Never Let a Good Crisis Go to Waste: Agenda Setting and Legislative Voting in Response to External Shocks

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Abstract

When exogenous shocks make status quo policies less attractive, legislators become more tolerant to proposed alternatives that are further from their ideal in general political dimensions. This increases the discretion of legislative agenda-setters, and allows them to pass policy that would have been impossible in the absence of a crisis. We argue that this dynamic explains changes in voting patterns of the European Parliament during the period of the financial crisis, given control of the agenda-setting process by pro-integration actors. We observe voting coalitions increasingly dividing legislators along the pro-anti integration dimension of disagreement, but only in policy areas related to the crisis. In line with more qualitative assessments of the content of passed legislation, the implication is that pro-integration actors were able to shift policy further towards integration than they could have without the crisis.

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Crises are commonly assumed to be catalysts for political action, opening "windows of opportunity" for dramatic and far reaching reform (Kingdon 1995, Keeler 1993, Cortell & Peterson 1999). Similarly, crises can represent "critical junctures" which are central to explanations of the punctuated dynamic of institutional change (Thelen 2004, Collier & Collier 2002, Krasner 1984, Pierson 2000, Peters et al. 2005, Baumgartner et al. 2009, Baumgartner & Jones 2002). One way that crises can facilitate political action is by weakening impediments that constrain political actors. When this happens, certain actors are able to 'make an opportunity out of a crisis', and secure changes that would have been impossible previously. However, beyond broad arguments that impediments to political action are removed, we often lack detailed theory of the effects that crises have on specific political decision-making processes. Further, which actors benefit from crises? Although 'policy entrepreneurs' are well positioned to benefit from crises (Kingdon 1995), it is important to specify why crises represent "an opportunity to be exploited" (Keeler 1993, 441) for some actors, but not for others. We address these questions by describing a model of the relationship between crises, legislative voting behaviour, and agenda-setting, which we apply to understanding the European Union's response to the 2008 global financial crisis.

The model we describe implies that crises weaken a key impediment to policy change: the opposition of legislators. This provides micro-foundations for the broader 'crisis as opportunity' thesis. Legislatures are a key part of the decision-making apparatus of all democracies and act as a major constraint on policy change under 'normal' political conditions. There exist few accounts of legislative behaviour in times of crisis. In contrast, there is extensive work on the impact of exogenous shocks on other political phenomena such as government duration and termination (Browne et al. 1986, Lupia & Strøm 1995), ministerial turnover (Diermeier & Merlo 2000, Martinez-Gallardo 2011), policy change (Luong & Weinthal 2004, Williams 2009), judicial decisions (Epstein et al. 2005, Clark 2006) and public opinion (Ladd 2007, Aldrich et al. 2006). Of the legislative studies that do evaluate the effects of such external shocks, there has been disproportionate focus on the effects of war on voting behaviour in the US Congress (Meernik 1993, Howell & Rogowski 2013, Prins & Marshall 2001, Wittkopf & McCormick 1998, Cohen 1982). This literature provides evidence of the 'rally round the

flag' effect, but is largely silent on the mechanisms that link crises to individual decisions made by legislators. Howell and Rogowski (2013, 164) encourage scholars to "pay closer attention to the micro-foundations of legislative decision making" in times of war, advice that clearly applies more generally to crisis response. Additionally, while existing accounts highlight the potentially destabilising effects of crises on policy, they do not generally provide specific predictions for the direction that policy will shift in response to a crisis. For example, the institutionalist literature is unclear as to what form new institutions will take following an equilibria punctuating shock. As Blyth (2002, 8) argues, "structural theories of institutional supply are indeterminate as to subsequent institutional form."

Our argument applies the core insight of the agenda setting model originally developed by Romer & Rosenthal (1978) to the context of a legislature facing a crisis in the face of pre-existing multidimensional disagreements. By making the outcomes resulting from inaction less attractive, crises strengthen the position of agenda-setting actors in the policy process. Crises can be understood as shocks to the external conditions which frame legislative deliberations and decisions. In our model, legislators have preferences over the ideological content of the bills that they pass, but have a common interest in the extent to which policy is well suited to current conditions – which we will call the 'valence' of policy. By changing the external context, a crisis reveals deficiencies in existing policies, makes status quo policies worse for all legislators, and thus encourages them to accept replacements. Accordingly, agenda-setting actors have more discretion during a crisis-period, and are able to propose (and pass) policy that would have been impossible in the absence of a crisis. We show that when standing political disagreements are multidimensional, this can have observable shifts in the voting coalitions that form. Such shifts not only provide evidence that policy is in fact shifting towards the agenda setter's position, but also constitute a realignment of the primary dimension of political disagreement.

This model speaks broadly to how crises can both empower agenda-setters and shift the active dimension of politics, and our discussion makes clear that the effects of crises on legislative behaviour are particularly apparent when pre-crisis politics are multidimensional. Accordingly, this model is well suited to understanding the effects of the global financial crisis

on the voting behaviour in the European Parliament (EP), where politics has traditionally operated in two dimensions: left-right, and pro-anti integration (Kreppel & Tsebelis 1999, Kreppel 2000, Hix 2002, Hix et al. 2006, 2007, Høyland 2010).

We argue that, in the context of the crisis, MEPs became more tolerant toward policies that they might previously have opposed, and pro-integration agenda-setters (the European Commission, the Council of the European Union, and the leaders of the large European Parliamentary Groups) exploited this tolerance to pass highly integrationist policy. Following the logic of our theoretical argument, this should have led to a shift in the voting patterns of the legislature, with voting coalitions increasingly dividing legislators into pro vs anti integration coalitions rather than left vs right coalitions. We provide evidence that this occurred by showing that votes in crisis-related policy areas indeed shifted towards the pro-anti dimension during the period of the crisis. In order to provide a context for this difference, we combine topic modelling with a two-stage least squares procedure in order to construct synthetic control comparisons to legislation in the pre-crisis period. We show that there was a shift towards voting along the pro-anti integration dimension during the crisis period, but only on crisis-related issues. The crisis did not occasion the sort of shift towards integrationist policy that might have resulted if the crisis simply made MEPs more favourable towards integration in general: changes were confined to the crisis-related policy areas where status quo policies were increasingly viewed as untenable.

Our argument contributes to a developing literature on European political responses to the financial crisis. Much of the work in this area aims to describe policy failures (Taylor 2009, Begg 2009, Hodson & Quaglia 2009, Holinski et al. 2012) or suggests solutions moving forward (Dabrowski 2010, Jacoby 2014, Grahl & Lysandrou 2014, Hild et al. 2014, Claessens et al. 2010). This paper, by contrast, suggests why particular policy responses were taken, and specifically how the European Union came to have such a prominent position in the post-crisis economic governance framework. The EU policy response to the crisis was dramatic and far-reaching, and required overcoming significant pre-existing disagreement in the European Parliament. While some attention has been paid to the crisis response of the Commission (Copeland & James 2014) and the European Council (Schimmelfennig 2014), we are unaware

of other research that investigates how the crisis affected the decisions of MEPs. While we are not the first to observe that the Commission and the Council were strengthened vis-à-vis other actors during the crisis, our argument attributes this change to how the crisis weakened the Parliament's ability to block policy changes. That the Commission and the Council appeared to be the central actors in the EU policy response is not the entire story: it was the crisis itself that undermined the Parliament's ability to stand in the way.

Theory

How do crises affect the decisions of legislative actors? Crises reduce the attractiveness of existing policy, and make legislators more tolerant towards proposed alternatives. When voting on policies, legislators operate in specific economic and political contexts which inform their perception of different policy options, and they prefer to select alternatives that are well suited to current conditions. At the time of adoption, policy will be written to 'fit' the external circumstances relatively well, but policy is static and can only be changed with further legislative effort. External circumstances, by contrast, are dynamic and undergo exogenous changes so that as time passes the degree to which a given policy remains effective may decline. In normal times, slowly changing external circumstances open up only limited opportunities to overcome coalitions opposed to policy change. A crisis constitutes a dramatic change to external conditions which leads to a large decrease in the efficacy of extant policy. This makes legislators much more inclined to accept alternatives to the status quo, which (in expectation) will be better suited to the changed environment.

The form that these alternative policies take depends on which actors control the agenda-setting process. Actors who monopolise proposal power are able to exploit the fact that the status quo has become unpopular in order to pass policy that previously would have failed to secure a majority. Romer and Rosenthal (1978) show that agenda-setters with the ability to make take-it-or-leave-it offers can exploit situations in which the status quo is unattractive. "The worse the status quo, the greater this threat and, consequently, the greater the gain to the setter from being able to propose the alternative." (Romer & Rosenthal 1978, 35-36) In the Romer and Rosenthal model a status quo is 'worse' when it is in an extreme position in

the policy space, and others have considered the effects of an exogenous shock to the spatial position of the status quo (Tsebelis 2002). However, for modeling a political crisis, we believe it makes more sense to think of the status quo as worse in non-spatial terms. A crisis entails a sudden change to the external conditions in which existing policies operate, rather than an exogenous change to the policies themselves. We therefore build on these previous models by modelling a crisis not as an exogenous shift in the position of existing policy, but rather as a non-spatial shock to the status quo.[1]

Here, we will use the widely used term "valence" to refer to this non-spatial quality of policy. In models of elections, a similar intuition is commonly incorporated through the addition of a valence term to a spatial utility function, where valence reflects voters' preferences for universally valued candidate characteristics such as integrity, competence, and ability to provide local public goods.[2] In our model, valence is the degree to which policy is well suited to external conditions, and can be expressed formally as the reduced form of a policy dimension on which there is universal agreement (see section S2 in the appendix). In our empirical analysis we exploit the fact that only certain status quo policies are affected by the crisis in order to identify changes in legislative behaviour between crisis and non-crisis periods.

We consider a case where legislators have preferences over locations in two general policy dimensions x_1 and x_2 , and also prefer policies with higher valence v.[3] This yields quadratic-loss random utility functions for the proposal and alternative:

$$u_{iq} = -\left(x_{i1} - x_{q1}\right)^2 - \left(x_{i2} - x_{q2}\right)^2 + v_q + e_{iq} \quad (1)$$

$$u_{ip} = -\left(x_{i1} - x_{p1}\right)^2 - \left(x_{i2} - x_{p2}\right)^2 + v_p + e_{ip} \quad (2)$$

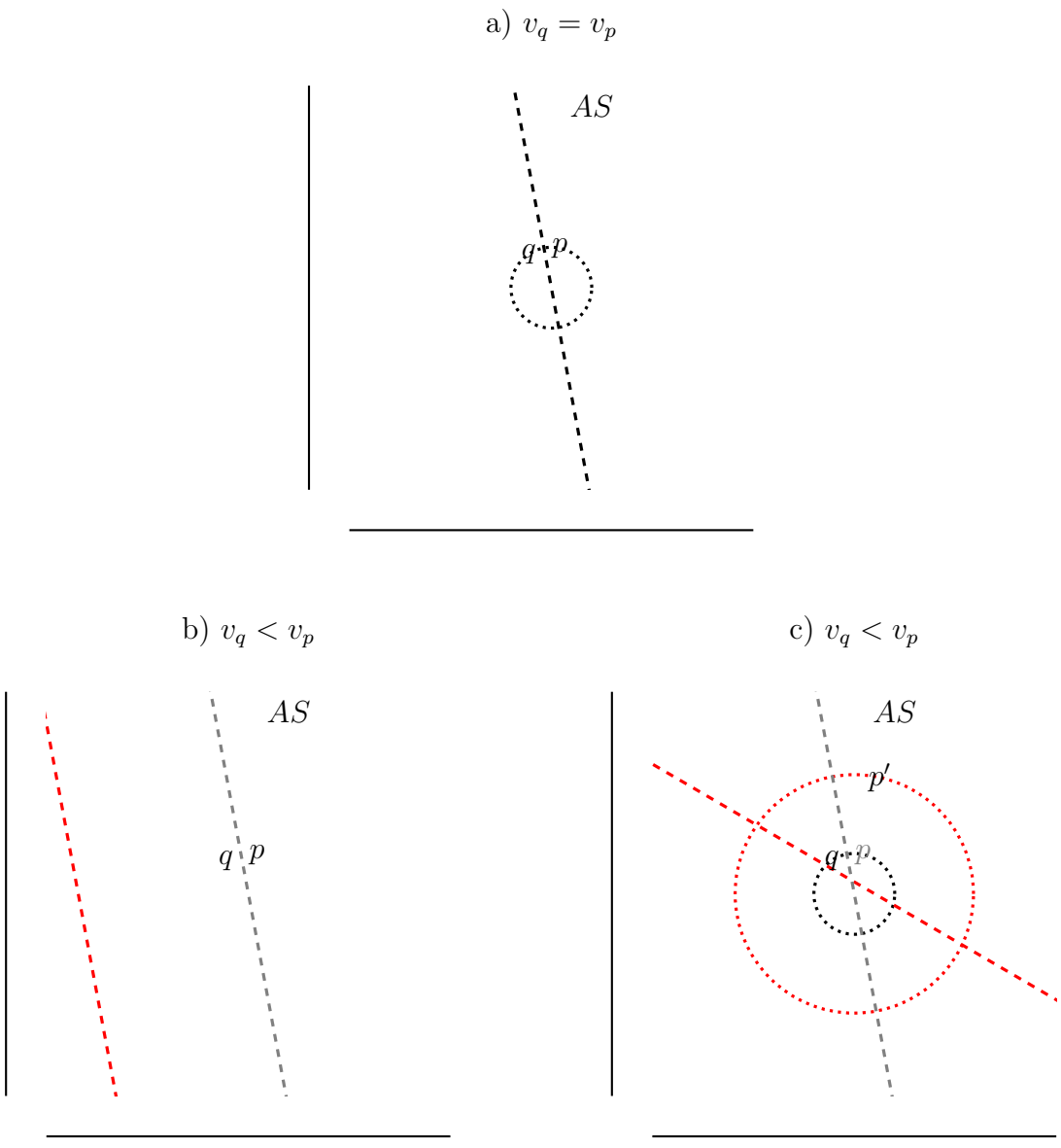
Example cases of voting under these utilities are depicted in figure 1. Consider a situation where there is no valence gap between the status quo and the proposed alternative (top panel,

[1] We discuss alternative ways of modelling a crisis in more detail below, and in section S8 of the appendix.

