Master Thesis U.S.E

Green Industrial Policies and Climate Policy Support: *The Impact of the Inflation Reduction Act on Public Support in Energy Communities*

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Climate change and global warming are critical challenges, with the United States being a leading emitter of greenhouse gases. Seeking to reconcile environmental and economic concerns, the Inflation Reduction Act prioritizes clean energy investments in disadvantaged communities heavily reliant on fossil fuels – energy communities – to bolster economic opportunities there, while tackling climate change. Public acceptance of climate policies is vital, as public support is crucial for reducing greenhouse gas emissions. This research examines the impact of green industrial policies on climate policy support, focusing on job creation, using the IRA as a case study. It explores whether clean energy investments under the IRA, particularly in energy communities, enhance support for climate policies, by creating jobs. The research question is: Do green industrial policies positively influence climate policy support through economic factors, like job creation? The main hypothesis is that the IRA has positively impacted climate policies in energy communities in the Unites States. These communities received favourable tax conditions for green energy investments, leading to increased employment opportunities. The study employs a difference-in-differences (DiD) method, comparing energy communities (treatment group) with non-energy communities (control group). The results indicate that the IRA's implementation is associated with a significant decrease in unemployment rates, especially in energy communities, where baselines unemployment rates were higher than in non-energy communities. Additionally, prior to the IRA, energy communities exhibited lower support for climate policies. Post-IRA implementation, these communities saw a significant increase in climate policy support, aligning with the initial hypothesis. This research highlights how economic incentives in green industrial policies can foster support for climate initiatives, emphasizing the importance of job creation in this context. Effective climate policies should incorporate economic considerations to foster broader support for climate action and move towards a greener future.

Contents

1. Introduction

Climate change and global warming are two of the biggest challenges that humanity faces. The 2015 Paris Agreement binds countries to limit climate change below 1.5℃ compared to pre-industrial levels (United Nations, 2024), and states that most fossil fuels must remain unused (Arthur & Gupta, 2021). The Intergovernmental Panel on Climate Change argues that reducing the emission of greenhouse gases is one of the biggest challenges that humanity faces in the coming decades (IPCC, 2019). In the United States, despite some improvements in carbon emission levels, overall greenhouse gas emissions have been on the rise over the last years (United States Environmental Protection Agency, 2016). This points out the need for further climate policies to address this pressing issue and reduce greenhouse gas emissions.

Public support for climate policies is crucial, as effective policies are essential for tackling climate change (Haines, et al., 2009), and a key factor to making meaningful progress towards reducing greenhouse gas emissions and achieving carbon neutrality (Dabla-Norris, Khalid, Magistretti, & Sollaci, 2023). Even though the earth's climate will not react to individual's opinion towards climate change, elected politicians do react to it (Scruggs & Benegal, 2012). Additionally, even though awareness of environmental problems and risks has significantly increased over the years, individual action has remained constant (Brick & Lai, 2018). As public opinion shapes government and political actions (Fairbrother, 2022), public support for climate policies is extremely vital. "Having the right policies to enable changes and behaviour, can secure a liveable future" (IPCC, 2022).

While reducing greenhouse gas emissions has become a primary objective in the Unites States due to the growing concerns regarding the risk of climate change (Paltsev, et al., 2008), implementing these policies has proven challenging. Market-based policies, like carbon pricing – considered the most effective tool - have faced significant social resistance (Hallegatte, Fay, & Vogt-Schilb, 2013). This has led to the exploration of alternative approaches, such as green industrial policies and sector-target policies that affect economic production structure with the aim of generating environmental benefits (Hallegatte, Fay, & Vogt-Schilb, 2013).

The Inflation Reduction Act (hereinafter referred to as "IRA"), adopted on the 16th August 2022, allocates money directly to "environmental justice" priorities and devotes a significant amount of federal funding towards climate efforts, making it the most relevant investment in reducing carbon emissions in the history of the United States, while boosting economic growth at the same time (The White House, 2022).

The IRA specifically targets heavily fossil fuel reliant areas to achieve a just transition away from fossil fuels (Van Nostrand, 2023). This concept emphasizes the need to create economic opportunities while addressing climate change. The IRA defines these heavily reliant fossil fuel areas or “energy communities”, as locations with a historic high fossil fuel employment often located around coal mines or coal plants. More significantly, these regions currently face high unemployment rates due to the decline in the intensity of fossil fuel industries and have not been able to benefit as much from recent economic growth (Van Nostrand, 2023). Through prioritizing clean energy in these communities, the IRA not only targets emission reductions, but also aims to strengthen disadvantaged regions by providing new economic opportunities. Moreover, recent research has underscored that a major portion of these investments provided by the IRA have ended up in these energy communities (Van Nostrand, 2023).

Previous research found out that individuals living and working in fossil fuel-dependent regions have negative views of renewable energies and climate policies in general, mainly due to the perceived threat to the existing local economy (Olson-Hazboun S. K., 2018). Therefore, climate initiatives aimed at transitioning to clean energy must prioritize addressing the concerns of communities most affected by the shift away from fossil fuels (Olson-Hazboun S. K., 2018). The IRA represents a significant climate policy intervention aimed at transitioning heavily fossil fuel-dependent communities towards clean energy. However, only a handful of articles have been written about it. Therefore, given the IRA’s novelty, it requires further assessment (Bistline, et al., 2023). Additionally, there is an existing gap to determine the precise impact of economic benefits of green industrial policies like the IRA, on public support for such policies. The extent of support for climate policies, in general, is substantially shaped by the unequal distribution of job losses stemming from the implementation of specific climate policies (Vona, 2019). Additionally, perceived private costs such as job creation and job loss, are among the main factors contributing to the support of climate policies (Dabla-Norris, Khalid, Magistretti, & Sollaci, 2023).

This research aims to investigate the impact of green industrial policies on climate policy support, specifically through economic factors such as job creation. It focuses on the IRA as a case study to assess its influence on climate policy support in the United States. The study will examine whether investments in clean energy under the IRA, particularly in fossil fuel-dependent communities, enhance support for climate policies aimed at mitigating climate change, by creating more jobs. Hence, the central research question of this study is: ***Do green industrial policies positively influence climate policy support through economic factors, such as job creation?***

Following the introduction, this study will delve into a comprehensive literature review, synthesizing the main findings from previous academic research on this topic. This section will be reinforced by a theoretical framework, which will define the most relevant concepts crucial to understanding the proposed research question proposed on this paper. Following that, the empirical strategy will provide a comprehensive overview of the data collection and description will detail the data collection process and data description. It will also detail the methodology employed in this study, outlining the research method employed. Following the analysis, the study will present and interpret its findings. Subsequently, the discussion and conclusion section will extract conclusions from these results and critically evaluate the study's implications and limitations.

