 (0.007) ***	**0.374 (0.007) ***
referendum.membership		0.086 (0.004) ***	0.064 (0.004) ***	0.064 (0.004) ***	0.064 (0.004) ***
eu.future		**0.331 (0.007) ***	**0.219 (0.007) ***	**0.219 (0.007) ***	**0.219 (0.007) ***
nationality.european		0.086 (0.006) ***	0.060 (0.006) ***	0.060 (0.006) ***	0.060 (0.006) ***
countryFinland		0.057 (0.005) ***	0.073 (0.005) ***	0.073 (0.005) ***	0.073 (0.005) ***
countryFrance		0.045 (0.005) ***	0.049 (0.005) ***	0.049 (0.005) ***	0.049 (0.005) ***
countryGermany		0.029 (0.004) ***	0.026 (0.004) ***	0.026 (0.004) ***	0.026 (0.004) ***
countryGreece		0.061 (0.005) ***	0.085 (0.005) ***	0.085 (0.005) ***	0.085 (0.005) ***
countryItaly		0.054 (0.005) ***	0.061 (0.005) ***	0.061 (0.005) ***	0.062 (0.005) ***
countryLithuania		**0.133 (0.005) ***	**0.137 (0.005) ***	**0.136 (0.005) ***	**0.137 (0.005) ***
countryPoland		**0.143 (0.007) ***	**0.139 (0.007) ***	**0.139 (0.007) ***	**0.139 (0.007) ***
countryRomania		**0.172 (0.006) ***	**0.168 (0.006) ***	**0.168 (0.006) ***	**0.168 (0.006) ***
countrySpain		0.070 (0.005) ***	0.082 (0.005) ***	0.082 (0.005) ***	0.082 (0.005) ***
countrySweden		0.035 (0.004) ***	0.043 (0.004) ***	0.043 (0.004) ***	0.044 (0.004) ***
year2020		-0.023 (0.003) ***	-0.023 (0.003) ***	-0.007 (0.006)	-0.028 (0.006) ***
year2021		-0.011 (0.003) ***	-0.011 (0.003) ***	0.006 (0.006)	-0.003 (0.006)
Interaction effects					
output.index:year2020				-0.039 (0.013) ***	
output.index:year2021				-0.042 (0.013) ***	
input.index:year2020					0.011 (0.012)
input.index:year2021					-0.018 (0.012)
Intercept	0.170 (0.003) ***	0.000 (0.006) ***	-0.046 (0.006) ***	-0.059 (0.007) ***	-0.047 (0.007) ***
Adjusted R²	0.419	0.590	0.623	0.623	0.623
N	25,222	25,222	25,222	25,222	25,222

Note: Dependent variable Satisfaction with EU democracy. Beta coefficients displayed, robust standard errors in parentheses, effects > 0.1 in **bold**. All variables ranging from 0 to 1. Significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 5

Additional Regression Results

	Model 2a	Model 2b	Model 4a
Independent Variables			
input.index	**0.153 (0.006) *****		**0.127 (0.006) *****
output.index		**0.239 (0.007) *****	
output.healthcare			**0.145 (0.01)**
Control variables			
age.group	-0.003 (0.001) ***	-0.002 (0.001) **	-0.002 (0.001) ***
genderFemale	0.015 (0.002) ***	0.017 (0.002) ***	0.016 (0.002) ***
government.approval	-0.023 (0.003) ***	-0.026 (0.003) ***	-0.027 (0.003) ***
nat.dem.satisfaction	**0.397 (0.007) *****	**0.385 (0.007) *****	**0.384 (0.007) *****
referendum.membership	0.074 (0.004) ***	0.071 (0.004) ***	0.070 (0.004) ***
eu.future	**0.274 (0.007) *****	**0.251 (0.007) *****	**0.241 (0.007) *****
nationality.european	0.075 (0.006) ***	0.065 (0.006) ***	0.071 (0.006) ***
countryFinland	0.064 (0.005) ***	0.069 (0.005) ***	0.065 (0.005) ***
countryFrance	0.036 (0.005) ***	0.056 (0.005) ***	0.037 (0.005) ***
countryGermany	0.013 (0.004) ***	0.039 (0.004) ***	0.015 (0.004) ***
countryGreece	0.069 (0.005) ***	0.081 (0.005) ***	0.069 (0.005) ***
countryItaly	0.058 (0.005) ***	0.059 (0.005) ***	0.053 (0.005) ***
countryLithuania	**0.129 (0.005) *****	**0.140 (0.005) *****	**0.129 (0.005) *****
countryPoland	**0.136 (0.007) *****	**0.145 (0.007) *****	**0.135 (0.007) *****
countryRomania	**0.164 (0.006) *****	**0.174 (0.006) *****	**0.160 (0.006) *****
countrySpain	0.076 (0.005) ***	0.079 (0.005) ***	0.072 (0.005) ***
countrySweden	0.028 (0.004) ***	0.050 (0.004) ***	0.033 (0.004) ***
year2020	-0.025 (0.003) ***	-0.022 (0.003) ***	-0.013 (0.006) **
year2021	-0.012 (0.003) ***	-0.010 (0.003) ***	-0.002 (0.006)
Interaction effects			
output.healthcare:year2020			-0.027 (0.011) **
output.healthcare:year2021			-0.024 (0.011) **
Intercept	-0.013 (0.006) **	-0.041 (0.006) ***	-0.033 (0.007) ***
Adjusted R²	0.603	0.617	0.615
N	25,222	25,222	25,222

Note: Dependent variable Satisfaction with EU democracy. Beta coefficients displayed, robust standard errors in parentheses, effects > 0.1 in **bold**. All variables ranging from 0 to 1. Significance: *** p < 0.01, ** p < 0.05, * p < 0.1

Figure 3

Empirical Model
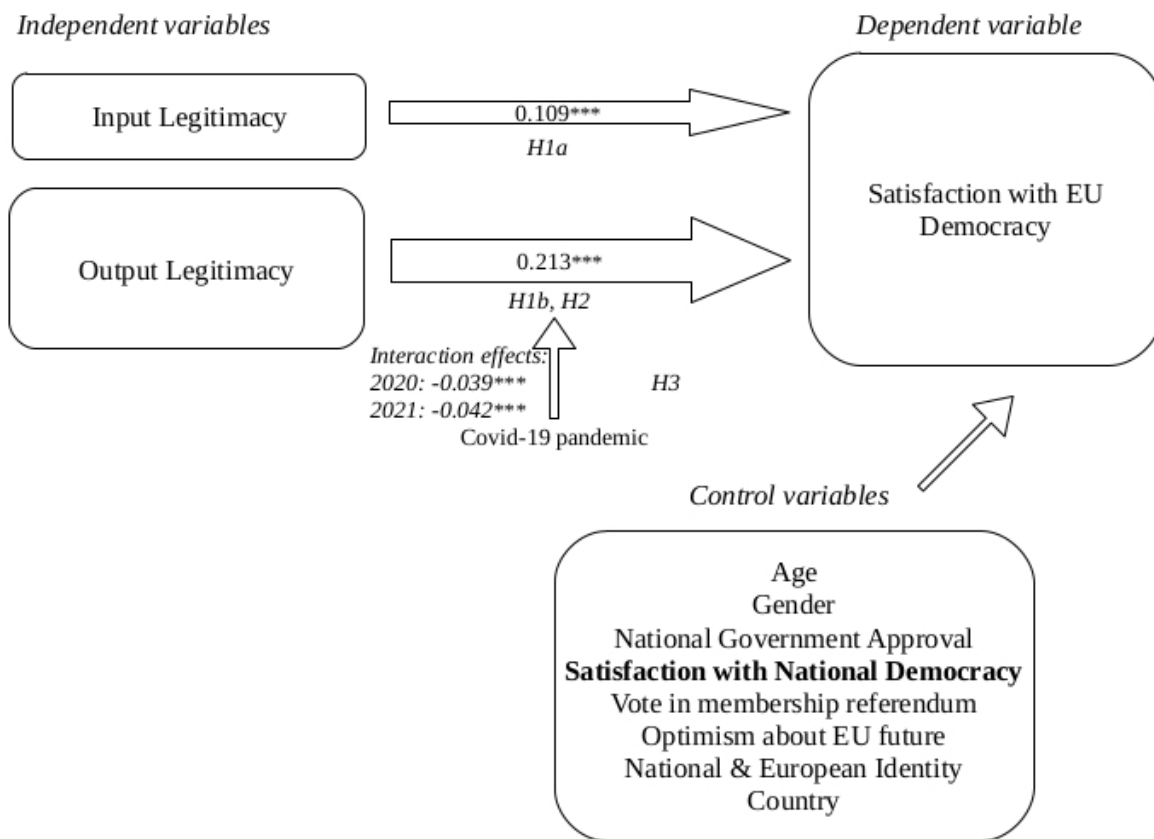
Note: Thickness of arrows symbolises effect sizes. Beta coefficients are displayed. Significance: *** $p < 0.01$. Interaction effects between output legitimacy index and years 2020 and 2021 are included to determine influence of the Covid-19 pandemic (crisis) on the relative importance of perceived output legitimacy. Control variable in bold has biggest effect.

Discussion

The empirical findings support a positive effect of both perceived input and output legitimacy on SWEUD, as suggested by the first hypothesis. I also find support for the second hypothesis, expecting the effect of perceived output legitimacy to be stronger. The third hypothesis has to be rejected, as the interaction effect between the output legitimacy index and the years 2020 and 2021, calculated to determine an effect of the Covid-19 pandemic on the relative importance of perceived output legitimacy for SWEUD, is negative. Although it is very small, as the expectation would have been a positive effect, the hypothesis cannot be confirmed.

This study was oriented towards two studies which analysed effects of similar factors on SWEUD, namely Karp et al. (2003) and Hobolt (2012), in order to test their findings in the present situation. Unfortunately, both studies could not be replicated perfectly due to data availability restrictions. Nonetheless, the present study tried for a better operationalisation of perceived output legitimacy. Comparing the effects found in the three studies, I am restricted by the fact that different items were used for operationalising different concepts and by the use of different scales. The effect sizes are thus not really comparable, but the qualitative results can be discussed.

Karp et al. (2003) include economic evaluations to measure perceived output and trust in the European institutions for perceived input. They find a stronger effect of the input dimension, which is confirmed by Hobolt (2012). She includes participation in the last European Parliament election and confidence in the European Parliament for the procedural, or input, aspect and retrospective economic evaluation for the output dimension, finding positive effects for both aspects. The strongest effect by large is found for confidence in the European Parliament, confirming perceived input to be stronger than perceived output. My study confirms a positive effect of perceived input and output on SWEUD, but a contrary strength of effects: perceived output has a much stronger impact on SWEUD than perceived input. This opposite effect can be partly explained by the differences in operationalisation. Both past studies, but especially Hobolt (2012), focuses on indicators for the output variable that can be interpreted as rather national and less European, while my operationalisation includes items that explicitly ask about the EU and its effects. The stronger European link has a significant effect on the results of the analysis. Furthermore, the EU in its daily activity has gotten more visible over the last decade (see Appendix H), with central political and legal decisions taken that affect more citizens: the discussions around roaming fees in the EU, the General Data Protection Regulation and, more recently, the European Green Deal which gets referred to in almost every climate change context. The refugee crisis from 2015 to 2017, political decisions taken in the context and the much-discussed lack of European solidarity when it comes to distributing refugees evenly among member states brought the EU up as a more visible actor for many citizens (Stockemeyer et al., 2020). Another event that increased public attention was Brexit, creating debates that were present in national media as well as personal discussions about what consequences the British decision would have for the United Kingdom, the EU and the own country. Independent of whether discussions are positive or negative, they are present and and form part of people's experience, and probably more than in the past. Looking at Eurobarometer data between 2007 and 2022, the impression is confirmed: while the visibility of the EU institutions is quite high and does not change significantly (except the ECB), people's understanding of the EU as well as whether the EU is topic of discussion increase (see Appendix H).

