

**Multi-polarization in the 9th term of the European Parliament**

A network analysis of voting communities

Sebastião Manuel Inácio Rosalino

Master Thesis

presented as partial requirement for obtaining a Master’s Degree in Data Science and Advanced Analytics

**NOVA Information Management School**

**Instituto Superior de Estatística e Gestão de Informação**

Universidade Nova de Lisboa

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Master Thesis presented as partial requirement for obtaining the Master’s degree in Data Science and Advanced Analytics, with a specialization in Data Science

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##### Statement of Integrity

I hereby declare having conducted this academic work with integrity. I confirm that I have not used plagiarism, any form of undue use of information or falsification of results along the process leading to its elaboration. I further declare that I have fully acknowledged the Rules of Conduct and Code of Honor from the NOVA Information Management School.

*Lisbon, 30th of April*

*Sebastião Rosalino*

##### Dedication

I dedicate this thesis to my parents, whose unwavering encouragement and steadfast support have been the cornerstone of my academic journey. Your belief in my potential has been a constant source of inspiration, and for that, I am profoundly grateful.

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##### Abstract

The 9th term of the European Parliament (2019–2024) coincided with a period of extraordinary turbulence in Europe, marked by Brexit, the COVID-19 pandemic, the Russian invasion of Ukraine, and record inflation, all of which significantly reshaped the EU’s political landscape. Using the Stochastic Degree Sequence Model and a comprehensive set of network statistics, this thesis explores how (multi)polarization evolved during this term by constructing and analyzing co-voting networks across the full term and within specific legislative subjects. The findings reveal that the most multi-polarized subjects include External relations of the Union, Internal market, single market, Economic, social and territorial cohesion, Common Foreign and Security Policy, Common Commercial Policy in General, Relations with Third Countries, and Environmental Policy. The subject State and evolution of the Union stands out for featuring a cleavage predominantly dividing Eurosceptics and Euroenthusiasts beyond conventional group lines, while Information and communications in general is the only subject characterized by binary polarization. By contrast, European citizenship, Budget of the Union, Agricultural Policies and Economies, and Social Policy, Social Charter and Protocol display markedly lower multi-polarization and promote broader cross-group collaborations. Examining voting communities for the entire term, four key alliances dominate the EP: EPP with Renew, S&D with Renew, ECR with ID, and The Left with Greens/EFA. Nevertheless, these configurations shift considerably from subject to subject, reflecting fluid patterns of cooperation and antagonism in different policy areas. Notably, MEP nationality exerts a minimal influence on community formation, supporting the view that ideological affinities and group allegiances play the most decisive role. Moreover, The Left and Greens/EFA exhibit consistently high internal cohesion, while EPP, S&D, and Renew emerge as less cohesive, often dividing themselves across different alliances depending on the issue at hand.

Keywords

Political polarization; European Parliament; Co-voting networks; backbone; Stochastic Degree Sequence Model

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Table of Contents

[Statement of Integrity ii](#_Toc195550235)

[Dedication iii](#_Toc195550236)

[Acknowledgements iv](#_Toc195550237)

[Abstract v](#_Toc195550238)

[List of Figures viii](#_Toc195550239)

[List of Tables ix](#_Toc195550240)

[List of Abbreviations and Acronyms x](#_Toc195550241)

[1. Introduction 1](#_Toc195550242)

[2. Political polarization 3](#_Toc195550243)

[2.1 Structural factors of polarization 4](#_Toc195550244)

[2.2 Conjunctural factors of polarization 6](#_Toc195550245)

[3. Voting behavior 9](#_Toc195550246)

[3.1 Polarization from voting behaviors outside the EU 10](#_Toc195550247)

[3.2 Measuring polarization 12](#_Toc195550248)

[4. Data & Methods 15](#_Toc195550249)

[5. Results and discussion 24](#_Toc195550250)

[5.1 Subject analysis 28](#_Toc195550251)

[6. Conclusions and Future Research 40](#_Toc195550252)

[Bibliographical References 42](#_Toc195550253)

[Appendix A 47](#_Toc195550254)

[Appendix B 57](#_Toc195550255)

[Appendix C 58](#_Toc195550256)

[Appendix D 71](#_Toc195550257)

[Appendix E 73](#_Toc195550258)

##### List of Figures

[Figure 4.1 – Example bill 15](#_Toc195537901)

[Figure 4.2 – Distribution of primary subjects 18](#_Toc195537902)

[Figure 4.3 – Top 10 secondary subjects by frequency 18](#_Toc195537903)

[Figure 4.4 – Top 10 tertiary subjects by frequency 18](#_Toc195537904)

[Figure 4.5 – Proportion of MEPs serving full term vs not full term 19](#_Toc195537905)

[Figure 4.6 – Distribution of voting positions 19](#_Toc195537906)

[Figure 4.7 – MEP affiliation change 20](#_Toc195537907)

[Figure 4.8 – Data preprocessing steps 20](#_Toc195537908)

[Figure 4.9 – Methodology to obtain the relevant voting communities 23](#_Toc195537909)

[Figure 5.1 – Group distribution across relevant communities for all subjects 27](#_Toc195537910)

[Figure 5.2 – Co-voting network for all subjects 28](#_Toc195537911)

[Figure 5.3 – Group distribution across relevant communities for primary subjects 32](#_Toc195537912)

[Figure 5.4 – Co-voting networks for all primary subjects 35](#_Toc195537913)

[Figure 5.5 – Group distribution across relevant communities for secondary subjects 38](#_Toc195537914)

##### List of Tables

Table 5.1 – Modularities and assortativies for all subjects 26

Table 5.2 – Structural statistics for all subjects 26

Table 5.3 – Modularities and assortativities for the primary subjects 29

Table 5.4 – Structural statistics for the primary subjects 29

Table 5.5 – Modularities and assortativities differences between all subjects and primary subjects 31

Table 5.6 – Modularities and assortativities for the secondary subjects 35

Table 5.7 – Structural statistics for the secondary subjects 36

Table 5.8 – Modularities and assortativities differences between all subjects and secondary subjects 36

##### List of Abbreviations and Acronyms

**BiCM** Bipartite Configuration Model

**ECR** European Conservatives and Reformists Group

**EP** European Parliament

**EPP** European People’s Party Group

**EU** European Union

**Greens/EFA** The Greens/European Free Alliance

**ID** Identity and Democracy

**MEP** Member of the European Parliament

**NI** Non-attached

**Renew** Renew Europe

**S&D** Progressive Alliance of Socialists and Democrats

**SDSM** Stochastic Degree Sequence Model

**The Left** The Left in the European Parliament

**UK** United Kingdom

**USA** United States of America

# Introduction

Political polarization has emerged as one of the most pressing challenges for liberal democracies, reshaping political landscapes and influencing governance worldwide. Indeed, while polarization can be a catalyst for political engagement and spur public discourse, it frequently creates irreconcilable divisions that impede decision-making and erode trust in democratic institutions. As polarized societies become entrenched in ideological silos, governance becomes a battleground where collaboration is sacrificed for partisanship. This issue is now a defining feature of the political landscape, influencing electoral dynamics, legislative processes, and public policy outcomes across the globe (McCarty et al., 2016; Iyengar & Westwood, 2015).

Polarization's manifestations vary widely between political systems. In some European countries, such as Germany, France, and Italy, it has led to the rise of new parties that fragment parliamentary structures, challenging traditional coalitions. In others, such as the United States of America (USA), polarization is marked by a stark ideological bifurcation within established parties, with Democrats gravitating toward more progressivism and Republicans embracing heightened conservatism (Canen et al., 2020; Patkós, 2023). The European Union (EU) exhibits a dual trend, with both the proliferation of Eurosceptic and populist parties and the widening ideological rifts within traditional political groups (Börzel et al., 2023).

Understanding the patterns of synergy and antagonism among parliamentary groups is essential for grasping the dynamics of EU governance and the challenges posed by polarization to collective decision-making. Moreover, identifying the legislative subjects where polarization is most pronounced provides valuable insights into the structural tensions within the European Parliament (EP).

The EP’s structure, marked by a balance of ideological alignment and national interests, provides a valuable case study for examining polarization within a multi-national legislative framework (Hix et al., 2009; Lo, 2018). The rise of Euroscepticism and populist elements further illustrates the growing challenges to legislative cohesion, as these forces strain coalition-building and consensus-driven policymaking efforts within the EU (Servent, 2019).

Despite its centrality to the EU, the EP has received comparatively little scholarly focus regarding the dynamics of political polarization within its structure. While substantial research has explored polarization in national parliaments, such as in the USA and the United Kingdom (UK), a critical gap persists in understanding how these phenomena unfold in a transnational legislative body like the EP (Hix et al., 2009; Börzel et al., 2023). Empirical evidence on the evolution of polarization in the EP, especially related to voting behavior across distinct legislative subjects, remains limited, underscoring the need for a deeper investigation into these dynamics.

This dissertation centers on the following question: how has political (multi)polarization within the EP evolved over the past five years, amid a context of unprecedented upheavals such as Brexit, the COVID-19 pandemic, the Russian invasion of Ukraine, and record-high inflation?

Using roll-call data on Members of the European Parliament (MEPs), we analyze co-voting networks for the 9th term of the EP (2019-2024) and for major legislative subjects to identify alliances and divisions between political groups. By mapping patterns of co-voting behavior, this research aims to determine which legislative subjects exhibit the highest levels of (multi)polarization and which foster the greatest multipartisan cooperation. This approach will also detect underlying polarization patterns by analyzing coalition dynamics, revealing how alliances form and evolve across different legislative subjects. Through this analysis, we will contribute to a more granular understanding of how polarization manifests in parliamentary decision-making and how different legislative subjects shape ideological divisions within the EP.

The remainder of this dissertation is organized as follows: Chapter 2 reviews the literature on political polarization; Chapter 3 describes voting behaviors in and outside the EU and the main methodologies for measuring polarization; Chapter 4 describes the data and the employed methodology for inferring the co-voting networks; Chapter 5 presents the results and discusses the empirical findings and Chapter 6 concludes with key findings and avenues for future research, emphasizing the significance of addressing polarization within the EP to foster more effective and collaborative governance.

# Political polarization

Political polarization refers to the growing ideological divide within societies, marked by shifts toward extremes among the general population and elite political groups, especially political parties. This phenomenon is increasingly analyzed as a measurable spectrum that tracks the fragmentation of public opinion between distinct poles, leading to a shrinking middle ground (McCarty et al., 2016; Pew Research Center, 2014; Gentzkow, 2016). Research on polarization often examines more than ideological separation, including affective polarization, the emotional and social hostility between opposing political groups, and structural network polarities within specific social groups (Van der Veen, 2023; Hohmann et al., 2023).

Polarization often manifests as a deep societal division that simplifies diverse political views into two rigid ideological camps, posing significant challenges to democratic cohesion and stability (Larkin & Lendler, 2019). Recent studies show that ideological sorting, the convergence of partisan identity with clear ideological positions, has intensified in the USA and Europe, thereby reducing party collaborations that previously mitigated political divides (Gestefeld et al., 2022; Servent, 2019).

Affective polarization, characterized by emotional and social hostility, compounds these divides as political groups increasingly see opponents not merely as ideological opposites but as social adversaries (Iyengar & Westwood, 2015). The durability of this polarization is evident in the USA, where partisan divides have widened on topics ranging from social policy to national security (Canen et al., 2020). Studies suggest that even non-extremist individuals can experience affective polarization, particularly when exposed to highly polarized media (Bor et al., 2022; Larkin & Lendler, 2019).

Polarization’s historical trajectory reveals trends that began in the 1970s, fueled by economic restructuring and changes in media landscapes (McCarty et al., 2016). Studies continue to link structural polarization to income inequality, socio-economic shifts, and political fragmentation (Autor et al., 2020; Grechyna, 2016).

Comparative indices, such as the Comparative Political Polarization Index, illustrate that polarization varies widely across political systems, with elite-driven polarization rising in certain regions (Van der Veen, 2023; Patkós, 2023). For democratic institutions, rising polarization presents significant challenges, as ideological rifts reduce consensus, foster legislative gridlock, and diminish public trust (McCarty et al., 2016).

Affective polarization is further amplified by populist rhetoric, which frames politics as a struggle between "the people" and "the elite". This narrative strengthens in-group solidarity while deepening hostility toward opposing groups (Mudde & Kaltwasser, 2017). Studies show that elite and mass behaviors heighten affective divides, with contemporary political movements using emotive issues to consolidate support and reinforce group identity (Iyengar & Westwood, 2015). Populist leaders in Europe and the USA often exploit topics like immigration and national identity, framing opponents as threats and turning political disagreements into broader societal divides (Mudde & Kaltwasser, 2017).

Populism and ideological sorting contribute to growing affective polarization by aligning party identities with fixed ideological beliefs, curtailing the cross-party exchanges that traditionally eased partisan divides (Iyengar & Westwood, 2015; Levendusky, 2009; Levendusky & Druckman, 2019). In the USA, this pattern has driven Republicans and Democrats further apart, heightening social and ideological fragmentation (Iyengar et al., 2019).

The convergence of political, affective, and ideological polarization presents major challenges for democratic resilience. As polarization intensifies, the risk of democratic erosion grows, particularly as populist leaders sow distrust in institutions by framing political conflicts as existential battles (Arbatli & Rosenberg, 2021). In deeply polarized democracies, legislative gridlock becomes an ongoing barrier to cross-party cooperation and effective governance. Contemporary models suggest that polarization destabilizes policy and fragments society, with significant consequences for economic stability and social cohesion (McCarty et al., 2016).

In conclusion, political polarization, intensified by populism and affective antagonisms, has profoundly altered the political landscape of liberal democracies. Comprehensive indices and innovative metrics offer crucial insights into the complexities of polarization, highlighting the need to address its multifaceted nature to protect democratic processes and mitigate socio-political fragmentation.

## Structural factors of polarization

Political polarization is an escalating phenomenon in Western democracies, driven by interwoven structural forces. Core determinants of this trend include technological advancements, globalization, and demographic transformations. These factors interact in ways that reinforce ideological and emotional divides through feedback loops. This subchapter investigates each structural driver, drawing from recent empirical and theoretical findings across various social science fields, including labor economics, political communication, demographic studies, and advanced statistical modeling approaches. By examining these pathways, this subchapter highlights contemporary debates on polarization measures and their empirical relevance.

Technological evolution contributes significantly to polarization through its effects on the labor market and media dynamics.

The impacts of technological advances have fundamentally transformed labor markets, primarily by expanding wage disparities between high-skilled and low-skilled workers. As demand grows for highly educated workers, those with lower skills often face stagnating wages and reduced job security. Research by Grechyna (2016) indicates a direct correlation between income inequality, a byproduct of skill-based wage gaps, and heightened political polarization. However, this causality is more complex: Duca & Saving (2016) posit that political polarization also influences public policy, thus indirectly affecting inequality. They argue that heightened partisan divides can obstruct redistributive policies, exacerbating inequality and fueling further polarization in a cyclical pattern, a pattern particularly evident in the USA.

The advent of digital media has transformed political communication, contributing to ideological silos and amplifying affective polarization. Fragmented media landscapes, characterized by selective access to ideologically aligned information, foster echo chambers and ideological rigidity, intensifying the ‘silo effect’ (Iyengar & Hahn, 2009; Iyengar et al., 2012). Additionally, the shift towards entertainment-driven political content dilutes substantive policy discussions, creating an environment where extreme viewpoints can flourish unchallenged, further dividing audiences along ideological lines (Prior, 2007).

Globalization’s impact on political preferences, particularly in Western economies, is complex and multifaceted. Rising international trade, exemplified by the “China trade shock”, has led to economic dislocation in specific regions, fueling ideological shifts.

Autor et al. (2020) found that areas in the USA with increased exposure to Chinese imports saw a political shift toward ideological extremes, dependent on regional demographics. Similarly, in Europe, Colantone & Stanig (2017) link rising nationalism and anti-globalization sentiments to the economic disruptions caused by globalization.

Rodrik (2018) argues that globalization sharpens the divide between "mobile" professionals who benefit from global integration and "local" workers facing job insecurity. This divide is further politicized, reinforcing ideological distinctions between globalist and protectionist viewpoints, which have come to dominate the political landscapes in the USA and Europe alike. These trends highlight the polarization in political responses to globalization, as economic changes feed into broader social and ideological divides (Autor et al., 2020; Rodrik, 2018; Fuks & Marques, 2022).

Demographic shifts, especially those involving generational divides and immigration, contribute to the intensification of polarization in significant ways.

Generational gaps are widening, with younger cohorts, such as Millennials, often gravitating toward more radical positions compared to older generations. This trend is evidenced by Murillo & Ruiz (2018), who observed that Millennials populate ideological extremes more than previous generations. Such generational divides are reshaping political alignments as younger voters embrace distinct radical ideologies compared to their Generation X and Baby Boomer counterparts. This shift also aligns with findings on increased ideological consistency among younger cohorts, suggesting a growing intergenerational cleavage that reshapes party dynamics and electoral strategies (Murillo & Ruiz, 2018).

Immigration has become a contentious topic that aligns along partisan lines, especially in the USA and Europe, where attitudes toward immigration significantly vary between right- and left-wing voters. In the USA, Republicans increasingly view immigration as a burden, while Democrats adopt more favorable stances. In Europe, these trends are evident as right-wing nationalist groups capitalize on anti-immigration sentiments, further polarizing the electorate. These attitudes contribute to identity-based cleavages that compound ideological divides, fostering affective polarization across both regions (Patkós, 2023; Halla et al., 2017; Iyengar et al., 2012).

In summary, the structural forces of technological transformation, globalization, and demographic change collectively intensify political polarization in Western societies. Each factor uniquely shapes the polarization landscape, whether through economic disparities, ideological divides, or cultural tensions, resulting in increasingly fragmented political arenas. Although these structural changes may be unavoidable, understanding the mechanisms by which they amplify divisions offers essential insights for addressing their polarizing effects. This review provides a foundation for examining how these divides impact democratic institutions, governance, and social cohesion in affected societies.

## Conjunctural factors of polarization

In addition to long-term structural factors, specific events have intensified political polarization in recent years.

There is broad agreement that the 2008 global financial crisis and recent waves of migration in Europe have been pivotal in this regard. Empirical studies suggest that polarization frequently spikes in the aftermath of financial crises. For example, Mian et al., (2014) illustrate how heightened polarization in the United States Congress has impeded effective policy responses to economic crises. Expanding beyond the USA context, Funke et al., (2016) demonstrate that financial crises worldwide often shift voter support away from centrist positions, significantly boosting radical parties on both the right and left, for instance, showing an average 30% increase in support for far-right parties.