[2] See, for example, Ashworth & Bueno de Mesquita (2009), Enelow & Hinich (1982), Enelow et al. (1986), Adams et al. (2011), Ansolabehere & Snyder (2000), Groseclose (2001).

[3] This '2-D plus valence' example is the simplest version of the model that reveals relevant observable implications. In the appendix we also consider a '1-D plus valence' model that captures the central intuition that agenda-setters secure more preferable policy outcomes during a crisis. However, in addition to being a poor match to EU politics, the 1-D model predicts that voting coalitions remain unchanged while the policy proposal positions change between crisis and non-crisis periods. The former are far more easily measured than the latter.

Figure 1: Crises, legislative voting, and agenda-setting in two-dimensions



NOTE: In the absence of a crisis (top panel), voting collapses to a simple spatial model, with legislators voting for the proposal p if they are to the right of the cutline, or against the proposal otherwise. If the status quo q receives a negative valence shock, but the proposed policy is fixed at p (bottom left), then the cutline will shift to the left, indicating that some legislators who previously would have voted against p, now would vote 'yea'. In equilibrium, the agenda-setting actor (AS) will exploit this tolerance to propose policy (p') that better represents her interests (bottom right). The agenda-setter 'makes an opportunity out of the crisis'. We can identify the effects of such a proposal in two-dimensional voting patterns, as the cutting-line rotates in the direction of the ideal point of the agenda-setter.

$v_q = v_p$). In the absence of a crisis, voting accords to a simple spatial model. Legislators vote 'yea' if their own ideal point is closer to the proposal (p) than it is to the status quo (q) and 'nay' otherwise. The dashed cutting-line separates 'yeas' from 'nays'. The dotted circle represents a hypothetical winset[4] - the set of policies that would defeat the status quo in pairwise comparison. Policies located within the winset will defeat q in an up-or-down vote, and policies located outside the winset will fail. The proposal p is determined by the agenda-setter (AS), who makes a take-it-or-leave-it proposal that is as close as possible to her own ideal point, within the constraint that the policy will be approved by a majority vote (that is, within the winset).

In this example, the agenda-setter is located at a relatively moderate position on the first dimension, but an extreme positive position in the second dimension and so the proposed policy is close to the top of the winset. Given the illustrative winset shown, the proposal mostly moves policy from left to right, rather than south to north. Because of this, the cutting line falls nearly vertically, and the 'yea' coalition is formed of legislators on the right side of the policy space.

Consider now the crisis case ($v_q < v_p$), where we temporarily hold fixed the positions of q and p (bottom-left panel). The main implication of the decline in v_q is that any given legislator is willing to accept a broader range of policies because the ideological cost of accepting a more distant p is compensated for by replacing the low-valence q. The decline in v_q therefore leads some legislators to vote for p despite their relative proximity to q, resulting in a larger coalition of support for p in the crisis period. This is depicted by the leftward shift of the cutting-line. If the proposed policy p is held fixed, a crisis will lead to a larger 'yea' coalition than in the non-crisis period.

However, because more policies are able to defeat q in pairwise competition (the winset expands), the agenda-setter can propose a policy closer to her own ideal point that will still win a majority of support. This means that the agenda-setter can propose p' instead of p (bottom-right panel). As p' is within the enlarged winset, it is approved by the legislature, whereas in the equal valence scenario it would have been rejected, and the agenda-setter

[4]Analytically deriving the winset is not possible without first specifying the 2D preference distribution of legislators. However, an illustrative version is sufficient for our purposes here.

obtains a policy outcome that would not have been possible in the absence of the crisis.

These figures make clear the agenda-setter's advantage during crisis periods. The worse a valence shock (i.e. the lower v_q), the larger the winset, and thus the more discretion the agenda-setter has over policy outcomes. In short, the model captures the intuition that agenda-setters can exploit a crisis. Crises make legislators more tolerant to new proposals, meaning that those with agenda-setting power can trade off the resulting surplus of legislative votes to achieve spatial outcomes that are closer to their own preferences than would have been possible in the absence of a crisis.

There are two major implications of the model. First, the set of legislators voting to approve the agenda-setter's policy changes between non-crisis and crisis periods. Specifically, in the example given in figure 1, the cutting-line separating 'yeas' from 'nays' rotates to become closer to horizontal. The more 'northerly' the policy proposal relative to the status quo, the more legislators will vote based on their preferences regarding the second dimension rather than the first, leading to a more horizontal cutline between the voting coalitions. Extending this logic to the general case, a crisis rotates cutting-lines to run perpendicular to the direction of the ideal point of the agenda-setters from the political centre, because the agenda-setter is able to move policy towards her ideal point to a greater degree. The dimension of observed political disagreement shifts towards the dimension along which the agenda setter differs most from the typical legislator, in this case increasingly dividing legislators according to their position in the second dimension rather than the first.

The second implication of the model is that agenda-setters will obtain policies closer to their ideal points during crises. Legislators take the broader policy-making environment into account when deciding on policy, and while always sensitive to deviations from their own policy preferences, they are also concerned with adopting policies that are congruent with current conditions. This means that when crises cause sudden changes in the external environment, existing policies (the status quo) become less attractive, and make legislators more receptive to alternative proposals. Agenda-setters are therefore able to propose (and pass) policies that more closely reflect their own preferences than would have been possible in the absence of a crisis. The model therefore provides micro-foundations for the idea that crises represent 'an

opportunity to be exploited' by agenda-setting actors.

Our decision to model crises as a non-spatial valence shock distinguishes our argument from other plausible mechanisms that could link a crisis to changes in legislative behaviour. First, one could model an exogenous shock as a sudden movement of the status quo in the policy space (as in Tsebelis (2002)). Second, one might also model the effects of a crisis as an exogenous shift in the preferences of legislators. These alternatives both offer plausible descriptions of crisis politics. In some circumstances they lead to the same predictions, in terms of agenda-setter discretion, as the valence-shock model. Specifically, whenever a spatial shock leads to a *divergence* between decisive legislators and the status quo policy, the main implication of our argument holds. The less legislators like the status quo - for either spatial or non-spatial reasons - the greater the costs they face for inaction, and so the greater the discretion of the agenda-setter. In the appendix (S8) we detail the conditions under which spatial and non-spatial shocks result in equivalent observable implications, and demonstrate that it is not necessary to accept the 'valence-shock' aspect of our model in order to accept most of our argument as to how crises empower agenda-setters.

However, while these explanations may not differ in terms of their observable implications, they do differ in terms of what they imply about counterfactuals. An interesting implication of the valence-shock model is that the winset expands symmetrically in the event of a crisis. The consequence of this is that the worse the valence of the status quo, the greater the discretion of the agenda-setter to move policy *in any direction*. This contrasts with modelling a crisis as a *spatial* shock - either to preferences or to the position of the status quo - where changes in the winset will be determined by the specific direction of the shock, meaning that agenda-setters benefit only under certain conditions. In general we prefer to conceptualise a political crisis as a non-spatial shock because this better approximates our intuitive understanding of a crisis. Whereas spatial shocks (to either preferences or the status quo) imply that some actors *prefer* the crisis, non-spatial exogenous shocks make the status quo worse *for everyone*.

Crisis in the EU

Europe suffered two major waves of economic crisis between 2007 and the present. First, the collapse of the US subprime mortgage market sparked a global financial crisis which caused major difficulties for European banks (Brunnermeier 2009). Second, in 2010, that banking crisis evolved into a sovereign debt crisis, as market fears spread that national governments would be unable to meet their guarantees to failing banks (Lane 2012).

These crises demonstrated that EU economic policies and institutions, constructed in an extended period of growth, were ill-suited to times of economic turmoil. For example, the banking crisis revealed that European banks, which had become large and over-leveraged, represented a more significant risk to the stability of the financial system than was previously understood (Alessandri & Haldane 2009, Carmassi et al. 2009, Acharya et al. 2011). Furthermore, the pre-crisis regulatory framework was shown to be incapable of coping with the systemic nature of the crisis, providing no tools to respond to the collapse of large international banks (European Commission 2013). As the crisis spread, MEPs were quick to notice the deficiencies in existing regulation.[5] Similarly, the debt crisis revealed structural problems with the design of the currency union as a whole. Existing policy to contain imbalances in public debt and current account deficits between Eurozone countries had proven inadequate, as the main rules to encourage fiscal coordination and discipline - enshrined in the Stability and Growth Pact (SGP) - had been consistently broken (ECB 2011, Lane 2012, Holinski et al. 2012). In the positive economic conditions in which the SGP was formed, governments were able to fund excessive budget deficits relatively cheaply, by borrowing from the international bond markets (De Grauwe 2011). However, as the crisis hit, and these markets dried up, the sustainability of these policies was called into question.[6] In general, the crisis dramatically reduced the attractiveness of existing status quo policies to legislators, and opened a window of opportunity for economic policy change.

[5] In a debate following the collapse of Lehman Brothers, a prominent member of the EP argued that "the supervision of the financial markets is not working... the status quo is untenable in the medium and long term." Joesph Daul, EPP MEP, 8th October 2008

[6] As one MEP argued: "The economic and financial crisis has revealed all too clearly the shortcomings and weaknesses of the existing instruments and methods for coordinating economic and currency policy." Richard Seeber, EPP MEP, 20th October 2010

Our model implies that that a relatively wide range of policy options could plausibly have won majority support in the EP during the crisis period, as MEPs should have been willing to make ideological compromises in order to replace defunct policy. Although the policies adopted during the crisis had a distinctive ideological profile, two broad policy responses, which proposed opposing shifts along the integration dimension, were initially discussed. On the one hand, pro-integrationist actors argued for the integration of banking regulation, the creation of new EU financial oversight institutions, and further empowerment of existing institutions to enforce fiscal discipline on member states. Proponents of this integrationist response included the European Commission President, José Manuel Barroso, who argued that the EU response to the crisis "must be far reaching reform... Europe's contribution must be a big step for an ever closer, ever stronger Union" (Barroso 2013).

On the other hand, an alternate policy response, supported largely by Eurosceptic actors, focused on streamlining the European institutions to make them more competitive, safeguarding national regulatory powers, and "repatriating" powers from Brussels back to the national level. British Prime Minister David Cameron made this argument in 2013 by emphasising that future EU reforms ought not to include "an insistence on a one size fits all approach which implies that all countries want the same level of integration. The fact is that they don't and we shouldn't assert that they do."(Cameron 2013) This position was expressed more strongly by Nigel Farage, leader of the United Kingdom Independence Party, who argued that "We need to turn back. People need national control over their currencies and over their economies."[7] Overall, while the crisis led to dissatisfaction with the status quo from across the political spectrum, there was substantial disagreement about the ideal strategy for resolving deficient policy, disagreement that largely reflected the pre-existing dimensions of disagreement over EU integration.

Pro-Integration Agenda Control and Preferences in Two Dimensions

Policy preferences in the EP have been widely described in terms of two major dimensions. One dimension corresponds to the left-right issues that typically shape national-level politics,

[7]Nigel Farage, EFD MEP, 16th June 2010.

while the second dimension relates to the scope of authority of European institutions, with those favouring more European powers at one end and those opposing the expansion of these powers at the other. This structure manifests itself clearly in roll-call (Hix et al. 2006, 2007, Hix & Noury 2009, Høyland 2010, Klüver & Spoon 2013) and expert survey (McElroy & Benoit 2007, 2011) data. The distribution of European Party Group (EPG) positions over these two dimensions results in an inverted-U shape, where centrist parties (on the left-right dimension) tend to have relatively strong pro-integration preferences, whereas parties towards the extremes of the left-right space tend to be more anti-integrationist. Figure S7 in the supporting information presents the expert survey located positions of the EPGs on these two dimensions for the seventh European Parliament (2009-14).