2. Literature Review and Theoretical Framework

The United States is among the largest greenhouse gas emitting countries, and per capita emissions are highest (Center for Climate and Energy Solutions, 2019). Additionally, since the Industrial Revolution, it has been the highest contributor to global CO_2 emissions, accounting for a 25% of cumulative global emissions by 2017 (Ritchie, 2018). The United States rejoined the Paris Agreement in 2021 and renewed its commitment to reduce its greenhouse gas emissions to half of 2005 levels by 2030 (United Nations Framework Convention on Climate Change, 2021). However, climate policies have not garnered support from all sides of the political sphere. Conservative parties have been sceptical about implementing such policies because, from a business-oriented perspective, they do not oppose the use of fossil fuels like coal and petroleum (Båtstrand, 2015).

In line with the commitment to reduce greenhouse gas emissions, the United States has introduced several climate policies in recent years (The White House, 2022). Although carbon taxes offer the most efficient path towards a greener economy, public opposition due to potential price increases has limited their adoption (Carattini, Carvalho, & Fankhauser, 2018). Green industrial policies, on the other hand, can target specific clean technologies. Although these policies may also end up increasing consumer and business costs, the public is often unaware of these potential cost increases, making green industrial policies a more politically acceptable alternative (Hallegatte, Fay, & Vogt-Schilb, 2013). The IRA represents an example of a green industrial policy (The White House, 2022).

a. The Inflation Reduction Act

As mentioned in the previous section, the IRA has been designed to boost economic growth while addressing climate change (Van Nostrand, 2023), making it the most aggressive action to ever confront climate change (The White House, 2022). The IRA allocated around $400 billion in federal funding – tax incentives, grants, and loan guarantees – for clean energy investments, with the goal of reducing carbon emissions of the United States (Badlam, et al., 2022). It focused on channelling resources to economically disadvantaged communities, defined as "energy communities" (Van Nostrand, 2023). These areas are especially vulnerable to energy transition and have been disadvantaged or neglected by past policies (Van Nostrand, 2023). These regions, as mentioned in the previous section, need to meet certain criteria to be considered as energy communities. Areas may qualify as an energy community if they meet one of the following conditions:

1. They must be a "brownfield site" for purposes of the Energy Community Bonus Credit. These areas are defined as real property which expansion, redevelopment, or reuse may be hindered by the presence of hazardous substances, pollutants, or contaminants (Internal Revenue Service of the United States Government, 2022).
2. A metropolitan statistical (MSA)[1] area or non-metropolitan area (non-MSA)[2] that has:
    - 0.17% direct fossil fuel employment in one or more years after 2009, or 25% or greater local tax revenues related to the extraction, processing, or storage of coal, oil, or natural gas (Internal Revenue Service of the United States Government, 2022), and

[1] A metropolitan statistical area (MSA) is a way to define a region in the United States, for statistical purposes. These regions, according to the Office Management of Budget (OMB), have at least one urbanized area with a minimum population of 50.000, and they consist of a city and surrounding communities that are linked by social and economic factors (United States Census Bureau, 2024).

[2] A non-metropolitan statistical area (non-MSA) is an area with an urban population not located withing a metropolitan statistical area (United States Census Bureau, 2024).

- An unemployment rate for 2022 that is equal to or greater than the national average unemployment rate for 2022 (Internal Revenue Service of the United States Government, 2022).

3. A census tract in which a coal mine has been closed after 1999 or in which a coal-fired electric generating unit has been retired after 2009, or census tracts directly adjoining such census tracts (The White House, 2023).

Nevertheless, for the sake of the analysis in this paper, it is worth noting that energy communities do not differ that much when compared to other communities without this label in terms of climate policy support.

The IRA, with its focus on low-income and disadvantaged communities, provides favourable tax conditions to invest in green energy and technology across the United States, aiming to address equity, "environmental justice" and reduce pollution (United States Environmental Protection Agency, 2022). Given that most energy consumed in nearly all the counties in the United States is derived from fossil fuels (United States Energy Information Administration, 2022), the IRA introduced various financial instruments and provisions to reduce dependency on fossil fuels. While both energy and non-energy communities can access the financial instruments and provisions introduced by the IRA, energy communities receive more advantageous rates. The rationale behind this initiative is to spur economic growth and enhance the financial viability of energy projects in areas transitioning away from fossil fuels (Bistline, Mehrotra, & Wolfram, 2023), particularly in regions where coal was the main economic driver and where unemployment rates exceeded the national average (Barbanell, 2022). Bonuses are available for projects sited in energy communities that meet the required criteria, including a bonus of up to 10% in production tax credits and 10 percentage points for investment tax credits for projects, facilities and technologies located in energy communities (Interagency Working Group on Coal & Power Plant Communities & Economic Revitalization, 2024).

b. Economic opportunities – Job creation

According to previous research, 81% of the total clean investments made by the IRA have been for projects in counties with weekly wages below the average (United States Department of the Treasury, 2023). Moreover, 70% of these clean investments end up in counties where a small portion of the population was employed before receiving these investments (Census American

Community Survey, 2021). Lastly, 78% of the clean investments of the IRA were for projects in counties with below-average median household incomes (Census American Community Survey, 2021). These figures point out the main target of the IRA and show how these disadvantaged economies, which were mainly reliant on fossil fuels, can benefit from increased economic opportunities (United Nations, 2024).

Consequently, empirical research mainly focused on the economic and environmental impacts of the IRA. On the one hand, simulation-based research indicates that the provisions of the IRA have significant effects on power sector investments and electricity prices (Bistline, Mehrotra, & Wolfram, 2023). Additionally, empirical research has also provided estimates regarding the expected job creation in different sectors, following the introduction of the IRA, which show that the electricity sector is going to experience the highest job creation (Pollin, Lala, & Chakraborty, 2022). On the other hand, the Act included several provisions that aimed at reducing carbon emissions and mitigate climate change (Badlam, et al., 2022). Estimates state that the United States is expected to reduce greenhouse gas emissions by between 31% and 44% by 2030 compared to 2005 levels, which still would not reach the 50%-52% reduction target (Bistline, et al., 2023). The new clean energy provisions become even more effective when they are combined with other existing climate policies, maximizing the overall reduction in total emissions (Wang, Shittu, & Ekundayo, 2023).

c. Climate policy support

Implementing effective climate policies hinges on public acceptance. Without widespread support, initiatives aimed at mitigating climate changes – such as taxes, laws, and regulations – would struggle to succeed (Bergquist, Nilsson, Harring, & Jagers, 2022). Public support is crucial for reducing greenhouse gas emissions change (Scheifele & Popp, 2024), recognized as the most impactful approach to tackling climate (Haines, et al., 2009). However, various factors shape public attitudes towards climate action, including their understanding of the issue, personal beliefs, and perceptions of policy effectiveness (Goldberg, Gustafson, Ballew, Rosenthal, & Leiserowitz, 2023). Research underscores that robust public support is essential for the efficacy of climate policies (Skovgaard, 2013). Economic circumstances, like the aftermath of the 2008 financial crisis, can sway opinions on climate policies, influencing whether they are seen as barriers to growth or as opportunities (Skovgaard, 2013). Moreover, reliance on fossil fuels affects public risk perception and understanding of climate change (Knight, 2019). Residents in fossil fuel-dependent communities typically hold negative views towards climate policies, perceiving them as potential threats to the existing local economy (Olson-Hazboun S. K., 2018). Policy makers often hesitate to enforce unpopular climate policies (Drews & Van den Bergh, 2015), but research suggests strategies to enhance public support, such as transparency in policy making and citizen engagement (Drews & Van den Bergh, 2015). Clarifying how climate policies operate, and their benefits is crucial for garnering public support (Dechezleprêtre, et al., 2022).

