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EU health solidarity in times of crisis: explaining public preferences towards EU risk pooling for medicines

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ABSTRACT


The COVID-19 outbreak in Europe has brought attention to EU health policy as a focal point for solidarity, particularly as it concerns access to medicines. Against the backdrop of policy proposals for EU joint procurement of medicines, this article expands our understanding of public opinion towards this particular aspect of European integration. Drawing on data from a conjoint experiment in five EU countries, the study investigates the extent to which citizens' preferences concerning alternative policy designs for EU joint procurement of medicines are either structured along a pro-EU versus anti-EU or ideological divide, or are crisis driven by the perceived COVID-19 threat. The analysis reveals that individual preferences over the design of EU risk pooling for medicines are most strongly explained by Euroscepticism, while egalitarian ideology plays only a modest role. How citizens' perceived threat of COVID-19 affects their preferences for this form of EU risk pooling is dependent on the national context.

KEYWORDS COVID-19; EU health policy; European integration; Euroscepticism; public opinion; solidarity

Introduction

In recent decades, shifting solidarities have been appearing in the health policies of European countries. On the one hand, there has been a process of individualization in health insurance, in which we can witness an increasing emphasis on individual responsibility for health outcomes (Gollust & Lynch, 2011). On the other hand, health policy is undergoing a process of Europeanisation, which reshuffles the boundaries of solidarity that have been traditionally defined by national welfare states (de Ruijter, 2019; Ferrera, 2005;

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Martinsen, 2015). Through this development, debate has resurfaced about the nature of the EU political system (Curtin, 2009; Easton, 1957). The EU faces limitations to develop beyond a 'regulatory state' into a political system that has the capacity for re-distribution and welfare state politics (Bailey, 2017; Majone, 1993). However, welfare politics may play an important role in tying European citizens' loyalties and identity to the EU (de Swaan, 1988; Weiler, 2002).

The COVID-19 outbreak in Europe has brought attention to EU health policy as a focal point for solidarity across member states borders and among EU citizens, particularly as it concerns access to medicines (Stone, 2020). The power of the EU to harmonize member states' health laws in Article 168 (4) TFEU are relatively limited to a number of specific aspects such as the quality and safety of human organs, blood and blood derivatives, and the safety and efficacy of medicines. Here, the European Commission (DG Health) can initiate laws that are then to be amended and approved by the European Parliament (ENVI Committee) and the Council of the EU (EPSCO – Health ministers configuration). In areas of health policy that address more redistributive solidarity concerns, such as reducing health inequalities among EU member states' populations or improving access to life saving medicines, EU competences are explicitly restricted in Article 168 (7) TFEU. Hence, while the safety and approval of new medicines for the European market are well-established legal EU competences, an EU role in the availability of medicines remains problematic. As a result of purchasing and pricing disparities, only a small proportion of new medicines become available equally in all member states (Commission Staff WD, 2020). In addition, due to a number of market failures — that also relate to the availability of raw materials — there is a general problem of medicine shortages in the EU (Economist Intelligence Unit, 2017). A more fully-fledged, centralized EU purchasing instrument was recently introduced in the context of the COVID-19 outbreak, although its structure is ad-hoc and was exclusively created for COVID-19 vaccines using the Emergency Support Instrument (Commission Decision Covid-19, 2020).

In the context of the development towards a European Health Union, there are considerations for improving the access to medicines through setting up a permanent system of EU joint procurement (European Commission, 2020). However, since access to medicines is front and centre in national welfare policy debates — particularly as the world awaits COVID-19 vaccines and there are growing shortages of contraceptive medication, cancer drugs and antibiotics — the issue of joint procurement of medicines is politically sensitive and would depend on public support. Moreover, redistributive conflict can emerge on the issues of centralized EU purchasing powers for medicines and for access according to medical need.

To contribute to this debate, the current article investigates potential dividing lines in public support for EU joint procurement of medicines. Since joint procurement can be organized in different ways (Azzopardi-Muscat et al., 2017; Beetsma et al., 2021), a multi-dimensional research approach is warranted in order to capture the character and intensity of EU health solidarity. Hence, we theoretically and empirically distinguish three key policy dimensions in public support: (1) *Scope* – what type of medicines should be subject to EU risk pooling? (2) *Allocation* – how should medicines be distributed? (3) *Decision-making level* – who should decide on the use of medicines within countries? Drawing on literature about welfare attitudes and European solidarity, we examine two prominent forces that can drive apart public preferences concerning the *what*, *how* and *who* of joint procurement policy for medicines: Euroscepticism and egalitarian ideology (Baute et al., 2019; Daniele & Geys, 2015; Kuhn et al., 2020; Gerhards et al., 2019). First, public preferences may be strongly structured along a pro versus anti EU-integration divide, since EU risk pooling for medicines implies a strengthening of European integration. Second, support may resonate with egalitarian ideology because EU joint procurement of medicines would contribute to more social justice and would implement redistribution. Above and beyond these two traditional types of logic, we investigate whether the current COVID-19 pandemic raises a third, crisis-driven rationale through which citizens might evaluate the desirability of alternative EU risk pooling designs.

By investigating these three factors simultaneously, the study identifies the extent to which public support for joint procurement of medicines is crystallised around a pro-EU versus anti-EU or ideological divide, or instead is driven by perceived threat. By doing so, this study contributes to an emerging body of scholarly work on public attitudes towards EU health solidarity (Gerhards et al., 2019; Koos & Leuffen, 2020). Our results have important implications for the understanding of support for EU health solidarity as a precondition for political and legal action.