Although agenda-control in the EU is somewhat diffuse (Hix & Hoyland 2011), the main agenda-setting actors are united by their pro-integration preferences. First, the European Commission - a supranational body appointed by the governments of EU member states - holds the exclusive right to legislative initiative within the EU. The Commission is the ultimate external gatekeeper in the EU-wide policy process (Hix et al. 2007, 111) and recent literature has emphasised the key role of the Commission as agenda-setter during the crisis period (Copeland & James 2014). The Commission is usually assumed to be pro-integration (Tsebelis & Kreppel 1998, Mattila 2004, Hooghe 2005), and has generally proved to be so in matters relating to the economic crisis.

Second, the internal agenda of the parliament is largely controlled by the leaders of the EPGs through the Conference of Presidents, a political body responsible for the organisation of parliamentary business (Kreppel 2002, 210). Through the Conference, party group leaders determine the agenda for plenary sessions, and a voting system which is weighted by party size allows the larger party groups - such as the EPP, ALDE, and the S&D[8] - to dominate the process. The large parties also hold the vast majority of lower-level agenda-setting offices - such as committee seats, chairs and rapporteurships - which are also distributed according to party group size. Thus, in the internal agenda-setting process of the Parliament, the large party groups are dominant, and have significant abilities to restrict the flow of legislative

[8]European People's Party; Alliance of Liberals and Democrats for Europe; Progressive Alliance of Socialists and Democrats

traffic. These parties are centrist on the first dimension, and distinctly pro-integration on the second dimension of conflict (see figure S7 in the supporting information). This, again, suggests that pro-integration actors monopolise agenda-setting privileges within the EP.[9]

Finally, leaders of national governments also have the ability to exercise agenda-setting powers in the EU policy process. The European Council, which is made up of the leaders of national governments, is responsible for setting the "general political direction and priorities" of the Union (Treaty of Lisbon 2007). Similarly, Schmidt (2001) argues that the Council of Ministers, which is comprised of government ministers from each member state, has significant informal influence over the shape of policies proposed by the Commission. While the exact role these bodies play in the agenda-setting process is opaque, it is clear that they have some bearing on which issues arise on the legislative agenda. As with agenda-setters in the Parliament and the Commission, the leaders of the national governments are also largely united in their preferences for integration. As Warntjen et. al. (2008) show, preferences for integration in the Council have been positive and stable across a long time period.

Thus, the preference structure of the EP and location of agenda-setting actors in the preference space largely reflects the theoretical structure we previously used to illustrate our model in figure 1.[10] What then are the implications for the voting coalitions that formed and the policies that passed during the economic crisis?

[9] Although the EPGs are relatively cohesive (Hix et al. 2005, 2007), they are comprised of ideologically heterogeneous national parties. This is particularly the case on the pro-/anti-integration dimension, where EPG positions are "far more pro-European than their constituent national parties." (McElroy & Benoit 2011, 163) Accordingly, figure S7 does not reflect the fact that the median voter in the parliament on the pro-/anti-dimension is less integrationist than the position of the large parties might imply.

[10] One possible objection is that the 'take-it-or-leave-it' agenda power assumed by our model is unrealistic in the EP, where floor amendments are permissible. If amendments can be used to rein in proposals that are too integrationist, while still replacing the status quo with a higher valence proposal, then pro-integration agenda-setters would not profit from increased discretion during a crisis. However, evidence strongly suggests that amendments tend to change policy on the left-right dimension of conflict, but not the integrationist dimension (Kreppel & Tsebelis 1999, Kreppel 2000, Kreppel & Hix 2003, Hix et al. 2007). There are technical limitations to proposing such amendments, as doing so would require legislators to propose fundamentally reformed institutional structures. This would require significant legislative resources, expertise, and drafting time. The anti-integrationist party groups (the actors with an incentive to propose such amendments) are resource-poor in comparison with the larger groups and the European Commission. Thus, in the context of the EP, it is unlikely that the power of agenda-setters is significantly diminished by the availability of amendments.

Predictions

Our model implies that, as agenda-setters in the EP are uniformly pro-integration, policies passed by the European Parliament during the crisis should be more integrationist than they would have been without the crisis. It is unambiguous that integrationist legislation passed during this period. The legislative response to the financial crisis included many policies that transferred significant powers from the national to the European level. The EU instigated a major set of banking reforms, including: a common rulebook for banking practice; the establishment of a Single Supervisory Mechanism (SSM) for the oversight of risk in the banking system; a Single Resolution Mechanism (SRM) which makes Eurozone governments jointly responsible for the solvency of private banks; and a host of new institutions which aim to limit systemic risk. The European Commission acquired dramatically increased powers under the new fiscal framework, the harmonisation of banking standards directly affects national law, and the new institutions can be seen as quasi-federal supervisory authorities (Lannoo 2011, 2).

The response to the debt crisis was perhaps even more integrationist. The most high-profile changes included the creation of the European Stability Mechanism (ESM), a permanent rescue facility for the Eurozone area; legislation to increase the Commission's ability to scrutinise member-state finances; and a legislative 'six pack' which bolsters the Stability and Growth Pact by establishing fiscal goals to which member-states must converge. Again, these reforms entail a significant deepening of integration in economic affairs, empowering supranational actors such as the Commission and the European Central Bank, and transferring sensitive policy competences to the European level. In sum, integrationist policies relating to sovereign finances, macro-economic coordination and banking reform were proposed by the European Commission, and were adopted by legislators in the EP.

However, the fact that integrationist policy passed is not sufficient for our argument, as we suggest that policies that passed after 2008 were more integrationist than was possible before the crisis. Indeed, if our theoretical model captures the dynamics of the EU case, there are clear implications for how voting coalitions in the two-dimensional space of EU politics ought to have changed in response to a crisis. The main observable implication of the model

is apparent in the bottom-right panel of figure 1, where the cutline separating the 'yea' from the 'nay' voters rotates after the valence shock to become closer to horizontal. We expect a similar rotation of the cutlines in the EP in response to the financial crisis. If agenda-setters proposed more pro-integration policy solutions, the cutting-lines separating voting coalitions should have been increasingly horizontal, dividing pro- and anti-European MEPs, rather than vertical, dividing right and left MEPs.

We denote the angle of the cutting line of a given vote as φ_j, and define this angle over an arc of 2π such that it equals zero when the cutting line is horizontal.[11] Our argument suggests that when a crisis occurs, the valence of existing policy will decline, leading to more integrationist policy proposals, and a shift in the distribution of the cutting-lines. In the context of the EP, for a given set of votes, we expect that the cutting-lines will become, on average, closer to horizontal after the onset of the crisis. In terms of φ_j, we can characterize the average tendency of coalitions to align with yes votes among pro-integration MEPs using the mean absolute angular deviation (MAAD) from zero:

$$MAAD = \frac{1}{M} \sum_{j=1}^{M} |\varphi_j| \tag{3}$$

The closer to zero the MAAD is, the greater the tendency of votes to have yes voters among pro-integration MEPs (of both left and right) and no voters among anti-integration MEPs (of both left and right).

Crucial to our argument is that we only expect MAAD to decline in policy areas that are affected by the crisis. As noted previously, not all status quo policies are affected by any particular crisis. Our argument is policy-domain specific, as it is only status quo policies in crisis-related areas that will receive a valence shock, and so only in votes on these issues that we expect to observe a rotation of cutting-lines. This yields a testable prediction that has the form of a differences-in-differences: we expect that after the onset of the crisis, cutting lines will shift towards horizontal in crisis-relevant policy areas relative to non-crisis-relevant policy areas.

[11] We formally derive the relationship between the cutting line angle and the extent to which policy is moving in the second relative to the first dimension in the supporting information. Figure S7 provides a graphical depiction of different values of φ.

Methods and Data

In order to test this prediction, we make use of two main data sources. First, we require voting records for legislators in the EP across the crisis period. We collect this information from `www.votewatch.eu` which keeps a record of every recorded vote in the European Parliament. We collect all votes from the sixth and seventh European Parliaments (2004-2014), therefore including a period before and after the emergence of the crisis in late 2008. Throughout the analysis, we treat votes from the 6th European Parliament (EP6) as 'pre-crisis', and votes from the 7th European Parliament (EP7) as 'post-crisis', an assumption that we discuss below.

Second, we require information that allows us to differentiate between crisis-related and non-crisis-related votes. As explained below, we develop a novel text classification strategy to estimate the degree to which pre-crisis votes were 'crisis-relevant' so that we can make a fair comparison of votes pre- versus post-crisis. For each vote we collect a legislative summary text from the European Parliament website.[12] The summaries give details of the purpose, background, and content of legislation under discussion, and thus provide salient textual information for classification. An example text is provided in the appendix (S3).

2D Scaling with Expert Survey Identification of Dimensions

In order to make the estimated cutlines for EP6 and EP7 comparable, it is necessary to jointly estimate preferences over both Parliaments. We combine the roll-call votes taken in EP6 and EP7, holding the preferences of MEPs serving in both constant. To ensure that we can distinguish left-right political preferences from pro-anti integration preferences, it is necessary to use some kind of auxiliary information to orient the latent preference space along those axes. To identify these dimensions, we implement a hierarchical 2D ideal point estimator in Stan (Stan Development Team 2014) using expert survey data (McElroy & Benoit 2011) to locate the average positions of party groups in EP6 and EP7. These locations form priors over the average positions of MEPs in each of the two dimensions, with the party group priors for both EP6 and EP7 informing the priors of MEPs who served in both Parliaments.

Where β_{jd} are the vote parameters for each dimension d for roll call j, and θ_{id} are the

[12] `www.europarl.europa.eu`

preferences of MEP i on each dimension d, and $x_{g(i)d}$ is the expert survey estimate of the party group g of legislator i on dimension d, the core of the ideal point model is:

$$p(Y_{ij} = 1) = \Phi\left(\beta_{j0} + \beta_{j1}\theta_{i1} + \beta_{j2}\theta_{i2}\right) \quad (4)$$

$$\beta_{jd} \sim N(0, 2^2) \quad (5)$$

$$\theta_{id} \sim N(x_{g(i)d}, \sigma_d^2) \quad (6)$$

Because individual MEPs are treated as draws from the expert survey party group mean, with an estimated degree of dispersion around that mean in both dimensions, the expert survey data provides a weak constraint on the estimated locations of MEPs. The effect of this prior is to orient the 2D ideal point space as close to the survey data as possible, but it only weakly influences the locations of individual MEPs relative to their colleagues, and only to the extent that the prior generally fits the relative locations of MEPs. The estimated cutting angle φ_j is calculated from the estimated values of the β_{jd} as described in section S4 of the appendix.

Crisis-relevant and non-crisis-relevant votes

Our model implies that there will be a difference in the distribution of the φ_j between votes that relate to the crisis and votes that do not, but identifying 'crisis-relevant' votes is non-trivial. One approach would be to classify votes according to their committee of origin so that, for example, votes on reports originating from the Economic and Monetary Affairs (ECON) committee could be crisis-relevant, and all other votes non-relevant. However, relying on a simple committee categorisation is problematic. ECON reports include a diverse selection of legislation, only some of which pertain to the crisis. Similarly, many explicitly crisis-related reports did not originate in the ECON committee.[13] Such an approach would yield a coding that, at best, only roughly approximated our classification of interest.

Instead, we make use of the legislative summaries introduced above to produce a binary coding of 'crisis-relevant' and 'non-crisis-relevant' votes in the seventh European Parliament

[13]For example, an important parliamentary resolution concerning the feasibility of stability bonds (or 'Eurobonds') did not originate in the ECON committee.

(EP7). We search the EP7 summaries for five key phrases that indicate direct relevance to the crisis: "financial crisis", "economic crisis", "sovereign debt crisis", "euro crisis", and "eurozone crisis". Of the 6,916 votes held during EP7, our selection procedure codes 1,071 as 'crisis-relevant'. Based on this categorisation, we can then compare the distribution of cutting-angles within EP7. Table 1 presents the results of a simple linear regression of the estimated absolute angular deviation, φ, on the binary 'crisis-relevant' indicator. The coefficient for this indicator in the regression is simply the difference in mean absolute angular deviation (equation 3) between crisis and non-crisis relevant votes. As implied by our theoretical model, votes in EP7 on crisis-relevant legislation were marked by significantly ($t = -6.8$, assuming independence) and substantially (about 18%) lower values of the average cutting angle φ than non-crisis relevant votes during the same period.

This simple comparison of voting in the seventh European Parliament provides initial support for a major implication of our model. Legislative coalitions on crisis-relevant votes formed more on the pro-anti integration dimension than did non-crisis votes, and there are more than enough votes to say that this cannot be dismissed as the result of unsystematic variation in voting coalitions.