In the United States, where emissions remain high, raising awareness and support for climate action is crucial (Schowm, Bidwell, Dam, & Dietz, 2010). Climate policies offer social benefits, yet their economic impacts, particularly on employment, remain uncertain (Scheifele & Popp, 2024). While overall benefits typically outweigh job losses, certain sectors and regions may bear a disproportionate burden, exacerbated by past economic crisis or global competition (Vona, 2019). Addressing these disparities through targeted programs and compensatory measures can alleviate the transition's difficulties and build political consensus around climate policies (Vona, 2019). Ultimately, understanding the drivers of public support is essential for policy makers to anticipate reactions to new or adjusted climate policies, ensuring their effectiveness and acceptance (Olson-Hazboun, Howe, & Leiserowitz, 2018).

As previously mentioned, the decline in belief in climate change and therefore, the support for climate policies has been shaped by economic circumstances such as the Great Recession, which reduced public trust in climate science (Scruggs & Benegal, 2012). Additionally, research has identified a negative correlation between unemployment and climate change concern. This suggests that people prioritize climate action less during economic downturns. However, this decline in concern most likely would rebound as labour market conditions improve (Scruggs & Benegal, 2012). This connection between economic well-being translated into employment, and climate policy support, highlights the importance of addressing potential job losses associated with climate policies. Financial assistance and job creation in clean energy sectors are crucial for building public support for climate action (Tvinnereim & Ivarsflaten, 2016). In conclusion, the connection between labour and climate policy support highlights the critical economic dimension of climate policies, underscoring the necessity of not only focusing on environmental impacts but also considering economic factors when designing and implementing these policies.

This study focuses on the United States, which holds the highest per capita consumption of fossil fuels in the world (Our World in Data, 2022). Additionally, a key factor surrounding the climate legislation debates in the United States is the potential impact of climate policies on the labour market (Deschênes, 2012). Nevertheless, no attention has been paid to the connection between the implementation of the IRA and the support for climate policies in the United States. Focusing on this gap will provide policy makers with a nuanced understanding of the economic impacts, rather than just the environmental impacts, when developing and designing new climate policies. Building on prior research, the theoretical framework outlined, and the research question posed, the main hypothesis is that the implementation of the IRA positively impacted climate policy support in United States counties. However, this impact positive impact on climate policy support is expected to be larger within energy communities. The IRA provided these communities with favourable tax conditions to invest in green energy and green technology. Consequently, the hypothesis suggests that this positive impact on climate policy support is mediated by an increase in employment opportunities within these communities. Abstracting from this specific case study, this research aims to offer insights applicable to any country striving to garner sufficient support for climate policies. It suggests that geographically targeted green industrial policies could potentially influence even the most resistant segments of society.

3. Empirical Strategy

To empirically test the hypothesis presented in the previous section, this section presents the data collection and analysis processes employed in this paper. Firstly, the data required, and the sources utilised are outlined. Secondly, a detailed explanation of the chosen methodology and the variables used in the analysis is provided.

a. Data Collection

Building upon existing literature and theoretical frameworks, a deductive approach has been adopted to examine the relationship between the implementation of the IRA and climate policy support via job creation. For that purpose, the following data is required:

- **Climate support policy for United States counties:** This data will allow the measurement of public support for climate policies within these areas.

- **Employment data for United States counties:** This data will be used to assess for changes in employment levels and job creation, after the implementation of the IRA.
- **Energy communities' data:** This data will be needed to identify which counties are considered energy communities.

After identifying the required data, different sources were utilized during the collection process. This research utilizes data from diverse credible sources to examine the hypothesis mentioned in the previous section, while also controlling for some factors.

- **Dependent variables:** this study will employ two distinct dependent variables. Firstly, data for the unemployment rate comes from the Bureau of Labor Statistics, hereinafter BLS. The BLS is an agency of the United States Department of Labor, responsible for measuring labour market activity, working conditions, price changes and productivity, to support public and private decision making (United States Bureau of Labor Statistics, 2024). Secondly, data on climate policy support comes from the Yale Program on Climate Change Communication, hereinafter YPCC, that conducts the Yale Climate Opinion Maps. This opinion maps reveals how public opinion on global warming varies across the United States. The YPCC developed a model to estimate national survey results, which provides a detailed picture of Americans' beliefs at a county level. (Yale Program on Climate Change Communication, 2023). The YPCC conducts scientific studies on public opinion and behaviour about climate change and global warming, to influence on decision making about climate policies in the United States (Yale Program on Climate Change Communication, 2023).
- **Main explanatory variable:** since no database provided data on job creation**,** figures for total employment per county were derived from a database provided by the United States Bureau of Economic Analysis, hereinafter BEA. The BEA produces statistics aimed at enhancing the understanding of the United States economy (United States Bureau of Economic Analysis, 2024). Based on this employment data, a variable labelled "job creation" has been created and will be discussed further in the following section.
- **Treatment data:** the data needed to identify the counties which comprise the treatment group, in other words, the areas which received the energy community label after the implementation of the IRA, was obtained from the Energy Data Exchange, hereinafter

EDX. The EDX is the Department of Energy/Fossil Energy and Carbon Management's virtual library and data laboratory designed to find and use data to advance fossil energy and environmental R&D (Energy Data Exchange, 2024).

- **Control variables:** data for the control variables employed – GDP per county, population per county and per capita income at the county level – also comes from the BEA's database.

