

Structural Limitations of the European Union under Decarbonisation

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Abstract

This study follows the heuristic by Brand et al. (2025) that argues the contested decarbonisation state has emerged as a new form of the state since the Paris Agreement in 2015 and faces structural limitations due to “tensions between the defining strategies of the decarbonization state and central prevailing functions of the liberal capitalist state”.

The heuristic is applied to the EU case as a highly heterogeneous supranational project where an overarching EU decarbonisation strategy is pursued. This increases internal tensions within and among member states, because some states already face structural limitations due to differing socio-economic systems, resulting in increasing opposition. Especially in certain policy areas essential to decarbonisation, the opposition will halt decarbonisation policies necessary to fulfil decarbonisation targets, because institutional bottlenecks such as the EU Council will stop progress due to obstructing member states. It is therefore necessary to ask: What are the systemic factors leading to an obstruction by member states against intensified decarbonisation policies by the European Union? To answer this question the study employs a Regulation Theory framework with the empirical approach developed in Amable (2003) and Cahen-Fourot (2020). By modelling the institutional forms of Regulation Theory using Principal Component Analysis (PCA), hierarchical clustering and Multiple Correspondence Analysis (MCA) to compare 23 EU members.

Three systemic factors that favour the obstruction of decarbonisation and increase the growth dependence are found. First, the missing associational and institutional power of labour results in a lack of ideological focus of labour as a social bloc, thereby being unable to enforce a mediation of growth losses. Low welfare provision results in a higher dependence on growth to sustain the mode of living and maintain social stability and legitimacy of the social order. This is further related to resolving the issue of missing reproductive work by patriarchal structures, which also increases growth dependence. A social order built on discipline and competition raises the difficulty of collaboration necessary to adapt to low-growth phases of transformation.

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1 Introduction

In the 21st century and especially the late 2010s, the European Union (EU) intensified its decarbonisation strategies and joined its forces through a “speak with one voice” approach (Oberthür & Dupont, 2021; Oberthür & Von Homeyer, 2023). Especially, since the Paris Agreement in 2015 Brand et al. (2025) claim the contested emergence of a decarbonisation state as a new face of the liberal capitalist state. For the EU case, this development was marked by geopolitical and internal pressure. For instance, Russia’s threats on Eastern Europe via energy dependence (Jordan & Moore, 2020; Vezzoni, 2025), and the successful politicisation of the IPCC (2018) report by climate movements (Brand et al., 2024; Orsini & Kang, 2023; Wissen, 2020b). To overcome challenges such as these, the EU uses decarbonisation as a unifying theme to bring member states behind a shared political strategy and improve its international position, while consolidating the internal balance of power. Brand et al. (2025) argue the decarbonisation state will face structural limitations due to “tensions between the defining strategies of the decarbonization state and central prevailing functions of the liberal capitalist state” (Brand et al., 2025, p. 3). However, the EU is a highly heterogeneous supranational project (Becker & Jäger, 2012; Bieling et al., 2016; Jäger et al., 2020). Thus, if the overarching EU decarbonisation strategy is pursued, it increases internal tensions within and among member states that already face structural limitations due to differing socio-economic systems. This will result in increasing opposition. Especially in certain policy areas essential to decarbonisation, this opposition will halt decarbonisation policies necessary to fulfil decarbonisation targets, because institutional bottlenecks such as the EU Council will stop progress due to obstructing member states. Ultimately, through vetoes under the unanimity rule in European Union (2012, Art. 192).

Additionally, recent research has highlighted the following gaps and suggestions. Brand et al. (2025, p. 5) themselves highlight the importance of finding the specific political and economic factors that affect decarbonisation strategies. Comparing single country studies, Roberts and Brulle (2024) conclude that the economic structure creates and constrains possibilities for climate action and should be taken into account. Oberthür and Von Homeyer (2023, p. 20) call for the identification of key factors that influence the policy in the EU, especially in the late 2010s. Ergen and Schmitz (2025, p. 395) suggest a systematic comparative analysis of political economy determinants that result in the use of intensified decarbonisation policies, especially decommissioning ones. Moreover, given the relevance of the state’s growth dependence in Brand et al. (2025), identifying factors that influence the level of growth dependence is also advised, as suggested by Driouich and Kallis (2025, p. 10)

It is therefore necessary to ask: What are the systemic factors leading to an obstruction by member states against intensified decarbonisation strategies by the European Union? This can be answered by two sequential sub-questions, following Tashakkori et al. (2021, pp. 82–91): First, which member states obstruct intensified EU decarbonisation strategies? Second, what shared systemic factors can be identified in the different member states found to obstruct intensified decarbonisation strategies? While the systemic factors should not be seen as functionalist

explanations, it maintains that “a radical change or stepping out of the existing path structure is rather unlikely” (Kannankulam & Georgi, 2014, p. 63). As this study aims to understand underlying conditions, it focuses on the last stable phase in the EU between the recovery from the Eurozone Crisis and the current polycrisis or ‘turning point’ as Schneider et al. (2024) describe it.

The study employs a Regulation Theory framework with the empirical approach developed in the works of Amable (2003) and Cahen-Fourot (2020). By modelling the intermediate concepts of Regulation Theory into specific regimes using Principal Component Analysis (PCA), hierarchical clustering and Multiple Correspondence Analysis (MCA), three systemic factors that increase the growth dependence and favour the obstruction of decarbonisation are found. First, the missing associational and institutional power of labour results in a lack of ideological focus of labour as a social bloc, thereby being unable to enforce a mediation of growth losses. Low welfare provision results in a higher dependence on growth to sustain the mode of living and maintain social stability and legitimacy of the social order. This is further related to resolving the issue of missing reproductive work by patriarchal structures, which also increases growth dependence. A social order built on discipline and competition raises the difficulty of collaboration necessary to adapt to low-growth phases of transformation.

The remainder of this paper is structured as follows: Section 2 introduces the structural limitations of the decarbonisation state as a heuristic, provides a literature review, and then sets a Regulation Theory framework. Section 3 traces the development of decarbonisation strategies and the emergence of the decarbonisation state in the EU. In this context, member states that obstruct intensified decarbonisation are determined. Section 4 models the institutional forms and additional demand and production regimes. Section 5 conducts a comparative study of 23 EU states and presents EU level systemic factors that relate to decarbonisation strategies and justifies further analysis of the subsample. Section 6 discusses the systemic factors of the formerly determined obstructing member states, and section 7 concludes.

2 Theory

2.1 The Decarbonisation State & Structural Limitations

According to Brand et al. (2025), the decarbonisation state potentially emerges around the Paris Agreement and moves the dominant policy approach from *improve* to *shift*. Its predecessor, the environmental state, had focused on *improve* policies, enhancing the energy and material efficiency of existing technologies. *Shift* policies promote the shift to formerly established green technologies, including technology bans, phase-outs and industrial policy interventions (Brand et al., 2025). In doing so, “the decarbonization state faces increasing resistance from incumbent industries and other political forces that obstruct climate policies to maintain the fossil fuel-dependent status quo” (Brand et al., 2025, p. 3). In theory, the decarbonisation state claims to maintain fulfilment of the following core functions necessary for its own survival: growth, social legitimacy of the existing social order, as well as territorial security and international

competitiveness. These are intertwined and externalise preconditions and consequences of the form of reproduction, while appropriating external labour and natural resources at low cost (Brand et al., 2025, p. 3). Social legitimacy of the existing social order refers to the definition of an extended state that encompasses civil society and the state itself as a contradictory yet coherent unit (Hirsch, 2005, pp. 36–37).

The growth function corresponds to the material interests of various economic factions, and stabilises the fundamental condition of the state (Brand et al., 2025, p. 3). The most straightforward relation is established by the financial resource dependence of the state on a functioning economy to sustain his capacity to act (Hirsch, 2005, pp. 33–34; Brand et al., 2025, p. 3). *Shift* policies of the decarbonisation state promise to foster green growth by decoupling through renewables and decarbonisation technology, thereby unlocking new profitable investments. However, phase-outs threaten profits and provoke obstruction as mentioned above (Brand et al., 2025, pp. 3–4).

The social legitimacy of the existing social order is maintained through the provisioning of welfare and civil liberties. The scope of political issues to be contested depends on the extent to which aspects of social reality are black-boxed by the market (Brand et al., 2025, p. 3). If the state itself is not perceived as able to provide certain aspects of welfare or civil liberties because they are “hidden” in the market sphere, these political issues will not be addressed. Here, *shift* policies promise to maintain consumption levels by directing markets while solving the planetary crisis. It leads to a two-fold limitation: growth losses limit the revenue needed for welfare provision, while directing markets reduces black-boxing and widens the scope of political issues to be contestable (Brand et al., 2025, pp. 3–4).

Security and international competitiveness describe safeguarding national sovereignty against external political, economic and military threats, while consolidating and expanding the relative position in the international order. On one hand, domestic economic growth and international competitiveness have to be sustained by access to economic inputs and advantageous trade conditions. On the other hand, the military capacity has to be sustained (Brand et al., 2025, p. 3). *Shift* policies aim to ensure security by reducing energy dependence through renewables and improving international competitiveness by leadership in green technology (Brand et al., 2025, pp. 3–4). However, green extractivism reinforces unequal global North-South patterns, while cheap access is challenged by geopolitical rivalry. Moreover, the transition unhinges the global order, leading to resource nationalism, supply chain fragmentation and militarisation. The latter also depends heavily on growth, thereby challenging legitimacy through a budgetary trade-off with welfare (Brand et al., 2025, pp. 3–5).

As briefly highlighted, *shift* policies weaken the capacity to perform core functions, thereby risking the state’s structural integrity and resulting in structural limitations explaining an implementation gap (Brand et al., 2025). Similar concepts to *shift* policies are also found in other contemporary contributions. First, critical macro-finance refers to *sticks* as disciplining tools that directly intervene in the economy through financial allocation, production targets, and phase-outs (Gabor & Braun, 2025; Gabor et al., 2023). Second, research related to institu-

tionalism argues policy increasingly involves “picking losers” (Ergen & Schmitz, 2025). These new levels of policy result from intensified decarbonisation strategies.

The heuristic serves as a guide to outline the emergence of an overarching EU decarbonisation state that is contested by certain member states’ governments that obstruct intensified decarbonisation strategies and policies. As the member states economic structures are heterogeneous, the tensions between sustaining the core functions and the defining strategies of the overarching EU decarbonisation state diverge. Some specific structural features of member states will imply earlier reaching of structural limitations. These underlying conditions serve as fertile ground for political strategies that tend to obstruct intensified decarbonisation. This reduces the space for decarbonisation strategies and concrete policies at the national and EU level. Decarbonisation strategies will be used as an umbrella term for all political strategies aimed at containing the climate crisis.

2.2 Literature Review

While this study adopts an RT approach, the short review shows similar empirical and theoretical approaches and their drawbacks. The presented studies all compare a vast majority of EU countries, and some also consider decarbonisation. They can be differentiated by the three popular branches in Comparative Political Economy: Varieties of Capitalism (VoC), Growth Models and Regulation Theory (RT).

In a qualitative comparative study Četković and Buzogány (2016) compare Germany and the UK to Central-Eastern European States in a VoC framework to research their positioning towards advancing the green energy transition, without considering heterogeneous labour relations, they argue for increased coordinated market economy policies in Central-Eastern European States. Ferragina and Filetti (2022) compare labour market regulations and path dependency, applying VoC and Esping-Andersen’s World of Welfare approach using PCA. They analyse 21 EU members in 1990 and 2015, subsequently they compare component indicators to the US as a benchmark. While considering labour relations, they do not consider decarbonisation.

VoC from Hall and Soskice (2001) builds on a benchmark comparison between liberal and coordinated capitalisms, it is thereby criticised as simplistic and static (Boyer, 2005). Further institutions are essentialised from a firm-centric perspective in the absence of antagonistic power relations (Schneider & Syrovatka, 2024, pp. 27–28). Due to a missing coherent awareness of contradictions and institutional reductionism it lacks a systemic analysis (Becker, 2013). Moreover, VoC has been based on New Consensus Economics (New Keynesianism) as in Carlin and Soskice (2009). Thus, underestimating aggregate demand, finance and distribution as VoC focuses on the supply side and emphasises monetary policy intervention (Carlin & Soskice, 2009; Hein, 2023).

Cigna et al. (2025) focus on national skill formations along green value chains, comparing 25 EU countries. They combine VoC and Growth Model approaches to develop growth regimes. First, by qualitative empirics, second, by Principal Component Analysis, the cre-

ated indicators and clusters are used to interpret country groups. They find a stark divide between "green leaders" (Nordic and Continental European economies) and "green laggards" (Eastern and Southern Europe). Avlijaš et al. (2020) summarise their book on Growth and Welfare in Advanced Capitalist Economies, stating they "hardly came across the issue of climate change" (Avlijaš et al., 2020, p. 47) in national growth strategies. The summarised studies employed the Growth Model approach to build growth regimes.

As a demand-side perspective, *Growth Model* approaches by Baccaro and Pontusson (2016) or Post-Keynesian *demand and growth regimes* (Hein, 2023) are popular in Political Economy. Both approaches build on the canonical Bhaduri and Marglin (1990) model and the political economy suggestions in Kalecki (1943). In simple terms, they focus on analysing the components or sources of demand that give rise to growth coalitions, or regimes such as wage-led, export-led, profit-led, and debt-led, and relate this to politics and policy. In contrast to VoC, (Post-)Keynesian approaches address the instability of capitalism that is resolved through growth (Becker & Jäger, 2012), *Growth Models* have been criticised as 'nothing new under the sun', given the very similar concept by Regulationist Freyssenet (Amable, 2023). However, the Post-Keynesian contributions such as Hein (2023), Hein and Vogel (2008), and Hein et al. (2015) explicitly cite the seminal RT paper by Bowles and Boyer (1995). Moreover, the missing elements of the welfare state and social blocs have partially been reintegrated (Akçay & Jungmann, 2023; Baccaro & Pontusson, 2019; Hein, 2023). Nevertheless, the former approach originally misses the crucial elements of wage-labour nexus, form of competition and role of the state and still struggles to accurately integrate it (Amable, 2023). Moreover, they are situated around growth coalitions that originate and exist based on successful economic growth, thus representing a functionalist perspective. Additionally, questions of reproduction, physical accumulation and society-nature relations are absent (Schneider & Syrovatka, 2024).

Employing RT Jäger et al. (2020) compare 22 EU states, mainly focusing on the comparative analysis of six indicators against the benchmark of Germany, along with qualitative empirical analysis. They identify asymmetries and a core-periphery structure broadened by the monetary union and financial liberalisation, but environmental issues are unmentioned. The empirical and theoretical approach to a broad set of country cases, in respect to their institutions, developed by Amable (2003) from an RT background, compares all OECD countries using Principal Component Analysis, hierarchical clustering, and Multiple Correspondence Analysis, thus studying a much larger set of cases and indicators, providing an applied, empirical understanding of institutional complementarities and change in contemporary capitalism. The widely cited study of Cahen-Fourot (2020) employs this approach, using RT's five canonical institutional forms, extended by the social relation to the environment. The study highlights the importance of environmental relations to the analysis of capitalism, as well as the positive effect of labour-oriented labour relations and welfare on advancing decarbonisation, thereby substantiating the Lipietz (1997) hypothesis. His early hypothesis only claimed a positive relation between a labour-oriented wage-labour nexus and an environmentally friendly stance Lipietz (1997, pp. 33–35).

RT understands the socio-economic system as a combination of a characteristic accumulation regime and a specific mode of regulation (Klein, 2022, p. 56). The mode of regulation absorbs the tensions of the accumulation regime and gives rise to institutionalised social compromises (Boyer, 2022, p. xi). By analysing these institutional forms, phases and differences of capitalisms can be observed (Boyer, 1990, p. 37). The “many-sided and in some respects even loose frame” (Hirsch, 2000, p. 102) of RT has been launched in France and received many contributions from German scholars as well. The French works build on institutionalist and/or critical perspectives on structuralist Marxian approaches. Their seminal works include Aglietta (1976), Aglietta et al. (2000), Boyer (1990, 2022), and Boyer and Saillard (2002). From the French branch, Amable and Palombarini (2008) and Amable (2003) developed a popular neo-realist approach, also known as dominant social blocs. Whereas the German-speaking seminal works often build on materialist state theory, these include Atzmüller et al. (2013), Brand and Raza (2003), Hirsch and Roth (1986), and Schneider et al. (2024). RT inspired the VoC approach by Hall and Soskice (2001) (Boyer, 2022, p. VIII) and potentially pre-empted the Growth Model approach by Baccaro and Pontusson (2016) as aforementioned (Amable, 2023; Hein, 2023, p. 5).

Due to the shortcomings of VoC and Growth Models, the following paper adopts an RT framework and the method of Amable (2003) and Cahen-Fourot (2020). The advantage of a more holistic analysis of capitalisms social, economic, and political dimensions on a large amount of data is most suitable to answer the research question. Further, the study follows up on the findings of Cahen-Fourot (2020) and Lipietz (1997) to offer a deeper insight into underlying systemic factors that affect decarbonisation strategies.

2.3 Regulation Theory Framework

The structurally antagonistic and conflictual capitalist society achieves limited, relatively stable phases, interrupted by major crises. A coherent accumulation regime and a mode of regulation reflect a specific, historic societal formation with specific structures and development dynamics (Hirsch, 2005, pp. 108–109). Capitalism is characterised by its specific form of exchange and production relations (Boyer, 1990, p. 33). First, as exchange in the commodity form. Second, in production as a social division through generalised wage and market relations separating producers and the means of production (Cahen-Fourot, 2022; Boyer, 1990, pp. 33–34). This formulates a growth imperative, because the conflict over income and wealth distribution is resolved by growth, and firms competing for market shares achieved by growth (Cahen-Fourot, 2022, pp. 13–14). In this RT understanding, the sources of growth imperatives are wage and market (power) relations (Driouch & Kallis, 2025, p. 2; Cahen-Fourot, 2022).