Table 1: Linear regression of φ on 'crisis-relevant'

	Absolute Angular Deviation
	φ
Crisis-relevant	−0.204
	(0.030)
Constant	1.183
	(0.012)
Observations	6,961
R^2	0.007
Note:	Standard errors in parentheses

Synthesising a control group using legislative texts

The most obvious objection to the preceding comparison of means is that the difference we identify between crisis-relevant and non-crisis relevant votes in EP7 may reflect a pre-existing feature of EP disagreement across different policy domains. Perhaps we are recovering something about the general structure of voting on economic and finance versus other issues, and not a *change* in voting structure that resulted from the crisis. Clearly we are unable to observe the relevant counter-factual: what would voting have looked like in EP7 in the absence of a crisis? In this section, we synthesise the most plausible, feasible control group with which to compare the difference estimated above.

Our point of comparison is with the preceding European Parliament, where voting coalitions were not subject to the crisis effects that our model contemplates. Examining changes in voting coalitions between EP6 and EP7 allows us to compare crisis and non-crisis parliaments. However, to make the relevant comparison, we need to identify votes from EP6 that are substantively similar to the crisis-relevant votes from EP7. One approach would be to manually select a series of votes from EP6 that we deem to be on issues similar to the crisis-relevant votes in EP7. However, this would be ad hoc, and would require a great deal of subjective judgement. It is also sufficiently unclear what it means for a vote to be 'crisis-relevant' in EP6 as to make any strictly binary classification problematic.

To circumvent this problem, we develop a linear probability classification of EP6 votes, using the binary classification of EP7 votes described above as the training data for a model that predicts crisis-relatedness using features of legislative summary texts. The intuition behind our estimation strategy is to use the information contained in the legislative summaries to find votes in EP6 which are about substantively similar issues to the crisis-related votes in EP7, and to use these votes to compare voting coalitions on these issues across the crisis and non-crisis periods. We proceed in three steps.[14]

First, we estimate a series of topic models (Blei & Lafferty 2006, Roberts et al. 2014) from the corpus of legislative summaries of each vote in EP6 and EP7. The key quantity of interest recovered from each of these topic models is a matrix of topic proportions, that describes the

[14]We give more detail on the construction of our approach in section S10 of the appendix.

fraction of each legislative summary $d \in \{1, 2, ..., D\}$ that is from each topic $t \in \{1, 2, ..., T\}$. These matrices offer a high-dimensional summary of the substantive content of each vote, and give us a basis on which to find thematically similar votes in EP6 and EP7. Choosing the appropriate number of topics is a common problem in topic models, and typical solutions (e.g. Blei et al. (2003)) aim to find the model that best predicts held-out textual data. In our case, we are not interested in predicting *text* data out of sample, but rather in predicting our manual classification of 'crisis-relevant' votes. Because the number of topics that will do this best is unclear *a priori*, we estimate topic models for all $K = 98$ integer topic counts from 3 to 100.

Second, we use the topic proportions for the EP7 votes as explanatory variables in linear regressions, where the dependent variable is the manually coded 'crisis-relevant' binary classification introduced above. We then use the estimated coefficients to generate fitted values, denoted $\hat{\pi}_{j(kd)}$, for all votes in both EP6 and EP7. These values represent the probability that each vote, j, is crisis-relevant, given the vector of topic proportions for legislative summary d from topic model k. The intuition is that the regression coefficients on the topic proportions indicate the thematic elements (words) that predict a vote being crisis-relevant, and the fitted values thus provide a measure for whether the issues addressed in each vote from both EP6 and EP7 were ultimately relevant to the crisis.

Third, we use the fitted values as explanatory variables in K second-stage linear regressions of the following form:

$$|\varphi_j| = \alpha_k + \beta_{k1} \cdot EP7_j + \beta_{k2} \cdot \hat{\pi}_{j(kd)} + \beta_{k3} \cdot (EP7_j \cdot \hat{\pi}_{j(kd)}) + \epsilon_{j(d)} \tag{7}$$

where φ is the angle of the cutting line, $EP7$ is an indicator variable for whether the vote was taken during the seventh European Parliament (i.e. during the crisis), and $\hat{\pi}_{j(kd)}$ measures the crisis-relevance of the vote. Because we are using fitted values for whether the vote was crisis-related, the coefficients remain estimators of the difference between the MAAD of crisis-related ($\hat{\pi} = 1$) and non-crisis-related ($\hat{\pi} = 0$) votes. Our primary quantity of interest is then the estimated $\hat{\beta}_{k3}$ coefficient. This is the interaction between the probability of a vote being crisis-relevant, and that vote being held during the crisis. The theoretical model implies that

the interaction coefficient should be negative, implying that crisis-relevant votes in EP7 were marked by increasingly pro-versus-anti integration coalitions, rather than left-versus-right coalitions, relative to non-crisis-relevant votes.

This approach, which is an unusual application of a two-stage least squares estimator, has two attractive features. First, using the legislative summary texts ensures that we are comparing *thematically* or *topically* similar votes in EP6 and EP7. This means that if there had always been a difference between how the EP voted on the issues that ultimately become crisis-related and other issues, we will observe a constant difference in EP6 and EP7, and the difference-in-differences (β_{k3}) will be zero. Second, using the fitted values for crisis-relatedness for both EP6 and EP7, rather than using the EP7 binary coding we used to train the first-stage classifier, enables a fair comparison of the two periods. If our classifier does not work well, the comparison of the EP7 difference estimated using the binary classification versus that estimated on the fitted values will provide an indication that there is a problem with the comparison we are making.

Two methodological issues remain. First, in order to incorporate estimation uncertainty from the first stage regression model into our estimates at the second stage, we bootstrap both regression models. As votes are grouped within texts, and the topic mixtures vary only at that group level, we use a block bootstrap to account for within-text error correlation in the first stage model (Angrist & Pischke 2008, 315). We jointly bootstrap both regression stages 1000 times, resampling the texts with replacement, and estimating our quantities of interest at each iteration. Second, the ambiguity over the number of topics to include in the topic models means that there is no *a priori* reason to prefer any one vector of $\hat{\pi}_k$ values, nor any one β_{k3} coefficient. However, while we have no a priori reason to prefer any particular number of topics, we can assess which topic model yields the most predictive first stage regression for predicting the manual coding of which EP7 votes were crisis-related. For each of the first stage regressions, we therefore calculate BIC, AIC and Adjusted R^2. AIC and Adjusted R^2 agree on the 62 topic model, while BIC (which includes a greater penalty for additional parameters) favours the 29 topic model.[15]

[15]In figure S5 in the supplemental appendix we present the three fit statistics for all 98 models.

Results

Before turning to our main results, it is important to evaluate the validity of our classification procedure for specifying which EP6 votes were in policy areas that were to become relevant to the crisis once it arrived. First, we can directly examine the votes from both EP6 and EP7 which our model estimates to have high 'crisis-relevant' probabilities ($\hat{\pi}_{j(kd)}$). Table S3 in the appendix presents the titles of the top 20 crisis-relevant texts from the 29 topic model, from both parliamentary terms.[16] The results could hardly be more reassuring. As expected, the classification procedure successfully recovers the explicitly crisis-related votes from EP7. Many of the well-known economic reforms - such as the 'Six pack', the 'Two pack', and the European Semester - feature in EP7 list. The EP6 votes - which occurred before the crisis - are also all directly related to the economic issues that became increasingly significant after 2008. Votes relating to the strengthening of national budgetary positions, public finances, financial markets, credit rating agencies, and the common currency all feature prominently at the top of the EP6 list. The procedure is not simply picking up votes from late 2008 and early 2009 in EP6, as several of the vote titles include the year in which they were voted upon, and they cover the whole of the EP6 period. In general, these results suggest that our classification procedure works remarkably well, and that our synthetic control group is a reasonable basis for comparison.

Second, we can evaluate the degree to which the fitted values enable us to estimate the 'true' difference between crisis-relevant and non-crisis-relevant votes in EP7 using our two-stage regression procedure. We can compare the estimated coefficient on the first stage fitted values for EP7 from our second-stage model (equation 7) with the difference in means from our manually coded votes given in table 1. Recall that we are using the fitted values even for EP7 where we have the direct binary coding in order to make sure that the comparison with EP6 is a fair one. If the directly calculated difference from the manually-coded data and the two-stage estimate based on the fitted values constructed from the topic model estimates are similar, we can be confident that, at least for EP7, our topic model approach is approximating the 'true' difference that we calculated previously.

[16] An equivalent table, for the 62 topic model, is given in section S7 of the appendix.

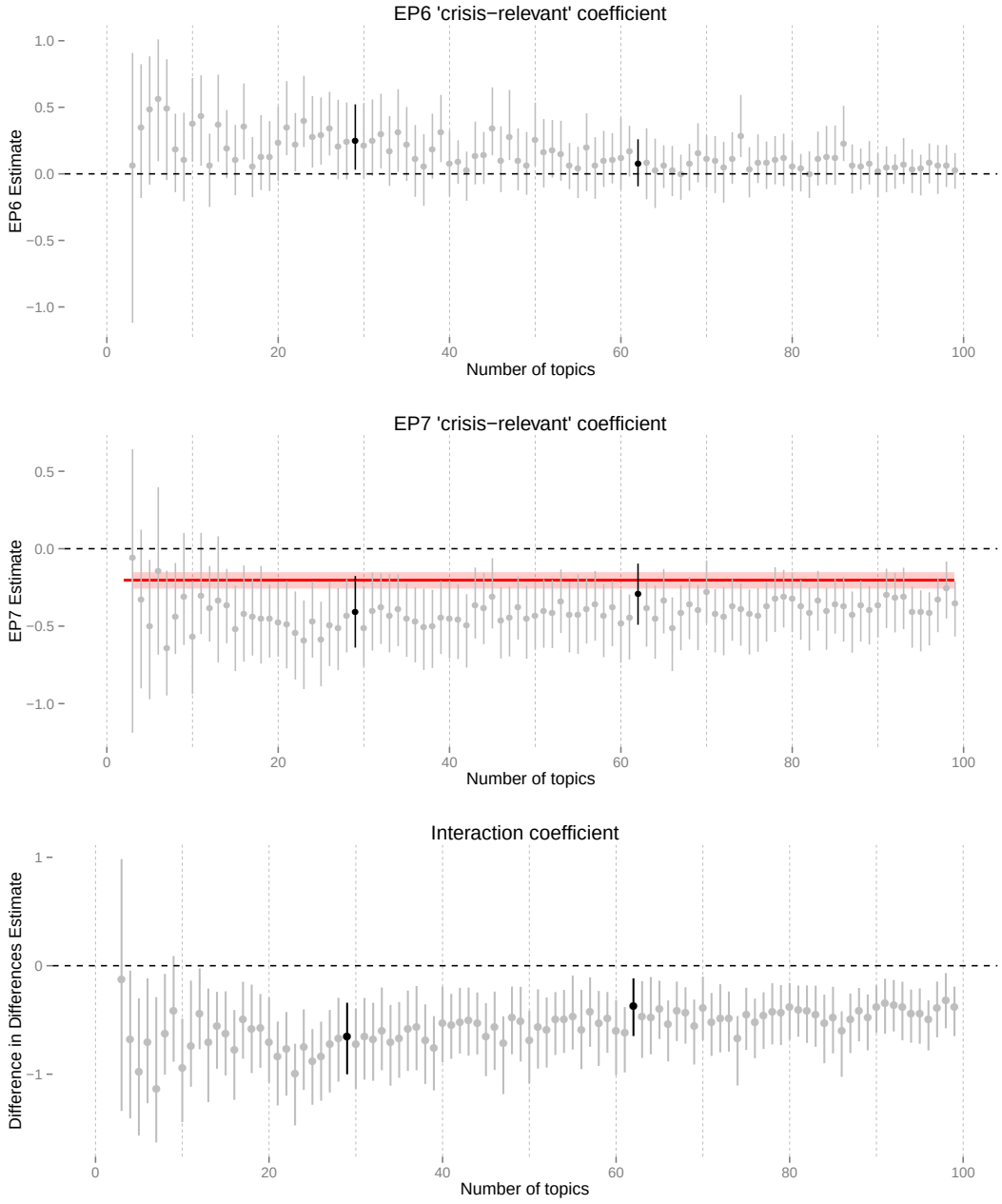
The middle panel of figure 2 compares the estimates from our manual coding of crisis-relevant votes (red horizontal line, equivalent to table 1) and the coefficients estimated using the fitted probabilities from each of the 98 models. The solid black points and intervals show the estimated coefficients for EP7 preferred by BIC and AIC/Adjusted R^2. Aside from the very small topics, which generate imprecise estimates, nearly all of the topic models yield a significant negative estimate of the EP7 difference. There is a tendency to overestimate the magnitude of the coefficient, however, the estimates based on the selected 62 topic model are among the closest to the true difference in means. This gives us confidence that the topic modelling approach is indeed measuring the quantity of interest from EP7.