Policy design: scope, allocation and decision-making level

We conceptualize ‘EU health solidarity’ on the basis of two components, being risk pooling and redistribution, that in the EU context have both ‘individual-state’ and ‘state-state’ implications (de Ruijter et al., 2020, p. 10; Prainsack & Buyx, 2017).¹ Historically, EU policies that have supported ‘health solidarity’ — undermining the costly nationally organized systems of solidarity in this area — have been explicitly avoided by EU member states, although there is scarcely any public policy area within EU law that does not involve health (Hervey & McHale, 2015; de Ruijter, 2019). In this regard, the EU’s incremental role in health policymaking already has implications for health

solidarity (de Ruijter, 2017). How EU health solidarity manifests itself in practice depends on the translation of risk pooling and redistribution into concrete policies. In this study, we distinguish three policy dimensions of EU joint procurement of medicines that define the intensity of risk pooling and redistribution: the scope, allocation principle and decision-making level. The scope and decision-making level draw more heavily on the aspect of risk pooling; through increasing the coverage of medicines that become subject of joint procurement (scope), or through pooling policy expertise at the EU-level. The allocation principle draws more strongly on the aspect of redistribution because it guides the (re)distributional choices with regard to the common stockpile of medicines across participating countries. Therefore, distinguishing these three concrete policy dimensions allows us to empirically study public preferences towards diverse manifestations of EU health solidarity.

The first issue of scope relates to precisely which medicines should be subject to joint procurement. The safety and efficacy of medicines, after the Thalidomide disaster in the 1960s, were one of the first 'goods' that became centrally regulated at the EU level (Draft Council Directive, 1962; Directive 65/65/EEC of 26 January 1965). The central authorization of medicines took off and became the 'go to' route for manufacturers to gain access to the European internal market. However, the purchasing and determination of what medicines would be insured and purchased to be made accessible in the national 'basket' of health care remained a matter for national budgets and governments. Currently this is still the case; access to medicines *within* member states is determined by the 'basket of care' in national health insurance packages. An EU-level agreement for the joint procurement of medicines could mean that this choice would no longer be the prerogative of member states alone. With regard to solidarity schemes *between* states, EU joint procurement can be implemented for various types of medicines. After the outbreak of swine flu (influenza A H1N1) in 2009, the EU adopted a voluntary public procurement policy for the joint purchasing of pandemic medicines. Member states were able to jointly procure certain medicines, such as in 2019, when a substantial group of countries agreed on advance purchases of pandemic *influenza* vaccines. However, there are a number of other types of medicines where EU citizens might benefit from joint purchasing and distribution programmes. Access to medicines for rare diseases — so-called 'orphan medicines' — as well as generic medicines that are no longer protected by intellectual property rights could arguably benefit from the EU economy of scale, involving risk pooling and redistribution.

Second, allocation is an important policy choice for organizing EU health solidarity in the access to medicines *between* states. If medicines are purchased through EU joint procurement, how should they be distributed?

Two alternative principles that determine the redistributive impact of joint procurement policies are contribution-based versus need-based allocation. The first prescribes that countries can only draw on their own national shares and thus under no circumstances can they claim parts of the stockpile that have been purchased by other countries. This principle implies restricting access to medicines to the own national community and can therefore be labelled as a practice of ‘medicine chauvinism’. By contrast, the principle of needs-based allocation grants priority access to the common stockpile on the basis of medical need in the participating countries. Policy that shifts the determination of allocation to the EU level could potentially remedy certain inequalities in access to medicines across the EU. For example, during the swine flu outbreak in 2009, it was evident that particular member states had much stronger purchasing power, which left some states with too many doses of vaccines and others with none (de Ruijter, 2019). Furthermore, for other centrally authorized medicines, such as orphan medicines or generics, the market uptake can be much higher in some countries than in others, as not all of the medicines are released in all of the member states. Depending on national pricing and reimbursement schemes, pharmaceutical manufacturers often launch a medicine only in some member states — or not in all of them at the same time. Allocation *within* member states in terms of determining the distribution of and access to medicines can still remain up to the states. However, a scientific description of ‘medical need’ would probably also have normative importance for determining access to medicines within member states, particularly considering that priority groups of patients have to be identified in order to determine medical need.

A third aspect of the policy design involves a choice of the authority level of expertise that is involved in the decision-making. The politics of EU health solidarity inherently involves a division of competences between national and EU institutions. Who should decide on the manner in which medicines are used in the countries? The division of competences and the existing national diversity of healthcare systems have been major obstacles for the formation of a ‘European Health Union’ (Vollaard et al., 2016). From the perspective of EU citizens — including medical professionals — what matters here is whether they would pool policy expertise across countries and rely on EU-level decision-making with regard to the use of medicines, and under what guidelines. The use of medicines is primarily in the purview of medical professionals based on therapeutic need and treatment protocols, and is ultimately up to the patients themselves. Practice guidelines or protocols are often created and issued through professional medical organizations and within the medical establishment. Organizing the availability of medicines at the EU level would probably also involve more central EU expertise as to the efficacy of different modes of use and prescription. At the EU level, this discussion is also at stake in the context of ‘health technology

assessments' (Löblová, 2021; Vreman et al., 2020). In this regard, the determination of reimbursement for medicines through the national baskets of care is an important biomedical, ethical and political debate that may evoke more or less public support and social legitimacy.

