Deindustrialization, Decarbonization and Climate Investment: A Green Bullet for a Rusty Belt?*

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Abstract

Market interventions are a frequent lever for governments to ease the costs of economic transformations. Green industrial policy (GIP) is a recent example of such policy, seeking to ease the costs of the ecological transition. It is an open question, however, if governments benefit from the provision of GIP. My central claim is that rather than GIP being a tool against climate change alone, it is better considered as one against deindustrialization. This broader conceptualization provides insights into the spatial variation of GIP's electoral consequences: GIP is more likely to win the incumbent votes in places with increased risk and exposure to deindustrialization, namely along the dimensions of globalization and decarbonization. Hence in communities doubly-pressured by both dimensions, GIP implementation is an effective tool to win back voters "left-behind" and at risk of further economic precarity. I test this argument using geo-located data from the Inflation Reduction Act, leveraging variation in investment status in November 2024 for identification in a difference-in-differences framework. The absence of general electoral impact masks substantial heterogeneity: doubly-pressured communities shifted 2-3 p.p. towards the Democrats after receiving investment. I complement these national level results with a case study of Michigan. Fine grained voting data, planning documents, candidate statements, and local news coverage corroborate the differential response to GIP in these doubly-pressured areas, but not elsewhere.

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Introduction

To avoid the worst consequences of climate change, states need to reverse a century of rapidly rising CO_2 emissions in less than a quarter of that time.[1,2] Recognizing the inadequacy of 'stick-based' policies alone (e.g., carbon emission taxes), many governments have increasingly turned towards a carrot: green industrial policy (GIP) – financial incentives for firms to invest in decarbonization innovations or for the development of nascent green industries (Allan and Nahm, 2024). Whereas carbon taxes are economically efficient but electorally risky, with voters highly cost sensitive to carbon taxes (Ansolabehere and Konisky, 2014; Beiser-McGrath and Bernauer, 2024; Bechtel and Scheve, 2013; Bechtel, Scheve and van Lieshout, 2021), it is an open question whether this carrot-based approach is rewarded by voters.

This paper investigates any electoral impact of GIP. Existing research on the electoral consequences and preferences for carrot-based climate policies has predominantly focused on compensatory measures imposed *ex post* (Bolet, Green and González-Eguino, 2024; Gaikwad, Genovese and Tingley, 2022; Gazmararian and Tingley, 2023), that is after job loss, typically in coal country. This research demonstrates that compensation may thwart backlash from individuals and communities who, absent policy interventions to cushion the energy transition, are likely to shift rightward and reject further climate action (Gazmararian, 2025; Heddesheimer, Hilbig and Voeten, 2024). The green transition then, as type of market transformation, may be further enabled by policy frameworks that alleviate concentrated costs in a similar fashion to globalization and trade compensation (Kim and Pelc, 2021; Margalit, 2011; Ritchie and

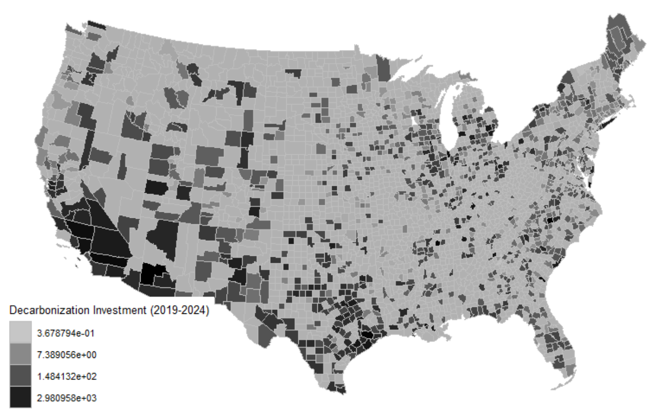
[1] See Ritchie, Roser and Rosado (2020) for trends in CO_2 emissions globally and nationally since the Industrial Revolution.

[2] The World Economic Forum estimates that 2024 was "peak emissions" from energy usage. This neglects emissions from land-use change, such as deforestation due to agricultural expansion. Nevertheless, emissions from fossil fuels in energy usage constitutes the vast majority of anthropogenic carbon emissions. With 2050 as a common target for net-zero target as it is consistent IPCC models keeping warming under 1.5 degrees Celsius. This leaves roughly a quarter of a century. On national net-zero targets, see https://zerotracker.net/. On peak emissions see https://www.weforum.org/stories/2024/11/peak-energy-emissions-a-historic-moment-overshadowed-by-the-endurance-of-fossil-fuels/.

You, 2021; Ruggie, 1982).

Yet GIP, by targeting investment at firms to decarbonize current production practices or manufacture novel green commodities, is not a compensatory measure in the traditional sense. Nor is it one that need be targeted strictly at fossil fuel country as the actual patterns of GIP investment demonstrate: Figure 1 visualizes announced investment eligible for tax incentives under the Inflation Reduction Act (IRA), the largest climate spending bill to date in the United States. GIP-spurred investment is geographically diverse, hence considering GIP as compensation for fossil fuel communities alone provides little by way of explanation for any potential impact of green investment in North Carolina compared to West Virginia. Whereas the former has received substantial investment despite marginal coal reserves, the latter, emblematic of coal country, in contrast, has received paltry levels of investment.

Figure 1: Confirmed capital expenditure applicable for IRA tax credits



Broadly, my argument is that GIP is more likely to win incumbents votes when it decreases the risk of deindustrialization, not strictly the costs of the green transition *alone*. In many communities, climate mitigation policy costs are the latest chapter of a decades-long story of economic erosion and decline that began with globalization and import competition (Autor et al., 2025; Baccini and Weymouth, 2021; Broughton, 2014; Ternullo, 2024). Further deindustrialization due to decarbonization costs links these two transformations in the industrial heartlands of many post-industrial societies. In these doubly-pressured communities, or those "lost in transition" between globalization and decarbonization, GIP is an effective vote winner as it may insulate against the further loss of high paying jobs in emissions-intensive industries, connect to and reinvigorate their industrial heritage and status concerns (Baccini and Weymouth, 2021; Bergquist et al., 2020), or provide a novel source of tax revenue in areas having witnessed declining public services (Feler and Senses, 2017). This common threat of deindustrialization posed by the green transition and globalization suggests an interpretation of GIP as *ex ante insurance* for the former and *ex post compensation* for the latter in communities currently "lost in transition". By providing *some* brown industries with a means of decarbonizing, any incumbent effects of GIP should be more likely in places with ample emissions-intensive manufacturing, but not necessarily in fossil fuel country. Whereas decarbonization is existential for the latter (Colgan, Green and Hale, 2021), innovations, while costly, do *exist* for many manufacturing industries, meaning public assistance can facilitate the transition in these industries and not rely strictly on compensation for job loss.

I test this argument in several steps using the U.S. IRA as a prominent example of GIP in recent years.[3] The IRA provided two tranches of tax credits to support the buildout of clean energy on the one hand and decarbonized and advanced manufacturing on the other, hence it targets assistance to decarbonize existing industry and establish fledgling green ones, typical policy objectives of GIP (Allan, Lewis and Oatley, 2021; Allan and Nahm, 2024; Rodrik, 2014). First, leveraging geo-located data on the IRA-spurred investment, I assess the impact of GIP on presidential voting behavior in a difference-in-differences framework. I address selection bias in investment by focusing on counties having experienced the physical impact

[3]Other prominent examples of GIP include France Relance, a COVID-19 recovery stimulus with substantial amounts dedicated to industrial decarbonization which was subsequently complemented by the 2023 Green Industrial Law and France 2030 funding package. Similar COVID recovery plans partially funded by the EU include Spain's Plan de Recuperación, Transformación y Resiliencia and Germany's Aufbau- und Resilienzplans.

of investment (i.e., under construction or operational) versus announced, before using census data to generate weights to account for the varying levels of investment. Measuring exposure to deindustrialization risk with local import data and plant-level emissions, I categorize counties as either doubly-pressured or not. These plant level data let me further split emissions based on industry of origin, in particular manufacturing versus fossil fuels.

I find no incumbent benefits from GIP *in general*, however these average effects mask consistent effects in counties doubly-pressured by globalization and decarbonization. In these counties, I find investment caused between a 2 and 3 p.p. decrease in Republican vote share. Considering each dimension individually, I find that the synergy between the two dimensions is a better predictor of Democratic vote share gains then either emissions or imports alone. Lastly, these effects are driven primarily by communities with ample manufacturing emissions; in contrast, counties with ample fossil fuel emissions either do not shift their voting behavior or move towards the Republicans as most of the country did in 2024. Using individual-level panel data from the CES between 2020 and 2024, I replicate these county level results at the level of the voter: registered voters in doubly-pressured counties that experienced investment were 3 p.p. more likely to vote Democratic compared to individuals in non-pressured counties.

To further investigate how communities reacted to these investments, I focus on Michigan a state emblematic of U.S. manufacturing and its woes in recent decades. First, to further probe the differential electoral response to clean investment by deindustrialization exposure, I collect precinct level data from 2016 to 2024. These data let me compare micro-level voting patterns at varying distances from the same investment within a given county. I find that a standard deviation increase in distance from investment is associated with a 1 to 1.5 p.p. decrease in Democratic vote share. This spatial decay is only evident in doubly-pressured counties, whereas the remaining counties receiving investment demonstrate no intra-county variation in voting with respect to distance from investment. These results suggest any impact of clean investment, even in at-risk communities, is highly localized.

Finally, I consider local news coverage of clean investment which highlight the tax and employment benefits it brings to communities, but not necessarily counties, as well as the planning deliberations that transpired in siting decision. This material suggests that rather than voters being unaware of investment, ample community engagement exists and the impact of investment on the community is clear. In doubly-pressured communities I find, furthermore, frames of manufacturing revival and not just additional tax revenue, but replacement from prior decreases due to the disappearance of traditional manufacturing. Similar frames and economic concerns likewise emerge in planning and economic development strategies in these doubly-pressured counties. Semi-public business development groups alongside local government are active in attempting to regenerate the local economy.

This article contributes to several lines of research. First, it provides theory and evidence on the electoral consequences of an increasingly common policy lever (Juhász et al., 2023). While existing work questions the extent to which market-based policy interventions can generate political consequences (Mettler, 2011; Hamel, 2025), more benign policy interventions such as GIP can shift voting behavior when addressing core socio-economic risks. Understanding the electoral implications of market-based policy interventions, such as subsidies and other more opaque channels of assistance, is important as these policies are often pitched as a means of thwarting the gains of nationalist-populist parties and resistance to the ecological transition and globalization in many post-industrial societies.[4] The results suggest in doubly-pressured

[4] On the political framing of these policies, see former Vice President Kamala Harris' statement on the two anniversary of the Inflation Reduction Act, "Our Inflation Reduction Act is also the single largest climate investment in American history. While taking on the climate crisis and lowering utility bills for families, it is helping us to rebuild American manufacturing and drive American innovation – creating good-paying union jobs, furthering economic opportunity, and contributing to the nearly $900 billion of private-sector investment since President Biden and I took office." 16 August 2024 https://bidenwhitehouse.archives.gov/briefing-room/statements-releases/2024/08/16/statement-from-vice-president-kamala-harris-on-the-inflation-reduction-act-anniversary/. Accessed 15 January 2025. Or see French President Emmanuel Macron's concluding remarks at the presentation of France's green industry bill, "We have overcome decades of deindustrialization and brought this period to an end. Now we must accelerate

communities, GIP may be effective in blunting the rightward shift typical of unembedded economic transformation (Autor, Dorn and Hanson, 2013; Broz, Frieden and Weymouth, 2021; Gazmararian, 2025). These findings build and contribute to a long-standing literature in political economy that considers how state intervention cushions market forces (Polanyi, 1944; Fiorina, 1978; Ruggie, 1982; Przeworski, 1996; Lewis-Beck and Stegmaier, 2000; Rickard, 2018).

Second, in linking globalization and decarbonization as common threats to deindustrialization, this study generalizes empirical research on a just transition (Gaikwad, Genovese and Tingley, 2022; Gazmararian and Tingley, 2023; Bolet, Green and González-Eguino, 2024) by extending climate assistance beyond compensation for fossil fuel job loss and outside coal country. I likewise provide theory and evidence on the varied response of emissions-intensive communities to investment, demonstrating that not all emissions are equal. This extends existing approaches distinguishing between polluting "brown" and non-polluting "green" industries (Colgan, Green and Hale, 2021; Bechtel, Genovese and Scheve, 2019; Heddesheimer, Hilbig and Voeten, 2024). This heterogeneity between fossil fuel and emissions-intensive manufacturing communities is important given the trend of targeted GIP interventions aimed at the latter in many post-industrial societies.

Deindustrialization, Decarbonization, and Decline

Under what conditions might GIP generate electoral returns? Given that GIP is a market-based policy, it is relatively benign, meaning that generalized impact is unlikely (Hamel, 2025; Mettler, 2011; Pierson, 1993), and therefore it needs to counter the economic narrative of

and go much further. The bill we will announce on Monday, as well as the entire strategy we will accelerate, both nationally and at the European level, is an acceleration of this reindustrialization, which is absolutely key. We need more work, more capital, more technical progress, with one goal in mind: to have a real response to climate change and biodiversity, more good jobs for our fellow citizens, and more independence for our nation in an uncertain geopolitical world." 11 May 2023. https://www.elysee.fr/emmanuel-macron/2023/05/11/accelerer-notre-reindustrialisation-le-president-presente-sa-strategie. Accessed 15 January 2025.

local life to generate incumbent rewards. To motivate my argument of its electoral efficacy in communities at risk of sustained deindustrialization, I build on existing work that studies the electoral consequences of import competition and the green transition.[5] Broadly, this research suggests that absent policy intervention economic risk and deindustrialization in particular shifts communities rightward. By bringing economic investment into communities at risk of further decline, GIP may limit this shift by insulating against further job loss, by reinvigorating the diminished industrial status of these communities, or by providing a novel source of tax revenue. Investments from GIP therefore are more relevant in what I call doubly-pressured communities, those highly exposed to globalization and decarbonization risks. For example, the opening of a battery manufacturing facility in Michigan is arguably more relevant and notable than the same facility in Silicon Valley given recent economic trends. In what follows, I highlight the threat of deindustrialization via trade and climate mitigation policy to ground intuition for the varied electoral impacts of GIP across communities.

Over the past decade, an expansive literature has assessed the impact of globalization, primarily via trade exposure,[6] to a variety of political and economic outcomes (Autor, Dorn and Hanson, 2013; Autor et al., 2020; Ballard-Rosa et al., 2021; Bez et al., 2023; Colantone and Stanig, 2018; Feigenbaum and Hall, 2015; Meyerrose and Watson, In Press; Scheve and Serlin, 2023). Often these economic shocks are translated to the voting booth via the perceived decline or slight in status (Gidron and Hall, 2017, 2020; Hochschild, 2018; Lipset, 1955) leading to an embrace of more polarized (Autor et al., 2020) or authoritarian viewpoints

[5] I focus on trade-induced job loss as the primary antecedent condition for which GIP investment may operate in a compensatory fashion given that the U.S. has no federal carbon-pricing policy similar to the EU ETS. While market forces have facilitated a shift from coal to natural gas, there is not a policy placing a price on carbon. Regardless, the insight that green investment may act as compensation and/or insurance still holds in other contexts with carbon prices. If carbon pricing has facilitated further job loss, then it could simultaneously compensate and insure along a single dimension of carbon emissions intensity. Furthermore, while automation has likewise induced manufacturing job loss (Acemoglu and Restrepo, 2020), the public (mis)attribution of import competition as the driver of job loss (Mutz, 2021) and the politicization of trade motivates my choice of import competition as one of the primary dimensions of deindustrialization risk.

[6] See (Scheiring et al., 2024) for a recent overview of both the trade and non-trade impacts of globalization.

(Ballard-Rosa et al., 2021).

In the United States, this literature documents how deindustrialization, especially of low-cost manufacturing (Autor, Dorn and Hanson, 2013), decreased incumbent support (Jensen, Quinn and Weymouth, 2017), increased anti-globalist beliefs (Bisbee and Rosendorff, 2024), and led to rightward shift alongside greater polarization among the electorate (Autor et al., 2020). Considering deindustrialization via lay-offs, decreased manufacturing employment was particularly important in driving white voters towards Trump in the 2016 election (Baccini and Weymouth, 2021). Economically, the longer term impact of import-induced deindustrialization has been a replacement of manufacturing jobs with lower productivity service positions via generational turnover or migration in-flows (Autor et al., 2025). This poorer economic performance and its economic and political consequences experienced by these communities has been substantiated at the micro-level (Broughton, 2014; Ternullo, 2024). Put simply, community members are keenly aware of the socio-economic consequences of manufacturing job loss.

Alongside the rapid expansion of global economic interdependence, a growing awareness of the catastrophic risk of unmitigated climate change has increased calls for greater action to reduce carbon emissions. Considering that electricity generation and industry are the most concentrated forms of carbon emissions, they have often been considered low-hanging fruit in the road to net-zero.[7] Existing approaches to climate mitigation, via price-based mechanisms or command and control regulation, place concentrated costs on emissions-intensive employment, suggesting these individuals should be more opposed to greater ambition (Col-

[7]Compare the concentration of emissions of a single power generation facility or steel plant with the dispersed nature of transportation. For example, an integrated steel mill, such as the Cleveland Cliffs plant in Cleveland Ohio reported more than 4 million tons of CO_2 emissions in 2023, whereas the neighboring natural gas-fired power plant in West Lorain emitted 700 thousand tons. A typical passenger vehicle in the U.S. emits 4.6 metric tons per year. Plant data comes from the EPA FLIGHT database, passenger vehicle emissions statistic comes from the EPA. See https://www.epa.gov/greenvehicles/greenhouse-gas-emissions-typical-passenger-vehicle for further details.

gan, Green and Hale, 2021). Absent some form of intervention, increased climate action is at risk of backlash due to economic erosion via decarbonization-induced deindustrialization. Evidence from Europe suggests that some of the effectiveness of mitigation efforts to date have been achieved via deindustrialization and carbon leakage, demonstrating the threat of continued climate action on traditional industry employment (Thombs, Zhang and Sovacool, 2025).