To reduce from this highly abstract level to an analytically applicable level, RT introduces intermediate concepts. These institutional forms mediate between abstract social forms as a structural feature and concrete institutions (Brand, 2003, p. 310). They are endogenously determined, and in stable phases they constitute coherent complementarities (Amable, 2003, pp. 6–10). They are formed by either minor cyclical crises that evolutionary reproduce them, or major structural crises that occur if institutional forms are no longer complementary. Insti-

tutional forms offer invariant aspects of social relations, to enable the analysis of specific forms (Boyer, 1990, pp. 43–44). The specific forms of a stable phase will thus influence the conditions that arise in the next phase, after crisis (Hirsch, 2005, p. 112). Thus, the analysis of specific institutional forms should reveal specific systemic factors associated with the obstruction of intensified decarbonisation strategies. The canonical five invariant institutional forms are: monetary regime, wage-labour nexus, form of competition, form of the state and the insertion into the international regime (Cahen-Fourot, 2022, pp. 1–7; Boyer, 2022, pp. 33–34; Boyer & Saillard, 2002, pp. 38–40).

Moreover, contemporary works add the social relation to the environment (Cahen-Fourot, 2020) or a socio-metabolic regime (Cahen-Fourot & Magalhães, 2024). The discussion of the social relation to the environment persisted in RT since Becker and Raza (2000), which followed up on Lipietz’s critique, emphasising an ecological constraint. Conversely, Görg (2003) argued that nature is not a special dimension of regulation but an integral part of all dimensions, an argument this study will follow as well. However, the materiality of capitalist accumulation is indisputable (Pineault, 2025). While capitalism is a set of specific social relations, biophysical flows are a physical manifestation. The addition of material flows emphasises the materiality, which leads Cahen-Fourot and Magalhães (2024) to integrate material flow analysis into RT, followed by Pellegris and Court (2025). The metabolic side does not contradict Görg (2003), he acknowledges that material processes are simultaneously social and a non-identity. While the social relation to the environment implies a social abstraction imposed by society, a metabolic regime reflects the non-identity of biophysical reality outside abstract social relations. While social relations to the environment remain an implicate of other institutional forms. Further, this perspective does not reduce nature to a border that is imposed on social relation from the outside, such as the ecological constraint (Brand et al., 2024, pp. 156–157). Thus, it is necessary to consider differing spatial metabolic regimes, inspired by material flow analysis of historical metabolic regimes by Fischer-Kowalski and Haberl (1997). For simplicity, the expanded economic model of Pineault (2025, pp. 15–16) is adapted by adding extraction from sources and dissipation to sinks as inputs and outputs to and from nature. The use of physical units, e.g., kilograms and energy measured in joules, reflects materiality (Fischer-Kowalski & Haberl, 1997, pp. 63–63).

Furthermore, Bieling et al. (2016, pp. 56–57) situates the accumulation regime alongside the institutional forms and highlights RT’s weakness to observe heterogeneous EU accumulation regimes. To Boyer and Saillard (2002, pp. 38–39), the observation of accumulation patterns is inspired by Cambridge economists like Kalecki. This leads to empirically pre-empting the Growth Models approach in Bowles and Boyer (1995) (Hein, 2023, p. 5), based on the canonical Post-Kaleckian/Keynesian model by Bhaduri and Marglin (1990).

Since Baccaro and Pontusson (2016), the approach of Growth Models has become popularised. If effective demand indeed determines output in the long-run, then the composition of demand has a substantial effect on societal reproduction by shaping the productive base. To describe demand regimes RT uses circuitist terms inspired by Kalecki and Marx (Boyer,

1990, pp. 14–15), where income circulates, expanded by injections (e.g. exports, government expenditure), and reduced by leakages (e.g. imports, savings) (Hein, 2015). The adoption of Becker and Jäger (2012) and Bieling et al. (2016) typology to circuitist terms suggests a basic polarity between: extraversion as a notion of external injections and introversion as a notion of closing the circuit. Conversely, the types of commodities that can be produced also depend on the available means of production. These pose a supply-side constraint on economic development. This perspective has been extensively researched by Latin American Structuralism. According to Becker (2013, p. 32), it shares similarities with RT in its methods as well as in its spatial and historical categories. Moreover, structuralism emphasises supply-side constraints more than other heterodox approaches, while insisting that capital is accumulated rather than allocated, as imagined by (neo-)classical theory (Thirlwall, 1986, pp. 199–202). In his seminal paper Thirlwall (1986) argues that the sectoral composition of production shapes a country’s capacity to access autonomous demand components, above all exports, that are unconstrained by the domestic income circuit. As development proceeds, export demand comes to dominate growth because it relaxes the balance-of-payments constraint that would otherwise impose an upper boundary for expansion, with technical progress in leading sectors determining whether this dynamic can be sustained in the long run. An accumulation regime with comparatively less developed productive capacities faces supply-side constraints. Even in a more complex world, the different available production capacities constrain possibilities on a material basis with an inevitable reciprocal relation to institutions. These arguments emphasise the need to incorporate both demand and production regime as abstract representations of the accumulation regime as an intermediate analytical concept, without suggesting them to be further institutional forms.

Lastly, a theoretical mediation between institutions and political strategies, such as decarbonisation strategies, is needed. Stemming from RT first Amable (2003) and later Amable and Palombarini (2008) introduce a link between political power balances¹, the regulation of social conflict, and institutional coherence. Social conflict is regulated when a dominant social bloc (DSB) emerges from the power balance between social groups, and their demands are taken into account by a political strategy. Contrary, other social groups’ demands are disregarded, the groups are dominated because their political representation is in a minority position or repressed by legitimate violence (Amable & Palombarini, 2008, pp. 129–130).

Amable and Palombarini (2023, pp. 943–944) suggest a three level analysis: socio-economic groups, socio-political groups and social blocs. As endogenously determined rules of the game institutions influence and result from the DSB, these institutions structure socio-economic relations (Amable, 2003, p. 11), within which individuals form socio-economic groups (Amable & Palombarini, 2023, pp. 943–944). The root of social conflict are heterogenous social expectations and demands from individuals and collectives, due to divided socio-economic interests (Amable & Palombarini, 2008, p. 129). Individuals’ interests, expectations and political demands are

¹Amable and Palombarini (2008) uses the term “political equilibrium”, in Amable and Palombarini (2024, p. 7) balance of power expresses the same meaning. Here, the latter term is adapted as in Driouich and Kallis (2025).

formed by ideology and common socio-economic characteristics (Amable & Palombarini, 2023, pp. 943–944). Ideologies organise bodies of ideas from individuals towards groups, they focus social identities and frame political demands. These ideologies are also developed through the institutional structures and organisations (Amable, 2003, pp. 49–50). By this ideological mediation, socio-economic groups are structured into socio-political groups with similar or compatible political expectations in their *space of possibilities* (Amable & Palombarini, 2023, pp. 943–944). Each socio-political group yields a certain power of influence on politics (Amable & Palombarini, 2023, pp. 944–945), and the satisfaction of demands depends on the power balance between the socio-political groups (Amable, 2003, p. 12). Political actors attempt to aggregate them behind political strategies into a social bloc. The political strategy aligns interests and expectations. The social bloc, as a de facto alliance, is heterogeneous and hierarchical, meaning that not all interests and expectations are met. Thus, it not only excludes other groups, but peripheral internal groups can also be discharged or replaced. If a social bloc supports a winning strategy, it becomes dominant. It becomes stable through the implementation of policies and institutional change in its favour (Amable & Palombarini, 2023, pp. 944–945). This maintains the power balance in favour of the DSB to ensure social stability. In this way, institutions regulate and structure social conflict. Their complementarities protect certain social groups’ interests, and hierarchically high institutions are central to maintain the power balance (Amable & Palombarini, 2008, p. 133). Combining the described theory with the heuristic of Brand et al. (2025), the legitimacy of the social order is maintained through a power balance that ensures social stability. This is sustained if the DSB’s winning strategy leads to the implementation of policies and institutional changes that support the power balance. Moreover, if the growth imperative is also grounded in power relations, the level of growth required to reproduce a power balance depends on the underlying institutional compromises (Driouich & Kallis, 2025). Growth dependence describes that “(a certain level of) growth is needed to reproduce a stable regime of power relations between different social groups” (Driouich & Kallis, 2025, p. 5).

3 The EU Decarbonisation State and its Obstruction

This section outlines the emergence of the EU decarbonisation state and strategies as well as institutional changes. Against this background, the obstruction of intensified decarbonisation strategies and policies are analysed. Subsequently, constellations of obstructing Member States (MS) groups and coalitions are deducted. It must be noted that winning decarbonisation strategies are observed, their sufficiency to tackle the climate crisis is out of scope. Empirically, it draws on legal documents and predominantly primary literature that offers insight into non-public decisions and processes through interviews.

3.1 The Emerging EU Decarbonisation State

The EU participated in the Rio Convention, where the UNFCCC was founded in 1992 and contributed to setting emission targets in the 1997 Kyoto Protocol. Its earliest large step

towards a pro-climate position within the international regime came after the US withdrew from the Kyoto Protocol in 2001. To consolidate and improve their position, the EU adopted a “speak with one voice” approach to join their forces more effectively (Oberthür & Dupont, 2021). Correspondingly, the EU’s internal approach already revolved around policy packages. This allows the commission to propose a set of legislative measures to be negotiated side-by-side in the European Council and, respectively, the Parliament, until passed as a package (Dupont et al., 2024; Jordan & Moore, 2020; Skjærseth, 2021). Targets set in these generally decadal packages became increasingly ambitious (Dupont et al., 2024; Oberthür & Dupont, 2021; Oberthür & Von Homeyer, 2023).

In the 21st century, climate change has increasingly become a matter of geopolitics, being discussed in transnational political institutions such as the G7, G20, and the UN Security Council (Jordan & Moore, 2020; Oberthür & Dupont, 2021; Prontera & Quitzow, 2022). The EU has increasingly adapted to these international relations by using decarbonisation strategies and policies to improve its international political position, especially by leveraging capacity-building and finance as key resources within a mixed approach of leadership, cooperation, and mediation (Oberthür & Dupont, 2021). As an important aspect of decarbonisation strategies, energy politics are paramount and further link geopolitical tensions to decarbonisation. In the EU case, especially pressure from Russia via its gas supply played a key role, which began using its power position in 2006 and 2009 against geographic Eastern Europe, especially Ukraine (Jordan & Moore, 2020, pp. 68–71). This shows that for the EU, decarbonisation strategies are a means of improving its international position. Not only from a position of choice, but also from geopolitical pressure, outside of climate negotiations. Thus, decarbonisation strategies were not only a reaction to the climate crisis but also necessary to fulfil the security function, at least to satisfy certain MS under pressure.

Internally, the social order the EU had built was endangered by delegitimisation after the 2005 EU referendum on a new constitution failed. Brussels needed a new approach to regain societal support through a winning strategy to maintain the power balance and social stability. To do so, the EU launched a series of policy packages in 2006, 2007 and 2008 covering renewable energy, energy efficiency, biofuels, and carbon capture and storage (CCS), largely situated around the ETS covering “all” emissions. Nevertheless, the political process and thus packaging was contested, especially by CEE members. After admitting free allowances and delaying target deadlines, the final regulations were passed (Jordan & Moore, 2020, pp. 72–75). Moreover, there is a difference between the EU’s internal and external positions. While the EU pushed for a 30% reduction target in international negotiations, it ultimately adopted a 20% target internally, while the 2007 IPCC recommendation had been 25%-40% (Dupont et al., 2024, p. 3). Thus, the EU-level institutions, specifically the commission, and the dominant group of MS push for international legislation to consolidate the EU-level power balance and gain political support for a winning decarbonisation strategy. While it does advance decarbonisation policies, decarbonisation strategies serve as a power consolidation at the EU level by using feedback from international politics that echo into the EU, with changes in the international regime as a source.

It demonstrates how the dominant social bloc gains political support by implementing strategies that drive institutional change in its favour (Amable, 2003, pp. 67–68). It is further paired with internal pressure for decarbonisation policies. Especially, in the Lisbon Treaty² following up on the Amsterdam Treaty³ (Plehwe et al., 2024). The formerly named TFEU introduces decarbonisation deeper into the integration process by aiming for harmonisation of climate measures based on scientific and technical data with respect to region-specific economic and social developments. While it does include benefit and cost aspects, it addresses both actions and inactions of MS (European Union, 2012). This connects decarbonisation strategies to the convergence processes the EU is based on. The inclusion of decarbonisation in a fundamental EU document demonstrates the institutional change inflicted by intensified decarbonisation strategies (Ergen & Schmitz, 2025; European Union, 2012). However, these legislations came into place just days before the infamous Copenhagen COP 15 in 2009. With its non-binding agreements, it was, on the one hand, a failure for the EU as an aspiring leader in decarbonisation, and, on the other hand, marked by the reorganisation of the international order due to the rise of emerging economies, particularly China. The latter significantly changed global relations, also on decarbonisation, downgrading the EU to a medium-sized player in the international order (Oberthür & Dupont, 2021).

Since decarbonisation strategies already led to institutional change affecting the EU's and MS's insertion into the international regime, another geopolitical impact hit the EU in 2014 with the Russian annexation of Crimea (Ukraine), which prompted Poland to initiate a push towards an Energy Union (Vezzoni, 2025, pp. 197–199). In this regard, Eastern MS also signalled their disappointment with the market-based approach according to Prontera and Quitzow (2022, pp. 521–522). The Energy Union approach was adopted by the Commission in preparation for COP 21 in Paris (2015) (Vezzoni, 2025; Prontera & Quitzow, 2022, pp. 521–523). Even though the preparation process was highly contested internally (Jordan & Moore, 2020; Skjærseth, 2021; Wurzel et al., 2019), the EU approach became a great success with the Paris Agreement (Oberthür & Dupont, 2021; Oberthür & Von Homeyer, 2023). Pivotal internal developments before the COP 21 in Paris were the allocation of 20% of the EU budget (2014–2020) to climate policy and the calibration of the ETS with the Market Stability Reserve (Oberthür & Von Homeyer, 2023). Additionally, the EU already moved the issuance of ETS certificates to the EU level in 2013 (Dupont et al., 2024). This potentially consolidated the power balance before the Paris conference in favour of a winning decarbonisation strategy.

As hypothesised by Brand et al. (2025), the Paris Agreement marks a turning point, from which the emergence of the EU decarbonisation state can be traced. The introduced Market Stability Reserve is set to withdraw excess certificates from the ETS to calibrate it. It withdrew half of the surplus certificates between 2013 and 2022. Meanwhile, it aims to stabilise the ETS by enhancing its ability to adjust to supply or demand shocks (European Commission, 2023, p. 25). Even though the prices of certificates remained low, the calibration of the ETS formally readies the instrument to serve an actual phase-out function. Before, the ETS merely served as a

²Officially: Treaty on the Functioning of the European Union (TFEU), effective since 2009

³Treaty on European Union, effective since 1999

monitoring and reporting document (Oberthür & Von Homeyer, 2023). Set within a similar time frame, the EU budget 2024-2020 rather supports the green growth objectives. The allocation of 20% of the budget to decarbonisation policies is an interpretation of the council (European Council, 2013a) drew from the initial framework, which did not consider this so-called “climate mainstreaming” directly (European Council, 2013b). The budget allocation, allegedly slipped through negotiations in the European Council and was hardly discussed, which allowed this so-called climate mainstreaming to avoid being obstructed (Rietig, 2021). The Market Stability Reserve can be considered a potential *shift* policy due to its aim of phase-outs, whereas the latter budget remains an *improve* policy, serving to facilitate green growth alongside fossil growth. However, the large budget allocation stems from the Commission’s aim to pursue more ambitious climate targets (Rietig, 2021, p. 14). Thereby embedding a combination of both policy types reflecting an intensified decarbonisation strategy. This combination can also be found in the Modernisation and Innovation Fund, which finances green technology and growth from ETS revenue (Ergen & Schmitz, 2025).

The EU has experienced an era of increasing East-West cleavages, as well as right-wing populism and Euroscepticism, since 2010. The latter two faced off against a combination of public support and societal movements against the climate crisis (Oberthür & Dupont, 2021). This conflict further advanced climate politics, as the climate movement as a social bloc gained greater political influence following the Paris Agreement. Specifically, in 2018-2019, the IPCC (2018) report stated the prominent 1.5 degrees global warming goal, and movements such as Fridays for Future politicised it with great success (Brand et al., 2024; Orsini & Kang, 2023; Wissen, 2020a). With the Governance Regulation of the Energy Union in 2018, the EU further aligns with the five-year cycles of the Paris Agreement to provide a mid-term review mechanism to its aforementioned decadal targets, introducing a review and accountability mechanism (European Union, 2018). This allows a review process of MS contributions to EU targets. Given the EU’s constrained capacity due to MS autonomy, this instrument indirectly fosters MS-level *shift* policies in areas where the EU lacks mandate. Additionally, the 2030 Energy Union Framework, adopted in 2018, followed the objectives of supply, competitiveness, and decarbonisation. However, as with its 2009 predecessor, the energy mix remains under national authority (Vezzoni, 2025). This emphasises the gravity of the 5-year cycles for submit, review and update processes by MS (Oberthür & Von Homeyer, 2023). Because it allows the EU to observe MS more closely and push harder on MS that obstruct decarbonisation. The EU once again combines its response to geopolitical tensions (Russia’s aggression) with decarbonisation strategies (2030 Energy Union Framework) to develop instruments that extend its influence over MS in favour of the dominant EU-level MS bloc.

The pinnacle of intensified decarbonisation strategies was reached with the Green Deal in 2019. It is intended not only to solve the climate crisis but also to ease the high tensions that have built up within the EU. The Green Deal unfolds into further packages, such as Fit for 55, which adds further subsidies, and the Carbon Border Adjustment Mechanism (CBAM), an internationalisation of the ETS and a protective measure for industries (Dupont et al.,

2024; European Commission, 2019a; Oberthür & Von Homeyer, 2023). The European Green Deal was heavily contested and received significant political pushback (Dupont et al., 2024), while layering various decarbonisation policies, thus ensuring that the EU remained on track, arguably leading in international comparison (Oberthür & Von Homeyer, 2023, p. 1105). As part of Fit for 55, and thus the Green Deal, the so-called Combustion Car Ban was introduced (European Union, 2019).