Lastly, it is important to note that since these variables were sourced from different datasets, they were merged into a single dataset by using the geographic identifier (GEOIDs)[3] of each county in the United States. This identifier was consistent across all sources, ensuring accurate merging of the variables later employed in the model.

b. Data Description

To comprehensively analyse the impact of the IRA on climate policy support through job creation, several key variables have been identified and measured. This section presents and describes these variables to provide a clear understanding of their role and significance in the model later presented. This detailed explanation is essential for later interpreting in an accurate way the results and understanding of the model's functionality. Subsequently, the study variables used in the model are the following:

- Firstly, as will be detailed in the methodology section, this study employs two regression equations, each requiring a distinct dependent variable. The first dependent variable is the unemployment rate, which will be measured using data from the BLS. The BLS provides county-level unemployment data across the United States. The unemployment rate for county "i" at the end of the year "t" is calculated as the percentage of unemployed workers in the labour force. This is determined by dividing the unemployed workers by the total labour force in county "i" at the end of year "t", and then multiplying by 100, expressing the variable as a percentage. The second dependent variable is climate policy support, which will be measured using data from the Yale Climate Opinion Map & Climate Opinion Over Time (2010-2023)[4], provided by the YPCC. This data reveals how public opinion on

[3] GEOIDs are numeric codes that uniquely identify all administrative/legal and statistical geographic areas for which the Census Bureau provides data (United States Census Bureau, 2024).
[4]Marlon, J. R., Wang, X., Bergquist, P., Howe, P. Leiserowitz, A., Maibach, E., Mildenberger, M., and Rosenthal, S. (2022). "Change in US state-level public opinion about climate change: 2008–2020." *Environmental Research Letters* 17(12), 124046 & Howe, Peter D., Matto Mildenberger, Jennifer R. Marlon, and Anthony Leiserowitz (2015).

global warming varies across the United States. Specifically, the opinion map includes the following question: "Global warming should be a priority for the next president and Congress", which will be used as an indicator of climate policy support. Climate policy support variable is also measured on a percentage from 0-100, where 0 represents the lowest and 100 the highest percentage level of climate policy support.

- Secondly, job creation data will be quantified using a newly created variable based on employment data sourced by the BEA, which measures total employment across counties. This variable provides the number of total workers employed at the end of the year "t" in the county "i". However, the variable that will be used in the model – job creation – measures the net increase in total employment at the county level by comparing year "t-1" to year "t".
- Thirdly, the treatment effect will be measured by using the dataset provided by the EDX, which identifies counties considered as energy communities. A county qualifies as an energy community if it meets one or both of the following criteria: (i) it is a MSA or non-MSA with at least 0.17% direct fossil fuel employment in one or more years after 2009, or (ii) it has an unemployment rate in 2022 that is equal to or greater than the national average unemployment rate for 2022. Counties meeting one of the following criteria will form the treatment group. This variable is binary, taking a value of 1 is a county is considered an energy community (treatment) and 0 if it is not (control).
- Lastly, control variables will be included in the estimating equation. The reason being is that there are other factors which can influence climate policy support and need to be accounted to isolate the effect of job creation. By including control variables, the estimating equation will give a more nuanced understanding of the relationship between job creation and climate policy support, by separating the specific interest effect from other external factors. The control variables included in the estimating equation are the following:
    - GDP by county: control variable measured using a dataset provided by the BEA, which provides GDP at the state, county and metro level. This variable represents the value of final goods and services produced within a county "i" at the end of year "t". This variable is expressed in million/billion dollars.

"Geographic variation in opinions on climate change at state and local scales in the USA." *Nature Climate Change*, doi:10.1038/nclimate2583.

- Population per county: control variable measured using a dataset provided by the BEA, which provides population statistics per year at the county level. This variable is calculated by accounting the total number of individuals living in county "i" at the beginning of year "t".
- Income per capita: control variable measured using a dataset provided by the BEA, which provides personal income per capita per county. This variable is expressed in current dollars and measured by dividing personal income by total population.

Table 1 below presents an overview of the descriptive statistics to enhance understanding of the variables utilized in both regressions (1&2), including the dependent variable, explanatory variables, and control variables.

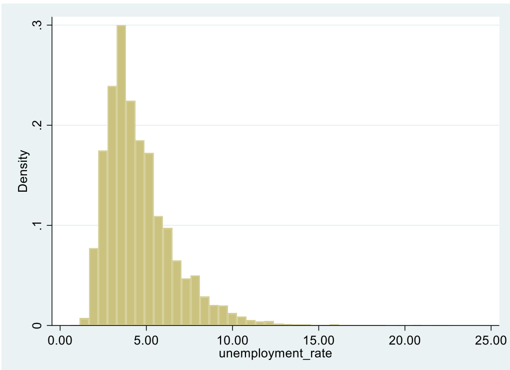
Table 1: Descriptive Statistics

Variable	Measurement	Source	Obs.	Mean	Std. Dev.	Min	Max
climate_policy_support[4]	Estimated percentage who think the President themselves should be doing more/much more to address global warming	YPCC	15,439[5]	49.3	6.99	32.6	74.5
unemployment_rate	Unemployment rate at county "i" at period "t"	BLS	15,655[5]	4.6	2.03	0.6	22.6
EC	1 = Energy Community, 0 = Non-Energy Community	EDX	15,674[5]	0.27	0.44	0	1
Post_EC	1 = ≥ 2022, 0 = < 2022	EDX	15,674	0.2	0.4	0	1
job_creation	Net increase in total employment between two years. 1 = positive increase; 0 = decrease/no increase	BEA	12,517[6]	0.614	0.486	0	1
GDP_county	GDP per year at county "i" at period "t"	BEA	15,475	6803518	2.99e-07	9662	7.90e-08
population_county	Total population at county "i" at period "t"	BEA	15,475	107018.5	334049.1	51	1.01e-07
income_pc_county	Personal income per capita at county "i" at period "t"	BEA	15,475	51436.28	15488.82	19471	406054

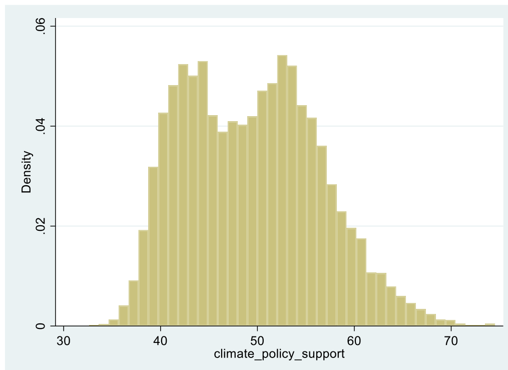
[5] The variation in the number of observations for each variable arises because not all data sources can provide data for every county in the United States.
[6] Job creation has significant fewer total observations because it does not include data 2019. This is because the net change in total employment requires data from the previous year – in this case it would be 2018 – and the analysis period of this study spans from 2019 to 2022.

Additionally, to facilitate a more comprehensive interpretation of the variables, the following graphs are presented: histograms for each dependent variable (*unemployment_rate* and *climate_policy_support*), as well as bar charts for the treatment variable (*EC*) and the main explanatory variable (*job_creation*).