In the same vein, Funke & Trebesch (2017) related the 2008 financial crisis to the rise of right-wing populist parties in the European political spectrum. Additionally, an investigation of Germany during the 1930s by Doerr et al., (2019) shows that the financial crisis suffered by the country at the beginning of that decade contributed decisively to boosting the National Socialist Party in the period between the two world wars.

The causal relationship between financial crises and polarization is empirically well founded, and there is growing evidence indicating that it operates through three channels: the loss of confidence in institutions and the established political class, the increasing debt of countries with the consequent budgetary constraints, and the increase in inequality. Firstly, financial crises are often understood as the result of failures in regulation and/or public policy. Consequently, this situation usually leads to a loss of confidence in the ruling class and institutions, thus generating an increase in votes for more anti-establishment extreme political factions. Secondly, the need to resolve situations of excessive debt also leads to greater political polarization. Debt restructuring processes that affect people with fewer resources tend to provoke a rejection of the political status quo. Finally, the increase in social inequality, which is usually especially intense during financial crises, also increases electoral polarization. The rise in inequality has been observed for decades in most advanced countries but has been accentuated by the more recent financial crisis.

Immigration has also proven to be a significant catalyst of political polarization, particularly in Europe. The increase in immigration during the 2000s corresponded with a notable rise in support for parties opposed to immigration. For example, Otto & Steinhardt (2014), in an in-depth study of the city of Hamburg, demonstrate a causal relationship between increased immigration and the growth of far-right support. Between 1987 and 1998, the city received large numbers of immigrants, including refugees and asylum seekers. By examining electoral outcomes across different city areas, the researchers showed that regions with higher immigrant populations experienced a corresponding increase in far-right votes, illustrating the political tensions generated by immigration at the local level.

Like financial crises, migration impacts polarization through multiple channels, such as labor market competition, redistribution of social benefits, shifts in cultural identity, and political influence. Card et al., (2012) found that immigration can affect wages and labor competition, especially for lower-wage native workers, potentially fostering economic insecurity and resentment, which can fuel divisive political responses. Dustmann & Frattini (2014) further observed that, while immigrant populations may contribute positively to public finances, they also influence perceptions around the distribution of social benefits, particularly when welfare systems are perceived as strained. These dynamics, coupled with cultural shifts associated with immigration, create conditions ripe for polarization, often mirroring the social and economic dislocations observed in post-crisis societies.

Beyond financial crises and migration, other contemporary challenges, such as environmental and health crises, are increasingly contributing to political polarization in unique ways. For instance, the COVID-19 pandemic polarized political responses in many countries, driven by conflicting views on public health measures, personal freedoms, and economic priorities. Much like financial crises and migration, events such as pandemics strain economic resources, intensify social inequalities and challenge public trust in institutions. Including these additional factors in future analyses could yield valuable insights, revealing whether polarization is becoming a persistent feature of modern democracies.

The reviewed literature indicates that financial crises, migratory waves, and other contemporary challenges catalyze political polarization by exacerbating economic vulnerabilities, redistributing social resources, and challenging cultural identities. These dynamics foster conditions where anti-establishment and radical parties gain traction, shaping a polarized political landscape that reflects the social and economic strains of modern democracies. Recognizing the exacerbating and potentially mitigating factors within these events can guide efforts to address polarization in ways that strengthen social cohesion and institutional trust.

# Voting behavior

The EP plays a pivotal role in shaping the European project, characterized by its unique transnational structure and the intricate dynamics among MEPs from diverse political affiliations. Foundational research by Hix et al., (2009) provides critical insights into how MEP voting behaviors and alliance formations could reveal distinct trends of political polarization within the EP. Their study demonstrates that MEPs tend to align primarily along ideological lines rather than national ones, underscoring broader ideological divides that shape the EU legislative framework.

Furthermore, Hix et al., (2009) found that political groups in the EP facilitate MEPs’ political objectives through a strategic division of labor in policy expertise and agenda-setting. This internal organization enables MEPs to follow group voting instructions that align with their broader political aims. The EP’s political dynamics are thus defined by a balance of ideological alignment and strategic considerations, which collectively drive voting behavior and alliance formation. This complex interplay highlights the EP’s distinctive role as a transnational body, where cohesion and cooperation are achieved through shared political priorities rather than traditional national loyalties.

Political group cohesion in the EP is positively correlated with centrality, meaning that groups exhibit stronger internal unity when their votes are pivotal. This effect has intensified as the EP's legislative powers have expanded, particularly following the Treaty of Lisbon. This treaty enhanced the EP’s authority across various policy domains, including trade, immigration, and justice, making cohesive voting increasingly essential for groups aiming to influence key legislative outcomes (Servent, 2019).

Political groups within the EP, such as the EPP (European People’s Party Group) and the S&D (Progressive Alliance of Socialists and Democrats), embody distinct ideological perspectives and play pivotal roles in shaping legislative negotiations. Although these groups lack the direct national implementation powers that parties wield in domestic settings, they maintain high levels of internal cohesion through structured voting guidelines that reinforce ideological alignment. Consequently, MEPs are inclined to follow group voting patterns that resonate with their broader political identities, particularly on major issues, thereby ensuring ideological consistency within the EP (Cherepnalkoski et al., 2016).

Spatial voting analysis reveals that the EP dominant voting alignment follows a primary left-right ideological dimension, mirroring the diverse political ideologies of member states. A secondary, cross-cutting dimension based on attitudes toward European integration also significantly shapes voting patterns, although its influence varies with the degree of Euroscepticism or pro-European sentiment among MEPs' national parties (Börzel et al., 2023). Eurosceptic factions tend to exhibit higher cohesion in opposing integrationist policies, while centrist and pro-European groups often display greater internal divergence on these issues. This dynamic adds a layer of complexity to coalition building, as the increasing prominence of Eurosceptic voices amplifies polarization within the EP, further challenging consensus-driven policymaking (Börzel et al., 2023).

The dual allegiance of MEPs to both their EP political groups and their national parties introduces a self-regulatory element to polarization. MEPs must balance the benefits of group cohesion with the need to align with national party interests, especially during high-stakes ideological votes, such as those involving socio-economic policies and anti-corruption measures. This balancing act is particularly evident in votes requiring an absolute majority, where the incentive to maintain group cohesion is paramount for achieving legislative outcomes (Hix et al., 2009; see also Apergis & Pinar, 2023 on polarization factors).

Since the late 1980s, political group cohesion within the EP has grown, often surpassing cohesion within national delegations. This trend reflects the EP’s increased legislative centrality, as cohesion has risen in parallel with the expansion of the EP’s powers and the EU’s enlargements. Enhanced political group cohesion supports the EP's internal stability, reinforcing its effectiveness as a central legislative body within the EU (Lo, 2018).

The increased polarization (possibly also within the EP) would reflect broader European trends where economic inequality and low trust levels deepen ideological divides (Grechyna, 2016). The rise of populist elements within mainstream groups has further strained the traditional “cordon sanitaire” approach used to contain extremist factions, complicating coalition-building and potentially impacting legislative cohesion. This development raises concerns about the EP's ability to effectively negotiate with other EU institutions amidst growing ideological fragmentation.

In summary, voting behavior in the EP reflects a complex interplay of ideological alignment, strategic voting, and group cohesion, driven by MEPs’ dual allegiances to both transnational and national interests. This intricate balance, intensified by growing Eurosceptic factions and ideological divides, underscores the EP's central role in shaping EU legislation amidst evolving challenges to unity and consensus.

Appendix A presents a detailed explanation of the functioning and powers of the EP, as well as its composition during the 9th term.

## Polarization from voting behaviors outside the EU

Political polarization is straining the foundations of democracies worldwide, with unique economic, social, and ideological factors shaping its complex dynamics in each context. This section examines the evolution of political polarization over time across various political landscapes, focusing on the USA, UK, Canada, Australia, and Brazil.

In the USA, polarization has intensified over several decades, with distinct divides emerging between Democrats and Republicans, particularly in Congress. Since the 1970s, researchers such as McCarty et al. (2016) and Canen et al. (2020) have documented how partisan sorting and ideological alignment have pushed both parties to ideological extremes, significantly restricting bipartisan cooperation. This trend is exacerbated by media dynamics, which Gentzkow (2016) describes as creating “echo chambers” that reinforce ideological silos. The impacts are evident in Congress, where legislative gridlock on key issues like healthcare and immigration reflects this rigid partisan division and affective polarization, with limited avenues for compromise.

In the UK, polarization has sharply increased in recent years, especially around Brexit, which fractured both major parties, notably the Conservatives. Peterson & Spirling (2018) employed machine learning to reveal long-term trends of growing rhetorical division in the House of Commons, while studies by Evans & Menon (2017) and Hobolt (2016) documented how Brexit debates marked a shift toward more intense partisan and factional conflicts. This period saw a departure from traditional parliamentary cooperation, as intra-party divisions and ideological rifts disrupted norms of party unity and cross-party collaboration. Issues of sovereignty, immigration, and economic policy remain deeply divisive, limiting the scope for cross-party consensus and complicating legislative processes. This shift reflects broader European trends discussed by Patkós (2023), who found that nationalism and anti-immigration rhetoric are often central to legislative polarization in modern democracies.

In Canada, polarization has gradually deepened, particularly around energy policies, environmental issues, and regional disparities. Canadian western provinces frequently oppose federal policies on environmental regulation and carbon taxes, creating a form of “regional polarization” that influences Canadian parliamentary dynamics (Huijsmans & Rodden, 2024). This trend reveals a growing ideological divide rooted in geographic and economic differences, affecting discussions on climate policy and inter-provincial relations. Local media coverage has further amplified these regional grievances, as McGrane & Berdahl (2013) observe in their analysis of how media outlets reinforce provincial identities, shaping public opinion along provincial lines.

Australia presents another case of rising polarization, particularly on issues of climate policy and immigration. The 2020 bushfire crisis, widely attributed to climate change, intensified ideological divisions between the Labor and Liberal-National parties regarding climate action. McDonald (2021) highlights that climate policy has become a central source of polarization, with significant disagreements on addressing environmental challenges. Similarly, Markus et al. (2019) highlight how attitudes toward immigration contribute to ideological divides, with public opinion increasingly polarized on the best approaches to social cohesion and immigration policy. Marr (2017) examines the role of national security and race-related policies in intensifying partisan divides and shaping polarizing narratives within Australia’s political discourse. Both Markus et al. (2019) and Marr (2017) observe that each party uses contentious issues like immigration and national security to mobilize their political bases, adding to the divisiveness of public debate.

Brazil exemplifies a case of deepening polarization linked to corruption scandals and populist governance. The impeachment of President Dilma Rousseff and the election of Jair Bolsonaro intensified divisions between left- and right-wing factions, with Bolsonaro’s administration adopting polarizing rhetoric on issues like public health and economic reform. Fuks & Marques (2022) emphasize the growth of affective polarization, especially with the rise of right-wing radicalization, which has influenced Brazil’s political landscape since 2018 and fueled discord across Brazilian society and within its institutions. This polarization is visible in Congress, where deepening divides impede cooperation on urgent issues, including Amazon conservation efforts. Social media has also played a significant role in amplifying polarization, as it allows political figures to directly engage and galvanize their bases, enhancing affective polarization.

These examples illustrate how economic strains, regional divides, and identity-based rhetoric shape polarization across non-EU democracies, influencing legislative gridlock and reducing policy adaptability. The ideological sorting in the United States Congress, regional and climate divides in Canada and Australia, and the social and cultural rifts in Brazil reveal the complex ways polarization disrupts parliamentary function, highlighting the global implications of an increasingly divided political landscape.

## Measuring polarization

Political polarization poses a significant challenge to democratic stability and social cohesion, as deepening ideological divides can disrupt policymaking, heighten societal tensions, and weaken governance structures. Effectively addressing this issue requires reliable, multidimensional measurements of polarization, spanning ideological, affective, and behavioral dimensions, that are sensitive to varying political contexts. Such measurements should capture the intensity and progression of these divides and illuminate the specific conditions that drive polarization’s rise or decline. With these tools, researchers and policymakers can assess polarization’s impact on democratic institutions, offering a foundation for interventions that may mitigate its adverse effects.

The measurement of political polarization has generated a diverse body of research, reflecting the multidimensional nature of this phenomenon. This subsection reviews the main methodological approaches employed in the literature, emphasizing their theoretical underpinnings, empirical applications, and relevance for studying polarization within legislative, societal, and digital contexts.

One of the most established techniques is the analysis of roll-call votes, which measures polarization by assessing how consistently legislators vote along party lines, revealing ideological alignment, partisan cohesion, and inter-group divergence within legislative bodies. This method is particularly suitable for institutional settings such as parliaments, where formal votes are systematically recorded. Hix & Noury (2009), for example, demonstrate how MEPs predominantly vote along partisan rather than national lines, offering evidence of party-based polarization in a transnational setting. More recent studies have extended this framework by incorporating spatial and dynamic modeling: Lo (2018) applies a dynamic ideal point estimation model to capture ideological shifts across legislative terms, while Canen et al. (2020) introduced a multi-dimensional voting model to assess the historical evolution of party discipline in the United States Congress, attributing a significant share of polarization (65%) by 2018 to increasing leadership influence over legislative behavior.

Beyond roll-call analysis, social network analysis has become a powerful tool for capturing structural features of political polarization. This approach conceptualizes political actors as nodes connected through ideological proximity, co-voting behavior, or digital interactions. Maoz & Somer-Topcu (2010) use ideological clustering to identify fragmentation within legislative bodies, while Hohmann et al. (2023) refine network-based metrics by introducing generalized Euclidean distance measures that reveal ideological clustering and echo chambers. Furthermore, Cherepnalkoski et al. (2016) merged Twitter and roll-call data to identify informal alliances among MEPs, illustrating how online behavior complements formal legislative activity. In addition, Domagalski et al. (2020) enhanced the interpretability of co-voting networks through their backbone extraction, reducing statistical noise and isolating significant ideological alignments.

Another methodological approach are probabilistic and Bayesian models, which estimate ideological distributions, modeling attitudal shifts over time, and identifying key structural drivers influencing divergence across political parties. Guevara et al. (2022) employ Markov Chain models to estimate the probability of populations reaching polarized states over time, providing a dynamic counterpart to traditional polarization indices. Grechyna (2016), using Bayesian Model Averaging, identifies socioeconomic determinants of polarization, such as trust and income inequality. Mehlhaff (2023) introduces the Cluster Polarization Coefficient, a group-based metric capturing both intra-group cohesion and inter-group divergence, which is particularly applicable in multiparty systems and multidimensional ideological landscapes.

A more exploratory but increasingly influential approach involves simulation-based models, particularly agent-based models and techniques drawn from statistical mechanics, which measure polarization by simulating opinion dynamics, modeling group interactions, and analyzing environment responses to political shocks. These allow researchers to simulate hypothetical scenarios and assess the impact of systemic shocks on polarization dynamics. For example, Diep et al. (2023) use Monte Carlo simulations to examine how public opinion responds to policy shocks, while Kaufman et al. (2022) employ the concept of “social temperature” to model how social and political pressures shift ideological distributions. Such models are especially useful for exploring counterfactuals and testing the effectiveness of potential depolarization strategies.

In parallel, advances in supervised machine learning and natural language processing have opened new opportunities for analyzing polarization at scale. These methodologies measure polarization by classifying alignment from textual data, analyzing rhetorical patterns, and detecting partisan clusters or thematic divergence. Peterson & Spirling (2018) show that high accuracy in classifying party affiliation based on parliamentary speeches signals increased ideological polarization. Similarly, Bor et al. (2023) leverage sentiment analysis on Twitter to map partisan divides in the U.S. Congress, revealing polarized discourses on issues such as gun control and immigration, alongside areas of cross-party convergence such as Taiwan independence, LGBTQ rights and views on the Chinese Comunist Party. These techniques are particularly well-suited for analyzing large, unstructured datasets and tracking evolving patterns of political communication.

Additionally, survey-based methods remain central to the study of affective and perceptual polarization. These methodologies measure polarization by gauging attitudes and biases through questionnaires, tracking ideological distances, and assessing intergroup hostility, yielding insights into mass-level partisan divergences. Through these methodologies, researchers have captured the emotional and interpersonal dimensions of ideological division. Rogowski & Sutherland (2016) demonstrate how ideological distance influences affective responses toward political outgroups, while Patkós (2023) introduces a Partisan Polarization Index based on differential satisfaction with government, enabling cross-national comparisons. These indices are particularly valuable for gauging polarization at the mass level across time and space.

Finally, comparative indices and socio-demographic analyses measure polarization by capturing ideological and affective differences within geographical and demographic factors (such as urban-rural divides), which shape electoral outcomes and foster distinct partisan alignments. Van der Veen (2023) constructs a Comparative Political Polarization Index that captures both ideological and affective dimensions across countries and over 25 years, facilitating longitudinal and cross-national analyses. Huijsmans & Rodden (2024), focusing on electoral geography, show that urban-rural divides are more pronounced in the USA, UK, and Canada but are also emerging in European multiparty systems, where smaller parties increasingly draw support from either urban or rural areas.

# Data & Methods

We utilized roll-call voting data retrieved from the HowTheyVote.eu platform (<https://howtheyvote.eu/>) and supplemented it with legislative subject information from the Legislative Observatory of the EP (<https://oeil.secure.europarl.europa.eu/oeil/en>).

A detailed presentation of these two data sources can be found in Appendix B.

A bill in the EP refers to a legislative proposal, motion, or report brought forward for debate and a formal roll-call vote. Each bill is assigned to one or more legislative subject(s), following the classification of the Legislative Observatory of the EP. Every bill is then voted on by MEPs in a roll-call vote, where each MEP’s position is explicitly recorded. MEPs have three possible voting options: “FOR”, “AGAINST”, or “ABSTAIN”. However, if an MEP was not serving at the time of the vote or otherwise was not present in the voting session, their position is recorded as “DID\_NOT\_VOTE”.

Figure 4.1 illustrates an example of a bill with two legislative subjects: Child protection, children’s rights and Human rights situation in the world.

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Figure 4.1 – Example bill

According to the Legislative Observatory of the EP, the bills span eight broad policy areas, referred to as primary subjects. Below is a brief description of each primary subject.

