The **Political Consequences**
of
GREEN POLICIES:
Evidence From Italy

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How we got inspired…

Back in 2008, in Leuven, Italo was doing his PhD…
And purchased his first car: a Fiat Punto, Diesel,
Euro4

In 2019, in Milan, they imposed a ban on Diesel
Euro4 cars… so Italo has been forced to change it…

Did not get any financial support…

Plus, the value of his car in Milan was now clearly
very low

The "Yellow Vests" movement in France began in October 2018 as a protest against the proposed increase of the carbon tax, claiming that it would put a disproportionately large burden on middle- and working-class households.

"It's all well and good to tell people who are making €1000 a month to change their car, but they can't,"

Elsa, a thirty-three-year-old translator.
Dissent Magazine, Spring 2019

Photo by Colin Kinniburgh

Combating Climate Change and Protecting the Environment

TOP POLICY PRIORITIES

- However, green policies politically challenging, as they often imply high and unevenly distributed costs

- They may stir anti-green sentiments and generate a political backlash

Research Questions

- Does the introduction of green policies affect the way people vote?

- To what extent is the political response a function of the policies' distributive implications?

- Who benefits from the backlash?

An anti-green backlash fits the right-wing populist agenda

- Green policies are becoming synonymous with scientific expertise, technocratic management, and influence of multilateral international institutions.

- Environmental policy can be perceived as a concern of the elites, placing disproportionate costs on the common people.

Green Policies and Right-Wing Populism

"[The fight against climate change is] one of the biggest and stupidest collective misunderstandings in history"

Nigel Farage, UKIP

In a study of thirteen such parties (e.g., Lega, Austrian FPÖ, the Danish DPP, Front National, and the Swiss SVP), the authors conclude:

- parties' positions on global warming are "clearly anti-environmental"

- eleven parties are "overwhelmingly against environmental taxes"

Gemenis, Katsanidou, and Vasilopoulou (2012)

The Political Implications of GREEN POLICIES

In this study, we:

- Exploit the introduction of a green policy in the city of Milan, in the form of a traffic ban on some polluting cars.

- Utilize arbitrary thresholds in the design of the policy to examine whether and how the introduction of a green policy with uneven costs affects individuals':

  - voting preferences
  - green attitudes and behavior.

The Political Implications of GREEN POLICIES

Preview of results:

- We find a strong impact of the green policy on **increasing support** for Lega, the populist right party.

- No corresponding shift in views or behavior on environmental issues.

- The electoral shift reflects disaffection with **perceived unfairness** and **pocketbook response** as it closely tracks the policy's **distributional impact**.

Climate Change and Politics

- Many studies examine the politics of climate change from an international perspective, viewing it primarily as a collective action problem between states (Keohane and Victor, 2016).

- Recent studies have pointed to the importance of domestic politics (e.g., Bernauer and Gampfer, 2015; Bechtel and Urpelainen, 2015).

- Largely focused on environmental attitudes and policy preferences (e.g., Bechtel and Scheve, 2013, 2017; Tingley and Tomz, 2014; 2020; Drews and Van den Bergh 2016; Bernauer and Gampfer, 2015; Kotchen, Turk, and Leiserowitz, 2017; Kono, 2020; Beiser-McGrath and Bernauer, 2020; Hoffman et al., 2021; Pianta and Rettl 2022; Bez, Bosetti, Colantone and Zanardi, 2021).

The Political Consequences of **GREEN POLICIES**

- Research offers limited insight into the electoral consequences of green policies: only exception is Stokes (2016).

We address this gap, not in a NIMBY type of setting

The
Area B
Policy

The Area B Policy

- A policy announced (with all details) by Milan's mayor in July 2018.

- Area B is a restricted traffic area that covers the majority of the city of Milan (72% of city area, 97% of population).

The Area B Policy

VARCHI LEZ
129 kmq
188 varchi di ingresso

FASE 1
gen/feb 2019
Posa della segnaletica su tutti i 188 varchi di ingresso

25 febbraio 2019
15 varchi elettronici con tlc attivi

FASE 2
marzo/dic 2019
Posa 78 varchi elettronici

FASE 3
2020
Posa 95 varchi elettronici
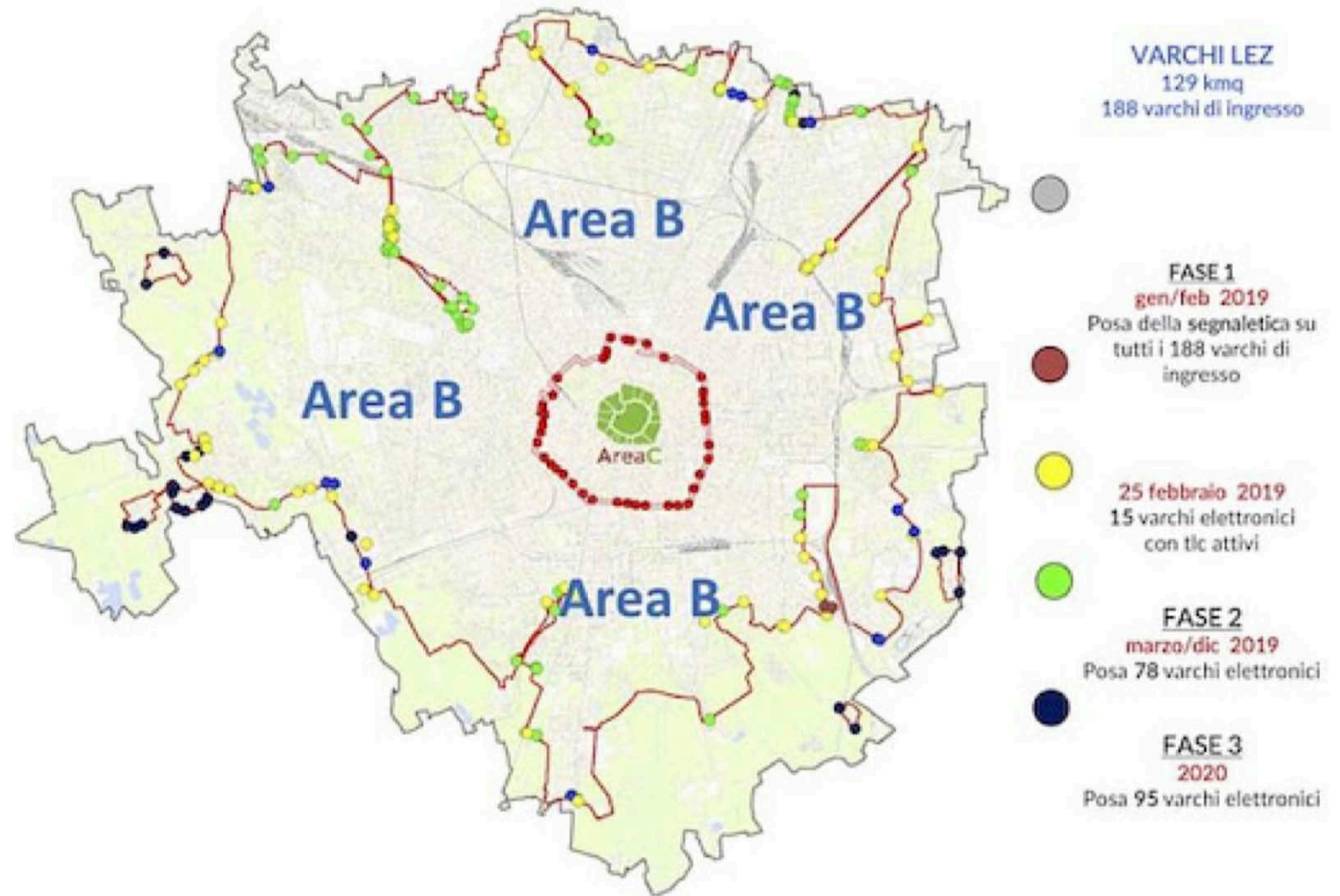
Access to Area B
Before February 2019