As the output dimension is more visible and also easier to understand for citizens, it is a better base for EU judgments than the input dimension. If someone does not care much about the EU and is less informed, policy outputs which they see in regulations at their workplace or when following the news are easier to understand than the input dimension. People might know about the opportunity to participate in EU elections, but do not understand how the parliament and EU governance work, what they influence and how they are represented. This study suggests that increased EU activity and visibility of the last years have shifted citizens' focus when evaluating EU democracy from their judgment of the EU's input to its output.

As the EU is a multilevel system and citizens' attitudes towards their countries have been shown to be relevant for many aspects, a comparison of those findings is also interesting. Karp et al. (2003) found a positive effect of national SWD on SWEUD which can be confirmed by the current analysis. In both cases, SWD has the strongest explanatory power of all variables. Other studies also confirm the effect of perceived national democratic quality on the evaluation of the EU and point to the crucial fact that people can only judge the EU based on its achievements if they have a basic understanding of it and able to attribute responsibility for decisions to the EU, meaning that they rely more heavily on national evaluations if they are uninformed (Ares et al., 2017; Armingeon &

Ceka, 2014; Desmet et al., 2012). This important effect caused by citizen knowledge and information should be included in future research.

Referring back to Hobolt's study (2012), she did not include national SWD but, looking at the effects of confidence with the national parliament and government approval, argues that evaluations of national aspects only have a very small effect while assessments of the EP are much more important for explaining SWEUD. This contradicts the strong effects found by Karp et al. (2003) and the present study. The latter finds a difference between the effects of national government approval, which is minimal but negative, and national satisfaction with democracy, which is very strong and positive. This can be explained by the fact that government approval is more specific and targets the incumbent, making it easier to use personal experience and current dissatisfaction when answering the question. Someone can be negative about the current government while still being satisfied with national democracy, a multi-layered concept. One could also say that it needs more for citizens to negatively judge their national democracy than to negatively judge the current government and its (recent) decisions. Moreover, as others have explained (Karp et al., 2003; Rohrschneider, 2002), an overestimation of the coefficient for national SWD is probable due to the same formulation of the questions about national SWD and SWEUD.

Surprisingly, Hobolt (2012) finds a positive effect of national government approval on SWEUD while I do not. This difference joins in on the discussion around the effect of national assessments on EU assessments. Many studies have been performed on the influence of national performance, national trust or trust in national institutions on trust in the EU or trust in European institutions and no direct judgment of its democracy. While these studies measure diffuse support on both levels or specific support at the national and diffuse support at the EU level, I have focused on more specific support on both levels. Nonetheless, study outcomes are highly diverse, and even with similar operationalisations, some find a positive effect of national (institution) evaluation on SWEUD due to cuetaking (Ares et al., 2017; Armingeon & Ceka, 2014; Boomgaarden et al., 2011; Harteveld et al., 2013) while others find a negative effect explained by lower national institutional quality or trust which lowers expectations for the EU level (Desmet et al., 2012; Kritzinger, 2003; Sánchez-Cuenca, 2000). Several longitudinal studies have also confirmed that spillover effects may change in size and, surprisingly, direction, over time, depending on critical moments such as crises which create salience for topics located either at the national or the EU level (Ares et al., 2017; Armingeon & Ceka, 2014; Dominioni et al., 2020; Torcal & Christmann, 2019). Results in current literature are thus highly various, and the diverging findings of the present study and Hobolt's study (2012) join in on the discussion. Nonetheless, both effects are minimal, and I need to consider that Hobolt (2012) has not included the national SWD measure (which gives a strong positive effect in my case), meaning that government approval in combination with confidence in national parliament and economic evaluations measures part of this variable.

Not considering effect sizes, which is not possible due to different scales used in the two studies, the positive effect of a positive general EU attitude found by Hobolt (2012) can be supported by two similarities. National and European identity, even though the effect is surprisingly small, has a positive effect in both studies, meaning that the more European someone feels, the more SWEUD they report. The second similarity concerns support for unification, which is found to influence SWEUD positively by Hobolt (2012). While I used optimism about the EU's future and a positive vote in a membership referendum, the positive effect can be confirmed.

Referring back to Hobolt's study (2012), one considerable improvement can be reported here: perceived output legitimacy is operationalised with a much stronger European link, which fundamentally changes the outcome of the analysis. Contrary to Hobolt (2012), perceived output needs to be seen as having the stronger influence on SWEUD, even though perceived input legitimacy is not irrelevant.

Looking at the three clusters found in country effects, effects of these studies combining individual- and national-level data can be confirmed. In 2000, Sánchez-Cuenca found Greece, Italy and Spain to be most pro-European and Sweden, Finland and Denmark to be most anti-European, arguing that these effects can be explained by the stability and political system of countries. These categories are still visible, with a new one added at the positive end of the scale due to the Eastern enlargements in 2004 and 2007. Even though Finland is not part of the most negative cluster, the general finding from 2000 can be confirmed, with Lithuania, Poland and Romania added at the positive end. This is in line with the negative country-level effect that is found in several studies, where working with country-level data, in countries with low national political quality and negative evaluations, citizens judge the EU more positively and vice versa (Munoz et al., 2011; Sánchez-Cuenca, 2000). The newer member states with developing democracies and past influence of the Soviet Union have lower expectations towards democracy and are thus more satisfied or trust the EU more (Harteveld et al., 2013), while Denmark, France, Germany and Sweden generally have stable democracies and satisfied citizens which makes them more demanding regarding EU democracy. After having overcome the Eurozone crisis which hit Greece, Italy and Spain especially hard and which caused decreasing levels of both national and EU satisfaction and trust, the countries have come back more trusting and satisfied again (Teperoglou & Belchior, 2020), potentially leading to their position in the medium cluster.

When turning to the third hypothesis, stating that the outbreak and consequences of the Covid-19 pandemic should shift citizens' focus to the EU's output and crisis reaction for evaluating its democracy, I find the opposite effect: perceived output legitimacy had a little less explanatory power for SWEUD in 2020 and 2021 compared to 2019.

These findings can be compared to effects found for the financial and Eurozone crisis. For the national level, results have been inconclusive: while an increase of importance of economic factors in national voting decisions can be found (Singer, 2011), other studies have not or only for some countries found economic and performance evaluations to become stronger predictors for national SWD during crisis (Kölln & Aarts, 2017; Önnudóttir & Hardarson, 2011; Vlachová, 2019). For the EU level, Hobolt and Wratil (2015) actually find a growing influence of utilitarian considerations during the crisis, which can be explained by the very close link between the agent that brings change, the financial crisis, and their dependent variable "support for the Euro". While the Eurozone crisis related directly to European economic integration and its consequences and made people focus on economic utility, the Covid-19 pandemic did not have such a direct effect (although it has economic consequences and led to more integration through financial EU support), which is also explained by the fact that monetary policy is a core EU responsibility while health policy is mostly regulated at the national level. When the link between the crisis and the dependent variable is less direct, as it also is in this study, scholars do not find the suggested stronger effect of economic output evaluations on Euroscepticism (Serricchio et al., 2013) or trust in the EU (Bauer, 2018), which is in line with this study's findings. In the latter case, one difference must be made: no

effect was found for the non-hit donor countries, instead, European identity became more important, while in the hard-hit crisis countries, both socio-tropic and egocentric economic factors gained explanatory power. It may thus be an important avenue for further research to differentiate between countries that were hit more or less hard by the Covid-19 pandemic, e.g. in terms of the number of deaths.

The decreasing importance of output evaluations might be explained by politicians' and citizens' focus on standing together and showing solidarity (Bauer, 2018), which might have decreased people's attention for the political outputs. At the national level, the effect of the pandemic has already been discussed and several aspects have been empirically supported. Even though they focus on the question of why trust in the national government or heads of governments increases in the crisis, arguments behind it also apply to the relative importance of perceived output legitimacy at the EU level: the Covid-19 pandemic has been both a health and an economic crisis (Kritzinger et al., 2021). Some scholars argue that in crisis situations, it is enough to implement policies that are perceived to (somehow) help and that retrospective performance evaluations are the reason why the government gains support as people show gratitude for a (slight) relief (Bol et al., 2021). Another approach is that the crisis has created an anxiety effect due to people's huge uncertainty and the high numbers of deaths, making people turn away from their usual ways of evaluating the government. Especially the economic considerations are less important and instead, as people need security, they unite behind the political leaders and a rally around the flag effect can be seen (Flinders, 2021; Schraff, 2020). Kritzinger (2021) finds support for both the judgment of governmental performance and a direct effect of the health threat during the Covid-19 pandemic leading to rallying around the flag to be relevant for trust in the government (Austria), while the rally around the flag effect is no automatism, as France shows. There is scholarly agreement on the fact that both effects are rather short-lived, because when the crisis unfolds and people start to get used to it, the shortcomings of governmental approaches become apparent and are criticised (Bol et al., 2021; Flinders, 2021; Kritzinger et al., 2021; Schraff, 2020). As soon as media and opposition politicians in a country enter into this phase, a huge blame game and blame shifting begins, as the focus lies on what went wrong, no matter how good or bad a reaction was. The reliance on experts and their opinion also leads to a kind of blame sharing where responsibilities are less obviously attributable (Flinders, 2021). This focus may explain why output considerations stay relatively unimportant over the course of the crisis even though the first anxiety effects decrease quickly. Although past studies have focused on slightly other factors, (partly) the national level and different levels of data (individual vs. aggregate data), which makes different results plausible, some underlying theoretical assumptions and derived findings are still applicable to my study. People's anxiety and a rally around the flag effect may have influenced their SWEUD and slightly distracted them from using perceived output legitimacy as their basis for evaluation. I also need to bear in mind that the decrease in importance is minimal, with other aspects, for instance, national evaluations, probably more important (discussed below). It could also be insightful to add data about the crisis which followed the Covid-19 pandemic, the Russian war in Ukraine, in order to see different implications of the health crisis and the war and their effects.

Moving on to the additional test that when perceived output legitimacy did not become more important, maybe perceived input legitimacy did. This effect cannot be confirmed, because although in 2020, a minimal positive coefficient is calculated, it is not significant. The (negative) influence in 2021 is also not significant, meaning that people did not turn to their impression of input legitimacy

to judge SWEUD during the crisis. I might explain this with several environmental factors: data in 2019 was assembled in April, directly before the European elections, which usually come with increased information and awareness of the pubic as well as increased attention for input legitimacy (without discussing the effect of the actual elections on SWEUD, for results, see Plescia et al., 2021). A natural reaction would thus have been for input legitimacy importance to decrease in the following months and having a smaller effect in 2020. On the other hand, input legitimacy and its increasing importance might have stayed on people's agenda as the Conference on the Future of Europe (CoFEU) was a discussed topic. Even though it de facto only started in May 2021, after the relevant survey periods, its preparation was present in the media and entered public debates in some contexts where people usually do not get in contact with or are informed about the EU. In these contexts, the importance of including citizens and their expectations and listening to their voices was underlined, potentially strengthening the effect of perceived input legitimacy. Another potential factor could be that the formulation of the items does not necessarily refer to institutional representation but to a feeling, which means that feeling their interests being taken into account can already lead to people confirming having a voice in the EU. During the crisis, having this feeling might have been expressed by having the impression that the EU was seeing people's distress and helping them e.g. by motivating countries to work together and support one another, which may have strengthened input significance. These weakening and strengthening effects may have nullified one another independent of the crisis. Referring back to the crisis context, Bauer (2018) also found the importance of governmental responsiveness for EU trust to decrease in all countries during the financial crisis and rather supported that people's identity and, consequently, their openness for solidarity became more relevant.