The COVID-19 pandemic has renewed interest in the need to ensure EU-wide solidarity in access to medicines. This is apparent with the latest launch of the European Health Union, where deeper integration on health law and policy is currently back on the political agenda. With regard to medicines, particularly in the case of emergencies, the Joint Procurement Agreement after the swine flu outbreak only foresaw a voluntary programme for the joint procurement of medicines, but the 'rescEU' instrument based on Article 222 TFEU for solidarity in crises created the possibility for the centralized EU procurement of emergency goods. Under this instrument, however, the financing needs to come from central EU funding streams, rather than from a more significant funding stream that can be generated by the member states in the context of the voluntary joint procurement process for health-specific emergencies. In this regard, COVID-19 has already been a game changer. Member states initially had a reflex reaction, initiating protectionist behaviour by closing their borders for exports. However, through a European emergency measure and an ad-hoc 'joint action agreement' between the EU and the member states (combining the structures of the health JPA and the 'rescEU' JPA), the EU has been able to secure a number of advance purchase agreements with vaccine manufacturers for the whole of the Union (Commission Communication, 2020).

Explaining public preferences: Euroscepticism, egalitarianism or threat?

We have outlined how the scope, allocation and decision-making level are key aspects in the policy design for the joint procurement of medicines. Since these aspects determine the nature and intensity of EU health solidarity, we expect them to play an important role in determining public support. However, there are good reasons to believe that the design of joint procurement policies is contested, meaning that there are strongly diverging preferences over the scope, allocation and decision-making level. In forming opinions towards EU joint procurement policies for medicines, citizens may use cognitive shortcuts or heuristics, which reduce the complexity of multidimensional policies and produce quick judgements based on limited information. In this article, we focus on the role of three distinct heuristics; Euroscepticism, egalitarianism and perceived threat. Hence, we assume that how people actually make up their mind about the desirability of alternative joint procurement policies is guided by three decision rules: (1) Will the policy deepen European integration? (2) Will the policy contribute to a more

egalitarian society? and (3) Will the policy mitigate risks? Accordingly, citizens are expected to prefer one policy proposal over another, depending on their individual Euroscepticism, egalitarianism and perceived threat.

Euroscepticism

Our first theoretical framework stems from the international relations model (Steenbergen & Marks, 2004), conceiving contestation over European integration issues along a single dimension of pro-integration versus anti-integration positions. Accordingly, citizens' preferences about how EU risk pooling for medicines should be organized simply stem from their fundamental position towards European integration. Previous empirical studies show that Euroscepticism is an important predictor of support for fiscal solidarity in the EU (Bauhr & Charron, 2018; Baute et al., 2019). Applying this logic to EU joint procurement of medicines, we expect that preferences about the scope, allocation and decision-making level will be primarily driven by citizens' general stance towards integration.

First, those who oppose the very idea of European integration are likely to also oppose risk-pooling programmes that cover a wider scope of medicines (the 'what') because they are against any deepening of European integration. By restricting the scope of medicines for which joint procurement is set up to only a narrow set — such as those to treat infectious diseases — the deepening of the integration process is kept within limits. By contrast, one may expect pro-EU minded people to be the most supportive of risk pooling programmes that cover a wide scope of medicines, because they will consider larger steps towards further European integration as more desirable.

Second, Euroscepticism can give room for nation-first politics in the allocation of medicines. Adhering to fixed national shares of the common stockpile ensures that medical resources are restricted to the own national community and guarantees that national interests are served first in case of scarcity. This contribution-based allocation principle is likely to appeal more to Eurosceptics than a need-based principle, which tolerates priority access to the common stockpile on the basis of medical need. Moreover, Eurosceptics may fear that need-based allocation will develop into a permanent instrument of cross-national transfers between member states, while previous research shows that such people are strongly opposed to the establishment of a 'transfer union' (Bauhr & Charron, 2018; Baute et al., 2019).

Third, we expect Euroscepticism to be the decisive factor in explaining preferences about the level of expertise that is involved in decision-making over medicine usage. If an EU-level agency is authorized to decide on how medicines are used within countries, this implies a shift of competences to the EU level. The loss of national sovereignty — combined with a strong distrust of

European institutions — is precisely one of the reasons why Eurosceptics oppose further integration (Abts et al., 2009). Hence, we expect that Euroscepticism strongly reduces support for joint procurement policies that would give power to experts in a European agency, rather than national agencies. By contrast, those who want to push integration further are less sensitive about a loss of national autonomy, and may positively value the pooling and sharing of national policy expertise between member states. Taking these arguments into account, we hypothesize:

H1: Eurosceptic individuals are less supportive of risk pooling schemes that cover a wider scope of medicines (H1a), that prioritise access to medicines according to medical need (H1b) and that imply EU-level decision-making (H1c).

Egalitarianism

Alternatively, it could be argued that preferences about EU risk pooling for medicines are embedded within an ideological divide. Since risk pooling implements institutionalized solidarity, it directly appeals to notions of equality, social justice and fairness (Prainsack & Buyx, 2015). According to this logic, one can expect that EU risk pooling for medicines evokes an ideological rationale among citizens. In this regard, previous studies have consistently found that support for EU social policies is strongly driven by ideological motives (Baute & Meuleman, 2020; Baute et al., 2019; Bauhr & Charron, 2020; Ciornei & Recchi, 2017; Gerhards et al., 2019; Kuhn et al., 2020). Our expectation is that egalitarian values lead to a preference for policies that maximize the degree of risk pooling and redistribution.

First, this implies that egalitarianism translates into preferences over the scope of medicines for which risk pooling is organized. A wider scope for risk pooling can be considered as a more effective strategy in the pursuit of equal access to medicines; the more extensive the scope of joint procurement of medicines, the more likely it will be that cross-national disparities in access are reduced. For this reason, risk pooling policies that involve a wider range of medicines should be viewed more positively by those with more-egalitarian views.