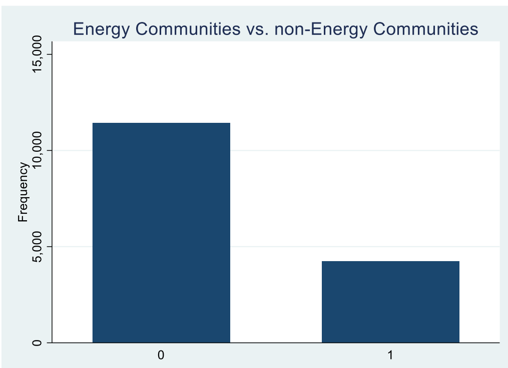
Graph 1: Unemployment's rate histogram



Graph 2: Climate policy support's histogram

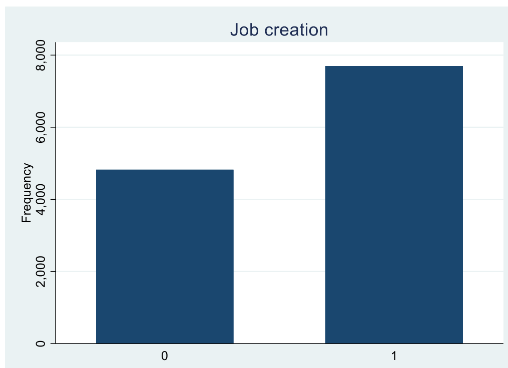


Graph 3: ECs vs. non- ECs' bar chart



0 = non-EC; 1 = EC

Graph 4: Job creation's bar chart



0 = No job creation; 1 = job creation 1

c. Methodology

This study employs panel data, encompassing observations from various counties across the United States over various time periods. Each observation represents the characteristics of a specific county at a particular point in time.

To employ a difference-in-differences (DiD) method, a treatment and a control group are needed. On the one hand, the treatment group comprises energy communities, as used by Van Norstrand (2023). These communities were heavily reliant on fossil fuels and received even more favourable conditions thanks to the IRA. For that reason, they are expected to experience a greater increase in employment levels, potentially influencing climate policy support according to the study's initial hypothesis. The control group will consist of counties with similar conditions to the counties comprised in the treatment group, which are not considered energy communities by the IRA. For that reason, these areas are expected to experience lower increases in employment levels, which consequently will also impact their climate policy support according to the study's hypothesis. Additionally, both treatment and control group are comprised by counties of similar characteristics, which only differ by the fact of being considered energy communities. This assumption implies that climate policy support in both treatment and control groups is presumed to be similar and comparable before the implementation of the IRA. Consequently, the treatment methodology involves using the label "energy community" put on certain counties meeting on the previously defined conditions, following the enactment of the IRA.

To estimate the treatment effect of the IRA on climate policy support through job creation, changes in outcome over time between the treatment and control groups will be compared. However, to be able to establish a causal relationship between the Act's implementation and climate policy support in energy communities via job creation, several assumptions must be satisfied.

First, the implementation of the IRA on energy communities must not be determined by their pre-existing climate policy support. Second, for the analysis to be valid, the same counties must be observed across all time periods. Third, there must be no spillover effects, meaning that the benefits of the implementation of the IRA on energy communities should not significantly impact the control group. Lastly, the parallel trends assumption must hold. This means that, in the absence of the implementation of the IRA, the difference in climate policy support between the treatment and control groups would remain constant over time. This means that both the treatment and control groups are expected to behave in a similar way until the implementation of the treatment, which in this cased would be being labelled as energy communities.

To meet the parallel trends assumption, the analysis time frame will encompass the 3 years preceding the IRA's enactment, and the year it was implemented to see its results. This establishes a four-year period from 2019 to 2022.

To be able to employ a DiD model, the following variables have been created and described:

- *Unemployment_rate*$_{it}$: represents the rate of unemployment in county "i".
- *Climate_policy_support*$_{it}$: represents climate policy support at county "i" at period time "t".
- EC_i: denotes the treatment factor, categorizing counties labelled as an energy community. This variable assigns a value of 1 to counties meeting both criteria to qualify as energy communities – 0.17% direct fossil fuel employment and the unemployment rate requirement – and a value of 0 to counties that do not meet both criteria or that have missing data. Nevertheless, it is important to note that this variable may introduce some noise in the model, as it simplifies consideration of the additional IRA requirements to qualify as an energy community.
- *Post_EC*$_t$: this variable represents the post treatment factor, effect after being labelled as an energy community. It takes a value of 1after 2022, and a value 0 before 2022.
- *job_creation*$_{it}$: this variable measures the net change in total employment from year "t-1" to year "t". It takes a value of 1 if there is a positive increase in employment between the two years, and a value of 0 if the employment increase is zero or negative. Notably, since the analysis covers the period from 2019 to 2022, job creation values for 2019 will be excluded from the analysis.
- Υ_{it}: vector including a set of control variables to account for potential confounding variables.
- $\mathcal{E}_{it}$: represents the error term.

Subsequently, the following two regressions (1&2) have been defined to employ the DiD model:

$$unemployment\_rate_{it} = \beta_0 + \beta_1 EC_i + \beta_2 Post\_EC_t + \beta_3 EC_i * Post\_EC_t + \gamma_{it} * (control\ variables) + \varepsilon_{it} \quad (1)$$

- β_0 represents the intercept, or the baseline unemployment rate for each county. It captures the average unemployment rate for counties, before the implementation of the IRA and before any classification as energy communities is considered.

- β_1 captures the difference in the unemployment rate between energy community (*EC* = 1) and non-energy community (*EC* = 0) counties before the implementation of the IRA. It measures the average difference in the unemployment rate attributable to being labelled as an energy community.
- β_2 captures the effect of the post-treatment period on the unemployment rate in counties that are not labelled as energy communities. β_2 captures de change in the unemployment rate over time in the control group after the implementation of the IRA.
- β_3 represents the interaction effect between being labelled as an energy community (*EC* = 1) and the post-treatment period (*Post_EC* = 1). β_3 captures the differential impact on the unemployment rate in energy communities after the implementation of the IRA compared to non-energy communities.

$$climate\_policy\_support_{it} = \beta_0 + \beta_1 EC_i + \beta_2 Post\_EC_t + \beta_3 (EC_i * Post\_EC_t) + \beta_4 (EC_i * job\_creation_{it}) + \beta_5 (Post\_EC_t * job\_creation_{it}) + \beta_6 (EC_i * Post\_EC_t * job\_creation_{it}) + \beta_7 job\_creation_{it} + \gamma_{it} * (control\ variables) + \varepsilon_{it} \quad (2)$$

- β_0 represents the intercept, or the baseline level of climate policy support for each county, prior to the implementation of the IRA and independent of job creation. It captures the average level of climate policy support before any classification as energy communities is considered.
- β_1 measures the difference in climate policy support between the treatment and control groups before the implementation of the IRA. It captures the average difference in climate policy support attributable to being labelled as an energy community.
- β_2 captures the average change in climate policy support over time in the control group. It reflects the change in support for climate policies over time that is not related to the treatment, which in this case is the implementation of the IRA.
- β_3 represents the interaction term between being an energy community and the post treatment period. It captures the DiD estimator, representing the additional effect of being labelled as an energy community on climate policy support after the implementation of the IRA.
- β_4 represents the effect of job creation on climate policy support in counties labelled as energy communities, compared to non-energy communities, before the implementation of

the IRA. It captures how the impact of job creation on climate policy support differs between energy and non-energy communities.