I can thus not claim perceived input or output legitimacy to grow in importance during crisis and rather refer back to findings of studies analysing the connection between national and European evaluations where the situation and judgment at the national level tend to become more important for EU judgments in crises (e.g. Ares et al., 2017). This might also be part of the blame game between different levels, with people relying more on national cues and then countries accusing the EU for bad decisions during the crisis, which may have an even stronger influence (Flinders, 2021). These assumptions would point to a confirmation of the compensation theory (Sánchez-Cuenca, 2000), seeing that while SWEUD decreases during the crisis, national studies find SWD to increase. At the same time, Serricchio et al. (2013) find EU institutional confidence to be the strongest predictor for Euroscepticism and a growing effect in the financial crisis while the importance of national institutional confidence decreases, which rather creates the assumption that citizens judge the EU based on which level is currently reacting to the crisis and how the respective level performs. In order to make any conclusions about this question, further research is needed about the size and developments of the effect of national and EU reactions to the Covid-19 pandemic on SWEUD.

These results contribute to the literature on satisfaction with EU democracy in four ways. First, the importance of both perceived input and output legitimacy as determinants of SWEUD was empirically confirmed and should be recognised in future research and political decisions. Second, there is an effect of time, created by political decisions and other developments, which needs to be considered and points to the need to further replicate past studies in order to update the effects found. Third, the operationalisation of output legitimacy and its perception needs to be very precise and aimed at direct EU-output in order to represent reality. Fourth, crises, even though they put

emphasis on the EU's performance, do not strengthen the importance of output legitimacy for judging EU democracy.

Limitations

I do need to point to some limitations of the present study. For one, the analysis is based on a selection of eleven countries and no EU-wide dataset. As they are geographically quite representative, the selection is acceptable, but the study should still be repeated including all 27 member states in order to make EU-wide conclusions.

Another point that needs to be considered is the operationalisation of the multi-dimensional concept "satisfaction with EU democracy" in terms of just one item (Linde & Ekman, 2003). Even though this is a thin operationalisation especially when bearing in mind the above-mentioned debate about the concept, it is the best measure available in large-N studies. As no other questions are presented that might be transformed into an index, for this study it was more important to be able to compare several countries over several years. It needs to be reflected for any judgment of EU democracy that people have different democracy ideals and values (Heyne, 2018; Kriesi, 2013; Thomassen, 2015). Future studies can improve the operationalisation by including more items capturing other dimensions of EU democracy as suggested by Desmet et al. (2012) and by including measures for people's concepts and priorities in order to understand their underlying democratic ideals.

Adding to this, several data shortcomings became apparent throughout the research process. First, even though perceived input and output legitimacy are commonly used in political science, surveys are currently not designed for doing research about the two concepts, which means that only a small choice of surveys was actually available. Second, the small number of surveys to choose from led to an imperfect operationalisation. The EUI survey was chosen as the best fit, but some items could have been formulated differently in order to create clearer results, and the inclusion of other items e.g. for the input index would have also improved the study's results. Third, several control variables have been exchanged over the years, meaning that they could not be included in the analysis. These include items dealing with education, political position and ideology, personal economic situation as well as political knowledge. As the effect of political knowledge on SWEUD, also as a mediator for other factors, has been found to be very strong (Hobolt, 2012; Karp et al., 2003), this is unfortunate for the quality of this analysis. Future research should, if possible, include this crucial factor.

Fourth, an analysis of long-term developments was not possible. Even though the survey has been conducted annually since 2018, only the years 2019 to 2021 could be included in this study: in 2018, the dependent variable was not included, and for the 2022 wave, the results on the output perception variable have not yet been published. A long-term trend analysis was not possible with the chosen survey, but looking into a period of a few years also gives important insights. Nonetheless, it would have been interesting to both have a longer comparative period before the Covid-19 pandemic hit, in order to analyse whether these are short-term or long-term changes (e.g. Proszowska, 2022). For future research, it would also be important to include more current observations, such as a potential changes in the explanatory power of perceived output legitimacy during another crisis, brought by the Russian war in Ukraine. Lastly, I had no panel data available, rendering it impossible to observe changes in people's individual satisfaction and how their personal judgment changes over time.

Most shortcomings concern data availability and possible operationalisation, which clearly points to the need to design more tailored surveys that include items to operationalise perceived input and output legitimacy and satisfaction with democracy as best as possible, as well as the common control variables. Questions that were included in past waves of different surveys and then excluded again may be useful for a better operationalisation of perceived input legitimacy: the European Election Study 2009 included a question about whether "the European Parliament takes into consideration the concerns of European citizens" (van Egmond et al., 2017, Q40), the Eurobarometer asked a similar question about whether the European Parliament protects one's interests (European Commission, 2001a, Q6.2). As mentioned above, asking about people's satisfaction with past EU performance on specific topics (e.g. economy, terrorism and healthcare, see for crisis reaction European Commission, 2022b, QC2.3, QE1.2) or whether they think that their country has benefited from the EU in the area (see Hemerijck et al., 2022, New_Q6c) would be a better formulation than asking about their trust in good future decisions, as this always includes optimism or pessimism about changes that the EU might make.

Furthermore, the input and output model has been criticised as insufficient, for instance with the need to add a deliberative dimension to the concept (Cengiz, 2018). The concept of throughput legitimacy was introduced to end the "black box of governance between input and output" (Schmidt, 2013, p. 2). Throughput legitimacy describes the efficacy of policy making, including accountability, transparency and openness to civil society. This thesis had to focus on perceived input and output legitimacy and neglected the throughput dimension, because available surveys that include satisfaction with democracy do not provide insights into the throughput dimension. Perceived throughput legitimacy should be integrated via questions about the transparency of processes and whether people understand how decisions are taken (European Commission, 2022b, QA11.1).

The limitations of this thesis and assumptions derived from findings that still need to be tested lead to suggestions for further research: First, a stronger operationalisation of both perceived input legitimacy and SWEUD, considering the multi-dimensionality of both concepts, should be included in future studies while assuring high standards for perceived output legitimacy in order to confirm the findings of this thesis. Second, perceived throughput legitimacy needs to be included in future studies to test its effect, as it is an increasingly important dimension of EU decision-making and people often criticise the complexity of processes which also has an impact on SWEUD. Third, the impact of political interest and knowledge has to be reintroduced in order to verify or reject the validity of past findings. Fourth, future studies should analyse longer time periods, both before the Covid-19 pandemic hit and after, when new crises started arising, in order to gain more insights about the impact of perceived output legitimacy during crises. Fifth, the impact of people's perception and evaluation of the national level on the European level and SWEUD and changes in its importance in crises, for instance due to rally around the flag-effects, need to be included, as this thesis suggests that national cues are an important predictor that even gains relevance in crisis. Lastly, future research might, as research about the financial and Eurozone crisis did, make a difference between whether a country was hit hard by the crisis, examining its health-related and economic consequences, and study whether and how different crisis outcomes influenced people's judgments of input and output legitimacy as well as SWEUD.

Conclusion

Democratic legitimacy is increasingly discussed in the EU, and the Commission attempts to strengthen people's feeling of being heard. Legitimacy is central for democratic regimes and hence also multi-level democracies such as the EU. The theoretical split in two dimensions, namely input and output legitimacy, dealing with whether people feel and are well represented and whether the policy outcomes are supported by them, allows for an analysis that compares the weight attached to them respectively by citizens. Few studies have focused on the topic, which is also due to a lack of data sources, but those that have needed updating in order to see whether past crises and political developments have changed people's opinions and opinion formation on SWEUD.

Focusing on the direct output of EU governance and people's input, this study confirms that both perceived input and output legitimacy have a positive effect on SWEUD. The EU should thus improve both its political input and output. At the same time, it needs to be considered that input and output legitimacy function in a trade-off system: at a certain point, increasing input opportunities means that so many interested parties contribute to a process that finding a compromise or solutions is difficult to impossible. This will most likely impair output legitimacy, as political decisions stay rather general, strict rules are mostly avoided and the outcomes are biased by who has the strongest voice or the biggest influence in the process (Horeth, 1999; Schäfer et al., 2022). Lindgren and Persson (2010) do find evidence that strengthening input legitimacy has the potential to also improve output legitimacy, but the mechanism probably only works up to a certain point, with a limited amount of interest groups. When the point is reached when only one type of legitimacy can be further improved, output legitimacy should find emphasis.

This is explained by the fact that concerning effect sizes, findings past EU studies cannot be confirmed: perceived output is the more relevant factor for people to decide upon their SWEUD. Some theorists, such as Follesdal and Hix (2006), Greenwood (2007) and Vesnic-Alujevic and Castro Nacarino (2012), suggest a strengthening of the EU's representational capacity and input legitimacy in order to solve the EU's democracy problem, which I cannot support with empirical findings for current years. The focus of EU politics on citizen inclusion and having a stronger voice does not seem to be the most effective approach, as output evaluations are more important for citizens. The EU should thus rather focus on improving its political output in order to strengthen SWEUD.

There are many discussions regarding output aspects to improve, also focusing on the three items selected for this analysis: economy, terrorism and healthcare. Concerning the economy, suggestions include inter alia five-year strategies for the economy and social policy, more inclusion and decision-making power of the European Parliament in the European Semester and country-specific recommendations (Plottka & Müller, 2020), majoritarian decision-making for stabilisation policies and macroeconomic surveillance (instead of unanimity), joint strategic investments, social mitigation of green transitions and strengthening of sustainability (investments), a common multi-layered fiscal policy for the European Monetary Union (Masini, 2022) and more coordinated industrial policy and producer coalitions for safer supply chains (Celi et al., 2020).

According to scholars, counterterrorism should be aimed at creating a common body of knowledge and expertise instead of incident-driven policies, moving to the protection of citizens' liberties and fundamental rights, the European Parliament can and should push for more and better personal data

protection, including the development of safe systems and networks for data storage (Argomaniz et al., 2015).

Looking at health, scholars state that it needs to be seen as a crucial part of other policy areas, such as environmental protection and social policy. The EU's health policy should focus on deepening and strengthening the given EU competencies instead of adding new ones, such as surveillance of epidemiological data and a collective health security and emergency response, more competencies for the European Center for Disease Prevention and Control (ECDC) and increased funding for research, the ECDC, the Health Security Committee (Brooks et al., 2021; Greer, 2020). These suggestions for reform are only some examples of what is suggested in order to make the EU more efficient and produce better outputs.