Second, egalitarianism may drive preferences about the allocation principle for medicines. Allocation according to the principle of need establishes a mechanism of member state solidarity that redistributes resources from the lowest to the highest medical urgency. Since such need-based solidarity is generally endorsed by people with a left-wing ideology (Ciornei & Recchi, 2017), it could be expected to increase support for joint procurement, in particular among citizens who adhere to egalitarian values. Among anti-egalitarians, need-based solidarity may have no impact or may even reduce support for risk pooling, because these citizens value principles of individual

responsibility — including over welfare and wellbeing — more strongly. Hence, we hypothesize:

H2: People who adhere more strongly to egalitarian values are more supportive of risk pooling schemes that cover a wider scope of medicines (H2a) and that prioritise access to medicines according to need (H2b).

Perceived COVID-19 threat

Third, it could be suggested that preferences about EU-risk pooling for medicines have little to do with political or ideological beliefs, but are instead driven by self-interest motives. In view of the COVID-19 pandemic, a specific self-interest hypothesis could argue that preferences are explained by the perceived threat of COVID-19. In the absence of medical treatment and vaccination, health concerns are prevalent, while economic concerns may emanate from restrictive measures imposed on economic activities to prevent overloading healthcare systems. While we take into account that the perceived threat of COVID-19 is of a multi-faceted nature, we focus on sociotropic rather than egocentric self-interest, meaning that the collective interest is considered, rather than individual cost–benefit perceptions.

The perceived threat of COVID-19 is likely to determine people's sensitivity to the scope of risk pooling. Because people who have stronger fears about the consequences of COVID-19 tend to be more risk averse, they could be expected to prefer more comprehensive risk pooling strategies. The wider the range of medicines that are purchased through joint procurement, the better countries are insulated against different types of medicine shortages. In this regard, extending risk-buffering health policies as much as possible is an intuitive risk-coping mechanism. In a similar vein, previous research shows that individuals who are more risk averse are more likely to prefer government responsibility for citizens' welfare (Kaltenthaler & Ceccoli, 2008).

Further, we expect that stronger COVID-19 threat perceptions will result in a preference for need-based *allocation*. Need-based solidarity is in fact an effective strategy to handle a threatening situation and develop collective crisis prevention, because giving priority access to countries that are hit the hardest by an infectious disease can stop the disease from spreading further. A similar self-interest argument is proposed by Bobzien and Kalleitner (2021), who find that during the COVID-19 pandemic, citizens are more willing to financially support other EU countries when they believe that solidarity serves national interests in the long run. An underlying assumption in our hypothesis is thus that people who are most concerned about COVID-19 do not expect need-based solidarity to bring disadvantages to their own country. In this regard, a recent survey experiment by Koos and Leuffen

(2020) shows that support for medical solidarity — measured in this case by the provision of masks and ventilators — is weaker when respondents are informed that this can increase the risk of medical disadvantages for their own region. Taking self-interest arguments into account, we hypothesize:

H3: People who are more concerned about the consequences of COVID-19 for their country are more supportive of risk pooling schemes that cover a wider scope of medicines (H3a) and that prioritise access to medicines according to medical need (H3b).

Data and methods

Data

To test our hypotheses, we draw on data from a conjoint experiment on attitudes towards the EU joint procurement of medicines.² The main advantage of a conjoint experiment is that it allows us to simultaneously estimate the causal effects of different policy design features on respondents' support for EU risk pooling for medicines. By quantifying the causal effects of these design features, relative sensitivities to the policy design can be assessed. The experiment was fielded through IPSOS' online panels in March 2020 among 10,000 respondents in France, Germany, Italy, the Netherlands and Spain. Our country case selection varies with respect to national healthcare system, economic performance and government position towards the EU, which may yield different public views on EU health solidarity. While capturing a balance of northern and southern EU member states, these countries were affected to different degrees by the COVID-19 pandemic at the time of the survey.³ A sample of 2,000 individuals was drawn in each country, using quotas for age, gender, education, occupation and region.⁴ The experiment was introduced by providing brief information about the purposes of the joint procurement of medicines (Appendix, Table A). Subsequently, respondents were asked to evaluate three pairs of randomly selected policy packages, varying across the dimensions: (1) scope, (2) allocation and (3) decision-making level. Respondents who did not pass an attention check were excluded from the analysis.⁵

Variables

The dependent variable, *support for EU risk pooling for medicines*, is measured by two questions in the conjoint experiment. First, the experiment includes a binary *choice* variable, in which respondents were asked to indicate which of the two packages that were presented they preferred. Second, an individual *rating* variable is included, where respondents had to rate each of the presented packages on a 5-point scale, ranging from 'strongly against' to

‘strongly in favour’. We tested our hypotheses using the binary choice variable, since it forces respondents to think more carefully about trade-offs. We replicated all models using the rating as the dependent variable. These models yielded similar results, providing evidence for the robustness of our findings (Appendix, Table G).

The *scope* of risk pooling refers to the range of medicines for which collective EU purchases can be organized, varying between (1) a limited set of medicines used to stop large-scale disease outbreaks and (2) all medicines for which collective purchase is financially beneficial (see the Appendix, Table B for the exact question wording). The *allocation* principle for medicines distinguishes between (1) fixed national shares of the common stockpile and (2) priority access for countries in an exceptional emergency. With respect to the *level of decision-making* over the use of medicines, policy designs alternate between (1) experts in a common European agency and (2) experts in national agencies.

