Orchestrating economic transformation: Supra-national guidance and member state subsidy provision in the Single Market*

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Abstract

Europe faces a competition crisis, as the imperative to digitize and decarbonize its economy coincides with growing geopolitical pressures amid the rise of industrial policy. Subsidies, while helping struggling businesses, present a threat to market cohesion that the European Commission (EC) must navigate. We study this governance trade-off between competitiveness and cohesion in the context of the Recovery and Resilience Facility (RRF), the EU recovery package to the COVID-19 pandemic. Given the RRF's design featuring indirect control and ex post verification, we conceptualize the EC as an orchestrator seeking to facilitate the green and digital transitions, while maintaining market integrity. Using roughly 15 years of sector-level subsidy data for all Member States in a difference-in-differences framework, we examine the effect of the RRF on business assistance. We find increased subsidy provision by Member States to green and digital sectors, those prioritized by the RRF, and mixed effects on market cohesion.

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Introduction

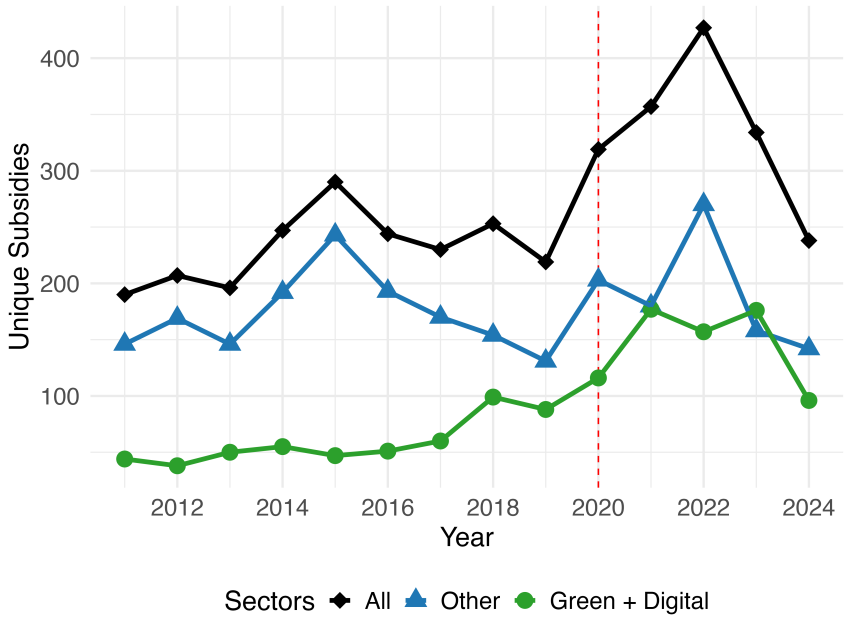
Europe faces a growing tension between national industrial policy and supranational market integration. As governments increasingly deploy subsidies, the risk of fragmenting the European single market grows. Against a backdrop of lagging international competitiveness, ample commentary, both journalistic and governmental,[1] emphasizes the need to rethink the productivity and growth of the continent in the 21st century. This pressure to maintain industrial and technological competitiveness has fueled renewed interest in industrial policy across Europe, particularly to facilitate the green and digital transitions. This economic dilemma presents a governance challenge to the European Union: Can it, as a supranational institution, promote economic transformation while preserving market cohesion among member states?

Unilateral subsidy provision by Member States can distort competition and undermine the level playing field of the single market. For this reason, the regulation of state aid has long been a central component of the European Commission's (EC) role in safeguarding market integration (Smith, 1996, 1998; Blauberger, 2009*b*). Yet the contemporary push toward economic transformation has also increased demands for public investment and targeted industrial support. As industrial policy returns to prominence in advanced economies (Allan, Lewis and Oatley, 2021; Allan and Nahm,

[1]For journalistic coverage see, e.g., Foy, H., Moens, B. and P. Tamma. 16 September 2025. "EU economy falls behind global rivals due to 'complacency', warns Mario Draghi." *Financial Times*. https://www.ft.com/content/a7c2d0fc-6e32-4a19-8cb3-e16f81d2d1eb, or Foy, H. 12 February 2026. "EU leaders gather as industry demands competitiveness fix." *Financial Times*. https://www.ft.com/content/cf5d7248-dcfd-4bcf-8f5c-15f68b90b5f1. The Draghi report is the clearest example of public commentary, in which he labels the lagging competitiveness of the EU an "existential challenge" (5). Draghi, M. (2024). The Draghi report: A competitiveness strategy for Europe. https://commission.europa.eu/topics/eu-competitiveness/draghi-report_en.

2024; Altenburg et al., 2017; Bulfone, 2023; Juhász et al., 2023), subsidy activity among EU Member States has increased markedly, as illustrated in Figure 1.

Figure 1: Annual Unique Subsidies by EU Member States



Note: Green and Digital Sectors are HS-2 codes contained in Wind (2010). Other are all remaining HS-2 sectors. All is the sum of these two categories.

The COVID-19 pandemic and subsequent recovery intensified this challenge: state aid restrictions were temporarily relaxed to allow fiscal space to respond. At the same time, the European Union launched an unprecedented program of joint borrowing and investment through NextGenerationEU. The centerpiece of this initiative is the Recovery and Resilience Facility (RRF), which provides financial support to Member States to promote economic recovery while advancing the green and digital transitions. Although the EC sets broad priorities and conditions for funding, Member States retain considerable discretion over how funds are allocated and implemented

domestically. This institutional arrangement raises a broader question about the capacity of supranational institutions to shape national policy choices in a multilevel governance system.

This article examines whether the EC can steer national subsidy provision toward shared policy priorities while preserving cohesion in the single market. We conceptualize the Commission's role in the RRF as an instance of *orchestration*: a form of indirect governance in which EC, as a governor, mobilizes intermediaries, here Member States, to pursue policy goals without relying on direct hierarchical authority (Abbott et al., 2015, 2016, 2020). Through a combination of incentive-based conditionality, ex ante investment criteria, and ex post milestone verification, the RRF attempts to align national spending decisions with EU-level priorities related to decarbonization and digitization while preserving Member State autonomy over fiscal and industrial policy.

Existing explanations of subsidy provision prioritize institutions (Kim, Naoi and Sasaki, 2025), asset specificity (Zahariadis, 2001) as well as economic geography (Rickard, 2018), characteristics that are relatively static and therefore less likely to explain changes in subsidy provision over time. The existing literature that takes a more dynamic approach, in addition, considers cases where the governor is also the executioner: governments utilize their own resources to spend and subsidize (Verdier, 1995; Rickard, 2012*a*,*b*; Catalinac and Motolinia, 2021). In a context of indirect governance in which a supranational actor provides financial resources and policy guidance while relying on national governments for implementation, allowing for significant discretion by Member States, it is unclear from existing work *if* such efforts to shape the provision of

subsidies are acted on.

To evaluate the effectiveness of this form of governance, we examine changes in subsidy provision among EU Member States before and after the passage of the RRF. Importantly, because Member States retain discretion over broader industrial policy spending, the Commission's priorities may also shape subsidy provision financed with domestic resources. If orchestration through the RRF is effective, it should produce three observable outcomes. First, subsidy provision should increasingly target sectors associated with the green and digital transitions. Second, Member States should align their own subsidy programs with these priorities, even when using domestically financed resources. Third, the distribution of subsidy provision across Member States should remain consistent with the Commission's objective of preserving market cohesion within the single market.

Our empirical analysis draws on the Global Trade Alert database, which records detailed event-level information on trade-related policy interventions between 2011 and 2024. We employ difference-in-differences and event study designs with data on 97 sectors over this time period. The empirical analysis proceeds in two steps. First, we examine whether the RRF shifted subsidy provision toward sectors prioritized for the green and digital transitions and whether these changes were driven by domestic or EU funding sources. Second, we assess whether the implementation of the RRF affected market cohesion by altering the distribution of subsidies across Member States relative to their economic size. We assess the efficacy of orchestration with the number of Member States in a given year providing subsidies at the sector level. To capture market cohesion, we consider the inequality of subsidy distribution across Member

States. Given that the RRF was a broad European response to the COVID-19 pandemic rather than a policy targeted specific at business subsidies, this design provides us with improved empirical leverage to study the dynamics of subsidy provision.

Our analysis yields four main findings. First, baseline subsidy activity remains low and highly concentrated among fiscally capable Member States, both in absolute and to a lesser extent in relative terms. This is especially true among green and digital subsidy provision. Second, the introduction of the RRF increased subsidy provision in sectors relevant to the green and digital transitions, with effects appearing immediately after implementation but attenuating over time. Third, this increased provision to prioritized sectors was largely driven by domestically financed subsidies rather than EU-sourced resources, consistent with an indirect governance effect via orchestration rather than more direct or hierarchical forms of implementation. Lastly, with respect to market cohesion, we observe mixed results. EU-funded subsidies lead to a more equitable distribution of subsidies, irrespective of sectors, whereas subsidies coming from member states are increasingly unequal among non-prioritized sectors.

This article contributes to several literatures. First, it provides empirical evidence on the effectiveness of orchestration as a form of indirect governance. While existing research has focused primarily on the emergence and institutional design of orchestration (Abbott et al., 2015; Blauberger and Rittburger, 2015; Müller and Bergmann, 2020; Kingston et al., 2023), we examine its consequences in a major contemporary policy initiative. We provide an assessment of the RRF's impact on EU politics that captures subsidy dynamics in all member states rather than a subset, expanding beyond the origins of this reform (Meunier and Mickus, 2020). Second, the article advances

research on the political economy of subsidies to consider how subsidy provision operates in a multi-level governance system (Rickard, 2012*b*, 2018; Kim, Naoi and Sasaki, 2025). In doing so, we also contribute to broader debates on European integration and economic governance by assessing whether the EC can overcome in practice the trade-off between national competitiveness and market cohesion (Smith, 1996; Blauberger, 2009*b*; Crepaz and Hanegraaff, 2020; Di Carlo and Schmitz, 2023).

The article proceeds as follows. In the next section, we ground our conceptualization of the EC and the RRF as an instance of orchestration and derive expectations regarding sectoral prioritization, domestic subsidy alignment, and market cohesion. We then introduce the data and research design. The empirical analysis proceeds in two stages. First, we examine whether the passage of the RRF shifted subsidy provision toward sectors associated with the green and digital transitions and whether these shifts were driven by EU funding or domestically financed subsidies. Second, we assess whether the implementation of the RRF affected market cohesion by altering the distribution of subsidy provision across Member States relative to their economic size in the single market. The final section discusses the implications of our findings for the study of industrial policy, European integration, and indirect governance.

Orchestrating Economic Transformation: EU Industrial Policy Revival

The revival of EU industrial policy has garnered increased attention in both the European integration and industrial policy literature. While the EU is traditionally conceived as a 'regulatory state' (Majone, 1997), it has produced a number of programs, especially in the early 1990s, primarily aimed at the research and development of

physical or technological infrastructures to better connect the EU.[2] After the Global Financial Crisis, newly launched programs had a stronger strategic angle, aiming to boost European innovation and competitiveness of industries or researchers.[3] Most recently the EU has launched a series of directives and programs that combine security issues with industrial policy (Heldt and Meunier, 2026) as well as trade and investment policy (Meunier and Nicolaidis, 2019) alongside programs to address the COVID-19 pandemic recovery.[4]

The RRF is the central financial instrument of the EU's post-pandemic recovery strategy, established in 2021 as part of the broader NextGenerationEU program. Its primary purpose is to support Member States in recovering from the economic and social impacts of the COVID-19 pandemic while accelerating structural reforms and long-term investments. The RRF is a temporary instrument that provides grants and loans to EU countries to finance national Recovery and Resilience Plans, which must allocate significant resources to priorities such as the green transition, digital transformation, economic resilience, and social cohesion. The RRF represents an important step in the development of EU fiscal capacity and economic governance (Heidbreder, 2025), as it introduces large-scale joint borrowing at the EU level and links financial support to policy reforms and performance-based milestones agreed between member states and the Commission. However, it may also contribute to the expansion of government subsidies and state intervention across member states, potentially increasing

[2]For example, programs such as the ESPRIT, RACE, ÉCLAIR, TEDIS, SPRINT, EURET all addressed infrastructure development.