It can be reported that the Commission has reacted to reform suggestions, partly in reaction to the Covid-19 pandemic. Its action focuses on better coordination and cooperation in the area of health via the European Health Union (European Commission, 2020d) and the EU4Health programme (European Parliament & the Council, 2021). The top priorities (von der Leyen, 2019) of the von der Leyen Commission include "An economy that works for people", which is put into action and further detailed by inter alia a plan to improve taxation (European Commission, 2021a), a directive on minimum wages (European Parliament & the Council, 2022) and reform ideas for the EU economic governance framework (European Commission, 2022a) as well as the topic of terrorism which has also been included in the EU Security Union Strategy (European Commission, 2020a) and a Counter-Terrorism Agenda (European Commission, 2020c).

Although not the silver bullet that some expect it to be, perceived input legitimacy still has a significant effect on SWEUD. Other studies (Lindgren & Persson, 2010) have found that strengthening perceives input legitimacy also improves perceived output legitimacy, so it is still a good approach to also improve citizens' perceived representation. For improving input legitimacy, many approaches and ideas have been formulated apart from the existing ones, such as the European Citizens' Initiative and the Conference on the Future of Europe: European elections could be based on EU-wide transnational lists, the President of the European Commission could be elected in the Parliament elections (lead candidate of the strongest political group), the European Parliament should have a right of legislative initiative, two sets of consultation instruments aimed at citizens and civil society organisations could be established and participative instruments could be presented on one website that is accessible for all and allows everyone's participation and deliberation (Plottka & Müller, 2020; Vesnic-Alujevic & Nacarino, 2012). These propositions mainly focus on quality instead of quantity: it is not so much about inventing new mechanisms but more about making the present ones more meaningful, strengthening the impact of the elections and the European Parliament and making information and participation instruments available for everyone.

Again referring to the Commission's top priorities, theory-based demands have been included in political planning, asking for "a new push for European democracy", including the right of legislative initiative for the European Parliament and an improved lead candidate system (von der Leyen, 2019). The input-oriented action following these priorities has so far mainly focused on the European democracy action plan, putting emphasis on the elections, democratic participation, free media and citizen information (European Commission, 2020e).

It must be added that the EU in general aims at an improved and simplified legal framework and decision-making processes that put emphasis on policy outputs as well as good input. The REFIT programme already started in 2012, aiming at evaluating existing legislation in order to be able to lighten the regulatory load and raise standards (European Commission, 2012a) and the Better Regulation Agenda[3] which focusses on delivering benefits to people in open, inclusive and transparent processes (European Commission, 2015). These approaches are steadily improved and strengthened, for instance via an Interinstitutional Agreement between the EU institutions, organising the annual programming done by the Commission, impact assessments and ex-post evaluation of existing legislation and approaches for simplification (European Parliament, Council of the European Union & European Commission, 2016), the Annual Burden Survey, the Fit For Future Platform which allows citizen engagement and the "one in, one out" approach which further aims at decreasing the regulatory burden (European Commission, 2021b). To summarise, the need for improvements on input and output legitimacy is seen by the EU and partly put into practice, meaning that if successful and consequently followed, both aspects and, consequently, SWEUD, might improve over the coming years.

Nonetheless, the strong impact of national evaluations on EU evaluations shows that many people are still not informed enough about the EU's organisation, decisions and actions. The orientation towards national democracy is to some point natural, as democracy and democratic quality is always judged in comparison with something: past systems, neighbour countries, or, in this case, national regimes (Linde & Ekman, 2003). Nonetheless, a lack of information is confirmed by the high correlations between evaluations of EU output which point to the fact that people do not differentiate between EU policy fields. Fostering knowledge and informing citizens about the EU is thus a crucial part of enabling them to judge the EU based on its own achievements and mistakes. Independent of whether input or output legitimacy are strengthened, communication about measures taken and their success is crucial.

This thesis put new emphasis on the influence of the Covid-19 pandemic on the relative importance of perceived output legitimacy for SWEUD evaluations. The expectation that it should become more important as people care more about getting through the crisis unharmed than feeling represented cannot be confirmed. At the same time, perceived input legitimacy also does not become significantly more important in the crisis, instead, rising importance of national cues might explain more of SWEUD in crises. This effect still needs to be empirically proven. As mentioned before, future research could focus on this national rally around the flag effect which may be found both within nations and between them at the European level.

The general hope among EU scholars and politicians is that citizens' input and output legitimacy evaluations have become stronger in explaining people's SWEUD, but this study rather supports the standing importance of national cues which might become even stronger in crisis situations. This insight underlines the need for more information and communication about what the EU does and where it acts, and the readiness of national governments to not only blame the EU for policy mistakes but also praise good decisions. Knowledge is the basis for being able to evaluate the EU on its own functioning and outputs, and it needs strengthening. Faster decision-making that matches the preferences of EU citizens and related media attention and information might also be able to improve SWEUD in a first step.

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3   The Agenda followed a first "Better Regulation Programme" from 2002 (European Commission, 2021a).

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Appendices

Appendix A

Table 6

Comparison EUI YouGov and other surveys

	EUI YouGov European Solidarity	Eurobarometer 97	European Election Study 2019	EB Parlemeter
Dependent: Satisfaction with EU democracy				
satisfaction with EU democracy	And the EU? How satisfied are you with the way democracy works in the EU?	And how about the way democracy works in the EU?	All in all again, are you very satisfied, fairly satisfied, not very satisfied or not at all satisfied with the way democracy works in the EU?	And how about the way democracy works in the EU?
Independent: Input legitimacy				
attention for EP		Have you heard of the European Parliament?	How closely did you follow the campaign ahead of the European Parliament elections in the media or social media?	Have you recently read in the press, seen on the Internet or on television or heard on the radio something about the European Parliament?
EP image				In general, do you have a very positive, fairly positive, neutral, fairly negative or very negative image of the EP?
EP importance				Would you personally like to see the EP play a more important or less important role?
trust EP		Please tell if you tend to trust or not the European Parliament?	Please tell me to what extent it corresponds or not to your attitude or opinion: You trust the European Parliament	
voting			The European Parliament elections were held on the …. For one reason or another, some people in the UK did not vote in these elections. Did you vote in the recent European Parliament elections?	If the next European Parliament elections were to be held next week, how likely would you be to vote in these elections?
importance of EU voting				Please tell how important or not it is for you personally to vote in the EU elections? (+ reasons for voting / not voting)
Personal representation	**Please tell us how far you agree or disagree with the following statement? People like me have a voice in the EU**	To what extent do you agree or disagree with each of the following statements? My voice counts in the EU		To what extent do you agree of disagree with each of the following statements? My voice counts in the EU
national representation	**Our country is influential in European affairs**	To what extent do you agree or disagree with each of the following statements? The interests of our country are well taken into account in the EU		To what extent do you agree of disagree with each of the following statements? Our country's voice counts in the EU

Independent: Output legitimacy				
Decision-taking level		disagree with each of the following statements? More decisions should be taken at EU level		
EU benefit				Taking everything into account, would you say that our country has on balance benefited or not from being a member of the EU?
EU economic approval	Overall, do you think that your country's economy benefits or loses from being a member of the EU? (2022)			
EU cultural approval	Overall, do you think EU membership undermines of enriches your country's culture? (2022)			
EU security approval	Overall, do you think your country's security if more or less protected as a result of being a member of the EU? (2022)			
EU economy	**How much do you trust the EU to make things better in the following areas? Economy, employment opportunities, own financial situation**			
EU security	**How much do you trust the EU to make things better in the following areas? Military defence, protection against terrorism, protection against crime**			
EU climate change	**How much do you trust the EU to make things better in the following areas? Climate change**			
EU health	**How much do you trust the EU to make things better in the following areas? Quality healthcare**			
EU immigration	**How much do you trust the EU to make things better in the following areas? Immigration**			
Covid		In general, how satisfied are you with the measures taken to fight the coronavirus pandemic by the EU?		
Ukraine war		In general, how satisfied are you with the response to the Russian invasion in Ukraine by the EU?		How satisfied or not are you with the cooperation between EU MS in addressing the consequences of the war in Ukraine?
satisfaction EU rising prices				How satisfied or not are you with the measures taken so far to tackle the rising cost of living by the EU?
trust in EU decisions	How much do you trust or not trust the EU to do what's right?	Thinking about EU's response to the coronavirus pandemic, to what extent do you trust or not the EU to make the right decisions in the future?		
EU budget/action	In which of the following areas would you want the EU to take a more active role?			Which of the following topics would you like to see addressed in priority by the EP?
opinion: different common policy fields	Would you support or oppose the creation of an integrated European army?	What is your opinion on each of the statements? A common foreign policy, common defence & security policy, common trade policy, common health policy, common policy on migration, common energy policy, common Asylum system		
meaning of EU	When you think about the EU, do you think about…?	What does the EU mean to you personally?		
results of EU		Which of the following do you think is the most positive result of the EU?		

Socio-economic controls				
Left & right	Some people talk about left, right and centre. Where would you place yourself on this scale? (not asked in 2019)		In political matters people talk of "the left" and "the right". What is your position?	In political matters people talk of the left and the right. How would you place your views on this scale?
political interest		political interest index	To what extent would you say you are interested in politics?	Would you say you follow what's going on in EU politics?
understand EU		To what extent do you agree or disagree with each of the following statements? I understand how the EU works		
Control: general EU attitude				
EU membership vote	If there was a referendum on your country's membership of the EU, how would you vote?	To what extent do you agree or disagree with each of the following statements? Our country could better face the future outside the EU	Imagine there were a referendum in your country tomorrow about the membership of the EU. Would you vote for your country to remain a member of the EU or to leave the EU?	
EU membership			Generally speaking, do you think that your country's membership of the EU is…?	Generally speaking, do you think that your country's membership of the EU is…
EU unification			Some say European unification should be pushed further. Others say it already has gone too far. What is your opinion?	
EU-attachment	How attached, if at all, do you feel to the EU?	Please tell me how attached you feel to the European Union		
EU-citizen	Do you see yourself as...	You feel you are a citizen of the EU		
EU image		In general, does the EU conjure up for you a very positive, fairly positive, neutral, fairly negative or very negative image?		In general, does the EU conjure up for you a very positive, fairly positive, neutral, fairly negative or very negative image?
EU future optimism	Would you say that you are very optimistic, fairly optimistic, fairly pessimistic or very pessimistic about the future of the EU?			
Control: national conditions				
satisfaction with national democracy	On a scale of 0 to 10, on the whole, how satisfied are you with the way democracy works in your country?	On the whole, are you very satisfied, fairly satisfied, not very satisfied or not at all satisfied with the way democracy works in our country?	On the whole, how satisfied are you with the way democracy works in our country?	On the whole, are you very satisfied, fairly satisfied, not very satisfied or not at all satisfied with the way democracy works in our country?
government approval	Do you approve or disapprove of the national government's record to date?		Let us now come back to your country. Do you approve or disapprove the governments record to date?	
trust national parliament		How much trust do you have in certain institutions? Do you trend to trust or tend not to trust the national parliament?	Please tell me to what extent it corresponds or not to your attitude or opinion: You trust the national parliament	

Note: Own presentation. Dependent variable (Satisfaction with EU democracy) is not included in the European Values Study (EVS), the Comparative Study of Electoral System (CSES) and the European Social Survey (ESS), making comparisons obsolete. They are not included in the comparative table. Survey sources: European Commission, 2022b; European Parliament, 2023; European Social Survey European Research Infrastructure, 2023; Gedeshi et al., 2022; Hemerijck et al., 2020; Hemerijck et al., 2022; McAllister et al., 2022; Schmitt et al., 2022.