With these results in hand, we now turn to the interaction coefficient, which corresponds to a difference-in-differences estimate of the change in the difference between crisis-related and non-crisis-related votes between EP6 and EP7. Our theoretical expectation is that the interaction between the EP7 indicator and the fitted value for a vote being crisis-relevant will have a negative sign. This would imply that coalitions on crisis-relevant votes formed increasingly on the pro-versus-anti integration dimension of conflict during the crisis period, relative to non-crisis-relevant votes, relative to that difference during the non-crisis period. Table 2 gives the results of the models preferred by BIC and AIC/Adjusted R^2, and the bottom panel of figure 2 graphically depicts the individual β_{3k} estimates, again highlighting the selected models in black.

Crisis-related votes in EP6 were characterised by voting coalitions that were somewhat *more* left-right than other votes, although this is inconsistently significant across the various topic models (top panel, figure 2). Combined with the fact that crisis-related votes in EP7 were significantly more pro-anti than other votes, this leads to significant differences in differences, not only in the two models with the best first stage fit, but in all topic models except two of the poorly fitting ones with very small numbers of topics. The negative difference-in-differences indicates that cutting lines on crisis-relevant votes were closer to horizontal in EP7, relative to non-crisis votes, relative to the same difference in EP6.

Recall that the purpose of creating the synthetic control comparison using EP6 was to rule out the possibility that the kinds of issues that became crisis-relevant had always exhibited

Figure 2: Estimated effect of crisis-relevant and EP7 interaction



NOTE: The top two panels show estimates of the EP6 (top) and EP7 (middle) difference between crisis- and non-crisis-related votes. The bottom panel shows the difference in differences.

Table 2: Second stage linear regressions - BIC and AIC/Adjusted R^2 models

	Absolute Angular Deviation	
	29 topics	62 topics
$\hat{\pi}$	0.076	0.245
	(0.089)	(0.123)
EP7	-0.056	-0.024
	(0.046)	(0.047)
$\hat{\pi} * \text{EP7}$	-0.368	-0.655
	(0.14)	(0.167)
Constant	1.243	1.231
	(0.029)	(0.028)
Observations	12736	12736

NOTE: The table presents estimates from the two best-fitting models, as selected by BIC (29 topics) and AIC/Adjusted R^2 (62 topics) at the first stage. Bootstrap standard errors are given in parentheses.

relatively pro-anti voting coalitions, even before the crisis. The estimates here suggest otherwise: pro-integration coalitions formed more frequently on crisis-related votes in EP7 relative to non-crisis-related votes but the opposite was true in EP6. The effect is both statistically significant and substantively large. Recall that the MAAD was 20% lower on crisis-related votes than on non-crisis related votes in EP7 (table 1). Given the positive coefficient in EP6, the change in voting once the crisis began was larger than this.

Overall, these results indicate that the coalition structure of voting in the European Parliament changed meaningfully after the onset of the financial crisis in those issue areas that the crisis affected. This is what we expected to observe if pro-integration agenda-setters were able to exploit the crisis in order to pass integrationist policy that would previously have failed to win a majority of support.

Threats to Inference

One concern with the above analysis is that the change observed in voting behaviour could be the result of factors other than the crisis. In particular, two alternative explanations

deserve attention. First, changing voting behaviour could be the result of a change to the composition of the Parliament after the European elections in early 2009. The EP became more fragmented after the election, with smaller parties winning seats from the larger parties, with the implication that fewer pro-integration MEPs were elected. This fragmentation may have lead to more 'grand coalition' votes, where the large party groups vote together due to their decreased parliamentary strength (Hix 2009).

Second, the European Parliament changed the rules governing which roll-call votes were recorded in EP7. Previously, roll-call votes were recorded only when requested by a political group or one-tenth of the MEPs. Previous research has shown that roll-calls were called on approximately one-third of all votes (Hix 2009, Carrubba et al. 2006). However, from June 2009, and the start of EP7, all final legislative votes were automatically taken by roll-call. The effects of roll-call selection in the European Parliament are unclear (Carrubba et al. 2006, Muehlboeck & Yordanova 2012), but it is possible that this change could result in increasingly pro-anti voting coalitions. For example, if roll-call votes had previously been avoided on final votes that were supported by a pro-integration coalition, then the rule change would possibly have resulted in increased observations of pro-integration coalitions (and, thus, lower MAAD scores) in EP7.

While we are unable to entirely discount these alternative explanations that involve the EP6/EP7 changeover, if either the electoral explanation or the rule change explanation were true,f we would expect to observe decreasing MAAD scores *across all policy areas* rather than just those related to the crisis. The logic of these arguments is that there was some structural or institutional change that affected the entire parliament in 2009, but our analysis uncovers significant change in voting behaviour only on crisis-relevant issues. As table 2 makes clear, there is essentially no change in the average cutting line on non-crisis-relevant votes between the two parliaments. The EP7 coefficient gives the change in MAAD for non-crisis relevant votes, and although the coefficient is slightly negative in both the 29 and 62 topic models, it is statistically indistinguishable from zero and far smaller in magnitude than the interaction effect. Any alternative explanation for the findings presented here must explain both the change in behaviour over time, and the fact that change occurs only in crisis-related votes.

A possible objection to the theoretical framing that we have provided for our analysis is that the crisis did not affect the valence of the status quo, but rather influenced the *spatial* elements of legislators' utility by making MEPs more favourable to increased integration. To account for the fact that observed changes are only in crisis-related policy areas, it would need to be the case that the crisis changed preferences of MEPs in just those areas, which is possible if you take the view that the crisis specifically signalled a need for more integration in only those policy areas. As discussed in our theoretical section, and in section S8 of the appendix, this argument is plausible, but not necessarily incompatible with our own. Both spatial and non-spatial crisis models in this context engage with the idea that the crisis somehow changed the incentives to integrate for MEPs. We think it makes more sense to think about the quality of status quo policy, rather than the spatial preferences of legislators for integration, being differentially affected by the crisis, and so we understand the effect of the crisis on voting behaviour as being transmitted through the non-spatial component of utility. In general, however, the most interesting theoretical implications of both our story and the changing preferences story focus on the same counterfactual. Under either account, the primary dimension of conflict in the EP shifted towards pro-anti votes in crisis-relevant areas and policies were passed following the financial crisis that would not have passed in the absence of the crisis.

Conclusion

When José Manuel Barroso, the President of the European Commission, gave his State of the Union speech to the European Parliament in 2013, he argued that, "If we look back and think about what we have done together to unite Europe throughout the crisis, I think it is fair to say that we would never have thought all this possible five years ago." (Barroso 2013) The degree of integration in financial and economic affairs following the crisis was indeed unprecedented, and the argument we have made here is that these policies succeeded because the crisis strengthened the position of pro-integration agenda-setting actors (including Mr Barroso). One implication of our empirical analysis, given our theoretical model, is that such significant increases in EU competences might not have occurred in the absence of a crisis.

More generally, our model provides micro-foundations for the intuition that crises represent 'opportunities to be exploited' by industrious agenda-setters in the legislative process. Exogenous shocks decrease the efficacy of existing policy in the context of changing real world conditions, and make status quo policies less attractive to all legislators. Because legislators want to replace deficient policy, those with proposal power are able to secure outcomes that would be impossible without a crisis. In contrast to previous literature on crises, we demonstrated how a specific impediment to reform is reduced by exogenous shocks, and also provided predictions about the direction of policy movement during crisis periods which have empirically observable implications for voting patterns which we were able to test.

Our model may also be a useful heuristic for understanding the legislative effects of other crises, particularly when pre-existing policy disagreement is multidimensional. For example, in 1957, Lyndon Johnson, then US Senate majority leader and a powerful agenda-setter, recognised that the civil rights bill proposed by President Eisenhower was likely to be filibustered by the Senate southern Democrats. The opposition of these legislators was a significant constraint on executive action, and forced Johnson to admit amendments that significantly weakened the enforcement of the bill (Jeong et al. 2009). By 1964, however, Johnson, now President, was able to pass the more robust Civil Rights Act. It is commonly accepted that the racial tensions of the early 1960s gave momentum to the civil rights movement, and offered Johnson a window of opportunity in which to pass reform (Keeler 1993, 462). One reading of this is that legislators' preferences shifted towards wanting civil rights legislation, but our model indicates that the marginal legislators could instead have simply recognized that the status-quo was increasingly untenable. As a pro-civil rights agenda-setter, Johnson was able to pass reforms that had previously proved intractable in the legislature, shifting patterns of voting towards a north-south dimension during this period (Poole & Rosenthal 2011, 141-142). Our model has an important implication for the counter-factual: what policies might have been successfully advanced by an anti-civil rights President in the context of the diverse events of the early 1960s, from the "March on Washington" to the Birmingham church bombing? Civil rights legislation might now seem like the obvious policy response, but there is no shortage of historical crises that have been exploited by political agenda setters to achieve less

righteous ends. The kinds of crises we model facilitate shifts in any policy direction.

A further theoretical implication is that strategic agenda-setters may have an incentive to exaggerate crisis severity in order to maximise their discretion over policy outcomes. There are anecdotal suggestions that certain EU institutions behaved in this manner during the financial crisis. For example, the bond-buying policy of the European Central Bank (ECB) enabled indebted governments to secure enough liquidity to stave off immediate sovereign default, but stopped short of providing a blank cheque which would have fundamentally reassured nervous market actors. Although not itself an agenda-setting actor, the ECB's piecemeal strategy allowed other pro-integration actors such as the Commission to put additional pressure on national leaders and MEPs to agree to reforms of the Eurozone's institutional architecture. As one observer argues, "The central bank cannot directly compel democratically elected leaders to comply with its wishes, but it can refuse to bail their countries out and thereby permit the crisis to pressure them to act."(Bergsten 2012) In short, by emphasizing the deficiencies of existing policy, and exaggerating the likely future trajectory of a crisis, agenda-setting actors can cajole decision-makers into passing the policies that they propose.

We describe how crises enable agenda-setters to overcome legislative opposition to policy change, but there is no explicit role for voters in our model. An enrichment of the model would be to make legislators subject to voter pressure. However, for this to make a difference to the power of the agenda-setter, voters would have to respond to crises by sanctioning some courses of action whilst prohibiting others. More likely, we believe, is that voters' main desire is for politicians to 'get something done' in the face of a crisis, thus endowing agenda-setting actors with a *public* mandate that reinforces the *legislative* mandate they gain in our model. If anything, this will further discourage legislators from voting for the status-quo. As Keeler (1993, 441) argues, a sense of public urgency "may serve to override ... caution ... and allows for unusually rapid and uncritical acceptance of reform proposals intended to resolve the crisis." This urgency therefore makes the electorate more permissive of policy proposals, and so reinforces agenda-setters discretion. The incorporation of electoral effects into our model may well serve to reinforce the central implication that agenda-setters benefit, regardless of what they aim to use the crisis to accomplish.

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S1. Example of legislative summary text

TITLE: Prudential requirements for credit institutions and investment firms

PURPOSE: to strengthen prudential requirements for credit institutions and investment firms that relate strictly to the functioning of banking and financial services markets and are meant to ensure the financial stability of the operators on these markets as well as a high level of protection of investors and depositors. PROPOSED ACT: Regulation of the European Parliament and of the Council. BACKGROUND: the extent of the financial crisis has exposed unacceptable risks pertaining to the current regulation of financial institutions. According to IMF estimates, crisis−related losses incurred by European credit institutions between 2007 and 2010 are close to 1 trillion or 8% of the EU GDP. In order to restore stability in the banking sector and ensure that credit continues to flow to the real economy, both the EU and its Member States adopted a broad range of unprecedented measures with the taxpayer ultimately footing the related bill. In this context, by October 2010 the Commission has approved 4.6 trillion of state aid measures to financial institutions of which more than 2 trillion were effectively used in 2008 and 2009. The level of fiscal support provided to credit institutions needs to be matched with a robust reform addressing the regulatory shortcomings exposed during the crisis. Priorities and challenges: it should be noted that one of the priorities of the Commission in the reform of EU financial services regulation has been to ensure that the banking sector is able to fulfil its fundamental purpose, namely lending to the real economy and providing services to citizens and businesses in Europe. The proposal is designed to tackle regulatory shortcomings in the following areas: Management of liquidity risk: existing liquidity risk management practices were shown by the crisis to be inadequate in fully grasping risks linked to originate−to−distribute securitization, use of complex financial instruments and reliance on wholesale funding with short term maturity instruments. Definition of capital: institutions entered the crisis with capital of insufficient quantity and quality. Given the risks they faced, many institutions did not posses sufficient amounts of the highest quality capital instruments that can absorb losses effectively as they arise and help to preserve an institution as a going concern. Counterparty credit risk: the crisis revealed a number of shortcomings in the current regulatory treatment of counterparty credit risk arising from derivatives, repo and securities financing activities. It showed that the existing provisions did not ensure appropriate management and adequate capitalisation for this type of risk. Options, discretions and harmonisation (entire Regulation): in 2000, seven banking directives were replaced by a single Directive. This directive was recast in 2006 ...