[3]For example, COSME, EFSI, InvestEU, EDIDP, Horizon 2020/Horizon Europe, and RePowerEU.

[4]For example, the EU Chips Act, the Foreign Subsidies Regulation, Important Projects of Common European Interest, and the Critical Raw Materials Act.

the number of nationally targeted support schemes outside prioritized sectors. This dynamic could risk distorting competition and weakening the level playing field within the EU's internal market, thereby challenging market cohesion if subsidy allocation and implementation differ significantly between countries.

From a policy design perspective, scholars consider the RRF to be a novel legal and fiscal technology of European governance (Buti and Fabbrini, 2023; Quaglia and Verdun, 2023; Becker, 2025; Fabbrini, 2025), combining internally oriented conditionality with preventive fiscal design. This contrasts with austerity-focused instruments deployed in response to the Financial Crisis (Schelkle, 2021; Rehm, 2022). This interventionism continues to incorporate two EU objectives: promoting economic growth and productivity while protecting Single Market integrity (Di Carlo and Schmitz, 2023). At the same time, the increased use of industrial policy, for example via subsidies, simultaneously allows for the EU to respond flexibly to broader geopolitical pressures (McNamara, 2024).

We take this emphasis on the novelty of the RRF as a starting point to conceptualize it as a case of indirect governance, namely orchestration (Abbott et al., 2015, 2016, 2020). Rather than being a relationship between principals and agents, we consider the EC as an orchestrator with Member States as intermediaries. Broadly, the policy goal, or target, of the RRF is socioeconomic recovery from the COVID-19 pandemic, with the more specific goals of stimulating the green and digital transitions. As we describe in further detail below, through the RRF, the Commission petitioned Member States for recovery plans that were subsequently approved, thereby relying on common interests between orchestrator and intermediary, a core feature of orchestration.

Delegation, in contrast, would rely on a hard form of indirect governance based on a contractual and binding relationship with hierarchical control. In practical terms, this could take the form of the Commission handing out recovery plans to Member States to be implemented using its resources.

We find this orchestrator conceptualization of the EC apt within the context of the RRF for three reasons. First, orchestrators nudge, rather than compel, intermediaries given weaker methods of ex post control (Abbott et al., 2016, p. 722). Second, while the EC can and has regulated state aid provision (Abbott et al., 2016), it needed to *enlist* the authority of Member States to implement the RRF (Abbott et al., 2020, pp. 12-13). Finally, rather than assuming capable agents, orchestration often occurs when goals are more aligned, for example in terms of the green and digital transitions, but intermediaries may lack capacity (Abbott et al., 2016, p. 723). We discuss each in turn to motivate this conceptualization, before elaborating our empirical expectations. In doing so, we build on other work that considers European institutions, such as the Commission, as orchestrators with respect to competition policy (Blauberger and Rittburger, 2015), migration control (Müller and Slominski, 2021), conflict and crisis management (Müller and Bergmann, 2020; Amadio Viceré, 2021), and the environment (Kingston et al., 2023).

As noted above, the RRF differed from past attempts by the EC to induce changes in economic policy among Member States. Rather than rely on hard controls, the Commission defined eligibility criteria for the more than €700 billion in soft loans and grants, approving Member State plans, and linking disbursement to milestone achievement (Ferrera, Miró and Ronchi, 2021; Corti and Vesan, 2023). Ex ante conditional-

ity required alignment with EU objectives, while ex post conditionality tied payments to verified implementation. Bokhorst and Corti (2024), among other scholars, provide a detailed description on the negotiation process behind the national investments plans. Specifically, national plans needed to meet specific funding thresholds related to decarbonization and digitization: 37% and 20%, respectively. These targets created clear guidelines for plan submission and implementation verification to guarantee that Member States partially use the RRF to "make their economies and societies more sustainable, resilient and prepared for the green and digital transitions."[5] Crucially, however, Member States participated voluntarily, and their national authority over fiscal and industrial decisions was preserved within these broader goals. In this sense, the Commission is nudging state behavior to facilitate the green and digital transitions not compelling it, trading off control over implementation with buy-in from Member States (Bokhorst and Corti, 2024; Miró, Natili and Schelkle, 2024). This is exemplified also by the informal group of experts on the implementation of the RRF, which the Commission created to meet periodically with national governments and other experts. Similarly, the RRF became one of the shared management programs that requires regular communication within *Inform EU*, the EU-wide network on EU and national investments. Besides visibility and transparency, it is a cooperation platform between the Commission and EU programs that meets twice annually.

Second, while the EC has developed a regulatory capacity in the domain of state aid provision as a means of facilitating market cohesion (Smith, 1996, 1998; Blauberger, 2009*a*,*b*; Zahariadis, 2013), implementation authority ultimately resides with Mem-

[5]The Recovery and Resilience Facility. https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility_en.

ber States. In this sense, the EC, under the aegis of the Treaty on the Functioning of the European Union (TFEU), enjoys exclusive control over regulating state and competition policy–core regulatory devices shaping industrial policy–but it does not implement it within the Member States. Hence, the RRF is an instance in which the EC relaxed state aid requirements, thereby granting greater authority to Member States, while simultaneously enlisting their authority to intervene in the domestic economies.[6] This growing regulatory potential of the EC does not imply the absence of market-distorting policies, however; Figure 1 demonstrates substantial subsidy provision prior to the RRF among Member States. "Good" subsidy provision is permitted, if not encouraged, whereas "bad" subsidies are regulated (Blauberger, 2009*b*). In this sense, the RRF encourages subsidy provision towards those "good" sectors of the economy producing green and digital goods.

Finally, whereas principal-agent theories typically assume that principals select the most competent actor from a pool of candidates, orchestration theory highlights capacity constraints. In the present context, the EC cannot select, but rather interacts with Member State intermediaries in implementing the RRF.[7] Drawing on previous studies, variation across countries in terms of regulatory and bureaucratic capacity (Fernández-i Marín et al., 2024; Zhelyazkova and Thomann, 2022) might lead to differing ability or competence to implement the RRF, especially given that the RRF

[6]While orchestration, as an ideal type, relies on enlisting intermediary authority, Abbott et al. (2020) emphasize that, in practice, blends of authority granting and enlisting can take place.

[7]We adopt a stylized model of the current relationship between the EC and Member States. The Commission is a governor given prior granting of authority by the Member States. In the long run, the specific relationship can, of course, change, but in the case of state aid there is a continued trend of increasingly concentrated authority at the supranational level (Smith, 1996, 1998). Member States previously granted this authority which the Commission now enjoys, enabling it to orchestrate the implementation of subsidies in Member States.

has been layered on top of pre-existing Cohesion Funds (Polverari, 2025, p. 86). Recall, that Member States first needed to develop national plans in a timely fashion and following approval had to verify implementation for fund disbursement from Brussels. In this sense, the funding package is a performance-based program. While the RRF, as an EU-wide policy, was accessible to all Member States regardless of capacity, its implementation was not guaranteed or mechanical. In practice, this means that national governments can utilize EU funding for certain recovery aspects with greater certainty of repayment and prioritize domestic funding for other sources. Moreover, previous literature has showed that more fiscally capable EU Member States are more likely to implement trade-distorting policy interventions such as subsidies, especially in sectors with superstar exporter firms (Invernizzi, Yildirim and Poletti, 2026).

To summarize, the EC via the RRF attempted to orchestrate the green and digital transitions while maintaining cohesion of the Single Market. This novel policy instrument nudged Member States towards subsidy provision in these sectors, but also granted greater authority to intervene in the economy more generally through the relaxation of state aid requirements and the fiscal adjustment requirements of the Stability and Growth Pact (Buti and Fabbrini, 2023).[8] This 'constrained supranationalism' of the RRF entails a blend of decision-making between the Commission and other executive bodies (e.g., the Council), but with less insight from the legislative bodies (Buti and Fabbrini, 2023, p. 677). Weaker forms of control and voluntary participation reduce the extent to which the EC can compel members to prepare for the twin transitions. The overall effectiveness of the RRF is, of course, up for debate, yet some

[8]We note that assistance to firms is but one means by which RRF funds were spent.

note the performative focus on implementation to meet verification standards, which may impede its effectiveness and legitimacy (Zeitlin, Bokhorst and Eihmanis, 2025).

This conceptualization of the EC as an orchestrator of Member State subsidy policy through the RRF suggests several observable implications. We elaborate two related to the provision of subsidies alongside one regarding market cohesion. First, given the focus on the green and digital transitions, effective orchestration should entail an increase in subsidy provision to these prioritized sectors compared to other sectors following the passage of the RRF.

Second, given that funding may arrive directly via supra-national grants, rather than indirectly via Member State treasuries from soft-loans, orchestration can only operate via the latter. Supra-national grants limit to a greater extent discretion on the part of Member States, featuring much stricter ex ante control, or selection. Loans financed from domestic sources, in contrast, permit selection on the part of the Member States rather than a European institution. Whereas supra-national-based subsidies more closely resemble direct governance, effective orchestration would take the form of increased subsidy provision to the green and digital sectors from domestic sources, but not from supra-national ones. If our results are driven by EU-backed financial mechanisms, rather than member state ones, the RRF would not be a case of effective orchestration.

In terms of market cohesion, the measure of effectiveness is less clear. On the one hand, a more balanced subsidy playing field could be said to produce a more cohesive market. On the other, assisting states with less capacity and thereby following a more redistributive logic could be viewed as more effective. Given that subsidy

provision is market distorting, arguments can be made for different distributions of subsidy provision as being more or less detrimental to market cohesion. For ease of empirical interpretation, we assess effectiveness from a proportional understanding of market cohesion, as it provides a clear baseline against which we can assess changes in subsidy provision before and after the RRF. Effective orchestration would not only provide subsidies, but reduce any pre-existing distortions in the subsidy provision. As laid out in the preceding paragraphs, we expect this to be more prominent in green and digital sectors as increased subsidy provision would lead to greater changes in the overall distribution of subsidies in these same sectors. In discussing the results, we do, however, address how the trends in subsidy distribution align with both equal and redistributive-based arguments for market cohesion. Table 1 takes the preceding paragraphs and spells out explicitly our three hypotheses.

Table 1: Hypotheses

Name	**Hypothesis**
H1: Sectoral Prioritization	Following the passage of the RRF, subsidy provision to green and digital sectors will be greater relative to other sectors.
H2: Domestic Funding	Following the passage of the RRF, subsidy provision from Member States to green and digital sectors will be greater relative to other sectors.
H3: Market Cohesion	Following the passage of the RRF, subsidy provision from Member States to green and digital sectors will be more equitable relative to other sectors.

Data and Design

We conduct our empirical analysis in two parts: We first assess changes in subsidy provision between prioritized green and digital sectors and all remaining sectors, before assessing the relative distribution of subsidy provision between Member State compared to their economic size in the Single Market. We detail the data and design for each in what follows.

Prioritized Subsidy Provision

To test whether Member States increasingly prioritized green and digital sectors, we utilize GTA data on Member State subsidy provision between 2012 and 2023. These data provide us with information on the timing, funding source, and relevant HS-6 product codes. We rely on the funding source, that is either domestic or EU, to split the data and separately measure our variables of interest and regression equations. This allows us to test the second hypothesis. This provides us with data for our outcome variable, *Subsidy Provision*, which we measure at the sector year. To construct this measure, we first generate binary indicators for each Member State if they provided a subsidy in a given HS-2 sector. We then aggregate this measure for each sector. *Subsidy Provision*, therefore, ranges from 0-27 in a given year, with higher values indicating greater subsidy provision for that sector among Member States. Given that we use binary indicators in the aggregation process, this outcome variable provides us with insights on the efficacy of orchestration at the extensive margin. We utilize a measure of subsidy provision along the intensive margin, that is focusing on total subsidies to

the prioritized sectors, but ignoring the breadth of provision among Member States as a robustness measure (See Table A8).