Table 7

Bivariate Correlations between Output Items

	.economy	.climate	.defence	.terrorism	.crime	.employment	.finance	.healthcare	.immigration
output.economy	1.00	0.59	0.57	0.60	0.63	0.65	0.64	0.63	0.61
output.climate	0.59	1.00	0.54	0.58	0.57	0.51	0.49	0.56	0.54
output.defence	0.57	0.54	1.00	0.63	0.60	0.50	0.48	0.59	0.53
output.terrorism	0.60	0.58	0.63	1.00	0.71	0.51	0.48	0.58	0.63
output.crime	0.63	0.57	0.60	0.71	1.00	0.58	0.55	0.62	0.64
output.employment	0.65	0.51	0.50	0.51	0.58	1.00	0.68	0.60	0.55
output.finance	0.64	0.49	0.48	0.48	0.55	0.68	1.00	0.59	0.53
output.healthcare	0.63	0.56	0.59	0.58	0.62	0.60	0.59	1.00	0.55
output.immigration	0.61	0.54	0.53	0.63	0.64	0.55	0.53	0.55	1.00

Appendix C

Table 8

Factor Analysis Output Items

	Loadings – 1 factor	Loadings – 2 factors	
	Factor1	Factor1	Factor2
output.economy	0.81	0.52	0.63
output.climate	0.71	0.57	0.43
output.defence	0.73	0.64	0.37
output.terrorism	0.78	0.81	0.29
output.crime	0.81	0.72	0.42
output.employment	0.75	0.36	0.74
output.finance	0.73	0.32	0.75
output.healthcare	0.77	0.53	0.56
output.immigration	0.75	0.61	0.44
Proportion of variance explained	0.58	0.34	0.29
Cumulative variance explained	0.58	0.34	0.63