	Category	Diesel	Petrol
< 1993	Euro 0		
1993-1996	Euro 1		
1997-2000	Euro 2		
2001-2005	Euro 3		
2006-2010	Euro 4		
2009-2015	Euro 5		
> 2014	Euro 6		

Access to Area B After October 2019

The Political Debate Over Area B

- Area B was launched by current Milan mayor, Beppe Sala, from the center-left Democratic Party.

- Area B has been one of the most salient political issues in Milan for the past three years.

- Initiative strongly opposed by Lega, the populist right party.

- Lega argued that the policy would negatively impact lower-income drivers.

- The political discourse over the policy was then cast by Lega as "rich elites vs. common people."

Political debate

"... Area B penalizes the weaker in society. Milan is becoming a city for the rich only..."

Attilio Fontana, Lega, President of Lombardy

Political debate

"...This initiative will create only inconveniences and disasters, depressing the economy and penalizing the weaker social segments.. Anyway, could you expect anything different from the radical-chic left, that just claims to be people's friend but is actually not?..."

Massimiliano Bastoni, Lega, Council of Lombardy

Political debate

"My administration is forward looking, and cares about the way Milanese breath. It is better to do things with wisdom than to search for people's approval every single day."

Beppe Sala, Democratic Party, Mayor of Milan

Empirical
Approach

Sample Description

- Administered a survey of 1,073 car owners in Milan (YouGov).

- All reside in Area B (but outside Area C).

- 293 "treated" respondents: owned a banned Diesel-Euro4 car at the time in which the Area B restrictions were announced.

- 715 are "controls":
    - 412 owned Euro5 or Petrol-Euro4 cars
    - 303 owned the newer Euro6 models (used for placebo)

- 65 don't remember the details of their car model. Results are robust to including them based on self-reported treatment.

Access to Area B

After October 2019

Diesel   Petrol

Euro 0

Euro 1

Euro 2

Euro 3

2006-2010   Euro 4

2009-2015   Euro 5

Euro 6

Diff–in–diff specification

$$\text{Outcome}_i = \alpha + \beta\text{Diesel}_i + \gamma\text{Euro4}_i + \delta\textcolor{red}{\text{Diesel}*\text{Euro4}_i} + \boldsymbol{X}_i + \varepsilon_i$$

Where:

- i denotes individual respondent i

- Outcome_i is either vote choice or attitudes of respondent i

- Diesel_i is a dummy equal to 1 if respondent i has a Diesel car

- Euro4_i is a dummy equal to 1 if respondent i has a Euro4 car

- $\boldsymbol{X}_i$ is a vector of individual level characteristics: age, gender, education, and income

δ captures the Treatment Effect of the policy

Diff–in–diff specification

$$\text{Outcome}_i = \alpha + \beta\text{Diesel}_i + \gamma\text{Euro4}_i + \delta\textcolor{red}{\text{Diesel}*\text{Euro4}_i} + \boldsymbol{X}_i + \varepsilon_i$$

Implies that, conditional on other controls:

- $E[\text{Outcome}_i \mid i$ has Petrol-Euro5$]=\alpha$

- $E[\text{Outcome}_i \mid i$ has Diesel-Euro5$]=\alpha+ \beta$

- $E[\text{Outcome}_i \mid i$ has Petrol-Euro4$]=\alpha+ \gamma$

- $E[\text{Outcome}_i \mid i$ has Diesel-Euro4$]=\alpha+ \beta + \gamma +\delta$

The Treatment Effect δ can be interpreted in 2 ways

Diff–in–diff specification

By emission categories: δ is the difference in the differences of outcomes between [Diesel vs. Petrol owners of Euro4] and [Diesel vs. Petrol owners of Euro5].
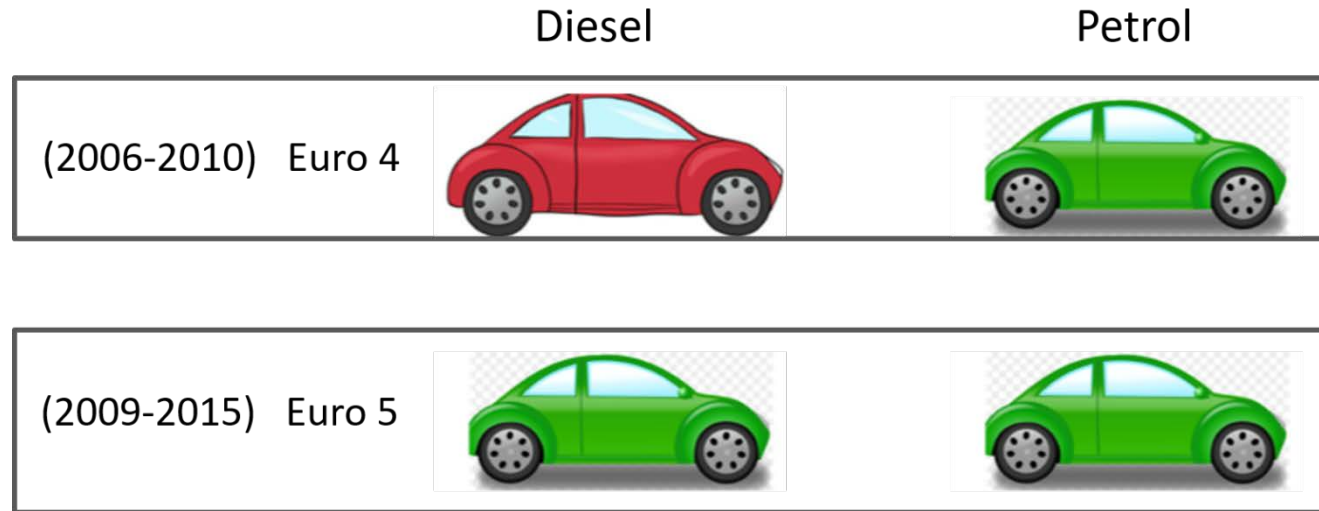
Intuition:
- All the Euro5 owners are unaffected, so the difference between Diesel vs. Petrol should reflect any potential differences in orientation by type of fuel.
- Instead, for Euro4, Diesel owners are treated while Petrol owners are not. The difference-in-differences then captures the effect of the policy, net of the potential different orientations between Diesel and Petrol owners (under the assumption that these different orientations play a constant role across Euro4 and Euro5).