Sector prioritization requires a mapping from components of the green and digital transition to specific product codes. We utilize a list compiled by Wind (2010) based off the WTO 153-list and the World Bank 43-list. These lists provide four digit product codes for 153 and 43 products respectively that are relevant to the green transition resulting from deliberations at both bodies. Given the focus on the green transition of this list, we may potentially miss some products that are relevant for the digital transition. Yet, by aggregating to the HS2 level, we better incorporate some of the overlap between sectors in adjacently numbered products reducing this concern (e.g., within HS2 there are many HS6 products). For instance, many relevant plastic products (HS2 38) are relevant for both the green and digital transition; this is also the case for the HS2 85 code: semiconductors for photovoltaic cells, but also computers. Moreover, many of the digital targets in the RRF programs are concerned with the digitization of administrative processes, which do not require heavy infrastructure investments. Our binary indicator for prioritization by the RRF takes a value of unity if the product code is included in Wind's (2010) list.[9] Given that the EC did not explicitly define green and digital transition sectors, this leaves room for interpretation in the implementation of subsidies.[10] Failing to capture certain sectors as prioritized with this mapping, moreover, presents a conservative measurement strategy, attenuating any effects in line with our argument towards zero.

[9]This includes the following HS-2 sectors: 38, 39, 68, 70, 71, 73, 76, 84, 85, 89, 90.

[10]An official list of green products was released in May 2025 after our period of analysis. This list of net-zero technologies can be found here: https://data.consilium.europa.eu/doc/document/ST-9432-2025-ADD-1/en/pdf.

Given that *Priority* is time-invariant, we interact it with a binary indicator for the years following 2020, *Post*. This interaction is included in the following difference-in-differences (DiD) equation to assess the impact of the RRF:

$$\text{Subsidy Provision}_{st} = \alpha_s + \lambda_t + \beta_1 \text{Priority}_s \times \text{Post}_t + \epsilon_{st} \quad (1)$$

where α_s and λ_t denote sector (s) and year (t) fixed effects respectively. Given that *Priority* and *Post* are unit and time invariant respectively, we omit their additive terms as they are collinear with the fixed effects. We cluster standard errors at the sector level.

Market Cohesion

We rely on the same data sources to assess the effectiveness of the RRF to maintain or improve market cohesion. Rather than consider individual sectors in a given year, our unit of analysis is the country-sector-year. We aggregate sectors into two groups: prioritized by the RRF or not, meaning, for each country, we have two observations per year.

Our outcome measure is the *Subsidy Gap*, which we operationalize as the absolute value of the difference between two proportions. The first is the proportion of EU GDP that a Member State contributes, as a proxy of economic size. The second is the proportion of total subsidies to prioritized or other sectors that a Member State provides. Perfect equality in subsidy distribution would mean this gap is zero for all Member States, whereas increasing the size of the *Subsidy Gap* means an increasingly unequal provision of subsidies. We calculate *Subsidy Gap* within each category of sector

prioritization.

As above, the sectors relevant to the green and digital transitions are coded as 1 on *Priority* and we use the analogous *Post* variable as above to capture changes in *Subsidy Gap* before and after the implementation of the RRF. We estimate the following equation:

$$\text{Subsidy Gap}_{cst} = \alpha_{cs} + \lambda_t + \beta_1 \text{Priority}_s \times \text{Post}_t + \epsilon_{cst} \tag{2}$$

In contrast to Equation 1, in Equation 2 we include country-sector fixed effects (α_{cs}), given that this is our unit of analysis alongside standard year fixed effects. *Priority* and *Post* remain collinear with these fixed effects and the additive terms are omitted. In both equations, we cluster standard errors at the country to account for potential correlations in the errors common to the government implementing subsidies irrespective priority status.

Identification

Threats to inference in a DiD framework typically consist of anticipation or violations to the parallel trends assumption. Given the nature of the RRF, a policy response to the COVID-19 pandemic, concerns about anticipation should be mitigated. It could nevertheless be the case that sectors relevant to the green or digital transitions were receiving increased attention prior to the RRF. Any such divergence should be visible in our data given that we have nearly a decade of observations prior to the passage of the RRF. We utilize an event study approach to probe empirically the existence of violations to the parallel trends assumption in the years preceding 2020. Our estimates

can take on a causal interpretation if we assume that absent RRF the trends in subsidy provision and market cohesion would not have diverged between prioritized and non-prioritized sectors.

Evidence in favor of the first hypothesis would take the form of a positive value on the β_1 coefficient in Equation 1. Evidence consistent with the second hypothesis would take a similar form, but only among subsidies funded by Member States, rather than the EU writ large. Lastly, evidence in favor of the third hypothesis would take the form of a negative value on the β_1 coefficient in Equation 2 meaning the discrepancy between relative economic size and subsidy provision is shrinking following the passage of the RRF.

Results

We present our results in three phases. First, we review descriptive trends in subsidy provision in terms of funding source, priority status and across Member States. These descriptive results provide necessary context to interpret the event study coefficients that we then discuss related to our hypotheses on the effectiveness of EC orchestration. In brief, we find that the RRF was effective in increasing subsidy provision towards sectors relevant to the green and digital transitions. This increase in business subsidies, moreover, is largely driven by increases from domestic rather than EU sources, consistent with an orchestration logic. Our results with respect to the market cohesion hypothesis are mixed: we find a larger decrease in subsidy provision inequality from Member State sources, but not from EU funds. The null finding from EU sources, however, is due to a secular decrease in *Subsidy Gap* across *both* non-prioritized and

prioritized sectors. Finally, we briefly discuss the robustness our results.

Trends in Member State Subsidy Provision

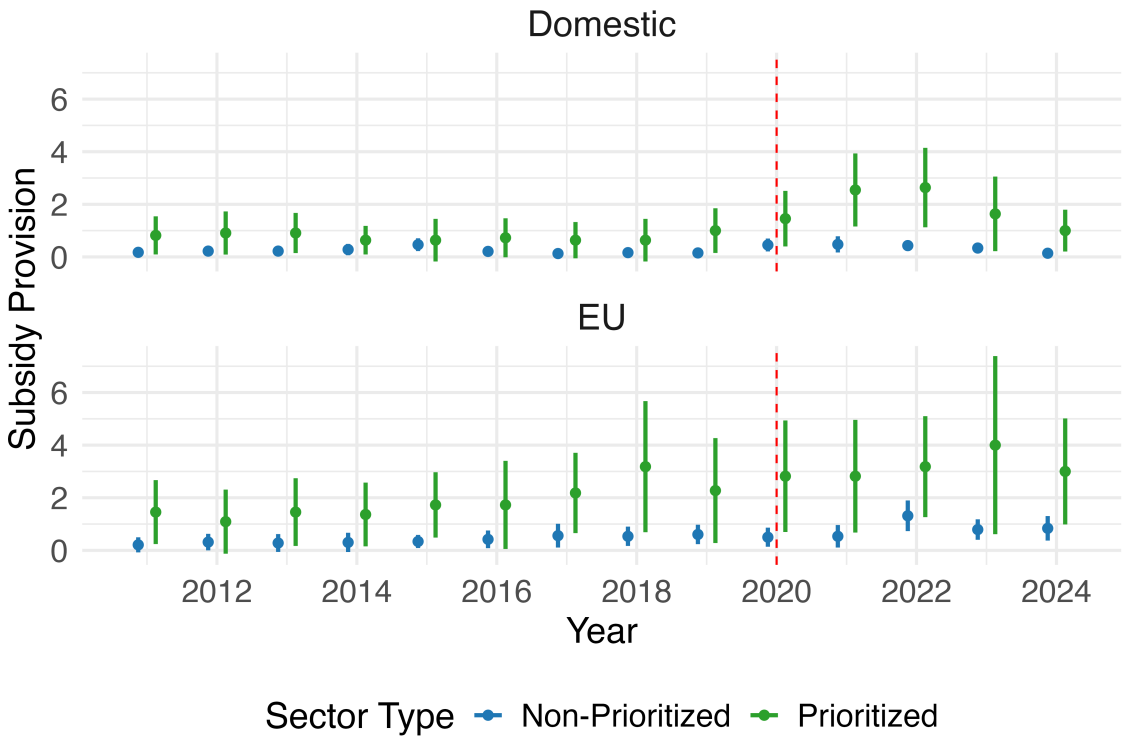
In Figure 2, we present subsidy provision across our two types of sectors depending on RRF priority status and the funding source, either from the EU or domestically. In general, we observe that subsidy rates on average across both types of sectors are quite low, reflecting the restrictive nature of state aid within the Single Market. Point estimates here capture the average number of Member States implementing a subsidy for each of the sectors in the prioritized and non-prioritized categories.

From Member State sources we low levels of subsidy provision, especially in sectors irrelevant to the green and digital transitions. While there is a slight increase following 2020, this increase is smaller than the rise we observe in prioritized sectors, which reaches nearly an average of 2 Member States providing subsidies on average. From EU sources we observe much less over time variation, green and digital sectors have been prioritized and there does not appear to a shift following the passage of the RRF in these descriptive trends. Taken together, Figure 2 points in the direction of EC orchestration shifting Member State subsidy provision towards the green and digital transitions, in particular from domestic sources.

In Figure 3, we present similar descriptive trends albeit with respect to our market cohesion outcome variable. Recall, that for this third hypothesis, we group sectors by priority status, but consider Member States individually to assess whether the sectoral trends we observe are driven by particular Member States or reflect more holistic trends across the Single Market. Given that the RRF was a voluntary measure, in

which Member States needed to develop, submit, and then implement recovery plans, it could be the case that more capable governments were better able to leverage this window of opportunity, thereby implementing a greater share of subsidies. If this were the case, the RRF, while orchestrating greater state subsidy provision towards the green and digital transitions writ large, may have simultaneously threatened market cohesion or exacerbated inequalities in assistance among Member States. For instance, a common concern is that larger, more capable Member States are better able to take advantage of EU directives at the expense of their smaller peers.

Figure 2: Average Subsidy Provision by Priority Status and Funding Source



Note: The top and bottom panels measure subsidy provision from EU and Member State sources. Sector Type denotes whether the HS2 code is considered a green or digital sector and therefore prioritized by the RRF.

We take inspiration from Lorenz curves used to measure income inequality to assess any inequalities in subsidy provision. The horizontal axis orders countries by the proportion of their GDP to total GDP, meaning it measures the cumulative proportion of EU GDP. The vertical axis measures the cumulative proportion of subsidy provision. The red dashed line provides a guide for a perfectly proportional or equal allocation of subsidies provided compared to economy size within the market. The respective cumulative shares of GDP and subsidies on the horizontal and vertical axes allow for an interpretation of any possible inequalities in subsidy provision across Member States. Comparing across panels allows for a consideration of whether the same Member State changes their allocation portfolio across targeted and non-targeted sectors. Overall, if points are above the 45 line, this means that a greater share of total subsidies are being given out by a smaller share of the economy and vice versa. To facilitate interpretation, we consider a simple pre-post comparison. Figure B1 provides yearly plots.