Appendix D

Analysis as performed in R Studio


```
if (!require("tidyverse")) install.packages("tidyverse")
library(tidyverse)

if (!require("car")) install.packages("car")
library(car)

if (!require("lmtest")) install.packages("lmtest")
library(lmtest)

if (!require("sandwich")) install.packages("sandwich")
library(sandwich)

if (!require("psych")) install.packages("psych")
library(psych)

if (!require("sensemakr")) install.packages("sensemakr")
library(sensemakr)

esp19 <- read.csv("Dataset2019.csv", sep = ";")
esp20 <- read.csv("Dataset2020.csv")
esp21 <- read.csv("Dataset2021.csv")

#Select Columns (Questions/Variables)
vars19 <- c("Country",      "age", "gender", "countrysat",       "demoocracysat1",
      "demoocracysat2",   "peuro_q3",  "peuro_q4",  "peuro_q5",  "euvoice",
      "EUttrustareas1",   "EUttrustareas2",   "EUttrustareas3",   "EUttrustareas4",
      "EUttrustareas5",   "EUttrustareas7",   "EUttrustareas8",   "EUttrustareas9",
      "EUttrustareas10", "selfidentity"
)

esp19 <- esp19[,vars19]

labels19 <- c("country",      "age.group",  "gender",      "government.approval",
      "nat.dem.satisfaction",       "eu.dem.satisfaction", "referendum.membership",
      "eu.future",    "influence.country",   "eu.voice","output.economy","output.climate",
      "output.defence",      "output.terrorism",   "output.crime",       "output.employment",
      "output.finance", "output.healthcare",       "output.immigration", "nationality.european"
)

colnames(esp19) <- labels19

#age2019 to age.group
esp19 <- esp19 %>% mutate(age.group = case_when(
  age.group <= 24 ~ 1,
  age.group > 24 & age.group <= 34 ~ 2,
  age.group > 34 & age.group <= 44 ~ 3,
```

```
  age.group > 44 & age.group <= 54 ~ 4,
  age.group > 54 ~ 5
))

esp19$country <- factor(esp19$country, labels = c("Denmark",
                                    "Finland",
                                    "France",
                                    "Britain",
                                    "Germany",
                                    "Greece",
                                    "Italy",
                                    "Lithuania",
                                    "Poland",
                                    "Romania",
                                    "Spain",
                                    "Sweden"
))

esp19$age.group <- factor(esp19$age.group, labels = c("18-24", "25-34", "35-44", "45-54", "55+"))

esp19$gender <- factor(esp19$gender, labels = c("Male", "Female"))

esp19 <- esp19[esp19$country != "Britain",]

#code missings
esp19$government.approval[esp19$government.approval == 6] <-NA
esp19$nationality.european[esp19$nationality.european == 6 | esp19$nationality.european == 5] <-
NA
esp19$nat.dem.satisfaction[esp19$nat.dem.satisfaction == 12] <- NA
esp19$eu.dem.satisfaction[esp19$eu.dem.satisfaction == 12] <- NA
esp19$referendum.membership[esp19$referendum.membership == 4 |
esp19$referendum.membership == 3] <- NA
esp19$eu.future[esp19$eu.future == 5] <- NA
esp19$influence.country[esp19$influence.country == 6] <- NA
esp19$eu.voice[esp19$eu.voice == 5] <- NA
esp19$output.economy[esp19$output.economy == 5] <- NA
esp19$output.climate[esp19$output.climate == 5] <- NA
esp19$output.defence[esp19$output.defence == 5] <- NA
esp19$output.terrorism[esp19$output.terrorism == 5] <- NA
esp19$output.crime[esp19$output.crime == 5] <- NA
esp19$output.employment[esp19$output.employment == 5] <- NA
esp19$output.finance[esp19$output.finance == 5] <- NA
esp19$output.healthcare[esp19$output.healthcare == 5] <- NA
esp19$output.immigration[esp19$output.immigration == 5] <- NA
#special case: government.approval 3 (neither) to dont know for comparability with other years
(where there is a binary scale)
esp19$government.approval[esp19$government.approval == 3] <- NA

#compress government.approval to binary (like in other years)
esp19$government.approval[esp19$government.approval == 2] <- 1
```

```
esp19$government.approval[esp19$government.approval == 4 | esp19$government.approval == 5]
<- 2


#flip scales of all variables
flip.vars19 <- c("government.approval", "eu.future", "referendum.membership",
        "influence.country", "eu.voice", "output.economy", "output.climate", "output.defence",
        "output.terrorism",    "output.crime", "output.employment", "output.finance",
        "output.healthcare", "output.immigration")

for (flipvar in flip.vars19){
  esp19[[flipvar]] <- (max(esp19[[flipvar]], na.rm = T) + 1) - esp19[[flipvar]]
}

#rescale all vars to 0 to 1
rescale.vars19 <- c("government.approval","nat.dem.satisfaction", "eu.dem.satisfaction",
        "referendum.membership",   "eu.future",   "influence.country",   "eu.voice",
        "output.economy",    "output.climate",    "output.defence",    "output.terrorism",
        "output.crime",      "output.employment","output.finance",    "output.healthcare",
        "output.immigration", "nationality.european")

for (rescalevar in rescale.vars19){
  esp19[[rescalevar]] <- (esp19[[rescalevar]]-min(esp19[[rescalevar]], na.rm =
T))/(max(esp19[[rescalevar]], na.rm = T)-min(esp19[[rescalevar]], na.rm = T))
}




#2020
vars20 <- c("qcountry",      "age_grp_all", "gender_all", "q1",    "q2",    "q3",    "q9",    "q10",
      "q12a_1",     "q12a_2",     "q16_1",     "q16_2",     "q16_3",     "q16_4",
      "q16_5",     "q16_7",     "q16_8",     "q16_9",     "q16_10",    "q4"
)

esp20 <- esp20[,vars20]

labels20 <- c("country",      "age.group",   "gender", "government.approval",
        "nat.dem.satisfaction",        "eu.dem.satisfaction",        "referendum.membership",
        "eu.future",   "influence.country", "eu.voice",    "output.economy",    "output.climate",
        "output.defence",     "output.terrorism",    "output.crime",      "output.employment",
        "output.finance",     "output.healthcare",   "output.immigration", "nationality.european"
)

colnames(esp20) <- labels20

esp20$country <- factor(esp20$country, labels = c("the United Kingdom",
                                "Denmark",
                                "Finland",
                                "France",
```

```
                        "Germany",
                        "Sweden",
                        "Greece",
                        "Hungary",
                        "Italy",
                        "Lithuania",
                        "Netherlands",
                        "Poland",
                        "Romania",
                        "Spain"
))

esp20$age.group <- factor(esp20$age.group, labels = c("18-24", "25-34", "35-44", "45-54", "55+"))

esp20$gender <- factor(esp20$gender, labels = c("Male", "Female"))

#exclude UK, Hungary, Netherlands
esp20 <- esp20[esp20$country!="the United Kingdom",]
esp20 <- esp20[esp20$country!="Hungary",]
esp20 <- esp20[esp20$country!="Netherlands",]

#code missings
esp20$government.approval[esp20$government.approval == 3] <-NA
esp20$nationality.european[esp20$nationality.european == 6 | esp20$nationality.european == 5] <-
NA
esp20$nat.dem.satisfaction[esp20$nat.dem.satisfaction == 11] <- NA
esp20$eu.dem.satisfaction[esp20$eu.dem.satisfaction == 11] <- NA
esp20$referendum.membership[esp20$referendum.membership == 4 |
esp20$referendum.membership == 3] <- NA
esp20$eu.future[esp20$eu.future == 5] <- NA
esp20$influence.country[esp20$influence.country == 5] <- NA
esp20$eu.voice[esp20$eu.voice == 5] <- NA
esp20$output.economy[esp20$output.economy == 5] <- NA
esp20$output.climate[esp20$output.climate == 5] <- NA
esp20$output.defence[esp20$output.defence == 5] <- NA
esp20$output.terrorism[esp20$output.terrorism == 5] <- NA
esp20$output.crime[esp20$output.crime == 5] <- NA
esp20$output.employment[esp20$output.employment == 5] <- NA
esp20$output.finance[esp20$output.finance == 5] <- NA
esp20$output.healthcare[esp20$output.healthcare == 5] <- NA
esp20$output.immigration[esp20$output.immigration == 5] <- NA


#reverse scales
flip.vars20 <- c("government.approval", "eu.future", "referendum.membership",
        "influence.country", "eu.voice", "output.economy", "output.climate", "output.defence",
        "output.terrorism",    "output.crime", "output.employment", "output.finance",
        "output.healthcare", "output.immigration")

for (flipvar20 in flip.vars20){
```

```
  esp20[[flipvar20]] <- (max(esp20[[flipvar20]], na.rm = T) + 1) - esp20[[flipvar20]]
}


#rescale all vars to 0 to 1
rescale.vars20 <- c("government.approval",  "nat.dem.satisfaction",          "eu.dem.satisfaction",
      "referendum.membership",   "eu.future",    "influence.country",   "eu.voice",
      "output.economy",     "output.climate", "output.defence",   "output.terrorism",
      "output.crime",          "output.employment", "output.finance",        "output.healthcare",
      "output.immigration", "nationality.european")

for (rescalevar in rescale.vars20){
  esp20[[rescalevar]] <- (esp20[[rescalevar]]-min(esp20[[rescalevar]], na.rm =
T))/(max(esp20[[rescalevar]], na.rm = T)-min(esp20[[rescalevar]], na.rm = T))
}




#2021
vars21 <- c("Qcountry",        "age_grp_all", "gender_all", "Q1",    "Q2", "Q3", "Q9", "Q10",
      "Q12a_1",     "Q12a_2",     "Q16_1",      "Q16_2",      "Q16_3",      "Q16_4",
      "Q16_5",      "Q16_7",      "Q16_8",      "Q16_9",      "Q16_10",     "Q4"
)

esp21 <- esp21[,vars21]

labels21 <- c("country",        "age.group", "gender",          "government.approval",
      "nat.dem.satisfaction",         "eu.dem.satisfaction",          "referendum.membership",
      "eu.future",    "influence.country", "eu.voice",     "output.economy",     "output.climate",
      "output.defence",        "output.terrorism",    "output.crime",          "output.employment",
      "output.finance",        "output.healthcare",   "output.immigration", "nationality.european"
)

colnames(esp21) <- labels21

esp21$country <- factor(esp21$country, labels = c("the United Kingdom",
                                    "Denmark",
                                    "Finland",
                                    "France",
                                    "Germany",
                                    "Sweden",
                                    "Greece",
                                    "Hungary",
                                    "Italy",
                                    "Lithuania",
                                    "Netherlands",
                                    "Poland",
                                    "Romania",
                                    "Spain"))

esp21$age.group <- factor(esp21$age.group, labels = c("18-24", "25-34", "35-44", "45-54", "55+"))
```

```
esp21$gender <- factor(esp21$gender, labels = c("Male", "Female"))

esp21 <- esp21[esp21$country!="the United Kingdom",]
esp21 <- esp21[esp21$country!="Hungary",]
esp21 <- esp21[esp21$country!="Netherlands",]

#code missings
esp21$government.approval[esp21$government.approval == 3] <-NA
esp21$nationality.european[esp21$nationality.european == 6 | esp21$nationality.european == 5] <-
NA
esp21$nat.dem.satisfaction[esp21$nat.dem.satisfaction == 11] <- NA
esp21$eu.dem.satisfaction[esp21$eu.dem.satisfaction == 11] <- NA
esp21$referendum.membership[esp21$referendum.membership == 4 |
esp21$referendum.membership == 3] <- NA
esp21$eu.future[esp21$eu.future == 5] <- NA
esp21$influence.country[esp21$influence.country == 5] <- NA
esp21$eu.voice[esp21$eu.voice == 5] <- NA
esp21$output.economy[esp21$output.economy == 5] <- NA
esp21$output.climate[esp21$output.climate == 5] <- NA
esp21$output.defence[esp21$output.defence == 5] <- NA
esp21$output.terrorism[esp21$output.terrorism == 5] <- NA
esp21$output.crime[esp21$output.crime == 5] <- NA
esp21$output.employment[esp21$output.employment == 5] <- NA
esp21$output.finance[esp21$output.finance == 5] <- NA
esp21$output.healthcare[esp21$output.healthcare == 5] <- NA
esp21$output.immigration[esp21$output.immigration == 5] <- NA

flip.vars21 <- c("government.approval", "eu.future", "referendum.membership",
        "influence.country", "eu.voice", "output.economy", "output.climate", "output.defence",
        "output.terrorism",    "output.crime", "output.employment", "output.finance",
        "output.healthcare", "output.immigration")

for (flipvar21 in flip.vars21){
  esp21[[flipvar21]] <- (max(esp21[[flipvar21]], na.rm = T) + 1) - esp21[[flipvar21]]
}

#rescale all vars to 0 to 1
rescale.vars21 <- c("government.approval",  "nat.dem.satisfaction",        "eu.dem.satisfaction",
        "referendum.membership",   "eu.future",    "influence.country",   "eu.voice",
        "output.economy",    "output.climate", "output.defence",   "output.terrorism",
        "output.crime",          "output.employment", "output.finance",        "output.healthcare",
        "output.immigration", "nationality.european")

for (rescalevar in rescale.vars21){
  esp21[[rescalevar]] <- (esp21[[rescalevar]]-min(esp21[[rescalevar]], na.rm =
T))/(max(esp21[[rescalevar]], na.rm = T)-min(esp21[[rescalevar]], na.rm = T))
}
```

```
#create dataset of all years
esp19$year <- "2019"
esp20$year <- "2020"
esp21$year <- "2021"
col.selection <- intersect(colnames(esp19), colnames(esp20)) #variables in 2020 are the same as
2021
espall <- rbind(subset(esp19, select = col.selection),
          subset(esp20, select = col.selection),
          subset(esp21, select = col.selection))
espall$year <- factor(espall$year)




#unfactor age.group

espall$age.group <- as.numeric(espall$age.group)



#check number of complete observations
nobs <- data.frame(matrix(nrow = 1, ncol = 1))
colnames(nobs) <- c("All years")
row.names(nobs) <- "Nunber of Observations"
nobs[1,1] <- sum(complete.cases(espall))
#more complete obs in all years due to fewer columns (just common ones)
nobs %>% write.csv("nobs.csv")



#correlation between output variables
output.vars <- c("output.economy", "output.climate", "output.defence", "output.terrorism",
       "output.crime",      "output.employment", "output.finance", "output.healthcare",
       "output.immigration")

cor(espall[,output.vars], use = "complete.obs") %>% write.csv("cor_output_all.csv")

#correlation between input variables
input.vars <- c("influence.country", "eu.voice")

cor_input <- data.frame(matrix(nrow = 1, ncol = 1))
colnames(cor_input) <- c("All years")
row.names(cor_input) <- "Correlation between input variables"
cor_input[1,1] <- cor(espall[,input.vars], use = "complete.obs")[1,2]
cor_input %>% write.csv("cor_input.csv")



#factor analysis for output
espall.output <- espall[complete.cases(espall[,output.vars]), output.vars]
KMO(espall.output)$MSA %>% write.csv("KMO.csv")



fact1 <- factanal(espall.output, factors = 1)
```

```
fact1_prop <- colSums(loadings(fact1)^2)/nrow(loadings(fact1))
Factor_Analysis_Output_All_1 <- rbind(factanal(espall.output, factors = 1)$loadings, fact1_prop)
rownames(Factor_Analysis_Output_All_1)[10] <- "Proportions of variance explained"
Factor_Analysis_Output_All_1 %>% write.csv("Factor_Analysis_Output_All_1.csv")

fact2 <- factanal(espall.output, factors = 2)
fact2_prop <- colSums(loadings(fact2)^2)/nrow(loadings(fact2))
Factor_Analysis_Output_All_2 <- rbind(factanal(espall.output, factors = 2)$loadings, fact2_prop)
rownames(Factor_Analysis_Output_All_2)[10] <- "Proportions of variance explained"
Factor_Analysis_Output_All_2 %>% write.csv("Factor_Analysis_Output_All_2.csv")

factanal(espall.output, factors = 3)$loadings %>% write.csv("Factor_Analysis_Output_All_3.csv")

#create output and input indexes (complete obs only)
espall$input.index <- rowMeans(espall[,c("eu.voice", "influence.country")])
espall$output.index <- rowMeans(espall[,c("output.economy", "output.terrorism",
"output.healthcare")])
sum(is.na(espall$output.index))
#5722 NAs
espall$out.index.crime <- rowMeans(espall[,c("output.economy", "output.crime",
"output.healthcare")])
sum(is.na(espall$out.index.crime))
#5724 NAs

#drop unused columns, use only complete obs for analysis
espall <- espall[,-c(12,13,15,16,17,19,24)]
espall <- espall[complete.cases(espall),]

#Cronbachs alpha for input and output
cronbachs_alpha <- data.frame(matrix(nrow = 3, ncol = 1))
colnames(cronbachs_alpha) <- c("All years")
row.names(cronbachs_alpha) <- c("Cronbachs alpha of input variables", "Cronbachs alpha
terrorism, economy, healthcare", "cronbachs alpha crime, economy, healthcare")

cronbachs_alpha[1,1] <- alpha(espall[,c("eu.voice", "influence.country")], check.keys = T)$total[1]
cronbachs_alpha[2,1] <- alpha(espall[,c("output.economy", "output.terrorism",
"output.healthcare")], check.keys = T)$total[1]

cronbachs_alpha %>% write.csv("cronbachs_alpha.csv")

#summary statistics of variables
#create df where age.group is factor
espall.age.factor <- espall
espall.age.factor$age.group <- factor(espall.age.factor$age.group, labels = c("18-24", "25-34", "35-
44", "45-54", "55+"))
summary.temp <- summary(espall.age.factor, maxsum= 20)
#add vector of complete cases by column
comp.cases <- c()
for (col in 1:ncol(espall)){
  comp.cases[col] <- sum(complete.cases(espall[,col]))
```

```
}

standard.deviation <- c()
for (col1 in 1:ncol(espall)){
  standard.deviation[col1] <- tryCatch(sd(espall[,col1], na.rm = T), error = function(e) return(NA))
}

rbind(summary.temp, comp.cases, standard.deviation) %>% write.csv("summaryall.csv")



#linear regression - model 1: explanatory vars, 2: controls, mod2a: model 2 + input index, mod2b:
model 2 + output index, 3: model 2 + input index + output.index, 4: model 3 + output * year, model
5 <-
mod1 <- lm(eu.dem.satisfaction ~ input.index + output.index, espall)

mod2 <- lm(eu.dem.satisfaction ~ age.group + gender + government.approval +
        nat.dem.satisfaction + referendum.membership + eu.future + nationality.european + country
        + year, espall)

mod2a <- lm(eu.dem.satisfaction ~ input.index + age.group + gender + government.approval +
        nat.dem.satisfaction + referendum.membership + eu.future + nationality.european + country
        + year, espall)

mod2b <- lm(eu.dem.satisfaction ~ output.index + age.group + gender + government.approval +
        nat.dem.satisfaction + referendum.membership + eu.future + nationality.european + country
        + year, espall)

mod3 <- lm(eu.dem.satisfaction ~ input.index + output.index + age.group + gender +
        government.approval + nat.dem.satisfaction + referendum.membership + eu.future +
        nationality.european + country + year, espall)

mod4 <- lm(eu.dem.satisfaction ~ input.index + output.index + output.index*year + age.group +
        gender + government.approval + nat.dem.satisfaction + referendum.membership + eu.future
        + nationality.european + country + year, espall)

mod4a <- lm(eu.dem.satisfaction ~ input.index + output.healthcare + output.healthcare*year +
        age.group + gender + government.approval + nat.dem.satisfaction +
        referendum.membership + eu.future + nationality.european + country + year, espall)

mod5 <- lm(eu.dem.satisfaction ~ input.index + output.index + input.index*year + age.group +
        gender + government.approval + nat.dem.satisfaction + referendum.membership + eu.future
        + nationality.european + country + year, espall)



#regression diagnostics for full models (3-5)
jpeg(filename = "diag_plot_3.jpg", quality = 300)
par(mfrow = c(2, 2))
plot(mod3)
```

```
mtext(side = 3, line =3, text = paste("Goldfeld-Quandt test p-value:", round(gqtest(mod3)$p.value,
digits = 7)))
dev.off()

jpeg(filename = "diag_plot_4.jpg", quality = 300)
par(mfrow = c(2, 2))
plot(mod4)
mtext(side = 3, line =3, text = paste("Goldfeld-Quandt test p-value:", round(gqtest(mod4)$p.value,
digits = 7)))
dev.off()

jpeg(filename = "diag_plot_5.jpg", quality = 300)
par(mfrow = c(2, 2))
plot(mod5)
mtext(side = 3, line =3, text = paste("Goldfeld-Quandt test p-value:", round(gqtest(mod5)$p.value,
digits = 7)))
dev.off()


#save model output with White-corrected standard errors

#All years
coeftest(mod1, vcov = vcovHC(mod1, "HC1")) %>% write.csv("output1.csv")
coeftest(mod2, vcov = vcovHC(mod2, "HC1")) %>% write.csv("output2.csv")
coeftest(mod2a, vcov = vcovHC(mod2a, "HC1")) %>% write.csv("output_2a.csv")
coeftest(mod2b, vcov = vcovHC(mod2b, "HC1")) %>% write.csv("output_2b.csv")
coeftest(mod3, vcov = vcovHC(mod3, "HC1")) %>% write.csv("output3.csv")
coeftest(mod4, vcov = vcovHC(mod4, "HC1")) %>% write.csv("output4.csv")
coeftest(mod4a, vcov = vcovHC(mod4a, "HC1")) %>% write.csv("output4a.csv")
coeftest(mod5, vcov = vcovHC(mod5, "HC1")) %>% write.csv("output5.csv")

adj.r.squared <- c(summary(mod1)$adj.r.squared, summary(mod2)$adj.r.squared, summary(mod2a)
$adj.r.squared, summary(mod2b)$adj.r.squared, summary(mod3)$adj.r.squared,
summary(mod4)$adj.r.squared, summary(mod4a)$adj.r.squared, summary(mod5)$adj.r.squared)
regression.nobs <- c(nobs(mod1), nobs(mod2), nobs(mod2a), nobs(mod2b), nobs(mod3),
nobs(mod4), nobs(mod4a),nobs(mod5))
reg.info <- data.frame(matrix(nrow = 2, ncol = 6))
rownames(reg.info) <- c("Adjusted R-Squared", "Number of observations")
reg.info <- rbind(adj.r.squared, regression.nobs)
colnames(reg.info) <- c("Model 1", "Model 2", "Model 2a", "Model 2b", "Model 3", "Model 4",
"Model 4a", "Model 5")
reg.info %>% write.csv("Reg_info.csv")

#variance inflation factor of all models


vif(mod1) %>% write.csv("vif_mod1.csv")
vif(mod2) %>% write.csv("vif_mod2.csv")
vif(mod2a) %>% write.csv("vif_mod2a.csv")
vif(mod2b) %>% write.csv("vif_mod2b.csv")
```

```
vif(mod3) %>% write.csv("vif_mod3.csv")
vif(mod4, type = "predictor") %>% write.csv("vif_mod4.csv")
vif(mod4a, type = "predictor") %>% write.csv("vif_mod4a.csv")
vif(mod5, type = "predictor") %>% write.csv("vif_mod5.csv")

#partial r squared for models 3, 4 to use in G*Power (output to console, then type in G*Power)
partial_r2(mod3)
partial_r2(mod4)

#(not adjusted) r squared for models 3 and 4 to use in  G*Power F-Test analysis (output to console,
then type in G*Power)
summary(mod3)
summary(mod4)

#references
references <- list()
references[1] <- citation()
references[2] <- version$version.string
references[3] <- citation("tidyverse")
references[4] <- citation("car")
references[5] <- citation("sandwich")[1]
references[6] <- citation("sandwich")[2]
references[7] <- citation("psych")
references[8] <- citation("lmtest")
references[9] <- RStudio.Version()[1]
references[10] <- citation("sensemakr")

sink("references.txt")
print(references)
sink()
```