To capture *Euro scepticism*, we rely on a widely-used survey question on EU membership: ‘Generally speaking, do you think that (country)’s membership of the EU is a good thing, a bad thing, or neither a good nor a bad thing?’ This item is very suitable for the purpose of our study since it captures general pro- versus anti-EU positions.

Egalitarianism is measured by the extent to which respondents’ agreed with the statement: ‘The government should take measures to reduce differences in income levels.’ Responses range from strongly disagree (1) to strongly in favour (5). We believe that this item captures economic left-right ideology more accurately than a left-right self-placement item, which evokes both economic and cultural considerations and has different meanings across countries (Pioro et al., 2011).

Perceived threat is measured by responses to the following question: ‘Many countries are currently experiencing a major outbreak of the new ‘coronavirus’ (COVID-19). On a scale of 1–10, 1 being not at all worried and 10 being extremely worried, how worried are you about the economic and health implications of this outbreak for your country?’ This item is an indicator of sociotropic self-interest, as it captures concerns about the consequences of COVID-19 for the national community instead of for the individual. By focussing on national economic and health implications, the item captures the most prevalent concerns about COVID-19 (Mertens et al., 2020). The disadvantage of this item is that it does not allow us to distinguish the relative importance of economic versus health implications for respondents’ policy preferences. By capturing a more generalized perceived threat posed by COVID-19, we nevertheless believe this item is suitable for analysing public preferences towards EU joint procurement policies, which mitigate the impact on the public health as well as on the economy through creating greater efficiencies in the access to

medicines. Because of the highly skewed distribution of the variable towards the upper end of the scale, responses were rescaled to range from 1 to 6, with responses on the lower end of the scale (1–5) aggregated into one category (1).

We control for social-structural variables, including age and gender (0=male, 1=female). Education level is included in three categories: (1) lower-secondary or less, (2) upper-secondary and post-secondary non-tertiary, and (3) tertiary. Income is measured by the equivalised household income, using the modified OECD equivalence scale. To allow for comparison across countries, we categorized the equivalised income into country-specific deciles. Lastly, we control for a package's pairing-order and include country dummies to take country-level variability into account.

Methods

We follow the statistical approach for conjoint analyses developed by Hainmueller et al. (2014) and use simple ordinary least squares (OLS) linear regression models to test our hypotheses on the binary choice variable.⁶ First, Average Marginal Component Effects (AMCEs) were estimated by regressing the choice variable on dummy variables for the design features. The AMCEs represent the average difference in the probability of a package being chosen when comparing two different attribute values — for example, a package with 'priority access' versus one with 'no priority access' — where the average is computed on the basis of all possible combinations of the other attributes. Second, to test whether the effects of the policy design are moderated by Euroscepticism, egalitarianism and perceived threat, we interacted these variables with the design feature dummies. We interacted the three individual characteristics simultaneously, to be able to identify their relative importance. To allow comparison of effect sizes, Euroscepticism, egalitarianism and perceived threat were standardized to range from 0 to 1. All the reported models were estimated using robust standard errors, clustered at the individual level.

Results

Appendix Table E presents the results of the OLS regressions. The reported estimates (AMCEs) show that EU risk pooling for medicines is more popular when it includes a wider scope of medicines and when it provides room for need-based solidarity. By contrast, packages are generally less likely to be chosen when they imply national decision-making instead of EU decision-making.⁷ However, as we are interested in individual differences in preferences regarding the design of EU joint procurement, we turn to the interaction models. Because interaction terms are difficult to interpret,

Figure 1 presents them in a graphical way. Row A illustrates the effect of the scope of medicines for different values of respondents' Euroscepticism, egalitarianism and perceived threat. The middle panel in row A illustrates that the causal effect of the scope of risk pooling on support is somewhat contingent on egalitarian values; a wider scope of medicines does not increase support for risk pooling among anti-egalitarians (extreme left of the scale), whereas it increases support by 4.7 percentage points among people with strong egalitarian values (extreme right of the scale). This difference is statistically significant (0.063, $p=0.004$, Appendix Table E), confirming H2a. By contrast, respondents' Euroscepticism and perceived threat do not affect their sensitivity to the scope of medicines, thus leading us to reject H1a and H3a. Overall, these findings indicate that public contestation over the scope of medicines is almost absent.

Row B of Figure 1 reveals stronger heterogeneity in how citizens' respond to the allocation principle of medicines. In line with our expectations, Eurosceptic people respond less positively towards priority access to the common stockpile in case of medical need (-0.183 , $p<0.001$). Furthermore, need-based solidarity increases support for risk pooling more strongly among egalitarians (0.073, $p=0.001$) and those who consider COVID-19 as more threatening (0.054, $p=0.005$). Altogether, these findings confirm hypotheses H1b, H2b and H3b. It should be noted that when comparing the effect sizes, Euroscepticism appears to be the strongest predictor of how people respond to the allocation design for medicines. However, need-based solidarity still increases support for EU joint procurement by 12 percentage points among those who fundamentally oppose EU membership. Similarly, among anti-egalitarians and those who do not seem to worry about the COVID-19 pandemic, a stockpile that tolerates priority access is still preferred over strict contribution-based national shares. This is indicated by the positive estimates of need-based solidarity at different values of Euroscepticism, egalitarianism and perceived threat.

Furthermore, row C of Figure 1 shows that the effect of the level of expertise for decision-making concerning the use of medicines is conditional on Euroscepticism. Decision-making by national experts decreases support for EU risk-pooling proposals among those who stand positive towards EU membership by 6.6 percentage points, whereas national decision-making increases support for EU risk pooling by 9.5 percentage points among those who reject EU membership, yet only by 1.5 percentage point among those with moderate levels of Euroscepticism. These finding confirms hypothesis H1c and indicate that Europeans may support policy packages with fundamentally different design features.