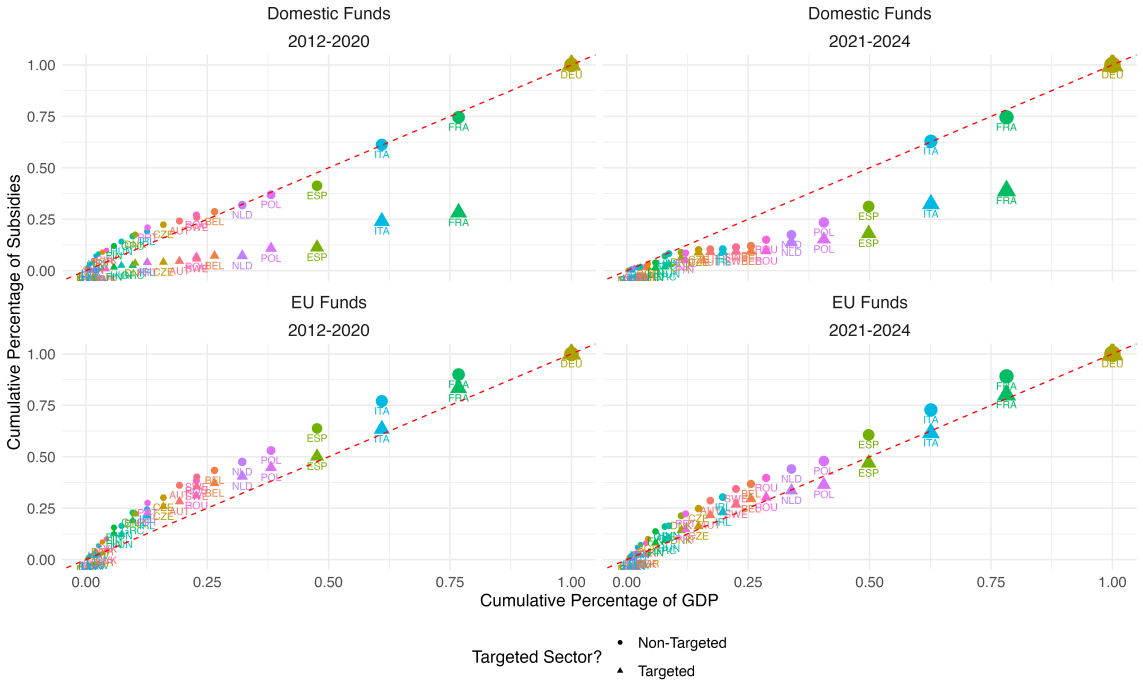
Prior to the RRF, domestic subsidy provision towards green and digital sectors was dominated by Germany, whereas in the years following it, Italy and France have caught up. For the remaining Member States, they domestically offer fewer subsidies than would be expected from a distribution proportional to their GDP. Among EU funds, we observe the opposite trend, following the RRF, smaller economies have disproportionately benefited from supranational funding sources to subsidize firms in the green and digital sectors. Given that these Member States under contribute from their own resources, this shift may have helped them overcome a capacity gap or suggest a substitution effect.

Regression Results

We now present the results of our DiD regressions. We describe both pre-post specifications as formalized in Equations 1 and 2 and present event study visualizations. We first consider the orchestration of the green and digital transitions before turning to our market cohesion hypothesis.

Following the passage of the RRF, we find a positive effect of orchestration with a greater number of subsidies being provided to green and digital sectors compared to all other sectors (see Table A1 for full results). This shift in subsidy provision is only

Figure 3: Trends in Subsidy Provision by Source and Economy Size



Note: Top and bottom panels feature nationally and EU-funded subsidies respectively. Triangles denote prioritized sectors, whereas circles denote all other sectors. The dashed red line provides a perfectly proportional distribution of subsidies relative to Member State GDP.

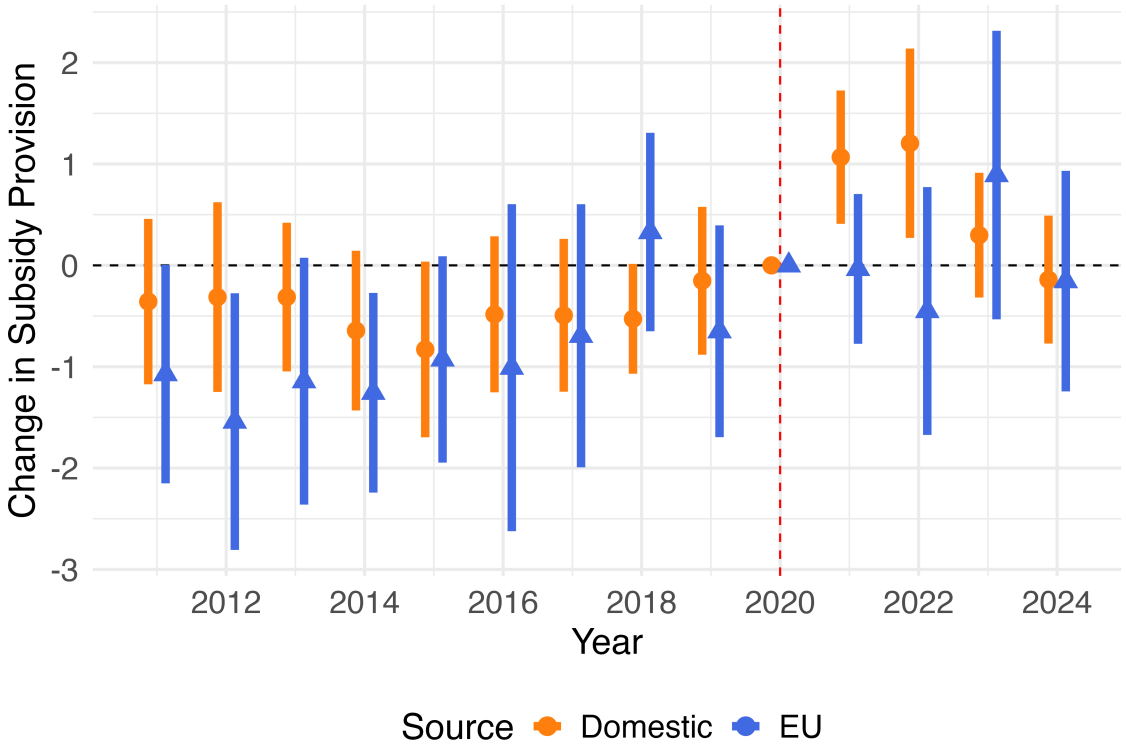
present, however, from Member State funding sources ($\beta = 1.05, p < 0.01$). Roughly speaking, following the passage of the RRF, an additional Member State provided a subsidy in each green or digital sector. From EU sources, we observe a slightly smaller increase, that is less precisely estimated ($\beta = 0.9, p = 0.09$).

In Figure 4 we visualize the results of our event study regressions. The pre-period estimates provide a visual test for violations to the parallel trends assumption. For domestically-funded subsidies we do not observe any such violations, but a few of the point estimates for EU-funded subsidies diverge. In line with our two-period estimates, we observe an increase in subsidy provision by Member States towards the green and digital sectors in 2021 and 2022, but by 2023 this difference is no longer present. Any impacts of orchestrating appear fleeting.

Given that we account for funding sources that might have originated at the EU level in our measurement of the funding source, subsidy provisions should not be interpreted as purely mechanical. Put differently, our point estimates are not driven by funding that might have originated at EU funding institutions (e.g., EIB, EIC, EIF, Horizon Europe, Connecting Europe), but reflect funding from national financial institutions. We take these results as evidence consistent with the first and second hypotheses.

At the EU-level, our event study results are much noisier than our Member State results. We observe a slight increase in 2023 in terms of increased targeting perhaps due to a lag in the implementation time of EU-approved grants. Yet, as we do not observe a similar positive coefficient in 2024, it is unclear this is an implementation lag or just a one-off. As we discuss in further detail in our robustness section below, if

Figure 4: Event Study: Orchestrating Subsidy Provision



Note: Point estimates measure the change in Subsidy Provision between prioritized and non-prioritized sectors using 2020 as a baseline reference period. Triangles and circles denote funding from Member States and the EU respectively. Bars denote 95% confidence intervals. See Table A1 for full regression results.

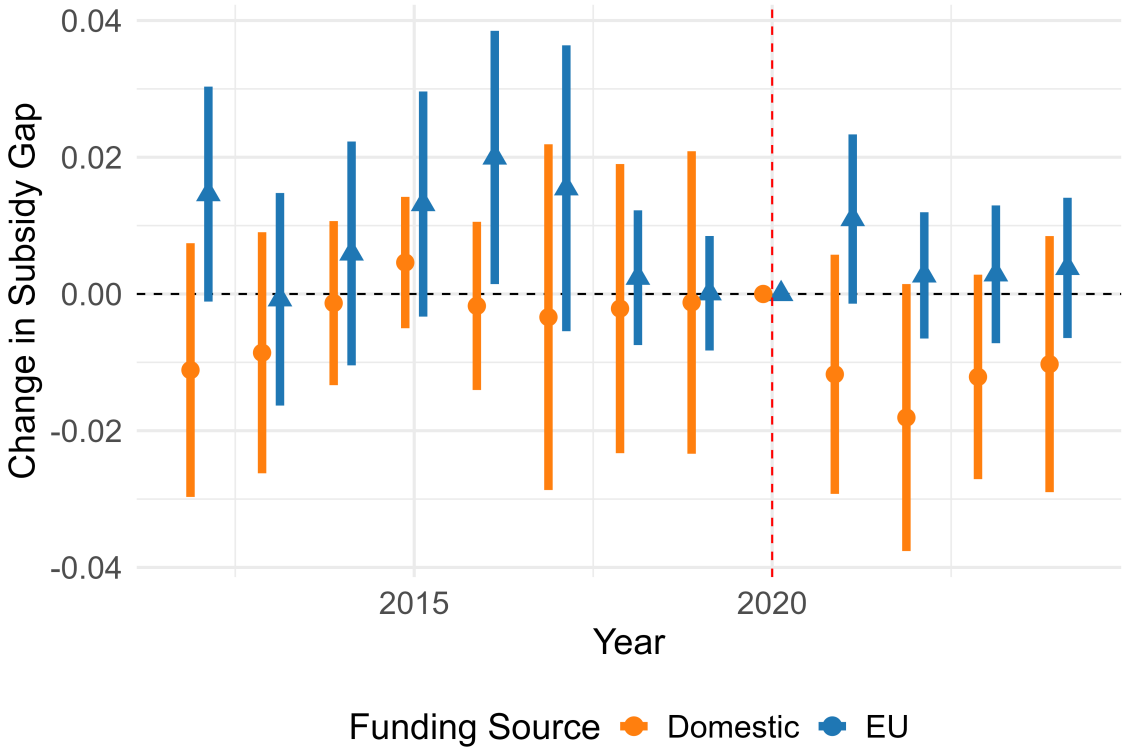
we consider the intensive margin of subsidy provision, thereby ignoring the number of member states that implement them, we find similar results: EU-sourced subsidies did not differentially go towards the green and digital sectors.

We now consider the impact of the RRF on market cohesion. In Table A2 we present full regression results for both pre-post DiD estimates as well as event study specifications. Recall that our outcome variable here, *Subsidy Gap*, is the difference in a Member State's proportion of EU GDP and subsidy provision. Larger values denote

greater inequality in subsidy provision, whereas smaller values denote greater parity. Among EU-funded subsidies, we observe no differential change in *Subsidy Gap* between green and digital sectors and all other sectors. Given that the descriptive trends in Figure 3 highlights changing values in our outcome variable, we split the difference-in-differences estimator into a pair of first differences to consider the constituent estimates in Table A4. We find for both non-prioritized (β = -0.005, $p < 0.05$) and prioritized sectors (β = -0.007, $p < 0.05$) a decrease in the *Subsidy Gap* in the post-RRF period, meaning there is a trend towards more proportional subsidy provision from EU across *all* sectors.