- β_5 represents the effect of job creation on climate policy support after the treatment (*Post_EC* = 1) compared to before (*Post_EC* = 0). It captures how the effect of job creation on climate policy support differs before and after 2022.
- β_6 represents the three-way interaction effect between being labelled as an energy community (*EC* = 1), the post-treatment period (*Post_EC* = 1) and experiencing job creation (*job_creation* = 1). It shows how the combined effect of these three variables influences climate policy support.
- β_7 represents the effect of job creation on climate policy support, holding all other variables constant. It shows the overall impact of job creation on climate policy support, independent of other variables and interaction effects in the model.

The first regression (1) focuses on how being labelled as an energy community and the post-treatment period affect the unemployment rate. Additionally, it includes some control variables to obtain more precise estimates and isolate the effect of the main independent variable on unemployment rate. The second regression (2) examines how being labelled as an energy community, the post-treatment period, and job creation influence climate policy support. Additionally, it includes different control variables to obtain more precise estimates and isolate the effect of the main independent variable on climate policy support.

Estimating these two equations will allow for a more nuanced understanding of how economic improvements in specific communities can influence public opinion on climate policies, which is essential for designing effective and holistic policy interventions that aim to tackle climate change. Finally, a positive correlation between job creation and climate policy support is expected. By investing in clean energy, the IRA creates economic opportunities in disadvantaged communities reliant on fossil fuels. This job creation then, is expected to positively impact climate policy support in these areas.

4. Results and Interpretation

The following section presents the primary findings of the study, analysing the impact of the implementation of the IRA on climate policy support through job creation in United States counties. Firstly, it assesses the robustness and significance of the relationship between unemployment rates and climate policy support with the independent variables. It then interprets the obtained results to evaluate the fulfilment of the previously defined hypothesis. Finally, it validates the parallel trends assumption.

a. Robustness Check

To assess the robustness and significance of the relationship between unemployment rates and climate policy support with the independent variables, two sets of two regressions were run: one without control variables and one with control variables. By comparing these results, it can be determined if the relationship remains significant after accounting for potential confounding factors, and thus, strengthening the argument that the relationship is robust and not driven by omitted variables bias.

Panel 1 presents the outcomes from the DiD regressions detailed in the preceding section, focusing on changes in the unemployment rate and climate policy support across different United States counties before and after the implementation of the IRA. This regression does not include control variables.

Panel 1: DiD model predicting unemployment rate (1) and climate policy support (2) before and after the implementation of the IRA, comparing EC and non-EC counties, without including control variables

Variables	(1) unemployment_rate	(2) climate_policy_support
EC	1.168***	-1.220***
	(0.0383)	(0.216)
Post_EC	-1.209***	-4.233***
	(0.0445)	(0.598)
EC * Post_EC	-0.180**	3.808***
	(0.0856)	(1.057)
EC * job_creation		-0.773**
		(0.309)
Post_EC * job_creation		3.239***
		(0.624)
EC * Post_EC * job_creation		-3.347***
		(1.115)
job_creation		-1.276***
		(0.161)
Constant	4.541***	49.34***
	(0.0199)	(0.117)
Observations	**15,655**[5]	**12,349**[5]
R-squared	**0.123**	**0.030**

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Panel 2 presents the outcomes from the DiD regressions, this time including control variables. These control variables account for additional factors that might influence the relationships being studied, providing a clearer picture of the direct impact of the IRA.

Panel 2: DiD model predicting unemployment rate (1) and climate policy support (2) before and after the implementation of the IRA, comparing EC and non-EC counties, including control variables

Variables	(1) unemployment_rate	(2) climate_policy_support
EC	1.166***	-0.637***
	(0.0384)	(0.204)
Post_EC	-1.209***	-3.813***
	(0.0443)	(0.563)
EC * Post_EC	-0.178**	3.549***
	(0.0852)	(0.995)
EC * job_creation		-0.838***
		(0.291)
Post_EC * job_creation		2.914***
		(0.588)
EC * Post_EC * job_creation		-3.043***
		(1.050)
job_creation		-1.507***
		(0.152)
Constant	4.742***	45.83***
	(0.0577)	(0.228)
Observations	**15,646**[5]	**12,347**[5]
R-squared	**0.128**	**0.141**

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Comparing the output of Panels 1 and 2 indicates that including control variables in both regressions did not affect the significance and robustness of the relationship between the independent variables and both unemployment rates and climate policy support. This consistency across both sets of regressions suggests that the observed effects of the IRA on these outcomes are robust and not driven by omitted variable bias. Specifically, the significant findings for both unemployment rates and climate policy support remain stable, reinforcing the reliability of the results obtained.

b. Output Interpretation

For the output interpretation, the results that will be interpreted are those presented in Panel 2, which includes the control variables in both regressions (1&2).

On the one hand, the DiD regression on unemployment rate (1) presented in Panel 1 yields statistically significant results (F-statistics; p-value < 0.01). The model explains approximately 12.8% of the variance in the unemployment rate (R-squared = 0.128).

The DiD model estimates reveal how various factors influence unemployment rate across United States counties. Initially, the coefficient for the treatment variable (*EC*) was statistically significant at all confidence levels (p-value < 0.01). The positive coefficient indicates that holding all other variables constant, counties labelled as energy communities (*EC* = 1) have an unemployment rate 1.166 percentage points higher compared to non-energy communities (*EC* = 0). The coefficient for the post-treatment period (*Post_EC*) was also statistically significant at all confidence levels (p-value < 0.01). The negative coefficient suggests that holding all other variables constant, the unemployment rate in the post-treatment period (*Post_EC* = 1) decreased by 1.209 percentage points compared to the pre-treatment period (*Post_EC* = 0). The interaction term between *EC* and *Post_EC*, our main variable of interest, was statistically significant at the 5% level (p-value < 0.05). The coefficient for this interaction term indicates that there is an additional effect on unemployment rate for energy communities (*EC* = 1) during the post-treatment period (*Post_EC* = 1). More specifically, an additional decrease of 0.177 percentage points in the unemployment rate of energy communities after the implementation of the IRA. Lastly, the constant term (*_cons*) represents the expected unemployment rate when all other variables are zero.