Diff–in–diff specification

By fuel categories: δ is the difference in the differences of outcomes between [Euro4 vs. Euro5 owners of Diesel] and [Euro4 vs. Euro5 owners of Petrol].
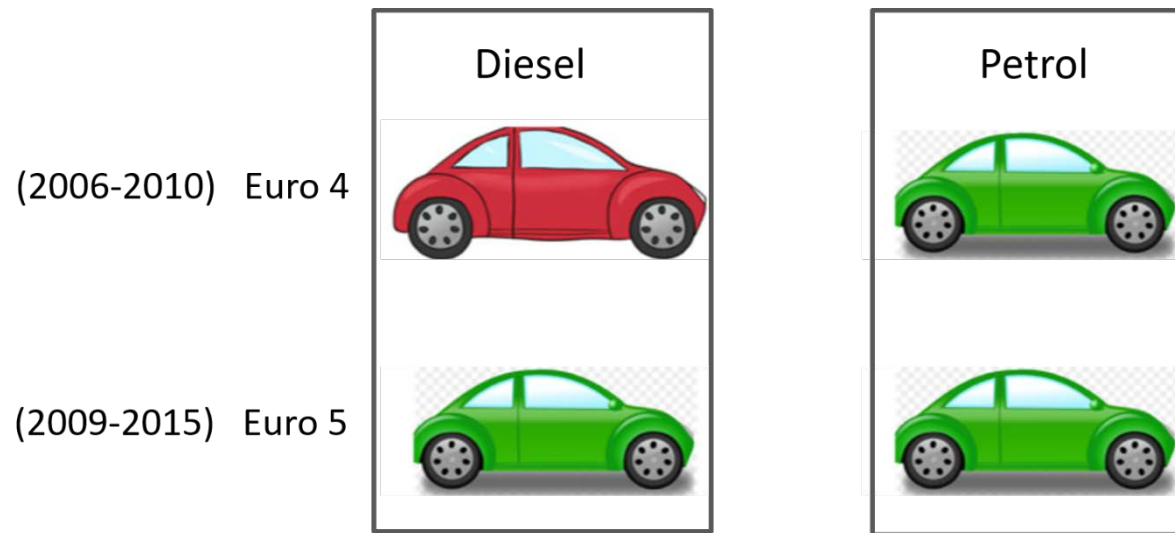
Intuition:
- All the Petrol owners are unaffected, so the difference between Euro4 vs. Euro5 within Petrol should reflect any potential differences in orientation by emission category (e.g., older vs. newer cars).
- Instead, for Diesel, Euro4 owners are treated while Euro5 owners are not. The difference-in-differences then captures the effect of the policy, net of the potential different orientations between Euro4 and Euro5 owners (under the assumption that these different orientations play a constant role across Diesel and Petrol).

The cost incurred by treated car owners was substantial
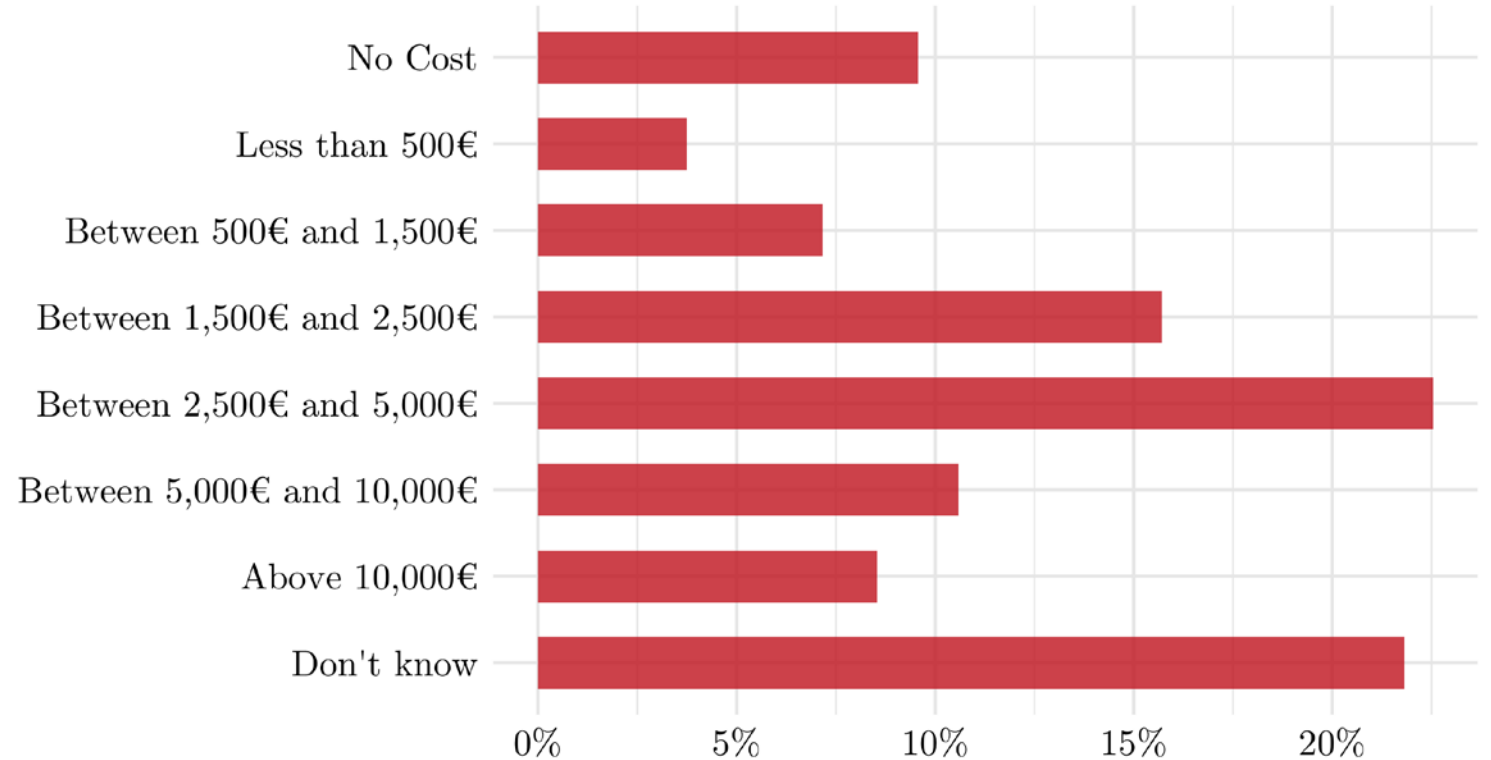
Median cost reported: 3,750 euros, about 17% of residents' median annual gross income