However, it was revised and significantly weakened in the next regulation in European Commission (2019b) due to pressure from Germany (Plehwe et al., 2024, pp. 322–323). For a certain period, it was one of the few very intensive *shift* policies. Further, an asset purchase program was introduced, however the portfolio shift of the European Central Bank (ECB) towards green assets merely held for a year (Gabor et al., 2023). Moreover, the EU Taxonomy included in the Green Deal aims to attract funds from financial markets, especially institutional investors by setting mandatory standards for declaring assets as environmentally sustainable (EP & CoEU, 2018). The revision of parts of the Green Deal, especially the Combustion Car Ban, demonstrates the adaptability of EU decarbonisation strategies as winning ones, thereby maintaining dominance of a certain MS bloc.

Following the Green Deal the EU Commission also took “A green oath”, obliging itself that the Green Deal and all other EU initiatives “do no harm” (European Commission, 2019a, p. 19). This was put into legislation with the European Climate Law in 2021 (European Union, 2021). This reveals further institutional change that maintains the existing power balance (Amable, 2003, pp. 67–68). Nevertheless, the green oath is particularly ambiguous, as it holds the Commission accountable for following a decarbonisation strategy while also highlighting the necessity of reducing the burden on economic units (European Commission, 2019a). Regarding accountability, the EU establishes Scientific Advisory Boards at the EU level, while leaving national-level oversight to MS (European Union, 2021). Further, both documents emphasise the importance of the EU’s international leadership in shaping its strategy (European Commission, 2019a; European Union, 2021). The shift of power towards the Commission and the ECB also shows new constitutionalist developments. The introduction of independent political institutions with separate goals to detach political processes from democratic interference has been described as a core element of the EU and its integration processes (Schneider et al., 2023; Slobodian, 2021). It fosters a set of independent political institutions that broker decarbonisation strategies and policies across the inter-, supra-, and national levels. The combination of decarbonisation as political leverage in the international arena and, internally, as a response to geopolitical pressure plays an important role in the EU case once again. It can also be linked to the state’s core functions of international competitiveness and security, which are increasingly tied to decarbonisation strategies.

The emergence of the EU decarbonisation state between 2014 and 2019, marked by intensified decarbonisation strategies, features two temporal crystallisation points. First, the politics and policies around the Paris Agreement in 2015 and its further impact in the post-Paris Agreement era. Second, the 2018/19 success of societal movements that backed and politicised the

IPCC (2018) report, finally culminating in the European Green Deal. Shortly after its introduction, it was hit by the continuous multipolar crisis of Covid, Ukraine War, Cost-of-Living crisis and various conflicts in the Middle East, with a highly ambivalent outcome for the decarbonisation state. Meanwhile, underlying conditions and conflicts around decarbonisation strategies remain at play and may increase. Because these might affect development or restructuring during the crisis, studies such as this one need to be conducted before assessing the crisis phase and potential backlash. Especially since the Green New Deal led to a linkage between economic recovery and the green transition, similar to the euro crisis (Eckert, 2021). The euro crisis has also been marked by many underlying heterogeneities of the member states that were ignored on the EU level, as highlighted by Becker and Jäger (2012).

Each presented policy is developed through policy packaging, thereby forming a winning strategy that integrates the political demands of the dominant MS and incrementally increases decarbonisation strategies. Thus, each decarbonisation strategy within the EU's institutions consolidate the balance of power between MS, and ensures the legitimacy and stability in the respective MS level DSBs. However, for the dominated MS and their MS-level DSBs, the outcome might differ due to specific structural limitations, leading to severe obstruction efforts. Possibly, these will not be fully absorbed by the described approach of the EU, especially when it comes to unanimous decisions.

In short, the EU decarbonisation state is emerging in its specific supranational form accompanied by intensified decarbonisation strategies. The formation under geopolitical tensions led to institutional change in the international and EU-level regime. These culminate around two crystallisation points. First, the 2015 Paris Agreement and second, the 2018 IPCC report and climate struggles leading up to the Green Deal.

3.2 Decarbonisation and Obstruction in the European Council

As aforementioned, decarbonisation strategies are subject to an East-West cleavage, as well as conflicting social blocs of right-wingers and climate movements. Refining this further, Huber et al. (2021) find that right-wing-populists oppose decarbonisation strategies from different positions, potentially depending on their role in governments as either junior partners, co-leaders or dominant members, thereby increasing their opposition to decarbonisation strategies. This leads to mixed effects of MS with right-wing background in the European Council. Additionally, based on voting behaviour, national interests have gained importance in the European Parliament, especially among the Visegrad 4⁴ (Zapletalová & Komínková, 2020).

The European Council is not only central to strategic decision-making in the EU (Jordan & Moore, 2020), but also has significant authority over key decarbonisation aspects of energy and climate targets (Bocquillon & Maltby, 2020). For decarbonisation, the Council is a central state apparatus where different strategies are confronted. While qualified majority voting (QMV) applies to climate policy, certain crucial aspects, such as taxation and the energy mix, remain subject to the Council's unanimity rule (European Union, 2012, Art. 192). The

⁴Czechia, Hungary, Poland, and Slovakia

council remains a bottleneck to the EU’s intensified decarbonisation strategies, even though there have been many centralisations of power within the EU, as described before. Here, the veto power of a single MS can obstruct decarbonisation strategies in unanimity decisions. Thus, the dominated bloc that already faces structural limitations cannot be overruled. Especially taxation and energy are central for *shift* policies to drive, e.g. fossil-energy and heating phase-outs or enforced technology phase-outs. The structural limitations of obstructing MS create an implementation gap. Furthermore, the European Council is the apparatus through which the MS are confronted with certain outcomes of the new constitutionalism they imposed, in the form of the Commission’s authority to initiate policy processes and to issue reports on the MS, which set policy targets.

Subsequently, the MS governments’ obstruction in the Council is a crucial aspect of the obstruction of decarbonisation strategies and policies in the EU, further emphasised by country-specific variants of similar political orientations towards decarbonisation. The latter suggests crucial differences in the institutional structure associated with the MS level DSBs. This study understands the open resistance to an otherwise winning decarbonisation strategy as obstruction. It is exercised from a predominantly minority position against a popular compromise by establishing blocking minorities, vetoes and judicial steps.

Within the Council, two coalitions around decarbonisation strategies can be observed. While these groups have many other internal differences, towards this political aspect, they tend to form coalitions. With a more ambitious decarbonisation strategy, the green trio⁵ developed into the green sextet⁶ and later into the Green Growth Group (GGG)⁷. Often in contrast to Central Eastern European (CEE) MS and the more institutionalised Visegrad 4 (V4) (Jordan & Moore, 2020; Wurzel et al., 2019). The formation of obstructing countries is traced towards the two crystallisation points: the Paris Agreement and the Green Deal.

3.2.1 Obstruction Towards the Paris Agreement

Over the course of policy making in the 2000s, renewable energy targets were seen as a danger to MS autonomy. Yet, accepting unbinding targets allowed the newly joined CEE countries to avoid exclusion from the EU level (Braun, 2019). Especially, for the V4 joining the EU was a highly important milestone (Visegrad 4, 2004). Thus, open obstruction of EU policy was seen as potentially endangering to the imagined route to EU prosperity. While climate policy is not a defined key area for the Visegrad 4 (V4), and despite differing interests in energy, coalitions have brought them together again. Their opposition to energy policy has been rising since 2013, additionally the relative amount of non-unanimous decisions on energy bills in the Council rose since 2015 (Braun, 2019). In their official public statement the V4+, extended by Bulgaria and Romania, openly position themselves against binding renewable energy and energy efficiency targets, further stating that targets “must be set realistically and in a technology

⁵Denmark, Germany, Netherlands

⁶Denmark, Germany, Netherlands, Austria, Finland, Sweden

⁷Belgium, Denmark, Estonia, Finland, France, Germany, Italy, the Netherlands, Portugal, Slovenia, Spain, Sweden and the United Kingdom (dropping out with the Brexit process from 2016-2020)

neutral way” (Dynamic Visegrad Group, 2014, p. 1). The Dynamic Visegrad Group (2014) statement advocates against policies that implement *shift* strategies and hesitantly aim for *improve* strategies to build green capacities first aside fossil ones, without a clear aim for decoupling. The ‘+’ expansion of the V4 to Bulgaria and Romania strengthens their position and has been tried repeatedly by them (Wurzel et al., 2019). Moreover, the CEE face Russian aggression through the aforementioned gas wars, yet the statement shows they also reject renewable energy as a countermeasure, even though the Commission even took up on the idea of the Energy Union.

During the conflict leading to the Paris Agreement, the V4 hardened into opposition to the Green Growth Group and called for a more defensive approach at the conference. However, their internal organisation was inconsistent. While Czechia rather focused on cost avoidance and compensation, Poland was reluctant to any form of change of its economy. Specifically, Poland and Hungary tried forming a blocking coalition against the Market Stability Reserve, which failed as Czechia gave up and Slovakia never started blocking (Braun, 2019). On the contrary, the GGG pushed for more ambitious climate policy. While being unable to delay the 2030 targets, the CEE MS led by Poland tried to delay the process after the adoption of the Paris Agreement. The added revert clause of the Council’s agreement to engage in the Paris Negotiations has been ambiguously interpreted by the Commission and Poland, either as reverting targets if Paris had been more successful or as an opt-out if negotiations had failed (European Council, 2014; Jordan & Moore, 2020). Specifically, Poland also posed a severe risk of division at the COP in Paris by openly opposing the EU internationally (Skjærseth, 2021, p. 32). This strongly undermines the EU’s “speak with one voice” credo risking their power position in the international order. This fragile power balance is then stabilised by the Paris Agreement, which aligns with the reduction targets the council compromised on (European Council, 2014; United Nations, 2015). Thereby, a temporary balance of power and legitimacy of the social order on the EU level is established through dominance of the GGG.

3.2.2 Obstruction Towards the Green Deal

The post-Paris era began with concessions to the least ambitious CEE countries, as they posed fierce opposition within the council, which also led to the most ambitious obligations for the high-income countries in EU comparison (Skjærseth, 2021). Moreover, the GGG was weakened by the Brexit (Wurzel et al., 2019), losing the third most influential country in qualified majority voting over the course of 2016 to 2020 (Leonard et al., 2019)⁸. Aside from visible concessions, the Commission adapted a more cautious approach due to anticipated and actual opposition from V4 countries (Rietig, 2021, pp. 1031–1032). Furthermore, based on interviews Wurzel et al. (2019) find, that negotiations in 2016/17 leading to the 2020 Climate and Energy Package were marked by the emergence of insurmountable differences “between the poorer (‘new’) Central and Eastern European States (CEES) and the richer (‘old’) Western European Member States”

⁸While many Green Growth Group Members gained relative power, Poland had the highest gain in relative power (Leonard et al., 2019)

(Wurzel et al., 2019, p. 253).

Still, some of the latter, namely France, Sweden and the Netherlands, pushed for even more ambitious measures in 2018, aiming to achieve net-zero by mid-century (Jordan & Moore, 2020). Their call unsurprisingly coincides with the intensification of pressure from climate movements and the IPCC (2018) report, which resonated with EU-level climate policies. According to Orsini and Kang (2023), participation by climate movements in international negotiations beyond the EU was not specifically divided along typical lines (East-West, Mediterranean vs Central). Yet, only some Members of the GGG⁹ included youth groups more extensively. Nevertheless, the integration and participation of youth movements are still treated as interventions with clear boundaries to policy-making (Orsini & Kang, 2023). Thus, the EU and some MS leverage youth movements' to associate themselves with their social bloc to gain political support, while insulating them from deeper participation in policymaking. In sharp contrast, the Polish PiS government of 2016-2020 framed coal as a culturally significant aspect of Polish identity and frames anti-coal policy as pushed by detached elites (Huber et al., 2021). A similar symbolic and real importance of coal can be found in Czechia (Roberts & Brulle, 2024).

Even with promising advancements and active societal movements, the late 2010s were increasingly troublesome for decarbonisation. While the "A clean planet for all" offered a decarbonisation strategy examining pathways to stay within the Paris Agreement targets (A Clean Planet for All, 2018), it failed due to opposition from Poland, Hungary, Czechia, and Estonia, which also blocked the 2050 targets (Rietig, 2021; Skjærseth, 2021). Following the Brexit, the net-recipient countries and the V4 opposed the 2021-2027 EU budget, leading to a "deadlock" in the council, with the V4 in an exceptional disagreement (Rietig, 2021). Later, the introduction of the Green Deal resolved issues with the first approach, which had been the "A clean planet for all" (Skjærseth, 2021). But it was still opposed by Romania (Rietig, 2021). As part of the Green Deal, the Fit for 55 package was developed and fiercely opposed by Poland, even going so far as to file a court case against it (Weise & Posaner, 2023; Bocquillon, 2024, p. 131). The latter is related to Poland's typical approach of opposing energy policy through unanimous decisions (Huber et al., 2021). At the start of the pandemic in 2020, Czechia called for abandoning the Green Deal altogether, and later that year, Hungary and Poland opposed the next EU budget, putting the Green Deal funding scheme at risk. Conversely, France and Germany led the push for the named economic recovery plan that integrates the green transition (Eckert, 2021, pp. 84–88). Beyond the apparent obstruction of intensified decarbonisation strategies, there are ongoing concerns of CEE countries channelling funds from the Green Deal to fossil industries (Skjærseth, 2021, p. 37; Eckert, 2021, p. 87). This shows how the European Green Deal is a pinnacle of politicisation of the climate crisis and conflict around it, with ongoing danger of dismantling it through the back door (Bocquillon, 2024). As argued before, the Green Deal is the result of a conflictual, highly unstable, and contested EU decarbonisation strategy. Packages introduced as part of it may undercut or fall short of former achievements.

⁹Belgium, Germany, Netherlands, Sweden

The findings presented here already indicate stronger opposition from Hungary and Poland, as found by Četković and Buzogány (2019) as well. Their usual coalition building is based on the institutionalised V4 constellation, potentially forming alliances with other CEE MS most evidently Romania and Bulgaria. They do agree to *improve* policies, yet aim to reduce *shift* policies to the former. An interesting example to highlight is the revision of the Clean Planet for All strategy to the Green Deal, which remained contested while offering large funds for making further *improve* policies. Their opposition also weakens the strength of the EU in the international field, which reciprocally reflects on the intensity of internal policy making and decarbonisation strategies.

4 Modelling Regimes

The general empirical strategy follows the approach developed by Amable (2003) and adapted to traditional RT in Cahen-Fourot (2020) and Elie et al. (2012). First, modelling regimes from quantitative variables using Principal Component Analysis (PCA) followed by hierarchical clustering on principal components (HCPC) for each institutional form, as well as demand and production regimes. This associates each state with a set of specific regimes. Second, a comparative analysis of MS sets of regimes using multiple correspondence analysis (MCA). This shows the complementarities and differences existing in the economically stable phase 2014–2019. Third, the subset of obstructing countries found in Section 3 is selected and analysed for shared systemic factors. Figure 1 visualises the approach.

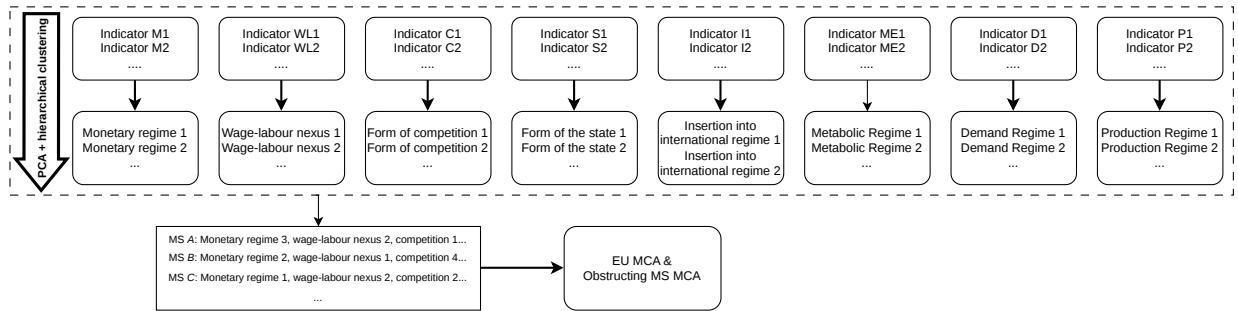


Figure 1: Flowchart of empirical strategy, modelling qualitative regimes from quantitative variables

4.1 Empirical Strategy

For each institutional form and the demand and production regime mentioned in Section 2.3, a set of indicators as proxies is selected based on theoretical reasoning. In contrast to Cahen-Fourot (2020), country-year observations are projected instead of averages. Using panel data increases the number of observations available for deriving regimes and reveals their dynamic evolution over time, making directional regime shifts visible. However, it limits the usable data because many social surveys are not annual, time-inconsistent, or not available for all MS.

Ireland, Malta, Cyprus and Luxemburg are excluded as their outstanding financialisation and tax heaven status did massively obscure PCAs and clusters.

Next, per institutional form and demand and production regime, PCAs are performed. This reduces the dimensionality and extracts the underlying structure of the data. PCA can handle large datasets and extract relevant information by creating synthetic dimensions (components) (Cahen-Fourot, 2020, pp. 7–8). PCA is used to process the data for subsequent hierarchical clustering by HCPC (Husson et al., 2017, pp. 191–194). Each cluster is interpreted as a regime. Given the explanatory nature of the approach, cross-validation across five criteria determines the number of retained dimensions for clustering: Kaiser criterion, retaining a cumulative percentage of total variation above 80% or 90% (Jolliffe, 2002, pp. 112–115), and suggested retention of the cross-validation function of the Husson et al. (2026) package. Lastly, if important theoretical differences are evident in the next dimension, they are retained as well. The retained components (dimensions) are clustered using Ward’s criterion with the HCPC function from the Husson et al. (2026) package. Clustering as an exploratory approach seeks to achieve interpretable results (Husson et al., 2010, pp. 188–199). The criteria used for clustering are: First, choose an amount that yields a large inter-cluster inertia gain. Second, as in Cahen-Fourot (2020, p. 7), relatively homogeneous numbers of clusters, since highly heterogeneous cluster sizes bias the MCA. Third, not too few clusters to avoid suppressing information (Husson et al., 2010). See appendix A.6 for indicators on dimension retention and cluster sensitivity test.