On the other hand, the DiD regression on climate policy support (2) presented in Panel 1 yields statistically significant results (F-statistics; p-value < 0.01). The model explains approximately 14.1% of the variance in the unemployment rate (R-squared = 0.141).

The DiD model estimates reveal how various factors influence climate policy support across United States counties. Initially, the coefficient for the treatment variable (*EC*) was statistically significant at all confidence levels (p-value < 0.01). The negative coefficient indicates that holding all other variables constant, before the implementation of the IRA, counties designated as energy communities (*EC* = 1) experienced a decrease in climate policy support of 0.637

percentage points compared to non-energy communities (*EC* = 0). The coefficient for *Post_EC* was also statistically significant at all confidence levels (p-value < 0.01). The negative coefficient suggests that holding all other variables constant, climate policy support in the post-treatment period (*Post_EC* = 1) decreased by 3.813 percentage points compared to the pre-treatment period (*Post_EC* = 0). The interaction term between *EC* and *Post_EC* was also statistically significant at all confidence levels (p-value < 0.01). The positive coefficient suggests that being labelled as an energy community after the implementation of the IRA, increased climate policy support by 3.549 percentage points. For the variables interacting with job creation, which in this regression are our main variables of interest, the interaction term between *EC* and *job_creation* was significant at all confidence levels (p-value < 0.01). The negative coefficient shows that for energy communities, job creation is associated with a 0.8376 percentage points decrease in climate policy support. The interaction term between *Post_EC* and *job_creation* was statistically significant at all confidence levels (p-value < 0.01). The positive coefficient reflects that after 2022, job creation was associated with a 2.914 percentage points increase in climate policy support in non-energy communities. Lastly, the triple interaction term between *EC*, *Post_EC* and *job_creation* was also statistically significant at all confidence levels (p-value < 0.01). Surprisingly, the negative coefficient suggests that counties labelled as energy communities, after the implementation of the IRA, that experienced job creation, were associated with a 3.0426 percentage point decrease in climate policy support. The coefficient for *job_creation* was statistically significant at all confidence levels (p-value < 0.01). The negative coefficient shows that counties that experienced an increase in total employment experienced a 1.507 percentage points decrease in climate policy support. Lastly, the constant term (*_cons*) represents the expected level of climate policy support when all other variables in the model are zero.

The DiD model analysis yielded several key insights regarding the impact of the IRA on climate policy support through job creation in United States counties. Firstly, as expected, the implementation of the IRA is associated with a significant decrease in unemployment rates, particularly in energy communities. Additionally, the model showed that the baseline unemployment rate is higher in these communities compared to non-energy communities. This result aligns with the criteria for being designated as an energy community, which includes having higher unemployment rates than the national average. Secondly, prior to the implementation of the

IRA, energy communities exhibited lower support for climate policies. As anticipated, following the implementation of the IRA, these communities experienced a significant increase in support. Moreover, the impact of job creation on climate policy support is complex: it shows positive effects in non-energy communities after the implementation of the IRA, but surprisingly, negative effects in energy communities. Lastly, population and per capita income were positively associated with climate policy support, suggesting a trend of increased support in more populated and wealthier counties.

c. Parallel Trends Assumption Validation

To test the parallel trends assumption, an event study analysis was conducted. This analysis examines the pre-treatment trends – prior to the implementation of the IRA –in unemployment rates and climate policy support within both treatment group (energy communities) and the control group (non-energy communities). The aim of this even study analysis is to ensure that any observed differences in the outcomes obtained after the enactment of the IRA can be solely attributed to the policy implementation and not to pre-existing trends.

To run this event study analysis, dummy variables were created for each year (2019, 2020, 2021 and 2022) to capture the year fixed effects. Additionally, each dummy variable was interacted with the variable *EC* to capture the differential effect of being labelled as an energy community for each year. Panels 3 and 4 below present the outcomes of the event study analysis for unemployment rates and climate policy support.

Panel 3: Event study analysis for unemployment rate

Variables	**Coefficients**	**CI[7] Lower**	**CI Upper**
EC_2019	0.00167 (0.0923)	-0.1791	0.1825
EC_2020	-0.0114 (0.0923)	-0.1922	0.1694
EC_2021	0.453*** (0.0923)	0.2723	0.6339
EC_2022	0.275*** (0.0923)	0.0945	0.4562
Observations	**15.655[5]**		

[7] Confidence Interval (CI).

R-squared	**0.363**

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Panel 4: Event study analysis for climate policy support

Variables	**Coefficients**	**CI Lower**	**CI Upper**
EC_2019	0.402 (0.301)	-0.187	0.991
EC_2020	-0.290 (0.301)	-0.878	0.299
EC_2021	-0.246 (0.301)	-0.835	0.343
EC_2022	-0.228 (0.301)	-0.817	0.361
Observations	**15.439**		
R-squared	**0.437**		

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Ideally, the results of the event study analysis for unemployment rates would show statistically significant differences in 2022, indicating that the implementation of the IRA led to significant variations between energy and non-energy communities. Conversely, for climate policy support, results before 2022 would ideally be statistically insignificant, with a statistically significant result emerging in 2022. This pattern would suggest that before the implementation of the IRA, there were no detectable differences in unemployment rates and climate policy support between energy and non-energy communities. Moreover, it would indicate that post-IRA implementation, there were discernible differences in both unemployment rates and climate policy support between energy and non-energy communities, attributable to the IRA implementation.

Panel 3 presents the results of the event study analysis for unemployment rates. The coefficients for 2019 and 2020 were statistically insignificant (p-value > 0.1), suggesting that before the implementation of the IRA, there were no detectable differences in unemployment rates between energy and non-energy communities. The coefficient for 2022 was statistically significant at all confidence levels (p-value < 0.01), indicating that the implementation of the IRA significantly reduced unemployment rates in energy communities. However, the coefficient for 2021 was also statistically significant at all confidence levels (p-value < 0.01), revealing pre-existing differences in unemployment rates between energy and non-energy communities in 2021, prior to the implementation of the IRA.

Panel 4 presents the results of the event study analysis for climate policy support. As expected, coefficients for 2019, 2020 and 2021 were statistically insignificant. This suggests that there were no detectable differences in climate policy support between energy and non-energy communities, before the implementation of the IRA. However, the coefficient for 2022 was also statistically insignificant, indicating that after the implementation of the IRA, there were also no detectable differences between energy and non-energy communities in climate policy support.