Observationally, Gazmararian (2025) demonstrates how the fracking revolution, a market- rather than policy-based shift, induced a strong rightward shift in coal communities following 2008. Areas once consistently supporting Democratic candidates have become strongholds of the Republican party under Trump when exposed to an energy transition absent state intervention.[8] Beyond the United States, other work demonstrates a shift towards the far-right as these parties adopt anti-climate positions among workers more exposed to the costs of the green transition (Heddesheimer, Hilbig and Voeten, 2024). These behavioral findings are in line with existing survey work that finds employment in carbon-intensive industries is predictive of less support for U.S. engagement in climate cooperation (Bechtel, Genovese and Scheve, 2019), as well as heightened concern of the costs of climate action among individuals with more carbon-intensive lifestyles due to wealth or gender (Bush and Clayton, 2023; McCright and Dunlap, 2011). Political polarization between the parties on climate action is likewise evident among the electorate in the U.S. context, with Republican voters increasingly holding anti-climate positions (Egan and Mullin, 2017, 2024). Individuals, then, are aware of the concentrated costs of the green transition, and generally unwilling to shoulder these costs unassisted.

Taken together, both globalization and decarbonization present concentrated costs to com-

[8]Given that natural gas has roughly half the carbon intensity of coal, the shift towards natural gas due to the fracking revolution contributed to a substantial decline in U.S. emissions over the past few decades. For this reason, I consider it a case of an unembedded energy transition, especially in coal communities.

munities with industrial production. While the initial impacts of globalization have largely played out, potential consequences of climate mitigation remain. For these communities caught between the two economic transformations, successful policy intervention presents an opportunity for electoral rewards, in particular when policy targets the issue of deindustrialization. By addressing a, if not the, core economic issue faced by these communities, interventions counter local socioeconomic trends. Broadly, this suggests an interpretation of GIP as potentially both *ex ante insurance* and *ex post compensation* for the economic consequences of decarbonization and globalization respectively.

As a compensatory device, GIP can reinvigorate industrial production and employment in communities exposed to the negative consequences of increased economic integration. This compensation might occur either materially, given direct employment benefits or increased tax revenues, or by returning manufacturing employment to a privileged position in local economic life. Tax revenues and employment gains counter trends towards lower earnings and poorer public service provision due to earlier manufacturing job loss (Autor et al., 2025; Feler and Senses, 2017). Symbolically, ample research emphasizes the importance of manufacturing employment to communities perceived status and the subsequent loss incurred when these jobs disappeared, hence the return of manufacturing, especially clean or "advanced" manufacturing may partially address these grievances (Bergquist et al., 2020; Broughton, 2014; Ternullo, 2024). Taken together, this suggests that GIP is more likely to generate incumbent benefits in locations with increasing import exposure.

As an insurance device, GIP can insulate industrial production and employment in communities with ample existing emissions at risk of heightened costs due to the green transition. Novel industrial or energy production can improve the resilience of the local economy by providing alternative employment opportunities in industries (e.g., solar or batteries) with less risk of decarbonization costs. Alternatively, when these investments enable the decarbonization of existing emissions-intensive industry, production becomes more resilient and competitive under greater climate action. Put differently, green technological innovations applied to brown industries that decarbonize them reduce the commercial risk of future mitigation policy and consequently decarbonization-induced industrial job loss. Rather than replacing brown with green industry, this suggests that for many manufacturing industries, even highly emissions intensive ones (e.g., cement or steel), clean investment is not a substitute for traditional industry, but can be complementary. In contrast, this is less likely to be the case for fossil fuel-based industries as clean energy is more likely to operate as a substitute than a complement to fossil energy sources. Taken together, this suggests that GIP is more likely to generate incumbent benefits in locations with increasing emissions, especially from manufacturing sources.

Thus far, I have focused on GIP as a compensation or insurance device in isolation. However, given that areas suffering from import competition may still have substantial emissions, there is a synergy between the two dimensions.[9] These places, typically the core industrial heartlands of the 20$^{\text{th}}$ century, are doubly-pressured between the twin economic transformations of the contemporary era: globalization and decarbonization. In these communities "lost in transition" GIP is most likely to generate incumbent electoral benefits as the local relevance of both insurance and compensation described above are in play. These investments counter local narratives of economic decline and decay, that do not occur in non-pressured communities having experienced different economic trajectories in recent years. Thus, I expect a differential electoral response to GIP investment conditioned by local economic experience and risk of deindustrialization.

Together, I expect the electoral impact of GIP to be strongest in these communities rather than ones amply exposed on one dimension. In the case of ample import exposure, but no remaining emissions, investment does not provide exit options for existing emissions-intensive

[9]In Appendix A, I provide more details on the empirical overlap and relationship between the two dimensions in the U.S. context.

employment and is unlikely to absorb all the slack in the workforce. Comparatively, then, I expect to have less impact than in doubly-pressured counties. Alternatively, in communities with ample emissions, but little to no import competition, it arguably functions as a substitute for existing fossil fuel production, given that few industries have ample emissions, but low import competition aside from fossil fuels. Taken together, I expect that the effect will be strongest in place with ample exposure on *both* dimensions.

Table 1 enumerates the theoretical expectations from above that guide the empirical analysis in the remainder of the paper. For any of the hypotheses to have empirical support, GIP investments need to be visible and credible, otherwise investment is unlikely to counter local economic trends.[10] **H1** provides a generalized expectation of electoral impact: places receiving investment are more likely to vote for the incumbent. Given the insuring and compensatory dimensions of GIP, **H2** and **H3** present conditional hypotheses in terms of increased exposure to import competition and decarbonization risk respectively. The core hypothesis of my argument, **H4**, states that doubly-pressured communities are where electoral consequences are most likely to take place, that is the increase in incumbent vote share should be largest. Finally, **H5** probes this differential response further by considering whether the electoral consequence of GIP investment varies with distance from it, if benefits are decreasing with distance than any electoral consequence should likewise decrease. If local context does indeed shape electoral consequences, this spatial decay in electoral consequence should be more evident in doubly-pressured communities than non-pressured ones.

[10] I assess the visibility of investment by looking at local newspaper coverage of investments in Michigan counties, whereas I consider varying levels of investment credibility by differentiating between announced versus under construction or operational investments in the empirical design. I address each point in further detail below.

Table 1: Hypotheses on the Political Effects of Firm-Facilitated Policy

Label	Hypothesis	Conditional Context?	Empirical Effect?
H1: Credible Investment	Credible GIP implementation increases incumbent vote share.	None	↑ Democratic vote share
H2: Compensation Dimension	Credible GIP implementation has a greater effect in areas affected by import competition.	Import-affected counties	↑ Democratic vote share
H3: Insurance Dimension	Credible GIP implementation has a greater effect in carbon-intensive areas at risk from decarbonization.	Carbon-intensive counties	↑ Democratic vote share
H4: Doubly-Pressured	Credible GIP implementation has a greater effect in areas facing both import competition and carbon risk.	Doubly-pressured counties	↑ Democratic vote share
H5: Distance Intensity	Incumbent vote share is decreasing in the distance from credible GIP implementation	Within DP counties	↓ Democratic vote share

Data and Design

Passed in August 2022, the IRA represents the largest climate expenditure package in the U.S. to date. Subsidies, primarily via tax credits to business and consumers, incentivize technological innovations that reduce carbon emissions from industrial production or for investment in manufacturing facilities for green technologies as well as clean energy generation. In Appendix A, I provide additional details on the specific tax credits in the IRA and how they introduced novel or updated existing financing mechanisms for the green transition. Broadly, the tax credits nudged investments in clean energy production or manufacturing for clean technologies.

Whereas Democrats have increasingly championed climate issues and stressed the reshoring of American manufacturing in the Harris campaign, the Trump campaign centered its attempts to address deindustrialization around tariffs as a means of correcting trade deficits and bringing back manufacturing employment, not just its green variant. Communities doubly-pressured by decarbonization and globalization, therefore, faced a policy cross-roads in the 2024 election, at least in terms of economic policy-making. Economic revitalization might take place via subsidized decarbonization and green manufacturing, as presented by the Democrats, or via greater economic autarky and punitive tariffs, as presented by the Republicans. In either case, state intervention to shape manufacturing employment was prominent for both parties; what varied was the policy instrument between them and the Democratic embrace of green spending. Absent green investment impact, voters within these doubly-pressured areas are likely to find the Trumpian economic appeal enticing, in line with existing work on the electoral consequences of the green transition absent a carrot-based approach (Colantone et al., 2024; Gazmararian and Tingley, 2023; Heddesheimer, Hilbig and Voeten, 2024).

To assess the electoral impact of GIP, I utilize county-level data on investment, imports, emissions, and presidential voting in a difference-in-differences framework from 2000 to 2024. Vote share data is combination of historical records from the MIT Election Lab and my own collection for the 2024 election. I use the original import shock measure from Autor, Dorn and Hanson (2013) to capture historical trade exposure alongside plant emissions data from the EPA's FLIGHT database. Import data ends in 2008, whereas I use plant-level emissions from 2012, the earliest year available with consistent reporting, to ensure that this measure of transition risk is pre-treatment. Country-level controls for matching and propensity score weighting come from the 2000 U.S. Census.

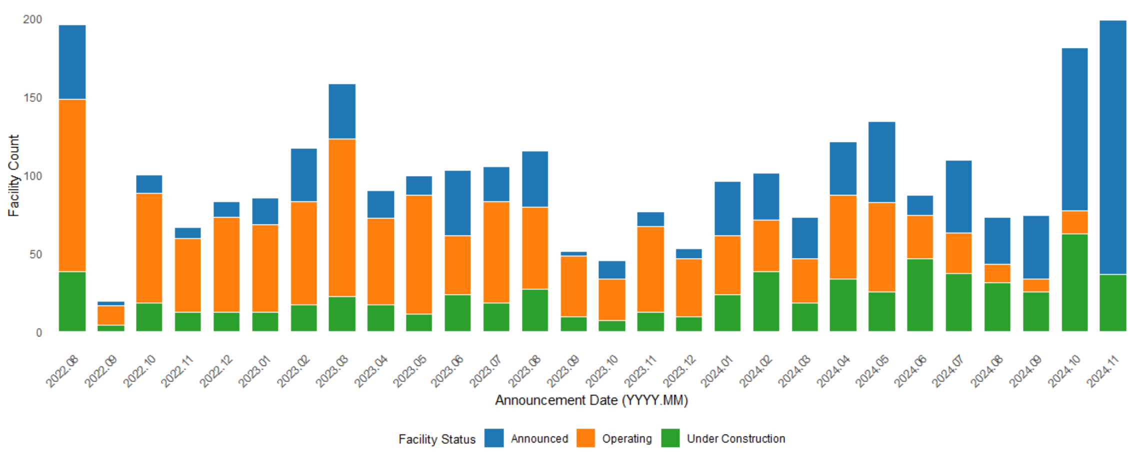
Green investment data comes from Rhodium Group's Clean Investment Monitor. It measures capital expenditure for investments eligible under the IRA, as an alternative to withheld taxes by firms via the policy's tax credit mechanisms. I utilize data through the fourth quarter of 2024 thereby providing the closest picture of investment development to the November election. Investments are broadly categorized into three groups: (1) Manufacturing, (2) Energy and Industry, and (3) Retail. Geo-located data are available for these first two categories. Manufacturing investment refers to any investment made to facilitate the production of greenhouse gas reducing technologies. Energy and Industry investments are those which decarbonize existing production sites or build out clean energy sources.

An example may help to clarify the difference between the two, consider solar panels: An investment made to produce solar photovoltaic cells, a key component in solar panels, in a given county is a manufacturing investment as it develops novel manufacturing capacity in the area. In contrast, capital expenditure to develop a solar panel field is an energy and industry investment as it is intended for decarbonized power generation. In one situation, the investment facilitates increased manufacturing capacity, whereas the other replaces existing carbon-intensive production processes. The former example adheres to a situation in which GIP builds out novel industries, whereas the latter is closer to public assistance to facilitate the decarbonization of existing industry. Other manufacturing industries eligible for tax credits include: wind, electric vehicles, batteries and electrolyzers among others. The energy and investment category includes innovations to traditional industry such as steel, paper and pulp, and cement alongside the development of sustainable aviation fuels, geothermal, hydrogen, and wind or solar farms among others. The retail category is excluded.

A central challenge to assessing the impact of the IRA is selection into investment. I elaborate my strategy to address this issue first as it clarifies the intuition behind my measurement strategy for capturing the impact of the IRA at the county level. To address potential selection bias, I focus on counties in which some investment signal has taken place, meaning that investment must be at minimum announced. Given that certain counties may be more amenable to green investment than others, this minimal display of commercial intention and risk lets me account for underlying characteristics that differ across the U.S. In Figure 2, I plot the monthly distribution of investments by status between August 2022 and November 2024. While there is a trend in terms of earlier investments being more likely to be completed, timing is not deterministic of investment status.

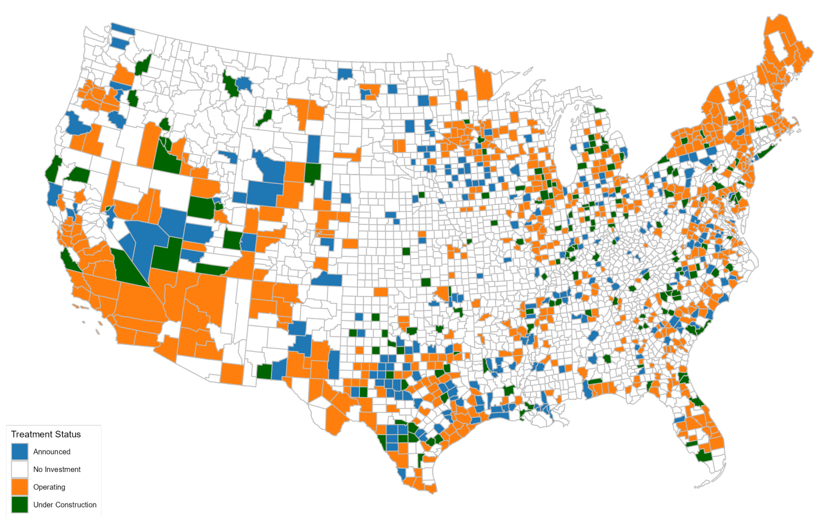
The distinction between investment status motivates my measurement of policy impact and therefore treatment. Counties with announced investment as of November 2024 serve as my control group whereas counties with either under construction versus operational investment are considered to have been treated by policy impact. Figure 3 visualizes the sample by investment status. I generate a binary measure of visible investment taking a value of 1 if any investments have become operational or under construction after the IRA was announced in a given county. Along the intensive margin, I use the logged capital expenditure for projects with either status. Finally, as an alternative measure, I consider the proportion of operational and under constructions to the sum of all three types. These measures broadly capture the impact of more credible and visible forms of investment. Given that some counties receive several investments, this binary treatment definition is a conservative one: a single investment that is beyond the announced stage counts as being treated. This aggregates more weakly impacted counties to those with more investment, biasing results against my theoretical expectations.

Figure 2: Monthly Facility Announcements by Status (2022–2024)



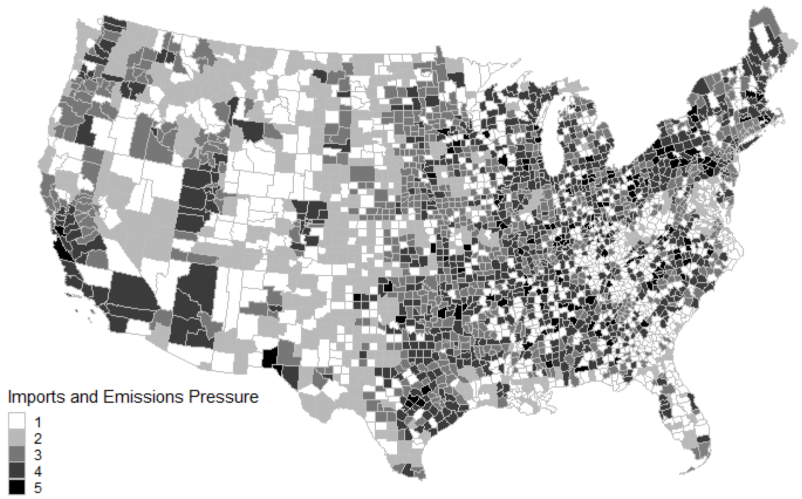
To measure exposure to globalization and decarbonization, I quartile counties by their import exposure and total emissions.[11] I then define a county as "lost in transition", or doubly-pressured by these deindustrialization threats, if it is jointly above the median in each dimension. As an alternative, I disaggregate this binarized measure and consider counties that are jointly in the top quartile along both dimensions as the most doubly-pressured. Counties with one dimension in the fourth quartile and the other dimension in the second or third quartile are moderately caught between the two transformations. Counties in the second and third quartile in both dimensions are in the third category. Counties with second or third quartile emissions, but low trade exposure are in the second category. The baseline is any county that sits in the first quartile in terms of emissions, regardless of historical import exposure. Besides these composite measures of both dimensions, I also consider differential effects of investment along each individually. In Figure 4 I plot counties by the extent of import and emissions exposure using the disaggregated categorical variable described above.

Figure 3: County Status as of November 2024



[11]For import exposure I use the original 2000-2008 import per worker shock from Autor, Dorn and Hanson (2013).

Figure 4: Extent of Cross-Pressure between Globalization and Decarbonization



While my sample selection reduces some concern about selection bias, noticeable differences still remain between counties depending on investment status, hence I leverage inverse propensity score weighting and matching to ensure comparison across counties is balanced in my estimation. Using 2000 Census data, I estimate propensity scores for investment treatment status using the following variables: percent male, percent Hispanic, median income (logged), percent of households under the poverty line, unemployment rate, labor force rate, and age. In Appendix B, I demonstrate that the covariate balanced propensity scores generate a virtually identical sample and provide sample statistics. I include the inverse of these propensity scores as weights to estimate the impact of investment and transition-pressure status on Republican two-party vote share in the following difference-in-differences specification:

$$\text{RVS}_{it} = \lambda_t + \alpha_i + \beta_1 \text{Investment}_{it} + \beta_2 \text{Investment}_{it} \times \text{Doubly-Pressured}_i + \epsilon_{it} \qquad (1)$$

Where λ_t and α_i are election-year and county fixed effects and *Investment* and *Doubly-Pressured* are indicators for treatment and exposure status respectively. I omit the marginal effect of *Doubly-Pressured* as it is collinear with the unit fixed effects. Causal identification in a difference-in-differences framework requires we find plausible that absent investment the trends in voting behavior between counties would have remained similar in their trajectories. I probe for violations of the parallel trends assumption with placebo tests in which I assess for differential trends in voting as if investment patterns had taken place in prior elections. Figure 5 presents one such check through an events study visualization. In Appendix B, I conduct an equivalence test finding once again no clear violations to the parallel trends assumption (Hartman and Hidalgo, 2018).