Figure S3: Example legislative text summary

S2. Valence as a spatial policy dimension with universal agreement

Consider an n-dimensional model, where the utilities for legislator i, for the status quo (q) and a proposal (p), given positions x, and an idiosyncratic (legislator-specific) error term e_i, are:

$$u_{iq} = -(x_{i1} - x_{q1})^2 - (x_{i2} - x_{q2})^2 - \ldots - (x_{in} - x_{qn})^2 + e_{iq} \quad (8)$$

$$u_{ip} = -(x_{i1} - x_{p1})^2 - (x_{i2} - x_{p2})^2 - \ldots - (x_{in} - x_{pn})^2 + e_{ip} \quad (9)$$

To derive a valence dimension, we simply constrain all legislators to have the same ideal point on the vth dimension so that $x_{iv} = x_v \forall i$. As preferences on this dimension are identical, all legislators prefer policies that satisfy $x_v = x_{pv}$, all else equal. Our assumption is that during a crisis, x_{qv} will diverge sharply from the shared preferences of legislators.We therefore define the valence of the proposal p, and the status quo q as follows:

$$v_p = -(x_v - x_{pv})^2 = 0 \quad (10)$$

$$v_q = \begin{cases} -(x_v - x_{qv})^2 = 0 & \text{absent a crisis} \quad (11) \\ -(x_v - x_{qv})^2 < 0 & \text{during a crisis} \quad (12) \end{cases}$$

A negative 'shock' to the valence of the status quo occurs when a crisis dramatically changes external conditions, shifting x_{qv} away from x_v, and resulting in a smaller value of v_q. As legislators preferences over valence are identical, this formulation captures the central intuition: shocks to the valence dimension are painful for everyone. The crisis negatively affects legislators evaluations of the status quo, regardless of their ideological disagreements on other spatial dimensions.

S3. Uni-dimensional model, plus valence

The central intuition of our model - that agenda-setters have more discretion over policy outcomes during a crisis - holds when the policy space is uni-dimensional. Consider the one-dimensional case where there is no valence gap between the status quo and proposed alternatives, $v_q = v_p$ (top panel, figure S4). The median voter, m, is decisive, and the spatial discrepancy between the status quo and her position is always influential in determining the size of the winset, $W(q)$. Policies (p) located within the winset will defeat the status quo (q) in an up-or-down vote, and policies located outside the winset will fail. As in the two-dimensional case, the choice of policies to be considered against q is determined by the agenda-setter (AS), who makes a take-it-or-leave-it proposal that is as close as possible to her own ideal point, within the constraint that the policy will be approved by a majority vote (that is, within $W(q)$). Thus, when valence is equal, voting collapses to the normal spatial model, with the median voter separates those voting 'yea' from those voting 'nay'.

During a crisis, when $v_q < v_p$, the main implication of the decline in v_q is identical to that of the two-dimensional model: legislators will vote to approve a wider range of policy proposals. Holding the proposed policy fixed at p (middle panel, figure S4), the valence shock increases the size of the winset, meaning that legislators in the shaded area of the 'yea' coalition vote to approve the proposal. These legislators, when valence is equal, vote against the proposal. As with the 2D model, the negative shock to q implies that more policies are able to defeat q in pairwise competition, and so in equilibrium, the agenda-setter will propose a policy that is closer to her own ideal point that will still win a majority of support. The agenda-setter proposes p' instead of p (bottom panel, figure S4). As p' is supported by m, it is approved by the legislature, whereas in the equal valence scenario it would have been rejected.

This shows how the valence shock gives greater discretion to the agenda-setter. In the absence of a crisis (when $v_q = v_p$), the winset is determined by the spatial discrepancy between the status quo and the ideal point of the median legislator x_m. During a crisis (when $v_q < v_p$), the winset is determined by both the discrepancy between the status quo and the median, and also the valence differential between the status quo and the proposed policy alternative.

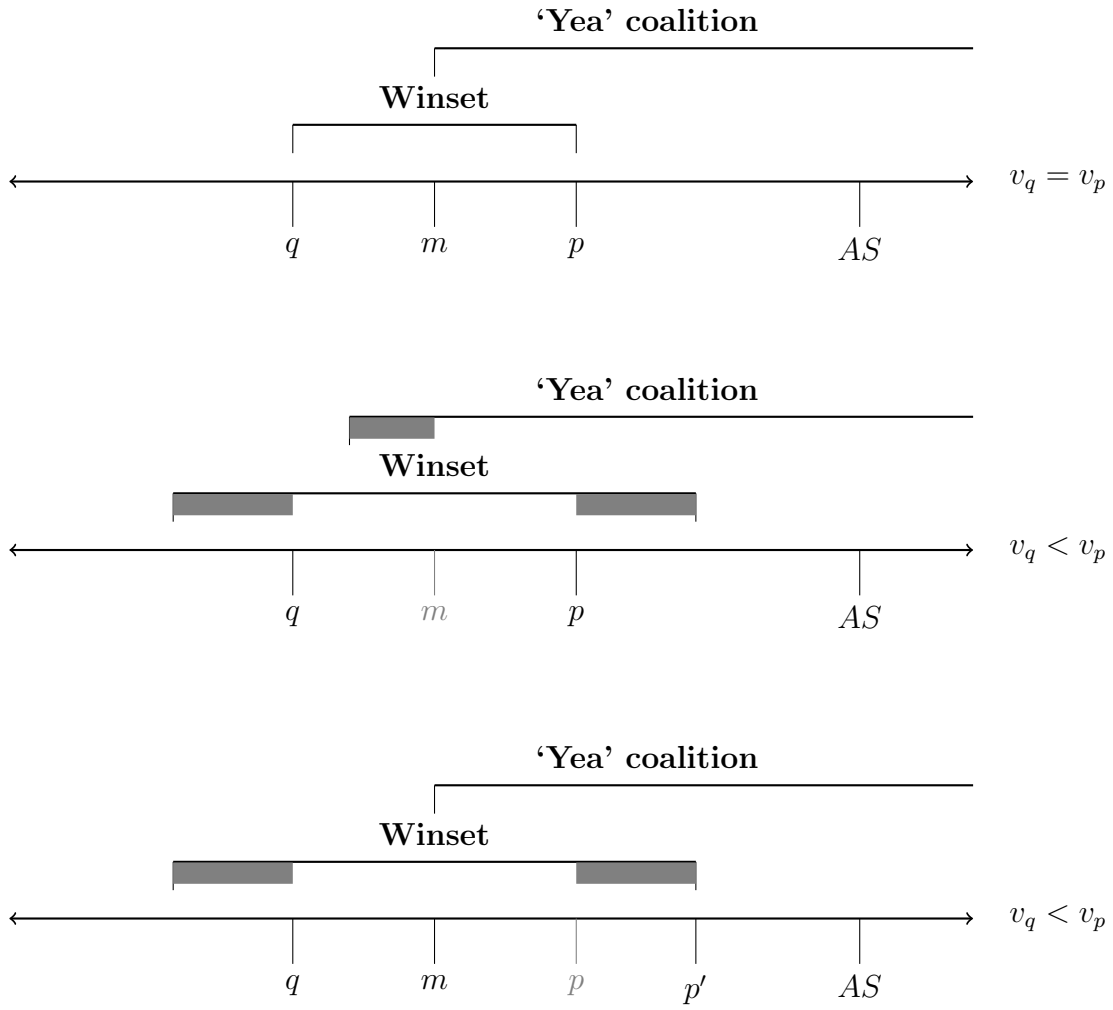
$$W(q) = \begin{cases} x_q, 2x_m - x_q & \text{if } v_q = v_p \quad (13) \\ x_m - \sqrt{(x_m - x_q)^2 + (v_p - v_q)}, x_m + \sqrt{(x_m - x_q)^2 + (v_p - v_q)} & \text{if } v_q \neq v_p \quad (14) \end{cases}$$

As in the 2D model, as v_q declines, the winset grows, and the agenda-setter's discretion over policy outcomes increases. In short, the 1D model with a valence shock captures the same intuition as the 2D model: agenda-setters can exploit a crisis by trading off surplus legislative votes to achieve spatial outcomes that are closer to their own preferences.

However, the one-dimensional model illustrates an inferential problem for empirical analysis. While the size of the winset and the spatial position of the policy proposal changes between non-crisis (top panel) and crisis (bottom panel) periods, the most easily measurable quantity (the membership of the winning coalition) is identical in both periods. This is because the agenda-setter always proposes a policy that makes m indifferent between q and p, meaning that the 'yea' coalition will always consist of m and those legislators who are

located on the same side of m as the agenda-setter. As status quo and policy positions are poorly identified in standard roll-call voting models, if the model predicts the same crisis and non-crisis coalitions, the opportunities for validation are limited. It is for this reason that we devote most of our attention to the 2D model, and evaluate our theory in the two-dimensional setting of the European Parliament.

Figure S4: Crises, legislative voting, and agenda-setting in one dimension



NOTE: In the absence of a crisis (top panel), voting collapses to a simple spatial model, with legislators voting for the proposal p if they are to the right of the median voter m, or against the proposal otherwise. If the status quo q receives a negative valence shock, but the proposed policy is fixed at p (middle panel), then legislators falling in the grey zone of the 'yea' coalition will vote for the policy, where previously they would have voted against. In equilibrium, however, such a situation should not emerge as the agenda-setter, AS, exploits the expanded winset to propose a policy at p' (bottom panel), to secure an outcome that is closer to her ideal point. The agenda setter 'makes an opportunity out of the crisis' to obtain favourable policy outcomes. The median voter is indifferent when $v_q = v_p$ and the proposed policy is p, as well as when $v_q < v_p$ and the proposed policy is p'. This implies that, in one-dimension, the 'yea' coalition is identical in crisis and non-crisis periods.

S4. Cutting angle derivation

We can formally derive this connection between integrationist policy proposals and the angle of the cutting line between voting coalitions. For each legislator i, the utility difference between the status quo and the alternative is:

$$\begin{aligned} u_p - u_q &= (v_p - v_q) + (e_{ip} - e_{iq}) - \left(x_{p1}^2 - x_{q1}^2\right) - \left(x_{p2}^2 - x_{q2}^2\right) \\ &\quad +x_{i1}(2x_{p1} - 2x_{q1}) \\ &\quad +x_{i2}(2x_{p2} - 2x_{q2}) \end{aligned} \tag{15}$$

It is not possible to identify the effect of the crisis directly, because the valence gap $(v_p - v_q)$ is just one of a set of linearly additive, vote-specific terms in the model. If we redefine the parameters of the model in terms of identifiable quantities:

$$\beta_{j0} = (v_p - v_q) - \left(x_{p1}^2 - x_{q1}^2\right) - \left(x_{p2}^2 - x_{q2}^2\right) \tag{16}$$

$$\beta_{j1} = (2x_{p1} - 2x_{q1}) \tag{17}$$

$$\beta_{j2} = (2x_{p2} - 2x_{q2}) \tag{18}$$

$$\epsilon_{ij} = (e_{ip} - e_{iq}) \tag{19}$$

this gives us a model of the form:

$$u_p - u_q = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \epsilon_{ij} \tag{20}$$

which is a standard 2D random utility model for voting (Jackman 2001).

While we cannot identify the proposal and status quo locations or the valence gap, the definitions of β_{j1} and β_{j2} reveal why the cutting-line orientation is relevant. These are, respectively, two times the gap between the proposal and the status quo in dimensions one and two. Therefore, if the β_{j2}, corresponding to the integration dimension, get larger relative to the β_{j1}, that indicates that policy proposals are shifting more towards integration than was previously the case. The connection to the cutting-line orientation can be seen by solving for the set of positions that yield zero utility difference (assuming $\epsilon_{ij} = 0$):

$$0 = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} \tag{21}$$

$$\beta_2 x_{i2} = -\beta_0 - \beta_1 x_{i1} \tag{22}$$

$$x_{i2} = -\frac{\beta_0}{\beta_2} - \frac{\beta_1}{\beta_2} x_{i1} \tag{23}$$

That is, the cutting-line has an intercept on the second dimension (x_{i2}) at $-\frac{\beta_0}{\beta_2}$, and more relevantly, a slope of $-\frac{\beta_1}{\beta_2}$. When proposed policy is more integrationist, we will observe cutting-lines with a different angle than when a proposal mainly operates on the first dimension. This cutting angle φ_j is related to the β parameters:

$$\varphi_j = -\arctan\left(-\frac{\beta_{j1}}{\beta_{j2}}\right) \tag{24}$$

We define this cutting angle over an arc of 2π in order to distinguish between parallel cutting lines with yea coalitions on opposing sides. A pro integration coalition on the yes side of the vote corresponds to $\varphi_j = 0$. A right coalition on the yes side of the vote corresponds to $\varphi_j = \pi/2$ A left coalition on the yes side of the vote corresponds to $\varphi_j = -\pi/2$. An anti-coalition on the yes side of the vote corresponds to $\varphi_j = -\pi$ or $\varphi_j = \pi$, the scale wrapping around from a slightly left-leaning anti-integration coalition at $\varphi_j = -\pi + \epsilon$ shifts into a slightly right-leaning anti-integration coalition at $\varphi_j = \pi - \epsilon$.