Among Member State sources, we find a slight decrease in the disproportionality of subsidy provision (β = -0.01, $p < 0.05$) The raw data in Figure 3 is once again useful for interpreting this coefficient: The shift below the 45-degree line of many non-prioritized sector-Member State observations compared to the relatively time invariant prioritized sector-Member State observations suggests this coefficient is driven by the disproportional *increase* of non-prioritized sectors subsidies. Considering the first differences once again, we find diverging trends across sectors; non-prioritized subsidy provision is less proportional (i.e., the *Subsidy Gap* increase, β = 0.004), whereas prioritized subsidy provision is more proportional to Member State GDP (β = -0.006). While these individual coefficients are not statistically distinguishable from zero, their difference is as noted above. This negative difference-in-differences estimate for prioritized sectors is evident in Figure 5. Whereas EU-funded market cohesion coefficients remain tightly around zero, there is a consistent negative coefficient for our Member-State data.

Figure 5: Event Study: Orchestration and Market Cohesion



Note: Point estimates measure the change in Subsidy Gap between prioritized and non-prioritized sectors using 2020 as a baseline reference period. Triangles and circles denote funding from Member States and the EU respectively. Bars denote 95% confidence intervals. See Table A2 for full regression results.

Taken together, we find mixed support for our third hypothesis. This does not, however, imply deteriorating market integrity. While we fail to find evidence of a differential reduction in subsidy provision inequality between prioritized and non-prioritized from EU funds, there is a clear trend towards more a cohesive market. In terms of Member State subsidies we find diverging trends: non-prioritized sectors have been provided in an increasingly disproportional fashion, whereas there is a more proportional distribution of subsidies to prioritized sectors. These results suggest that

the RRF did not exacerbate threats to market cohesion. Given that the relaxation of state aid requirements that coincided with this orchestration effort might have allowed larger, more fiscally capable states of implementing an increasingly disproportionate share of subsidies, we do not find this to be the case among green and digital sectors that have been prioritized in recent years.

Robustness

In this section we briefly discuss the robustness of our subsidy provision and market cohesion results. We do this with respect to the former in two ways: First, we construct a matched sample based on pre-trends in subsidy provision. Given that many sectors are non-prioritized, this matched sample guards against poor comparisons driving the results. Second, we disaggregate *Subsidy Provision* and consider shifts in subsidy provision at the intensive margin. This strategy allows for an assessment of whether orchestration is effective with a different measurement strategy, one that ignores how many member states pass a given subsidy and instead focus on aggregate subsidies. For market cohesion, we re-estimate our results re-weighting observations by the proportion of GDP to guard against our results being driven purely by smaller member states. We discuss each in turn.

With an optimally matched sample that considers the entire pre-trend period (i.e., 2011-2019) as a set of covariates to predict priority status, we find substantively similar results to above. Our two-period difference-in-differences estimate marginally attenuates (β = 0.97 versus 1.05 in Table A1), but remains statistically distinguishable from zero for domestic subsidy provision. The Member State event study estimates

remain positive, but are imprecisely estimated. For EU-sourced subsidies, we find substantively similar results to above, albeit with strong negative pre-trends in event study design. We discuss these results more completely in Appendix A.1.

We assess the robustness of our measurement strategy by disaggregating the *Subsidy Provision* variable and consider the country-sector-year unit of analysis. Rather than measure *Subsidy Provision* as an aggregate count at the sector level, we opt for this strategy as it permits the inclusion of country-sector fixed effects meaning we are accounting for baseline subsidy provision in each sector in each country. We find substantively similar results to above; Prioritized sectors received on average an additional 0.2 Member State' subsidies in the post-2020 period in our two period specification. Yearly interactions after 2019 are all positive and statistically distinguishable from zero when subsidy provision is modeled as an event study. The EU estimate, while positive, especially in 2023 as above, demonstrates clear pre-trends for most of the years preceding 2020. Full results are included in Table A8. Taken together, we take these results to corroborate our findings related to the effectiveness of orchestration with respect to Member State subsidy provision.

With respect to market cohesion, we assess the robustness of our results by reweighting observations by their proportion of EU GDP. This allows us to better capture the uneven nature of market size across EU member states and assess whether trends were driven by a subset of smaller Member States. In Table A3, we present the results of this analysis. In terms of Member State subsidy provision, we find similar results: following the RRF, subsidy provision is more equitable in green and digital sectors compared to non-prioritized ones. We do not find a differential effect for EU funds

however.

Conclusion

The resurgence of industrial policy in advanced economies has revived a central tension in European integration. Governments increasingly rely on subsidies to promote strategic sectors and accelerate the green and digital transitions, yet such interventions risk fragmenting the Single Market. This article examined whether supranational governance can reconcile these competing pressures. Focusing on the RRF, we conceptualized the EC as an orchestrator seeking to steer Member State industrial policy toward common priorities while preserving market cohesion.

Using sector-level data on subsidy provision across Member States between 2011 and 2024, we assessed whether this form of indirect governance altered patterns of subsidy allocation and distribution. By examining subsidy provision across all Member States and multiple sectors, rather than focusing on a single case or country, we provide a more holistic account of one policy domain. This approach allows us to assess both sectoral targeting and distributional consequences, offering a comprehensive perspective on EU industrial policy.

Taken together, our results suggest that market cohesion was not severely compromised in light of the increase in subsidy provision towards the green and digital transitions. Our finding that the increase in subsidy provision is driven largely by member state subsidy provision rather than supranational sources suggests, moreover, that the orchestration via the RRF was effective, and not merely a mechanical by-product of program design. EU-funded subsidies, furthermore, have become increasingly equi-

table in their distribution following the passage of the RRF irrespective of sector.

These results contribute to several broader debates in the study of European integration and political economy. First, the article provides empirical evidence on the effectiveness of orchestration as a mode of governance. Orchestration is a growing mode of governance within the EU in which the Commission can indirectly steer national policies through incentives, conditionality, and strategic signaling—an increasingly important governance strategy in contexts where direct authority is limited. While orchestration has been widely theorized as a strategy available to international organizations that lack direct authority over policy implementation, empirical evaluations of its policy effects remain relatively limited. Our findings suggest that supranational institutions can influence national economic policy even in domains—such as industrial subsidies—that are traditionally core state powers (Genschel and Jachtenfuchs, 2016).

Second, the article contributes to the literature on the politics of subsidies by examining subsidy provision in a multilevel governance setting. Much of the existing literature focuses on national governments that both design and finance subsidy programs. The RRF provides a different institutional configuration, in which a supranational actor provides financial resources and strategic guidance while relying on national governments for implementation. Our results suggest that such arrangements can influence domestic subsidy allocation, especially when supranational priorities are embedded within broader policy frameworks and funding mechanisms.

Finally, the findings speak to ongoing policy debates about the future of industrial policy in Europe. As governments seek to respond to geopolitical competition and accelerate the green transition, pressures to expand state support for strategic sectors

are likely to persist. The experience of the RRF suggests that supranational coordination may help channel these interventions toward shared priorities without necessarily fragmenting the Single Market. At the same time, the effects we identify appear relatively modest and, in some cases, temporary. The event study results indicate that the increase in subsidy targeting attenuates within a few years, raising questions about the durability of orchestrated policy alignment once the immediate context of crisis-driven recovery recedes.

These findings also point toward several avenues for future research. First, while our analysis focuses on the extensive margin of subsidy provision, future work could examine how orchestration affects the magnitude and design of subsidy programs. Second, additional research could explore how differences in administrative capacity across Member States shape the implementation of supranational initiatives such as the RRF. Finally, understanding whether orchestration produces durable policy change will require examining longer-term developments as EU industrial policy continues to evolve.

While our analysis focuses on the European Union and the RRF as a specific instance of supranational orchestration to overcome the competition crisis, the findings have broader implications for the study of multilevel governance and industrial policy. This context allows us to observe whether and how a supranational actor can shape national policy choices under constraints that limit direct control. As such, our results are likely to generalize to other settings where central authorities seek to coordinate national policies indirectly, particularly in federations, trade blocs, or international organizations facing similar trade-offs between national autonomy and collective ob-

jectives among a wide array of policy issues.

More broadly, the EU provides a critical setting for understanding how governance operates in complex multilevel systems. As economic transformation increasingly requires coordinated policy responses across jurisdictions, the ability of supranational institutions to steer national policy choices without direct hierarchical authority will remain a central question for scholars and policymakers alike.

References

Abbott, Kenneth W., Philipp Genschel, Duncan Snidal and Bernhard Zangl. 2015. Orchestration: Global Governance through Intermediaries. In *International Organizations as Orchestrators*, ed. Kenneth W. Abbott, Philipp Genschel, Duncan Snidal and Bernhard Zangl. Cambridge: Cambridge University Press pp. 3–36.

Abbott, Kenneth W., Philipp Genschel, Duncan Snidal and Bernhard Zangl. 2016. "Two Logics of Indirect Governance: Delegation and Orchestration." *British Journal of Political Science* 46(4):719–729.

Abbott, Kenneth W., Philipp Genschel, Duncan Snidal and Bernhard Zangl. 2020. Competence–Control Theory: The Challenge of Governing through Intermediaries. In *The Governor's Dilemma: Indirect Governance Beyond Principals and Agents*. Oxford University Press pp. 3–36.
URL: *https://doi.org/10.1093/oso/9780198855057.003.0001*

Allan, Bentley B. and Jonas Nahm. 2024. "Strategies of Green Industrial Policy: How States Position Firms in Global Supply Chains." *American Political Science Review* pp. 1–15.

Allan, Bentley, Joanna I. Lewis and Thomas Oatley. 2021. "Green Industrial Policy and the Global Transformation of Climate Politics." *Global Environmental Politics* 21(4):1–19.

Altenburg, Tilman, Claudia Assmann, Dani Rodrik, Emilio Padilla, Stefan Ambec, Michela Esposito et al. 2017. "Green industrial policy: Concept, policies, country experiences." *Geneva, Bonn: UN Environment* pp. 2017–12.

Amadio Viceré, Maria Giulia. 2021. "Externalizing EU crisis management: EU orchestration of the OSCE during the Ukrainian conflict." *Contemporary security policy* 42(4):498–529.

Becker, Peter. 2025. "Conditionality as an Instrument of European Governance – Cases, Characteristics and Types." *JCMS: Journal of Common Market Studies* 63(2):402–419.
URL: *https://onlinelibrary.wiley.com/doi/abs/10.1111/jcms.13580*

Blauberger, Michael. 2009*a*. "Compliance with rules of negative integration: European state aid control in the new member states." *Journal of European Public Policy* 16(7):1030–1046.

Blauberger, Michael. 2009*b*. "Of 'Good' and 'Bad' Subsidies: European State Aid Control through Soft and Hard Law." *West European Politics* 32(4):719–737.

Blauberger, Michael and Berthold Rittburger. 2015. Orchestrating Policy Implementation: EU governance through regulatory networks. In *International Organizations as Orchestrators*, ed. Kenneth W. Abbott, Philipp Genschel, Duncan Snidal and Bernhard Zangl. Cambridge: Cambridge University Press pp. 39–64.

Bokhorst, David and Francesco Corti. 2024. "Governing Europe's recovery and resilience facility: Between discipline and discretion." *Government and Opposition* 59(3):718–734.

Bulfone, Fabio. 2023. "Industrial policy and comparative political economy: A literature review and research agenda." *Competition & Change* 27(1):22–43.

Buti, Marco and Sergio Fabbrini. 2023. "Next generation EU and the future of economic governance: towards a paradigm change or just a big one-off." *Journal of European Public Policy* 30(4).

Catalinac, Amy and Lucia Motolinia. 2021. "Geographically targeted spending in mixed-member majoritarian electoral systems." *World Politics* 73(4):668–711.

Corti, Francesco and Patrik Vesan. 2023. "From austerity-conditionality towards a new investment-led growth strategy: Social Europe after the Recovery and Resilience Facility." *Social Policy & Administration* 57(4):513–548.
URL: *https://onlinelibrary.wiley.com/doi/abs/10.1111/spol.12906*

Crepaz, Michele and Marcel Hanegraaff. 2020. "The funding of interest groups in the EU: are the rich getting richer?" *Journal of European Public Policy* 27(1):102 – 121. Cited by: 20.