* European citizenship: Concerns matters of citizenship, migration and asylum.
* Internal market, single market: Deals with internal market regulations, competition, and consumer rights. It also covers standards for products, public subsidies, and the mutual recognition of degrees and qualifications.
* Community policies: Concerns European political parties and the EP’s interaction with other institutions, on the European and national levels. It also covers the implementation of European treaties and all general issues regarding the EU institutions.
* Economic, social and territorial cohesion**:** Covers questions related to employment, social, and infrastructural policies, all of which aim to promote the EU’s economic, social, and territorial cohesion.
* Economic and monetary system: Covers all matters concerning the economic and monetary system of the EU and regulations regarding the financial system, taxation, competition, and the free movement of capital and payments. It also comprises the relationship with the European Central Bank (which is accountable to the EP).
* External relations of the Union: Covers policies regulating the relationship of the EU with third countries. Decisions concerning the accession process to the EU, associations, and the European neighborhood policy fall in this category. Security, defense, development policy, and human rights matters are also in this policy area.
* Area of freedom, security and justice: Concerns home affairs and policies regarding justice and the freedom of movement within the EU. It also covers the harmonization of legal systems and cooperation at the level of police and justice between member states. Well-known projects attributed to this policy area are the Schengen Area, the European Arrest Warrant, and Frontex patrols.
* State and evolution of the Union: This policy area covers seminal decisions concerning the European integration process and concerns the power balance between the EU institutions on the one side and the member states on the other side.

Within each primary subject, the Legislative Observatory further classifies legislation into sub-themes (secondary subjects), allowing for a more granular and detailed categorization of legislative activities. These sub-themes (47 in total) provide specificity within broader policy areas, helping to distinguish between different aspects of legislation that may require distinct approaches or political considerations.

For example, under the European Citizenship primary subject, secondary subjects include:

Fundamental rights in the EU, Charter: This secondary subject covers legislative initiatives related to the Charter of Fundamental Rights of the EU, ensuring the protection of fundamental freedoms such as human dignity, equality, and non-discrimination.

Citizen's rights: This secondary includes laws concerning civil rights, voting rights, freedom of movement, protection of personal data, and access to justice within the EU.

Below the secondary subjects, an additional layer of tertiary subjects further refines the classification of legislative topics. These tertiary subjects (252 in total) help to further classify legislative dossiers into even more precise topics, making it easier to locate and analyze legislative work in highly specific areas.

For example, under the Citizen's right’s secondary subject, tertiary subjects include:

Political rights, right to vote and to stand in elections.

Social and economic rights.

**Metadata of a Subject**

Subjects are represented as numerical codes. Each segment of the code corresponds to a specific level in the hierarchy. The levels of granularity are as follows:

**1.** **Primary subject**: This is the broadest level, representing overarching thematic areas within legislative activities. For example, the primary subject "4" corresponds to "Economic, social, and territorial cohesion", while "6" represents "External relations of the Union".

**2. Secondary subject**: This intermediate level refines the primary subject into more specific subfields. For example, the secondary subject "4.10" under the primary subject "4" refers to "Social policy, social charter and protocol". Similarly, "6.10" under the primary subject "6" represents "Common foreign and security policy (CFSP)”.

**3. Tertiary Subject**: This is the most detailed level of granularity, specifying the particular focus within the secondary subject. For example, "4.10.03" refers to "Child protection, children's rights", a subset of the secondary subject “4.10”. Similarly, "6.10.09" refers to "Human rights situation in the world", a specific area within the secondary subject “6.10”.

Figure 4.2 illustrates the distribution of primary subjects across all bills, with "Community policies" being the most prevalent, associated with 597 bills, followed by "State and evolution of the Union" (569 bills) and "External relations of the Union" (444 bills). Notably, subjects like "Economic and monetary system" appear far less frequently, indicating a significant variation in the subject focus of the legislative agenda.

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Figure 4.2 – Distribution of primary subjects

Figures 4.3 and 4.4 show the 10 most frequent secondary and tertiary subjects.

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Figure 4.3 – Top 10 secondary subjects by frequency

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Figure 4.4 – Top 10 tertiary subjects by frequency

A complete list of all primary, secondary, and tertiary subjects is included in Appendix C.

Before developing the methods, we applied several preprocessing steps.

First, we opted to use a threshold as conservative as Schoch & Brandes (2020) by excluding MEPs who participated in fewer than 50% of all roll-call votes. As illustrated in Figure 4.5, approximately 32.6% of MEPs did not serve the entire term, indicating a substantial portion with limited legislative activity. This ensures that our study is based on MEPs with significant voting activity, reducing distortions from MEPs who served for too little time to contribute meaningfully to our study.

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Figure 4.5 – Proportion of MEPs serving full term vs not full term

Secondly, we reclassified voting positions into a binary format: “supporting” including only “FOR” votes, and “not\_supporting” encompassing “AGAINST”, “ABSENTION”, and “DID\_NOT\_VOTE”. As illustrated in Figure 4.6, there is a pronounced imbalance in voting positions, with “FOR” comprising most votes. Grouping the remaining three positions into “not\_supporting” mitigates this imbalance and ensures that the roll-call data is suitable for the subsequent methodology, which only accepts binary voting positions.

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Figure 4.6 – Distribution of voting positions

Next, following NOMINATE, we removed high-consensus bills. We excluded any bill where fewer than 2.5% of MEPs opposed the majority position. For example, if 98% of MEPs voted in support of a bill and only 2% did not support it, we would consider the bill too consensual. This step ensures that our study focuses only on bills with a minimum level of group divisiveness, reducing the noise introduced by too-consensual bills.

Furthermore, as illustrated in Figure 4.7, some MEPs appear in multiple groups or as NI (non-attached) at different times. Although NI is not a recognized group, we treat it as one for the sake of a single membership assignment. This means that each MEP will be assigned to only one group (or NI) throughout the study, even if they held multiple affiliations during the term. To determine this single “most representative” affiliation, we examine all group (or NI) memberships every MEP held, along with the time spent in each. Whichever affiliation occupied most of the MEP’s term is chosen. If there happens to be a draw in terms of time, we select the first affiliation that the MEP held. This approach avoids representing the same MEP multiple times with different groups (or as NI). Consequently, each MEP is allocated exactly one affiliation, whether it is a recognized political group or NI, ensuring a streamlined yet accurate depiction of each MEP’s predominant membership in the term.

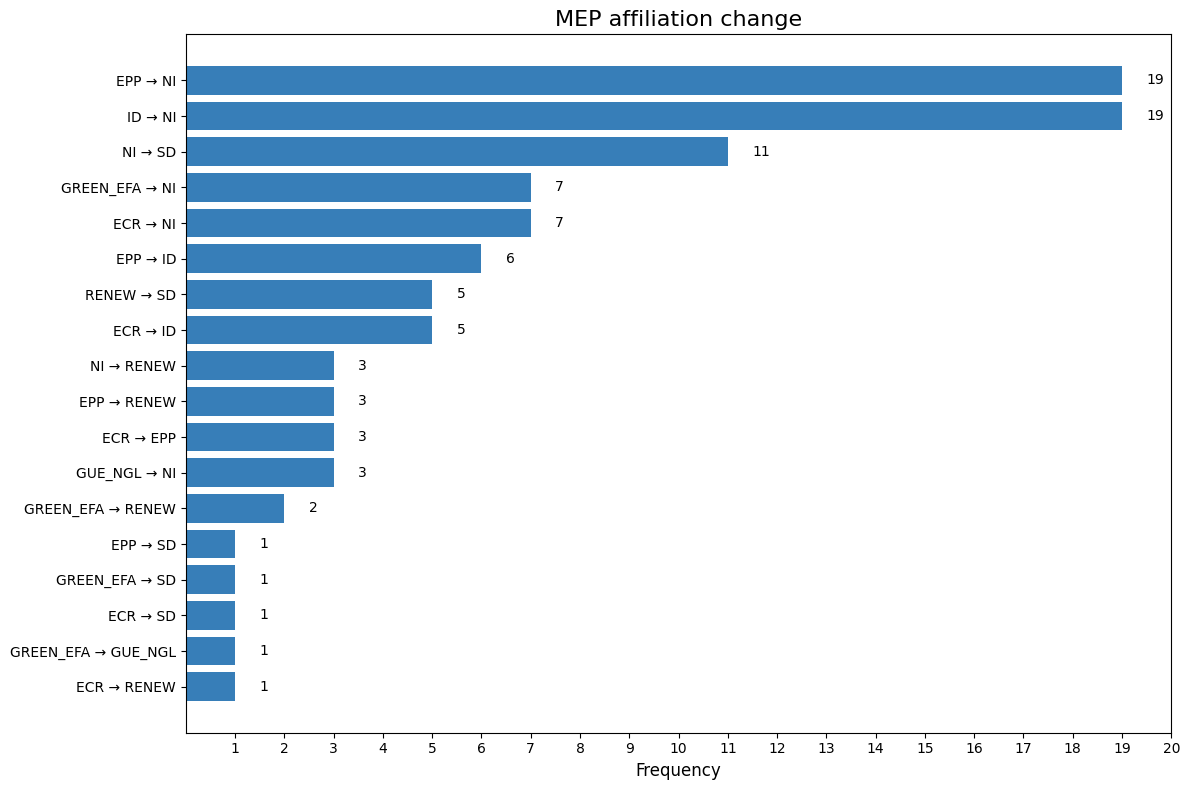


Figure 4.7 – MEP affiliation change

Finally, we excluded all MEPs who spent more time as NI than affiliated with any group. Since those MEPs lack significant group affiliation, their voting behavior does not contribute meaningfully to our study.

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Figure 4.8 – Data preprocessing steps

In this study, we used the Stochastic Degree Sequence Model (SDSM) to model the MEPs’ voting behavior. This model allowed us to extract the binary backbone of a network. A network (or graph) is described by a pair where is the set of nodes and is the set of edges connecting the nodes, which can be weighted or unweighted. The backbone is an unweighted graph that preserves only the most significant edges (connections between MEPs) from the weighted bipartite projection. As such, we can model the network through an matrix, which we denote by , where is the number of MEPs, the number of bills and its element indicate whether MEP supported or not bill . For instance, if MEP supported bill then , otherwise .

From matrix we derived a biadjacency matrix . A biadjacency matrix represents the connections between two distinct sets (modes) of nodes, hence describing a two-mode network, in which edges only exist between, rather than within, those two sets. Specifically, represents a two-mode network with vertices, where the first mode consists of a set of vertices which represents the MEPs, and the second mode consists of a set of vertices which contains two vertices per bill, indicating supporting or not supporting. For example, if MEP 9 supported bill 2 then and . On the contrary, if MEP 9 did not support bill 2 then and . More concretely, the rows of the biadjacency matrix represent the vertices in set and the columns represent the vertices in set , which means that if then vertex (MEP ) is connected to vertex in .

To obtain the number of times each pair of MEPs supported the same bill, we constructed the adjacency matrix associated with a weighted graph, usually called bipartite projection. An adjacency matrix is a matrix with the same number of rows and columns indicating the weight of the edges between nodes in a single-mode network. Here represents the number of times MEP and MEP supported the same bill. The diagonal elements of matrix indicate the total number of votes cast by each MEP.

Since we are interested in the most relevant edges, it is beneficial to reduce the information given by the bipartite projection (which is weighted) into an unweighted subgraph. This subgraph is typically denoted by the backbone of .

The SDSM constrains the expected row and column sums of the random bipartite graph to match those of the bipartite graph . Since is a Bernoulli random variable taking values of 1 or 0, the sum of independent Bernoulli trials that aren’t necessarily identically distributed is a Poisson Binomial distribution, this means that the distribution for all pair of MEPs is also a Poisson Binomial distribution. This distribution consists of modelling the probability of obtaining successes in trials. In this case, the parameters of the Bernoulli random variables have a different probability of success, namely which using the Bipartite Configuration Model (BiCM) is computed as:

(3.1)

One way to perform the backbone extraction is the statistical approach which consists of assuming a given null model for the distribution of the edge’s weight which in our case is a Poisson Binomial distribution.

The next step is to compute the following probability: and compare it with . More specifically, we will keep the connections between MEP and MEP if . Through this approach we can obtain the subgraph using:

(3.2)

In our case, we set the significance level to 0.01. We used the R package backbone for all computations involving the SDSM.

We began by applying the co-voting network construction method to the entire term as well as to each primary subject. In this procedure, any bill covering multiple subjects was assigned to each corresponding subject network. Following this, we assessed the connectivity of the obtained subgraph . If the subgraph was connected, we applied the Louvain community detection algorithm (with a resolution parameter of 0.5) and retained only communities with at least 30 nodes, as smaller communities were considered too noisy for meaningful analysis. If the subgraph was disconnected, we removed all connected components with fewer than 30 nodes and then applied the Louvain community detection algorithm (with a resolution parameter of 0.5) to the remaining network, again retaining only communities with at least 30 nodes, therefore obtaining the relevant voting communities.

Figure 4.9 depicts the steps for obtaining the relevant voting communities.

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Figure 4.9 – Methodology to obtain the relevant voting communities

We chose a threshold of 30 because the least represented group in the EP’s 9th term began with 41 MEPs, so a threshold of 30 would still realistically capture that entire group in a separate component or community if most of them remained in the network.

During this process, we observed that the primary subject Economic and monetary system, which contained only 31 bills, did not yield any relevant communities that met the size threshold. To establish a meaningful threshold for analyzing secondary subjects, we selected the number of bills of the least represented primary subject with at least one relevant community, which was European citizenship with 98 bills.

As a result, in addition to retrieving the relevant voting communities for all primary subjects (except for Economic and monetary system, where no relevant communities were formed), we also retrieved relevant voting communities for all secondary subjects with at least 98 bills. The rationale behind this threshold is that secondary subjects with at least 98 bills have as much representation in the EP as the least represented primary subject that still produced relevant voting communities.

# Results and discussion

This chapter presents our findings on political (multi)polarization in the EP’s 9th term (2019-2024), focusing on how ideological divides, national interests, and European integration stances shape voting behavior. We address the research question: “How has political (multi)polarization in the European Parliament been characterized over the past five years?” by examining co-voting patterns among MEPs, highlighting synergies and antagonisms between political groups, and showing how (multi)polarization fluctuates across all subjects and within the various primary and secondary legislative subjects.

For all subjects, each primary subject and each selected secondary subject, we conducted a network analysis on the undirected and unweighted subgraph , computing 10 network statistics.

We begin by computing modularity statistics (optimal, group, and nationality). To obtain the optimal modularity, we applied the Louvain community detection algorithm, setting the resolution parameter to 1 to avoid bias toward broader or narrower communities, and then computed the resulting optimal modularity. By maintaining a neutral resolution, this measure captures how strongly the voting network is divided into distinct blocs, without relying on predefined group or nationality labels. In turn, to obtain the group modularity, we constrained the partitioning so that each community consisted exclusively of MEPs from the same group and calculated its modularity. This measure evaluates the extent to which voting blocs align with formal group affiliations. Finally, to obtain the nationality modularity, we constrained the partitioning so that each community consisted exclusively of MEPs from the same country and calculated its modularity. This measure examines whether national interests influence voting behavior, regardless of group affiliation.

The optimal, group and nationality modularity were computed with the formula (3.3), where is the adjacency matrix (1 if there is an edge, 0 otherwise); is the degree of node ; is the degree of node ; is the sum of all degrees in the graph and is 1 if nodes and belong to the same community, 0 otherwise.

(3.3)

Then, we computed assortativity statistics (group and nationality). The group assortativity measures the likelihood that MEPs vote overwhelmingly with MEPs of their own group rather than forming cross-group alliances. In turn, the nationality assortativity measures the likelihood that MEPs vote overwhelmingly with MEPs from the same country rather than forming cross-country alliances.

The group and nationality assortavities were computed with formula (3.4), where is the fraction of edges connecting MEPs with attribute to MEPs with attribute . Depending on the context, “attribute” can be group or nationality. , meaning that all the fractions sum to unity, since every edge must connect attribute to some attribute ; is the fraction of edges in the entire network attached to MEPs with attribute . By summing over all , we gather all edges that touch any MEP of attribute , irrespective of what the other MEP’s attribute is and describes the fraction of edges connecting attributes and if all edges were randomly distributed proportional to the presence of attributes and in the network. Comparing to shows how much (or less) often attributes and co-occur than expected by chance.

(3.4)

Moreover, we computed structural network statistics such as the average clustering coefficient, network density, percentage of remaining nodes, total detected communities and total relevant communities. The average clustering coefficient measures the degree to which MEPs form tightly interconnected voting clusters and was computed according to formula (3.5), where is the number of triangles (fully connected triplets) that node is part of; is the degree of node ; is the maximum possible number of triangles node could form and is the number of nodes in the network.

(3.5)

Secondly, the network density measures the proportion of possible connections (co-voting relationships) that exist in the network. Thirdly, the percentage of remaining nodes measures what fraction of all possible MEPs (i.e., those that could appear in the final network after the data preprocessing) are present in each network. The total detected communities represents the total number of communities found by the Louvain community detection algorithm (with the resolution parameter set to 0.5) applied to the full network. We chose the same resolution parameter of 0.5 used for identifying the relevant communities so that the comparison remains consistent with the methodology described in 4.2. By comparing the total detected communities (how many communities emerged from the entire network without removing any components or communities of smaller size) to the total number of relevant communities, we gain insight into whether the community filtering process (which excludes connected components and communities below the defined threshold) leads to only a modest or substantial reduction in community count. Finally, the total relevant community represents the network’s total number of relevant communities following the methodology described in 4.2.

The results presented in Tables 5.1 and 5.2 will serve as a baseline for interpreting the extent of (multi)polarization in the EP, assessing whether political divisions manifest more strongly with all subjects or across specific legislative subjects.

Table 5.1 – Modularities and assortativies for all subjects

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Optimal modularity | Group modularity | Nationality modularity | Group assortativity | Nationality assortativity |
| 0.520 | 0.406 | 0.041 | 0.512 | 0.044 |

Table 5.2 – Structural statistics for all subjects

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Average clustering coefficient | Network density | Percentage of remaining nodes | Total detected communities | Total relevant communities | Number of bills |
| 0.654 | 0.190 | 94.964% | 5 | 4 | 1890 |

The results indicate a moderate level of (multi)polarization in the EP during the 9th term (2019–2024). The moderate optimal modularity (0.520) and group modularity (0.406) suggest that MEPs tend to form relatively well-defined voting blocs along political group lines, reinforcing ideological segmentation. The low difference between the optimal and group modularity suggests that group affiliation explains a significant portion of voting behavior but does not fully determine it. Other factors, such as policy-specific preferences and cross-group coalitions, influence the structure of voting communities.

The moderate value of group assortativity (0.512) indicates that while MEPs do tend to vote with their group colleagues, inter-group cooperation is relatively common. This aligns with the moderate group modularity score.