Descriptive Statistics

	Full Sample	Diesel Euro 4	Diesel Euro 5	Petrol Euro 4	Petrol Euro 5
Age					
18-24	2.7	1.4	1.7	2.5	2.3
25-34	10.8	6.1	13.3	15.5	19.4
35-44	34.7	43.3	21.7	31.9	23.5
45-54	31.3	41.9	35	22.9	26.4
55+	20.5	7.2	28.3	27.0	28.2
Gender					
Male	52.2	69.3	61.7	43.4	44.7
Female	47.8	30.7	38.3	56.6	55.3
Education					
High school diploma	33.7	16	36.7	48.4	41.2
Bachelors	27.2	30.7	27.5	23.0	27.1
MA or higher	38.5	52.6	35	27.9	30.6
Unknown	0.6	0.7	0.8	0.8	1.2
Income					
Less than 14.999 € per year	6.9	4.4	5.8	18.9	11.8
From 15.000 € to 29.999 € per year	20.3	7.8	24.2	29.5	30
From 30.000 € to 44.999 € per year	21.7	30	16.6	19.7	21.2
From 45.000 € 69.999 € per year	14.9	14.7	20	9	12.9
From 70.000 € and more	26.8	38.6	20	5.7	11.8
No Answer / DK	9.3	4.4	12.5	17.2	12.4
N	1073	293	120	122	170

Sample Description

- In the main analysis, we are excluding from the sample owners of very old cars (less than Euro4), and owners of very new cars (Euro6).

- In case the respondent owns multiple cars, our question refers to the main personal car, i.e., the most frequently used (though we ask info on other cars as well).

- Treated respondents may have bought a new car in the meantime… just like Italo. That is part of the treatment we have in mind, and we ask information on that as well.

- We collected complete info on all family cars, allowing us to potentially explore treatment also at the household level.

Main Results

Elections

- **Main focus:** European Parliament elections of May 2019

- To analyze switchers, we also collect info on voting in three earlier elections:

  - Legislative elections of March 2018

  - Regional elections of March 2018

  - Milan municipality elections of June 2016

Main results: Voting for Lega in 2019 EU Parliament Elections

Average estimated effect is 13.5 p.p.

This is an increase by 55% above the baseline support rate for Lega, 24.4%

		Dep. var.: Vote for Lega EU 2019				
	(1)	(2)	(3)	(4)	(5)	(6)
Diesel X Euro 4	0.119	0.183*	0.154*	0.115*	0.094	0.146*
	(0.075)	(0.079)	(0.078)	(0.047)	(0.052)	(0.060)
Diesel	−0.093	−0.105	−0.082	−0.024	0.003	−0.001
	(0.056)	(0.057)	(0.055)	(0.036)	(0.040)	(0.049)
Euro 4	−0.048	−0.048	−0.019	0.007	0.026	−0.028
	(0.058)	(0.059)	(0.059)	(0.033)	(0.036)	(0.043)
Age		0.002	0.001	0.001	0.003**	0.002
		(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
Female		0.189**	0.167**	0.147**	0.173**	0.201**
		(0.039)	(0.038)	(0.028)	(0.030)	(0.035)
Past Lega Vote				0.812**	0.779**	0.730**
				(0.034)	(0.040)	(0.045)
Education F.E.	No	Yes	Yes	Yes	Yes	Yes
Income F.E.	No	Yes	Yes	Yes	Yes	Yes
Past Lega Vote	No	No	No	L2018	R2018	M2016
Observations	602	602	665	583	551	533
R^2	0.005	0.130	0.153	0.601	0.577	0.494

Switching to Lega
From Legislative 2018
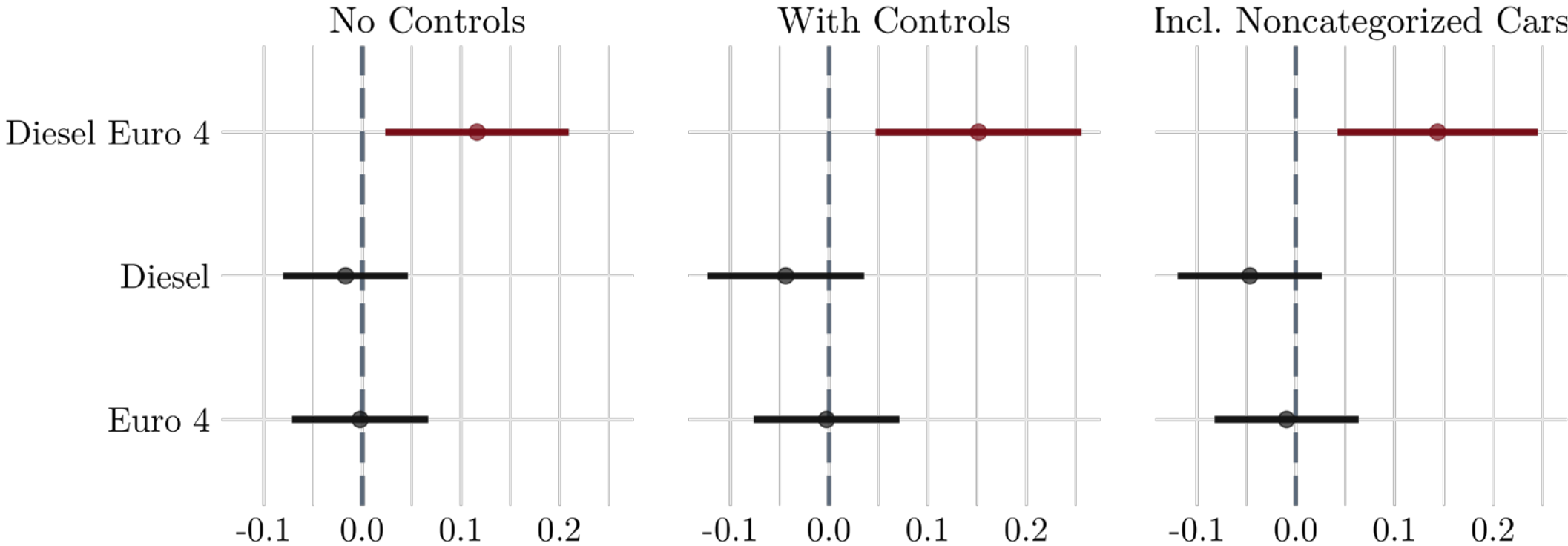
15 p.p. higher probability of switching