Because the results for the pooled sample may conceal *cross-national differences* in the drivers of public preferences, we additionally performed

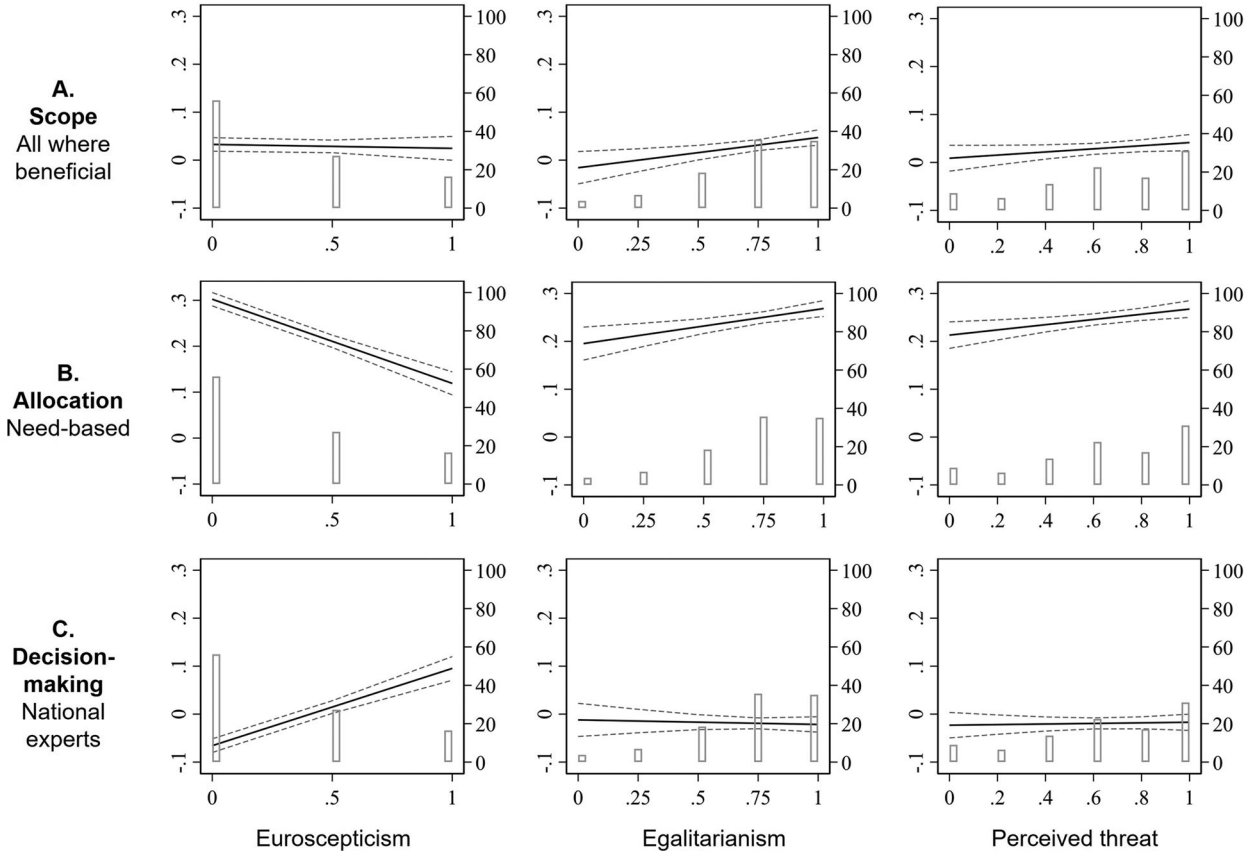


Figure 1. Marginal effects of the policy design dimensions at different levels of Euroscepticism, egalitarianism and perceived COVID-19 threat. *Note:* Baseline: (a) narrow scope, (b) contribution-based access (c) EU agency. Y-axis presents marginal effect (right) and frequency (left). Estimations based on models in Appendix Table E. Country-specific frequency distributions in Appendix Figure B-D.

country-specific analyses (Appendix, Figure A, Table H). Two main conclusions can be drawn from these analyses.

First, we find limited variation with regard to the role of Euroscepticism and ideology. In all five countries, Euroscepticism decreases support for policies that include need-based solidarity (H1b). The same applies for policies with EU decision-making, with the exception of Spain (H1c).⁸ We find moderate cross-national differences with regard to the role of egalitarianism. Most notably, for France we do not find evidence that preferences about the scope and allocation of medicines are structured along an ideological divide, whereas in Italy, Germany and the Netherlands, ideology matters for responsiveness on only one or other of the two policy dimensions (either scope or allocation). It should be noted that where we do not find statistically significant effects of egalitarianism, the effects nevertheless point in the expected direction, suggesting that existing differences are weak. The explanation could be that people do not view the availability of medicines as an ideological issue, but rather as an economic issue concerning efficiency and economies of scale.

Second, the effect of COVID-19 worries is much more context dependent (Appendix Table H). To illustrate this, for each country, Figure 2 reports how respondents with high and low perceived COVID-19 threat respond to the scope, allocation and decision-making level. In this figure, we define a person as concerned (high) if their perceived threat is one standard deviation above the country average and unconcerned (low) if it is one standard deviation below the country average.