The pair of weighting strategies to address endogeneity above make this identification more plausible as they better ensure that counties under comparison are similar on observable factors. Put differently, there would need to be some alternative time-varying characteristics driving any observed shift in voting behavior in counties receiving investment, or investment and stuck in transition status, despite these similarities. Under these assumptions, β_1 identifies the causal effect of investment in non-pressured counties, whereas β_2 identifies the conditional effect of investment in doubly-pressured counties. Evidence in favor of my argument would take the form of a negative coefficient for the interactive β_2 coefficient, meaning that visible investment in doubly-pressured counties results in greater incumbent, that is Democratic, vote share shifts than in non-pressured counties. Substantively, this can be interpreted as GIP being more effective in blunting the rightward shift that took place in 2024 throughout much of the country in doubly-pressured counties compared to elsewhere.

Given that Autor, Dorn and Hanson (2013) measure the rise of China's imports at the commuting zone level, I cluster standard errors in all regressions at this level rather than the county. Likewise, as a robustness, I include commuting zone by year fixed effects to account for differential trends in the broader region with which a given county shares the same value along this dimension.

National Results

Table 2 presents the main results. Model 1 considers the effect of investment on Republican two-party vote share across all counties in the sample, that is those in which investment was at minimum announced by November 2024. Given the binary nature of the *Investment* variable, its coefficient can be interpreted directly: the shift from announced investment to under construction or operational investment in terms of percentage point change in Republican vote share. Overall, we observe a 1 percentage point (p.p.) decrease, albeit one that is below conventional levels of statistical significance.

In columns 2 and 3, I split the sample to consider non- and doubly-pressured communities respectively, assessing the marginal effect of visible investment within each county group. Whereas investment in non-pressured districts, as in the full sample, has no impact on voting behavior, it is associated with a 3 p.p. decrease in Republican vote share. Consistent with these marginal effects, column 4 interacts *Doubly-Pressured* with *Investment* among the entire sample, resulting in investment causing a 2 p.p. smaller shift towards the Republicans in doubly-pressured counties than in non-pressured counties. As a first cut, we observe little general electoral impact of GIP investment, yet this masks substantial heterogeneity conditional on deindustrialization risk.

In columns 5 through 8, I interrogate these effects further. Each of the models accounts for heterogeneity in trends at the commuting-zone level, meaning that comparisons leverage shifts in investment and pressured status within the same commuting zone each election. If one finds plausible that commuting zones share many similar economic challenges, then this battery of controls further increases confidence in the results as any semi-local time-varying confounders

Table 2: GIP, Deindustrialization Risk and Republican Vote Share

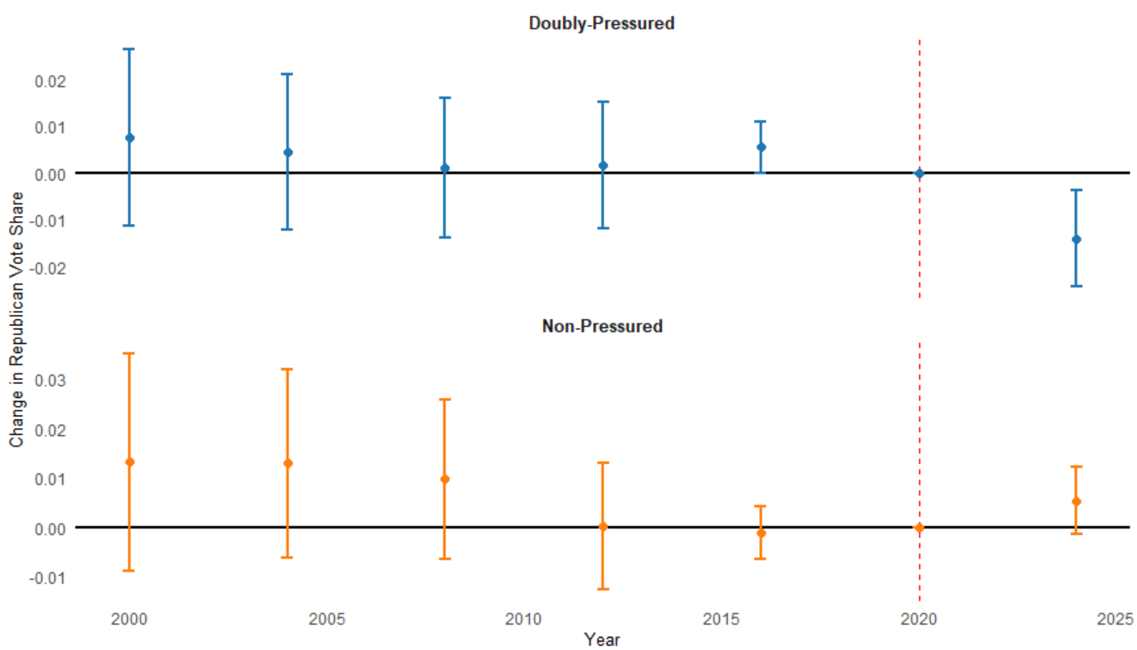
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Investment	−0.01	0.00	-0.03^{**}	−0.00	−0.01	-0.02^{*}	−0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Investment × Doubly-Pressured				-0.02^{**}			-0.03^{***}	
				(0.01)			(0.01)	
Investment × Low Exposure								0.00
								(0.01)
Investment × Some Exposure								−0.01
								(0.01)
Investment × Moderate Exposure								-0.03^{***}
								(0.01)
Investment × High Exposure								-0.02^{*}
								(0.01)
N	6948	4533	2415	6948	4533	2415	6948	6948
Counties	993	648	345	993	648	345	993	993
R^2	0.89	0.90	0.87	0.90	0.98	0.97	0.97	0.97
Adj. R^2	0.88	0.89	0.85	0.88	0.95	0.90	0.94	0.94
C-Zone by Year FE?					✓	✓	✓	✓

The outcome variable is the Republican two-party vote share. Investment is an indicator for any operational or under construction investment. Model 2 subsets to non-pressured communities, whereas models 3 and 5 subset to doubly-pressured communities. All models include county and year fixed effects, with models 4 through 7 including commuting zone by year fixed effects. Robust standard errors clustered at the commuting zone. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

are accounted for. Models 5 and 7 replicate the sub-group marginal effects of investment, with similar results: We observe electoral shifts in locations in which deindustrialization risk is greater. Lastly, in Column 8 I operationalize doubly-pressured status with the categorical variable described above. Recall the baseline (represented by Investment) is the set of counties with the lowest quartile of emissions, irrespective of import exposure. Reassuringly, both the moderate and high exposure interactions are negatively signed and statistically distinguishable from zero. These two categories correspond to those counties with either joint fourth quartile exposure on both dimensions or a combination of fourth quartile and second or third quartile exposure on either dimension.

Figure 5 visualizes these results in an event study design analogous to Column 4 in Table 2. The panels visualize the impact of investment on voting behavior between doubly- and non-pressured counties respectively. As noted above, the panels suggest no clear violations of the parallel trends assumption among either subgroup, in Appendix A I provide an equivalence test following Hartman and Hidalgo (2018). The slight blip observed in 2016 (0.005) is well within the joint equivalence range (-0.06, 0.06). In this design, investment in doubly-pressured counties is associated with a 1.5 p.p. shift away from the Republican party. In Figure 6, I visualize the relationship along the intensive margin of investment using the `interflex` package (Hainmueller, Mummolo and Xu, 2019), subsetting to only those counties receiving investment, and consider the marginal effect of doubly-pressured status. Once again, we observe a negative relationship between deindustrialization risk, investment and Republican vote share.

Figure 5: Pre-Trends of Average and Conditional Effects of GIP



In Appendix Tables B7 and B8 I measure investment along the intensive margin and in terms of the proportion of total investment that is operational or under construction. The results are analogous to what is presented in Table 2 with investment measured via logged capital expenditure or proportionally being a significant predictor of feedback in doubly-pressured counties, but not elsewhere. Substantively, a one standard deviation increase in logged expenditure or the proportion of operational or under construction investment decreases Republican vote share by roughly 1%. As further robustness, I estimate a set of regression equations with varying fixed effects to account for other sources of time-varying confounding. In Appendix Table B10 I replace the commuting-zone by year fixed effects with state by year fixed effects with results similar to those in Table 2 barring a slight attenuation on the interaction between *Investment* and *High Exposure* rendering it insignificant at conventional levels. In Appendix Table B11, I add demographic quartile by year fixed effects meaning that comparisons are among counties with similar demographic profiles as of the 2000 Census. The subgroup marginal and interaction effect remains consistently negative. I likewise replicate Table 2 in Appendix Table B9 but omit the propensity score weights with the primary difference being an increase in precision. Lastly, I progressively drop election years to probe whether the results are driven by observations in which variation in *Investment* was not possible–while coefficients attenuate slightly they remain significant up to and including the exclusion of the 2012 election (i.e., 2016-2024). Taken together, these results provide strong evidence in favor of the fourth hypothesis.

To further disaggregate the electoral effects of GIP, Table 3 breaks down variation along each dimension of deindustrialization threat respectively. Odd columns consider import exposure, whereas even columns consider emissions exposure. Models 1 and 2 replace doubly-pressured status with binned exposure measures of each dimension. In terms of imports there is an increasingly negative trend, albeit below conventional significance levels. For emissions, there is a negative trend in feedback with the most exposed counties increasingly shifting towards the Democrats after receiving investment. Individually, then there is evidence in favor of H3, but not H2.

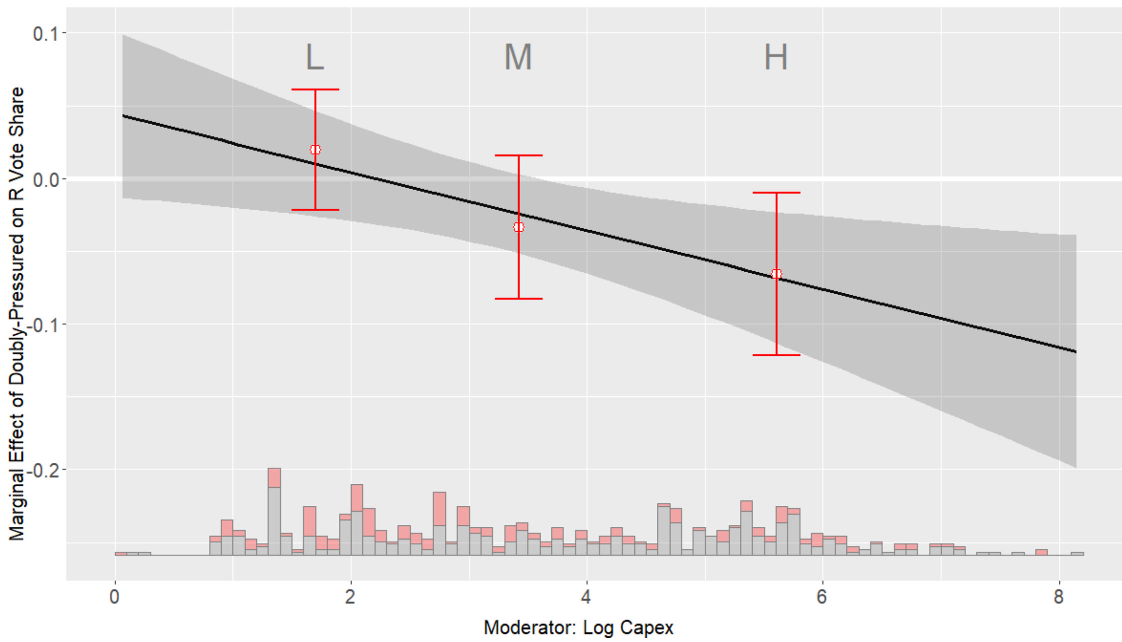
In Columns 3 and 4, I reintroduce the *Doubly-Pressured* and *Investment* interaction while subsetting to only counties with emissions above the first quartile. This allows a comparison

Table 3: GIP along Individual Exposure Dimensions

	Model 1	Model 2	Model 3	Model 4
Investment	0.00	0.01	−0.00	−0.00
	(0.02)	(0.01)	(0.01)	(0.01)
Investment × Doubly-Pressured			-0.03^{***}	-0.03^{**}
			(0.01)	(0.01)
Investment × 2nd Quartile	−0.01	−0.01		
	(0.02)	(0.01)		
Investment × 3rd Quartile	−0.02	-0.02^{**}		
	(0.02)	(0.01)		
Investment × 4th Quartile	−0.02	-0.03^{***}		
	(0.02)	(0.01)		
Emissions?		✓		✓
Imports?	✓		✓	
N	6948	6948	5389	5940
R^2	0.97	0.97	0.97	0.98
Adj. R^2	0.94	0.94	0.93	0.93

The outcome variable is the Republican two-party vote share. Investment is an indicator for any operational or under construction investment. Odd models consider import exposure. Even models consider emissions exposure. In Models 3 and 4, Investment captures the effect of investment in counties with above first quartile exposure on the indicated dimension and third or fourth quartile on the other. In Table B14 I progressively drop quartiles extending the analysis in Models 3 and 4. All models include county, year and commuting-zone by year fixed effects. Robust standard errors clustered at the commuting zone. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Figure 6: Marginal Effect of Doubly-Pressured at varying capital expenditure levels



of counties with moderate to high values on one dimension of deindustrialization risk, but low values on the other and counties with third or fourth quartile values on both dimensions. While Table 3 provides some evidence in favor of the third hypothesis, considering emissions or imports individually neglects the synergy each economic transformation presents to communities with respect to the threat of economic erosion due to deindustrialization. Even omitting those counties with relatively low values, doubly-pressured counties receiving investment were less likely to vote for Trump compared to counties with some degree of deindustrialization risk.

In Appendix A, I disaggregate emissions by the source of origin and consider whether the electoral effects are consistent for communities with ample manufacturing- or fossil fuel-derived emissions. In Table A3, I find that doubly-pressured status based solely on fossil fuel emissions has no differential response to investment. In contrast, communities with ample emissions from manufacturing sources and import exposure shifted roughly 2 p.p. to the

Democrats following investment. This heterogeneity based on emissions source suggests the above results are driven primarily by incumbent benefits in communities in which investments complement the decarbonization efforts of existing industry rather than replacing them in the case of fossil fuels. This is despite the fact that the IRA included increased tax incentives to firms that located their investments in Energy Communities, places with substantial fossil fuel employment and above average unemployment. These Energy Communities shifted towards the Republicans following investment. Whereas clean energy investment and manufacturing can serve as a complement to existing carbon-intensive manufacturing, this is less likely to be the case with fossil fuels. For these latter communities, the shift towards renewable power generation is a direct replacement of fossil fuel sources. While these carbon-intensive communities are both cognizant of the economic risk of increased climate action, these results demonstrate they do not react to assistance in the same fashion.

The above results consider county voting trends. A concern with this approach is it remains difficult to adjudicate between individuals switching their vote between parties, different individuals voting between elections within a given county, or some combination of the two. To overcome these concerns, I use the CES 2020-2024 panel survey to assess not only vote choice, but also approval of the IRA and former President Joe Biden. In Appendix B, I provide further details on the survey and measurement. In Table 4 I consider whether investment in doubly-pressured counties had a differential impact on individual preferences and voting behavior. On support for the IRA, there is no evidence of a differential response: Investment in non-pressured counties is associated with a 4 p.p. increase in support with no additional difference in doubly-pressured counties. While investment increased support for Biden's landmark climate bill, approval of the former President did not change in either group of counties. Finally, in terms of voting trends, I find similar results to the county-level findings: whereas investment is not predictive of a change in voting patterns in non-pressured counties, individuals in doubly-pressured counties were 3 p.p. more likely to vote for the Democratic party in 2024 compared to 2020. Whereas individuals in either type of county viewed policy more favorably after witnessing its impact, this only translated to a shift in voting behavior in areas with higher risk of deindustrialization. Building on the findings from above, in Table B15 I find that this shift towards the Democrats is primarily among those individuals in doubly-pressured counties with ample manufacturing emissions, but not fossil fuel emissions.

Table 4: CES 2020-2024 Panel Results

	IRA Approval	Biden Approval	Vote Democratic	Vote Republican
Investment	0.04***	−0.01	−0.00	0.01
	(0.02)	(0.02)	(0.01)	(0.01)
Investment × Doubly-Pressured	−0.00	−0.01	0.03*	−0.02
	(0.03)	(0.02)	(0.02)	(0.02)
N	10818	10818	8520	8520
Clusters	5415	5415	5262	5262
R^2	0.86	0.94	0.97	0.97
Adj. R^2	0.72	0.88	0.93	0.91

All models include respondent, year, and state by year fixed effects. Models 1 and 2 include the 2022 and 2024 CES waves. Models 3 and 4 include the 2020 and 2024 waves. Robust standard errors clustered at the respondent. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Michigan Results

Taken together, the results thus far present consistent evidence in favor of the fourth hypothesis: GIP can indeed generate incumbent effects in contexts in which it counters local economic trends. Investment from GIP such as the Inflation Reduction Act thwarted the shift towards the Republican party that swept much of the U.S. in 2024 in those counties with substantial exposure and risk of deindustrialization. In this section, I probe this differential response further looking at variation in electoral effects within counties using novel precinct data as well as provide evidence on the local media coverage of investment in these communities and efforts by semi-public groups to revitalize doubly-pressured counties. These analyses serve several functions to further probe the argument. First, given that firm investments are rather benign, it is questionable whether individuals are aware of investments taking place. This lack of visibility might be overcome in several fashions: by living closer to investment and therefore seeing the change take place or via local media coverage and political communication. Second, it lets me assess whether these doubly-pressured counties do indeed consider themselves in a different light with respect to deindustrialization.