In contrast, the low nationality modularity (0.041) and nationality assortativity (0.044) confirm that national affiliations play a minimal role in structuring voting behavior, highlighting that (multi)polarization is primarily driven by ideological rather than national divides.

Additionally, the high clustering coefficient (0.654) and the relatively low network density (0.190) suggest that there is significant coalescence within groups, and interactions between voting communities are limited. The presence of 5 total communities, of which 4 are relevant, shows that the voting communities extend beyond a polarized scenario, revealing multi-polarization. Furthermore, the high retention of nodes (approximately 95%) and the large number of bills considered (1890) indicate a robust analysis, ensuring that these multi-polarization patterns are broadly representative of parliamentary activity.

Analyzing the relevant voting communities, which can be seen in Figure 5.1, we can observe that community 0 is heavily dominated by the EPP with a notable presence of Renew (Renew Europe), indicating a strong pro-EU alignment.

Community 1 is dominated by S&D with a notable presence of Renew, signifying a distinct center-left-leaning bloc. Community 2 comprises ECR (European Conservatives and Reformists Group) and ID (Identity and Democracy), showing a clear separation of far-right and Eurosceptic groups. Community 3 is composed of Greens/EFA (The Greens/European Free Alliance), The Left (The Left in the European Parliament), and a minority of S&D, forming a progressive, left-leaning coalition.

The EPP and S&D remain structurally separated, reinforcing the ideological divide between center-right and center-left. Renew is split between aligning with the center-left (S&D) and the center-right (EPP), reflecting its ideological flexibility and centrist position in the EP. The Eurosceptic and far-right groups (ECR and ID) form an isolated community. Greens and GUE/NGL cluster together, suggesting subject alliances on environmental and social issues.

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Figure 5.1 – Group distribution across relevant communities for all subjects

Overall, these findings address the research question by demonstrating that political multi-polarization in the EP is primarily structured along group lines rather than national interests, with stable ideological voting communities driving legislative decision-making.

The presence of multiple relevant voting communities suggests a multi-polarization dynamic, where certain issues may foster cross-group alignments, while others reinforce stark divisions. The subsequent analysis by legislative subject will further refine these insights by identifying which subjects exhibit the highest and lowest levels of (multi)polarization.

Figure 5.2 depicts the co-voting network for all subjects.

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Figure 5.2 – Co-voting network for all subjects

## Subject analysis

Having examined the overall polarization trends for the entire parliamentary term, we now extend our analysis to a more granular level by evaluating political (multi)polarization across different legislative primary subjects. This approach allows us to determine whether (multi)polarization dynamics vary depending on the legislative subject under discussion, offering deeper insights into how ideological alignments and antagonisms shape decision-making in the EP.

To achieve this, we will apply the same methodological framework used in the entire term analysis, starting with the modularity and assortativity statistics (Table 4.3) to measure the extent of group and nationality voting cohesion within each primary subject. Additionally, the network structural metrics (Table 4.4) will provide further insight into the density, clustering tendencies, number of voting communities, and reliability of the results.

Beyond these statistical measures, we will analyze the relevant communities obtained within each primary legislative subject. By examining the structure of the relevant communities, we aim to uncover whether political groups maintain consistent alliances across the different primary subjects or whether voting coalitions shift depending on the primary subject under discussion. This will help clarify whether polarization in the EP is uniform across all policy domains or if certain primary subjects promote broader multigroup agreements.

This analysis will enable us to answer a key aspect of one of the research objectives: Does the degree of political (multi)polarization in the European Parliament vary by primary subject, and if so, which primary subjects exhibit the highest and lowest levels of (multi)polarization?

The following tables and relevant community matrices will provide the necessary empirical evidence to address this research objective.

Table 5.3 – Modularities and assortativities for the primary subjects

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Subject | Optimal modularity | Group modularity | Nationality modularity | Group assortativity | Nationality assortativity |
| All subjects |  |  |  |  |  |
| European citizenship | 0.483 | 0.412 | 0.179 | 0.625 | 0.211 |
| Internal market, single market | 0.718 | 0.609 | 0.188 | 0.787 | 0.210 |
| Community policies | 0.553 | 0.413 | 0.067 | 0.553 | 0.073 |
| Economic, social and territorial cohesion | 0.662 | 0.549 | 0.124 | 0.740 | 0.137 |
| Economic and monetary system | 0.803 | 0.484 | 0.549 | 0.991 | 0.717 |
| External relations of the Union | 0.715 | 0.605 | 0.127 | 0.736 | 0.138 |
| Area of freedom, security and justice | 0.607 | 0.522 | 0.108 | 0.663 | 0.121 |
| State and evolution of the Union | 0.586 | 0.350 | 0.080 | 0.423 | 0.087 |

Table 5.4 – Structural statistics for the primary subjects

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Subject | Average clustering coefficient | Network density | Percentage remaining nodes | Total detected communities | Total relevant communities | Number of bills |
| European citizenship | 0.485 | 0.062 | 46.619% | 14 | 4 | 98 |
| Internal market, single market | 0.659 | 0.066 | 57.410% | 39 | 4 | 191 |
| Community policies | 0.671 | 0.117 | 93.957% | 8 | 4 | 595 |
| Economic, social and territorial cohesion | 0.607 | 0.060 | 88.345% | 25 | 8 | 386 |
| Economic and monetary system | 0.715 | 0.059 | 12.374% | 20 | 0 | 31 |
| External relations of the Union | 0.620 | 0.063 | 93.957% | 11 | 8 | 444 |
| Area of freedom, security and justice | 0.577 | 0.065 | 73.237% | 49 | 4 | 176 |
| State and evolution of the Union | 0.621 | 0.073 | 77.554% | 40 | 5 | 567 |

Given that the number of relevant communitiesranges from 4 to 8 for all primary subjects except Economic and monetary system, where no significant communities were formed, we possibly observe multi-polarization rather than a simple binary polarization in all primary subjects, except in Economic and monetary system.

In the case of European citizenship, the optimal modularity of 0.483 and the group modularity of 0.412 differed by about 0.071. As a result, the data suggests that voting blocs for this subject are weakly multi-polarized. Still MEPs align mostly closely with group lines. The group assortativity of 0.625 reinforces that MEPs generally co-vote with their groups. The network density, at 0.062, is low, signifying a degree of fragmentation, while the average clustering coefficient near 0.485 signifies modest cohesion among MEPs who do converge.

For the subject Internal market, single market, the optimal modularity of 0.718 indicates a high level of multi-polarization. The partisan modularity of 0.609 remains high, and their difference of 0.109 is comparatively small. This indicates that group alignment strongly dictates the detected voting communities. The high group assortativity of 0.787 further confirms that MEPs predominantly vote within their groups. The network density is low at 0.066, consistent with fragmented voting communities that rarely cooperate across group lines.

Regarding Community policies, the optimal modularity was around 0.553, signifying a moderate degree of multi-polarization, whereas the partisan modularity of 0.413 produced a difference of 0.14. This still implies that groups shape the voting communities but not as strongly as in more multi-polarized subjects. Additionally, the network density of 0.117 is the highest among the primary subjects, pointing to a more interconnected pattern of co-voting. The group assortativity of 0.553 corroborates an environment that is moderately driven by group identity yet open to inter-group voting.

Economic, social and territorial cohesion had an optimal modularity of 0.662 and a group modularity of 0.549, resulting in a difference of 0.113. Here, the results indicate high multi-polarization that is largely structured along party lines. Indeed, the group assortativity of 0.740 reveals that MEPs frequently remain within their group when casting votes. The network density, at 0.059, is one of the lowest, signifying well-separated voting communities with little cross-group collaboration.

Economic and monetary system showed a notably high optimal modularity of 0.803 but a group modularity of 0.484, resulting in a difference of 0.319. This wide gap ordinarily implies that group alignment does not fully account for the subject’s high multi-polarization. However, the group assortativity is extremely high at 0.991, indicating that MEPs rarely cross group lines. The nationality modularity of 0.549 also stands out, highlighting the possibility that nationality bears significant weight. Conflicting as these indicators might seem, one must remember that this subject has only 31 bills and comprises only 12,4% of the eligible MEPs, which severely restricts the reliability of inferences. Hence, it is reasonable to exclude Economic and monetary system from a categorization as either “most multi-polarized” or “most cooperative”, as the metrics provide mixed signals in the context of insufficient data.

External relations of the Union registered an optimal modularity of 0.715 and a group modularity of 0.605, implying a difference of 0.110. This subject thus emerges as highly multi-polarized, primarily reflecting strong group influence. The group assortativity, at 0.736, supports the idea that MEPs are closely loyal to their groups, while the network density, at 0.063, indicates sharply demarcated voting communities with minimal across-group cooperation.

Area of freedom, security and justice displayed an optimal modularity of 0.607 versus a group modularity of 0.522, for a difference of 0.085. The small gap points again to a subject that is highly multi-polarized and driven by group structuring. The group assortativity of 0.663 confirms that although MEPs occasionally cross group lines, most remain loyal to their groups. The network density, at 0.065, is similarly low, as one might anticipate for a multi-polarized subject.

Finally, State and evolution of the Union revealed an optimal modularity of 0.586, paired with a group modularity of 0.350, resulting in a notably large difference of 0.236. This marks it as an outlier in terms of its relatively moderate multi-polarization and significantly low group modularity. The group assortativity of 0.423, the lowest of any primary subject, aligns with the idea that traditional groups do not dominate the voting structure. Since this subject relates primarily to EU integration, the data indicates that ideological divides may pivot around Eurosceptics versus Euroenthusiasts, rather than typical left-right or group-based categories.

As a result, Internal market, single market, External relations of the Union, and Economic, social and territorial cohesion emerge as the most multi-polarized primary subjects, while European citizenship and Community policies foster the greatest multi-partisan cooperation.

As an additional step, we compared the indicators for each primary subject to those for the entire term and summarized their differences in Table 5.5.

Table 5.5 – Modularities and assortativities differences between all subjects and primary subjects

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Subject | Optimal modularity | Group modularity | Nationality modularity | Group assortativity | Nationality assortativity |
| European citizenship | -0.037 | 0.006 | 0.138 | 0.113 | 0.167 |
| Internal market, single market | 0.198 | 0.203 | 0.147 | 0.275 | 0.166 |
| Community policies | 0.033 | 0.007 | 0.026 | 0.041 | 0.029 |
| Economic, social and territorial cohesion | 0.142 | 0.143 | 0.083 | 0.228 | 0.093 |
| Economic and monetary system | 0.283 | 0.078 | 0.508 | 0.479 | 0.673 |
| External relations of the Union | 0.195 | 0.199 | 0.086 | 0.224 | 0.094 |
| Area of freedom, security and justice | 0.087 | 0.116 | 0.067 | 0.151 | 0.077 |
| State and evolution of the Union | 0.066 | -0.056 | 0.039 | -0.089 | 0.043 |

The optimal modularities in nearly all primary subjects are higher than in the entire term (except for European citizenship), which implies that multi-polarization tends to be more pronounced at the primary subject level than across the entire term. This finding suggests that MEPs form more sharply defined coalitions when focusing on narrower policy topics.

Likewise, the group modularity and group assortativity generally exceed their values from the entire term in all primary subjects except State and evolution of the Union, where, consistently with our earlier interpretation, traditional group lines fail to fully account for the voting patterns driven by Eurosceptic versus Euroenthusiastic cleavages. For all other primary subjects, these higher-than-term-level differences indicate that group affiliations are better explanatory factors when MEPs concentrate on individual primary subjects.

In a similar pattern, the nationality modularity and nationality assortativity are also always higher than in the entire term. This implies that MEP nationality plays a slightly bigger role in shaping voting behavior at the primary subject level than it does across the broader spectrum of issues covering the entire term.

The relevant voting communities for each primary subject can be seen in Figure 5.3.

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AI-generated content may be incorrect.A graph of a bar chart

AI-generated content may be incorrect.A comparison of a diagram

AI-generated content may be incorrect.A blue squares with black text

AI-generated content may be incorrect.

Figure 5.3 – Group distribution across relevant communities for primary subjects

The voting network on European citizenship divides into four communities. Community 0 combines members of the EPP and S&D, suggesting that these two major groups share significant common ground on citizenship-related issues. Meanwhile, Community 1 is exclusively composed of ID, indicating that MEPs from this group coalesce as a distinct bloc. Community 2 is entirely composed of ECR, reinforcing their cohesive internal alignment. Lastly, Community 3 is another cluster of EPP members, separate from the EPP faction in Community 0, which hints at a further internal split or nuance in the EPP’s stance on European citizenship.

Turning to the Internal market, single market subject, there are four communities with varying mixes of political groups. Community 0 contains only Greens/EFA, pointing to a specialized environmental pro-sustainability position on market issues. Community 1 merges EPP, S&D, and Renew, reflecting a broader, more centrist alliance that cooperates on trade, growth, and single market policies. Community 2 features ECR alone, suggesting that the conservative and reformist leanings remain tightly cohesive. Finally, Community 3 is made up of The Left, indicating a separate stance on market integration matters that differentiates them from the other blocs.

For Community policies, four major clusters emerge. Community 0 consists of EPP and Renew, forming a pro-integration and centrist-oriented bloc. Community 1 unites The Left, S&D, and Greens/EFA, representing a progressive axis spanning social democrats, leftists, and greens. Community 2 brings together ECR and ID, pointing to a Eurosceptic or conservative stance. Curiously, Community 3 includes another segment of S&D, indicating some internal divergence among social democrats in their stance on community policies.

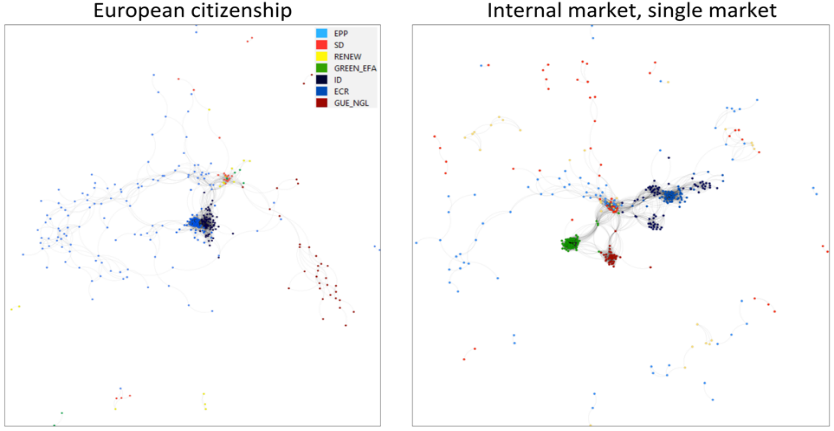
For Economic, social and territorial cohesion, a larger number of communities are detected, which is consistent with the fact that this was one of the most multi-polarized primary subjects. Eight relevant communities were detected in total, reflecting a broader range of nuanced positions. Community 0 is purely EPP, implying a dedicated conservative or center-right stance. Community 1 mixes S&D, Renew, and EPP, showing that some EPP members are more closely aligned with centrist or social-democratic viewpoints on cohesion issues. Community 2 joins ECR and ID, forming a Eurosceptic and more nationalist alliance. Community 3 features Greens/EFA, while Community 4 contains another group of ECR, signifying an internal cleavage and variety of positions among the ECR. Community 5 is S&D alone, Community 6 is only Renew, and Community 7 features The Left.

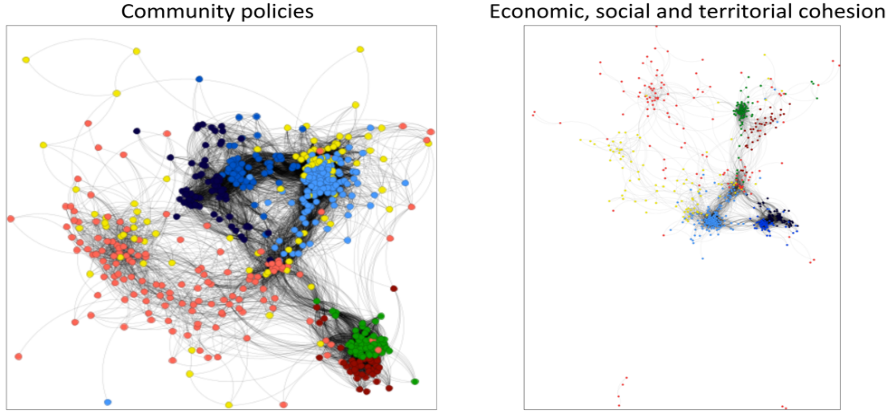
In the External relations of the Union subject, eight communities likewise appear, which is also consistent with the fact that this was one of the most multi-polarized primary subjects. Community 0 comprises S&D, Renew, and EPP, suggesting a cooperative stance among mainstream, pro-EU groupings. Community 1 is another purely EPP contingent, indicating some internal differentiation within the largest center-right party. Community 2 features S&D and Greens/EFA together, illustrating a socially progressive and environmental approach to external relations. Community 3 is S&D once again, implying that social democrats occupy multiple distinct sub-blocs. Community 4 unites ECR and ID, aligning conservative and Eurosceptic elements on foreign policy. Community 5 is exclusively ID, while Community 6 is Renew alone. Finally, Community 7 is The Left, signifying an independent leftist approach.

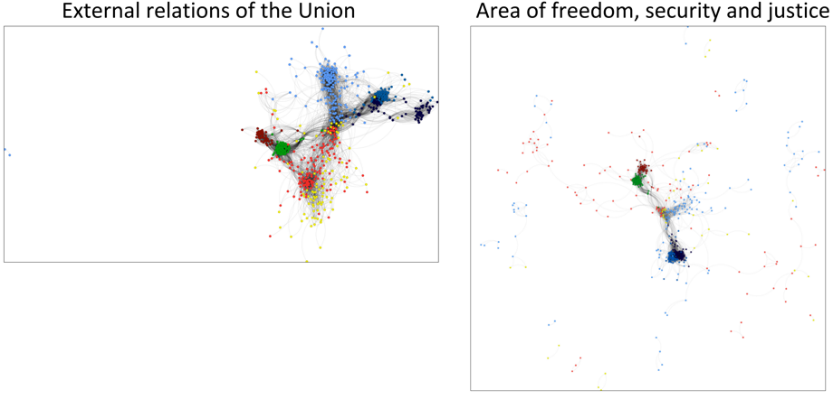
In the Area of freedom, security and justice subject, 4 distinct communities emerge, each aggregating multiple groups. Community 0 clusters EPP, ECR, and ID, highlighting a coalescence of center-right, reformist, and nationalist views. Community 1 fuses S&D, Renew, and a portion of EPP, implying a cross-center and social-democratic blend on freedom and security matters. Community 2 is Greens/EFA alone, reiterating that green and environmental voices remain distinct on these justice issues. Community 3 comprises The Left, capturing a purely leftist stance separate from the other coalitions.