After each country-year has been assigned a discrete categorical variable for each intermediate concept, representing a qualitative interpretation of a specific regime, two MCAs are conducted. MCA is used to handle categorical variables. Here, MCA is used to study the relationships between the regimes and the groups of countries associated with them (Husson et al., 2017, Chap. 3).

4.2 Operationalising Institutional Forms & Demand and Production Regimes

RTs advantage as an applied theory is that it acts as a “loose frame” (Hirsch, 2003, p. 102) that allows the adaptation from adjacent theoretical strands to reason for indicators. The way of presenting the achieved dimensional reductions and key insights follows the example of Cahen-Fourot (2020). The ideal type of each regime is displayed as the spatial mean (centroid). If countries switch regimes, multiple ideal types are visible. For a tabular presentation of indicators, sources and datasets, see appendix A.

4.2.1 Monetary Regime

Money as the general equivalent serves as the basis for commodity exchange as a fundamental social relation (Boyer, 1990, pp. 33–37). Its value is observed in Harmonised Indices of Consumer Prices (HICP). In contemporary economies, the characteristic form of exchange is

maintained through the financial system as a network of credit and refinancing operations (Boyer, 2022, pp. 18–19). The financial system can tend to bank-based or market-based finance (Stockhammer, 2004). The notion of a market-based system can be proxied by market capitalisation, measured as total listed company shares relative to GDP as in Gabor and Braun (2025) and Lane (2024). A large financial sphere is associated with firms acquiring finance from financial markets. Conversely, the notion of a bank-based system can be proxied by the non-financial company debt to GDP ratio. Besides credit operations for non-financial companies, banks can also provide credit to households (Becker & Jäger, 2012), proxied by their respective debt to GDP ratios. Behind this, the central bank ensures a functioning system as a lender of last resort (Lavoie, 2022, pp. 199–216). Its inclination to fulfil the lender of last resort function can be judged by the length of its balance sheet, approximated by the central bank’s asset to GDP ratio. Lastly, the regulation of financial flows in a globalised world can be proxied by the Chinn-Ito Index for capital account openness. It is noteworthy that the interest rate is set by the European Central Bank or is converging toward it (European Union, 2016), thus the inclusion of central bank interest rates is not sensible in the EU case. However, Eurozone membership is indirectly observed by the Chinn-Ito Index. By financial vehicles declared as green the state tries to de-risk green investment (Gabor & Braun, 2025), this can be proxied by the share of issued green bonds in total bonds. It is supplementary because the annual deviation is very high, rendering the regimes artificially unstable and overestimating their impact on the institutional form.

Five dimensions are retained in clustering and four monetary regimes are obtained. The strongest impacts on clustering are from their capital account openness and market capitalisation. The first dimension can be described as an indicator of financialisation and accounts for 42.91% of the total variance. The second dimension shows the decreasing risk aversion by the MS. Risk is contained either through the involvement of the central bank or through closed capital accounts. It contains 19.90% of the total variance. Therefore, the regimes are: *financialised*, *secured financialised*, *controlled open* and *closed* monetary regime.



Figure 2: PCA and Hierarchical Clustering of Monetary Regime

4.2.2 Wage-Labour Nexus

The wage-labour nexus describes the conflict between labour and capital over income distribution and working conditions. Moreover, it is related to the reproduction of the workforce, intertwining the wage-labour nexus and gender relations (Becker, 2013, pp. 41–43). As aforementioned, income distribution depends on power relations. The outcome can be observed as functional by the wage share as in national accounting, and as personal by the distribution to households as measured by the pre-tax Gini. The power relations can be measured by three key power resources of labour: structural, associational and institutional power as suggested by Schmalz and Dörre (2014) and Wright (2000)¹⁰. Structural power stems from workers' position in the economic system, on the simplest macro-level, it depends on the tightness of the labour market (Wright, 2000, p. 962), which is reflected in the employment level. Associational power of labour refers to workers' ability to organise, with union membership as the most reliable indicator (Schmalz & Dörre, 2014, pp. 224–225), measured by the degree of unionisation. Institutional power is usually the result of past conflicts and power relations that became fixed when capital depended on labour's cooperation (Schmalz & Dörre, 2014, pp. 227–228). One common form is bargaining agreements, which can be proxied by the bargaining coverage.

If the work necessary for reproduction is not provided by the economic system, it is externalised outside the monetary circuit into the supposedly private sphere, where it is predominantly done by women^{*11} (Sauer, 2025). As a result, the division of labour within the household is unequal (Haller, 2018), as measured by the gender-care-gap or, conversely, the

¹⁰Societal power as the ability to use interaction with societal actors is hardly quantitatively measurable and highly case specific and thus omitted

¹¹the * indicates that this relates to all persons perceived as women / female

gender-employment-gap. The structural subordination of women* is referred to as patriarchal. Due to data coverage and quality, the gender employment gap is used as an active variable, and the gender care gap is used as a supplementary variable. Theoretically, less participation in the wage-labour market indicates more unpaid reproductive work.

Retaining five dimensions from clustering, five regimes are derived. The gender employment gap and the gender care gap have the same correlation to the first two axis, satisfactory validating mentioned relation. The most important influence on clustering is given by the institutional and associational power resources of labour. The two-dimensional difference can be identified by the systemic position of labour, with 39.89% of total variance. Whereas the second dimension can be summarised as the power of labour itself (e.g. associational or institutional), with 26.14% of total variance. Further, if the power of labour itself is high, gender-based wage discrimination is lower. If labour is only systemically strong, it leads to in-household gender inequality. The only regime cluster with low gender discrimination in wages and low inequality of within-household division of labour is the one where labour has a high degree of all three power resources, thus the wage-labour nexus is monopolistic. If power resources are lower and the labour market becomes more competitive, the gender discrimination increases in commodified form by wage discrimination and/or gender discrimination within households. Furthermore, while the institutional power resources are visible without strong associational power, it does not appear the other way around, highlighting how institutional power can outlast organisational power. The obtained clusters are: *monopolistic*, *institutional commodified-patriarchal*, *competitive commodified-patriarchal* *institutional patriarchal* and *competitive patriarchal* wage-labour nexus.



Figure 3: PCA and Hierarchical Clustering of Wage-Labour Nexus, *Note:* Romania increased bargaining coverage through policy, which does not necessarily reflect institutional power.

4.2.3 Form of Competition

The form of competition describes the confrontation on the market after production (Boyer, 1990, pp. 39–40). The most obvious elements of competition are the degree of concentration and price formation (Guttmann, 2015). The degree of competition or, conversely, monopolisation affects price formation (Kalecki, 1971, pp. 44–47). The degree of competition in the domestic market is commonly measured by the Herfindahl-Hirschman Index, and the penetration of markets abroad by the Export Market Penetration Index. Firms compete for market shares by growth to dominate the competition (Lavoie, 2022, Chap. 3). However, with financialisation, so-called shareholder-value orientation arguably shifted interest from growth by accumulation to profits (Aglietta, 2000, 2008; Boyer, 2000). This trade-off decision between growth and accumulation orientation can be expressed by profit and growth rates (Stockhammer, 2004). While the EU may have strong exporters, these might compete both within and outside the EU (Lipietz, 1997, p. 22). The focus can be measured by the share of net exports intra- and extra-EU. The price competitiveness is substantially affected by labour costs and, respectively, productivity as part of unit prime cost (Kalecki, 1971, Chap. 5). However, high annual deviations challenge trend observation, restrict cross-country comparison, and obscure the factorial plane. The annual change in nominal hourly unit labour costs is used only as a supplementary variable for interpretation.

For clustering, five dimensions are retained, yielding four regime clusters. The highest cluster discrimination results from the penetration of export markets, as well as profit and accumulation rates. On the factorial plane, the first dimension reflects the degree of and orientation towards international competition, inside and beyond the EU market. It explains 36.43% of total variance. In the second dimension, 29.09% of the total variance is explained and predominantly indicates rising rentability, as reflected in high profit and accumulation rates. The close correlation between profit and accumulation rates indicates that there is no cross-country comparative appearance of a shareholder value orientation, marked by a preference for profits over accumulation. In the clusters, two regimes show an interesting difference: the focus on international competition can be paired with high competition within the MS economy, while the orientation to international competition extends to both outside and inside EU markets. However, competition can also be external, where internal markets have weak competition but external markets are in focus. Thus, internal competition can enhance international competitiveness, yet the opposite is also possible: low internal competition can lead to monopolisation tendencies with large companies that can compete internationally. Thereby, the obtained regimes are, *external*, *international*, *domestic* and *skewed domestic* competition.

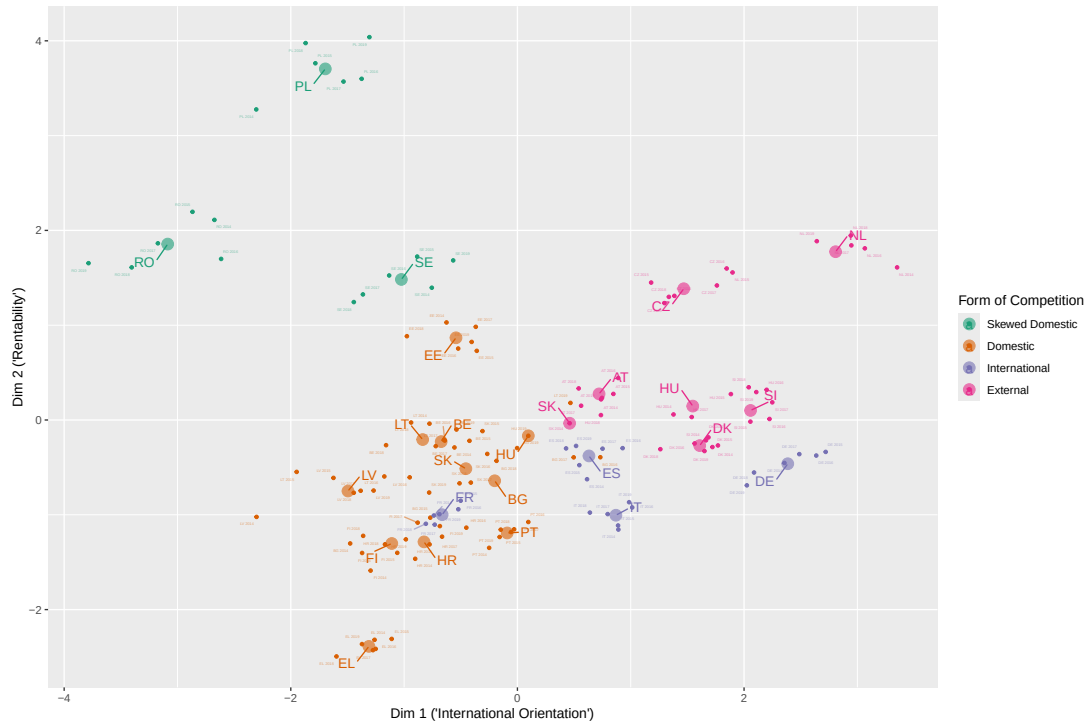


Figure 4: PCA and Hierarchical Clustering of Form of Competition

4.2.4 Forms of the State

The state is inherently dependent on the functioning of the economy to generate tax income (Hirsch, 2005, pp. 33–34; Brand et al., 2025; Becker & Jäger, 2012). The specific conditions the state faces to finance its budget depend on the institutional setup (Lavoie, 2022, Chap. 4). In the EU, the MS debt to GDP ratio should not have an excessive deficit above the reference value (Debt to GDP: 60%), unless it is declining or exceptional and temporary (Primary balance to GDP: -3%) (European Union, 2012, Art. 126)¹². The measures in parentheses can be obtained and show the government's fiscal space (Debt to GDP) and its fiscal stance (Primary-balance-to-GDP). Especially, the welfare state is an important reflection of the power balance (Atzmüller, 2024). It is most notable in its role in redistributing income, measured by the effects of taxes and social transfers on the distribution of income between the top 20% and the bottom 80%. A more specific orientation of the state toward other institutions or social groups is evident in its budget. The Classification of the Functions of Government (COFOG) by the United Nations Statistics Division (2025) shows in which direction the budget is tilted and, respectively, favours social groups. It also indicates the welfare state and the state's fulfilment of its core functions. COFOG standardises the budget in 10 categories, being: public services, defence, public order & safety, economic affairs, environmental protection, housing, communities & amenities, health, recreation culture & religion, education, and social protections.

Six dimensions are retained for clustering and four different regimes are obtained. The largest impact on clustering is given by the orientation of the budget towards social policies,

¹²The cyclical component given by the stability and growth pact in the form of the output gap is omitted as it is subject to continuous, major revisions (Heimberger et al., 2017)

the debt to GDP ratio and spending on public order and safety. The first dimension shows the difference between a state focused on legitimacy via a strong welfare state and one focused on legitimacy via discipline through public order and safety, accounting for 29.36% of total variance. In the second dimension, 18.67% of the total variance is explained and mainly corresponds to the tightness of fiscal space in opposition to education spending. The second dimension features Greece as an outsider, given its small fiscal space due to heavy indebtedness, thus burdened by austerity. Another observable qualitative contrast is between expanding welfare-state functions (education, redistribution, health) and disciplining (public order and safety, defence). Both directions can be seen as consequences of policies that favour the legitimacy of the social order. This leads to the following regimes: *socio-democratic*, *modernised socio-democratic*, *austerity burdened dual-disciplining* state.



Figure 5: PCA and Hierarchical Clustering of the Form of the State

4.2.5 Insertions into the International Regime

The international regime describes the configuration of economic spaces and their connections, which define constraints and possibilities. The national regime takes a dialectic position in the international regime influencing its internal and the international dynamics (Boyer, 1990, pp. 40–41). In the international regime, production of commodities is run along global value chains (GVC). The national economies differ in their involvement in this process, resulting in varying abilities to shape the labour process and capture added value. This constitutes power relations between national accumulation regimes (Carballa Smichowski et al., 2021). The participation in GVC can be measured by the share of output that is involved in global value chains. The relative position of insertion into the GVC hierarchy can be assessed by the

value captured in the economy. Both measures can be computed following the index suggested by Carballa Smichowski et al. (2021, pp. 6–11). In globalised production, certain inputs enter domestic production as unfinished goods. Thus, the economy depends on backwards linkages to export goods, which is measured by foreign value added in total exports. Conversely, producers of unfinished goods depend on the re-exports of the goods by third countries, namely, forward linkages. Further, the expansion of industrial capacity can depend on foreign direct investment (FDI) (Jäger et al., 2020). This can be measured by inward FDI. Vice versa, outward FDI shows the involvement of the domestic financial sphere into foreign countries. Lastly, high overall FDI, should signal high involvement in GVC via financial markets.

Clustering on three dimensions extracts four regimes. All indicators have a strong influence on clustering, with the largest being inward and outward FDI, followed by backward linkages in GVC. The first dimension can be interpreted as a high financial market throughput with the potential to drain or increase capital, explaining 50.37 % of total variance. Whereas the second dimension shows increasing upstream or, conversely, downstream insertion in the international regime and explains 29.58% of the total variance. Further, reliance on foreign value-added inputs can undermine the ability to capture value from GVC, worsening the level of insertion into the international regime. Moreover, two contrasting cases of strong insertions can be defined. Either a high financial insertion with a low ability to capture value from GVC in the real economy, or a high real economy insertion with high value capture yet low participation in the global division of labour. The obtained regimes are: *high financial*, *semi-peripheral*, *independent intermediate*, *high real economy* insertion into the international regime.

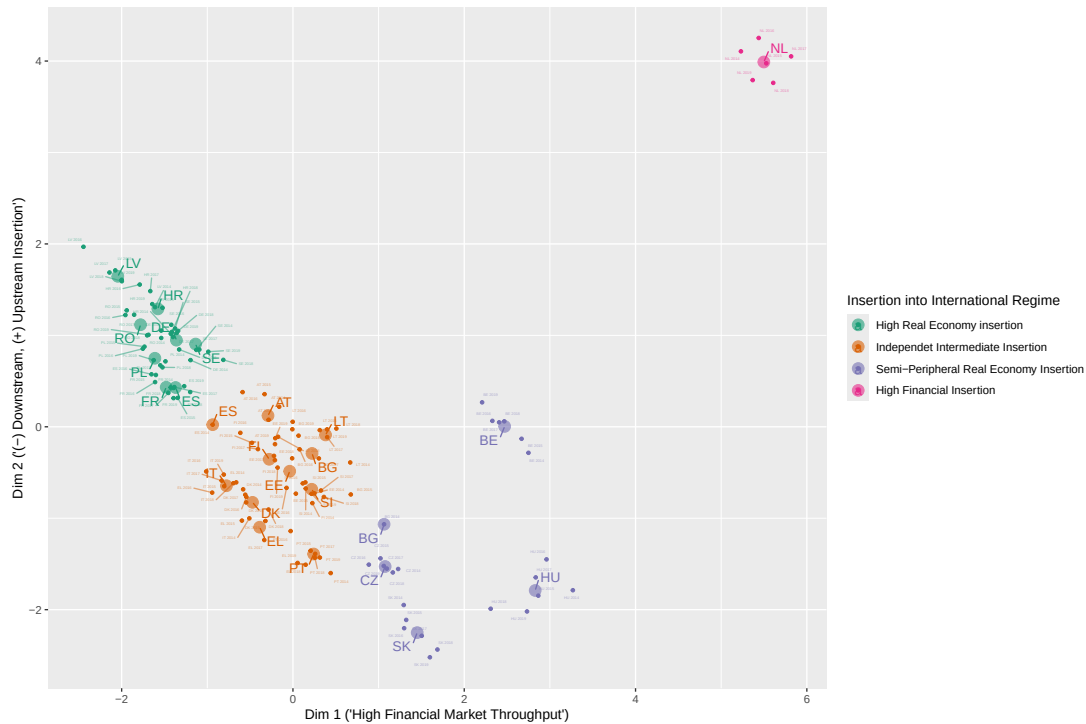


Figure 6: PCA and Hierarchical Clustering of the Insertion into the International Regime

4.2.6 Metabolic Regimes

Following the model by Pineault (2025), a reproduction process that extends towards the extraction of material as inputs and the dissipation of material as output from (to) nature. The energy input into production is indicated by the total energy input and the non-renewable energy share. Whereas the input of material can be seen by the material footprint, this measure goes beyond borders and includes the material extracted from nature abroad. Thus, it measures the ecological impact of a country's production, independent of the spatiality (Pineault, 2025, pp. 19–20; Cahen-Fourot & Magalhães, 2024, pp. 4–5). The dissipation side can be approximated by GHG emissions and waste that is not recycled. Given that the sphere of monetary production and circulation is already covered, and the metabolic regime aims to reflect the biophysical effect on nature, the biophysical stocks between extraction and dissipation are not covered by the metabolic regime.