Switching to Lega
From Regional 2018

15 p.p. higher probability of switching

Switching to Lega
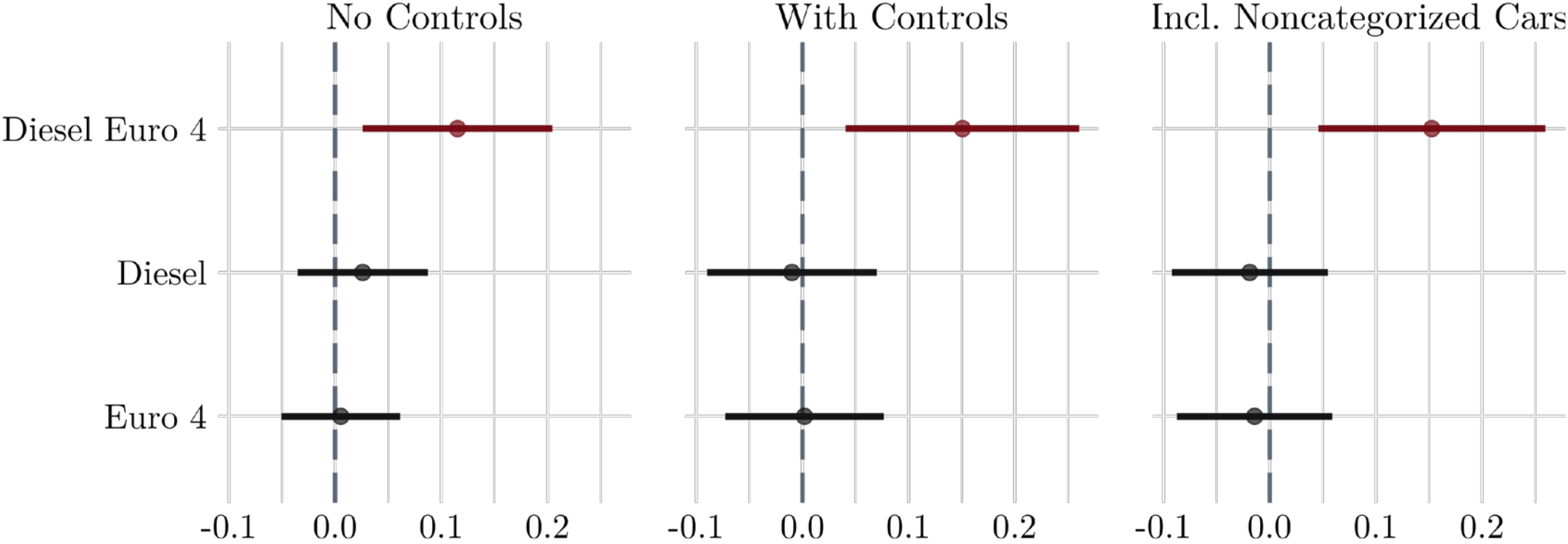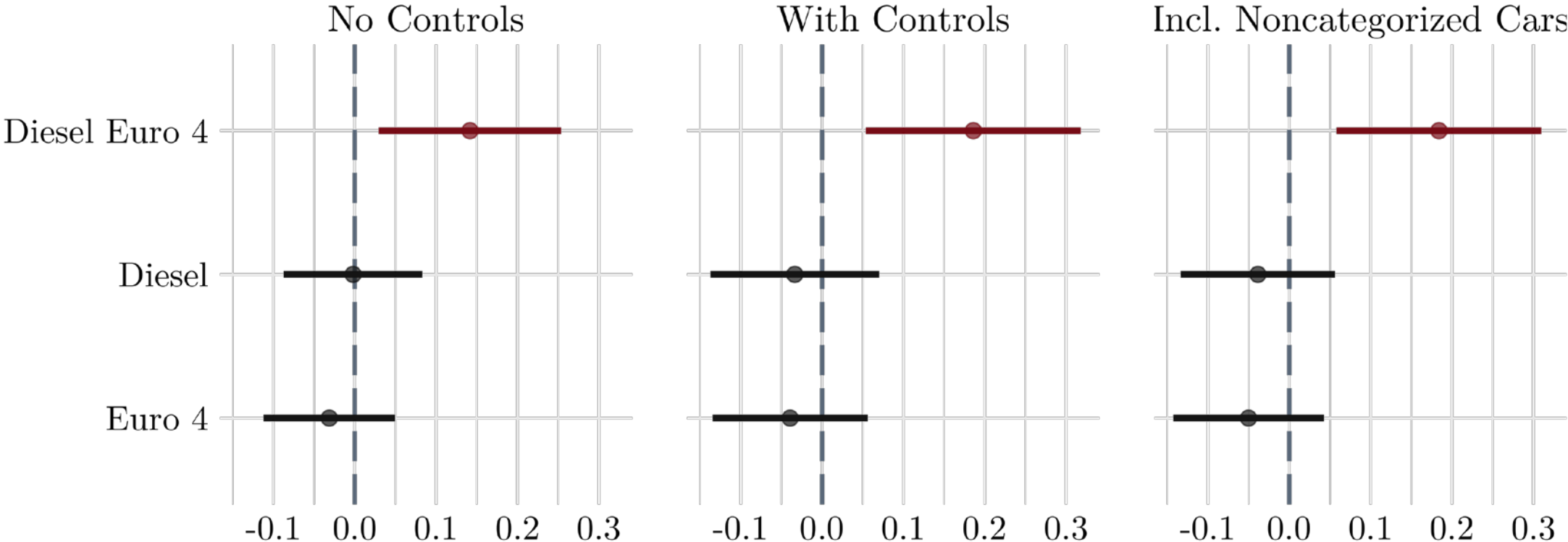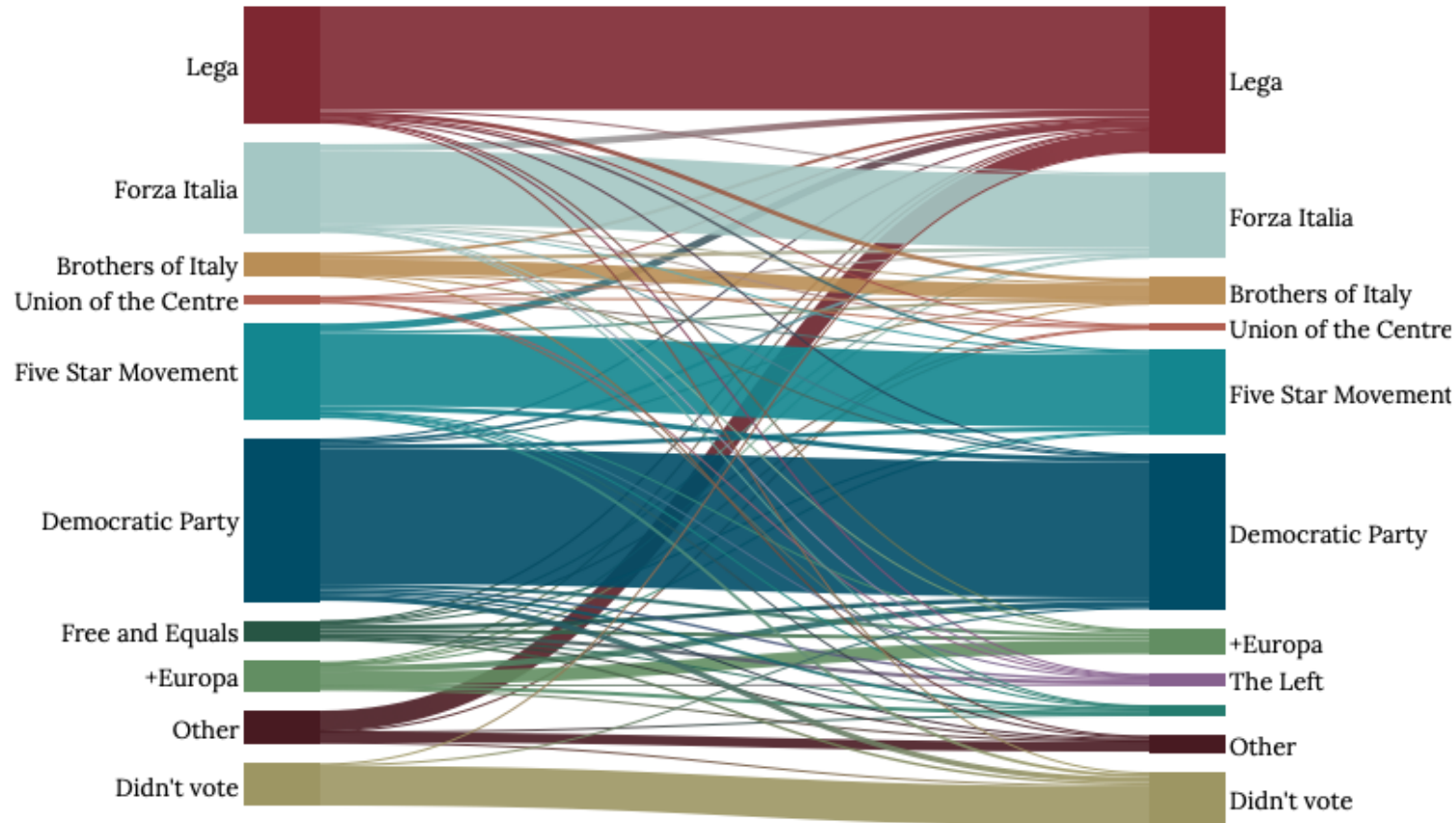## From Municipal 2016