I conduct these analyses in Michigan for several substantive and design-based reasons. Substantively, Michigan has a long-standing history of energy intensive manufacturing, most evident in the automotive industry. Much has been written on the decline of Michigan manufacturing, and it is a quintessential example of the American Rust Belt. Most of the state's energy comes from fossil resources,[12] meaning that even if industry is electrified there are substantial embedded emissions. As a state, Michigan is, arguably then, representative of an economy with substantial industrial heritage, but also significant risk of further economic erosion absent decarbonization assistance. From a design perspective, Michigan has several desirable characteristics making it suitable for a intra-county analysis. First, the combination of ample investment, roughly 40 to date, coupled with a large number of counties (83) makes more feasible a comparison of the change in micro-level voting patterns within counties over time. Furthermore, counties are roughly similar in size, meaning that intra-county sample of precincts is comparable in size and that the distribution of distances has a common bandwidth across counties. This is also desirable from a media coverage perspective: if counties are roughly similar in size the distribution challenge of a given local news source, and hence its reach, is arguably similar.

[12]Natural gas and coal are the two largest energy vectors in the electricity supply. See https://www.grid-info.com/michigan for a full breakdown.

Visibility and Distance

Thus far, I have considered any electoral impact of GIP to be uniform with counties. In this section, I relax this assumption and investigate whether the visibility of investment, as measured by distance, shapes its electoral consequences. Drilling down further, I expect that incumbent vote share is decreasing with distance all else equal as communities closer to investments are more likely to observe the impact of GIP. For these individuals closer to policy impact, it represents a more visible departure from economic erosion and may provide local economic benefits such as employment and tax revenue. In the following section, I document these benefits and pervasiveness of this perception of risk and the plight of deindustrialization more thoroughly.

To consider variation in electoral effects requires sub-county voting records, I utilize precinct voting records to generate such a dataset. These fine-grained records permit such an analysis of spatial variation in the electoral consequences of GIP. Precinct level voting data comes from the Michigan Secretary of State. These data provide me with precinct names that I fuzzy match within county to shape files from the Michigan Bureau of Elections. This process results in an average of 96% of all precincts being successfully matched to a polygon over the three elections (2016-2024). Given that precincts are meant to cover a similar number of registered voters, the number and shape of precincts varies election to election. To recover a panel data structure, I overlay 25 km^2 grids within each individual county shapefile. The primary assumption needed to recover a consistent panel is that the population distribution is uniform within each precinct, but may vary across precincts. Given that precincts adjust each election to cover a similar number of voters, this seems plausible. I use the intersection of grid cells with precinct shape files to then calculate the grid cell vote totals and Republican vote share. In essence, my measure of voting behavior at the grid cell is the weighted sum of these intersections. I provide more details on this data generating process in Appendix C.

I measure visibility as the distance between an investment and a grid cell centroid. Given the focus on the shift between announced and under construction and operational GIP, this distance is non-zero for all observations in the final analysis. In total, the sample includes 29 counties (35%) and roughly 900 grid cells over the three elections between 2016 and 2024. Investment and pressure status remain the same as above and are coded at the county-level, hence my preferred specifications, in which I include county by election year fixed effects, omits the marginal coefficients of these county-level variables as they are collinear with this battery in the following:

$$\begin{aligned} \text{RVS}_{it} = \alpha_i + \lambda_t + \gamma_{ct} + \beta_1 \text{Investment}_{ct} \times \text{Distance}_i + \\ \beta_2 \text{Investment}_{ct} \times \text{Distance}_i \times \text{Doubly-Pressured}_c + \epsilon_{it} \end{aligned} \tag{2}$$

where i indexes grid cells, c counties, and t election years. Given the inclusion of county by year fixed effects, β_1 identifies the change in Republican vote share with distance in non-pressured counties receiving investment, whereas β_2 identifies the analogous change, but in doubly-pressured counties. I estimate Conley standard errors using a cutoff of 180 km.[13] Evidence in favor of hypothesis 5 would consist of a positive coefficient on the triple interaction (β_2): that is areas further away from investment are more likely to vote Republican within counties stuck in transition.

Table 5 presents the results. To facilitate interpretation, I include a standardized coefficient at the bottom of the table for each of the triple interaction terms. As is evident, the size of the effect across all three models is quite similar. Column 1 contains only grid cell and election year fixed effects, hence I include the time-varying county-level explanatory variables. Model

[13] I choose this cut-off based off a back of the envelope calculation about the largest distance within most Michigan counties (60km). Given that most counties are roughly square-shaped this is the diagonal between opposing corners. To incorporate counties that are close by and may influence the results, I multiply this by 3 to account for potential spillovers beyond the county. Alternative cutoff measures do not consistently alter the results.

2 adds county by election year fixed effects. In Model 3, I log the distance variable. In Model 4, I quartile the distance measure and interact it with investment and investment and doubly-pressured respectively.

Column 1 replicates the national-level result in Michigan: the interaction between investment and pressure status is negative, denoting a roughly 1 percentage decrease in Republican vote share. The triple interaction is not distinguishable from zero in these models. In Models 2 and 3, I find evidence for the fifth hypothesis. In either operationalization, raw or logged meters, I find a one standard deviation increase in distance from the investment site predicts a twentieth of a standard deviation increase in Republican vote share in doubly-pressured counties. In contrast, there is no evidence of within county variation in electoral impact in non-pressured counties. This is reassuring given that there is no evidence thus far of voting shifts taking place writ large in these counties. Finally, column 4 contains the quartiled distance measurement with similar results. Given the binary operationalization of all interacted variables the interpretation is straightforward: grid cells in the third and fourth quartiles from investment voted roughly 1 p.p. and 1.5 p.p. more for the Republican party than those respondents more adjacent to investment. Substantively, individuals living more than 21 miles voted at higher rates for Trump compared to their within county peers that were within 8 miles of investment. Once again this spatial variation within counties is only visible in places in which investment goes against the trend of deindustrialization.

In Michigan, the impact of investment is highly localized. Consistent with the analysis above, there is evidence of investment winning votes for the incumbent. The precinct-level analysis adds further nuance to these findings: rather than investment generating widespread gains throughout entire counties its impact is in immediately adjacent places. In the following section, I provide evidence of the types of localized benefits that might induce such spatial voting patterns as well as the communication efforts linking clean investment with Democratic

Table 5: Distance to Investment and Voting Behavior

	Republican Vote Share			
	Model 1	Model 2	Model 3	Model 4
Investment	0.00			
	(0.00)			
Investment × Doubly-Pressured	-0.01^{***}			
	(0.00)			
Investment × Distance	-0.00	-0.00		
	(0.00)	(0.00)		
Investment × Distance × Doubly-Pressured	0.00	0.00^{***}		
	(0.00)	(0.00)		
Investment × Distance (log)			-0.00	
			(0.00)	
Investment × Distance (log) × Doubly-Pressured			0.01^{***}	
			(0.00)	
Investment × Distance Q2				0.00
				(0.00)
Investment × Distance Q3				-0.00
				(0.01)
Investment × Distance Q4				-0.00
				(0.00)
Investment × Doubly-Pressured × Distance Q2				0.00
				(0.00)
Investment × Doubly-Pressured × Distance Q3				0.01^{*}
				(0.01)
Investment × Doubly-Pressured × Distance Q4				0.01^{***}
				(0.00)
Standardized β	0.02	0.04	0.04	
County-Year FE		✓	✓	✓
N	2482	2482	2482	2482
R^2	0.99	0.99	0.99	0.99
Adj. R^2	0.98	0.98	0.98	0.98

The outcome variable is the Republican two-party vote share. The unit of analysis is the grid-cell year. All models include election year and grid cell fixed effects. The standardized β is for the interaction term on the triple difference to make comparisons easier between raw and logged operationalizations of distance in meters. Conley standard errors estimated with a distance cutoff of 180 km. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

politics.

Local Communication and Perspectives

In this section, I provide evidence of the local benefits, information landscape, and politics surrounding clean investment. These data provide insights into how changes in the local economy reach voters and potentially impact their behavior at the ballot box. I first discuss the parallel state-level initiatives to complement IRA funding. This provides a better local contextualization of national-level policy initiatives and provides intuition for the partisan framing tactics of clean investment in Michigan. I then provide evidence of the information landscape in a set of counties which received several investments since 2022. This local news coverage substantiates the local benefits coming from investment, but also suggests communities are aware of these firm development projects. I expand on each of these topics in greater detail in Appendix C.

Since 2022, Michigan has experienced some of the highest levels of clean investment eligible under the IRA of anywhere in the country. Notable as well is the rather even split between energy and manufacturing investments.[14] This comparatively large amount of investment is at least partially attributable to state-level investment schemes that have been layered on top of the IRA in attempt to "capture federal dollars" and to "help Michigan communities that have seen manufacturing jobs disappear and re-create the prosperity they once enjoyed."[15]

These local political developments have charged the debate around renewable energy and clean manufacturing investments with Democratic candidates and politicians in the lead up to the 2024 election increasingly embracing the tax incentive approach championed by then President Joe Biden and Michigan governor Gretchen Whitmer as a means of bringing back

[14] Energy and Industry Investments have been more typical in the country overall, but also in most other states. Author calculations based on the Clean Investment Monitor data.

[15] Hendricksen, Clara. February 24, 2024. "Whitmer seeks clean energy companies." *Battle Creek Enquirer*. Accessed July 10, 2025.

manufacturing employment to Michigan.[16] Local Republicans, while not coming out against job creation and business investment, have solidified their position around an "all of the above" energy strategy, restricting the government's ability to pick winners and losers. This position against government subsidies is evident even among representatives in districts that have seen billions of dollars in investment.[17] State-level media coverage alongside these political positions clearly links a Democratic White House with continued manufacturing and clean energy investment provision, whereas a Republican one would threaten such provisions.[18]

Alongside the state-level development, there is ample attention to business investment at the local level. To assess media coverage of clean investment, I examined local coverage from the Local Newspaper Initiative,[19] focusing on the three counties that had the most investments for both the doubly- and non-pressured set of counties. Table C2 provides more details on the specific investments and whether they were covered in local media. Across these six counties, local news coverage of investment was higher in doubly-pressured counties compared to non-pressured ones (78% versus 43%). Local coverage highlighted the local economic benefits, typically in terms of construction and expected permanent employment, but also tax revenue that was projected to arise from investment. These revenues would be used by the community to fund local schools and infrastructure maintenance typically. Likewise, the coverage emphasized the community engagement and planning meetings that had taken place prior to construction beginning, suggesting that the broader community is aware of investments. Given

[16] See for example, 6th Representative Debbie Dingell's climate position: https://debbiedingell.house.gov/issues/issue/?IssueID=16223.

[17] See, for example, the similar positions of 4th district representative Bill Huizenga or 5th district representative Tim Walberg on energy respectively: https://huizenga.house.gov/issues/issue/?IssueID=23825 and https://walberg.house.gov/issues/energy-gas-prices. The latter further positions himself against state interventions stating, "We need to promote a healthier environment and spur the development and deployment of clean energy infrastructure without the 'pie-in-the-sky' mandates, regulations, and massive federal government spending."

[18] House, Kelly. October 14, 2024. "Michigan a top winner of climate funds Trump wants to revoke." *Bridge Michigan*. https://bridgemi.com/michigan-environment-watch/michigan-top-winner-climate-funds-trump-wants-revoke/. Accessed July 15, 2025.

[19] https://localnewsinitiative.northwestern.edu/

the size of some investments, for example, some of the solar farms in Calhoun County are projected to be roughly 1,000 acres, local planning authority, business development organization, and community engagement is to be expected.

These investments coincide with ample public-private efforts, typically via business development organizations, to economically revitalize areas of Michigan that have seen reduced manufacturing employment and subsequent economic hardship. In places such as Calhoun or Montcalm County that experienced some of the highest levels of import competition in the country, attracting investment and overcoming perceptions of economic decay is paramount.[20,21] These places attach some much importance to attracting investment as manufacturing remains central to not only the economic fabric of these communities but also their identities.[22], [,23] Alongside the material benefits such as employment and tax revenue, these investments may placate the sense of industrial decay and decline of the past decades in such doubly-pressured counties in line with other work emphasizing manufacturing or fossil fuel decline (or the risk thereof) and identity status concerns (Bergquist et al., 2020; Broughton, 2014; Bush and Clayton, 2023; Clark, Khoban and Zucker, 2025; Gaikwad, Genovese and Tingley, 2022; Ternullo, 2024). In Appendix C, I provide more details on the ways in which these organizations, as well as local planning documents from county and city government frame their economic prospects. Together these data suggest that local awareness of the existence and benefits of investment is present in doubly-pressured counties with a clear linkage to the Democratic party in terms of continued public support for clean investment.

[20]"America's Dying Cities". February 9, 2011. *Newsweek*. https://www.newsweek.com/americas-dying-cities-66873. Accessed August 6, 2025.

[21]Renn, Aaron M. 2018. "Manufacturing a Comeback." *City Journal*. https://www.city-journal.org/article/manufacturing-a-comeback. Accessed July 15, 2025.

[22]Accelerate Jackson County. 2025. "EP#1 - A Focus on Manufacturing." https://acceleratejacksoncounty.org/ep1-a-focus-on-manufacturing/. Accessed July 9, 2025.

[23]The Right Place. 2022. "Strategic Plan 2023-2025. https://www.rightplace.org/about-us/strategic-plan. Accessed July 18, 2025.

Conclusion

To further facilitate the ecological transition, governments in recent years have introduced green industrial policies that provide financial assistance to firms seeking to decarbonize existing production or develop novel green industries. These public incentives have nudged firms to make large scale investments throughout many post-industrial societies providing economic stimulus to communities. I argue that any incumbent effects of such investment is tied to going place-based economic trends, namely related to deindustrialization via globalization and decarbonization. Where investment contrasts strongly with hardship and risk due to greater economic integration or emissions-free production, incumbents championing interventionist policies perform stronger than the competitors. Using a variety of data sources, I provide evidence of this differential response to clean investment in the United States. Whereas doubly-pressured communities having experienced ample import competition and with ample remaining emissions were more likely to vote for the Democrats after receiving investment, such a differential response was not evident elsewhere in the country. This electoral reaction is especially true among emissions-intensive manufacturing communities, but not among fossil fuel producing communities.

While the empirical analysis considers the United States over the past quarter century, the underlying economic threat of deindustrialization is common to many post-industrial societies, as is the turn towards green interventionist policies by incumbent governments, in particular on the left. As the far-right in many countries has increasingly shifted towards an anti-climate position alongside its longer-standing focus on immigration (Dickson and Hobolt, 2024), policies that facilitate clean investment and reduce the risk of further industrial job loss may mitigate such appeals from parties questioning the need to address climate change. Crucially, however, this means considering transition risks beyond fossil fuel country and acknowledging that said risks are not linear with current carbon emissions. In doing so this generalizes research on the empirical consequences of the green transition beyond communities with long traditions of fossil fuel exploration and policy interventions based on ex post compensation. More broadly, these findings suggest that rather benign market interventions can indeed spur electoral consequences contributing to a long standing literature on the role of state-led market interventions in political economy research.

References

Acemoglu, Daron and Pascual Restrepo. 2020. "Robots and jobs: Evidence from US labor markets." *Journal of Political Economy* 128(6):2188–2244.

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.

Ansolabehere, Stephen and David M. Konisky. 2014. *Cheap and Clean: How Americans think about energy in the age of global warming*. Cambridge, MA: MIT Press.

Autor, David, David Dorn, Gordon H. Hanson, Maggie R. Jones and Bradley Setzler. 2025. "Places versus People: The Ins and Outs of Labor Market Adjustment to Globalization." *NBER Working Paper Series* (33424).

Autor, David, David Dorn, Gordon Hanson and Kaveh Majlesi. 2020. "Importing Political Polarization? The Electoral Consequences of Rising Trade Exposure." *American Economic Review* 110(10):3139—3183.

Autor, David H, David Dorn and Gordon H Hanson. 2013. "The China syndrome: Local labor market effects of import competition in the United States." *American Economic Review* 103(6):2121–2168.

Baccini, Leonardo and Stephen Weymouth. 2021. "Gone for good: Deindustrialization, white voter backlash, and US presidential voting." *American Political Science Review* 115(2):550–567.

Ballard-Rosa, Cameron, Mashail Malik, Stephanie Rickard and Kenneth Scheve. 2021. "The economic origins of authoritarian values: Evidence from local trade shocks in the United Kingdom." *Comparative Political Studies* 54(13):2321–2353.

Bechtel, Michael M., Federica Genovese and Kenneth F. Scheve. 2019. "Interests, Norms and Support for the Provision of Global Public Goods: The Case of Climate Co-operation." *British Journal of Political Science* 49(4):1333–1355.

Bechtel, Michael M. and Kenneth F. Scheve. 2013. "Mass support for global climate agreements depends on institutional design." *Proceedings of the National Academy of Sciences* 110(34):13763–13768.

Bechtel, Michael M., Kenneth F. Scheve and Elisabeth van Lieshout. 2021. "Most people prefer constant carbon costs over increasing cost schedules even if costs are high." *Nature Climate Change* 11:909–10.

Beiser-McGrath, Liam F and Thomas Bernauer. 2024. "How do pocketbook and distributional concerns affect citizens' preferences for carbon taxation?" *The Journal of Politics* 86(2):551–564.

Bergquist, Parrish, Stephen Ansolabehere, Sanya Carley and David Konisky. 2020. "Backyard voices: how sense of place shapes views of large-scale energy transmission infrastructure." *Energy Research & Social Science* 63:101396.

Bez, Charlotte, Valentina Bosetti, Italo Colantone and Maurizio Zanardi. 2023. "Exposure to international trade lowers green voting and worsens environmental attitudes." *Nature Climate Change* 13:1131–1135.

Bisbee, James and B Peter Rosendorff. 2024. "Antiglobalization sentiment: Exposure and immobility." *American Journal of Political Science* .