S5. Fit statistics, all models

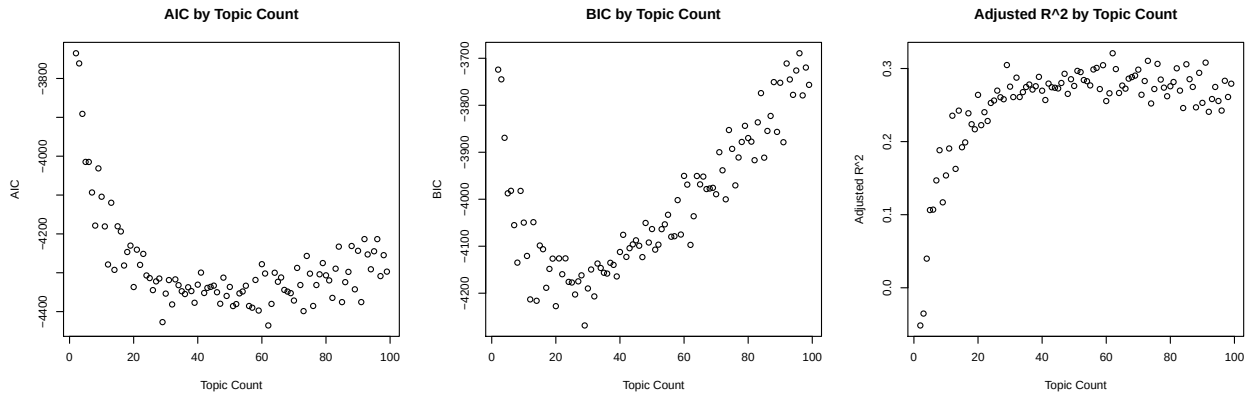


Figure S5: Fit statistics for first stage regression model

S6. Top crisis-relevant votes, 29 topic model

S7. Top crisis-relevant votes, 62 topic model

	EP6 vote titles	EP7 vote titles
1	Strengthening of surveillance of budgetary positions and surveillance and coordination of economic policies	Macro-financial assistance to Armenia
2	Public finances in economic and monetary Union EMU in 2004	Economic governance & strengthening of surveillance of budgetary positions and surveillance and coordination of economic policies & 'Six pack'
3	2006 annual report on the euro area	Macro-financial assistance to Georgia
4	Financial markets & banks affiliated to central institutions, certain own funds items, large exposures, supervisory arrangements, and crisis management	Economic governance: implementation of the excessive deficit procedure. 'Six pack'
5	Public Finances in EMU 2006	Macro-financial assistance to Ukraine
6	Public finances in EMU2007 and 2008	Macro-financial assistance to Serbia
7	Credit institutions: taking up and pursuit of the business. Recast	Economic governance: strengthening of economic and budgetary surveillance of Member States experiencing or threatened with serious difficulties with respect to their financial stability in the euro area. 'Two pack'
8	Mobilisation of the European Globalisation Adjustment Fund: redundancies in mobile phone sector	Macro-financial assistance to Bosnia and Herzegovina
9	Credit rating agencies	Economic governance: effective enforcement of budgetary surveillance in the euro area. 'Six pack'
10	Report on the ECB annual report for 2007	Economic governance: facility for financial assistance for Member States whose currency is not the euro
11	Lamfalussy follow up - Future structure of supervision	Improving the economic governance and stability framework of the Union, in particular in the euro area
12	European Central Bank ECB. 2004 annual report	Long-term sustainability of public finances for a recovering economy
13	Resolution on the London G20 Summit of 2 April 2009	European Central Bank annual report for 2011
14	European Central Bank ECB. Annual Report 2003	ECB annual report for 2010
15	Medium-term financial assistance for Member States' balances of payments	Financial institutions: capital requirements for the trading book and for re-securitisations; supervisory review of remuneration policies
16	EMU@10: The first 10 years of Economic and Monetary Union and future challenges	Macro-financial assistance to Kyrgyzstan
17	Mobilisation of the European Globalisation Adjustment Fund: redundancies in textiles sector in Italy	Further macro-financial assistance for Georgia
18	Facing oil challenges	Feasibility of introducing stability bonds
19	Euro zone enlargement	European Bank for Reconstruction and Development (EBRD): subscription by the EU to additional shares in the capital
20	Euro & adoption by Slovenia of the single currency on 1 January 2007 (Article 122(2), Treaty TEC)	European Semester for economic policy coordination: implementation of 2013 priorities

Table S3: Top 'fitted values' votes - 29 topics

	EP6 vote titles	EP7 vote titles
1	Facing oil challenges	State aid to facilitate the closure of uncompetitive coal mines
2	Euro zone enlargement	Economic governance & strengthening of surveillance of budgetary positions and surveillance and coordination of economic policies & 'Six pack'
3	Resolution on the input to the Spring 2009 European Council in relation to the Lisbon Strategy	Long-term sustainability of public finances for a recovering economy
4	2006 annual report on the euro area	Macro-financial assistance to Bosnia and Herzegovina
5	Fishing industry: improving the economic situation	Economic governance: implementation of the excessive deficit procedure. 'Six pack'
6	Strengthening of surveillance of budgetary positions and surveillance and coordination of economic policies	ECB annual report for 2010
7	European Central Bank ECB. 2004 annual report	Macro-financial assistance to Serbia
8	Relocation in the context of regional development	European Central Bank annual report for 2011
9	Social reality stocktaking	Feasibility of introducing stability bonds
10	Macro-economic impact of the increase in the price of energy	Macro-financial assistance to Georgia
11	Employment and productivity and their contribution to economic growth	Economic governance: effective enforcement of budgetary surveillance in the euro area. 'Six pack'
12	Fisheries sector: temporary specific action aiming to promote the restructuring of the EU fishing fleets affected by the economic crisis	Macro-financial assistance to Armenia
13	Restructuring and employment	Economic governance: strengthening of economic and budgetary surveillance of Member States experiencing or threatened with serious difficulties with respect to their financial stability in the euro area. 'Two pack'
14	Deterioration of the situation in Georgia	Improving the economic governance and stability framework of the Union, in particular in the euro area
15	Resolution on the preparation of the EU-India Summit (Marseille, 29 September 2008)	External Borders Fund: increasing the Union cofinancing rate
16	Resolution oncombating the rise of extremism in Europe	Resolution on the feasibility of introducing stability bonds
17	Resolution on the situation in the Republic of Moldova	European semester for economic policy coordination
18	Resolution on combating cancer in the enlarged EU	Macro-financial assistance to Ukraine
19	Report on the ECB annual report for 2007	Mobilisation of the European Globalisation Adjustment Fund: redundancies in textiles sector in Belgium and computer manufacturing industry in Ireland
20	Resolution on the situation in Burma	Agricultural Fund for Rural Development (EAFRD): increased contribution rates for certain Member States

Table S4: Top 'fitted values' votes - 61 topics

S8. Alternative mechanisms

The central implication of our model also holds, under many conditions, when we consider two other plausible mechanisms (within our general theoretical setting) through which crises might lead to legislative change. First, we consider a model in which crises cause *the status quo to shift* in the ideological space (as in Tsebelis (2002)). A second alternative model considers how *the preferences of legislators might shift* in response to a crisis. The figures below indicate how these alternative models would affect the predictions we make in the paper.

In the top panel of figure S6 we consider a one-dimensional space under three different models of crisis:

- Preference-shift model: The crisis shifts the preferences of legislators, moving the median voter from m to a position *closer to* the agenda-setter at m'.
- SQ-shift model: The crisis moves the status quo q *away from* the position of AS to q'
- Valence-shock model: The crisis causes a decline in the valence of the status quo ($v_q < v_p$)

For each model, we can evaluate the effect of the crisis by comparing the new winset with the "Original winset" that applies in non-crisis conditions. If the crisis moves the preferences of the legislative median toward the position of the agenda-setter ($m \rightarrow m'$), the preference-shift winset extends rightwards, and allows the agenda-setter the same discretion as in the valence-shock model, although in this case the winset expands asymmetrically. By contrast, if the status quo is shocked away from the positions of the median and the agenda-setter ($q \rightarrow q'$), the SQ-shift winset expands symmetrically around m.

As is clear, under each of these models, the main qualitative predictions remain the same: the agenda-setter benefits from the crisis. Under each model, a crisis expands the size of the winset, making it possible for AS to propose and pass policy at p', where previously the best she could have achieved would have been at p. Although the implications of the three models are the same, the mechanisms are different. In the preference-shift and SQ-shift models, the agenda-setter is empowered because the median voter is ideologically more distant from the status quo, and will thus accept policy proposals that diverge further from her ideal point than in non-crisis conditions. In the valence-shock model, the median voter will also accept such deviations from her ideal point, but here the winset expands because the non-spatial utility she receives from the status quo decreases ($v_q < v_p$).

The top panel of figure S6 also makes clear why it is difficult to empirically discriminate between these alternative mechanisms: in all three, the crisis-winset gives the same degree of discretion to the agenda-setter, and therefore results in the same proposal (p') from the agenda-setter. However, the main point revealed by this analysis is that, under a broad set of conditions, the central implication of our (preferred) valence-shock model - that agenda-setting actors benefit from crises - is robust to alternative conceptualisations of crisis politics.

However, in certain scenarios (second panel of figure S6), the predictions of these alternative models differ with regard to the discretion of the agenda-setter during a crisis period. Consider the following scenarios:

- Preference-shift model: The crisis shifts the median voter from m to a position *further away* from the agenda-setter at m'.

- SQ-shift model: The crisis moves the status quo q *toward* the position of AS to q'
- Valence-shock model: The crisis causes a decline in the valence of the status quo ($v_q < v_p$)

When the median voter moves *away* from the agenda-setter to m', the winset contracts, giving the agenda-setter *less* discretion than in the pre-crisis period. This is because the median voter is now closer to the position of the status quo. Similarly, if the status quo receives a spatial shock such that it shifts *toward* the position of the median voter, from q to q', the winset also contracts around m. Thus, as the second panel demonstrates, if a crisis results in a convergence of the preferences of the median voter and the position of the status quo, the discretion of the agenda-setter would *decrease* during the crisis. This is because the decisive voter prefers the crisis-status quo to the non-crisis status quo, and therefore is less willing to accept deviations from her ideal than she would have been previously. In these scenarios, then, the models offer implications that are qualitatively different from those of the valence-shock model.

Motivating the types of movement that would lead to such restrictions of the winset is difficult, as doing so implies that some legislative actors *prefer* the crisis-stricken status quo policies. Nonetheless, the second panel makes clear the salient differences between our preferred model, and the alternatives: the valence-shock model suggests an unambiguous increase in agenda-setter discretion during a crisis, while the alternative models suggest that the discretion of the agenda-setter increases only under certain conditions.