The first three dimensions are included for clustering, and five regimes are derived, with the largest influence on clustering arising from total energy usage. The first dimension can be termed the degree of green elitism, contrasting the material footprint to the use of non-renewable energy. This unequal distribution between societies can further indicate an increased imperial mode of living in EU comparison (Brand & Wissen, 2021; Pineault, 2025). It explains 48.92% of the total variance. The second dimension can be described as energy-based pollution, accounting for 30.13% of the total variance. The most interesting contrast is the one on dimension one. The potential for lower non-renewable energy use in the energy mix is at odds with the material footprint. Since the material footprint includes extraction abroad, it is an exceptional proxy for externalisation of ecological and social burdens. It highlights the growing spatial disconnection between extraction, transformation, use and dissipation (Pineault, 2025). The contrast between, on the one hand, countries with a high material footprint and high capacities for renewable energy production, and, on the other hand, countries with a high fossil energy supply yet a lower material footprint, shows a somewhat green-elitist divergence in the EU. It follows that the obtained clusters are: *green elite*, *aspiring green elite*, *carbon age giants*, *carbon age small pollution* and *energetic pollution* metabolic regime.



Figure 7: PCA and Hierarchical Clustering of Metabolic Regimes

4.2.7 Demand Regimes

Similar to the RT approach stressed by Amable (2023) and the demand and growth regime approach (Hein, 2023, p. 17), defining GDP (Y) from demand side components: Consumption (C), Investment (I), Government expenditure (G), net exports as exports less imports (NX), yields:

$$Y = C + I + G + NX \quad (1)$$

In contrast to some demand and growth regime approaches, contributions to these demand aggregates from growth are not computed. Considering the demand components is satisfactory and suitable for annual cross-country comparison.¹³ The shares of GDP obtained from national accounting per annum (t) in nominal terms are expressed as:

$$\frac{C_t}{GDP_t} + \frac{I_t}{GDP_t} + \frac{G_t}{GDP_t} + \frac{NX_t}{GDP_t} = 1 \quad (2)$$

As a supplementary variable, green investment is added to reflect nature as an implicate societal relation.

Three dimensions are sustained for clustering and five regimes are derived from them. The strongest influences on clustering come from consumption and government expenditure components. The first dimension shows the polarity between extraversion and introversion, which explains 54.12% of total variance. The second dimension shows the focus on expanding pro-

¹³Computing the drivers of growth leads to high annual deviations, rendering a comparison by annual cross-country observations impossible. The computation by Akcay and Jungmann (2023, p. 545) demonstrates the problem of strong deviations for Poland.

ductive capacity through a relatively high investment component, accounting for 24.30% of the total variance. In clustering, it is observable that those with a large export contribution usually back this up by either government spending or by recirculating the additional injections in their circuit via consumption and investment. Thus, the defined clusters are: *state-backed extraverted*, *recirculating extraverted*, *state-stabilised intensive*, *introverted*, and *struggling introverted* demand regimes.

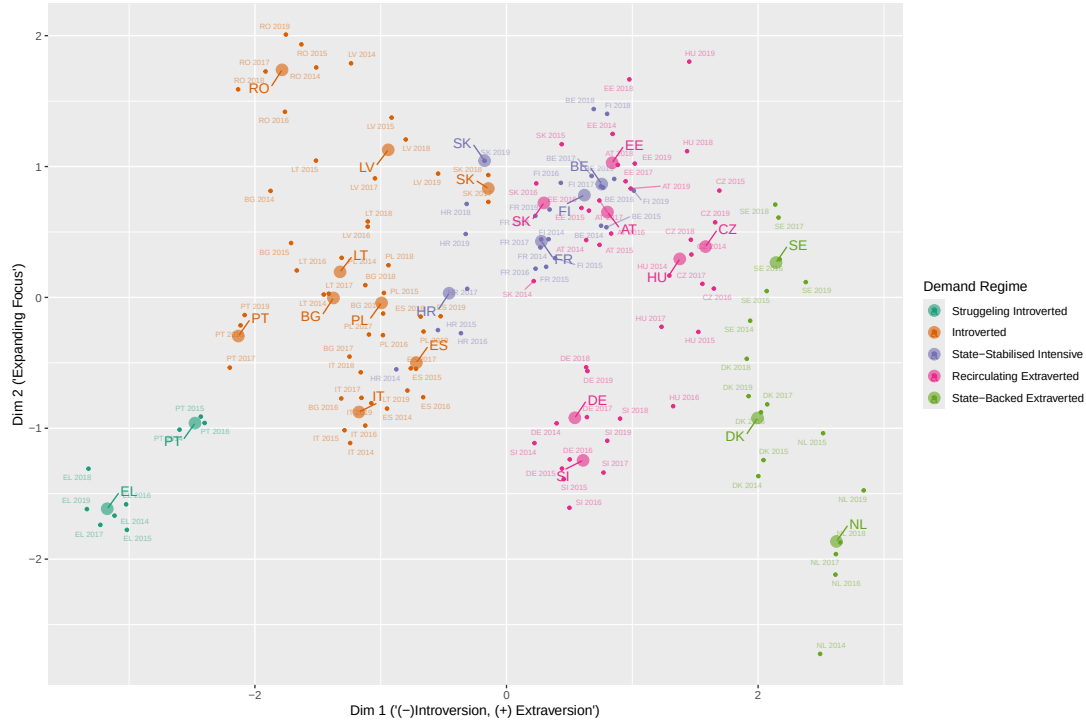


Figure 8: PCA and Hierarchical Clustering of Demand Regime

4.2.8 Production Regimes

The ratio between different branches and sectors in production is essential for the accumulation process (Hirsch, 2005, pp. 87–88). The two-sector model of Thirlwall (1986), with a simple agriculture sector and a developed industrial sector generating industrial outputs, can be approximated by the sectoral structure in NACE Rev. 2 categories defined in European Commission (2010). Empirically, this can be seen as the shares of gross value added disaggregated by NACE Rev. 2 categories defined in European Commission (2010). This captures the relative weight of sectors in a given accumulation regime.

Nine dimensions are retained for clustering, yielding four regimes. However, there is no single indicator that clearly outranks the others in clustering. The first dimension, explaining 24.37% of the total variance, can be described as volatile extraversion, marked by increasing contributions from simple sectors such as tourism or primary production. The second dimension, explaining 22.55% of total variance, can be described as the state of development featuring increasing contributions by manufacturing sectors and then shifts to technology and knowledge-based production. This dimension shows a clear movement of most eastern Euro-

pean countries towards a higher state of development. This is featured by two simultaneous changes. Those who increase their development do this by increasing their technology and knowledge-based sectors. Whereas those with a volatile extroversion simultaneously reduce it. This precisely matches the argument by Thirlwall (1986), that the introduction of technical progress is backed by a “healthy”, simple sector and can be shifted towards a more developed sector. Further underlined when comparing the developing cases to Greece. The latter mainly depends on tourism-oriented sectors and is the most extreme case of volatile extroversion. It lacks a “healthy” sector and thus cannot move to a higher level of development, remaining at the same level. Accordingly, the obtained regimes are: *mediterranean tourism*, *weak*, *industrial*, *commerce and logistics*, *industrial*, and *advanced (post-)industrial* production regimes.



Figure 9: PCA and Hierarchical Clustering of Production Regime *Note:* dimensions inverted for readability

5 Towards Underlying Systemic Factors

5.1 Complementarities Across the EU

The fit of each institutional form to the first two dimensions of the MCA is shown in Figure 10. An R^2 of > 0.5 is considered a satisfactory fit. By interpreting the dimensions along the polarity of the factorial plane, a more dynamic analysis is possible than by assessing ideal type capitalisms. This interpretation is enhanced by clustering on the first two dimensions to indicate breaks between the poles. The specific regimes are highlighted in *italics*, Figure 13 provides an overview per MS and appendix A.7 shows empirical cluster descriptions. The complementarity between institutional forms establishes coherence among regimes, depending

on the degree of change and the hierarchy of institutions (Amable, 2003, p. 54). If the annual MS model moves across the factorial plane, it indicates institutional change. If MS remain in a spatial location around their ideal-type, as displayed by the spatial mean (centroid), institutions are unchanged, indicating high coherence.

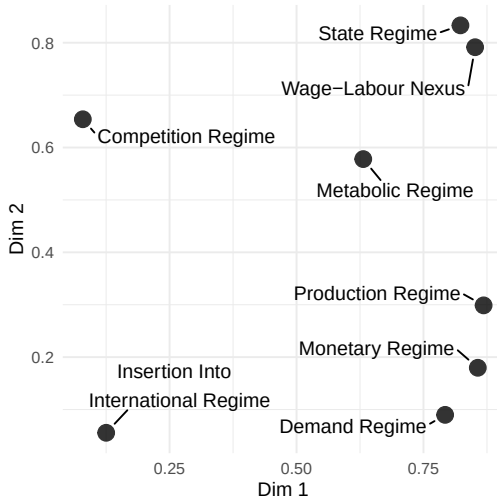


Figure 10: Fit of EU Regimes to MCA Dimensions 1 & 2 by R^2 Note: tabular representation in appendix A.5

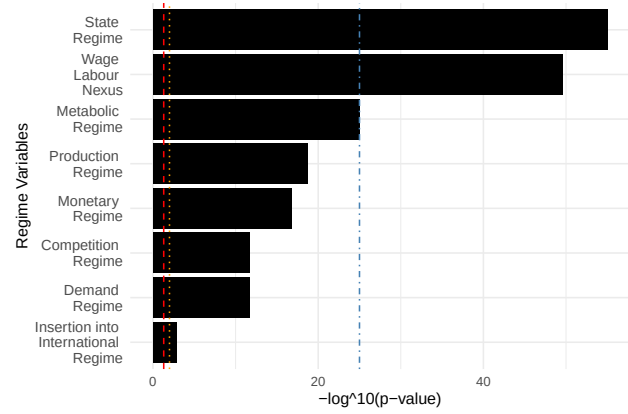


Figure 11: χ^2 Test for Clustering Discrimination by Hierarchical Clustering on the First Two Components.

Note: logged p-values, red (dashed): $p < 0.05$, orange (dotted): $p < 0.01$, blue (dotdash): largest information gain

Dimension one reflects the stage of development of the production regime. Starting with *weak industrial producers*, going beyond the large contributions of manufacturing in *industrial producers* and becoming increasingly sidelined by education, health and social sectors to provide a matching infrastructure for high levels of productive development featuring technology and knowledge-based sectors of *advanced (post-)industrialists*. Towards the positive side, an increasing financial infrastructure is provided by large financial spheres with market-based funds to provide finance of production as a *financialised monetary regime*. This is potentially associated with the growing importance of institutional capital pools (Gabor & Braun, 2025). These establish new forms of long-run investors (Aglietta, 2008). Meanwhile, debt is also issued to households in potential favour of consumption. Further, green bonds are issued by companies and governments to enhance modernised, green productive capacities, thereby indicating a form of de-risking, where green bonds serve as financial vehicles to increase the attractiveness of green investments (Gabor & Braun, 2025).

In a stable phase, institutions protect the DSB, and thus political actors aim to sustain or change them in favour of the demands of certain social blocs to maintain the stable power balance (Amable & Palombarini, 2008, p. 133; Amable, 2023, pp. 944–945). In this case, the state supports the high stage of development by engaging in redistribution and tilting the state budget towards social protection, health, and, at high states, also education. Thus, social legitimacy and stability are ensured through welfare, and complementary, supply skilled labour suitable for highly developed production. Further, the state sustains growth by increasing gov-

ernment expenditure's contribution to demand, rendering the MS either *state-backed extroverts* or *state-stabilised intensive*. This duality supports growth and, respectively, the financial basis for sustaining the welfare model (Brand et al., 2025, p. 3). Additionally, the state has remaining fiscal space to uphold the welfare state through crises. Moreover, the power and systemic position of labour are both strong, showing a *monopolistic wage-labour nexus*, which explains the increasing role of an active, *socio-democratic state*. This indicates that the socio-economic group of workers can express their interests as a socio-political group due to the codification of their socio-economic environment (Amable & Palombarini, 2023, pp. 944–946). As a, aggregated social bloc with large political power, their demands are also satisfied by political leaders. Furthermore, functional income distribution tends to favour labour. Even though the pre-tax personal income distribution is more unequal, the state strongly intervenes through redistribution, further showing that the balance of power is in favour of workers as a social bloc.

Nevertheless, such models in the richer parts of the world have a notion towards welfare chauvinism (Hirsch, 2005, p. 201). This becomes apparent in the metabolic regime, where renewable energy promises a resilient, low-emission energy supply for production and sustaining the current mode of living. The metabolism of this *green elite*, however, has a large material footprint, suggesting an imperial mode of living (Brand & Wissen, 2021; Pineault, 2025; Wissen & Brand, 2019), hoping to be future-proof through international competitiveness and growth by decoupling (Brand et al., 2025, pp. 2–5). Financialisation also helps to reconcile social legitimacy and stability by externalising generational tensions between labour income and retirement through financialised pension funds. These extract surplus as borderless institutional investors using funds gained from retirement savings without savers' control (Aglietta, 2008).

Cluster discrimination in Figure 11 suggests a hierarchically high position of the state and wage-labour nexus, and the causality is underlined by the discussed complementarities in welfare, labour supply, demand, and, in return, increasing influence by a *monopolistic wage-labour nexus*. These complementarities on the positive side of dimension one indicate a decreasing growth dependence, with low vulnerability of the state due to remaining fiscal space. This decouples the wage labourer's mode of living from growth through welfare and ensures the maintenance of the central social bloc of workers and thereby a stable power balance. This power relation in the wage-labour nexus enforces a mediation of growth losses (Driouich & Kallis, 2025, pp. 8–10). Thus, a lower level of growth is needed to maintain social legitimacy and stability during transformation periods of low or zero growth. Because the way of life of the central social bloc of workers is protected by welfare, and the burden is shared.

On the negative side, dimension one features lower levels of development, with *weak industrialists, commerce, and logistics* as the extreme, given the aforementioned order of the stage of development. Moreover, MS signal a higher risk-aversion as they are insulated from financialisation through *closed*¹⁴, *secured*¹⁵ or *controlled*¹⁶ monetary regimes. While the labour

¹⁴by closing the capital account

¹⁵by the central bank becoming involved

¹⁶by low debt levels and a small financial sphere

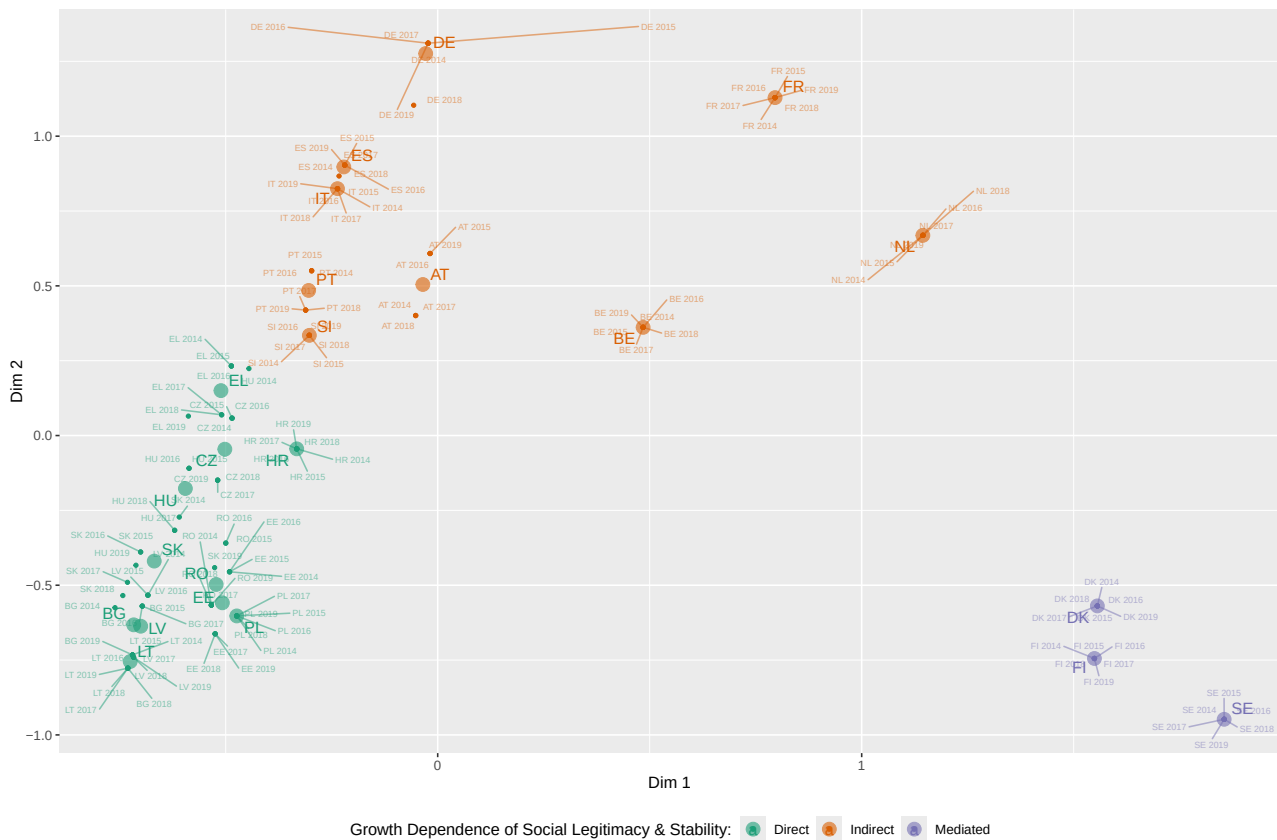


Figure 12: Multiple Correspondence Analysis of 23 EU MS, *Note:* dimension 1: 18.62% of total variance, dimension 2: 12.89% of total variance

position is weak in its own power resources of associational and institutional power, thereby remaining in a *competitive* setting. In some cases, labour is also systemically weak. Conversely, the state budget on welfare is comparably low and tilted towards public order and safety, as well as security. Complementing the *competitive wage-labour nexus*, this imposes discipline on adherence to labour market outcomes through the lack of welfare and the presence of large legitimate forces. It thus creates a direct dependence on growth to maintain the way of life and the existing power balance, as social groups' economic relations erupt without growth, directly impacting the social structure. The state's discipline also reappears in the budget, where the fiscal limits set by the EU are maintained, thereby becoming a dual-disciplining state. If the economic model enters a crisis, the welfare state, meant to cushion the effect on income and, respectively, the mode of living, is small.