Bolet, Diane, Fergus Green and Mikel González-Eguino. 2024. "How to get Coal Country to vote for Climate Policy: The Effect of a "Just Transition Agreement" on Spanish Election Results." *American Political Science Review* 118(3):1344–1359.

Broughton, Chad. 2014. *Boom, Bust, Exodus: the Rust Belt, the Maquilas, and a Tale of Two Cities*. Oxford: Oxford University Press.

Broz, J. Lawrence, Jeffry Frieden and Stephen Weymouth. 2021. "Populism in Place: The Economic Geography of the Globalization Backlash." *International Organization* 75(2):464–494.

Bush, Sarah Sunn and Amanda Clayton. 2023. "Facing change: Gender and climate change attitudes worldwide." *American Political Science Review* 117(2):591–608.

Clark, Richard, Roza Khoban and Noah Zucker. 2025. "Breadwinner Backlash: The Gendered Effects of Industrial Decline." *Working Paper* . https://www.noahzucker.com/docs/breadwinner_backlash.pdf.

Colantone, Italo, Livio Di Lonardo, Yotam Margalit and Marco Percoco. 2024. "The political consequences of green policies: evidence from Italy." *American Political Science Review* 118(1):108–126.

Colantone, Italo and Piero Stanig. 2018. "The Trade Origins of Economic Nationalism: Import Competition and Voting Behavior in Western Europe." *American Journal of Political Science* 62(4):936–953.

Colgan, Jeff D., Jessica F. Green and Thomas N. Hale. 2021. "Asset Revaluation and the Existential Politics of Climate Change." *International Organization* 75(2):586–610.

Dickson, Zachary P and Sara B Hobolt. 2024. "Going against the grain: Climate change as a wedge issue for the radical right." *Comparative Political Studies* p. 00104140241271297.

Egan, Patrick J and Megan Mullin. 2017. "Climate change: US public opinion." *Annual Review of Political Science* 20:209–227.

Egan, Patrick J and Megan Mullin. 2024. "US partisan polarization on climate change: Can stalemate give way to opportunity?" *PS: Political Science & Politics* 57(1):30–35.

Feigenbaum, James J. and Andrew B. Hall. 2015. "How Legislators Respond to Localized Economic Shocks: Evidence from Chinese Import Competition." *The Journal of Politics* 77(4):1012–1030.

Feler, Leo and Mine Z Senses. 2017. "Trade shocks and the provision of local public goods." *American Economic Journal: Economic Policy* 9(4):101–143.

Fiorina, Morris P. 1978. "Economic retrospective voting in American national elections: A micro-analysis." *American Journal of political science* pp. 426–443.

Gaikwad, Nikhar, Federica Genovese and Dustin Tingley. 2022. "Creating Climate Coalitions: Mass Preferences for Compensating Vulnerability in the World's Two Largest Democracies." *American Political Science Review* 116(4):1165–83.

Gazmararian, Alexander F. 2025. "Sources of partisan change: Evidence from the shale gas shock in American coal country." *The Journal of Politics* 87(2):601–615.

Gazmararian, Alexander F. and Dustin Tingley. 2023. *Uncertain Futures: How to Unlock the Climate Impasse*. 1 ed. Cambridge University Press.

Gidron, Noam and Peter A. Hall. 2017. "The politics of social status: Economic and cultural roots of the populist right." *The British Journal of Sociology* 68:S57–S84.

Gidron, Noam and Peter A Hall. 2020. "Populism as a problem of social integration." *Comparative Political Studies* 53(7):1027–1059.

Hainmueller, Jens, Jonathan Mummolo and Yiqing Xu. 2019. "How much should we trust estimates from multiplicative interaction models? Simple tools to improve empirical practice." *Political Analysis* 27(2):163–192.

Hamel, Brian T. 2025. "Traceability and Mass Policy Feedback Effects." *American Political Science Review* 119(2):778–793.

Hartman, Erin and F Daniel Hidalgo. 2018. "An equivalence approach to balance and placebo tests." *American journal of political science* 62(4):1000–1013.

Heddesheimer, Vincent, Hanno Hilbig and Erik Voeten. 2024. "The Green Transition and Political Polarization Along Occupational Lines." *Working Paper* . https://osf.io/preprints/osf/876dr_v1.

Hochschild, Arlie Russell. 2018. *Strangers in their own land: Anger and mourning on the American right*. The New Press.

Jensen, J Bradford, Dennis P Quinn and Stephen Weymouth. 2017. "Winners and losers in international trade: The effects on US presidential voting." *International Organization* 71(3):423–457.

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

Kim, Sung Eun and Krzysztof J. Pelc. 2021. "The Politics of Trade Adjustment versus Trade Protection." *Comparative Political Studies* 54(13):2354–2381.

Lewis-Beck, Michael S and Mary Stegmaier. 2000. "Economic Determinants of Electoral Outcomes." *Annual Review of Political Science* 3(1):183–219.

Lipset, Seymour Martin. 1955. "The radical right: A problem for American democracy." *The British Journal of Sociology* 6(2):176–209.

Longuet-Marx, Nicolas. 2024. Party lines or voter preferences? explaining political realignment. In *2024 APPAM Fall Research Conference*. APPAM.

Margalit, Yotam. 2011. "Costly Jobs: Trade-Related Layoffs, Government Compensation and Voting in U.S. Elections." *American Political Science Review* 105(1):166–88.

McCright, Aaron M and Riley E Dunlap. 2011. "Cool dudes: The denial of climate change among conservative white males in the United States." *Global environmental change* 21(4):1163–1172.

Mettler, Suzanne. 2011. *The submerged state: How invisible government policies undermine American democracy*. Chiccago: University of Chicago Press.

Meyerrose, Anna M. and Sara Watson. In Press. "The Effect of Import Shocks, Electoral Institutions, and Radical Party Competition on Legislator Ideology: Evidence from France." *British Journal of Political Science* .

Mutz, Diana C. 2021. "(Mis) attributing the causes of American job loss: The consequences of getting it wrong." *Public Opinion Quarterly* 85(1):101–122.

Pierson, Paul. 1993. "When effect becomes cause: Policy feedback and political change." *World politics* 45(4):595–628.

Polanyi, Karl. 1944. *The Great Transformation*. New York: Farrar & Rinehart.

Przeworski, Adam. 1996. "Public Support for Economic Reforms in Poland." *Comparative Political Studies* 29(5):520–543.

Rickard, Stephanie J. 2018. *Spending to Win: Political Institutions, Economic Geography, and Government Subsidies*. 1 ed. Cambridge University Press.

Ritchie, Hannah, Max Roser and Pablo Rosado. 2020. "CO_2 and Greenhouse Gas Emissions." *Our World in Data* . Available at https://ourworldindata.org/co2-and-greenhouse-gas-emissions.

Ritchie, Melinda N. and Hye Young You. 2021. "Trump and Trade: Protectionist Politics and Redistributive Policy." *Journal of Politics* 83(2):800–05.

Rodrik, D. 2014. "Green industrial policy." *Oxford Review of Economic Policy* 30(3):469–491.

Ruggie, John G. 1982. "International regimes, transactions, and change: Embedded liberalism in the postwar economic order." *International Organization* 36(2):379–415.

Scheiring, Gábor, Manuel Serrano-Alarcón, Alexandru Moise, Courtney McNamara and David Stuckler. 2024. "The populist backlash against globalization: A meta-analysis of the causal evidence." *British Journal of Political Science* 54(3):892–916.

Scheve, Kenneth and Theo Serlin. 2023. "The German Trade Shock and the Rise of the Neo-Welfare State in Early Twentieth-Century Britain." *American Political Science Review* 117(2):557–574.

Ternullo, Stephanie. 2024. *How the Heartland went Red: Why local forces matter in an age of nationalized politics*. Princeton, NJ: Princeton University Press.

Thombs, Ryan P, Weimin Zhang and Benjamin K Sovacool. 2025. "Do industrial decarbonization policies deliver? A global assessment of policy effectiveness across 150 nations, 1990–2020." *Environmental Research Letters* 20(4):044014.

Appendix

Table of Contents

A The Inflation Reduction Act

Passed on August 16, 2022, the Inflation Reduction Act (IRA) represents the largest climate expenditure bill to date in the United States. To facilitate increased climate investments on the part of firms, the bill amended and expanded parts of the tax code related related to energy production and advanced manufacturing. Alongside these general categories, the legislation introduced various "bonuses" or amplifiers to the tax incentives for local sourcing as well as wage and training requirements alongside location incentives. The primary implementation date for incentives was January 1, 2025 due to the expiration of existing tax code clauses at the end of 2024. Given the minimal changes in baseline incentives for energy tax credits, interim investments, that is those starting operation between August 2022 and January 2025, that qualified for bonuses would be eligible to receive them.[1] I detail the bonuses first, before elaborating each credit scheme individually.

In an attempt to strengthen the local or domestic economic impact of the IRA, several tax credit amplifiers were included in the legislation. These bonuses apply only to the energy production tax credits described in further detail below. Prevailing Wage and Apprenticeship eligible investments receive production or investment tax credits that are 400% or 450% larger than the baseline respectively. In practice, this entails that between 10-15% of the construction labor be performed by certified apprentices.[2] Local sourcing requirements or locating investments in Energy Communities improve either the production or investment tax credits by 80% or 167% respectively. The former entails that a certain percentage of materials are produced in the United States. This varies from product to product, for example 100% of iron

[1] Summary of Inflation Reduction Act provisions related to renewable energy. 28 January 2025. *U.S. EPA*. https://www.epa.gov/green-power-markets/summary-inflation-reduction-act-provisions-related-renewable-energy. Accessed July 7, 2025.

[2] Insight into the Inflation Reduction Act: Prevailing Wage and Apprenticeship Bonus Credits. May 1, 2023. *Clean Energy Business Network*. https://www.cebn.org/media_resources/ira-labor-provisions/. Accessed July 7, 2025.

and steel must be produced domestically, whereas for other components it is only 40%. For these lower thresholds, the requirement will become increasingly stringent moving forward.[3] Broadly, energy communities are those with substantial fossil fuel presence in the recent past and current unemployment. In particular, an energy project qualifies for the bonus if it is located in a "metropolitan or non-metropolitan statistical area that (1) has, at any time after 2009, had either at least 25% of local tax revenues related to certain fossil fuel activities (Fossil Fuel Tax Revenue) or at least 0.17% of local employment related to those activities (Fossil Fuel Employment) and (2) had an unemployment rate in the prior year equal or greater to the national average."[4] While this metric is time-varying given the unemployment criteria, roughly 900 counties met the criteria in 2024. In the following section, I provide more details on this status designation and compare it with the doubly-pressured status motivated in the main text.

Central to the IRA is the expansion to long-standing renewable energy tax credits with these amendments to existing portions of the Internal Revenue Code affect both investment (48E) and production (45Y). In place for nearly half a century, the Production Tax Credit and the Investment Tax credit provide eligible energy producers with either up front assistance in the development of clean energy production or on a per unit of energy produced basis. An enduring challenge for prospective energy investors in recent years has been the halted nature of tax credits with expiration and later retroactive application diminishing investor confidence and certainty.[5] Hence a key provision in the IRA is the guarantee of tax incentives until the

[3]Treasury Releases New Guidance, Strengthening Incentives for Domestic Clean Energy Manufacturing. May 12, 2023. *The White House*. https://bidenwhitehouse.archives.gov/cleanenergy/tax-guidance-explainers/2023/05/12/treasury-releases-new-guidance-strengthening-incentives-for-domestic-clean-energy-manufacturing/. Accessed July 7, 2025.

[4]This definition comes from the Department of Energy. The 2024 Energy Communities can be found here: https://arcgis.netl.doe.gov/portal/home/item.html?id=d29343771fd14cc29877deded7122764.

[5]Lips, B. 19 November 2024. The Past, Present, and Future of Federal Tax Credits for Renewable Energy. *North Carolina Clean Energy Technology Center*. https://nccleantech.ncsu.edu/2024/11/19/the-past-present-and-future-of-federal-tax-credits-for-renewable-energy/. Accessed July 7, 2025.

U.S. electricity sector is at 25% emissions from a 2022 baseline, unless this has already been reached by 2035. This provides a decade minimum of guaranteed funding for whichever option producers choose.

Alongside this improved funding certainty, the IRA amends the existing tax code in a technology neutral fashion with a focus on zero-emissions energy production. The final regulation adopted by the IRS defines eligible facilities as those in "which the GHG emissions rate is not greater than zero" (p. 4009).[6] This represents a shift away from earlier efforts targeted primarily at wind and solar towards a funding approach that embraces a more diversified net-zero energy vector including biomass, geothermal, and carbon capture. Taken together, these revisions to the existing Production and Investment Tax Credit diversify and strengthen the public incentives for clean energy production.

Complementing the amendments to the energy policy tax structure, the IRA introduced novel clauses to the tax code for "advanced manufacturing" under section 45X. In a similar vein to above, the new section of the tax code is titled the Advanced Manufacturing Production Credit. Broadly, these novel tax incentives apply to the production of four types of goods: solar and wind energy components, inverts, qualifying battery components, and qualifying critical materials.[7]

For solar products, these components include: photovoltaic cells, photovoltaic wafers, polymeric backsheets, solar grade polysilicon, solar modules, structural fasteners, and torque tubes. For wind energy, blades, nacelles, offshore wind foundations and vessels, and towers are eligible. In terms of batteries, electrode active materials, battery cells and modules are eligible. Finally, the following critical materials are included: aluminum, antimony, arsenic, barite, beryllium, bismuth, cerium, cesium, chromium, cobalt, dysprosium, erbium, europium, fluorspar, gadolinium, gallium, germanium, graphite, hafnium, holmium, indium, iridium, lanthanum,

[6] Inflation Reduction Act. 90 Fed. Reg. 4006. (January 15, 2025).

[7] For further details on these components, see Section 45X(c)(1-6) of the Internal Revenue Code.

lithium, lutetium, magnesium, manganese, neodymium, nickel, niobium, palladium, platinum, praseodymium, rhodium, rubidium, ruthenium, samarium, scandium, tantalum, tellurium, terbium, thulium, tin, titanium, tungsten, vanadium, ytterbium, yttrium, zinc, and zirconium. Production Tax Credits for these any of the above products were effective as of December 31, 2022.

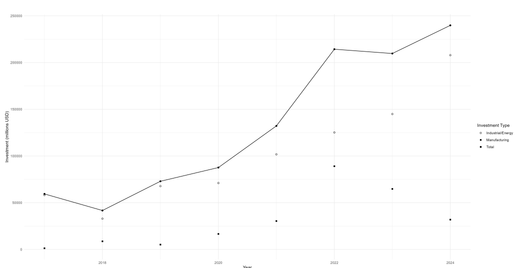
Broadly, these two categories align with the two categories of investment measurement in the Clean Investment Monitor: Energy and Manufacturing Respectively. In Figure A1, I visualize trends in all non-canceled investment (as of November 2024) that would be eligible for IRA tax credits by type of investment, doubly-pressured status, House of Representative partisanship, and Energy Community status. These descriptives provide some stylized facts about clean investment in the United States, both in the lead up to and after the passage of the IRA.

Most clean investment following the IRA has been predominantly in energy and industry applications. Beginning with Figure A1a, we see a general increase in industry and energy investment for most of the past decade, whereas manufacturing investment peaks in 2022 before dipping down in the past two years. In Figure A1b, I split logged investment trends by doubly-pressured status. These doubly-pressured counties are those with jointly above median import and emissions exposure. Given that only a third of all counties fit this description, average county investment is substantially higher for these counties.

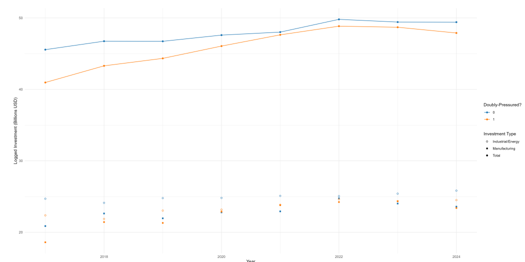
Third, in Figure A1c, I split clean investment trends by House Representative partisan affiliation. Raw trends highlight the large amount of green investment going to Republican parts of the country. This divergence is likewise reflected at the level of county averages. In 2024, counties within a Republican congressional district received roughly double the amount of clean investment (212 versus 108 million USD). Compared with 2018 when Republican-represented counties saw roughly 50% more investment, the trend is towards increased clean investment in those parts of the country most skeptical of climate change and the green transition (McCright, Dunlap and Marquart-Pyatt, 2016; Egan and Mullin, 2017). Finally, in Figure A1d, I visualize trends in clean investment by Energy Community status. While both types of counties see ample increases in investment, it is unclear how well this trend will persist as 2024 is the first year in which Energy Communities received less tax credit-eligible investment than previously. While non-ECs saw a slump in 2023, this rebounded in 2024.

Figure A1: Clean Investment Trends 2017 - 2024

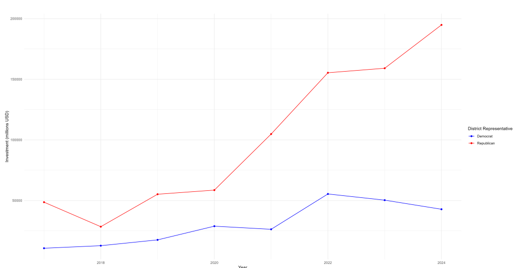
(a) Energy v. Manufacturing



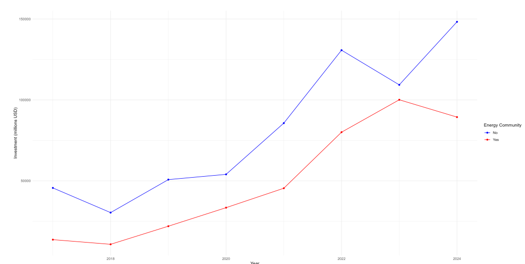
(b) Doubly-Pressured Status



(c) Partisanship



(d) Energy Community



A.1 Energy versus Doubly-Pressured Communities

In this subsection I provide additional details both conceptually and empirically about the policy-designed energy community status and my theoretically motivated doubly-pressured status. While both measures of risk to the energy transition incorporate to varying extents the economic risks of the green transition for fossil fuels as well as more general economic precarity, closer inspection suggests that energy and doubly-pressured communities are not too similar outside these general contours. I first provide descriptives and then demonstrate the robustness of the main results to controlling for energy community status. Finally, I replicate the analysis with energy community replacing doubly pressured status.