18.6 p.p. higher probability of switching

Vote for Other Major Parties

	Dep.var.: Vote for Other Parties EU 2019											
	Voting for Democratic Party				Voting for Forza Italia				Voting for Five Star Movement			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Diesel X Euro 4	0.067	0.033	0.056	0.017	−0.052	0.003	0.051	−0.005	−0.090	−0.005	0.012	−0.011
	(0.081)	(0.053)	(0.057)	(0.064)	(0.058)	(0.032)	(0.039)	(0.041)	(0.069)	(0.038)	(0.039)	(0.041)
Diesel	−0.007	−0.032	−0.026	−0.040	0.030	−0.038	−0.070	−0.007	0.054	0.020	0.025	0.022
	(0.056)	(0.035)	(0.041)	(0.044)	(0.044)	(0.028)	(0.036)	(0.035)	(0.052)	(0.029)	(0.034)	(0.032)
Euro 4	0.069	−0.002	0.002	0.076	−0.063	0.001	−0.021	−0.020	0.021	−0.003	−0.058*	−0.024
	(0.063)	(0.043)	(0.048)	(0.054)	(0.037)	(0.025)	(0.028)	(0.030)	(0.051)	(0.027)	(0.027)	(0.030)
Age	0.008**	0.002	0.003*	0.006**	−0.002	0.000	−0.001	−0.000	−0.005**	−0.001	−0.001	−0.002
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Female	−0.062	0.001	−0.008	−0.025	−0.097**	−0.020	−0.014	−0.046*	0.006	0.003	0.014	0.017
	(0.036)	(0.022)	(0.024)	(0.026)	(0.032)	(0.018)	(0.023)	(0.023)	(0.033)	(0.018)	(0.019)	(0.021)
Past Vote		0.782**	0.726**	0.739**		0.847**	0.753**	0.738**		0.770**	0.845**	0.808**
		(0.038)	(0.040)	(0.039)		(0.035)	(0.043)	(0.044)		(0.042)	(0.038)	(0.043)
Education F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Income F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Lagged Vote	No	L2018	R2018	M2016	No	L2018	R2018	M2016	No	L2018	R2018	M2016
Observations	602	583	551	533	602	583	551	533	602	583	551	533
R^2	0.290	0.724	0.708	0.700	0.262	0.800	0.714	0.728	0.135	0.692	0.680	0.685

Where do Lega voters come from?

Flows from Legislative 2018 to European 2019

"Switchers" are from:
- "Other" parties: 49%
- Forza Italia: 16%
- M5S: 18%
- FdI: 7%
- PD: 3%
- +Europa: 4%

Same evidence for switching from Regional 2018 and Municipal 2016

Placebos

Access to Area B
After October 2019

Diesel | Petrol
Euro 0
Euro 1
Euro 2
Euro 3
2006-2010 | Euro 4
2009-2015 | Euro 5
Euro 6

Placebo

We replicate the main analysis, but focusing on Euro5 and Euro6 cars. Nobody is affected by Area B here

Diff–in–diff specification - Placebo

$$\text{Outcome}_i = \alpha + \beta \text{Diesel}_i + \gamma \text{Euro5}_i + \delta \text{Diesel} * \text{Euro5}_i + \boldsymbol{X}_i + \varepsilon_i$$

Where:

- i denotes individual respondent i

- Outcome_i is either vote choice or attitudes of respondent i

- Diesel_i is a dummy equal to 1 if respondent i has a Diesel car

- Euro5_i is a dummy equal to 1 if respondent i has a Euro5 car

- $\boldsymbol{X}_i$ is a vector of individual level characteristics: age, gender, education, and income

No reason to expect δ different than zero

Placebo Vote Lega EU 2019

EURO 5-6

	Placebo Test: Euro 5-6	
	(1)	(2)
Diesel X Euro 5	−0.005	−0.025
	(0.076)	(0.077)
Diesel	−0.089	−0.066
	(0.051)	(0.056)
Euro 5	0.002	0.018
	(0.054)	(0.054)
Age		0.000
		(0.002)
Female		0.059
		(0.039)
Education F.E.	No	Yes
Income F.E.	No	Yes
Observations	495	495
R^2	0.011	0.093