Di Carlo, Donato and Luuk Schmitz. 2023. "Europe first? The rise of EU industrial policy promoting and protecting the single market." *Journal of European Public Policy* 0(0):1–34.
URL: *https://doi.org/10.1080/13501763.2023.2202684*

Fabbrini, Federico. 2025. "The recovery and resilience facility as a new legal technology of European governance." *Journal of European Integration* 47(1):85–103.
URL: *https://doi.org/10.1080/07036337.2024.2361830*

Fernández-i Marín, Xavier, Christoph Knill, Christina Steinbacher and Yves Steinebach. 2024. "Bureaucratic Quality and the Gap between Implementation Burden and Administrative Capacities." *American Political Science Review* 118(3):1240–1260.

Ferrera, Maurizio, Joan Miró and Stefano Ronchi. 2021. "Walking the road together? EU polity maintenance during the COVID-19 crisis." *West European Politics* 44(5-6):1329–1352.

Genschel, Philipp and Markus Jachtenfuchs. 2016. "More integration, less federation: the European integration of core state powers." *Journal of European Public Policy* 23(1):42–59.
URL: *https://doi.org/10.1080/13501763.2015.1055782*

Heidbreder, Eva G. 2025. "Rebalancing the European Union's authority by fiscal integration: the commission's changed role in multilevel governance." *Journal of European Public Policy* 0(0):1–23.
URL: *https://doi.org/10.1080/13501763.2025.2587926*

Heldt, Eugénia C. and Sophie Meunier. 2026. "How EU industrial policy got its groove back: securitisation and governance shifts in the geoeconomic era." *Journal of European Public Policy* 0(0):1–29.
URL: *https://doi.org/10.1080/13501763.2026.2627350*

Invernizzi, Alessia, Aydin B. Yildirim and Arlo Poletti. 2026. "Differentiated protectionism in the European Union: The role of superstar exporters and fiscal capacity." *European Union Politics* 27(1):113–135.
URL: *https://doi.org/10.1177/14651165251396435*

Juhász, Réka, Nathan Lane, Emily Oehlsen and Verónica C. Pérez. 2023. "The Who, What, When, and How of Industrial Policy: A Text-Based Approach.".

Kim, In Song, Megumi Naoi and Tomoya Sasaki. 2025. "Domestic Institutions, Geographic Concentration, and Agricultural Liberalization." *American Political Science Review* In Press:1–17.

Kingston, Suzanne, Edwin Alblas, Micheál Callaghan and Julie Foulon. 2023. "Empowering through law: Environmental NGOs as regulatory intermediaries in EU nature governance." *Transnational Environmental Law* 12(3):469–497.

Majone, Giandomenico. 1997. "From the Positive to the Regulatory State: Causes and Consequences of Changes in the Mode of Governance." *Journal of Public Policy* 17(2):139–167.
URL: *http://www.jstor.org/stable/4007608*

McNamara, Kathleen R. 2024. "Transforming Europe? The EU's industrial policy and geopolitical turn." *Journal of European Public Policy* 31(9):2371–2396.

Meunier, Sophie and Justinas Mickus. 2020. "Sizing up the competition: explaining reform of European Union competition policy in the Covid-19 era." *Journal of European Integration* 42(8):1077 – 1094. Cited by: 45.

Meunier, Sophie and Kalypso Nicolaidis. 2019. "The Geopoliticization of European Trade and Investment Policy." *JCMS: Journal of Common Market Studies* 57(S1):103–113.
URL: *https://onlinelibrary.wiley.com/doi/10.1111/jcms.12932*

Miró, Joan, Marcello Natili and Waltraud Schelkle. 2024. "Money makes the world go round: How much difference do recovery and resilience plans make to EU reform governance?" *JCMS: Journal of Common Market Studies* 62(6):1615–1632.

Müller, Patrick and Julian Bergmann. 2020. "Orchestrating peace in South Sudan: exploring the effectiveness of the European Union's mediation support." *European security* 29(2):149–169.

Müller, Patrick and Peter Slominski. 2021. "Breaking the legal link but not the law? The externalization of EU migration control through orchestration in the Central Mediterranean." *Journal of European Public Policy* 28(6):801–820.

Polverari, Laura. 2025. "Coordinative Europeanization as a response to crisis: what lessons from the RRF for future EU cohesion policy?" *Comparative European Politics* 23(1):76–96.

Quaglia, Lucia and Amy Verdun. 2023. "The COVID-19 Pandemic and the European Union: politics, policies and institutions." *Journal of European Public Policy* 30(4).

Rehm, Moritz. 2022. "Shocks and Time: The Development of the European Financial Assistance Regime." *JCMS: Journal of Common Market Studies* 60(6):1645–1662.
URL: *https://onlinelibrary.wiley.com/doi/abs/10.1111/jcms.13338*

Rickard, Stephanie J. 2012*a*. "A non-tariff protectionist bias in majoritarian politics: Government subsidies and electoral institutions." *International Studies Quarterly* 56(4):777–785.

Rickard, Stephanie J. 2012*b*. "Welfare versus subsidies: Governmental spending decisions in an era of globalization." *The Journal of Politics* 74(4):1171–1183.

Rickard, Stephanie J. 2018. *Spending to win: Political institutions, economic geography, and government subsidies*. Cambridge: Cambridge University Press.

Schelkle, Waltraud. 2021. "Fiscal Integration in an Experimental Union: How Path-Breaking Was the EU's Response to the COVID-19 Pandemic?" *JCMS: Journal of Common Market Studies* 59(S1):44–55.
URL: *https://onlinelibrary.wiley.com/doi/abs/10.1111/jcms.13246*

Smith, Mitchell P. 1996. "Integration in small steps: The European Commission and member-state aid to industry." *West European Politics* 19(3):563–582.

Smith, Mitchell P. 1998. "Autonomy by the Rules: The European Commission and the Development of State Aid Policy." *Journal of Common Market Studies* 36(1):55–78.

Verdier, Daniel. 1995. "The Politics of Public Aid to Private Industry." *Comparative Political Studies* 28(1):3–42.

Wind, Izaak. 2010. HS Codes and the Renewable Energy Sector. Technical report International Centre for Trade and Sustainable Development.

Zahariadis, Nikolaos. 2001. "Asset Specificity and State Subsidies in Industrialized Countries." *International Studies Quarterly* 45:603–616.

Zahariadis, Nikolaos. 2013. "Winners and losers in EU state aid policy." *Journal of Industry, Competition and Trade* 13(1):143–158.

Zeitlin, Jonathan, David Bokhorst and Edgars Eihmanis. 2025. "Governing the European Union's recovery and resilience facility: National ownership and performance-based financing in theory and practice." *Regulation & Governance* 19(3):864–884.

Zhelyazkova, Asya and Eva Thomann. 2022. "'I did it my way': customisation and practical compliance with EU policies." *Journal of European Public Policy* 29(3):427–447.

Appendix

Table of Contents

A Regression Results

In this Appendix, we provide the full regression results for the analyses referenced in the text. These include the numerical results used to produce Figures 4 and 5. These results are included in Tables A1 and A2 respectively. We include a robustness analysis in which we match prioritized sectors to non-prioritized sectors that are their nearest neighbor in terms of pre-COVID subsidy provision.

Table A1: Orchestration and Subsidy Provision

	Model 1	Model 2	Model 3	Model 4
Prioritized × Post	0.90	1.05**		
	(0.53)	(0.38)		
2011 × Green/Digit			−1.07	−0.36
			(0.55)	(0.42)
2012 × Green/Digit			−1.54*	−0.31
			(0.65)	(0.48)
2013 × Green/Digit			−1.14	−0.31
			(0.62)	(0.37)
2014 × Green/Digit			−1.26*	−0.64
			(0.50)	(0.40)
2015 × Green/Digit			−0.93	−0.83
			(0.52)	(0.44)
2016 × Green/Digit			−1.01	−0.48
			(0.82)	(0.39)
2017 × Green/Digit			−0.69	−0.40
			(0.66)	(0.39)
2018 × Green/Digit			0.33	−0.53
			(0.50)	(0.28)
2019 × Green/Digit			−0.65	−0.15
			(0.53)	(0.37)
2021 × Green/Digit			−0.03	1.07**
			(0.38)	(0.34)
2022 × Green/Digit			−0.45	1.19*
			(0.62)	(0.48)
2023 × Green/Digit			0.98	0.30
			(0.71)	(0.31)
2024 × Green/Digit			−0.09	0.04
			(0.59)	(0.29)
Funding Source	EU	MS	EU	MS
N	1358	1358	1358	1358
R^2	0.78	0.63	0.79	0.64
Adj. R^2	0.76	0.60	0.77	0.61

Model are OLS regression with sector and year fixed effects. The outcome variable is Subsidy Provision, the number of member states that provide at least one subsidy to a given HS-2 sector in a given year. Robust standard errors clustered at the HS-2 sector. $^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

Table A2: Orchestration and Market Cohesion

	Model 1	Model 2	Model 3	Model 4
Post × Green/Digit	−0.00	−0.01*		
	(0.00)	(0.01)		
2012 × Green/Digit			0.01*	−0.01
			(0.01)	(0.01)
2013 × Green/Digit			−0.00	−0.01
			(0.01)	(0.01)
2014 × Green/Digit			0.01	−0.00
			(0.01)	(0.01)
2015 × Green/Digit			0.01	0.00
			(0.01)	(0.00)
2016 × Green/Digit			0.02**	−0.00
			(0.01)	(0.01)
2017 × Green/Digit			0.02	−0.00
			(0.01)	(0.01)
2018 × Green/Digit			0.00	−0.00
			(0.01)	(0.01)
2019 × Green/Digit			0.00	−0.00
			(0.00)	(0.01)
2021 × Green/Digit			0.01*	−0.01
			(0.01)	(0.01)
2022 × Green/Digit			0.00	−0.02*
			(0.00)	(0.01)
2023 × Green/Digit			0.00	−0.01
			(0.01)	(0.01)
2024 × Green/Digit			0.00	−0.01
			(0.01)	(0.01)
Funding Source?	EU	MS	EU	MS
N	702	702	702	702
R^2	0.55	0.84	0.57	0.84
Adj. R^2	0.51	0.82	0.51	0.82

Model are OLS regression with Member State-Sector Type (unit) and year fixed effects. The outcome variable is Subsidy Gap, the absolute difference between a Member State's proportion of EU GDP and its proportion of subsidies provided to either prioritized or non-prioritized sectors in a given year. Robust standard errors clustered at the Member State. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table A3: GDP Weights Replication of Table A2

	Model 1	Model 2	Model 3	Model 4
Post × Green/Digit	−0.00	−0.04**		
	(0.00)	(0.02)		
2012 × Green/Digit			0.02	−0.06**
			(0.02)	(0.03)
2013 × Green/Digit			0.01	−0.04
			(0.02)	(0.03)
2014 × Green/Digit			0.04	−0.02
			(0.03)	(0.02)
2015 × Green/Digit			0.03*	0.00
			(0.02)	(0.01)
2016 × Green/Digit			0.07**	0.00
			(0.03)	(0.03)
2017 × Green/Digit			0.06	−0.05
			(0.04)	(0.03)
2018 × Green/Digit			0.02	0.02
			(0.01)	(0.05)
2019 × Green/Digit			0.01	0.02
			(0.01)	(0.06)
2021 × Green/Digit			0.04**	−0.06**
			(0.02)	(0.02)
2022 × Green/Digit			0.02	−0.08***
			(0.01)	(0.02)
2023 × Green/Digit			0.03*	−0.04
			(0.02)	(0.02)
2024 × Green/Digit			0.02	−0.04
			(0.02)	(0.02)
Funding Source?	EU	MS	EU	MS
N	702	702	702	702
R^2	0.58	0.85	0.63	0.86
Adj. R^2	0.54	0.83	0.58	0.84