Figure A2: Energy Communities in 2024

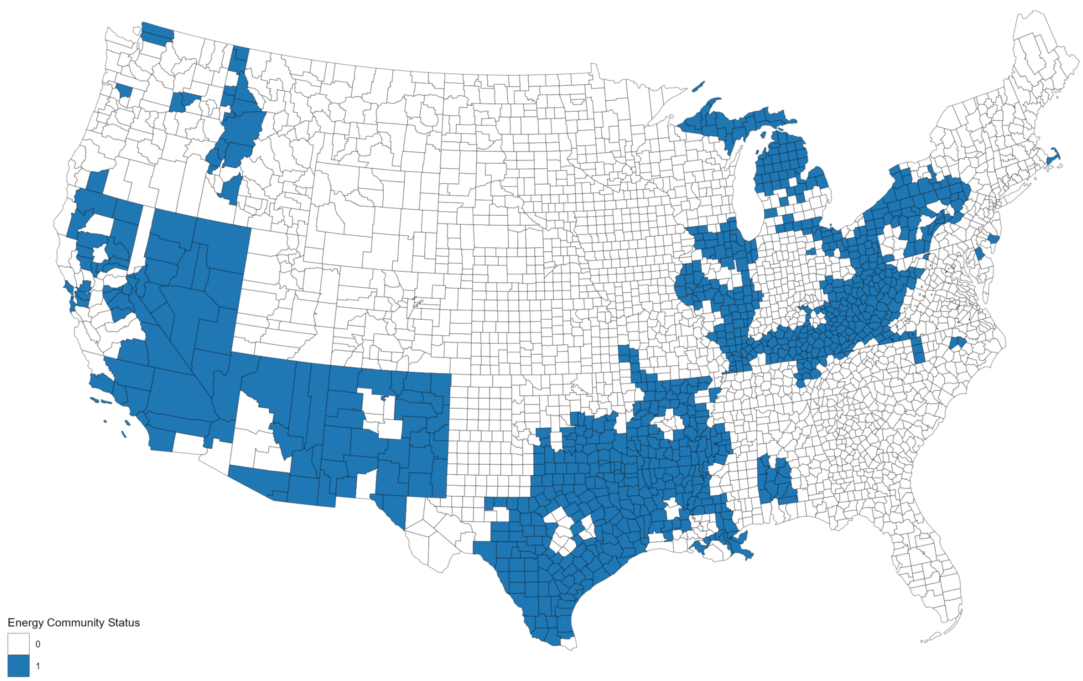


Figure A2 maps the distribution of counties receiving this designation. Energy communities are spatially clustered in a handful of states, predominantly in the Mid- and Southwest of the country. While there is some overlap between doubly-pressured and energy community status, the relationship is only weakly positive ($\beta = 0.07$). Table A1 presents the cross-tabulation of the policy-defined and my theoretically motivated risk measures, with only a small portion of counties being both energy and doubly-pressured communities (9%). Given that energy community status is driven by current unemployment trends and *fossil fuel* employment rather than CO_2 emissions more generally, the lack of overlap is unsurprising upon closer inspection. While fossil fuels certainly contribute to a county's emissions, they are but one source of carbon pollution, especially when the measure does not include their use in power generation or for manufacturing purposes. This focus on fossil fuel production greatly reduces the scope of potential communities at risk of concentrated costs in the green transition due to *carbon intensive* production methods, not just fossil fuel production.

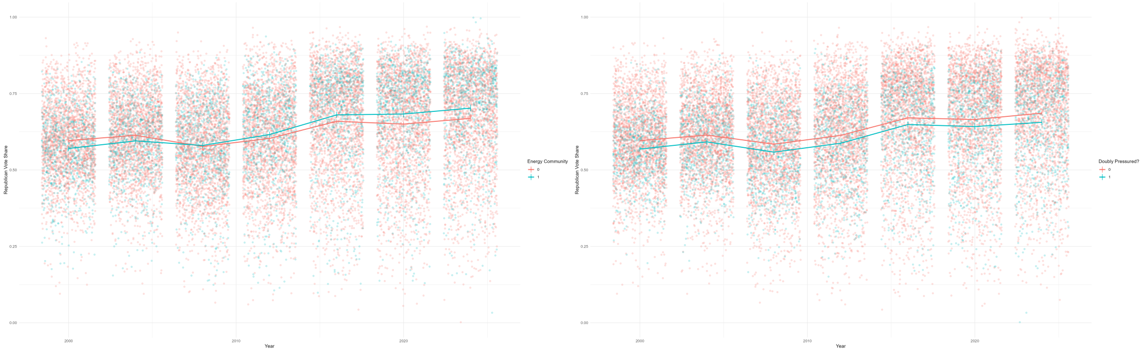
Table A1: Cross Tabulation of Energy Community and Doubly-Pressured Status

	Not-Pressured	Doubly-Pressured
Non-EC	1745	541
EC	605	266

Of these counties roughly one quarter received an under construction or operational investment, slightly less than in doubly-pressured counties (33%). Nor were energy communities more likely to receive a greater share of announced or operational investments in terms of the logged capital expenditure. Figure A3 presents trends in voting outcomes across both measures of economic risk. In line with Gazmararian (2025), the top panel points towards communities with ample fossil fuel shifting increasingly towards the Republican party, especially after 2008. While starting from similar positions at the turn of millennium, doubly-pressured counties remain a few percentage points more democratic than their non-pressured peers throughout the entire study period. Visually, trends in voting appear roughly parallel among doubly-pressured counties; this is not the case in energy communities.

In Table A2, I probe the robustness of my primary results to the inclusion of energy community status as a control variable in the interacted models or subsetting on this dimension as well as consider any electoral consequences of investment in these communities. This second

Figure A3: Voting Trends across Risk Subgroups



(a) Energy Community Status (b) Doubly-Pressured Status

Note: Blue denotes Energy Communities or Doubly-Pressured counties respectively.

set of tests lets me assess whether the electoral consequences of investment in doubly-pressured counties is conditional on energy community status, providing me with another means of testing whether emissions alone is driving any results.

Model 1 replicates Column 4 in Table 2, albeit with an additional interaction term controlling for conditional impact of investment in energy communities. This additional control does not alter the results presented in the main text: investment in doubly-pressured communities is associated with a 2 p.p. shift towards the Democrats in 2024. In contrast, and perhaps somewhat surprisingly, investment in Energy Communities is predictive of a 3 p.p. shift in favor of the Republicans. In Model 2, I disaggregate further the measure of doubly-pressured risk with the only difference from the primary results being the attenuation of the interactive effect for highly exposed counties. Models 3 through 6 consider the electoral consequences of investment in a sub-group style analysis, splitting counties by energy community status. In non-energy communities, similar to the main results, we observe no relationship between investment and Republican vote share. In Model 4, I include the interaction term with doubly-pressured status to assess the robustness of the findings in Table 2. Even among non-energy communities, those that are doubly-pressured increasingly voted for the Democrats after receiving investment compared to their non-pressured peers. In Models 5 and 6, I perform the analogous regressions albeit among energy communities. Although, there is an average relationship between investment and Republican vote share (-3 p.p.), closer inspection reveals that this shift in voting patterns is driven by doubly-pressured communities that also happen to have energy community designation. Finally, in Model 7, I swap energy community and doubly-pressured status with the results corroborating earlier models: investment in energy communities is positively associated with Republican vote share.

Table A2: EC Status and the Electoral Consequences of GIP

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Investment	-0.01	-0.00	-0.00	0.00	-0.03^{***}	-0.01	-0.01^{**}
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Investment × Doubly-Pressured	-0.02^{***}			-0.02^{**}		-0.05^{**}	
	(0.01)			(0.01)		(0.02)	
Investment × Low Exposure		0.01					
		(0.01)					
Investment × Some Exposure		-0.01					
		(0.01)					
Investment × Moderate Exposure		-0.03^{***}					
		(0.01)					
Investment × High Exposure		0.00					
		(0.01)					
Investment × Energy Community	0.03^{***}	0.03^{***}					0.03^{***}
	(0.01)	(0.01)					(0.01)
N	6948	6948	4848	4848	2100	2100	6948
Clusters	993	993	693	693	300	300	993
C-Zone × Year FE?			✓	✓	✓	✓	
Subset?	None	None	Non-EC	Non-EC	EC	EC	None
R^2	0.90	0.90	0.98	0.98	0.97	0.98	0.90
Adj. R^2	0.88	0.88	0.94	0.94	0.92	0.93	0.88

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Taken together, the analysis demonstrates the robustness of the main results in two ways. First, among the general sample of investment-receiving counties, doubly-pressured status consistently predicts a differential reaction to investment–one favoring the incumbent Democrats. Second, this differential impact of doubly-pressured status, while strong among ECs, is evident in communities with little to no fossil fuel employment, but a substantial amount of carbon emissions. Although, both energy community and doubly-pressured status target similar economic concerns at a high level, these results reinforce that it is not fossil fuel risk alone shaping the electoral consequences of investment, nor should GIP be considered compensation for fossil fuel country. Furthermore, although it does not appear that more capital expenditure has been targeted at energy communities, these investments, nevertheless do not appear to have helped the Democrats at the ballot box.

The above analysis demonstrates a difference in the voting patterns after investment in energy communities versus doubly-pressured counties. The plant-level nature of the emissions data lets me investigate this differential reaction further by measuring emissions strictly from manufacturing and fossil fuel production. While the concentrated costs of the green transition are more existential for fossil fuel production, this is not the case for the majority of traditional industries. While existing production practices mean these industries are emissions intensive *currently*, the proportion of process emissions, that is emissions that are inherent to the production process and thus cannot be avoided (e.g., from chemical reactions), represents a fraction of industrial emissions. This means that, while costly, an emissions-free production process is not impossible for many industries. Furthermore, even those industries with substantial process emissions (e.g., cement), carbon removal technologies present a means of decarbonizing and continuing production that is fundamentally different in outlook from coal production. The existential threat of the green transition, then, is fundamentally lower, then for fossil fuel and in particular coal.

What does this mean for an explanation of electoral consequences? In contrast to uniform animosity towards the green transition and its policies among brown industry communities, manufacturing emissions are much more easily insulated from the concentrated costs of decarbonization ambition via electrification and specific innovations to eliminate emissions in hard

Table A3: Splitting Decarbonization Exposure by Emissions Source

	Model 1	Model 2	Model 3	Model 4
Investment	-0.01	-0.00	-0.01	0.00
	(0.01)	(0.01)	(0.01)	(0.01)
Investment × MAN DP	-0.02^{**}	-0.02^{**}	-0.02^{**}	-0.02^{*}
	(0.01)	(0.01)	(0.01)	(0.01)
Investment × FF DP		0.00		
		(0.01)		
Investment × EC			0.03^{***}	
			(0.01)	
Investment × FF Q2				-0.01
				(0.01)
Investment × FF Q3				-0.01
				(0.01)
Investment × FF Q4				-0.00
				(0.01)
N	6948	6948	6948	6948
R^2	0.97	0.90	0.90	0.97
Adj. R^2	0.94	0.88	0.88	0.94

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

to abate sectors, hence the green transition need not spell the end of manufacturing employment in post-industrial societies. Rather, GIP is particularly apt in communities with ample remaining manufacturing emissions to insulate them from future climate risk, but also redress past industrial decline through novel energy production and clean(-tech) manufacturing. Hence any electoral consequences should be concentrated in these communities rather than those whose decarbonization risk is driven by emissions from fossil fuel sectors.

Table A3 splits the emission data by source and tests for heterogeneity in voting patterns due to the type of brown industry in a community. MAN DP is the alternative coding of Doubly-Pressured status, albeit with manufacturing emissions replacing aggregate emissions. FF DP is the analogous measure but with fossil fuel emissions. EC continues to represent counties with energy community status. The results in Table A3 are consistent with heterogeneity *within* the set of communities often considered to be at heightened risk from climate action. Whereas fossil fuel doubly-pressured status does not predict an electoral response, communities with ample manufacturing emissions and import exposure consistently voted in higher numbers for the Democrats after receiving investment. This voting pattern holds regardless of the measure used to consider fossil fuel exposure.

B National Analysis Robustness

In this Appendix, I present descriptive statistics, evidence to adjudicate identification assumptions, as well as additional robustness tests for the national level analysis. I start with sample descriptives to demonstrate balance in demographic covariates used in the propensity score weighting. I then demonstrate an absence of any clear violations to the parallel trends assumption needed for causal identification in the difference-in-differences framework. I use both equivalence tests and more traditional event study designs to probe these identifying assumptions. I then proceed to include a variety of robustness tests including alternative treatment measures, replications without weights, varying types of fixed effects, and progressively dropping elections. These robustness analyses corroborate the substantive findings in the text: doubly-pressured communities consistently respond to investment by not voting for the Republicans in 2024. Lastly, I rerun the analysis including all counties in the continental United States to demonstrates results are not driven by sampling on investment status.

B.1 Sample Descriptives & Covariate Balance on Treatment Assignment

Table B1 presents sample statistics for the subset of counties receiving at minimum announced investment. In Table B2 I provide two cross tabulations of a cross-section of the panel data in terms of investment and doubly-pressured status as well as import and emissions exposure. Among counties receiving investment, doubly pressured status is not correlated with an investment being more likely to have moved beyond the operational stage. For both sub-groups roughly 75% of counties are operationalized as treated in terms of clean investment exposure.

Table B1: Sample Statistics

Variable	Mean	S.E.	Min	Max
R Vote Share	0.59	0.15	0.00	1.00
IPW	0.98	0.68	-0.03	5.14
Total Emissions	1739072.76	4487975.81	0.00	72116470.00
Total CAPEX	460.10	1015.04	0.19	12632.73
Operational CAPEX	87.93	250.49	0.00	3462.76
Construction CAPEX	125.31	591.55	0.00	12632.73
Announced CAPEX	246.86	725.90	0.00	7959.81
Investment Treatment	0.11	0.31	0.00	1.00
CAPEX Treatment (log)	0.31	1.13	0.00	8.15
Doubly-Pressured	0.35	0.48	0.00	1.00

The right-hand panel in Table B2 considers decarbonization and globalization exposure co-occurence in the sample. Here, bold numbers denote this counties coded as doubly-pressured in the text. Across the different quartiles of each dimension of deindustrialization exposure, there are likewise no immediate concerns of a lack of observations in any cell, although there is a concentration of counties with more emissions and moderate imports exposure. The two dimensions are slightly negatively correlated (β = -0.11, $p < 0.01$). For the entire country, this relationship is half the size (β = -0.05, $p < 0.01$). As mentioned in the main text, this is somewhat unsurprising: with high import exposure reducing the energy intensive manufacturing in the United States, it follows that places with the greatest import penetration may have slightly lower emissions a decade on given the earliest plant emissions data comes from 2012. These industrial heartlands are places that have lost substantial jobs, and yet still have plenty of at risk jobs with respect to the green transition. It is not deterministic however, with the majority of fourth quartile emissions counties experiencing below-median import shocks.

Table B2: Decarbonization, Globalization, and Investment Exposure

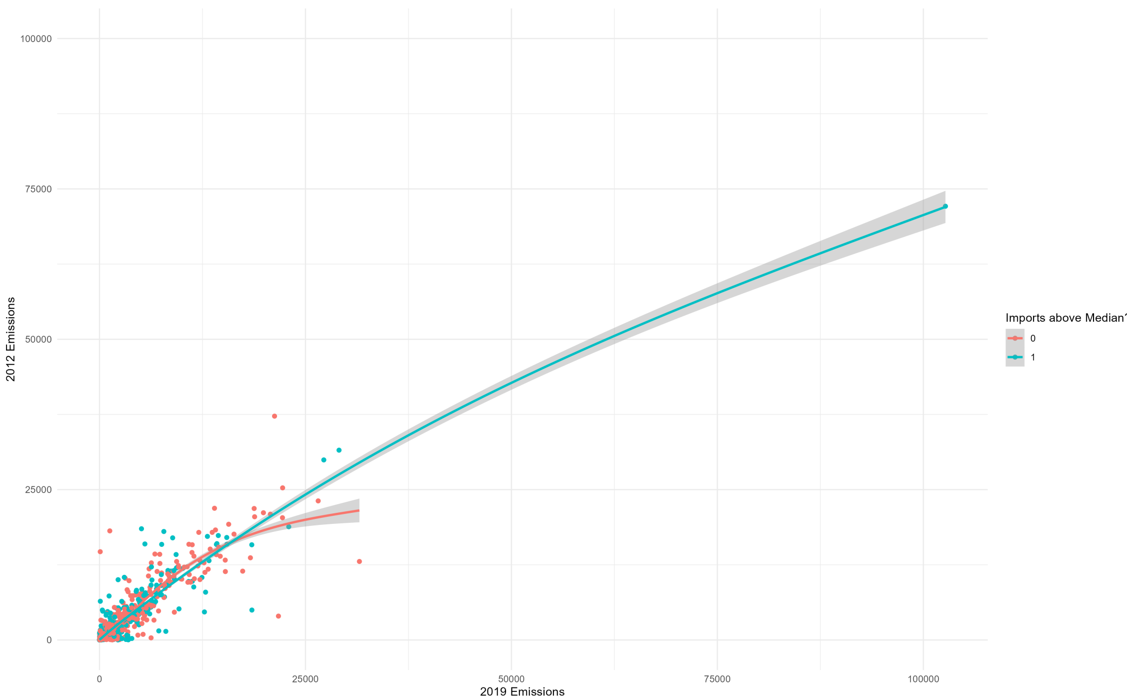
		Doubly-Pressured?	
		×	✓
GIP?	×	156	83
	✓	492	262

		Emissions			
		1	2	3	4
Imports	1	20	46	60	97
	2	37	42	75	119
	3	38	32	**89**	**101**
	4	49	33	**94**	**61**

From a conceptual standpoint, the correlation between dimensions provides some construct validity to my concept of doubly-pressured: if there was no relationship between risk from globalization and decarbonization pressure it would be questionable the extent to which communities might connect the two as successful economic transformations directly affecting them. Empirically, however, it is troubling if import exposure two decades ago continues to impact carbon emissions, perhaps suggesting that emissions are fully derivative of the China Shock. To investigate this claim, I plot the relationship between emissions in 2012, the data used in the analysis, and 2019, the final year before the COVID-19 pandemic significantly disrupted production and therefore emissions data, to assess whether trends in emissions vary based on import exposure. Figure B1 visualizes these relationships with a scatterplot and overlaid loess curves. The trend in emissions is indistinguishable in terms of import exposure due to the China Shock.