Placebo
Switching to Lega prior to Area B

(a) From Municipal 2016 to Legislative 2018   (b) From Municipal 2016 to Regional 2018
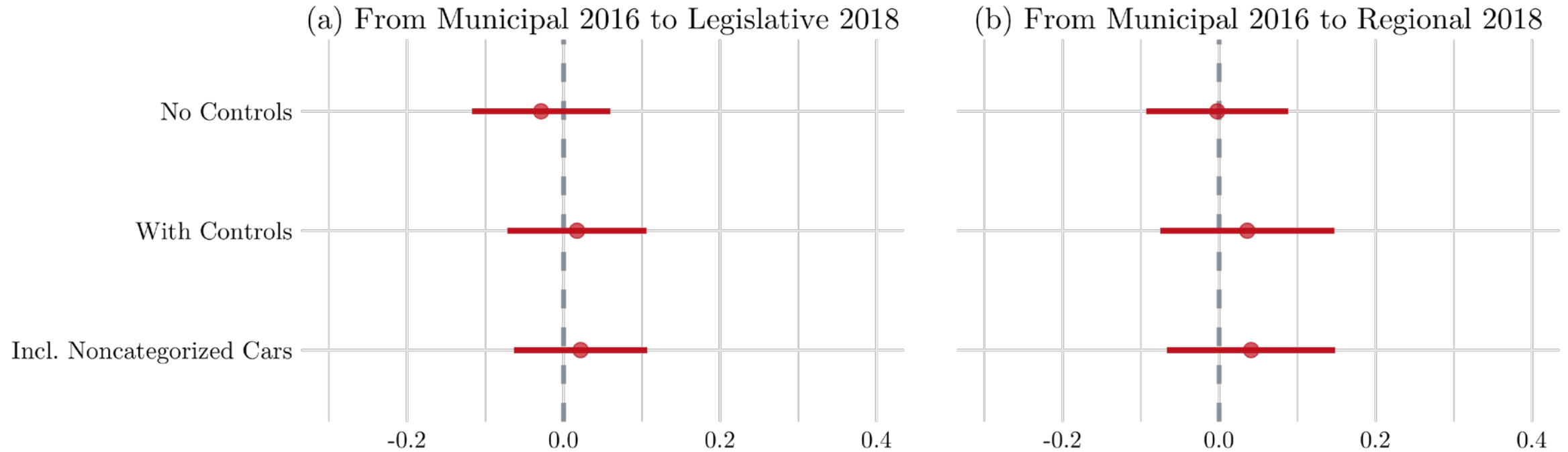
Mechanisms

Mechanisms

Two main mechanisms:

1. Anti-green shift in attitudes and behavior, translating into vote for Lega, the environment-skeptic party.

2. Dissatisfaction with perceived unfairness of policy approach placing the transition costs on some residents, related to pocketbook losses.

Environmental Attitudes and Behavior
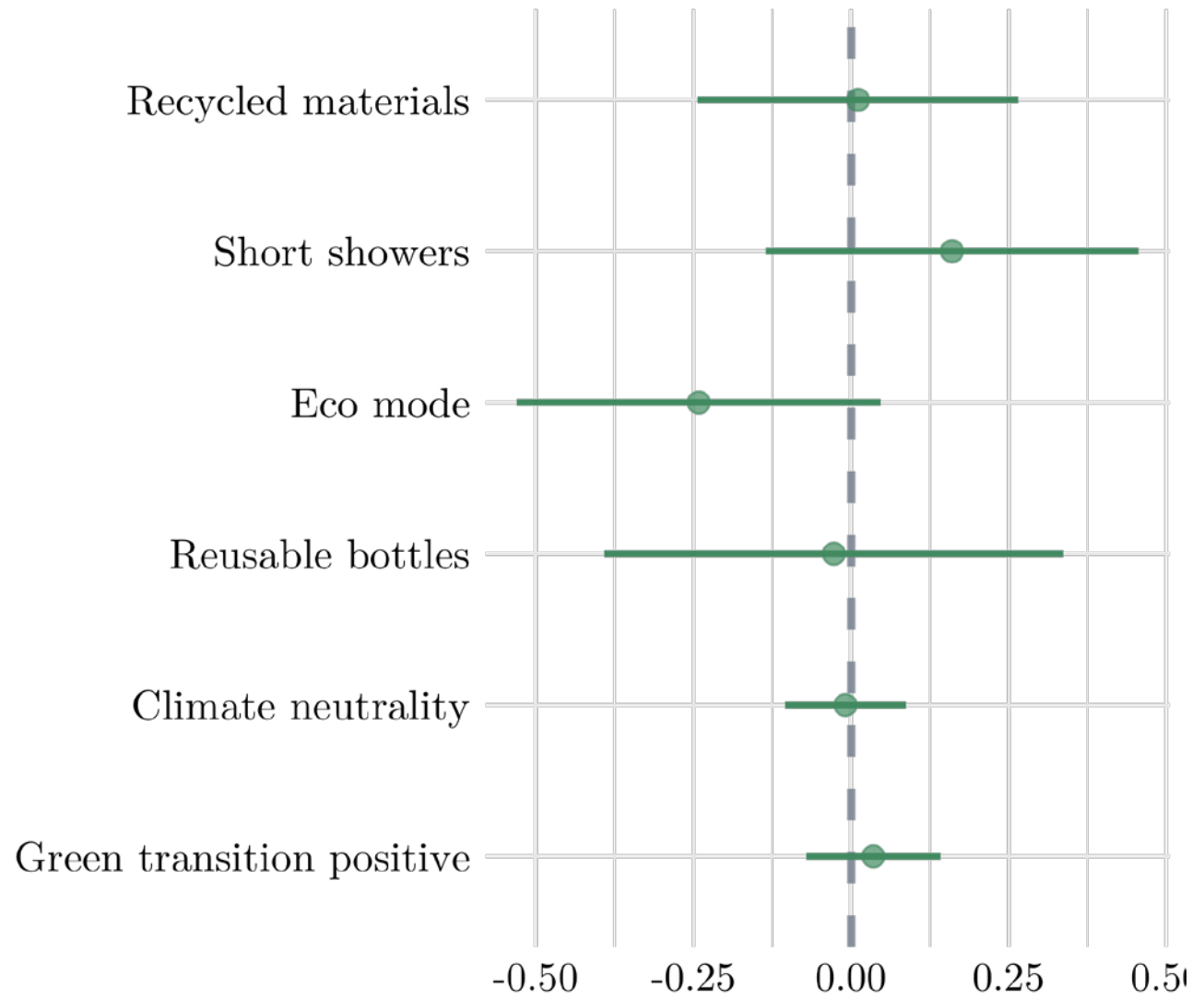
Environmental Attitudes and Behavior

- Collaboration with **ZeroCO2**, a company that allows customers to **purchase trees** to offset their carbon footprint.