Moreover, reproductive work, which is structurally missing in the monetary economy (Sauer, 2025), is not resolved by welfare provision, but by gender discrimination. The large gender employment gap indicates an unequal division of labour within households, where women* take over unpaid reproductive work. This enables the externalisation of reproductive work into the supposedly private sphere (Sauer, 2025). A slight adaptation occurs if the patriarchal divide appears in the commodified form of wage discrimination. Women* become additional income earners, who are often employed in precarious jobs (Wichterich, 2011, pp. 132–133).

Jobs that fulfil paid reproductive work come with a female* connotation (Haller, 2018, pp. 73–74). Thus, the structural problem is moved from “private” unpaid work to precarious, low-paid work (Haller, 2018; Sauer, 2025). Lastly, the position in the international field is held by militarisation rather than by influence and dominance in international competitiveness. This also indicates a higher notion of growth dependence. As growth is necessary to maintain military spending (Brand et al., 2025, p. 3). Due to its budget being tilted towards military spending, the state, as a hierarchically high institutional form, becomes increasingly vulnerable to growth losses (Driouich & Kallis, 2025, p. 8). All presented channels indicate a rather direct relationship between preserving a legitimate social order and social stability on growth, and will be discussed in detail in Section 6.

On the second dimension, the negative side also represents the *dual-disciplining* state and the *competitive, patriarchal wage-labour nexus*, which can feature a *commodified patriarchy*. Competition is *domestic* or even *skewed* towards capital, shifting the power relation further to the capital side in the latter case by high profit and accumulation rates.

On the positive side of dimension two, labour is systemically strong and builds on inherited institutional power resources. Thus, even though it lacks strong associational power resources, functional income distribution is in its favour. Moreover, it inherits past gender inequality, either within the household or in *commodified* form. The weaker association among workers, focuses their identities less as a social group. It results in a dispersed position as socio-economic groups in the power balance. This weaker focus of wage-earners as a social group is reflected in the state’s position as well. Compared with the *socio-democratic state* as the extreme case of dimension 1, welfare provision is set in a more passive sense, with a more contained focus on social policy, education, and redistribution. This is a typical reflection of the so-called *modernised socio-democratic state*, focused on social investment for human capital, yet welfare is limited to secondary tasks of social policy (Atzmüller, 2024, pp. 174–177). The subsequently closer relationship between sustaining living conditions of the average worker’s way of life and growth, increases the dependence of social legitimacy and stability. Because institutional complementarities only indirectly cushion the impact. In crises, the social structure is indirectly affected, and some social groups might change their preferred strategy. The impact on the power balance is ambiguous. It further relates to *patriarchal* gender inequality that appears in *commodified* form as wage discrimination. The growth dependence is not fully mediated and the welfare state only reduces growth losses to indirect effects on social stability. The necessary growth is secured by increasing competitiveness on *international* markets or lean to *external* competition, on top of the U-shaped curve dependence on outside demand also peaks. Additionally, increasing competitiveness is also paired with rising *energetic pollution*, with the *carbon-age* metabolism at its peak.

All members of the Green Growth Group (GGG)¹⁷ besides Estonia (EE), take a positive position on one of the dimensions, in Figure 12. From a comparative perspective, their institutional forms feature a hierarchically important state inclined to welfare and a less-competitive

¹⁷Belgium, Denmark, Estonia, Finland, France, Germany, Italy, the Netherlands, Portugal, Slovenia, Spain, Sweden

wage-labour nexus, which is either complemented by focusing on international competition (dimension 1) or government spending (dimension 2). Estonia is ambiguous as it is a GGG member, but also participated in obstruction. While its metabolic regime is already further adapted to renewable energy, it still places in the directly dependent growth group. The geopolitical pressure, international regulations, societal protests and the rise of the right, described in Section 3, put pressure on all MS DSBs in the EU. However, the GGG's MS DSBs were able to adapt to decarbonisation strategies, thereby gaining comparative advantages from decarbonisation. Because their institutional structure and complementarities were designed to ensure their "future viability" (Amable & Palombarini, 2008, p. 136). Some GGG-MS, Belgium, Germany, Netherlands, Sweden, stood out in integrating climate movements into international negotiation, hoping to gain support from their social bloc with the winning strategy of decarbonisation. Especially, Sweden, France and Netherlands pushed through the critical phase of 2018 with a decarbonisation strategy on the EU-level. This indicates that the DSB in GGG MS is associated with decarbonisation strategies as winning ones. This power balance is combined with institutions that can respond to pressure resulting from decelerated growth and also externalise the crisis tendencies associated with it. Because institutional forms structure social demand and political mediation (Amable & Palombarini, 2008, pp. 132–133; Amable, 2003, p. 11). Thus, they aim to consolidate this power balance on the EU-level by shifting control over decarbonisation issues to the EU-level as argued in Section 3, including new constitutionalist tendencies.

The lower growth dependence allows the MS to maintain a stable regime because underlying institutional forms structure social groups conflict accordingly. The balance of power remains stable with little or small growth, because social groups can "split the losses" (Driouich & Kallis, 2025, p. 10). Labourers in an organised form can sustain their position in the power balance by mediating growth losses, at least for certain periods. Moreover, the provision of welfare by the state shows the state is capable of intervening in the market, and labour is too. Thus, less black-boxing inside the market sphere is done (Brand et al., 2025, p. 113). This opens the ideological "space of possibilities" (Amable, 2023, p. 944) to include overt market intervention by the state. Systemic factors in support of decarbonisation can be summarised as follows: First, a developed welfare model that preserves the wage-labourer's way of life and further supplies the necessary human capital for their productive capacities through phases of transformation. Second, a wage-labour nexus with a stronger position of the labour force. This can be based on either or both, structural and own power resources. This provides an institutional structure that enforces processes to split the losses of transforming institutions towards decarbonisation. The institutional structure is less dependent on growth, and social stability can be reproduced during low-growth periods of transformation. This partly dissociates growth from social legitimacy and stability.

Furthermore, these findings underscore the Lipietz (1997) hypothesis, which states that countries with a high level of human resource involvement can adapt to ecological policies more easily and may also view this as a handicap for their international competitors. This

hypothesis was further substantiated by Cahen-Fourot (2020), where countries with a labour-oriented nexus are more ecology-prone, independent of whether this position is gained from systemic or power resources of labour itself.

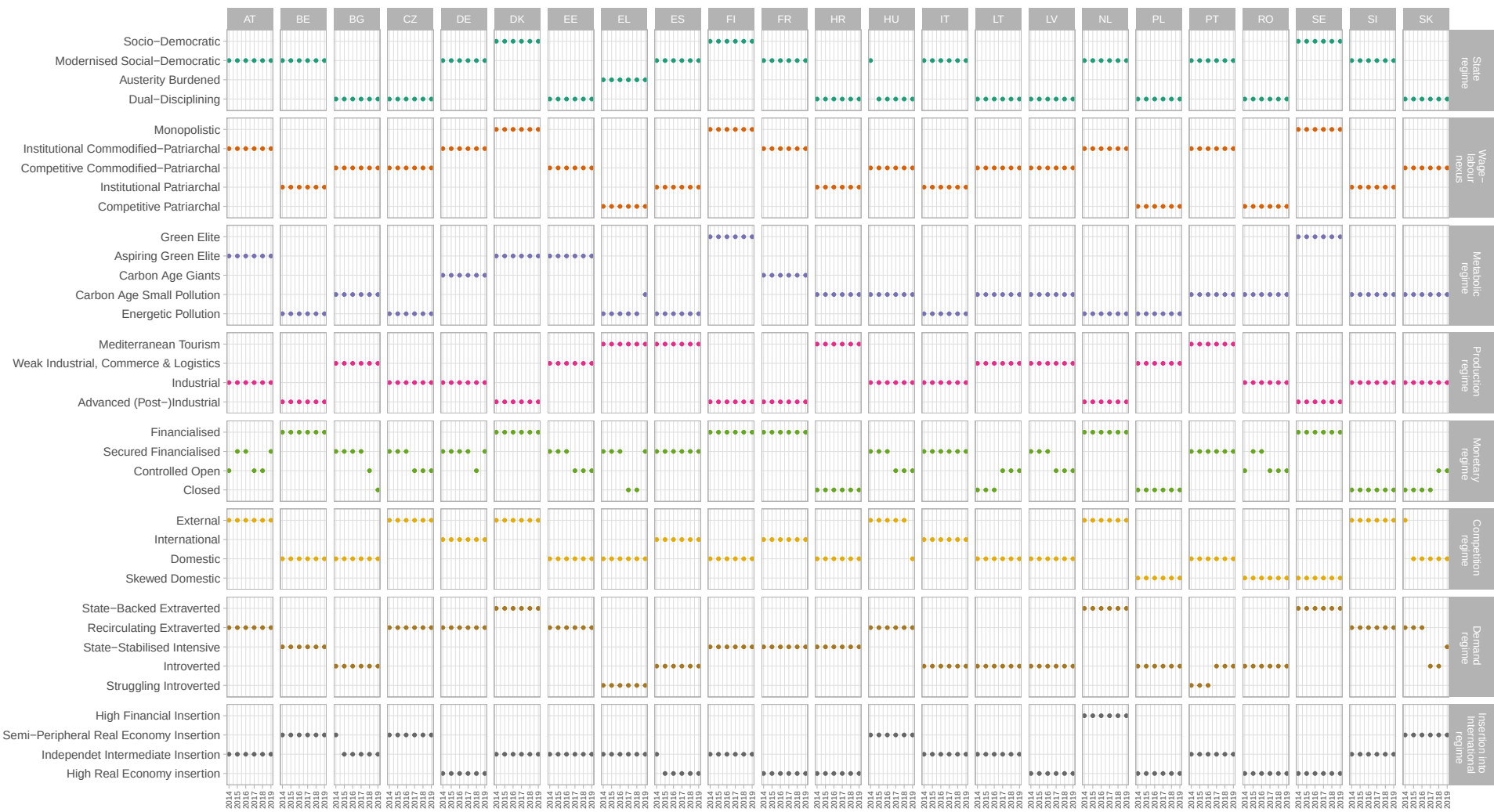


Figure 13: Regimes of 23 EU MS Over Time, 2014-2019

5.2 Subsample Differences

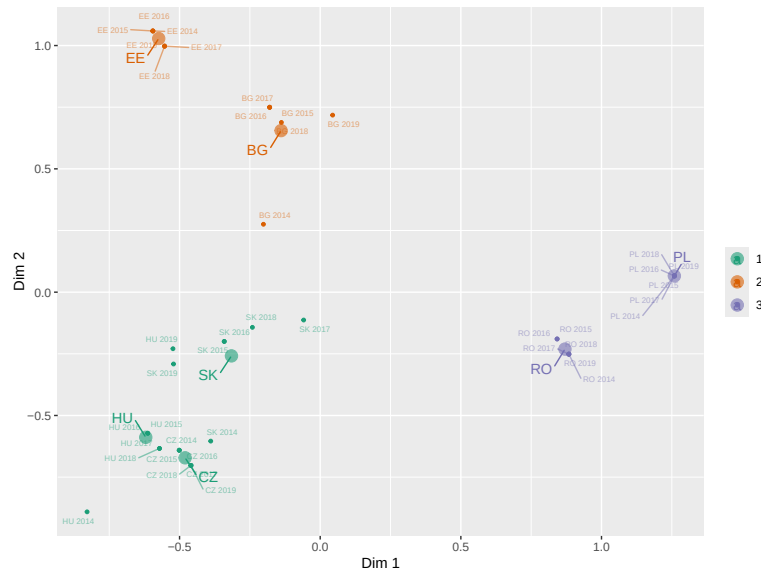


Figure 14: Multiple Correspondence Analysis of Obstructing CEE MS, *Note:* dimension 1: 30.28% of total variance, dimension 2: 22.02% of total variance

Clustering the subsample of obstructing MS on seven dimensions (90% cumulative variance), proves that there is remaining heterogeneity and specific systemic factors are important. This validates the analysis to consider different systems with the same outcome to find systemic factors (Przeworski & Teune, 1970).

Cluster 1 is highly dependent on foreign inputs for production while deeply participating in GVC, even though they hold a relatively low position in EU comparison. However, on the output side, they are less dependent on re-exports by third countries, suggesting they mostly produce for final consumption in the destination country. It can be subsumed as a *semi-peripheral insertion*. Productive capacity is dominated by industrial manufacturing and sidelined by commercial sectors. This described *industrial production* is combined with *recirculating extraverted demand*, that is, extraverted towards external demand through exports, and successfully recirculates external monetary injections through consumption while adding further investments. Competition is more ambiguous as it tends to either monopolise while focusing on *external* competition, or it remains internal as *domestic* competition.

Cluster 2, has low in- and outward foreign direct investment, assuming a low integration into international financial markets. Further, they are also less dependent on re-exports of their output by other countries. Thus, obtaining an *independent intermediate insertion* into the international regime. Appropriately, their *domestic competition* is less monopolised and not focused on international markets, which also results in slightly lower accumulation and profit rates. The low accumulation rates are further related to their less developed productive capacities, which remain in *weaker industrial production, commerce, and logistics*, while leaps in development are made by expanding the technology and knowledge sectors.

Cluster 3, has a high insertion into the international regime due to capturing large shares of added value. While they are less dependent on foreign inputs, they are highly dependent

on the re-export of their production output by third countries. Given their financial integration is comparatively low, it is a *high real-economy insertion*. Nevertheless, the *introverted* demand regime is still oriented towards domestic consumption, yet net exports remain high enough to avoid income leakages. Competition is further less focused within the EU, with high accumulation and profit rates. This indicates a *skewed competition* towards the capital side.

This shows that the subsample differs in orientation, participation, and position towards global markets, as well as competition, in addition to different states of development of the production regime. Additionally, no specific metabolic regime complements each cluster.

6 Systemic Factors for Obstruction

6.1 Systemic Factors Tightening Structural Limitations

As found in Section 5 the wage-labour nexus and form of the state have a high hierarchical position in defining the corresponding institutional complementarities. All obstructing member states feature what has been referred to as a *dual disciplining state* and a *competitive wage-labour nexus* with a *patriarchal* structuring that might appear in *commodified* form, see Figure 15. From the perspective of political strategies, institutional complementarities are defined in

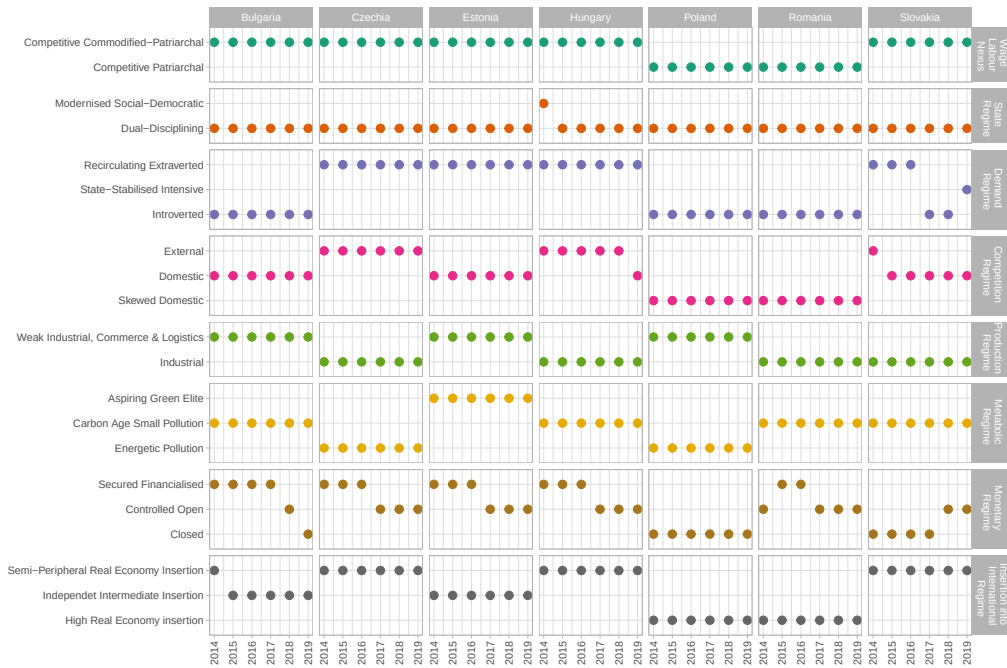


Figure 15: Regimes of Obstructing CEE MS Over Time, 2014-2019

reference to a specific DSB, and their joint presence protects the respective groups' interests (Amable & Palombarini, 2008, p. 134). To reveal systemic factors as structuring institutional forms that favour obstructing decarbonisation strategies, the complementarities between the wage-labour nexus and the form of the state as well as how they influence social blocs should be analysed in respect to the sources of structural limitations.