Models are OLS regression with Member State-Sector Type (unit) and year fixed effects. The outcome variable is Subsidy Gap, the absolute difference between a Member State's proportion of EU GDP and its proportion of subsidies provided to either prioritized or non-prioritized sectors in a given year. Observations weighted by proportion of EU GDP. Robust standard errors clustered at the Member State. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table A4: First Differences of Market Cohesion Results

	Model 1	Model 2	Model 3	Model 4
Post-RRF	-0.00^{*}	0.00	-0.01^{*}	-0.01
	(0.00)	(0.00)	(0.00)	(0.00)
Funding Source?	EU	MS	EU	MS
Prioritized Sectors?			✓	✓
N	351	351	351	351
R^2	0.68	0.53	0.42	0.90
Adj. R^2	0.66	0.49	0.37	0.89

Models are OLS regression with Member State-Sector Type (unit) fixed effects. The outcome variable is Subsidy Gap, the absolute difference between a Member State's proportion of EU GDP and its proportion of subsidies provided to either prioritized or non-prioritized sectors in a given year. Robust standard errors clustered at the Member State. $^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

A.1 Matching Robustness

To assess the robustness of primary results related to the *Subsidy Provision* outcome, we restrict our sample to only include those non-prioritized sectors that most closely resemble our prioritized ones. Given that our unit of analysis is measured at the sector-level via product codes, we lack a vibrant set of covariates to potentially match of treated units to a subset of the control sectors. To overcome this data challenge, we rely on pre-period outcomes as an alternative. Specifically, we predict priority status with the full set of *Subsidy Provision* observations between 2011 and 2019 via an optimal matching function using the package `MatchIt` (). This procedure provides us with 11 non-prioritized sectors to compare with our prioritized sectors. We perform this matching exercise independently for both EU and Member State subsidy provision.

Tables A5 and A6 present summary statistics for pre- and post-matching samples for each source of subsidy provision respectively. While we are not able to fully balance across all pre-periods, it is clear that differences in pre-trends across the two groups are sharply attenuated in post-matching samples. We demonstrate this similarity between prioritized and non-prioritized samples visually in Figure A1. The matched sectors for our Member State sample include the following HS-2 codes: 17, 27, 30, 48, 55, 67, 74, 83, 88, 91 and 95. The analogous list for our EU sample includes: 25, 27, 29, 35, 47, 66, 67, 82, 83, 87, 94. Recall that our priority sectors include the following: 38, 39, 68, 70, 71, 73, 76, 84, 85, 89, 90.

This matched sample demonstrates the robustness of our results. In the two-period models (Columns 1 and 2) in Table A7, we find similar results to those in Table A1. Our positive coefficient for the interaction between *Prioritized* and *Post* marginally at-

tenuates, just under 10%, but remains precisely estimated. Our event study yearly interaction estimates remain positive, however they fall below conventional levels of significance. This arises both from an attenuation in the point estimates given a different baseline (i.e., entire pre-period versus 2019), but also from a decrease in power due to the more limited sample. We take these results as evidence for the robustness of our finding related to the orchestrating effect of the European Commission on Member State subsidy provision towards the green and digital sectors. In terms of EU sources, we find a similar positive effect, which is statistically distinguishable from zero at the $p < 0.1$ level. Our event study results are likewise more attenuated and imprecisely estimated in a similar fashion to our Member State results.

Figure A1: Trends in Subsidy Provision among Matched Sectors

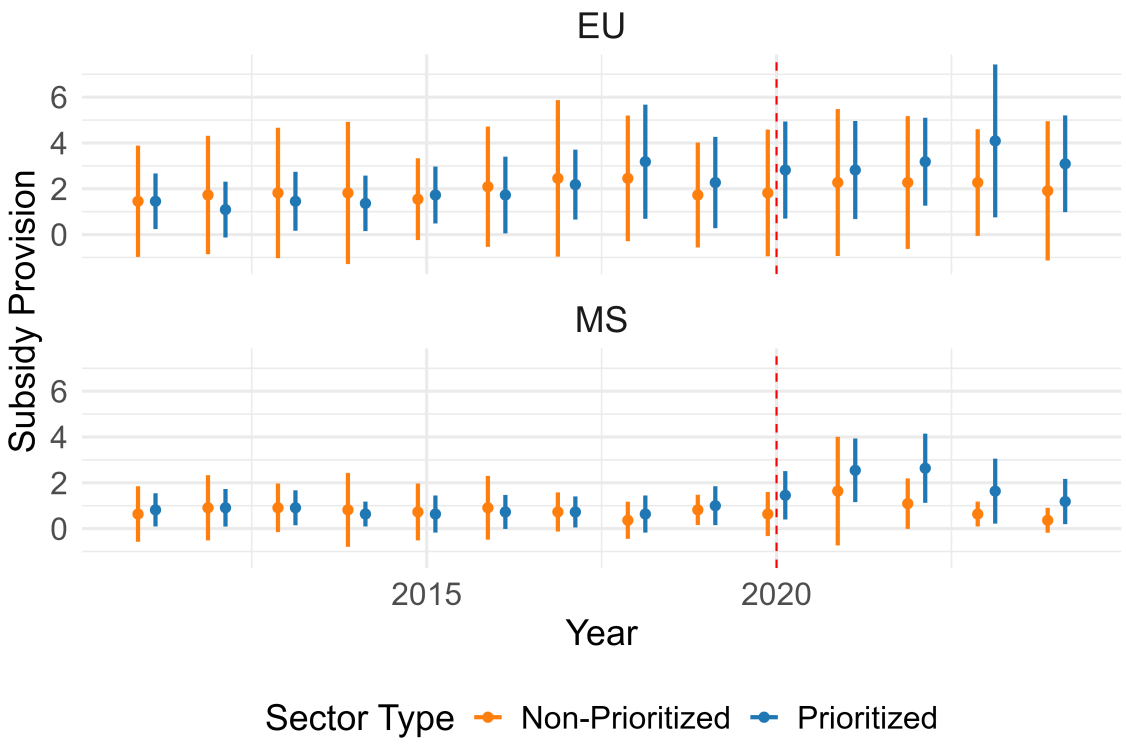


Table A5: Matched Sample Statistics – EU

	Means Treated	Means Control	Std. Mean Diff.	Var. Ratio	eCDF Mean	eCDF Max	Std. Pair Dist.
			Full				
distance	0.43	0.07	0.92	25.06	0.29	0.55	
subs2011	1.45	0.21	0.69	1.83	0.19	0.49	
subs2012	1.09	0.31	0.43	1.53	0.11	0.25	
subs2013	1.45	0.28	0.61	1.46	0.19	0.46	
subs2014	1.36	0.30	0.59	1.11	0.16	0.45	
subs2015	1.73	0.34	0.75	2.52	0.21	0.49	
subs2016	1.73	0.42	0.52	2.53	0.15	0.37	
subs2017	2.18	0.56	0.71	1.16	0.20	0.55	
subs2018	3.18	0.53	0.71	4.69	0.24	0.48	
subs2019	2.27	0.60	0.56	2.97	0.18	0.31	
			Matched				
distance	0.43	0.18	0.65	4.95	0.08	0.45	0.65
subs2011	1.45	1.45	0.00	0.25	0.10	0.27	2.36
subs2012	1.09	1.73	-0.35	0.22	0.08	0.18	1.25
subs2013	1.45	1.82	-0.19	0.20	0.09	0.27	1.42
subs2014	1.36	1.82	-0.25	0.15	0.11	0.36	1.36
subs2015	1.73	1.55	0.10	0.48	0.09	0.18	0.89
subs2016	1.73	2.09	-0.15	0.41	0.05	0.09	1.17
subs2017	2.18	2.45	-0.12	0.20	0.09	0.36	1.24
subs2018	3.18	2.45	0.20	0.83	0.10	0.27	0.83
subs2019	2.27	1.73	0.18	0.76	0.11	0.18	0.86

Table A6: Matched Sample Statistics – Member States

	Means Treated	Means Control	Std. Mean Diff.	Var. Ratio	eCDF Mean	eCDF Max	Std. Pair Dist.
				Full			
distance	0.43	0.07	1.04	8.54	0.30	0.67	
subs2011	0.82	0.17	0.60	1.96	0.14	0.37	
subs2012	0.91	0.22	0.56	1.79	0.13	0.44	
subs2013	0.91	0.22	0.61	2.08	0.13	0.44	
subs2014	0.64	0.28	0.44	0.65	0.09	0.32	
subs2015	0.64	0.47	0.14	1.13	0.05	0.12	
subs2016	0.73	0.21	0.47	1.78	0.12	0.25	
subs2017	0.73	0.13	0.59	3.67	0.12	0.37	
subs2018	0.64	0.16	0.39	3.11	0.10	0.20	
subs2019	1.00	0.15	0.67	6.47	0.17	0.44	
				Matched			
distance	0.43	0.28	0.42	2.24	0.07	0.36	0.45
subs2011	0.82	0.64	0.17	0.36	0.11	0.27	0.67
subs2012	0.91	0.91	0.00	0.33	0.07	0.27	1.09
subs2013	0.91	0.91	0.00	0.52	0.09	0.18	0.73
subs2014	0.64	0.82	-0.22	0.11	0.11	0.27	1.12
subs2015	0.64	0.73	-0.08	0.43	0.06	0.09	0.68
subs2016	0.73	0.91	-0.16	0.28	0.05	0.18	0.66
subs2017	0.73	0.73	0.00	0.63	0.04	0.09	0.55
subs2018	0.64	0.36	0.23	1.00	0.09	0.18	0.38
subs2019	1.00	0.82	0.14	1.66	0.04	0.09	0.57

Table A7: Orchestration and Subsidy Provision in a Matched Sample

	Model 1	Model 2	Model 3	Model 4
Prioritized × Post	1.08	0.97*		
	(0.58)	(0.40)		
2011 × Green/Digit			−1.00	−0.64
			(0.65)	(0.55)
2012 × Green/Digit			−1.64*	−0.82
			(0.70)	(0.67)
2013 × Green/Digit			−1.36	−0.82
			(0.72)	(0.56)
2014 × Green/Digit			−1.45*	−1.00
			(0.57)	(0.64)
2015 × Green/Digit			−0.82	−0.91
			(0.76)	(0.60)
2016 × Green/Digit			−1.36	−1.00
			(0.90)	(0.59)
2017 × Green/Digit			−1.27	−0.82
			(0.84)	(0.54)
2018 × Green/Digit			−0.27	−0.55
			(0.61)	(0.39)
2019 × Green/Digit			−0.45	−0.64
			(0.61)	(0.44)
2021 × Green/Digit			−0.45	0.09
			(0.50)	(0.82)
2022 × Green/Digit			−0.09	0.73
			(0.70)	(0.59)
2023 × Green/Digit			0.82	0.18
			(1.00)	(0.47)
2024 × Green/Digit			0.18	−0.00
			(0.70)	(0.48)
Funding Source	EU	MS	EU	MS
N	308	308	308	308
HS Sectors	22	22	22	22
R^2	0.87	0.69	0.88	0.70
Adj. R^2	0.86	0.65	0.86	0.65

Models are OLS regressions with sector and year fixed effects. The outcome variable is Subsidy Provision, the number of member states that provide at least one subsidy to a given HS-2 sector in a given year. Robust standard errors clustered at the HS-2 sector. $^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