5. Discussion and Conclusion

This section presents the conclusions drawn from interpreting the results obtained, addressing the research question: *Do green industrial policies positively influence climate policy support through economic factors, such as job creation?*

This study analyses the impact of the IRA – major climate policy implemented in the United States – on climate policy support in energy communities, with a particular focus on job creation as a potential driving factor. By employing a DiD regression analysis, this study examined data on public opinion, employment, and other economic indicators to provide insights into the economic aspects of climate policies and their effect on public support. By investigating changes in unemployment rates and climate policy support across United States counties before and after the implementation of the IRA, the study aims to inform policy makers in designing effective climate policies that account for both environmental and economic impacts. Prior research showed varied views regarding the relationship between climate policy support and the economic impacts of such policies (Olson-Hazboun S. K., 2018). This study contributes to the discussion by underscoring the significance of job creation in influencing public opinion towards climate policies.

The results of this study offer relevant insights into the dynamics of climate policy support following the implementation of the IRA and its implications for disadvantaged communities labelled as energy communities. Firstly, as expected, the implementation of the IRA is associated with a significant decrease in unemployment rates, particularly in energy communities. The model also showed that the baseline unemployment rate is higher in these communities compared to non-energy communities. This reduction in the unemployment rates goes in hand with the IRA's objective of fostering economic growth and job creation in regions affected by the transition to greener energy sources (Foster, Maranville, & Savitz, 2023). Secondly, prior to the implementation of the IRA, energy communities exhibited lower support for climate policies. Following the implementation of the IRA, these communities experienced a significant increase in support. Moreover, the impact of job creation on climate policy support is complex: it shows positive effects in non-energy communities after the implementation of the IRA, but surprisingly, negative effects in energy communities. Lastly, it is important to note that the inclusion of control variables in both regression models did not change the significance of the relationship between the key variables, enhancing the robustness of the results obtained. These findings contradict prior research suggesting that communities heavily dependent on fossil fuels might oppose to climate initiatives due to potential impacts on their economic opportunities (Olson-Hazboun S. K., 2018). Instead, this study finds that energy communities, which have a significant direct employment in fossil fuels and thus are highly dependent on them, actually increased their support for climate policies after the introduction of the IRA. These results contribute to the existing literature by highlighting the nuanced effects of green industrial policies on public support for climate initiatives.

The validity of the DiD approach hinges on the assumption that, in the absence of the IRA, the treatment group (energy communities) and the control group (non-energy communities) would have followed parallel trends in climate policy support. This parallel trend assumption is crucial for the validity of the results obtained. To validate this assumption, an event study analysis was conducted. The findings revealed that there were no discernible differences in unemployment rates between energy and non-energy communities before the implementation of the IRA. However, in 2021, the results were statistically significant, suggesting differences between both community types, likely influenced by the unemployment rate being a criterion for designating energy communities. Moreover, there were no detectable differences in climate policy support between energy and non-energy communities before the implementation of the IRA, validating the parallel trends assumption.

Despite the robustness of the results after including control variables, endogeneity issues must be considered. Endogeneity may arise from omitted variable bias, measurement error or reverse causality. Unobserved factors influencing both climate policy support and job creation could potentially bias the estimates obtained. Furthermore, spillover effects of the IRA on the control group, such as economic benefits in energy communities that positively influence surrounding regions, might compromise the validity of the results obtained. To address these issues, future research should employ different methods to mitigate potential endogeneity to validate the findings. One such method could involve using instrumental variables, introducing an additional factor that affects job creation but remains exogenous to climate policy support.

The findings of this study have several important implications. They highlight the need of considering both economic and environmental impacts when designing and implementing climate policies, which is of particular interest policy makers. The significant decrease in unemployment rates and the increase of climate policy support in energy communities, suggest that targeted policy interventions can foster both economic opportunities and support for climate action. Policy makers should use these insights to design comprehensive climate policies that address the diverse concerns of different communities, thereby enhancing their effectiveness and acceptance.

While this research provides valuable insights into the potential impact of green industrial policies in climate policy support, some limitations need to be considered when interpreting the results for further research. The reliance on a DiD approach, assumes parallel trends in climate policy support between energy communities (treatment group) and non-energy communities (control group) before the implementation of the IRA. Unobserved differences between these communities or spillover effects of the IRA on the control group could bias the results. Additionally, the employment data used in this analysis serves as a proxy for economic opportunities in general withing energy communities, rather than being directly connected to the implementation of the IRA. Future research should use direct fossil fuel employment data and incorporate different types of jobs created by the IRA to better understand the indirect influence of job creation on climate policy support. The absence of employment data for 2023 also limited the analysis of the IRA's impact, and the smaller size of energy communities compared to non-energy communities implies they have fewer jobs on average, potentially affecting the results. Future research should focus on exploring the negative correlation between job creation and climate policy support in energy communities and consider additional factors that may be influencing this relationship. Furthermore, future studies should also consider collecting data on different education levels. Green industrial policies that incentivize investment in greener technologies may have differential impacts on employment and labour market dynamics (Scheifele & Popp, 2024). These factors indirectly influence support for climate policies. Furthermore, to comprehensively analyse the impact of a policy implemented, it is important to recognize that substantial effects may require more time to manifest. Consequently, it might be too early to assess the full implications of the IRA, given its recent implementation in 2022. Therefore, the findings of this study may not be suitable for generalization to other green industrial policies implemented in contexts with different policy designs or economic conditions.

In conclusion, the IRA has proven effective in creating economic opportunities while addressing climate change, particularly in disadvantaged communities. The increase in climate policy support in energy communities following the implementation of the IRA demonstrates the potential for targeted policy interventions to shift public opinion towards climate policies. Policy makers should consider these findings when designing and implementing future climate policies, ensuring they include economic considerations, such as job creation, to garner broader support. This study highlights the complexity of public opinion and the need for comprehensive approaches to climate policy that address both economic and environmental dimensions. Effective climate policies will need to address the different concerns of communities, considering far more than just the environmental benefits. By integrating economic benefits with environmental goals, climate policies can achieve both sustainable development and increased support for climate policies, paving the way for a greener future.

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7. Appendices

a. Extended Models

$$unemployment\_rate_{it} = \beta_0 + \beta_1 EC_i + \beta_2 Post\_EC_t + \beta_3 EC_i * Post\_EC_t + \beta_4 GDP\_county_{it} + \beta_5 population\_county_{it} + \beta_6 income\_pc\_county_{it} + \varepsilon_{it} \quad (1)$$

$$climate\_policy\_support_{it} = \beta_0 + \beta_1 EC_i + \beta_2 Post\_EC_t + \beta_3 (EC_i * Post\_EC_t) + \beta_4 (EC_i * job\_creation_{it}) + \beta_5 (Post\_EC_t * job\_creation_{it}) + \beta_6 (EC_i * Post\_EC_t * job\_creation_{it}) + \beta_7 job\_creation_{it} + \beta_8 GDP\_county_{it} + \beta_9 population\_county_{it} + \beta_{10} income\_pc\_county_{it} + \varepsilon_{it} \quad (2)$$