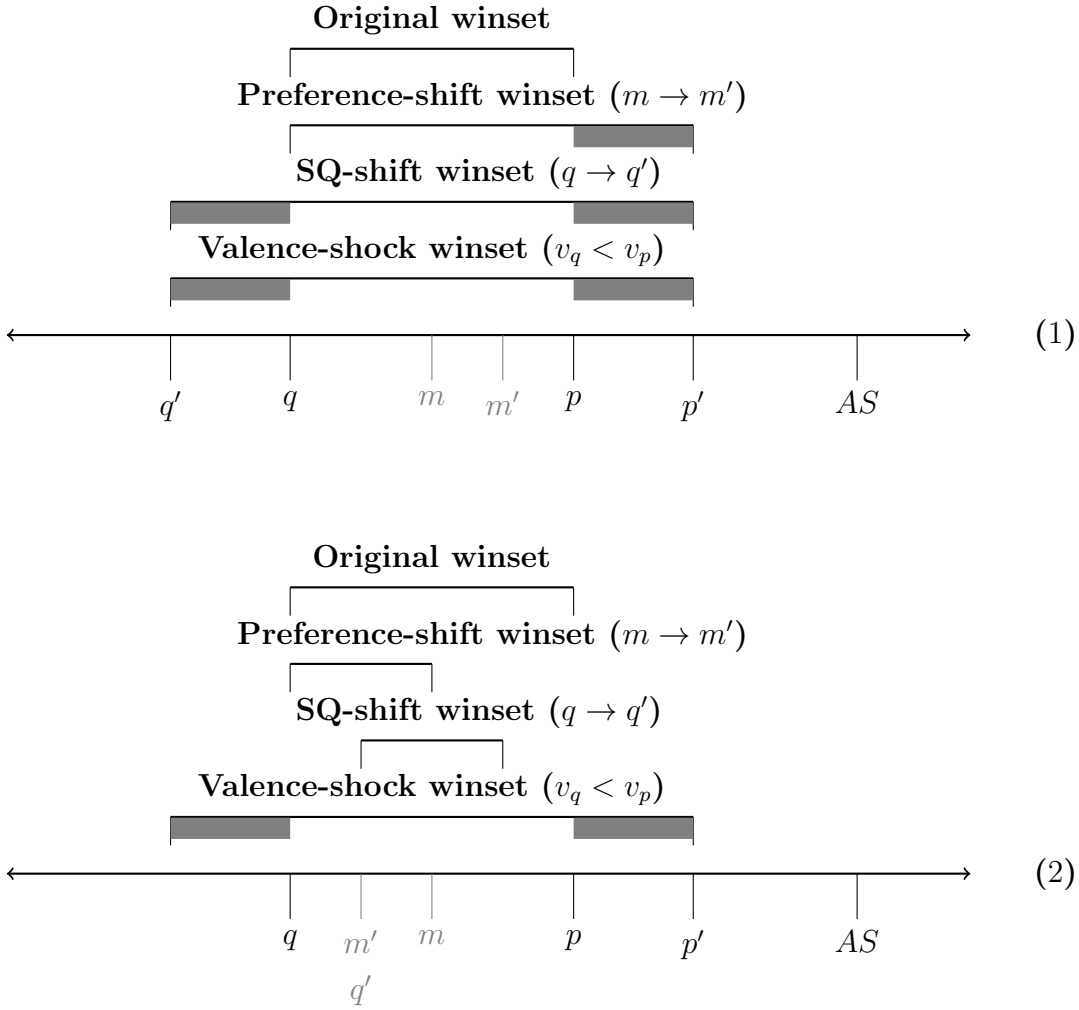
We prefer the valence-shock model for a number of reasons. First, we think it is more intuitive to think of political crises as non-spatial shocks, rather than shifts in the ideological position of the status quo. A crisis entails a sudden change to the external conditions in which existing policies operate, rather than an exogenous change to the policies themselves. Accordingly, conceptualising a crisis as an exogenous shift in the position of the status quo does not fit well with our intuitive notion of what a crisis is. While a spatial shock to the status quo would imply that some actors *prefer* a crisis, the non-spatial model we prefer implies that crisis are bad *for all actors*.

Second, while our model holds (spatial) preferences fixed, it is certainly plausible that legislatures update their policy preferences in light of new evidence, and that crises would play an important role in this process. However, the preference-shift model is not entirely contradictory with our account. One way of understanding the static preferences that we assume in the valence-shock model is to consider the legislators spatial preferences as their long-term ideological beliefs, and the valence component of their utilities as their short-term analyses of current conditions. We think that this is a reasonable approximation of the way that legislators consider policy: longstanding ideological dispositions underpin and guide short-run responses to change.

Note that, in many circumstances, it is not necessary to accept the 'valence-shock' aspect of our argument in order to accept that crises empower agenda-setters. Our main contention is that exogenous shocks will empower agenda-setters and enable them to pass policy that would otherwise have failed to win support. The alternative models discussed here do not contradict this basic argument, but rather imply different *mechanisms* by which agenda-setters are empowered. Agenda-setter discretion will increase when a crisis moves either the status quo or

legislative preferences in certain directions. Our mechanism gives a more unambiguous benefit to agenda-setters during crisis periods than the alternatives. Nevertheless, the differences between these alternative models should not be overstated, as, in general, all three arguments lead to the same substantive conclusion: in a variety of circumstances, agenda-setters are likely to gain legislative discretion after the onset of a crisis.

Figure S6: Alternative models



NOTE: The figure indicates that the different models often result in equivalent implications for agenda-setter discretion during crisis periods. In the first panel, all three models result in greater policy discretion for the agenda-setter (AS) in the crisis period. All three models allow the agenda-setter to propose and pass p', where she would only have been able to achieve p previously. In the second panel, the three models lead to different implications for agenda-setter discretion. If preferences shift away from the agenda-setter, moving the median voter from m to m', then the winset of the status quo becomes smaller, giving the agenda-setter less discretion. If, rather, the status quo moves toward the position of the median m, the winset likewise shrinks, again restricting the ability of AS to secure favourable policy outcomes. In the second panel, it is only the valence shock that gives AS additional legislative discretion.

S9. MAAD depiction

Figure S7 gives a graphical depiction of different values for φ (the angle of the cutting line). In the top-left quadrant, when $\varphi = 0$, the coalition of yes voters is pro-integration. The top-right and bottom-left quadrants demonstrate the necessity for the definition of φ over an arc of 2π. In both cases, the cutting-line is vertical, separating left-wing from right-wing voters, but when $\varphi = \pi/2$, the right-wing voters are voting for the vote, and the left-wing voters are voting against. By contrast, when $\varphi = -\pi/2$, it is the left coalition that is on the yes side of the vote. The final quadrant shows the cutting-line (with $\varphi = \pi/4$) where the yes coalition is pro-integration but right-leaning.

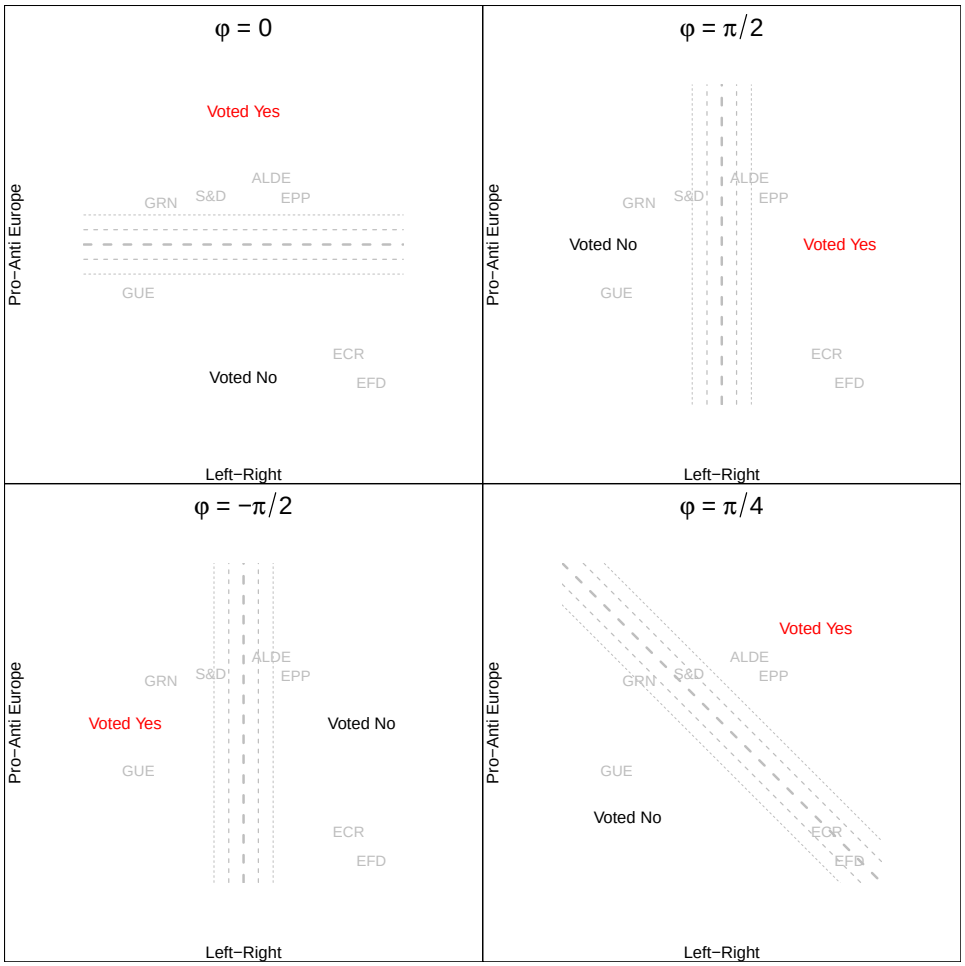


Figure S7: Examples of φ

Note: The figure illustrates the voting coalitions for different values of φ. The model we present predicts that more votes will result in a situation similar to the top-left quadrant, where $\varphi = 0$ and the coalition is pro-integration, in the post-crisis period.

S10. Constructing a synthetic control group

This section outlines our approach for synthesising a plausible control group for the crisis-related votes in EP7 (the crisis period) using the legislative summaries of votes held in EP6 (the non-crisis period).

We start by applying a series of unsupervised topic models to all legislative summaries in our data. We use the Correlated Topic Model (CTM) as introduced by Blei and Lafferty (2006) and implemented as the null model for the Structural Topic Model (Roberts et al. 2014). The CTM is similar to Latent Dirichlet Allocation (LDA), but allows for a covariance structure between topics, and has been shown to have greater predictive accuracy than LDA (Blei & Lafferty 2006). The crucial assumption behind this model, as with all topic models, is that the relative frequency with which terms co-occur within different documents gives information about the topics that feature in those documents. The two main inputs into the model are a user-specified number of topics, T, and the unordered word tokens within each document.

The key quantity of interest recovered from the STM is θ, which is a J x D matrix of topic proportions that describe the fraction of each legislative summary $d \in \{1, 2, ..., D\}$ that is from each topic $t \in \{1, 2, ..., T\}$. Choosing the appropriate number of topics is a common problem in topic models, and typical solutions (e.g. Blei et al. (2003)) aim to find the model that best predicts held-out textual data. In our case, we are not interested in predicting *text* data out of sample, but rather in predicting our manual classification of 'crisis-relevant' votes ($j \in \{1, 2, ..., J\}$). Because the number of topics that will do this best is unclear *a priori*, we estimate topic models for all $K = 98$ integer topic counts from 3 to 100. This results in 98 separate θ_k matrices, with typical elements $\theta_{td(k)}$: the proportion of vote-text d in topic t from topic-model k.

We then use each θ_k matrix as the model matrix[17] for a linear regression predicting Y_{jd}, the manual binary coding of crisis-relevance for vote j in text d.[18] We repeat this exercise K times, once for each topic model.

$$\mathbb{E}[Y_{j(d)}|\theta_k] = \pi_{j(kd)} = b_{k1}\theta_{k1d} + b_{k2}\theta_{k2d} + ... + b_{kT}\theta_{kTd} + \epsilon_{jd} \tag{25}$$

We then use the estimated b coefficients to calculate fitted values for all votes in EP6 and EP7:

$$\hat{\pi}_{j(kd)} = \hat{b}_{k1}\theta_{k1d} + \hat{b}_{k2}\theta_{k2d} + ... + \hat{b}_{kTd} \tag{26}$$

where $\hat{\pi}_{j(kd)}$ is the probability that vote j is crisis-relevant, given the topic mixture matrix θ_k.

Finally, to evaluate whether there is evidence of the predicted change between EP6 and EP7, we use the estimated 'crisis-relevant' probabilities $\hat{\pi}_{j(kd)}$, as an explanatory variable in

[17] Because the topic proportions for each vote ($\theta_{td(k)}$) sum to one, we could exclude one of the topics or the intercept term. The two approaches give identical fitted-values, and we choose to exclude the intercept term.

[18] Our approach is analogous to a two-stage-least-squares regression, where the topic weights are 'instruments' and the 'treatment' variable is whether a vote is crisis-relevant or not. As such, we follow the advice of Angrist and Pischke (Angrist & Pischke 2008, 190) and use a linear model for the first stage even though the 'treatment' variable is dichotomous.

second-stage linear regression models of the following form:

$$|\varphi_j| = \alpha_k + \beta_{k1} \cdot EP7_j + \beta_{k2} \cdot \hat{\pi}_{j(kd)} + \beta_{k3} \cdot (EP7_j \cdot \hat{\pi}_{j(kd)}) + \epsilon_{jd} \tag{27}$$

where φ_j is the angle of the cutting line and $EP7$ is an indicator variable for whether the vote was taken during the seventh European Parliament (i.e. during the crisis). Because we are using fitted values for whether the vote was crisis-related, the coefficients remain estimators of the difference between the MAAD of crisis-related ($\hat{\pi} = 1$) and non-crisis-related ($\hat{\pi} = 0$) votes. Our primary quantity of interest is then the estimated $\hat{\beta}_{k3}$ coefficient. This is the interaction between the probability of a vote being crisis-relevant, and that vote being held during the crisis. The theoretical model implies that the interaction coefficient should have a negative sign, implying that crisis-relevant votes in EP7 were marked by increasingly pro-versus-anti integration coalitions, rather than left-versus-right coalitions, relative to non-crisis-relevant votes.