Tables B3 and B4 present the distribution of demographic controls used to predict investment status before and after employing covariate balanced propensity score weighting (Imai and Ratkovic, 2014). Control units here refer to those counties which received announced investment, whereas treated counties are those with any investments under construction or op-

Figure B1: Emissions Trends by Import Exposure



erational. The substantial differences that exist in Table B3 are largely corrected for however some imbalances remain in terms of population and to a less extent age. This is arguably due to the imbalanced nature of treatment, roughly three-quarters of units are treated, reducing the pool of potential control units to weight on. This is further compounded in the present panel setting as the same units cannot be repeatedly used to achieve balance once. Although the propensity score weighting procedure eliminates many of the balances across the county-level control variables, I take a variety of steps to assess for potential confounding below. First, in Table B11 I include demographic quartile by year fixed effects to ensure comparisons are between counties with similar characteristics in relevant controls. Second, to overcome matching challenges, I relax the sample to include the population of U.S. counties and perform a matching exercise with a less restricted pool of control candidates (i.e., announced or no investment). I provide further details on this in Appendix B. Matching successfully balances across each of the variables and the substantive results do not change. Finally, I re-estimate the propensity scores however with the entire country, an essentially analogous exercise to matching: the results in Table B13 do not differ from the results in the main text.

Table B3: Investment Status Balance

	Control Mean	Treatment Mean	Control Std. Mean	Treatment Std. Mean
Population (log)	10.36	11.15	7.36	7.92
GDP (log)	9.73	9.82	45.96	46.37
Male	0.50	0.49	26.07	25.94
White	0.83	0.82	5.23	5.15
Hispanic	0.08	0.09	0.52	0.62
Age	37.21	36.46	13.99	13.71
Labor Force	0.46	0.48	8.85	9.16
Unemployment	0.03	0.03	2.91	3.01
Poverty	0.14	0.12	2.33	2.10

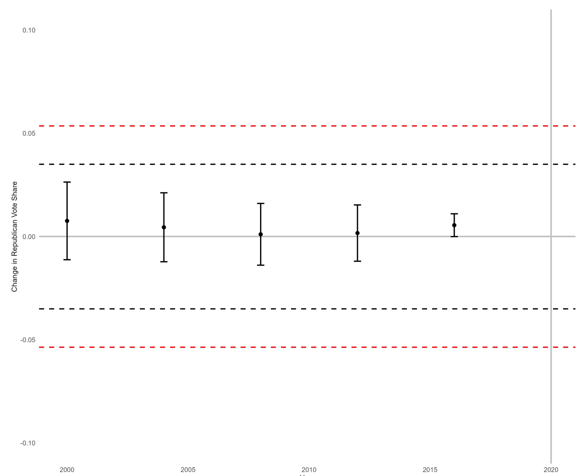
Table B4: Covariate Balanced Propensity Score Sample

	Control Mean	Treatment Mean	Control Std. Mean	Treatment Std. Mean
Population (log)	11.03	11.15	7.84	7.92
GDP (log)	9.81	9.82	46.33	46.37
Male	0.49	0.49	25.96	25.94
White	0.82	0.82	5.18	5.15
Hispanic	0.08	0.09	0.56	0.62
Age	36.51	36.46	13.73	13.71
Labor Force	0.48	0.48	9.15	9.16
Unemployment	0.03	0.03	3.00	3.01
Poverty	0.12	0.12	2.10	2.10

B.2 Pre-Period Equivalence and Event Study Design

Parallel trends is a necessary condition for causal identification in a difference in differences framework. In this subsection, I visualize the trends in voting behavior among a variety of subgroups of my sample to probe trends leading up to investment eligible for IRA tax credits. These descriptive visualizations provide a more general assessment of the trends in voting patterns across counties with differing exposure to deindustrialization risk. While clear differences in the Republican vote shares exist among the varying subgroups, trends remain largely similar over the study period, albeit with a slight gap emerging in many of the visualizations. In what follows I briefly describe each visualization in turn, before more formally testing for violations of the parallel trends assumption via equivalence tests following Hartman and Hidalgo (2018).

Figure B2: Equivalence Test



B.3 Matching Robustness

In this section I present results from a matched sample. Given the relative size imbalance between control and treatment groups in my sample, I broaden the sample to the population of counties and then match counties that received either operational or under-construction investment to counties below this threshold (i.e., announced or no investment). In Table B5 I provide the descriptive statistics of unmatched and matched samples from the `MatchIt` package (Ho et al., 2007). In Table B6 I replicate the results in Table 2 but using this alternative sample. The results are substantively similar: incumbent benefits are present only among doubly-pressured counties. These range between 1 to 2 percentage points.

Table B5: Covariate Balance Before and After Matching

Before Matching							
Covariate	Means Treated	Means Control	Std. Mean Diff.	Var. Ratio	eCDF Mean	eCDF Max	
distance	0.3691	0.2015	0.8135	2.0367	0.2619	0.3868	
log_pop	11.1490	9.9442	0.8490	1.2481	0.2418	0.3647	
log_gdp	9.8183	9.7247	0.4291	1.1864	0.1357	0.2274	
pct_male	0.4941	0.4958	-0.1008	0.7107	0.0256	0.0556	
pct_white	0.8157	0.8565	-0.2591	0.9370	0.1139	0.1900	
pct_hisp	0.0928	0.0523	0.2652	2.0715	0.1378	0.2039	
age	36.4648	37.6722	-0.4548	0.8535	0.1289	0.2005	
pct_labor_force	0.4811	0.4701	0.2187	0.8506	0.0686	0.1193	
pct_unemploy	0.0272	0.0261	0.1275	0.4978	0.0556	0.1172	
pct_poverty	0.1247	0.1405	-0.2728	0.8281	0.0780	0.1186	
After Matching							
Covariate	Means Treated	Means Control	Std. Mean Diff.	Var. Ratio	eCDF Mean	eCDF Max	Std. Pair Dist.
distance	0.3691	0.3350	0.1654	1.5917	0.0145	0.1021	0.1656
log_pop	11.1490	10.9538	0.1375	1.3495	0.0234	0.0981	0.4749
log_gdp	9.8183	9.8148	0.0161	1.0697	0.0119	0.0424	0.9444
pct_male	0.4941	0.4943	-0.0125	1.0181	0.0164	0.0491	0.9664
pct_white	0.8157	0.8322	-0.1046	1.0865	0.0301	0.0623	0.9695
pct_hisp	0.0928	0.0752	0.1152	1.3526	0.0354	0.0915	0.6710
age	36.4648	36.5511	-0.0325	0.9775	0.0080	0.0305	0.9924
pct_labor_force	0.4811	0.4846	-0.0701	1.0133	0.0170	0.0531	1.0598
pct_unemploy	0.0272	0.0265	0.0862	0.5401	0.0390	0.1048	1.1284
pct_poverty	0.1247	0.1201	0.0788	1.2285	0.0164	0.0358	0.9809

Table B6: Deindustrialization Risk, Investment, and Voting in Matched Sample

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Investment	0.00	0.01	-0.01	0.01	-0.00	0.00	0.00	0.01
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Investment × Doubly-Pressured				-0.02^{**}			-0.02^{***}	
				(0.01)			(0.01)	
Investment × Low Exposure								-0.01
								(0.01)
Investment × Some Exposure								0.00
								(0.01)
Investment × Moderate Exposure								-0.02^{***}
								(0.01)
Investment × High Exposure								-0.02
								(0.01)
N	10546	6955	3591	10546	6955	3591	10546	10546
Counties	1508	995	513	1508	995	513	1508	1508
R^2 (full model)	0.89	0.90	0.88	0.89	0.97	0.96	0.96	0.96
Adj. R^2 (full model)	0.88	0.88	0.86	0.88	0.93	0.89	0.92	0.92
C-Zone × Year FE?					✓	✓	✓	✓

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

B.4 Alternative Treatment Measures

Table B7: Capital Expenditure and Vote Share

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Investment	-0.00	0.00	-0.01^{*}	0.00	-0.00	-0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Log CAPEX × Doubly-Pressured				-0.01^{**}			-0.01^{*}	
				(0.00)			(0.00)	
Log CAPEX × Low Exposure								0.00
								(0.00)
Log CAPEX × Some Exposure								-0.00
								(0.00)
Log CAPEX × Moderate Exposure								-0.00^{*}
								(0.00)
Log CAPEX × High Exposure								-0.00^{*}
								(0.00)
N	6948	4533	2415	6948	4533	2415	6948	6948
Counties	993	648	345	993	648	345	993	993
R^2	0.89	0.90	0.87	0.90	0.98	0.97	0.97	0.97
Adj. R^2	0.88	0.89	0.85	0.88	0.95	0.90	0.94	0.94
C-Zone by Year FE?					2289	1246	3080	3080

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table B8: Proportion of Visible Investment and Expenditure

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Investment	-0.00	0.00	-0.02	-0.00	-0.00	-0.01	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
Investment × Doubly-Pressured				-0.01			-0.02^{**}	
				(0.01)			(0.01)	
Investment × Low Exposure								0.01
								(0.01)
Investment × Some Exposure								-0.00
								(0.01)
Investment × Moderate Exposure								-0.02^{**}
								(0.01)
Investment × High Exposure								-0.02^{**}
								(0.01)
N	6948	4533	2415	6948	4533	2415	6948	6948
R^2	0.89	0.90	0.87	0.89	0.98	0.97	0.97	0.97
Adj. R^2	0.88	0.89	0.85	0.88	0.95	0.90	0.94	0.94
C-Zone by Year FE?					2289	1246	3080	3080

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

B.5 No Weights

Table B9: Investment, Deindustrialization Risk and Republican Vote Share (No IPS Weights)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Investment	-0.03^{***}	-0.02^{**}	-0.04^{***}	-0.02^{***}	-0.01	-0.03^{*}	-0.01	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Investment × Doubly-Pressured				-0.02^{**}			-0.03^{***}	
				(0.01)			(0.01)	
Investment × Low Exposure								0.00
								(0.01)
Investment × Some Exposure								-0.01
								(0.01)
Investment × Moderate Exposure								-0.03^{***}
								(0.01)
Investment × High Exposure								-0.02^{**}
								(0.01)
N	6948	4533	2415	6948	4533	2415	6948	6948
Counties	993	648	345	993	648	345	993	993
Num. groups: year	7	7	7	7	7	7	7	7
R^2	0.89	0.90	0.88	0.89	0.98	0.96	0.97	0.97
Adj. R^2	0.88	0.89	0.85	0.88	0.93	0.88	0.92	0.92
C-Zone by Year FE?					2289	1246	3080	3080

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

B.6 State by Year Fixed Effects

Table B10: State-Year Fixed Effects

	Model 1	Model 2	Model 3	Model 4	Model 5
Investment	-0.01	0.00	-0.02^{**}	0.00	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Investment × Doubly-Pressured				-0.03^{***}	
				(0.01)	
Investment × Low Exposure					0.01
					(0.01)
Investment × Some Exposure					-0.01
					(0.01)
Investment × Moderate Exposure					-0.04^{***}
					(0.01)
Investment × High Exposure					-0.01
					(0.01)
State-Year FE?	✓	✓	✓	✓	✓
N	6948	4533	2415	6948	6948
Counties	993	648	345	993	993
R^2	0.93	0.95	0.92	0.93	0.93
Adj. R^2	0.92	0.93	0.89	0.92	0.92

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

B.7 Demographic Quartile by Year Fixed Effects

Table B11: Demographic Quartile by Year FE

	Model 1	Model 2	Model 3	Model 4	Model 5
Investment	-0.01	0.00	-0.03^{***}	-0.00	-0.00
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
Investment × Doubly-Pressured				-0.01^{*}	
				(0.01)	
Investment × Low Exposure					0.00
					(0.01)
Investment × Some Exposure					-0.00
					(0.01)
Investment × Moderate Exposure					-0.01
					(0.01)
Investment × High Exposure					0.01
					(0.01)
N	6948	4533	2415	6948	6948
Counties	993	648	345	993	993
Log Population × Year	28	28	28	28	28
Log GDP × Year	28	28	28	28	28
Male × Year	28	28	28	28	28
Age × Year	28	28	28	28	28
Labor Force Rate × Year	28	28	28	28	28
Unemployment Rate × Year	28	28	28	28	28
Poverty Rate × Year	28	28	28	28	28
R^2	0.94	0.95	0.93	0.94	0.94
Adj. R^2	0.93	0.93	0.91	0.93	0.93

Each covariate time trend is broken down by quartile. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

B.8 Dropping Election Year Robustness

Table B12: Dropping Election Year Analysis

	Model 1	Model 2	Model 3	Model 4
Investment	0.00	0.00	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)
Investment × Doubly-Pressured	-0.03^{***}	-0.02^{***}	-0.02^{**}	-0.01^{*}
	(0.01)	(0.01)	(0.01)	(0.01)
First Year	2004	2008	2012	2016
N	5955	4962	3969	2976
Counties	993	993	993	993
C-Zone by Year FE?	2640	2200	1760	1320
R^2	0.98	0.98	0.98	0.99
Adj. R^2	0.95	0.95	0.95	0.95

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

B.9 *Entire Country Robustness*

Table B13: Entire Country Analysis

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Investment	-0.00	0.00	-0.01^{*}	0.00	-0.01	0.00	0.00	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Investment × Doubly-Pressured				-0.02^{**}			-0.02^{**}	
				(0.01)			(0.01)	
Investment × Low Exposure								-0.00
								(0.01)
Investment × Some Exposure								0.00
								(0.01)
Investment × Moderate Exposure								-0.02^{***}
								(0.01)
Investment × High Exposure								-0.01
								(0.01)
N	21787	16138	5649	21787	16138	5649	21787	21787
Clusters	3115	2308	807	3115	2308	807	3115	3115
R^2	0.90	0.90	0.87	0.90	0.97	0.95	0.96	0.96
Adj. R^2	0.88	0.89	0.85	0.88	0.95	0.91	0.94	0.94
C-Zone × Year FE?					✓	✓	✓	✓

The outcome variable is the Republican two-party vote share. Investment is an indicator for any operational or under construction investment. Model 2 subsets to non-pressured communities, whereas models 3 and 5 subset to doubly-pressured communities. All models include county and year fixed effects, with models 4 through 7 including commuting zone by year fixed effects. Robust standard errors clustered at the commuting zone. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

B.10 Single Dimension Extension

Table B14: GIP along Individual Dimensions Extension

	Model 1	Model 2	Model 3	Model 4
Investment	0.00	0.00	−0.01	−0.01
	(0.01)	(0.01)	(0.02)	(0.02)
Investment × Doubly-Pressured	−0.03***	−0.02	−0.01	−0.03
	(0.01)	(0.02)	(0.01)	(0.02)
Emissions?		✓		✓
Imports?	✓		✓	
N	3479	4869	1659	2644
Clusters	497	696	237	378
R^2	0.97	0.97	0.97	0.98
Adj. R^2	0.92	0.93	0.92	0.91

This table extends the analysis in Columns 3 and 4 of Table 3. Models 1 and 2 consider above median counties in the respective dimension as the baseline, whereas models 3 and 4 subset to only those in the fourth quartile of each dimension. The outcome variable is the Republican two-party vote share. Investment is an indicator for any operational or under construction investment. All models include county, year and commuting-zone by year fixed effects. Robust standard errors clustered at the commuting zone. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table B15: CES 2020-2024 Panel Results by Fossil Fuel and Manufacturing Emissions

	IRA Approval	Biden Approval	Vote Democratic	Vote Republican
Investment	0.05***	−0.00	−0.00	0.01
	(0.02)	(0.02)	(0.01)	(0.01)
Investment × MAN DP	−0.04	−0.02	0.03**	−0.03
	(0.03)	(0.02)	(0.02)	(0.02)
Investment × FF DP	0.03	0.01	−0.00	0.00
	(0.04)	(0.03)	(0.02)	(0.02)
N	10818	10818	8520	8520
Clusters	5415	5415	5262	5262
R^2	0.86	0.94	0.97	0.97
Adj. R^2	0.72	0.88	0.93	0.91

All models include respondent, year, and state by year fixed effects. Models 1 and 2 include the 2022 and 2024 CES waves. Models 3 and 4 include the 2020 and 2024 waves. Robust standard errors clustered at the respondent. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

B.11 Panel Survey Results

In this section, I replicate the national-level analysis with an alternative data source: the CES 2020-2024 panel survey. Administered every 2 years, the CES typically consists of a time-series cross-sectional format, however the panel survey permits an analogous analysis to the main text, but at the individual, rather than community level. The primary difference is that rather than rely on commuting zone by year fixed effects to assess potential heterogeneity at the local-level, the insufficient number of observations for many zones reduces statistical power, hence I opt for state by year to account for time trends varying by geography. To probe the robustness of my main results, I rely on a several variables from the panel that I describe below.

The first item asks respondents whether they approve of the IRA. Respondents were provided with a headline description of the policy, including both climate and clean energy funding amounts. The second item is the standard approval rating for former President Joe Biden. Finally, the third and fourth variables considered in Tables 4 and B15 use respondents vote choice to measure trends in voting behavior for either the Democratic or Republican parties respectively.