Appendix E

Figure 4

Regression Diagnostics Plots for M4
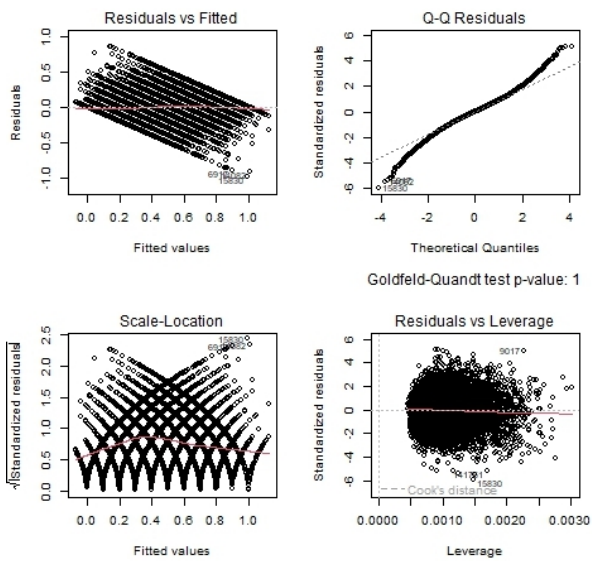
Figure 5

Regression Diagnostics Plots for M5
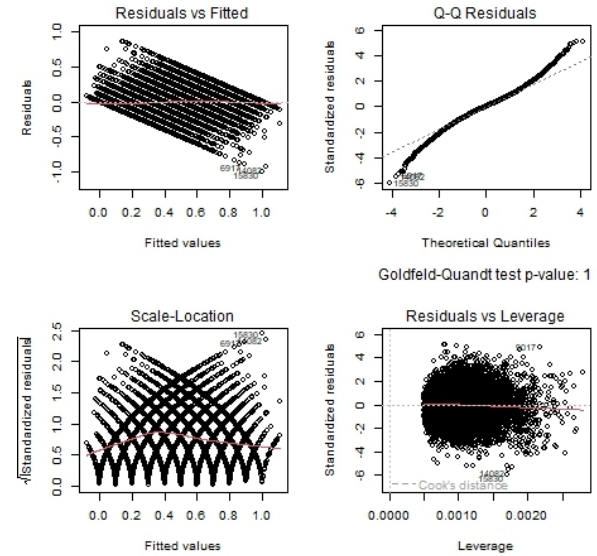
Appendix F

Table 9

Variance Inflation Factor Analysis

	Model 3			Model 4			Model 4a			Model 5		
	GVIF	Df	GVIF^(1/(2*Df))	GVIF	Df	GVIF^(1/(2*Df))	GVIF	Df	GVIF^(1/(2*Df))	GVIF	Df	GVIF^(1/(2*Df)
input.index	1.83	1	1.35	1.83	1	1.35	1.79	1	1.34	2.03	5	1.07
output.index	1.78	1	1.34	1.98	5	1.07	1.56	5	1.05	1.78	1	1.34
age.group	1.05	1	1.02	1.05	1	1.02	1.05	1	1.02	1.05	1	1.02
gender	1.01	1	1.01	1.01	1	1.01	1.01	1	1.01	1.01	1	1.01
government.approval	1.80	1	1.34	1.80	1	1.34	1.80	1	1.34	1.80	1	1.34
nat.dem.satisfaction	2.00	1	1.41	2.00	1	1.41	1.98	1	1.41	2.00	1	1.41
referendum.membership	1.86	1	1.37	1.86	1	1.37	1.85	1	1.36	1.86	1	1.37
eu.future	2.34	1	1.53	2.34	1	1.53	2.27	1	1.51	2.34	1	1.53
nationality.european	1.20	1	1.10	1.20	1	1.10	1.20	1	1.09	1.20	1	1.10
country	1.47	10	1.02	1.47	10	1.02	1.46	10	1.02	1.48	10	1.02
year	1.10	2	1.02	1.98	5	1.07	1.56	5	1.05	2.03	5	1.07

Appendix G

Figure 6

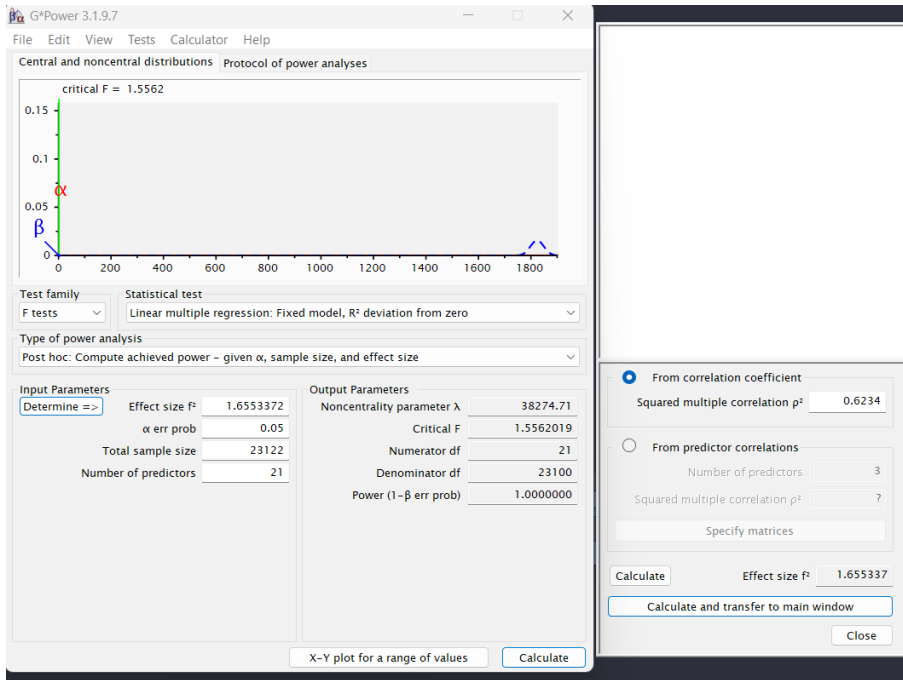*Post hoc power calculation F-Test for M3*

Figure 7

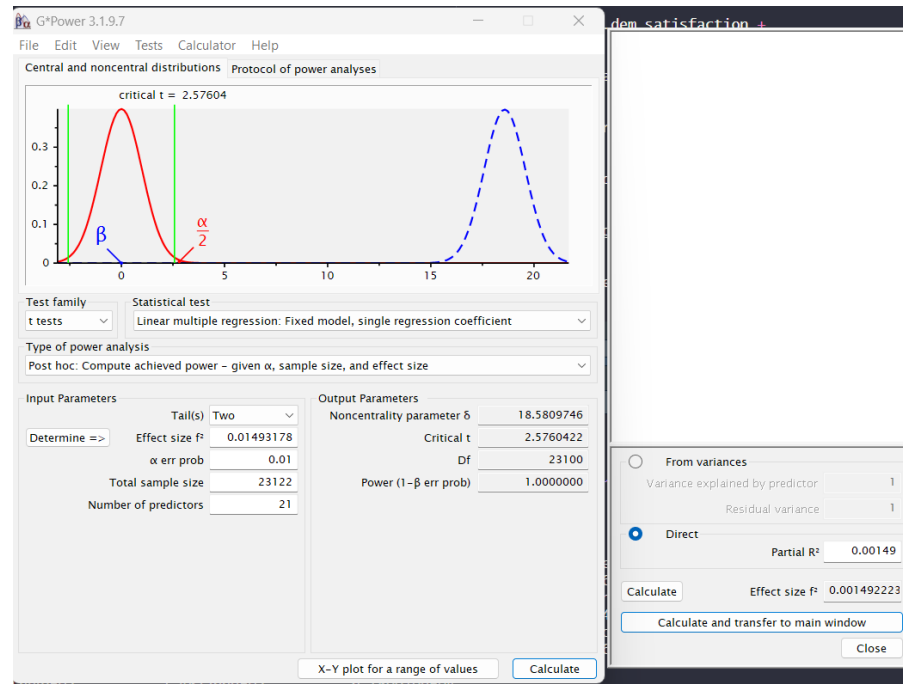*Post hoc power calculation t-Test input index for M3*