Finally, for State and evolution of the Union, 5 communities materialize. Community 0 gathers S&D and EPP in one alliance, while Community 1 is solely ID, reaffirming the group’s distinct stance. Community 2 features ECR, indicating that ECR MEPs gather under their banner. Community 3 combines S&D, EPP, and Renew, reflecting a mainstream coalition that crosses party lines. Community 4 is yet another cluster of S&D and EPP, reinforcing the idea that moderate pro-integration parties remain somewhat subdivided in their approach, perhaps differentiating on specific bills or ideological nuances regarding further EU integration.

The co-voting networks of all primary subjects are depicted in Figure 5.4.







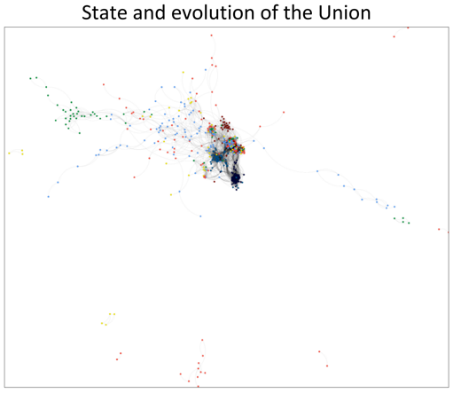


Figure 5.4 – Co-voting networks for all primary subjects

Having examined polarization across the primary legislative subjects, we now refine our analysis by exploring secondary subjects, allowing for an even greater detailed assessment of how (multi)polarization manifests within specific secondary subjects. This level of granularity helps identify whether the broader multi-polarization patterns observed in primary subjects persist or whether distinct voting dynamics emerge in more specialized secondary subjects.

To conduct this analysis, we applied the same methodological approach used previously. We began by computing modularity and assortativity statistics (Table 5.6) to evaluate the degree of group and national alignment within each secondary subject. Additionally, network structural statistics (Table 5.7) will provide further insight into the density, clustering tendencies, number of voting communities, and reliability of the results.

Beyond these statistical indicators, we will analyze the relevant communities’ matrices, which offer a detailed view of how different groups form voting communities within each secondary subject. By examining the internal composition of voting alliances, we aim to determine whether the same dominant political coalitions observed in primary subjects persist or new patterns of collaboration and opposition emerge.

Table 5.6 – Modularities and assortativities for the secondary subjects

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Subject | Optimal modularity | Group modularity | Nationality modularity | Group assortativity | Nationality assortativity |
| Budget of the Union | 0.504 | 0.255 | 0.075 | 0.310 | 0.081 |
| Common foreign and security policy (CFSP) | 0.742 | 0.636 | 0.163 | 0.773 | 0.178 |
| Environmental policy | 0.662 | 0.580 | 0.203 | 0.741 | 0.231 |
| Social policy, social charter and protocol | 0.421 | 0.324 | 0.175 | 0.479 | 0.209 |
| Agricultural policies and economies | 0.396 | 0.290 | 0.072 | 0.442 | 0.080 |
| Relations with third countries | 0.750 | 0.636 | 0.239 | 0.836 | 0.269 |
| Common commercial policy in general | 0.700 | 0.590 | 0.238 | 0.827 | 0.269 |
| Information and communications in general | 0.789 | 0.594 | 0.447 | 0.770 | 0.528 |

Table 5.7 – Structural statistics for the secondary subjects

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Subject | Average clustering coefficient | Network density | Percentage remaining nodes | Total detected communities | Total relevant communities | Number of bills |
| Budget of the Union | 0.682 | 0.103 | 62,6% | 41 | 4 | 394 |
| Common foreign and security policy (CFSP) | 0.603 | 0.044 | 91,9% | 18 | 6 | 247 |
| Environmental policy | 0.618 | 0.054 | 63,0% | 28 | 6 | 155 |
| Social policy, social charter and protocol | 0.595 | 0.074 | 49,6% | 79 | 3 | 124 |
| Agricultural policies and economies | 0.725 | 0.126 | 69,9% | 55 | 3 | 120 |
| Relations with third countries | 0.705 | 0.069 | 44,3% | 16 | 5 | 116 |
| Common commercial policy in general | 0.735 | 0.070 | 43,7% | 14 | 3 | 112 |
| Information and communications in general | 0.726 | 0.056 | 34,1% | 27 | 2 | 102 |

From the modularity, assortativity and structural network statistics we can interpret that the most multi-polarized secondary subjects are Common foreign and security policy, Common commercial policy in general, Relations with third countries and Environmental policy. Meanwhile, Information and communications in general exhibits a significant two-bloc polarization. On the other hand, the most cooperative secondary subjects are Budget of the Union, Agricultural policies and economies and Social policy, social charter and protocol.

As an additional analysis, we compared the network statistics by secondary subject with those obtained for the entire term, assessing the differences, which are presented in Table 5.8.

Table 5.8 – Modularities and assortativities differences between all subjects and secondary subjects

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Subject | Optimal modularity | Group modularity | Nationality modularity | Group assortativity | Nationality assortativity |
| Budget of the Union | -0.016 | -0.151 | 0.034 | -0.202 | 0.037 |
| Common foreign and security policy (CFSP) | 0.222 | 0.23 | 0.122 | 0.261 | 0.134 |
| Environmental policy | 0.142 | 0.174 | 0.162 | 0.229 | 0.187 |
| Social policy, social charter and protocol | -0.099 | -0.082 | 0.134 | -0.033 | 0.165 |
| Agricultural policies and economies | -0.124 | -0.116 | 0.031 | -0.07 | 0.036 |
| Relations with third countries | 0.23 | 0.23 | 0.198 | 0.324 | 0.225 |
| Common commercial policy in general | 0.18 | 0.184 | 0.197 | 0.315 | 0.225 |
| Information and communications in general | 0.269 | 0.188 | 0.406 | 0.258 | 0.484 |

The subjects Budget of the Union, Social policy, social charter and protocol, and Agricultural policies and economies, which we earlier identified as the least multi-polarized secondary subjects, also show lower values of optimal modularity relative to the entire term. In other words, these three subjects exhibit lower multi-polarization than seen in the entire term voting network. Meanwhile, all other secondary subjects surpass the entire term level in terms of multi-polarization, except Information and communications in general, which edges toward two-bloc polarization rather than multi-polarization, owing to its two relevant communities.

From the group perspective, these same three lesser multi-polarized subjects also register a lower group modularity and group assortativity than the entire term. Such a comparative decrease indicates that, in these secondary subjects, group membership exerts a weaker influence on voting patterns than it does in the entire term. By contrast, all other secondary subjects intensify the role of group affiliation in co-voting dynamics.

Regarding MEP nationality, every secondary subject surpasses the entire term-level baseline for nationality modularity and nationality assortativity. While the overall increments remain relatively modest, except in Information and communications in general, where the nationality difference is conspicuously large, this pattern implies that MEPs’ country of origin holds a somewhat more significant role in shaping voting communities than observed in the entire term’s network.

The relevant voting communities for all secondary subjects can be seen in Figure 5.5.

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Figure 5.5 – Group distribution across relevant communities for secondary subjects

The voting communities across secondary subjects follow the same pattern observed in the primary subjects’ community distributions, also reflecting a notable deviation from the communities that emerge when considering all subjects. However, most of the same alliances in the primary subjects persist in the secondary subjects, with a few notable exceptions: the triple synergy among The Left, S&D and Greens/EFA; the alliance between S&D and Greens/EFA; and the triple synergy among S&D, Renew and EPP – all of which are absent from every secondary subject.

The co-voting networks of all secondary subjects are depicted in Appendix D.

# Conclusions and Future Research

This study aimed to investigate how (multi)polarization unfolds within the EP by examining both the entire 9th term’s (2019-2024) voting network and a range of legislative subjects. To accomplish this, we adopted the SDSM methodology for constructing co-voting networks, leveraging the backbone package, and subsequently analyzed ten key network statistics: optimal modularity, group modularity, nationality modularity, group assortativity, nationality assortativity, average clustering coefficient, network density, percentage of remaining nodes, total detected communities and total relevant communities.

Through this framework, our first research objective was to identify the legislative subjects with the highest levels of (multi)polarization and those with the greatest multi-group cooperation.

Among the primary subjects, **External relations of the Union**, **Internal market, single market**, and **Economic, social and territorial cohesion** consistently demonstrated higher multi-polarization, with group alignment playing a strong role. By contrast, **European citizenship** and **Community policies** emerged as the primary subjects that fostered the most cross-group collaboration. A special scenario arises in **State and evolution of the Union**, dealing with deeper EU integration, where the central cleavage appears to be between Eurosceptics and Euroenthusiasts rather than between conventional group lines.

In the secondary subjects, **Common Foreign and Security Policy**, **Common Commercial Policy in General**, **Relations with Third Countries**, and **Environmental Policy** exhibited pronounced multi-polarization predominantly shaped by group allegiance, while **Information and Communications in General** displayed a two-bloc polarized configuration. On the cooperative side, **Budget of the Union**, **Agricultural Policies and Economies**, and **Social Policy, Social Charter and Protocol** stood out for their lower multi-polarization and broader cross-group alliances.

Addressing the second research objective, identifying the composition of voting communities in the entire term and by subject, we used a threshold of thirty MEPs to filter out smaller connected components and communities. After removing sub-threshold components, we applied the Louvain community detection algorithm (resolution = 0.5) to each network.

At the entire term level, four main alliances emerged: **EPP and Renew**, **S&D and Renew**, **ECR and ID**, and **The Left with Greens/EFA**. Examining each primary and selected secondary subject revealed that group compositions vary considerably across policy areas. In certain subjects ECR and ID cluster together, in others S&D, EPP, and Renew build joint blocs. Sometimes the entire left (including the center-left) coalesces, while there are also highly fragmented subjects where virtually every community is composed of one single group. It is also possible to find Renew, EPP, and ECR all integrating the same community and there are subjects where Greens align with The Left in a unified left-leaning coalition. EPP, S&D and Renew, appear prone to splits, associating with different group blocs depending on the specific policy domain. By contrast, The Left and Greens/EFA displayed consistently high internal cohesion, frequently congregating in their own community.

As a general conclusion and responding to the research question, we can draw that the entire term’s network has a moderately multi-polarized structure overall, whereas many subjects intensify multi-polarization along group affiliations. Still, certain subjects, especially those dealing with European citizenship, community policies, budgetary, agricultural, or social policies, allow more cross-group collaboration. Moreover, consistent with the reviewed literature on previous EP terms, we have evidence that MEP nationality plays a reduced role in shaping voting communities.

However, several limitations might constrain these conclusions. First, the number of bills per subject varies widely, potentially reducing the reliability of results for subjects with fewer bills. Second, by focusing on only one legislative term, our dataset yields sparser communities for the subjects that are less represented, so the interpretation of their communities must be treated with caution. Third, for detecting relevant communities and computing optimal modularities, we relied on the Louvain community detection algorithm alone. A more robust approach would combine multiple community detection algorithms and aggregate the results. Fourth, the choice of a 30-MEP threshold, although justified by considerations of group size, may bias the configuration of relevant communities. Experimenting with alternative thresholds and aggregating the results could yield more comprehensive insights. Finally, when obtaining the relevant communities, our use of the Louvain resolution parameter fixed at 0.5 favored broad communities. Different resolution values might produce divergent relevant communities, warranting future experimentation with different resolution values.

Looking ahead, future research should replicate and extend this analysis as more legislative terms become available, particularly the forthcoming 10th term. HowTheyVote.eu continues to collect roll-call voting data, thereby enabling a longitudinal perspective on how (multi)polarization in the EP might evolve. Conducting the same study in a multi-term context would help clarify whether the patterns observed here reflect short-term political circumstances or represent more stable, ongoing realignments within the EP. By deepening our understanding of these dynamics, policymakers, and scholars can better anticipate legislative coalitions, manage potential polarization, and foster more effective, inclusive governance across the EU.

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# Appendix A

**The composition and functioning of the EP**

Before delving into the data and methodologies employed in this study, it is essential to contextualize the institutional framework within which this study is situated, specifically the EP.

**The role and institutional framework of the EP**

The EP is the only directly elected supranational institution within the EU and serves as its legislative branch. It plays a central role in the EU's political system, exercising law-making, budgetary, and oversight functions. Since 1979, it has been elected every five years through universal suffrage, granting every EU citizen voting rights, regardless of their country of residence.

Currently with 720 MEPs (10th term), representing approximately 450 million citizens and an electorate of roughly 375 million, the EP constitutes the world’s largest supranational parliamentary body. Regarding voter base, it ranks second only to India in size. Over the years, the EP has undergone significant institutional evolution, transforming from a consultative assembly into a fully-fledged legislative authority whose influence extends across virtually all policy areas of the EU.

**Legislative powers and functions**

The powers of the EP can be broadly categorized into six domains.

Legislation: The EP, alongside the Council of the EU, co-legislates on a wide array of policies, primarily through the Ordinary Legislative Procedure, formerly known as the co-decision process. Budgetary Authority: The EP shares responsibility with the Council over the approval and oversight of the EU budget, playing a critical role in financial governance. Executive Oversight: The EP exercises democratic control over the European Commission, including the power to approve or dismiss the Commission through a vote of confidence. External Relations: The EP engages in foreign policy discussions, participates in trade agreement ratifications, and upholds human rights and democracy in global affairs. Constitutional Affairs: It contributes to treaty revisions, institutional reforms, and the broader shaping of EU governance. Agenda-Setting: Although the European Commission holds the formal right of initiative in legislative proposals, the EP influences policy priorities through resolutions and political debates.

**Election process and political organization**

Elections to the EP are organized at the national level, with each member state electing MEPs through a proportional representation system. The number of seats allocated to each country is roughly proportional to its population, though smaller states benefit from degressive proportionality, ensuring that they are overrepresented relative to their population size.

For instance, Germany, the EU’s most populous country, elects 96 MEPs, while smaller states like Cyprus, Luxembourg, and Malta each have 6 MEPs. This system ensures that even the smallest member states maintain a significant voice in the legislative process.

Despite the elections being held at the national level, once elected, MEPs do not sit according to their nationality but instead organize themselves into transnational political groups based on ideological affiliation. These groups are composed of MEPs from different national parties across the EU.

The nomination process for European elections remains controlled by national parties, meaning that candidates must secure the backing of their domestic political parties. This link between national and European politics ensures that MEPs maintain a degree of accountability to their domestic political landscapes, particularly if they intend to transition back into national-level politics in the future.

The EP’s institutional structure is unique in the way it blends national electoral dynamics with supranational legislative cooperation. It has evolved into a pivotal decision-making body within the EU, exerting significant influence over law-making, budgetary allocations, and democratic oversight. As this study examines legislative behavior within the EP, understanding its composition and functioning provides a necessary backdrop for the analysis that follows.

**The EP in the 9th parliamentary term**

This study focuses on the 9th term of the EP (2019–2024), a period marked by profound institutional and geopolitical transformations within the EU.

One of the most defining events of this term was Brexit, which led to the withdrawal of the UK from the EU on February 1, 2020. This altered the EP's composition and had far-reaching implications for the European political landscape.

Additionally, this parliamentary term coincided with two major global crises that significantly shaped the EU’s legislative priorities and economic policies:

The COVID-19 pandemic (2020–2022): The outbreak of the coronavirus pandemic triggered an unprecedented public health and economic crisis, leading the EP to adopt emergency measures, including the NextGenerationEU recovery fund, to support member states in mitigating the economic fallout.

The global inflation crisis (2021–2023): The post-pandemic recovery, coupled with supply chain disruptions and the geopolitical consequences of the Russian invasion of Ukraine (2022), led to record-high inflation levels across the EU, forcing the EP to play a central role in shaping fiscal and monetary policy responses.

**Institutional changes and Brexit’s impact on the composition of the EP**

At the start of the 9th parliamentary term on July 2, 2019, the EP was composed of 751 MEPs, following the provisions of the Treaty of Lisbon. However, with the withdrawal of the UK from the EU in February 2020, the EP underwent a structural reconfiguration, reducing its total number of seats to 705 MEPs.

The redistribution of seats following Brexit was based on two key principles:

* Abolition of the UK’s 73 seats: The departure of UK MEPs resulted in a significant political realignment within the EP, affecting the balance of power among the political groups.
* Partial reallocation of 27 seats to other EU member states: To improve proportional representation, 14 EU member states received additional seats, while the remaining 46 seats were left vacant, ensuring flexibility for potential future enlargements of the EU.

As a result, the composition of the EP before and after Brexit was as follows:

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Os conteúdos gerados por IA poderão estar incorretos.

**Political formation of the EP**

During the 9th term of the EP, MEPs were organized into seven distinct parliamentary groups, each representing a coalition of national parties with shared ideological and policy orientations. Additionally, there were several NI members who did not affiliate with any official group. Below is an overview of these parliamentary groups (and the set of NI MEPs) and their ideological positioning:

EPP - European People’s Party Group

The EPP is the largest and most influential group in the EP. It brings together Christian democratic, conservative, and center-right parties from across the EU, that support greater EU integration while balancing national sovereignty. It advocates a strong single market, ensuring fair competition, consumer protection, and digital innovation to enhance the EU’s competitiveness. On migration and security, the EPP promotes stronger border controls, increased cooperation with third countries, and a reformed asylum system, aiming to strengthen EU security while allowing controlled legal migration. It also supports Schengen improvements and EU-wide police cooperation. Economically, the EPP pushes for fiscal discipline, tax harmonization, and stronger EU financial mechanisms, reinforcing the Eurozone’s stability. It also prioritizes economic cohesion by investing in infrastructure and employment, reducing regional disparities. In foreign relations, the EPP favors EU enlargement, stronger global partnerships, and a common security policy. On governance, the EPP backs more power for the EP, deeper institutional cooperation, and treaty reforms to make decision-making more efficient. Overall, the EPP’s policies support deeper European integration, strengthening economic, political, and security ties while maintaining some national flexibility.