The country differences are most pronounced with regard to the allocation of medicines. While we observe in the pooled sample that those concerned about the impact of COVID-19 are more in favour of need-based allocation (H3b), this effect seems to be mainly driven by the Spanish respondents, where COVID-19 worries strongly increase preferences over need-based solidarity. By contrast, COVID-19 fears slightly decrease support for need-based solidarity among Germans, although the effect is not statistically significant. The fact that Spain had been hit harder by the pandemic than Germany at the time of the survey may be a plausible explanation for this variation. These differences suggest there are varying expectations about who will benefit from need-based solidarity, and thus that citizens may take into account the perceived medical urgency in other member states when assessing the desirability of need-based solidarity. People who have strong concerns about the impact of COVID-19 while other member states are facing much more urgent needs may prefer nationally protectionist policy schemes, to avoid their country facing a shortage of medicines.

A similar logic is found with regard to the impact of COVID-19 fears on preferences for the decision-making level. In Italy, which was hit very early on and very severely by the coronavirus, threat perceptions increase preferences

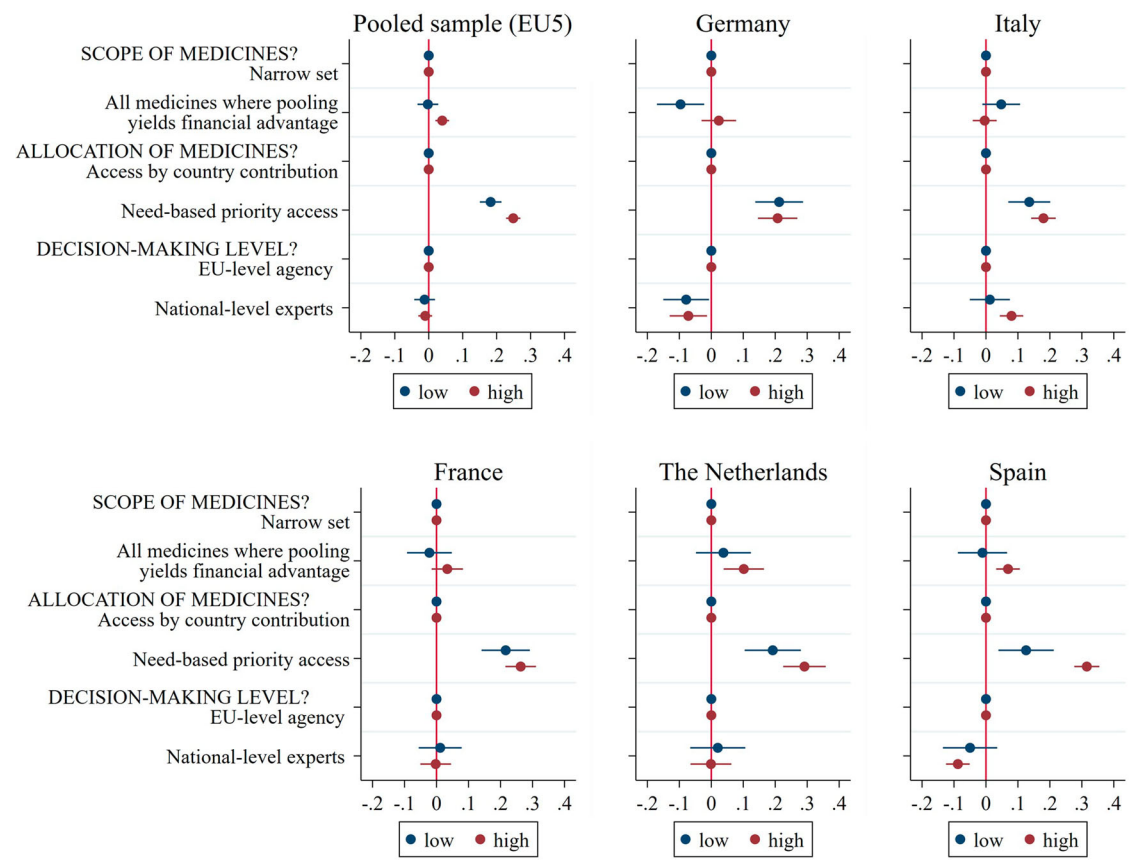


Figure 2. Effects of scope, allocation and decision-making on support for EU joint procurement of medicines by perceived COVID-19 threat.

for national expertise over medicine use. This illustrates that in Italy — which suffered from high public debt since the previous crisis and strict EU austerity policies that affected national budgets for health — COVID-19, and particularly how it is perceived, triggers nationalist rather than solidaristic feelings.

Conclusion

The aim in this article was to analyse the rationales behind public preferences about EU risk pooling for medicines. We theoretically and empirically distinguish three dimensions of the policy design that are relevant within the actual debate and define the nature and intensity of EU health solidarity: scope, allocation and decision-making level. Drawing on data from a conjoint experiment in five EU member states, we investigated the extent to which citizens' responsiveness to these policy dimensions of EU joint procurement of medicines is driven by Euroscepticism, egalitarianism or perceived threat. Our findings reveal that responsiveness is loosely structured along two traditional divides: pro-EU versus anti-EU and pro-egalitarian versus anti-egalitarian.

Foremost, we found that Euroscepticism is an important driving factor behind preferences about both the principle of allocation and the level of decision-making. This highlights that EU health solidarity is perceived by the public to a certain extent as an issue of more versus less European integration, and can be interpreted as a specific translation of the wider integration-demarcation debate (Kriesi et al., 2008). Most importantly, Eurosceptics support a fundamentally different design of the decision-making level on the use of medicines compared with pro-EU minded citizens. Whereas the latter would prefer an EU agency to take decisions on medicine usage, Eurosceptics can be mobilized in favour of risk pooling when it puts national experts and decision-makers in charge.