Figure 8

Post hoc power calculation t-Test output index for M3
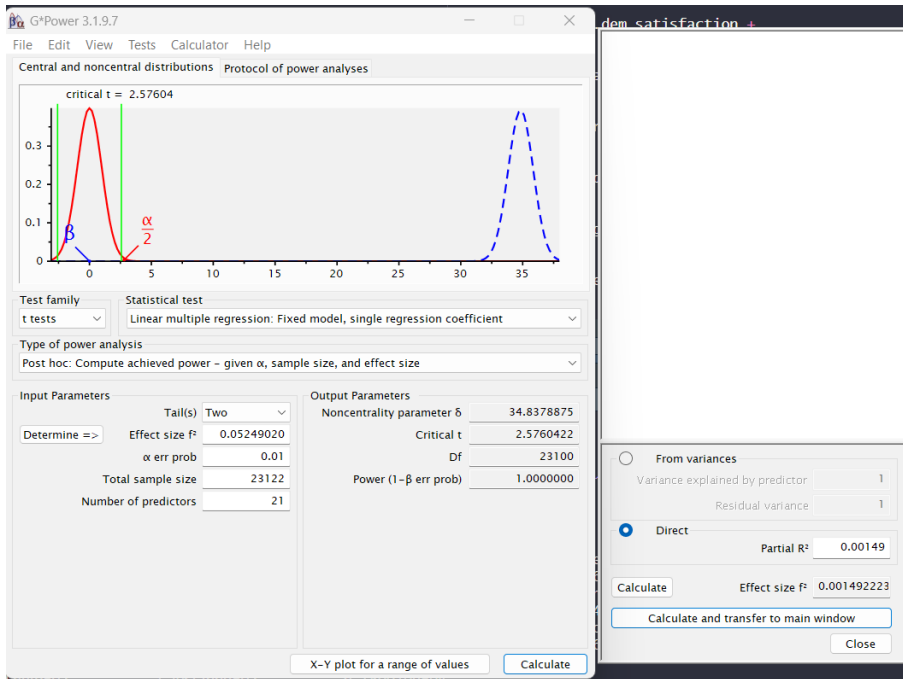

Figure 9

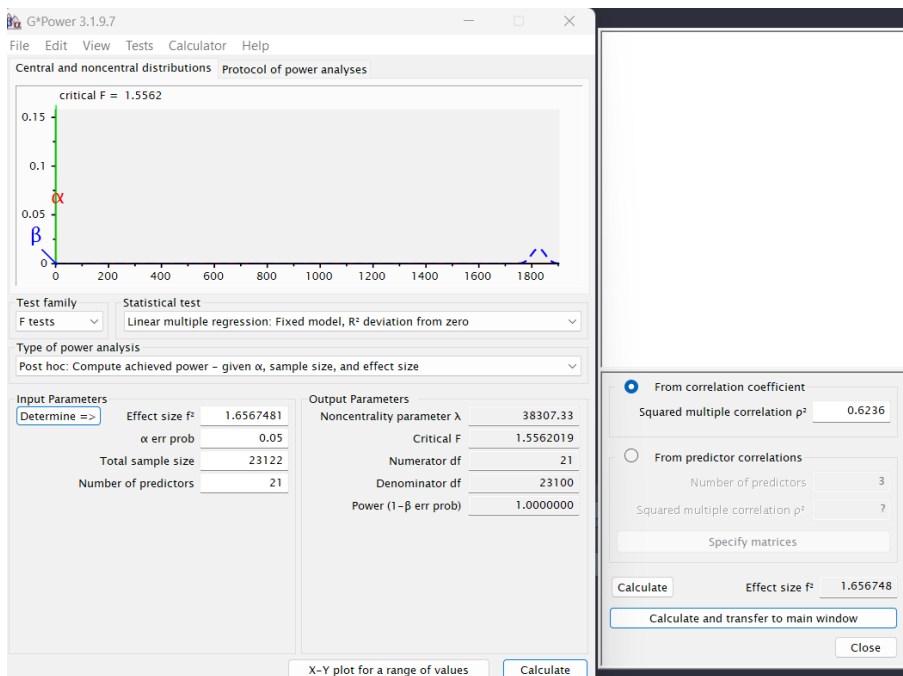*Post hoc power calculation F-Test for M4*

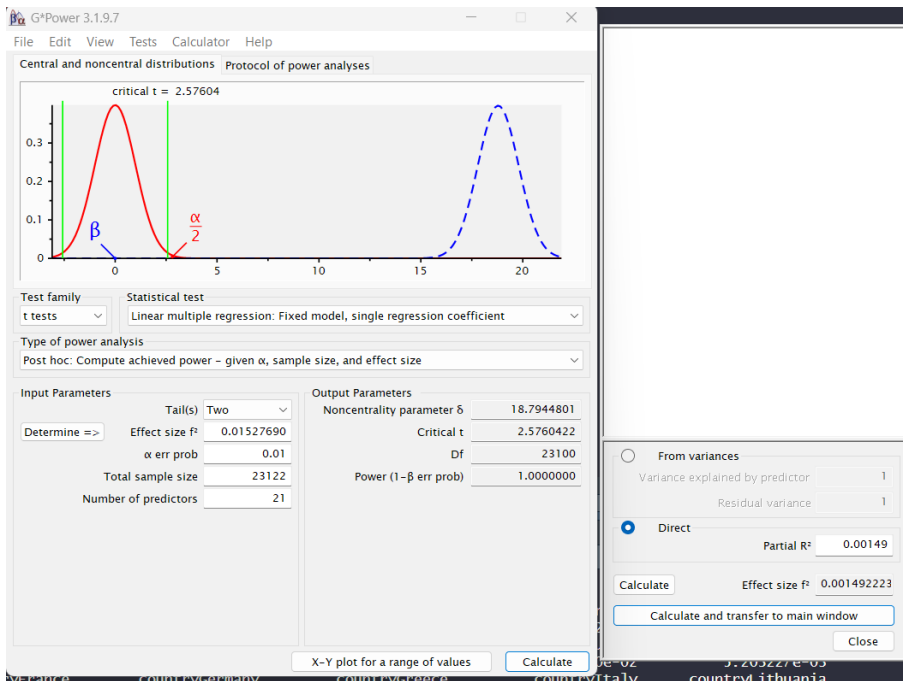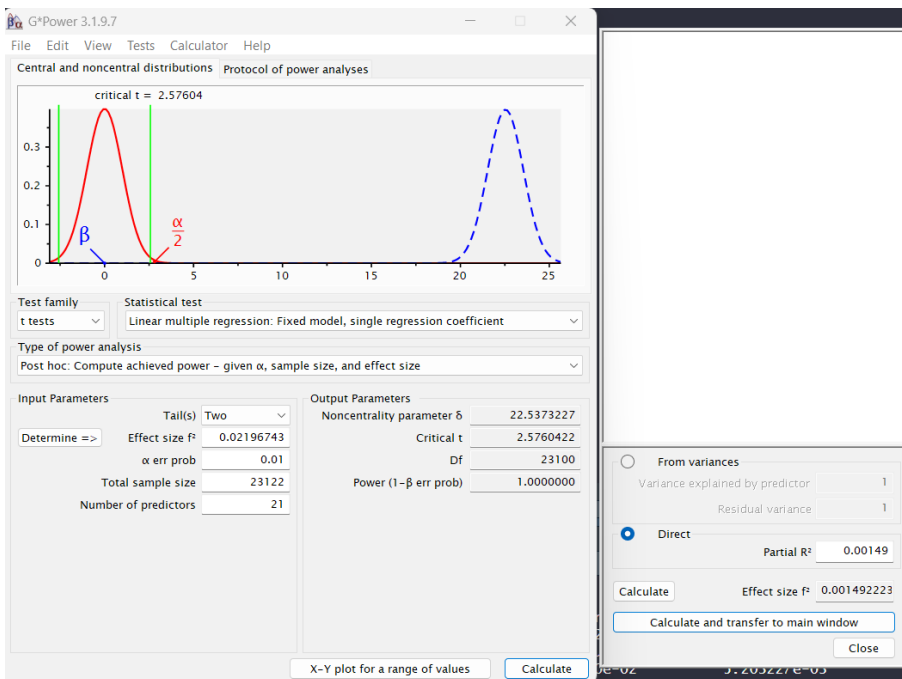# Figure 10

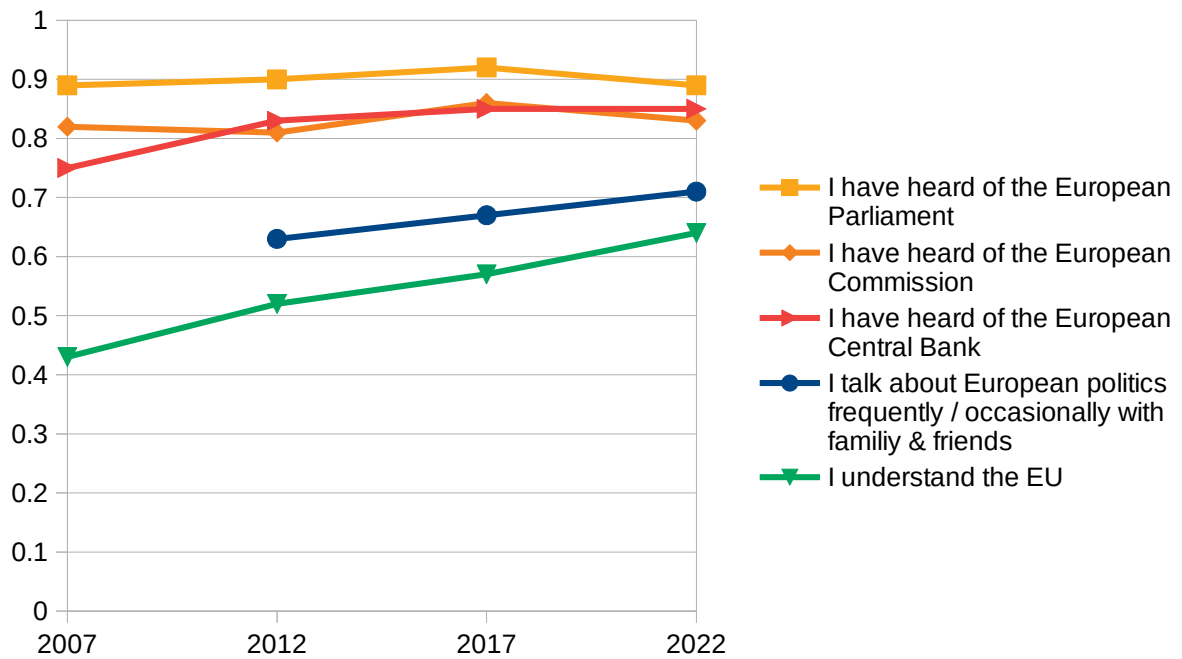*Post hoc power calculation t-Test input index for M4*

Figure 11

Post hoc power calculation t-Test output index for M4

Figure 12

Development of public visibility of the European Union, 2007-2022

Note: Own figure. Data from four Eurobarometer waves, European Commission, 2007; European Commission, 2012b; European Commission, 2017; European Commission, 2022b.

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Bochum, 07 July 2023