*In:* [*https://www.eppgroup.eu/*](https://www.eppgroup.eu/)

S&D - Progressive Alliance of Socialists and Democrats

The S&D is the second-largest group in the EP. It is composed of social democratic, socialist, and labor parties, advocating for social justice, workers' rights, and a balanced approach between economic growth and social protection. S&D in the EP is a pro-integration, center-left group that prioritizes social justice, economic equality, and stronger EU cooperation. On migration, it advocates a fair and humane asylum system, ensuring solidarity among EU member states and opposing strict border policies. In the single market, S&D pushes for workers’ rights, consumer protections, and fair trade, while supporting regulations on big corporations to promote fairness. Economically, S&D favors progressive taxation, strong social protections, and EU-wide policies to reduce inequality. It supports a stronger Eurozone and economic policies that prioritize public investment over austerity. The group also champions regional development to close economic gaps between richer and poorer member states. In foreign relations, S&D supports EU enlargement, global human rights, and fair trade policies. On security and justice, it promotes civil liberties, cooperation in law enforcement, and the protection of fundamental rights. S&D strongly backs deeper European integration, advocating for more power to EU institutions, stronger social policies, and a united foreign policy. Its vision fosters a more cohesive, socially responsible, and fair EU, reinforcing common European values like democracy, equality, and solidarity.

In: <https://www.socialistsanddemocrats.eu/>

Renew - Renew Europe

The Renew Europe group, formerly known as the Alliance of Liberals and Democrats for Europe, represents liberal and centrist political forces in the EP. It promotes pro-European integration policies, market-friendly economic reforms, and civil liberties. On migration, Renew advocates a fair but effective asylum system, balancing strong border management with human rights protections. It promotes EU-wide coordination on migration and asylum to ensure solidarity between member states. In the single market, Renew pushes for full economic integration, fair competition, and digital innovation. It supports consumer rights, free trade, and labor mobility, ensuring mutual recognition of qualifications across Europe. Regarding EU institutions, Renew favors stronger democratic accountability and more power for the EP. Economically, Renew backs the Eurozone, harmonized tax policies, and investments in infrastructure and education to drive innovation and equal opportunities. It also promotes private sector growth alongside public investment. In foreign policy, Renew supports EU enlargement, a common defense policy, and global human rights advocacy. Overall, Renew strongly supports deeper European integration, advocating for a federalist, united, and efficient EU. Its policies reinforce economic, political, and social cohesion, ensuring that the EU is stronger, fairer, and more globally influential.

*In:* [*https://www.reneweuropegroup.eu/*](https://www.reneweuropegroup.eu/)

Greens/EFA - The Greens/European Free Alliance

The Greens/European Free Alliance consists of green parties and environmentalists and is a pro-European, progressive group in the EP that focuses on climate action, social justice, and democracy. On migration, Greens/EFA supports humane asylum policies, fair distribution of refugees, and stronger integration efforts, rejecting strict border controls. In the single market, it promotes green and fair trade, stronger consumer rights, and corporate accountability to protect workers and the environment. Regarding EU institutions, Greens/EFA pushes for more transparency and democratic reforms, giving more power to the EP. It also supports treaty changes to reinforce climate and social commitments. Economically, the group favors fair taxation, tackling corporate tax evasion, and investing in sustainable industries. It promotes regional development and social protections to reduce economic inequality. In foreign policy, Greens/EFA advocates fair trade, human rights, and climate diplomacy, opposing arms sales to authoritarian regimes. On justice and security, it prioritizes human rights, pushing for reforms to EU border control agencies like Frontex. Greens/EFA strongly supports deeper European integration, emphasizing stronger institutions, common environmental policies, and social justice. Its vision fosters a more sustainable, democratic, and united EU, reinforcing EU values of human rights, fairness, and environmental protection.

*In:* [*https://www.greens-efa.eu/en/*](https://www.greens-efa.eu/en/)

The Left - The Left in the European Parliament

The Left in the European Parliament, previously known as the European United Left/Nordic Green Left (GUE/NGL) before January 2021 (which is how it is labeled in this study’s dataset) is a left-wing to far-left parliamentary group that advocates radical social policies, wealth redistribution, and opposition to austerity measures. It is a progressive group that prioritizes workers’ rights, social justice, and environmental sustainability while opposing corporate influence in EU policies. On migration, it supports humane asylum policies, fair distribution of refugees, and strong anti-discrimination measures, promoting solidarity among member states. In the single market, The Left advocates strong consumer rights, public services protection, and fair labor conditions opposing privatization and deregulation. Regarding EU institutions, The Left seeks more democratic transparency and citizen participation, but criticizes EU neoliberal economic policies, calling for greater control over multinational corporations. It promotes a fairer economic system, backing progressive taxation, wealth redistribution, and stronger labor protections to reduce inequality across the EU. In foreign policy, it supports international cooperation, and fair trade agreements, opposing militarization and arms sales. On security and justice, it defends civil liberties while advocating human rights-based law enforcement. The Left demands reforms to make the EU more social, democratic, and sustainable. Its vision reinforces common European values of equality, social justice, and human rights while opposing policies that prioritize economic elites over citizens.

*In:* [*https://left.eu/*](https://left.eu/)

ECR - European Conservatives and Reformists Group

The ECR is a center-right to right-wing group that supports national sovereignty, a decentralized EU, economic freedom, and free-market principles. It positions itself as an alternative to federalist visions of the EU, advocating economic liberalization and stricter migration policies. On migration, ECR supports strong national control, rejecting an EU-wide asylum system and pushing for stricter border policies. In the single market, it advocates free trade and deregulation, opposing excessive EU intervention in national economies. Regarding EU institutions, ECR rejects further EU integration, calling for more national decision-making and treaty reforms to return powers to member states. It opposes a federalist EU and favors a flexible Europe of nations. Economically, ECR promotes low taxes, fiscal responsibility, and reduced EU control over budgets. It criticizes the European Central Bank and opposes EU taxation. On foreign relations, it supports bilateral agreements over centralized EU policies. In security and justice, ECR favors strong border controls and national sovereignty over law enforcement, rejecting EU-wide judicial harmonization. ECR’s position leads to less European integration, prioritizing national independence over collective EU decision-making. It opposes deeper political unification, emphasizing a looser EU where member states maintain control over key policies, aligning with conservative and Eurosceptic values.

*In:* [*https://www.ecrgroup.eu/*](https://www.ecrgroup.eu/)

ID - Identity and Democracy

ID was a far-right, nationalist, and Eurosceptic political group that promoted stricter immigration policies, national sovereignty, opposition to deeper EU integration, and economic protectionism. On migration, ID called for strong national control over borders, rejecting EU-led asylum policies and mandatory refugee quotas. In the single market, it promoted economic protectionism, opposing EU regulations and the European Green Deal, which it sees as harmful to national industries. Regarding EU institutions, ID rejects greater power for the EP, advocating a looser EU where member states decide independently. It opposes EU cohesion funds, arguing that economic policies should be nationally controlled. ID also opposes EU taxation and fiscal integration, criticizing the European Central Bank and calling for national control over financial policies. In foreign policy, it rejects EU-wide coordination, preferring bilateral agreements and strong national defense policies. ID’s stance weakens European integration, advocating less power to EU institutions and greater national autonomy. Its vision promotes economic nationalism and strict border control, challenging EU values of unity, cooperation, and solidarity while prioritizing national interests over collective EU policies.

As of the EP’s 10th term, the ID group ceased to exist and was replaced by a new political formation, named the Patriots for Europe group. This new group continues to advocate for nationalism, Euroscepticism, and opposition to deeper European integration, bringing together various right-wing and populist parties across Europe.

*In:* [*https://patriots.eu/home*](https://patriots.eu/home)

[*https://political.party/id-european-parliament-elections/*](https://political.party/id-european-parliament-elections/)

NI - Non-attached members

NI members are MEPs who do not belong to any of the recognized parliamentary groups. They can be independent politicians, members of national parties that do not align with existing groups, or representatives of extremist movements that are excluded from those groups.

The composition of the EP during its 9th term experienced notable changes between its commencement and conclusion, primarily due to the UK's withdrawal from the EU (Brexit) on 31 January 2020 and from MEP group changes.

Initial Composition (2 July 2019): At the outset, the EP comprised 751 MEPs distributed among seven political groups and NI MEPs.

Uma imagem com texto, captura de ecrã, diagrama

Os conteúdos gerados por IA poderão estar incorretos.

By the end of the term, the composition evolved due to various factors. These included national elections (since MEPs often interrupt their EP terms to serve in national governments), national party realignments, and individual MEPs changing affiliations. The final seat distribution was as follows.

Uma imagem com texto, captura de ecrã, diagrama

Os conteúdos gerados por IA poderão estar incorretos.

# Appendix B

**HowTheyVote.eu**

HowTheyVote.eu is a platform dedicated to enhancing the transparency and accessibility of the EP’s voting records. It serves citizens, journalists, researchers, and activists by providing detailed insights into how MEPs cast their votes.

The platform focuses on roll-call votes, where individual MEPs' votes are recorded and published. Not all parliamentary votes are roll-call: some are conducted via a show of hands or are secret and thus are not included in the platform's database. HowTheyVote.eu collects data in an automated manner, updating multiple times per day during plenary sessions. We collected data on each roll-call vote in the 9th term of the EP.

**Legislative Observatory of the EP**

The Legislative Observatory of the EP is an official online platform that tracks the legislative process within the EU. It is managed by the EP’s Directorate for Legislative Acts and provides detailed, real-time information on legislative proposals, their progress, and related documents.

It provides detailed documentation, compiling references to legislative texts, proposed amendments, committee reports, plenary votes, and interinstitutional negotiations. Moreover, the Legislative Observatory of the EP classifies legislation into policy areas such as the economy, environment, foreign affairs, and social policy, allowing for subject analysis of legislative activity. It also incorporates an interinstitutional perspective, mapping the interactions between the European Commission, the EP, and the Council of the EU to offer insights into how EU institutions collaborate and negotiate legislative outcomes. Additionally, the platform provides access to historical data, enabling users to explore legislative archives and analyze voting trends over time.

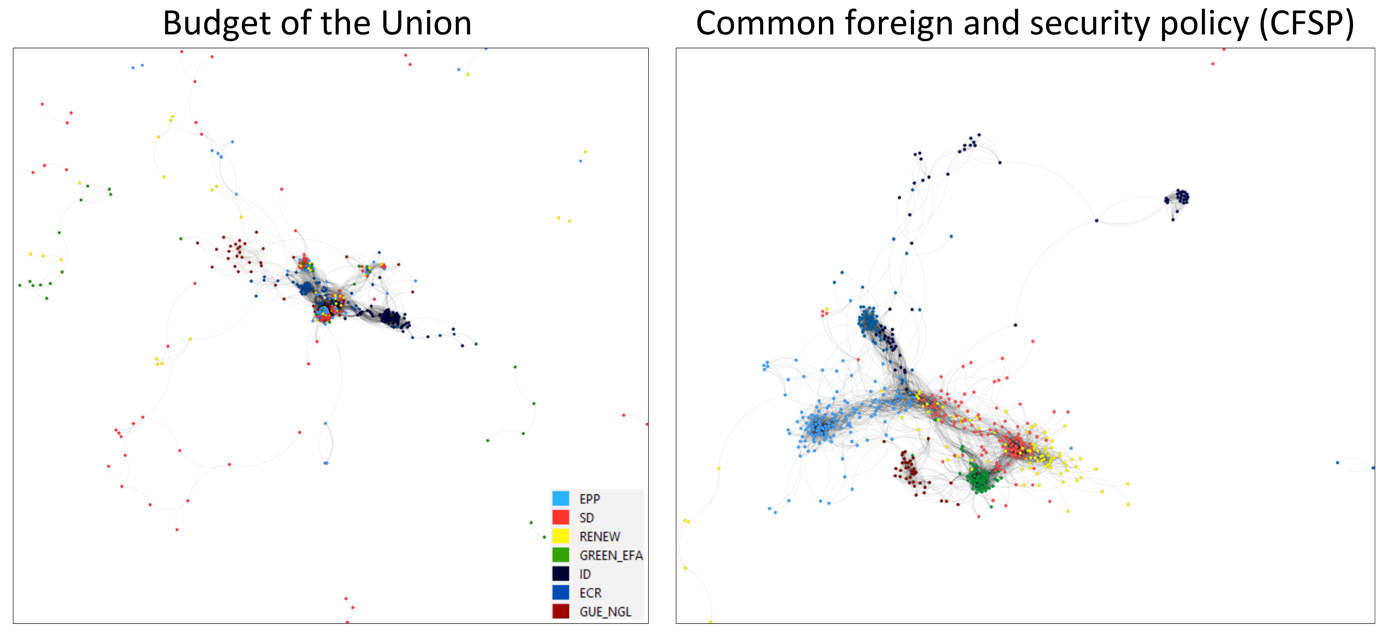
We used the Legislative Observatory to extract each bill's legislative subject(s), an essential step in developing this study.

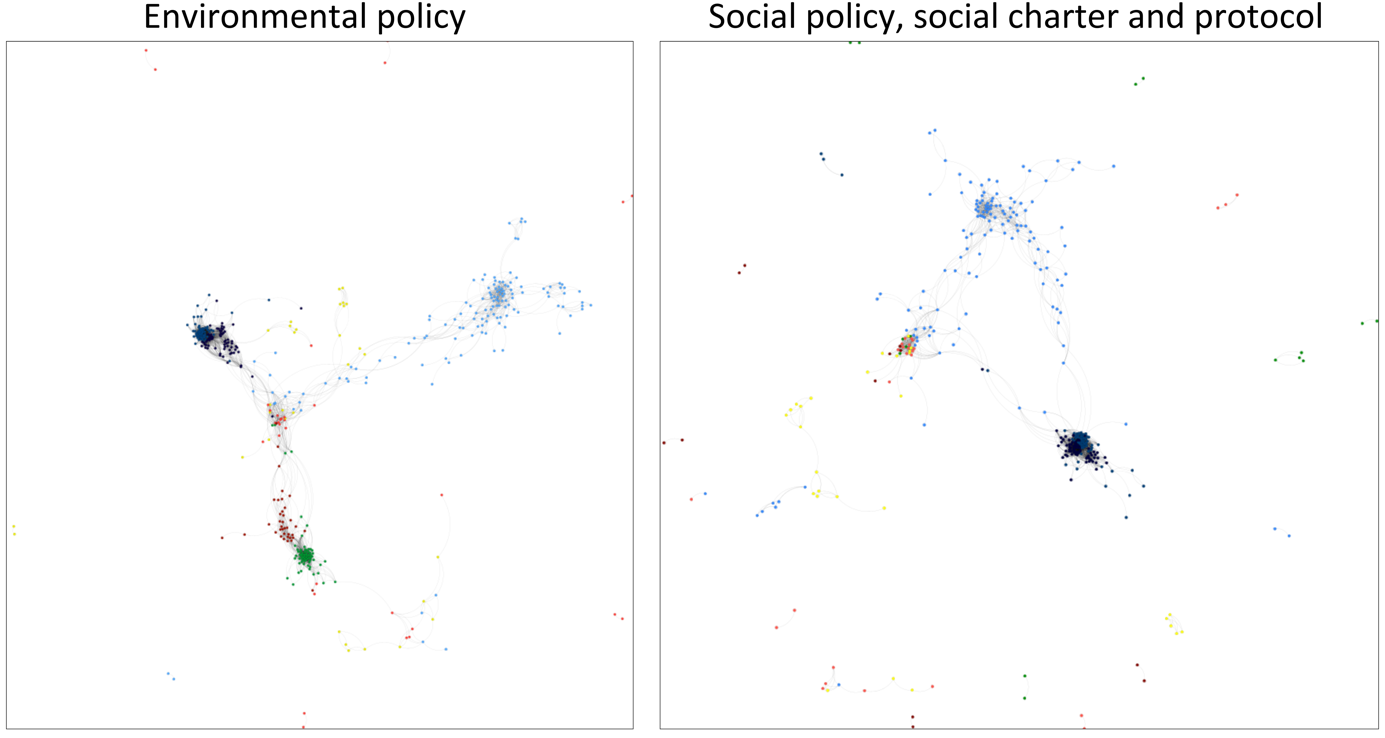
Each legislative proposal, whether initiated by the European Commission, MEPs, or other EU institutions, is assigned to one or more predefined subjects. These subjects allowed us to organize and track the evolution of the legislation process across different domains, facilitating specialized analysis.