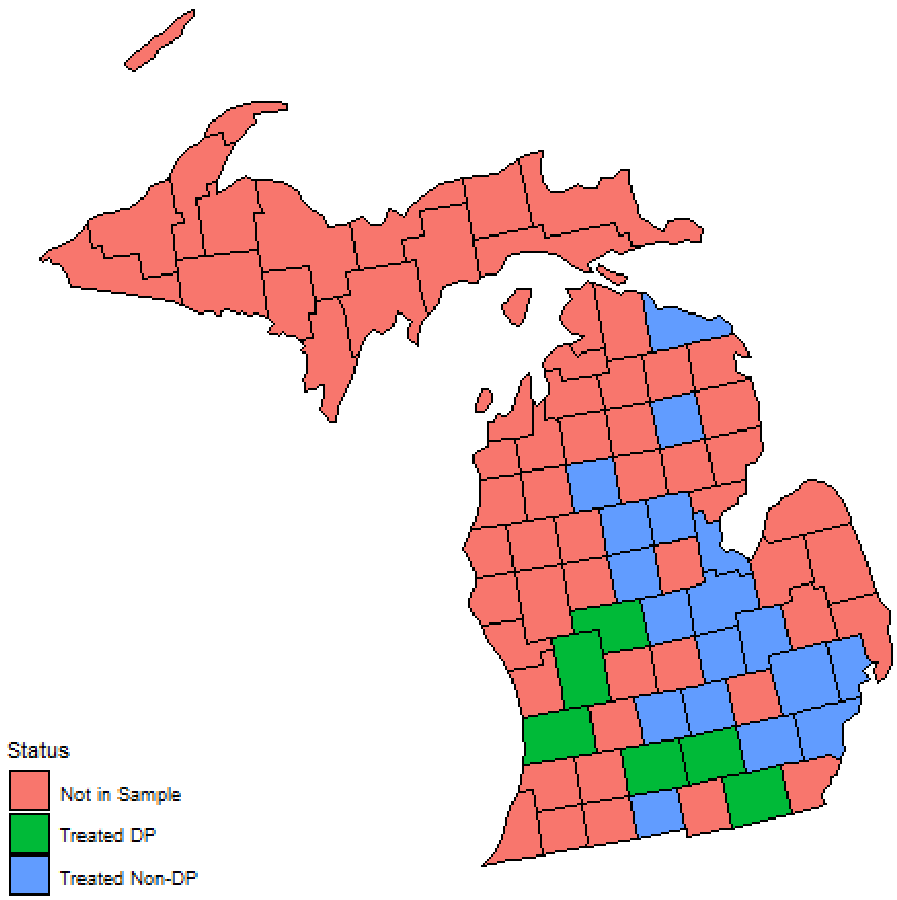
C Michigan Analysis

C.1 Quantitative Data Collection and Generating Process

Data for the distance analysis comes from two state sources: (1) the Secretary of State, and (2) the Bureau of Elections for precinct voting data and shapefiles respectively. As noted in the main text, a challenge of assessing over time trends in voting at the level of the precinct is that geographic boundaries frequently change to ensure that precincts maintain a common size with respect to population. In some cases this meant ample change from election to election, whereas in more rural counties in Northern Michigan there was little to no observable changes in the shapefiles between 2016 to 2024. To address these challenges, I build on other work using precinct-level panels (Longuet-Marx, 2024) and create grid cells that enable a consistent measure of voting behavior under the assumption that population is uniform within precinct. Population density can of course vary across precincts as they naturally differ in size. Given that counties have not changed in size over the period of analysis (2016-2024), this means that an overlaid grid can be used to calculate a given precinct's share of a given grid, and under the uniformity assumption its vote totals and Republican vote share. In Figure C1, I visualize the sample and treatment status of Michigan counties.

The data pipeline consisted of several steps to take this raw data and generate such panel of precinct voting records. First, I used within-county fuzzy matching to link geographic data to the voting records. These data were then read in QGIS. From here, I first used county shape files and generated a within county grid using 25 km^2 as the area. I then merged each election year precinct shapefiles to these grids and calculated the intersection between a given precinct and grid cell. This intersection serves as the weight for the two party vote total and Republican vote total calculations. With the area weight of each grid-cell precinct calculated, the election-year merged shape files were read back into R for aggregation.

Figure C1: Sample and Treatment Status for Michigan Counties



Given that a given grid-cell may be composed of a fraction of a single precinct to several precincts depending on the area (e.g., a rural area in the Upper Peninsula versus metro-Detroit), there is ample variation across grid cells in the number of voters. With consistent grid-cells, this means however that there is little variation election-year by election-year in the registered population for any given grid cell. Republican vote share were calculated with the following formula for grid cell i:

$$\text{RVS}_{it} = \sum_{pi} \text{Turnout}_{pt} + \text{Intersection Weight}_{(pi)t} + \text{RVS}_{pt} \tag{1}$$

where Turnout is the total number of voters in a given precinct (p) in a given election year (t), Intersection Weight is the share of the area a given precinct in a given grid cell and RVS is the Republican two-party vote share in that precinct. Finally, for each county with an investment I calculated the distance in meters from a grid cell centroid to the closest investment (in the case there were two), whereas for all other counties this distance variable took a value of zero. While the results in Table 5 omit these counties without investments, the positive result on the interaction between doubly-pressured status and distance is robust to the inclusion of all counties as evidenced in Table C1.

Table C1: Full Sample Replication of Table 5

	Republican Vote Share		
	Model 1	Model 2	Model 3
Investment	0.01^{***}		
	(0.00)		
Investment × Doubly-Pressured	-0.01^{***}		
	(0.00)		
Investment × Distance	-0.00	-0.00	
	(0.00)	(0.00)	
Investment × Distance × Doubly-Pressured	0.00	0.00^{***}	
	(0.00)	(0.00)	
Investment × Distance (log)			-0.00
			(0.00)
Investment × Distance (log) × Doubly-Pressured			0.01^{***}
			(0.00)
County-Year FE		✓	✓
Standardized β	0.03	0.05	0.04
N	6223	6223	6223
R^2	0.98	0.99	0.99
Adj. R^2	0.97	0.98	0.98

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

C.2 IRA Implementation and Local Media Coverage

For investment to have any impact on voting behavior requires that voters are aware of investment and see it as changing the local economic trend. To substantiate these conditions of the argument, I collected local media coverage of clean investment in a set of counties in Michigan. These data likewise let me consider variation in local framing of investments. Beyond media coverage, I collected local descriptions of economic development in planning documents and from county economic development corporations, semi-private organizations tasked with facilitating economic planning and strategies to attract businesses. These let me assess whether doubly-pressured counties portray themselves in a different fashion than non-pressured counties. Considering a single state is of course a difficult test of any such differences as frames may spill over geographically. Nevertheless, I find that doubly-pressured counties are more likely to have local coverage of investment and that these counties auto-descriptions are more framed around encouraging economic revitalization. Prior to discussing these data, I briefly overview state-level developments related to the IRA in terms of policy and politics to provide a fuller picture of the situation on the ground.

Michigan has been one of the most heavily invested in states for clean energy and advanced manufacturing since 2022.[8] This comparatively large amount of investment is at least partially attributable to the state-level policies that have been layered on top of the IRA to further attract firms. Such policies include the Michigan Climate Investment Fund, which assists local actors in securing federal funding.[9] The automotive industry in particular has seen ample state-level incentives amounting up to $5 billion through mechanisms the Strategic Outreach

[8] Davidson, Kyle. January 17, 2025. "Michigan remains on top in clean energy projects, new study says." *Michigan Advance*. https://michiganadvance.com/2025/01/17/michigan-remains-on-top-in-clean-energy-projects-new-study-says/. Accessed July 15, 2025.

[9] See for example, the state website which provides further details on the investment fund and hub: https://www.michigan.gov/egle/about/organization/climate-and-energy/mi-healthy-climate-plan/funding/ggrf/investment-accelerator

and Attraction Research (SOAR) Fund[10] alongside the Make it in Michigan Competitiveness Fund.[11] These state-level initiatives serve as "leverage to capture federal dollars" and function as a means to "help Michigan communities that have seen manufacturing jobs disappear and re-create the prosperity they once enjoyed."[12] Whereas other states have witnessed a higher concentration of clean energy projects rather than green manufacturing projects, the distribution in Michigan is more balanced across the two groups of eligible investments.[13] Survey data from Data for Progress finds that roughly two-thirds of respondents from Michigan support the IRA following a brief explanation of its purpose.[14] This is in line with national averages from the Yale Program on Climate Change Communication which also finds that roughly 43% of voters were aware of the IRA.[15]

These local political developments have charged the debate around renewable energy and clean manufacturing investments with Democratic candidates increasingly embracing the tax incentive approach championed by Biden and Whitmer as a means of bringing manufacturing jobs back to Michigan.[16] In contrast, local Republicans, while avoiding coming out against job creation and business investment, have solidified around an "all of the above" energy strategy which removes the government's ability to "pick winners and losers" – in essence a rejection of GIP for pure market forces.[17] The provision of investment assistance to these projects is

[10] Gardner, Paula. June 12, 2024. "Where mega battery, EV projects stand after $1 billion in Michigan subsidies". *Bridge Michigan*. A.1. Accessed 12 July 2025.

[11] Hendricksen, Clara. February 24, 2024. "Whitmer seeks clean energy companies". *Battle Creek Enquirer*. Accessed July 10, 2025.

[12] Ibid.

[13] Based off of author's calculations from Clean Energy Monitor Data.

[14] "State-level Support for the Inflation Reduction Act". *Data for Progress*. https://www.dataforprogress.org/inflation-reduction-act-polling. Accessed July 15, 2025.

[15] Ballew, M., Verner, M., Rosenthal, S., Maibach, E., Kotcher, J., & Leiserowitz, A. (2023). *Who is most supportive of the Inflation Reduction Act?* Yale University and George Mason University. New Haven, CT: Yale Program on Climate Change Communication.

[16] See for example, House Representative Debbie Dingell's Climate position, which emphasizes the need for "comprehensive efforts to spur innovation in the economy, technology, and society" and to "explore all policy options". https://debbiedingell.house.gov/issues/issue/?IssueID=16223.

[17] See for instance, 4th district House representative, Bill Huizenga's (R) stance on energy, one that is echoed by most Michigan Republicans: https://huizenga.house.gov/issues/issue/?IssueID=23825. Accessed July 13, 2025.

increasingly associated with the Democrats both at the state and national level in news articles that mention the Inflation Reduction Act generally.[18] Furthermore, coverage of the election in terms of clean energy clearly linked a Trump election with a potential decrease in incentive support.[19,20]

In general then, Michigan has seen a high level of private investment following the IRA with state-level politics closely aligning with national policy in terms of partisanship. In Table C2 I document the investments and whether local coverage existed on the investment with investments grouped by county and pressure status. I sourced local newspapers from the Local Newspaper Initiative at Northwestern University.[21] I picked these six counties as they had the largest number of investments for doubly- and non-pressured counties in Michigan. Within each newspaper I used a search dictionary including the following terms: clean energy, batteries, solar, and wind. While coverage existed on these topics generally, I only considered coverage to have taken place for an investment if it mentioned the specific location within county or the firm investing. Given that the Clean Investment Monitor provides both firm and location identifiers this was straightforward.

Across these six counties, local news coverage was higher in doubly-pressured counties compared to non-pressured ones. More importantly however was the difference in coverage of investment between them. Investments covered by the *Battle Creek Enquirer* a daily local and national news to Calhoun County highlighted the tax revenue implications, in particular

[18] Mascaro, Lisa. August 15, 2023. "'Bidenomics' delivered a once-in-generation investment. It shows the pros and cons of policymaking. *Associated Press*. https://apnews.com/article/biden-ira-congress-ev-bidenomics-4d1e74d2cf21326e8833885972ad2891. Accessed July 15, 2025.

[19] House, Kelly. November 8, 2024. "What a Donald Trump presidency means for Michigan's environment." *Bridge Michigan*. https://bridgemi.com/michigan-environment-watch/what-donald-trump-presidency-means-michigans-environment/. Accessed July 15, 2025.

[20] House, Kelly. October 14, 2024. "Michigan a top winner of climate funds Trump wants to revoke." *Bridge Michigan*. https://bridgemi.com/michigan-environment-watch/michigan-top-winner-climate-funds-trump-wants-revoke/. Accessed July 15, 2025.

[21] https://localnewsinitiative.northwestern.edu/

Table C2: Investments and Local News Coverage

#	Investment	County	Doubly-Pressured?	Local Coverage?
1	Ford Blue Oval	Calhoun	✓	✓
2	Cereal City Solar	Calhoun	✓	✓
3	Shipsterns Solar	Calhoun	✓	
4	River Fork Solar	Calhoun	✓	✓
5	Consumers Energy	Calhoun	✓	✓
6	Samsung SDI America	Oakland		
7	FLO	Oakland		
8	Novi	Oakland		✓
9	Bollinger Motors	Oakland		
10	Dunamis Clean Energy	Oakland		
11	Rhombus Energy	Wayne		
12	BorgWarner	Wayne		
13	Nel Hydrogen	Wayne		✓
14	Fortescue	Wayne		
15	DTE	Wayne		✓
16	DTE	Wayne		
17	Greenstone Solar	Branch		✓
18	Branch Solar	Branch		✓
19	DTE	Branch		✓
20	Marsen	Montcalm	✓	✓
21	DTE	Montcalm	✓	✓
22	Blue Elk Solar I	Lenawee	✓	✓
23	Blue Elk Solar IV	Lenawee	✓	✓

This table provides the raw data and measurement to compare coverage rates on investment in the most heavily invested counties in Michigan. Local sources were taken from the the Local News Initiative. I used the following sources: *Battle Creek Enquirer* (Calhoun), *Oakland Free Press*, *Daily Tribute* (Oakland), *Detroit Free Press* (Wayne), *The Daily Reporter* (Branch), *Lakeview Area News* (Montcalm), *Tecumseh Herald* (Lenawee). On each newspaper website, I search the following terms: "solar", "clean energy", and "batteries" and then manually searched between August 2022 and November 2024. Given that many newspapers are syndicated each newspaper contained ample national coverage on the IRA, with the *Detroit Free Press* furthermore tracking state-wide developments to a greater extent than the other papers.

for local schools in its coverage of the new solar farms.[22] Beyond these benefits, there was an emphasis on the local construction and manufacturing jobs. Once such investment (# 4) combined a solar plant with a biodigester to produce natural gas leveraging existing agro-industrial assets preventing the partnering dairy farm from going out of business.[23]

Local tax and employment benefits are likewise emphasized in non-pressured counties. For example, coverage of the Coldwater River Solar Project (# 19) highlights that neighboring property owners will receive compensation for changes to the environment due to construction, even if they did not lease their property to the solar development.[24]

While local news media in both doubly- and non-pressured counties rarely explicitly mentioned the IRA or state-level initiatives in coverage of local investments the state-level political competition and news coverage of these topics more generally suggests voters can align continued public support for these investments with the Democrats and little to no such support with the Republicans. This media coverage suggests that rather than firm investments being invisible to local voters, they are part and parcel of community politics. Firms seeking to make these investments, especially for novel production sites need to secure community approval.

County economic planning and development documents highlight how doubly-pressured communities describe themselves as industry-based, despite significant losses to these parts of the workforce in recent years. Manufacturing employment is described as the "backbone" of Montcalm County and the Greater Grand Rapids region by its regional development orga-

[22]When passing through Battle Creek, residents were generally aware of the solar fields being developed in the community and were happy to provide me with further tips on how to get to them from the interstate. They did, however, question whether my Fiat 500 would handle some of the roads that were in need of repair from the high frequency of trucks passing through the town due to the construction. Both solar fields in the county being developed are located in areas close to the i-94 interstate and therefore see substantial traffic suggesting that they are not invisible to local residents. While stopping at one such solar field, roughly 10 cars passed in less than half an hour in the middle of a working day.

[23]Steele, Greyson. June 6, 2024. Groundbreaking Ceremony: Consumers Energy breaks ground on new AgriEnergy center near Battle Creek. *Battle Creek Enquirer*. Accessed July 10, 2025.

[24]Reid, Don. September 4, 2024. "Apex Clean Energy starts work on Coldwater River Solar Power Park for DTE". *Coldwater Daily Reporter*. Accessed July 13, 2025.

nization, with industries such as aerospace and defense, alternative energy, automotive, food processing, and medical devices being emphasized. [25,26] Similar portrayals of the local community emerge in other doubly-pressured communities. In Jackson County, the local business development organization in its podcast to advertise the area, said, "Manufacturing is definitely the key industry here, right. It's one of those key drivers that makes Jackson County who we are. It defines not only where we've come from as a community, but it's also going to play a large role in where we are heading in the future as well."[27] These documents also highlight the unique opportunity presented by recent carrot-based policy: "The recent wave of federal programs to support infrastructure, re-shoring manufacturing, and job creation present a unique opportunity for economies, like Greater Grand Rapids, with a strong manufacturing industry presence."[28]

[25] The Right Place. 2025. Advanced Manufacturing Report. https://www.rightplace.org/regional-industries/industry-reports/manufacturing-report. Accessed July 18, 2025.

[26] The Right Place. 2022. Strategic Plan 2023-2025. https://www.rightplace.org/about-us/strategic-plan. Accessed July 18, 2025.

[27] Accelerate Jackson County. 2025. "EP#1 - A Focus on Manufacturing". https://acceleratejackson-county.org/ep1-a-focus-on-manufacturing/. Accessed July 9, 2025.

[28] The Right Place. 2022. Strategic Plan 2023-2025. https://www.rightplace.org/about-us/strategic-plan. Accessed July 18, 2025.

Appendix References

Egan, Patrick J and Megan Mullin. 2017. "Climate change: US public opinion." *Annual Review of Political Science* 20:209–227.

Gazmararian, Alexander F. 2025. "Sources of partisan change: Evidence from the shale gas shock in American coal country." *The Journal of Politics* 87(2):601–615.

Hartman, Erin and F Daniel Hidalgo. 2018. "An equivalence approach to balance and placebo tests." *American journal of political science* 62(4):1000–1013.

Ho, Daniel E, Kosuke Imai, Gary King and Elizabeth A Stuart. 2007. "Matching as nonparametric preprocessing for reducing model dependence in parametric causal inference." *Political analysis* 15(3):199–236.

Imai, Kosuke and Marc Ratkovic. 2014. "Covariate balancing propensity score." *Journal of the Royal Statistical Society Series B: Statistical Methodology* 76(1):243–263.

McCright, Aaron M, Riley E Dunlap and Sandra T Marquart-Pyatt. 2016. "Political ideology and views about climate change in the European Union." *Environmental Politics* 25(2):338–358.