EU health solidarity is also embedded in an economic left-right cleavage. Our finding that citizens' egalitarian viewpoints shape preferences about the scope and principle of allocation for EU risk pooling for medicines, suggests that social justice and fairness considerations are at play. However, the effect of ideology is less pronounced than expected, which is in line with recent research that found Germans' willingness to provide medical aid to other EU countries is only weakly related to political ideology (Koos & Leuffen, 2020).

Furthermore, the impact of COVID-19 fears on preferences over how EU risk pooling for medicines should be organized varies more strongly across the five countries under study. Whereas COVID-19 worries increase support for need-based solidarity in Spain, this is less the case for other countries. Moreover, COVID-19 worries generate protectionist sentiments in Italy, by triggering preferences for national decision-making over EU decision-

making. These cross-nationally diverging effects suggest that the national context not only determines how COVID-19 is perceived, but is also important in shaping popular views about how EU initiatives of risk pooling should be organized.

Our results provide support for policymakers who want to deepen the European integration process and build a stronger Social Europe. Importantly, on the whole we observe need-based solidarity increases support for EU risk pooling among people across the whole spectrum of ideological and EU integration views. The universal support for need-based solidarity in the joint procurement of medicines suggests that (medical) need is an important aspect of deservingness with regard to EU health solidarity. This could be attributed to the nature of solidarity that is at stake here; the fact that countries' risk profiles for health crises are less predictable than for financial crises may partly explain this widespread consensus. Another part of the explanation may lie at the individual level. People generally perceive the sick as highly deserving of welfare assistance — especially compared with other target groups, for example the unemployed (Jensen & Petersen, 2017). This generally favourable deservingness opinion regarding the recipients of health policies might override the effect of other opinion factors, resulting in broad-based support for EU health solidarity. In the current context of the COVID-19 pandemic, our findings suggest that Europeans are willing to show solidarity when it comes to guaranteeing medical needs in the case of an emergency. However, policymakers should take into account that the effectiveness of strategies for mobilizing Europeans for EU risk pooling programmes by proposing a specific policy design — notably with respect to the allocation principle and level of expertise for decision-making — will differ substantially across social groups.

The policy mechanism that was analysed in our survey experiment also forms the backdrop for the recent purchases of COVID-19 vaccines by the EU. In this regard, the delays in delivery schedules, particularly by AstraZeneca, have made major headlines in the media. In this context, the joint procurement of medical countermeasures was criticized for being too slow. It can be expected that if we would run our survey again, these criticisms would have an effect on the support for joint procurement as a policy measure that implements EU solidarity in health. However, in policy terms, the purchase of the COVID vaccines as a matter of risk sharing was largely a success. Member states have been able to mitigate risks of betting on the wrong vaccine, as without the EU joint procurement, they would have a narrower portfolio of vaccines available. Now, the member states were able to increase the odds of pre-purchasing effective vaccines. The perceived effectiveness of EU institutions by citizens may be an important predictor for public Euroscepticism and ultimately support for EU joint procurement policies. Eurobarometer surveys indicate that 62 percent of Europeans trust

the EU to make the right decisions in the future in response to the Coronavirus outbreak and that 61 percent of Europeans believe that more decisions should be taken at European level when it comes to dealing with health issues (European Commission, 2020, 2021), p.⁹ Hence, how the EU manages the current COVID-19 crisis may play a key role in citizens' support for development of a true European Health Union.

Lastly, the study has some limitations that offer opportunities for future research. The first promising path for future research would be to include a larger number of countries to allow for assessing the impact of the national context. The country differences suggest that macro-factors, such as institutional quality or national wealth, are relevant in explaining public preferences over joint procurement of medicines. In this regard, it would be very insightful to include the Eastern European countries in future research. In a similar vein, it remains unclear to what extent individual evaluations of the quality and sustainability of the national healthcare system shape citizens' preferences over the design of EU joint procurement policies. A second promising path for future research would be to study a wider range of policy dimensions that define the nature of EU health solidarity, for instance by exploring how conditionalities imposed on countries that benefit from the EU risk-pooling programme, such as imposing reforms in national health policy, affect citizens' support. Policy dimensions that have a direct bearing on the perceived deservingness of countries — not only in terms of their need, as we have researched in this article, but also with regard to control and reciprocity — may be equally important in understanding public support for EU health solidarity.

Notes

1. For a detailed outline of the conceptual framework on EU health solidarity that lays the foundations of our survey experiment, see de Ruijter et al. (2020, pp. 8–11).
2. These are extensions of the preregistered hypotheses on 23 March 2020 at Harvard Dataverse. Access to the dataset can be granted for strict replication purposes by the authors.
3. During the data collection, confirmed COVID-19 cases and deaths were substantially higher in Italy and Spain.
4. Country sample sizes are given in Appendix Table C. The demographic distribution in the sample follows the population closely, with less than 4% discrepancy for each demographic category in all countries.
5. This group comprises 14.7% of the sample.
6. Robustness checks using logit models yield similar results (Appendix Table F).
7. We find no interaction effects between the three dimensions (Appendix Table G), indicating that preferences over the scope, allocation and decision-making level of EU risk-pooling for medicines hold across alternative policy designs.

8. For Spain, the effect is in the same direction but not statistically significant (Appendix Table H).
9. Surveys fielded in 27 EU member states in July-August 2020 and November-December 2020 respectively.

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