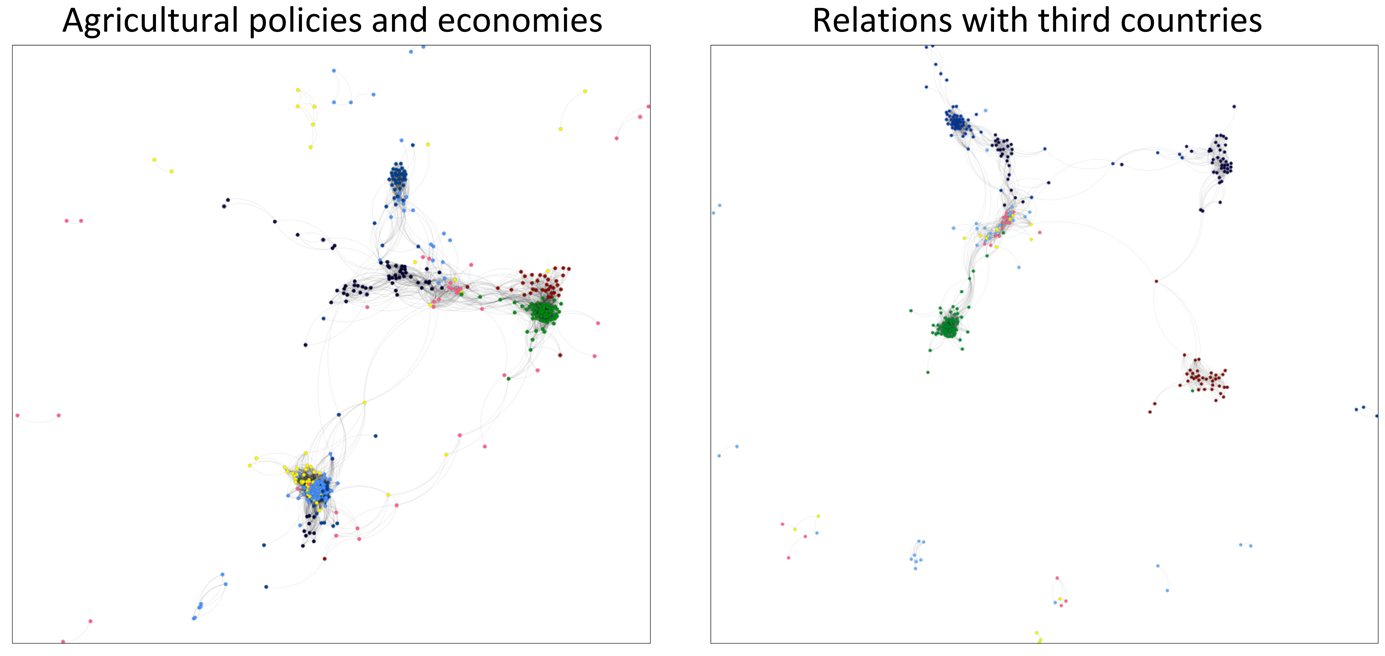
# Appendix C

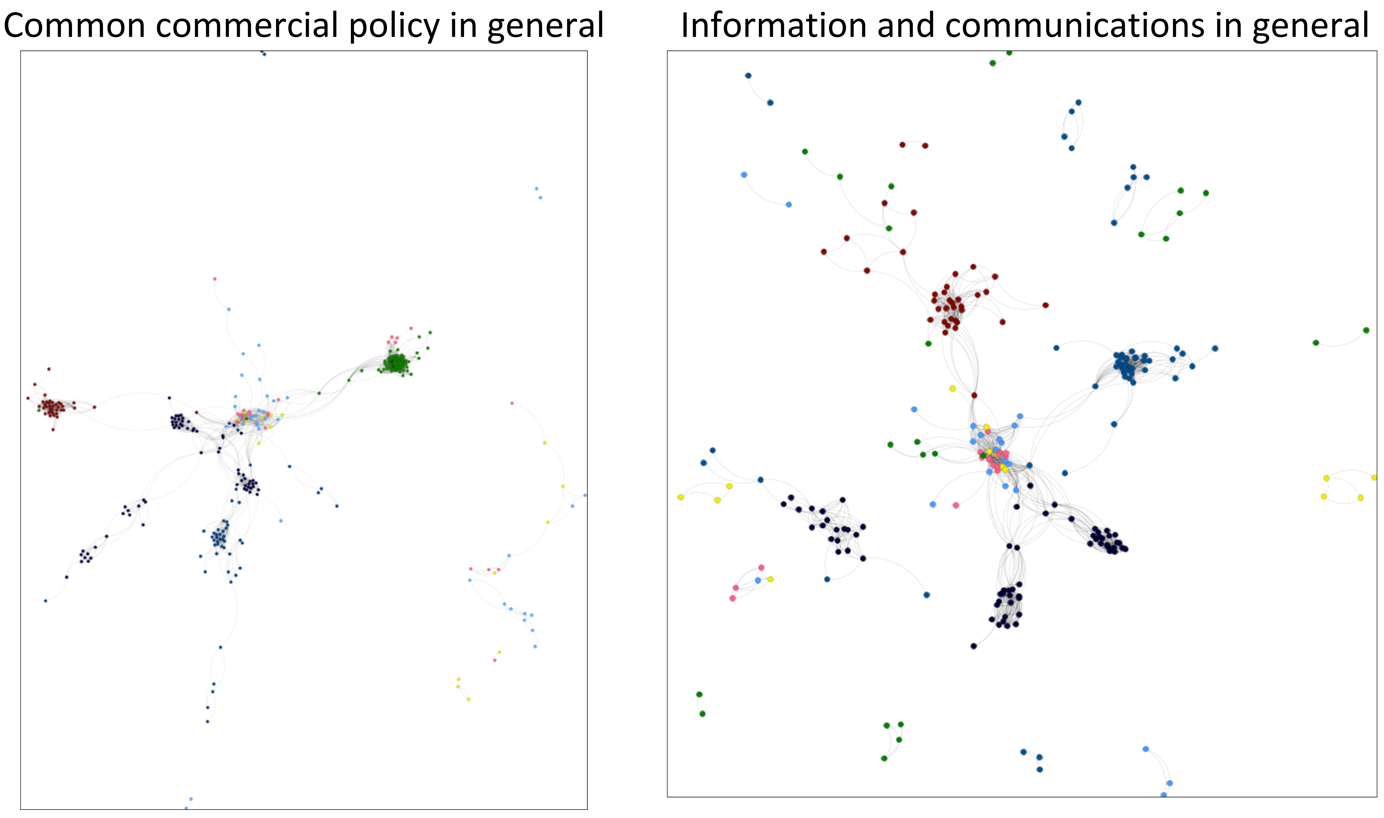
|  |  |  |
| --- | --- | --- |
| **Primary Subject** | **Secondary Subject** | **Tertiary Subject** |
| 1. European citizenship | 1.10 Fundamental rights in the EU, Charter |  |
| 1. European citizenship | 1.20 Citizen’s rights | 1.20.01 Political rights, right to vote and to stand in elections |
| 1. European citizenship | 1.20 Citizen’s rights | 1.20.02 Social and economic rights |
| 1. European citizenship | 1.20 Citizen’s rights | 1.20.03 Right of petition |
| 1. European citizenship | 1.20 Citizen’s rights | 1.20.04 European Ombudsman |
| 1. European citizenship | 1.20 Citizen’s rights | 1.20.05 Public access to information and documents, administrative practice |
| 1. European citizenship | 1.20 Citizen’s rights | 1.20.09 Protection of privacy and data protection |
| 1. European citizenship | 1.20 Citizen’s rights | 1.20.20 Diplomatic and consular protection |
| 2. Internal market, single market | 2.10 Free movement of goods | 2.10.01 Customs union, tax and duty-free, Community transit |
| 2. Internal market, single market | 2.10 Free movement of goods | 2.10.02 Public procurement |
| 2. Internal market, single market | 2.10 Free movement of goods | 2.10.03 Standardisation, EC/EU standards and trade mark, certification, compliance |
| 2. Internal market, single market | 2.20 Free movement of persons | 2.20.01 Freedom of movement, right of residence, identity checks |
| 2. Internal market, single market | 2.30 Free movement of workers |  |
| 2. Internal market, single market | 2.40 Free movement of services, freedom to provide | 2.40.02 Public services, of general interest, universal service |
| 2. Internal market, single market | 2.50 Free movement of capital | 2.50.02 Savings |
| 2. Internal market, single market | 2.50 Free movement of capital | 2.50.03 Securities and financial markets, stock exchange, CIUTS, investments |
| 2. Internal market, single market | 2.50 Free movement of capital | 2.50.04 Banks and credit |
| 2. Internal market, single market | 2.50 Free movement of capital | 2.50.05 Insurance, pension funds |
| 2. Internal market, single market | 2.50 Free movement of capital | 2.50.08 Financial services, financial reporting and auditing |
| 2. Internal market, single market | 2.50 Free movement of capital | 2.50.10 Financial supervision |
| 2. Internal market, single market | 2.60 Competition | 2.60.01 Trade restrictions, concerted practices, dominant positions |
| 2. Internal market, single market | 2.60 Competition | 2.60.03 State aids and interventions |
| 2. Internal market, single market | 2.70 Taxation | 2.70.01 Direct taxation |
| 2. Internal market, single market | 2.70 Taxation | 2.70.02 Indirect taxation, VAT, excise duties |
| 2. Internal market, single market | 2.80 Cooperation between administrations |  |
| 3. Community policies | 3.10 Agricultural policy and economies | 3.10.01 Agricultural structures and holdings, farmers |
| 3. Community policies | 3.10 Agricultural policy and economies | 3.10.02 Processed products, agri-foodstuffs |
| 3. Community policies | 3.10 Agricultural policy and economies | 3.10.03 Marketing and trade of agricultural products and livestock |
| 3. Community policies | 3.10 Agricultural policy and economies | 3.10.04 Livestock farming |
| 3. Community policies | 3.10 Agricultural policy and economies | 3.10.05 Livestock products, in general |
| 3. Community policies | 3.10 Agricultural policy and economies | 3.10.06 Crop products in general, floriculture |
| 3. Community policies | 3.10 Agricultural policy and economies | 3.10.07 Animal and vegetable fats, oils |
| 3. Community policies | 3.10 Agricultural policy and economies | 3.10.08 Animal health requirements, veterinary legislation and pharmacy |
| 3. Community policies | 3.10 Agricultural policy and economies | 3.10.09 Plant health legislation, organic farming, agro-genetics in general |
| 3. Community policies | 3.10 Agricultural policy and economies | 3.10.10 Foodstuffs, foodstuffs legislation |
| 3. Community policies | 3.10 Agricultural policy and economies | 3.10.11 Forestry policy |
| 3. Community policies | 3.10 Agricultural policy and economies | 3.10.12 Agrimonetary policy, compensatory amounts |
| 3. Community policies | 3.10 Agricultural policy and economies | 3.10.13 European Agricultural Guidance and Guarantee Fund, EAGGF and EAGF |
| 3. Community policies | 3.10 Agricultural policy and economies | 3.10.14 Support for producers and premiums |
| 3. Community policies | 3.10 Agricultural policy and economies | 3.10.30 Agricultural statistics |
| 3. Community policies | 3.15 Fisheries policy | 3.15.01 Fish stocks, conservation of fishery resources |
| 3. Community policies | 3.15 Fisheries policy | 3.15.02 Aquaculture |
| 3. Community policies | 3.15 Fisheries policy | 3.15.04 Management of fisheries, fisheries, fishing grounds |
| 3. Community policies | 3.15 Fisheries policy | 3.15.05 Fish catches, import tariff quotas |
| 3. Community policies | 3.15 Fisheries policy | 3.15.06 Fishing industry and statistics, fishery products |
| 3. Community policies | 3.15 Fisheries policy | 3.15.07 Fisheries inspectorate, surveillance of fishing vessels and areas |
| 3. Community policies | 3.15 Fisheries policy | 3.15.08 Fishing enterprises, fishermen, working conditions on board |
| 3. Community policies | 3.15 Fisheries policy | 3.15.15 Fisheries agreements and cooperation |
| 3. Community policies | 3.15 Fisheries policy | 3.15.17 European Maritime and Fisheries Fund (EMFF) |
| 3. Community policies | 3.20 Transport policy in general | 3.20.01 Air transport and air freight |
| 3. Community policies | 3.20 Transport policy in general | 3.20.02 Rail transport: passengers and freight |
| 3. Community policies | 3.20 Transport policy in general | 3.20.03 Maritime transport: passengers and freight |
| 3. Community policies | 3.20 Transport policy in general | 3.20.04 Inland waterway transport |
| 3. Community policies | 3.20 Transport policy in general | 3.20.05 Road transport: passengers and freight |
| 3. Community policies | 3.20 Transport policy in general | 3.20.06 Transport regulations, road safety, roadworthiness tests, driving licence |
| 3. Community policies | 3.20 Transport policy in general | 3.20.07 Combined transport, multimodal transport |
| 3. Community policies | 3.20 Transport policy in general | 3.20.08 Urban transport |
| 3. Community policies | 3.20 Transport policy in general | 3.20.09 Ports policy |
| 3. Community policies | 3.20 Transport policy in general | 3.20.10 Transport undertakings, transport industry employees |
| 3. Community policies | 3.20 Transport policy in general | 3.20.11 Trans-European transport networks |
| 3. Community policies | 3.20 Transport policy in general | 3.20.15 Transport agreements and cooperation |
| 3. Community policies | 3.20 Transport policy in general | 3.20.20 Transport statistics |
| 3. Community policies | 3.30 Information and communications in general | 3.30.01 Audiovisual industry and services |
| 3. Community policies | 3.30 Information and communications in general | 3.30.02 Television, cable, digital, mobile |
| 3. Community policies | 3.30 Information and communications in general | 3.30.03 Telecommunications, data transmission, telephone |
| 3. Community policies | 3.30 Information and communications in general | 3.30.04 Radiocommunications, broadcasting |
| 3. Community policies | 3.30 Information and communications in general | 3.30.05 Electronic and mobile communications, personal communications |
| 3. Community policies | 3.30 Information and communications in general | 3.30.06 Information and communication technologies, digital technologies |
| 3. Community policies | 3.30 Information and communications in general | 3.30.07 Cybersecurity, cyberspace policy |
| 3. Community policies | 3.30 Information and communications in general | 3.30.08 Press, media freedom and pluralism |
| 3. Community policies | 3.30 Information and communications in general | 3.30.09 Postal services, parcel delivery services |
| 3. Community policies | 3.30 Information and communications in general | 3.30.16 Ethical information policy |
| 3. Community policies | 3.30 Information and communications in general | 3.30.20 Trans-European communications networks |
| 3. Community policies | 3.30 Information and communications in general | 3.30.25 International information networks and society, internet |
| 3. Community policies | 3.40 Industrial policy | 3.40.01 Chemical industry, fertilizers, plastics |
| 3. Community policies | 3.40 Industrial policy | 3.40.02 Iron and steel industry, metallurgical industry |
| 3. Community policies | 3.40 Industrial policy | 3.40.03 Motor industry, cycle and motorcycle, commercial and agricultural vehicles |
| 3. Community policies | 3.40 Industrial policy | 3.40.04 Shipbuilding, nautical industry |
| 3. Community policies | 3.40 Industrial policy | 3.40.05 Aeronautical industry, aerospace industry |
| 3. Community policies | 3.40 Industrial policy | 3.40.06 Electronics, electrotechnical industries, ICT, robotics |
| 3. Community policies | 3.40 Industrial policy | 3.40.07 Building industry |
| 3. Community policies | 3.40 Industrial policy | 3.40.08 Mechanical engineering, machine-tool industry |
| 3. Community policies | 3.40 Industrial policy | 3.40.09 Defence and arms industry |
| 3. Community policies | 3.40 Industrial policy | 3.40.10 Textile and clothing industry, leathers |
| 3. Community policies | 3.40 Industrial policy | 3.40.11 Precision engineering, optics, photography, medical |
| 3. Community policies | 3.40 Industrial policy | 3.40.12 Luxury products industry, cosmetics |
| 3. Community policies | 3.40 Industrial policy | 3.40.13 Food industry |
| 3. Community policies | 3.40 Industrial policy | 3.40.14 Industrial competitiveness |
| 3. Community policies | 3.40 Industrial policy | 3.40.16 Raw materials |
| 3. Community policies | 3.40 Industrial policy | 3.40.17 Manufactured goods |
| 3. Community policies | 3.40 Industrial policy | 3.40.18 Services sector |
| 3. Community policies | 3.45 Enterprise policy, inter-company cooperation | 3.45.01 Company law |
| 3. Community policies | 3.45 Enterprise policy, inter-company cooperation | 3.45.02 Small and medium-sized enterprises (SME), craft industries |
| 3. Community policies | 3.45 Enterprise policy, inter-company cooperation | 3.45.03 Financial management of undertakings, business loans, accounting |
| 3. Community policies | 3.45 Enterprise policy, inter-company cooperation | 3.45.04 Company taxation |
| 3. Community policies | 3.45 Enterprise policy, inter-company cooperation | 3.45.05 Business policy, e-commerce, after-sales service, commercial distribution |
| 3. Community policies | 3.45 Enterprise policy, inter-company cooperation | 3.45.06 Entrepreneurship, liberal professions |
| 3. Community policies | 3.45 Enterprise policy, inter-company cooperation | 3.45.07 Social economy, mutual societies, cooperatives, associations |
| 3. Community policies | 3.45 Enterprise policy, inter-company cooperation | 3.45.08 Business environment, reduction of administrative burdens |
| 3. Community policies | 3.45 Enterprise policy, inter-company cooperation | 3.45.20 Business statistics |
| 3. Community policies | 3.50 Research and technological development and space | 3.50.01 European research area and policy |
| 3. Community policies | 3.50 Research and technological development and space | 3.50.02 Framework programme and research programmes |
| 3. Community policies | 3.50 Research and technological development and space | 3.50.03 European space policy |
| 3. Community policies | 3.50 Research and technological development and space | 3.50.04 Innovation |
| 3. Community policies | 3.50 Research and technological development and space | 3.50.06 Research staff, researchers |
| 3. Community policies | 3.50 Research and technological development and space | 3.50.08 New technologies; biotechnology |
| 3. Community policies | 3.50 Research and technological development and space | 3.50.15 Intellectual property, copyright |
| 3. Community policies | 3.50 Research and technological development and space | 3.50.16 Industrial property, European patent, Community patent, design and pattern |
| 3. Community policies | 3.50 Research and technological development and space | 3.50.20 Scientific and technological cooperation and agreements |
| 3. Community policies | 3.60 Energy policy | 3.60.01 Solid fuels, coal mining, mining industry |
| 3. Community policies | 3.60 Energy policy | 3.60.02 Oil industry, motor fuels |
| 3. Community policies | 3.60 Energy policy | 3.60.03 Gas, electricity, natural gas, biogas |
| 3. Community policies | 3.60 Energy policy | 3.60.04 Nuclear energy, industry and safety |
| 3. Community policies | 3.60 Energy policy | 3.60.05 Alternative and renewable energies |
| 3. Community policies | 3.60 Energy policy | 3.60.06 Trans-European energy networks |
| 3. Community policies | 3.60 Energy policy | 3.60.08 Energy efficiency |
| 3. Community policies | 3.60 Energy policy | 3.60.10 Security of energy supply |
| 3. Community policies | 3.60 Energy policy | 3.60.15 Cooperation and agreements for energy |
| 3. Community policies | 3.70 Environmental policy | 3.70.01 Protection of natural resources: fauna, flora, nature, wildlife, countryside; biodiversity |
| 3. Community policies | 3.70 Environmental policy | 3.70.02 Atmospheric pollution, motor vehicle pollution |
| 3. Community policies | 3.70 Environmental policy | 3.70.03 Climate policy, climate change, ozone layer |
| 3. Community policies | 3.70 Environmental policy | 3.70.04 Water control and management, pollution of waterways, water pollution |
| 3. Community policies | 3.70 Environmental policy | 3.70.05 Marine and coastal pollution, pollution from ships, oil pollution |
| 3. Community policies | 3.70 Environmental policy | 3.70.06 Soil pollution, deterioration |
| 3. Community policies | 3.70 Environmental policy | 3.70.07 Noise pollution |
| 3. Community policies | 3.70 Environmental policy | 3.70.09 Transfrontier pollution |
| 3. Community policies | 3.70 Environmental policy | 3.70.10 Man-made disasters, industrial pollution and accidents |
| 3. Community policies | 3.70 Environmental policy | 3.70.11 Natural disasters, Solidarity Fund |
| 3. Community policies | 3.70 Environmental policy | 3.70.12 Waste management, domestic waste, packaging, light industrial waste |
| 3. Community policies | 3.70 Environmental policy | 3.70.13 Dangerous substances, toxic and radioactive wastes (storage, transport) |
| 3. Community policies | 3.70 Environmental policy | 3.70.15 Environmental taxation |
| 3. Community policies | 3.70 Environmental policy | 3.70.16 Law and environment, liability |
| 3. Community policies | 3.70 Environmental policy | 3.70.17 European ecolabel and ecolabelling, ecodesign |
| 3. Community policies | 3.70 Environmental policy | 3.70.18 International and regional environment protection measures and agreements |
| 3. Community policies | 3.70 Environmental policy | 3.70.20 Sustainable development |
| 4. Economic, social and territorial cohesion | 4.10 Social policy, social charter and protocol | 4.10.02 Family policy, family law, parental leave |
| 4. Economic, social and territorial cohesion | 4.10 Social policy, social charter and protocol | 4.10.03 Child protection, children's rights |
| 4. Economic, social and territorial cohesion | 4.10 Social policy, social charter and protocol | 4.10.04 Gender equality |
| 4. Economic, social and territorial cohesion | 4.10 Social policy, social charter and protocol | 4.10.05 Social inclusion, poverty, minimum income |
| 4. Economic, social and territorial cohesion | 4.10 Social policy, social charter and protocol | 4.10.06 People with disabilities |
| 4. Economic, social and territorial cohesion | 4.10 Social policy, social charter and protocol | 4.10.07 The elderly |
| 4. Economic, social and territorial cohesion | 4.10 Social policy, social charter and protocol | 4.10.08 Equal treatment of persons, non-discrimination |
| 4. Economic, social and territorial cohesion | 4.10 Social policy, social charter and protocol | 4.10.09 Women condition and rights |
| 4. Economic, social and territorial cohesion | 4.10 Social policy, social charter and protocol | 4.10.10 Social protection, social security |
| 4. Economic, social and territorial cohesion | 4.10 Social policy, social charter and protocol | 4.10.11 Retirement, pensions |
| 4. Economic, social and territorial cohesion | 4.10 Social policy, social charter and protocol | 4.10.12 Housing policy |
| 4. Economic, social and territorial cohesion | 4.10 Social policy, social charter and protocol | 4.10.13 Sport |
| 4. Economic, social and territorial cohesion | 4.10 Social policy, social charter and protocol | 4.10.14 Demography |
| 4. Economic, social and territorial cohesion | 4.10 Social policy, social charter and protocol | 4.10.15 European Social Fund (ESF), Fund for European Aid to the Most Deprived (FEAD) |
| 4. Economic, social and territorial cohesion | 4.10 Social policy, social charter and protocol | 4.10.16 Social and community life, associations, foundations |