In a *competitive wage-labour nexus*, labour itself has low power resources (associational and institutional) to shift the power balance between labour and capital towards their side. Under low associational power, the low formation of collective worker organisations results in less co-determination by workers (Wright, 2000, pp. 962–963). The low institutional power relates to the aforementioned weakness, but also indicates low inherited power. Possibly, the inheritance has been shattered by “structural reforms” and other attacks on institutional power of labour (Schmalz & Dörre, 2014; Schmalz et al., 2018), such as the Lisbon Strategy (Amable, 2009; Sauer, 2025). Accordingly, in a competitive structure, the wage formation depends on the labour market situation (Syrovatka, 2021, p. 287; Hübner, 1990, p. 161). However, if the systemic position of labour is weak due to low structural power by loose or possibly slack labour markets (Wright, 2000), the achieved wage share is low. Conversely, a better systemic position with narrower labour markets leads to a higher wage share and a more equal distribution of personal income. The former position is the *competitive patriarchal wage labour nexus*, whereas the latter is the situation in a *competitive commodified-patriarchal wage labour nexus* where female* labour is commodified and moved from unpaid care work to low-paid work.

This weak position of labour in the wage-labour nexus leads to high flexibility in labour markets, where employment, lay-offs and wage setting depend on short-termism of firms. Due to the negative effects on domestic consumption out of wages it increases cyclical fluctuations (minor crisis) (Hübner, 1990, p. 159). The “sack” of workers in unemployment (Kalecki, 1943, p. 326; Sawyer, 2023, p. 1118) or what Dörre (2014, pp. 75–79) calls the “zone of detachment” serves as an internal disciplinary measure. The combination of internal discipline of the labour force due to a competitive labour market is complemented by low welfare provision, low redistribution and the presence of a large legitimate force. While the state itself holds fiscal discipline, leaving a larger fiscal space. This interrelated two-fold discipline is emphasised as the *dual-discipline state*. As complementarities, disciplinary measures through unemployment, low welfare, low redistribution, and high security result in an institutional structure that protects the socio-economic interests of capital owners and reflects a power balance tilted in their favour. This argued structural complementarity between labour’s power resources and how the state structures social conflict, through either discipline or welfare, is shown in Figure 16. Accordingly, in EU comparison, the overall tax level is also lower (Eurostat, 2026) in obstructing MS, reflecting capital owners interest. Figure 17 demonstrates the relation between low (high) tax to GDP ratios and low (high) power of labour itself, further underlining complementarities structured in favour of capital owners and high income classes. Thus, the power balance is tilted towards capital.

Moreover, the wage-labour nexus is marked by *patriarchal divide*, which can be *commodified* in form of wage discrimination. The state can use regulatory strategies to mediate the structural problem of absence of reproductive work in the monetary economy (Haller, 2018; Sauer, 2025). This reveals that the high patriarchal divide serves as a means to provide free, unpaid reproductive work as well as cheap female* labour. This avoids the need for more extensive welfare to maintain reproductive work. It further lowers the financial pressure on the state



Figure 16: Correlation of Dimension 1 of the Form of the State and Dimension 2 of the Wage-Labour Nexus PCA *Note:* full sample, $R^2 = 0.44$, $p < 0.01$

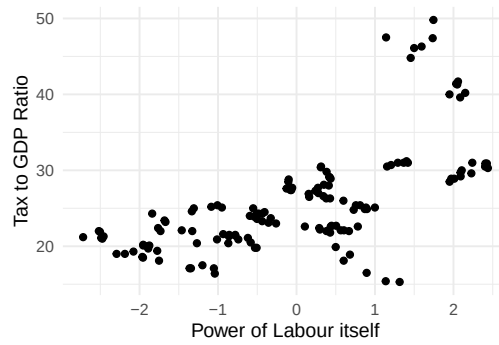


Figure 17: Relation Between Wage-Labour Nexus Dimension 2 and Tax to GDP Ratio *Note:* full sample, $R^2 = 0.42$, $p < 0.01$

by shifting reproductive work to either unpaid reproductive or cheap female* work. Thus, the higher growth dependence and social instability are diverted from the state into gender inequality by accessing free or low-paid labour by women* to ensure the reproduction of the system. However, this results in a covert, ongoing care crisis (Sauer, 2025, pp. 112–114), shifting the state’s vulnerability while increasing the effects of growth losses on the social structure.

The socio-economic environment given by the institutional forms is internalised by individuals as a “space of possibility” (Amable & Palombarini, 2023, p. 944) On the one hand, the institutional complementarities showed a prominent position for capital owners as a socio-economic group. The institutions structure them as socio-political groups and protect their interests. Moreover, the retreat of the capital sides to the national level explains the dynamic towards a *controlled open* or *closed* monetary regime. With reference to Naczyk (2022), this indicates the re-domestication of banking to overcome the FDI-led development model. Poland began the re-domestication of banking in 2012 with the support of bankers and business owners, reflecting the observed *closed monetary regime*. Further, Hungary saw collaboration between business owners and state officials (Scheiring, 2022). Whereas Slovakia and Czechia called for shortening business banks’ balance sheets, which explains low debt levels and a smaller financial sphere, adapting a *controlled monetary regime*. These social groups that usually experience new constitutionalist institutions such as the EU as ideologically aligned, now seek national protec-

tion as a “backlash from above” (Slobodian, 2021). Thus, using their economic and political influence against growth-endangering decarbonisation. This becomes further evident in the aforementioned increased focus on national interests in the EU Parliament by V4 politicians.

On the other hand, wage-labour does not take a coherent form of organisation. The existence of unions and social policy play a crucial role what form class struggle takes and how it manifests (Hirsch, 2005, p. 96). Moreover, if co-determination is not part of the institutional structure, the expression of workers’ interests is restrained (Amable, 2003, p. 50). Thus, the individuals in the socio-economic group of wage-labour do not perceive themselves as a coherent group. The social aggregation of wage-earners runs along other lines.

Generally, socio-economic groups form socio-political groups with similar expectations and political demands, constructed under the influence of ideology, which reflects the proximity of the individuals in the social structure (Amable & Palombarini, 2008, p. 131; Amable & Palombarini, 2023, pp. 943–944). In other terms, this intertwined structural position and ideology, could be interpreted as a mode of living. This differs from pure consumption decisions but expresses a process of societal reproduction (Wissen & Brand, 2019, pp. 40–41). Sustaining a mode of living under a competitive wage-labour nexus, combined with a small welfare state, results in a high dependence on growth. Even minor crises influence average living conditions through the labour market. Moreover, the same dependence is increased by patriarchal structuring to fulfil reproductive work. Growth is thus increasingly needed to legitimise the existing social order by advancing citizens’ living conditions (Brand et al., 2025, pp. 3–4). Furthermore, because of the structuring of complementarities, in which the state does not intervene in unequal market outcomes through redistribution or welfare, the state is perceived as incapable of intervention. This increases the “black-boxing” mechanism, where the state’s actions are perceived as limited to the administration of market outcomes (Brand et al., 2025, pp. 2–3). This belief in the best outcomes of market competition also relates to individuals’ personal experiences in wage labour, given the high growth dependence of the mode of living and lack of economic co-determination. Instead, the state’s budget is tilted toward public security and the military, as well as culture and recreation. Framing the state as a strong provider of the security function that protects ‘the nation’ through extensive legitimate force. This further aligns with the CEE MS support for the energy union to secure energy independence under geopolitical pressure and threat from Russia, emphasised in Section 3. In international comparison, individuals also observe a supposed path-dependence towards prosperity and sustainability that goes through high industrialisation, energy intensity and thus the metabolism of the carbon age. This becomes visible by the placement of EU MS on an inverse U-shape in Figure 12 with increasingly ambitious GGG members.

The described social structure and ideology, as reflected in the mode of living, form a socio-political group from heterogeneous individuals with similar expectations (Amable & Palombarini, 2023, pp. 945–946). Within wage-labour, socio-political groups are formed out of labour market insiders, dependent on a patriarchal reproduction and growth through multiple channels. These socio-political groups form a social bloc that expects possible upward social mobility,

achieved through discipline in the competition (Amable, 2011, p. 27), that is not endangered by redistribution or economic fluctuations in the imagined future. The thereby formed social bloc, has compatible interests with the aforementioned social bloc of capital owners with a national focus, because both are interested in and directly dependent on stability through economic growth. Together the social groups can form a DSB.

Political strategies that result in growth harming policies are incompatible with central social blocs in the DSB and can not gain enough support. Contrary, winning strategies build on market outcomes, without overt intrusion by the state or foreign actors.

However, due to the competitive institutional structuring, they are unable to “split the losses” of temporary growth losses (Driouich & Kallis, 2025, p. 10). As it would cost each individual their position in their socio-economic group and undermine the mode of living, either by dropping out of employment or competition. At large, this would delegitimise the social order, unleash social instability, and lead to a political crisis. The current rules of the game dictated by institutions lead to a suboptimal solution (Amable, 2003, pp. 32–54). The inverse relation to the Lipietz (1997) hypothesis holds under this institutional structure. The lack of co-determination due to labour’s weakness makes it more challenging to engage in ecological restructuring by decarbonisation. Subsequently, the threat of institutional change by decarbonisation in the interest of GGG DSBs, endangers the future viability of the dominant power balance in obstructing MS, whereas obstructing decarbonisation strategies maintains it. Thus, political actors supported by the DSBs of the subsample increasingly obstruct institutional change to warrant a viable future.

The lack of societal forms of organisation that enable democratic mediation of societal reproduction to equally split the burden of growth losses leads to obstruction of decarbonisation. Obstruction of intensified decarbonisation pivots around the following systemic factors: First, the absence of associational and institutional power of labour, as a missing ideological focus of wage-earners towards a social bloc of labour, this also confines the space of possibilities observed by individuals and hinders social mediation of growth losses. Second, securing the social order through discipline instead of social protection undermines societal mediation that is non-competitive and renders collaborative solutions, such as decarbonisation, unreachable. Third, resolving missing reproductive issues by patriarchal structures increases underlying societal crisis potentials as vulnerabilities to the social stability by increased growth dependence.

6.2 Outlook

Going beyond the initial time horizon of this study, some implications for the current crisis-driven restructuring should be made. The stable phase showed institutional change inflicted on the EU level in favour of a specific decarbonisation strategy. The first reaction by dominant MS when the crisis began in 2020, was led by an initiative of France and Germany to align crisis recovery with decarbonisation (Eckert, 2021). Moreover, gas dependency was shifted from Russia to the US instead of renewables (Bauermann, 2026), and industrial policies are favouring the capital side while worsening the associational power of labour (Wigger, 2025).

Because economic recovery is still questionable, and geopolitical stability is currently even more uncertain. It is sensible to suggest that the long phase of low-growth went below growth levels necessary to maintain social stability and delegitimised the social order increasingly. Thereby, decarbonisation strategies have become unviable for most social groups. This tendency will possibly be accelerated by structural reforms, aimed at inducing growth (eg. Felbermayr et al. (2026, pp. 111–120)). Independent of economic success, they increase the growth dependence of the mode of living, reducing the scope of possibilities and rendering cooperative solutions difficult. Especially, those MS that have been classified as indirect growth dependent are experiencing a low-growth phase with stagnation tendencies (Eurostat, 2022c). Influenced by their institutional complementarities, formerly winning strategies that include decarbonisation are exponentially losing support. This means the DSB is breaking up, leading to a political crisis.

From the perspective of this study, the groups that demanded decarbonisation have potentially been expelled from the DSBs and social blocs that remain dominant try to find institutional change that protects their interest while searching for strategies that can accommodate other social blocs. However, their less dominant position increases the potential for political crises immensely, Brand et al. (2024, p. 163) suggest this as a “fragmented hegemony”. On one hand, political strategies that lead to higher growth dependence, such as structural reforms, austerity, and discipline instead of welfare, are compatible with the demands of the right-wing. On the other hand, finding forms to decrease growth dependence, such as dismantling patriarchal structures, increasing associational power resources, economic co-determination, achieving higher welfare provision and redistribution, might widen the scope of possibilities and focus social groups to support decarbonisation, or even emancipatory strategies.

6.3 Limitations of the Study

This study only accounts for the obstruction of existing decarbonisation strategies pursued by the MS DSBs in support of a winning decarbonisation strategy. It does not account for internal or secondary forms of indirect obstruction, such as shirking or climate policy nihilism (Plehwe et al., 2024, p. 321). Whether decarbonisation strategies are sufficient is out of scope. Only the obstruction of the existing winning decarbonisation strategy is observed. Moreover, due to the focus on obstructing countries, the effects of externalisation of decarbonisation conflicts are potentially underexposed. Furthermore, the study only considers a stable phase analysis, as current times remain unstable since the observed phase ended. The interplay of systemic factors and growth dependencies, with a potential fossil backlash as DSBs in the EU become unstable, should be studied further. Furthermore, possible *avoid* strategies towards a transformation state suggested by Brand et al. (2025) have not been considered. These could support institutional change and rewrite the rules of the game. Due to data limitations, the study underestimates social norms and the state’s non-monetary regulations. Especially questions of *race* and queerness as crucial topics that socio-political groups are formed around are missing entirely.

7 Conclusion

This study first analysed the emergence of the decarbonisation state and the obstruction of its intensifying decarbonisation strategies using predominantly primary literature and legal documents to identify obstructing MS. Second, a comparative study of 23 EU MS following the approaches of Amable (2003), Cahen-Fourot (2020), and Elie et al. (2012) was conducted, while being informed by the analysis of the first part. This allowed the discussion of shared systemic factors, in the EU and, more specifically, in the subsample of obstructing member states using a Regulation Theory framework and guidance by the heuristic of Brand et al. (2025).

Within the Central-Eastern European countries, the Visegrad 4 play a key role in obstructing decarbonisation strategies, often led by Poland and Hungary, and potentially extended to Bulgaria and Romania. Whereas Estonia takes an ambiguous position, both obstructing and being a member of the Green Growth Group. Specific obstructors considered were Bulgaria, Czechia, Estonia, Hungary, Poland, Romania and Slovakia.

By analysing institutional complementarities, different levels of growth dependence have been found. These depend on the power balance between social blocs and their reciprocal institutional structuring. The interdependence of three core functions: growth, social legitimacy, as well as international competitiveness and security, plays a crucial role in limiting possible decarbonisation strategies' ability to aggregate social groups as supporters to achieve success. Especially due to the dependence of the social order's legitimacy and social stability on growth. If growth losses cannot be cushioned to indirect levels or mediated, then the direct effects on the mode of living lead to contradictions between the political demands of central social groups and decarbonisation.

In terms of systemic factors, first, obstruction of intensified decarbonisation strategies is related to low power resources of labour itself. The absence of associational and institutional power affects the missing ideological focus among wage-earners towards a social bloc of labour. Thus, social mediation of growth losses is not enforced within the societal power balance, and the wage-labourer's mode of living, as that of the vast majority of people, is directly affected. Second, a social order built on discipline rather than social protection undermines solutions to problems that are non-competitive and renders collaboration more difficult. Especially the societal task of decarbonisation, where increasingly ambitious targets need to be fulfilled, is hardly solvable. In addition, intertwined patriarchal structures that resolve the issue of missing reproductive work increase the underlying crisis tendency and growth dependence further.

This study offers the following contributions. Methodologically, to the best of my knowledge, it is the first variant of the Amable (2003) approach using annual data for a dynamic analysis and the first Comparative Political Economy application of a (basic) material flow analysis in RT, similar to the suggestion of Cahen-Fourot and Magalhães (2024). Moreover, it further substantiates the correspondence between labour relations, welfare and ecology following Cahen-Fourot (2020) and Lipietz (1997). Especially, by defining a negative case including political and socio-economic channels. This also advances the research on underlying institutional compromises that affect growth dependencies as suggested by Driouich and Kallis (2025).

By substantialising channels of growth dependence, it offers insights into conditions that make low- or zero-growth periods socially stable or not. Building on this, political strategies to drive institutional change that favour stability in transforming systems should be developed, such as universal basic services and economic democratisation. It also highlights the importance of co-determination to confine the space of possibilities for ecological transformations, independent of ecological ambitions of wage-earners. Last but not least, it offers an example how the structural limitations proposition by Brand et al. (2025) can be used and adapted as a Comparative Political Economy heuristic.