Table A8: Orchestration on the Intensive Margin

	Model 1	Model 2	Model 3	Model 4
Prioritized × Post	0.11**	0.18*		
	(0.04)	(0.09)		
2011 × Green/Digit			−0.13**	−0.08
			(0.04)	(0.07)
2012 × Green/Digit			−0.15**	−0.09
			(0.05)	(0.09)
2013 × Green/Digit			−0.12**	−0.07
			(0.03)	(0.09)
2014 × Green/Digit			−0.13**	−0.07
			(0.04)	(0.06)
2015 × Green/Digit			−0.12*	−0.13
			(0.05)	(0.07)
2016 × Green/Digit			−0.13*	−0.08
			(0.05)	(0.08)
2017 × Green/Digit			−0.07	−0.09
			(0.05)	(0.10)
2018 × Green/Digit			−0.01	−0.02
			(0.03)	(0.04)
2019 × Green/Digit			−0.06	0.01
			(0.03)	(0.02)
2021 × Green/Digit			0.02	0.19*
			(0.05)	(0.07)
2022 × Green/Digit			−0.03	0.13**
			(0.03)	(0.04)
2023 × Green/Digit			0.14**	0.09*
			(0.05)	(0.03)
2024 × Green/Digit			−0.07	0.05
			(0.04)	(0.03)
Funding Source?	EU	MS	EU	MS
N	29106	29106	29106	29106
R^2	0.46	0.55	0.46	0.55
Adj. R^2	0.42	0.52	0.42	0.52

Models are OLS regressions with country-sector and year fixed effects. The outcome variable measures the number of subsidies provided to a given HS-2 sector in a given Member State in a given year. Robust standard errors clustered at the country. $^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

B Additional Figures

Figure B1: Yearly Trends in Subsidy Provision by Source and Economy Size

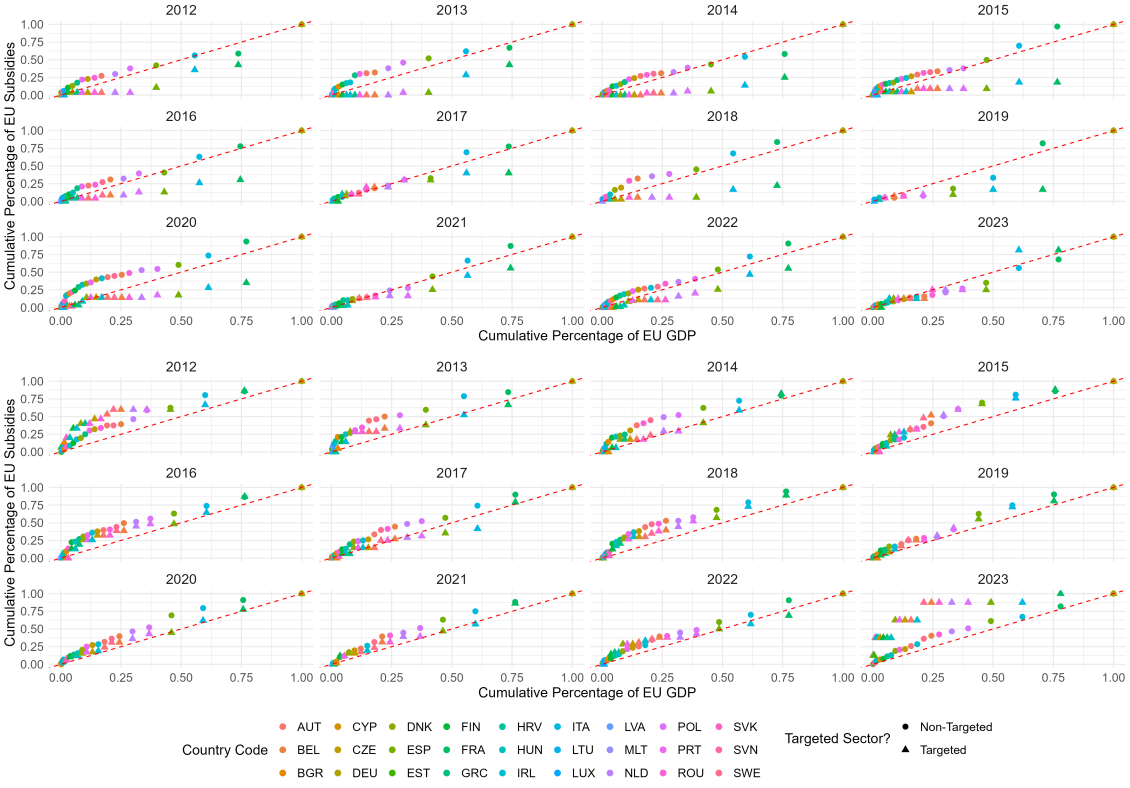


Figure B2: Event Study of the RRF on Coordination with all funding sources.

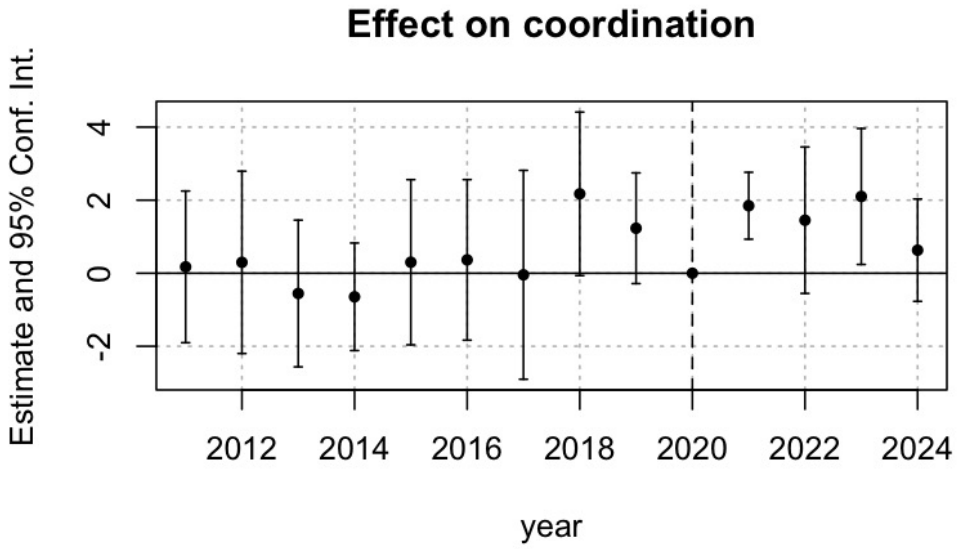


Figure B3: Subsidy Trends by Instrument Type and Funding Source.

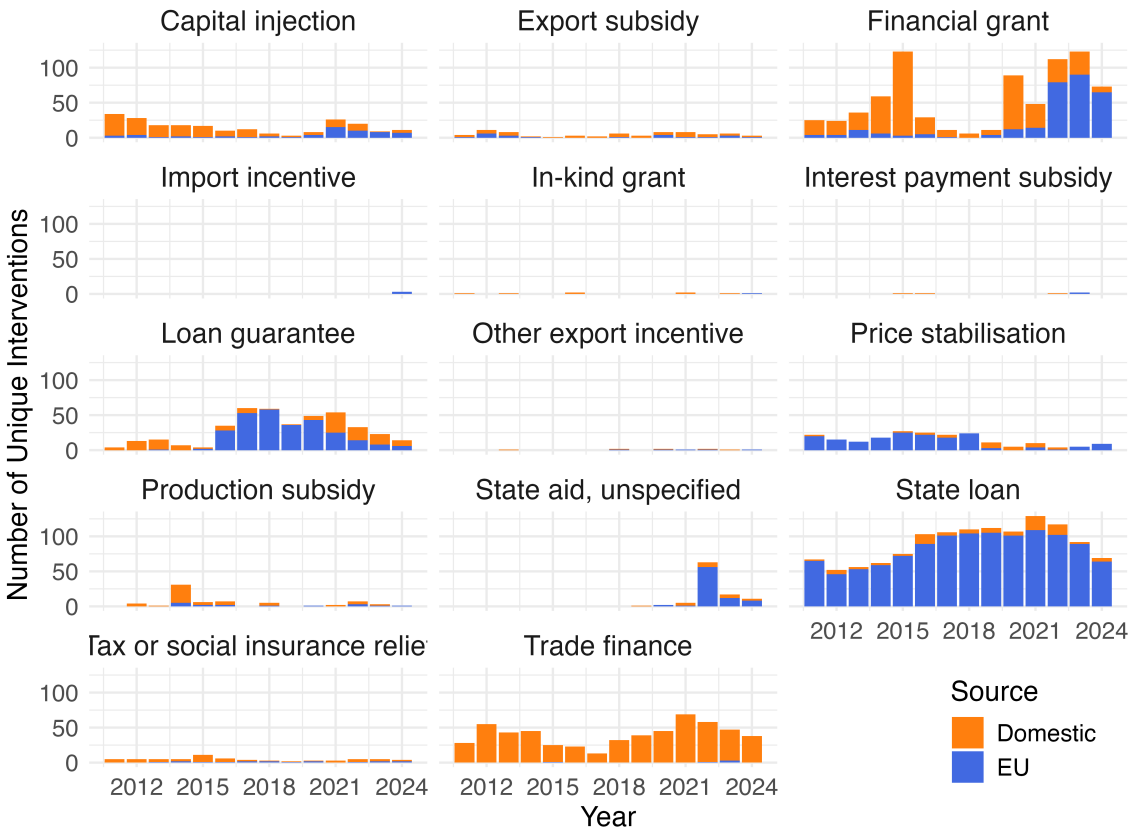


Figure B4: Subsidy Trends by Eligible Firms and Funding Source.

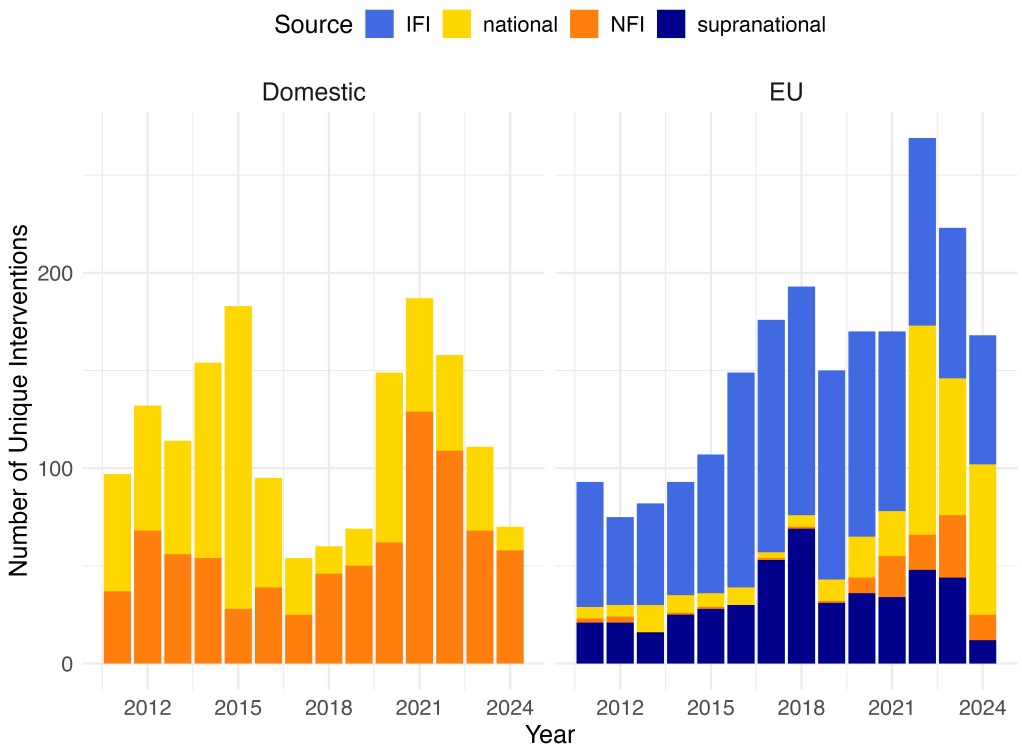


Figure B5: Subsidy Trends by Country and Funding Source.

Figure B6: Subsidy Trends by Country and Funding Source.