| 4. Economic, social and territorial cohesion | 4.10 Social policy, social charter and protocol | 4.10.25 Social problems: delinquency, violence, crime |
| 4. Economic, social and territorial cohesion | 4.15 Employment policy, action to combat unemployment | 4.15.02 Employment: guidelines, actions, Funds |
| 4. Economic, social and territorial cohesion | 4.15 Employment policy, action to combat unemployment | 4.15.03 Arrangement of working time, work schedules |
| 4. Economic, social and territorial cohesion | 4.15 Employment policy, action to combat unemployment | 4.15.04 Workforce, occupational mobility, job conversion, working conditions |
| 4. Economic, social and territorial cohesion | 4.15 Employment policy, action to combat unemployment | 4.15.05 Industrial restructuring, job losses, redundancies, relocations, Globalisation Adjustment Fund (EGF) |
| 4. Economic, social and territorial cohesion | 4.15 Employment policy, action to combat unemployment | 4.15.06 Professional qualifications, recognition of qualifications |
| 4. Economic, social and territorial cohesion | 4.15 Employment policy, action to combat unemployment | 4.15.08 Work, employment, wages and salaries: equal opportunities women and men, and for all |
| 4. Economic, social and territorial cohesion | 4.15 Employment policy, action to combat unemployment | 4.15.10 Worker information, participation, trade unions, works councils |
| 4. Economic, social and territorial cohesion | 4.15 Employment policy, action to combat unemployment | 4.15.12 Workers protection and rights, labour law |
| 4. Economic, social and territorial cohesion | 4.15 Employment policy, action to combat unemployment | 4.15.14 Social dialogue, social partners |
| 4. Economic, social and territorial cohesion | 4.15 Employment policy, action to combat unemployment | 4.15.15 Health and safety at work, occupational medicine |
| 4. Economic, social and territorial cohesion | 4.20 Public health | 4.20.01 Medicine, diseases |
| 4. Economic, social and territorial cohesion | 4.20 Public health | 4.20.02 Medical research |
| 4. Economic, social and territorial cohesion | 4.20 Public health | 4.20.03 Drug addiction, alcoholism, smoking |
| 4. Economic, social and territorial cohesion | 4.20 Public health | 4.20.04 Pharmaceutical products and industry |
| 4. Economic, social and territorial cohesion | 4.20 Public health | 4.20.05 Health legislation and policy |
| 4. Economic, social and territorial cohesion | 4.20 Public health | 4.20.06 Health services, medical institutions |
| 4. Economic, social and territorial cohesion | 4.20 Public health | 4.20.07 Medical and para-medical professions |
| 4. Economic, social and territorial cohesion | 4.20 Public health | 4.20.30 Civil protection |
| 4. Economic, social and territorial cohesion | 4.30 Civil protection |  |
| 4. Economic, social and territorial cohesion | 4.40 Education, vocational training and youth | 4.40.01 European area for education, training and lifelong learning |
| 4. Economic, social and territorial cohesion | 4.40 Education, vocational training and youth | 4.40.03 Primary and secondary school, European Schools, early childhood |
| 4. Economic, social and territorial cohesion | 4.40 Education, vocational training and youth | 4.40.04 Universities, higher education |
| 4. Economic, social and territorial cohesion | 4.40 Education, vocational training and youth | 4.40.06 Teachers, trainers, pupils, students |
| 4. Economic, social and territorial cohesion | 4.40 Education, vocational training and youth | 4.40.07 Recognition of diplomas, equivalence of studies and training |
| 4. Economic, social and territorial cohesion | 4.40 Education, vocational training and youth | 4.40.10 Youth |
| 4. Economic, social and territorial cohesion | 4.40 Education, vocational training and youth | 4.40.15 Vocational education and training |
| 4. Economic, social and territorial cohesion | 4.40 Education, vocational training and youth | 4.40.20 Cooperation and agreements in the fields of education, training and youth |
| 4. Economic, social and territorial cohesion | 4.45 Common cultural area, cultural diversity | 4.45.02 Cultural programmes and actions, assistance |
| 4. Economic, social and territorial cohesion | 4.45 Common cultural area, cultural diversity | 4.45.06 Heritage and culture protection, movement of works of art |
| 4. Economic, social and territorial cohesion | 4.45 Common cultural area, cultural diversity | 4.45.08 Cultural and artistic activities, books and reading, arts |
| 4. Economic, social and territorial cohesion | 4.50 Tourism |  |
| 4. Economic, social and territorial cohesion | 4.60 Consumers' protection in general | 4.60.02 Consumer information, advertising, labelling |
| 4. Economic, social and territorial cohesion | 4.60 Consumers' protection in general | 4.60.04 Consumer health |
| 4. Economic, social and territorial cohesion | 4.60 Consumers' protection in general | 4.60.06 Consumers' economic and legal interests |
| 4. Economic, social and territorial cohesion | 4.60 Consumers' protection in general | 4.60.08 Safety of products and services, product liability |
| 4. Economic, social and territorial cohesion | 4.70 Regional policy | 4.70.01 Structural funds, investment funds in general, programmes |
| 4. Economic, social and territorial cohesion | 4.70 Regional policy | 4.70.02 Cohesion policy, Cohesion Fund (CF) |
| 4. Economic, social and territorial cohesion | 4.70 Regional policy | 4.70.04 Urban policy, cities, town and country planning |
| 4. Economic, social and territorial cohesion | 4.70 Regional policy | 4.70.05 Regional cooperation, cross-border cooperation |
| 4. Economic, social and territorial cohesion | 4.70 Regional policy | 4.70.06 Outlying and outermost regions, overseas countries and territories |
| 4. Economic, social and territorial cohesion | 4.70 Regional policy | 4.70.07 European Regional Development Fund (ERDF) |
| 5. Economic and monetary system | 5.03 Global economy and globalisation |  |
| 5. Economic and monetary system | 5.05 Economic growth |  |
| 5. Economic and monetary system | 5.10 Economic union | 5.10.01 Convergence of economic policies, public deficit, interest rates |
| 5. Economic and monetary system | 5.10 Economic union | 5.10.02 Price policy, price stabilisation |
| 5. Economic and monetary system | 5.20 Monetary union | 5.20.01 Coordination of monetary policies, European Monetary Institute (EMI), Economic and Monetary Union (EMU) |
| 5. Economic and monetary system | 5.20 Monetary union | 5.20.02 Single currency, euro, euro area |
| 5. Economic and monetary system | 5.20 Monetary union | 5.20.03 European Central Bank (ECB), ESCB |
| 6. External relations of the Union | 6.10 Common foreign and security policy (CFSP) | 6.10.01 Foreign and common diplomatic policy |
| 6. External relations of the Union | 6.10 Common foreign and security policy (CFSP) | 6.10.02 Common security and defence policy (CSDP); WEU, NATO |
| 6. External relations of the Union | 6.10 Common foreign and security policy (CFSP) | 6.10.03 Armaments control, non-proliferation nuclear weapons |
| 6. External relations of the Union | 6.10 Common foreign and security policy (CFSP) | 6.10.04 Third-country political situation, local and regional conflicts |
| 6. External relations of the Union | 6.10 Common foreign and security policy (CFSP) | 6.10.05 Peace preservation, humanitarian and rescue tasks, crisis management |
| 6. External relations of the Union | 6.10 Common foreign and security policy (CFSP) | 6.10.08 Fundamental freedoms, human rights, democracy in general |
| 6. External relations of the Union | 6.10 Common foreign and security policy (CFSP) | 6.10.09 Human rights situation in the world |
| 6. External relations of the Union | 6.20 Common commercial policy in general | 6.20.01 Agreements and relations in the context of the World Trade Organization (WTO) |
| 6. External relations of the Union | 6.20 Common commercial policy in general | 6.20.02 Export/import control, trade defence, trade barriers |
| 6. External relations of the Union | 6.20 Common commercial policy in general | 6.20.03 Bilateral economic and trade agreements and relations |
| 6. External relations of the Union | 6.20 Common commercial policy in general | 6.20.04 Union Customs Code, tariffs, preferential arrangements, rules of origin |
| 6. External relations of the Union | 6.20 Common commercial policy in general | 6.20.05 Multilateral and plurilateral economic and trade agreements and relations |
| 6. External relations of the Union | 6.20 Common commercial policy in general | 6.20.06 Foreign direct investment (FDI) |
| 6. External relations of the Union | 6.20 Common commercial policy in general | 6.20.07 Macro-financial assistance to third countries |
| 6. External relations of the Union | 6.30 Development cooperation | 6.30.01 Generalised scheme of tariff preferences (GSP), rules of origin |
| 6. External relations of the Union | 6.30 Development cooperation | 6.30.02 Financial and technical cooperation and assistance |
| 6. External relations of the Union | 6.30 Development cooperation | 6.30.03 European Development Fund (EDF) |
| 6. External relations of the Union | 6.40 Relations with third countries | 6.40.01 Relations with EEA/EFTA countries |
| 6. External relations of the Union | 6.40 Relations with third countries | 6.40.02 Relations with central and eastern Europe |
| 6. External relations of the Union | 6.40 Relations with third countries | 6.40.03 Relations with South-East Europe and the Balkans |
| 6. External relations of the Union | 6.40 Relations with third countries | 6.40.04 Relations with the Commonwealth of Independent States (CIS) |
| 6. External relations of the Union | 6.40 Relations with third countries | 6.40.05 Relations with the Mediterranean and southern European countries |
| 6. External relations of the Union | 6.40 Relations with third countries | 6.40.06 Relations with ACP countries, conventions and generalities |
| 6. External relations of the Union | 6.40 Relations with third countries | 6.40.07 Relations with African countries |
| 6. External relations of the Union | 6.40 Relations with third countries | 6.40.08 Relations with Asian countries |
| 6. External relations of the Union | 6.40 Relations with third countries | 6.40.10 Relations with Latin America, Central America, Caribbean islands |
| 6. External relations of the Union | 6.40 Relations with third countries | 6.40.11 Relations with industrialised countries |
| 6. External relations of the Union | 6.40 Relations with third countries | 6.40.12 Relations with developing countries in general |
| 6. External relations of the Union | 6.40 Relations with third countries | 6.40.13 Relations with/in the context of international organisations: UN, OSCE, OECD, Council of Europe, EBRD |
| 6. External relations of the Union | 6.40 Relations with third countries | 6.40.14 Relations with non-governmental organisations, NGOs |
| 6. External relations of the Union | 6.40 Relations with third countries | 6.40.15 European neighbourhood policy |
| 6. External relations of the Union | 6.50 Emergency, food, humanitarian aid | 6.50.01 Aid to refugees |
| 6. External relations of the Union | 6.50 Emergency, food, humanitarian aid | 6.50.02 Emergency Aid Reserve |
| 7. Area of freedom, security and justice | 7.10 Free movement and integration of third-country nationals | 7.10.02 Schengen area, Schengen acquis |
| 7. Area of freedom, security and justice | 7.10 Free movement and integration of third-country nationals | 7.10.04 External borders crossing and controls, visas |
| 7. Area of freedom, security and justice | 7.10 Free movement and integration of third-country nationals | 7.10.06 Asylum, refugees, displaced persons; Asylum, Migration and Integration Fund (AMIF) |
| 7. Area of freedom, security and justice | 7.10 Free movement and integration of third-country nationals | 7.10.08 Migration policy |
| 7. Area of freedom, security and justice | 7.30 Police, judicial and customs cooperation in general | 7.30.02 Customs cooperation |
| 7. Area of freedom, security and justice | 7.30 Police, judicial and customs cooperation in general | 7.30.05 Police cooperation |
| 7. Area of freedom, security and justice | 7.30 Police, judicial and customs cooperation in general | 7.30.08 Action to combat racism and xenophobia |
| 7. Area of freedom, security and justice | 7.30 Police, judicial and customs cooperation in general | 7.30.09 Public security |
| 7. Area of freedom, security and justice | 7.30 Police, judicial and customs cooperation in general | 7.30.12 Control of personal weapons and ammunitions |
| 7. Area of freedom, security and justice | 7.30 Police, judicial and customs cooperation in general | 7.30.20 Action to combat terrorism |
| 7. Area of freedom, security and justice | 7.30 Police, judicial and customs cooperation in general | 7.30.30 Action to combat crime |
| 7. Area of freedom, security and justice | 7.40 Judicial cooperation | 7.40.02 Judicial cooperation in civil and commercial matters |
| 7. Area of freedom, security and justice | 7.40 Judicial cooperation | 7.40.04 Judicial cooperation in criminal matters |
| 7. Area of freedom, security and justice | 7.90 Justice and home affairs |  |
| 8. State and evolution of the Union | 8.10 Revision of the Treaties, intergovernmental conferences |  |
| 8. State and evolution of the Union | 8.20 Enlargement of the Union | 8.20.01 Candidate countries |
| 8. State and evolution of the Union | 8.20 Enlargement of the Union | 8.20.04 Pre-accession and partnership |
| 8. State and evolution of the Union | 8.30 Treaties in general | 8.30.10 Principles common to the Member States, EU values |
| 8. State and evolution of the Union | 8.40 Institutions of the Union | 8.40.01 European Parliament |
| 8. State and evolution of the Union | 8.40 Institutions of the Union | 8.40.02 Council of the Union |
| 8. State and evolution of the Union | 8.40 Institutions of the Union | 8.40.03 European Commission |
| 8. State and evolution of the Union | 8.40 Institutions of the Union | 8.40.04 Court of Justice, Court of First Instance |
| 8. State and evolution of the Union | 8.40 Institutions of the Union | 8.40.05 Court of Auditors |
| 8. State and evolution of the Union | 8.40 Institutions of the Union | 8.40.07 European Investment Bank (EIB) |
| 8. State and evolution of the Union | 8.40 Institutions of the Union | 8.40.08 Agencies and bodies of the EU |
| 8. State and evolution of the Union | 8.40 Institutions of the Union | 8.40.09 European officials, EU servants, staff regulations |
| 8. State and evolution of the Union | 8.40 Institutions of the Union | 8.40.10 Interinstitutional relations, subsidiarity, proportionality, comitology |
| 8. State and evolution of the Union | 8.40 Institutions of the Union | 8.40.11 Relations with Member State governments and national parliaments |
| 8. State and evolution of the Union | 8.40 Institutions of the Union | 8.40.14 European Council |
| 8. State and evolution of the Union | 8.40 Institutions of the Union | 8.40.16 Relations with interest representatives |
| 8. State and evolution of the Union | 8.50 EU law | 8.50.01 Implementation of EU law |
| 8. State and evolution of the Union | 8.50 EU law | 8.50.02 Legislative simplification, coordination, codification |
| 8. State and evolution of the Union | 8.60 European statistical legislation |  |
| 8. State and evolution of the Union | 8.70 Budget of the Union | 8.70.01 Financing of the budget, own resources |
| 8. State and evolution of the Union | 8.70 Budget of the Union | 8.70.02 Financial regulations |
| 8. State and evolution of the Union | 8.70 Budget of the Union | 8.70.03 Budgetary control and discharge, implementation of the budget |
| 8. State and evolution of the Union | 8.70 Budget of the Union | 8.70.04 Protecting financial interests of the EU against fraud |
| 8. State and evolution of the Union | 8.70 Budget of the Union | 8.70.40 Basic budgetary texts |
| 8. State and evolution of the Union | 8.70 Budget of the Union | 8.70.49 2025 budget |
| 8. State and evolution of the Union | 8.70 Budget of the Union | 8.70.50 2020 budget |
| 8. State and evolution of the Union | 8.70 Budget of the Union | 8.70.51 2021 budget |
| 8. State and evolution of the Union | 8.70 Budget of the Union | 8.70.52 2022 budget |
| 8. State and evolution of the Union | 8.70 Budget of the Union | 8.70.53 2023 budget |
| 8. State and evolution of the Union | 8.70 Budget of the Union | 8.70.54 2024 budget |
| 8. State and evolution of the Union | 8.70 Budget of the Union | 8.70.58 2018 budget |
| 8. State and evolution of the Union | 8.70 Budget of the Union | 8.70.59 2019 budget |
| 8. State and evolution of the Union | 8.70 Budget of the Union | 8.70.70 Flexibility instrument |

# Appendix D

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# Appendix E

Uma imagem com texto, captura de ecrã, software, Software de multimédia

Os conteúdos gerados por IA poderão estar incorretos.

A picture containing text, screenshot, font, design

Description automatically generated