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A Appendix

A.1 The Five Canonical Institutional Forms

Table 1: Proxy Variables of the Canonical Institutional Forms

Proxy Variables of the Monetary Regime		
Variable	Source	Description
HICP	Eurostat (2022g)	Change value of money
Total listed shares in economy*	Eurostat (2022b)	Market capitalisation as integration of companies into the financial sphere
Assets held by CB*	Eurostat (2022b)	CB balance sheet length
Household debt*	International Monetary Fund IMF (2025a)	Indebtedness of private households
NFC Debt*	International Monetary Fund IMF (2025b)	Indebtedness of non-financial cooperations corporate or government
Chinn-Ito Index	Chinn & Ito (2006, 2025)	Notion of capital account openness
<i>Supplementary variables, no contribution to dimension or clustering</i>		
Share of EU green bonds*	Eurostat (2025d)	Share of green certified bonds, all issuers.
<i>*normalised by GDP</i>		
Proxy Variables of the Wage-Labour Nexus		
Variable	Source	Description
Pre-tax Gini index	Eurostat (2024b)	Personal income distribution before redistribution
Wage share	D.1 in Eurostat (2022c)	Functional income distribution
Employment rate	Eurostat (2022a)	Structural power of labour
Unionisation degree*	OECD (2025), ILO (2025)	Associational power of labour
Bargaining coverage*	OECD (2025), ILO (2025)	Institutional power of labour
Gender pay gap	Eurostat (2022e)	Unadjusted Gap between binary genders
Gender employment gap	Eurostat (2022d)	Gender Gap in Wage-Labour participation as proxy measure of within household distribution of reproductive work
<i>Supplementary variables, no contribution to dimensions or clustering</i>		
Gender care gap**	EIGE (2021)	Gender Gap in cooking, housework and similar activities
(hours per day)	Available in 2007, 2011, 2016*	
<i>*Gaps in time series are imputed using interpolation of Moritz & Bartz-Beielstein (2017) package, **Gap calculated by author</i>		
Proxy Variables of the Form of Competition		
Variable	Source	Description
Herfindal-Hirschman Index	World Integrated Trade Solutions (2025a)	Competition index
Export Market Penetration Index	World Integrated Trade Solutions (2025b)	
Accumulation rate	P51G, P52, P53 in Eurostat (2025c)*	Rate of Accumulation
Profit rate	B2A3G in Eurostat (2025c)*	Rate of Profit
Net extra EU exports**	Eurostat (2022h)	Outside of EU net exports
Net intra EU exports**	Eurostat (2022h)	Within EU net export
<i>Supplementary variables, no contribution to dimensions or clustering</i>		
Unit labour cost	Eurostat (2025f)	Nominal Hourly Unit Labour Cost
<i>*divided by capital stock Eurostat (2025a), **Calculated as share of net-export contribution to GDP by author</i>		

Proxy Variables of the Form of the State

Variable	Source	Description
Effect of taxes and social transfers on income quintile share ratio S80/S20	Eurostat (2025b)	Redistribution by the state
Debt to GDP ratio	International Monetary Fund (2025)	Fiscal space available for policy
Primary balance to GDP	IMF (2025)	Fiscal stance of current budget
Allocation of government budget by UN COFOG* standard, source: Eurostat (2022f)		
COFOG	Category	
GF01	Public Services	
GF02	Defense	
GF03	Public Order & Safety	
GF04	Economic Affairs	
GF04	Enviromental Protection	
GF06	Housing, Communities & Amenities	
GF07	Health	
GF08	Recreation Culture Religion	
GF09	Education	
GF10	Social Protection	
<i>*Classification of the Functions of Government, see United Nations (2000) as shares of budget</i>		

Proxy Variables of the Insertion into the International Regime

Variable	Source	Description
GVC Participation Index*	Eurostat (2022c, 2024a, 2024c)	Share of output that is involved in GVC
Value Capture Index*	Eurostat (2022c, 2024a, 2024c)	Relative position in GVC
GVC forward	Eurostat (2024c)	Domestic value added in third country exports as dependence on third country re-exports
GVC backward	Eurostat (2024c)	foreign value added in total exports as dependence on foreign inputs
Inward FDI	Eurostat (2022i)	Incoming investment from foreign
Outward FDI	Eurostat (2022k)	Outgoing investment to foreign
<i>*Authors calculations based on Carballa Smichowski et al. (2021)</i>		

A.2 Metabolic Regime

Table 2: Proxy Variables of Metabolic Regime

Variable	Source	Description
Total energy input**	Eurostat (2022m)	Energy input in terrajoule as energy extration
Share of non-renewable energy*	Eurostat (2022l)	share of non-renewable energy in total energy
GHG emissions**	Eurostat (2024a)	Green house gas emissions tons as dissipation
Material footprint**	Eurostat (2022d)	Total footprint in tons as material input
Waste**	Eurostat (2022j)	Total industrial & household waste, excluding recycling in tons as dissipation
<i>*measure inverted by author, ** per capita</i>		

A.3 Demand Regime

Table 3: Proxy Variables of Demand Regime

Variable	ESA 2010 Code	Description
Final consumption	P3 - P3.S13	Total final consumption expenditure
Investment	P51G + P52 + P53	Investment (gross fixed capital formation)
Government expenditure	P3.S13	General government final consumption
Net Exports	P6 - P7	Exports of goods and services less imports of goods and services
<i>Supplementary variables, no contribution to dimensions or clustering</i>		
Green Investment	Eurostat (2024d)	Share of green investment
<i>Source: Eurostat (2022c, 2024d), in Millions € in nominal terms by share of GDP</i>		

A.4 Production Regime

Table 4: Proxy Variables of Production Regime

NACE R2	Description
A01	Agriculture
A02	Forestry
A03	Fishing
B	Mining and quarrying
C	Manufacturing
D	Electricity, gas, steam and air conditioning supply
E	Water supply; sewerage, waste management and remediation activities
F	Construction
G	Wholesale and retail trade; repair of motor vehicles and motorcycles
H	Transportation and Storage
I	Accommodation and food service activities
J	Information and communication
K	Financial and insurance activities
L	Real estate activities
M-N	Professional, scientific and technical activities
	Administrative and support service activities
O	Public administration and defence; compulsory social security
P	Education
Q	Human health and social work activities
R-U	Arts, entertainment and recreation, Other service activities
	Activities of households as employers
	undifferentiated goods- and services-producing activities of households for own use
	Activities of extra-territorial organisations and bodies

Source: Eurostat (2025e) share of country's total gross value added

A.5 Statistical insights of MCA

Table 5: Association with Dimension 1

Regime	R ²	p-value
Production Regime	0.868	8.46×10^{-59}
Monetary Regime	0.857	2.25×10^{-56}
Wage-Labour Nexus	0.852	4.43×10^{-54}
State Regime	0.823	3.76×10^{-50}
Demand Regime	0.793	1.97×10^{-44}
Metabolism Regime	0.631	6.47×10^{-28}
Insertion Regime	0.125	4.44×10^{-4}
Competition Regime	0.079	1.12×10^{-2}

Table 6: Association with Dimension 2

Regime	R ²	p-value
State Regime	0.833	6.62×10^{-52}
Wage-Labour Nexus	0.791	2.85×10^{-44}
Competition Regime	0.654	9.96×10^{-31}
Metabolism Regime	0.578	4.82×10^{-24}
Production Regime	0.299	2.43×10^{-10}
Monetary Regime	0.180	7.00×10^{-6}
Demand Regime	0.090	1.33×10^{-2}

A.6 Clustering

Table 7: Indicators for retaining dimensions for HCPC

PCA	retained dimensions	Kaiser > 1 eig.	80% cum. var.	90% cum. var.	cross. vali. function	cum. var. retained (%)
Demand Regime	3*	1	3	3	1	100.00
Production Regime	9	6	6	9	10	92.0
Metabolic Regime	3	2	3	3	2	90.1
Monetary Regime	5**	3	4	4	1	98.0
Wage-Labour Nexus	5***	2	4	5	3	93.2
Form of Competition	5	3	4	5	6	95.9
Form of State	6	5	6	8	9	85.0
Insertion into International Regime	3	2	3	3	5	91.1

Only dimension 3 loads government contributions independent of exports **dimension 5 is retained as gender employment and pay gap disparities load distinctly on this dimension independently of unionisation and bargaining coverage as on other dimensions * Only dimension 5 loads NFC debt without market capitalisation as important difference in market-based vs. bank-based finance*

Table 8: Consistency test of including $+/-$ 1 dimension

PCA	Retained Dimension	-1 Consistency (%)	+1 Consistency (%)
Mode of Demand	3	64.5	100.0
Mode of Production	9	73.9	100.0
Metabolic Regime	3	85.5	91.3
Monetary Regime	5	81.2	81.2
Wage-Labour Nexus	5	69.6	100.0
Form of Competition	5	100.0	100.0
Form of State	6	100.0	89.9
Insertion into International Regime	3	100.0	100.0

Method: Testing how many country-year observations remain in the same cluster, if one dimension more or less is included in clustering. Low consistency can indicate suppressed information when the number of clusters is restricted.

A.7 Regime / Cluster Descriptions

Table 9: Regime Descriptions, *Note:* Qualitative variables and text descriptions are derived from various measures and simplified to provide insight. These are summarised empirical descriptions, details can be requested from the author.

Regime	Variable Description	Description
Demand Regime		
Struggling introverted	high consumption, low investment, very low to negative net exports, low green investments	The regime struggles due to over-introversion, with low investment and potential leakages through imports. This also affects green investments
Introverted	very high consumption, mid net exports, low investment, below mean government expenditure	Domestic demand carries the regime, with below average government contributions and only small export surpluses.
State-stabilised intensive	High government expenditure, high investment, average consumption, balanced net exports	At balanced net exports and average consumption, the state stabilises the regime through its expenditure, alongside high investment, indicating an intensified focus on accumulating capital stock.
Recirculating extraverted	High net exports, average consumption, high investment	The extraverted regime recirculates the injections from net export into consumption and export surpluses into investment.
State-backed extraverted	high government expenditure, high net exports, low consumption, high green investment	The extraverted regime, which builds on exports, is backed by the state at lower consumption levels. It also features the highest green investment.
Production Regime		
Advanced (Post-) Industrial	High health and social, high science and technology, high education, high finance and insurance, high information and communication, average manufacturing, low Electricity gas steam air conditioning supply, low agriculture, low water supply	Advanced technology and high skill sectors. Partnered with the education and social sectors to sustain the aforementioned sectors. Low-volatility extroversion due to average manufacturing and low primary production or tourism.

Regime	Variable Description	Description
Industrial	very high manufacturing, low education, low wholesale, retail and repair	Industrial production with very dominant manufacturing sectors. At lower states of development, the commerce sectors play an increasing role and development leaps are made by technology and science contributions
Weak industrial, commerce & logistics	high wholesale, retail and repair, high logistics, high manufacturing, low education, low yet deviating science and technology, low health and social services	The important manufacturing sector is weaker and often paired with volatile primary production and an important contribution by the commerce sector. Countries with larger commerce and logistics sectors tend to be less volatile because they rely less on primary production. Development is also driven by technology sectors.
Mediterranean tourism	Very high accommodation and food services, very high fishing, high water supply, high real estate, low science and technology, low construction, low information and communication, low manufacturing	Large tourism-oriented sectors render these countries highly volatile extroverted, as tourism is implicitly dependent on external income. Stronger manufacturing sectors reduce the volatile extroversion.
Monetary Regime		
Closed	Low market capitalisation, low household debt, low non-financial company debt, low central bank assets, very low Chinn-Ito	With low financialisation and low debt levels, the country is highly risk-averse, and risk is contained by closing the capital account.
Controlled open	Very low household debt, low non-financial company debt, low market capitalisation, average or above Chinn-Ito, slightly high inflation	Very low debt levels, especially in households, and low market capitalisation. The latter indicates low market-based finance, yet fewer financial market risks. Thus, even under risk aversion, the capital account remains more open.

Regime	Variable Description	Description
Secured financialised	High central bank assets, slightly below average market capitalisation, slightly high household debt, slightly high non-financial company debt, high Chinn-Ito, low inflation	The central bank is highly involved, potentially containing inflation and securing financialisation against contagion through the open capital account. Market- and bank-based finance are combined.
Financialised	Very high market capitalisation, very high non-financial company debt, high household debt, high Chinn-Ito, low CB assets, high green bonds	The regime has a large financial sphere with high market capitalisation, while households and Non-Financial Firm are in debt. The financial openness is equal to the secured financialised regime, however the Central Banks are less involved. Higher Green Bond issuance indicates de-risking green investments.
Wage-Labour Nexus		
Competitive patriarchal	Very high gender employment gap, slightly high Gini, low bargaining coverage, low gender pay gap, low employment, very low wage-share	Low power resources of associational and organisational power, while the systemic power of labour is also low, result in a very low wage share. Thus, the missing focus of workers as such renders the wage-labour nexus competitive. Reproductive work is also heavily tilted towards women*.
Institutional patriarchal	High gender care gap, high gender employment gap, slightly low pre-tax Gini, slightly Low Employment, low gender pay gap	Labour has institutional power, yet current organisational degrees are ambiguous, resulting in a less unequal distribution of personal income. Unpaid reproductive work is predominantly done by women*. However, if women work, the institutional power protects them from wage discrimination.
Competitive commodified-patriarchal	Very high gender pay gap, high employment, low wage-share, low gender employment gap, slightly low pre-tax Gini, low unionisation, very low bargaining coverage	Labour has low associational and institutional power, yet its systemic position is better, while the regime remains competitive. However, the achieved wage share is improved. Gender discrimination moves from the private into the monetary sphere, resulting in wage discrimination to provide missing reproductive work.

Regime	Variable Description	Description
Institutional commodified-patriarcal	High bargaining coverage, high wage share, high gender pay gap, high employment, high to average pre-tax Gini, low average unionisation	The combination of high inherited institutional and good systemic positions allows labour to achieve a high wage share even under low to average associational power. However, wages are unequally distributed between genders and personally.
Monopolistic	Very high unionisation, very high bargaining coverage, high wage share, high gender employment gap, high pre-tax Gini, very low gender employment gap, very low gender care gap	Labour has high associational and institutional power, achieving a high wage share in a monopolistic wage-labour nexus. Gender discrimination appears neither in the private sphere nor in wages. However, the market outcome for personal income distribution remains unequal.
Form of Competition		
Skewed domestic	Very high profit rates, very high accumulation rates, slightly lower intra EU trade	High accumulation and profit rates indicate low competition, even though the size of competition is ambiguous. Competition is skewed towards the capital side in the vertical conflict between labour and capital. Moreover, trade within the EU is slightly lower.
Domestic	Average Herfindahl-Hirschman Index, slightly lower profit rates, slightly lower accumulation rates, low extra EU net exports, low intra EU net exports, very low export market penetration	Competition is mainly focused on domestic market competition and less on international markets. This explains slightly lower accumulation and profit rates.
International	Very high export market penetration, high extra EU net exports, slightly lower unit labour cost, lower accumulation rates, very low Herfindahl-Hirschman Index	Competition is focused on international markets, especially beyond the EU. This is possible due to low unit labour costs and domestic market competition, which uphold competitive discipline at the international level. However, accumulation rates are lower.

Regime	Variable Description	Description
External	Very high intra-EU net exports, very high Herfindahl-Hirschman Index, very high extra-EU net exports, low profit rates	Competition is externalised into the EU and international markets. Thus, national champions compete in the international arena instead of domestically.
Form of the State		
Dual-disciplining	High public order and safety spending, high housing and community affairs spending, high defence, high recreational/cultural, low redistribution, low debt to GDP, low public services, low social spending, low but positive primary balance	The State has a large fiscal space. The primary balance (fiscal stance) is low but positive. The budget is used to provide public order and safety, defence spending, and housing, community, and recreational and cultural spending. On the contrary, spending on social protection, health and public services is low. The state engages less in redistribution. Subsequently, the state builds on fiscal discipline and disciplines the people into the labour market.
Austerity burdend	Very high debt to GDP, high primary balance, low redistribution, high defence, low education	The state has very low fiscal space (debt to GDP), while the fiscal stance is also restrained and forced to run surpluses. Under the burden of austerity, the state has cut education, recreation and community oriented budgets to a low level and focuses on core activities such as defence, public services and public order and safety. It only weakly engages in redistribution.
Modernised socio-democratic	Close to debt brake debt levels, high health spending, high social protection and social services spending, slightly high environmental protections, low to average redistribution, low housing, low culture, low defence	The fiscal space is fully used close to institutional constraints. The Budget is tilted towards health, social protection and services as well as environmental protection. While Redistribution is mid, spending on housing, culture, and defence is low.

Regime	Variable Description	Description
Socio-democratic	Low debt to GDP, high education, high redistribution, high social protection, high health, low public order and safety, low environment, low economic affairs	The large fiscal space and high redistributive activity are used to tilt the budget towards education, social protection and health and away from public order and economic affairs. However, the spending on environmental causes is also restrained. The state actively works to improve the position of labour and maintains the social order through welfare rather than discipline.
Insertion into International Regime		
High real economy	High forward GVC, high GVC value capture, low backward GVC, low in- and outward FDI, low GVC participation, low GVC backwards	While dependence on third countries to re-export the produced goods is high, the value captured from GVC is also high, even though the share of output involved in GVC is low. Meanwhile, the dependence on foreign inputs remains low. The countries are inserted into GVC at a very high real economy position. The financial involvement in global capital accumulation is low.
Independent intermediate	Low FDI in and out, low GVC forward	FDI in and outflows are low, highlighting an independent position towards global accumulation financing. The exported goods do not need to be re-exported, and are thus probably finished goods.
Semi-peripheral real economy	High backwards GVC, high GVC participation, low forward GVC, low value capture	Their dependence on foreign inputs is very high, and much of their output is integrated into global value chains. However, the position in GVC is low, and dependence on re-exports by third countries is also low. The foreign input dependence suggests there might be additional peripheral regions subordinated to them.

Regime	Variable Description	Description
High financial	Very high inward FDI, very high outward FDI, very high GVC participation, low GVC value capture	The through-flow of FDI is very high; much foreign capital is financed, but domestic capital stocks are also financed from abroad. A very high amount of output is also involved in GVC, while the value captured is low. However, the high involvement in financing accumulation globally indicates a high insertion on the financial economy side. This obscures the true amount of revenue captured from production abroad.
Metabolic Regime		
Energetic pollution	High non-renewables, high GHG, high total energy, low material footprint	Environmental damage is caused by the magnitude and form of energy extraction. Even though the material footprint is low, high energy use from non-renewable sources leads to significant pollution.
Carbon age small pollution	Low material footprint, Low Waste, Low GHG, Average and ambiguous non-renewables	While the form and magnitude of energy usage are ambiguous, emissions and material footprint are low, even in cases where the share of non-renewables is high above average.
Carbon age giants	Very high total energy, high non-renewables, high GHG emissions	The very high total energy use and the extraction of non-renewable energy lead to high GHG emissions. It describes the EU's pinnacle of carbon age metabolism.
Green elite	High waste, high material footprint, high to average GHG emissions, low non-renewable energy	The low use of non-renewable energy justifies the still slightly above-average emissions and conceals the high material footprint and high levels of waste, which resemble the very imperial mode of living of the green elite.

Regime	Variable Description		Description
Aspiring elite	green	High GHG emissions, high material footprint, high waste, low energy, low non-renewable energy	Similar to the green elite, the material footprint and waste are high, even though energy usage is low and the share of non-renewables, too. The greening of energy extraction has not progressed far enough to fully conceal the environmental damage caused by the material footprint.