- Prompted participants with an option to:

  - click on the company's website
  - watch a video about the company
  - follow it on social media
  - listen to its podcast
  - purchase a pine tree at (15%) reduced rate (13.6 Euro)
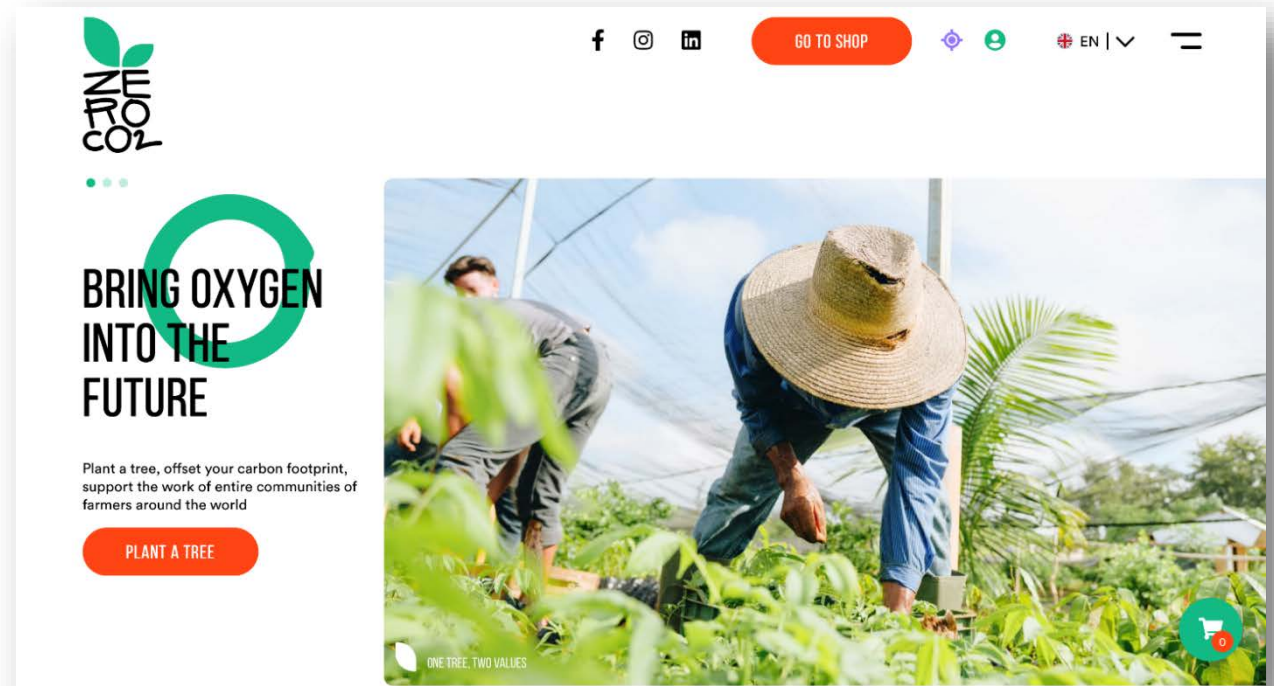
Quasi-behavioral outcomes: global action
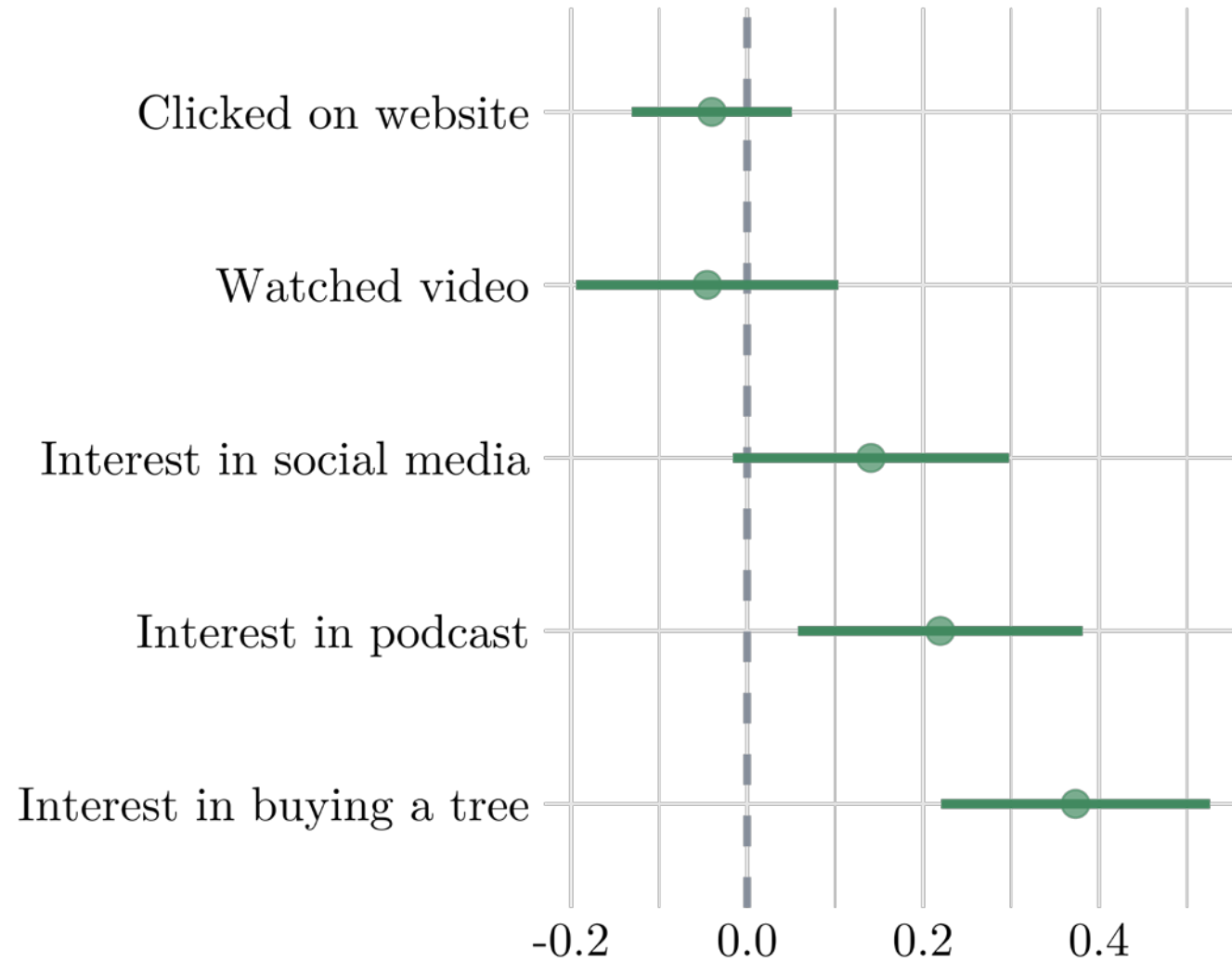
Environmental Attitudes and Behavior

- **Genitori Antismog** is a nonpartisan association that has been active in Milan for about 20 years. The association has two main objectives: (1) encourage politicians to tackle air pollution in Milan through concrete solutions, acting as a watchdog on their legislative initiatives; (2) inform and engage citizens on environmental issues, with special focus on kids through cooperation with schools.

- Prompted participants with an option to:

  - click on their website
  - subscribe to their newsletter
  - donate (any amount) to the association

Quasi-behavioral outcomes: local action

Prices, Taxes and Responsibility
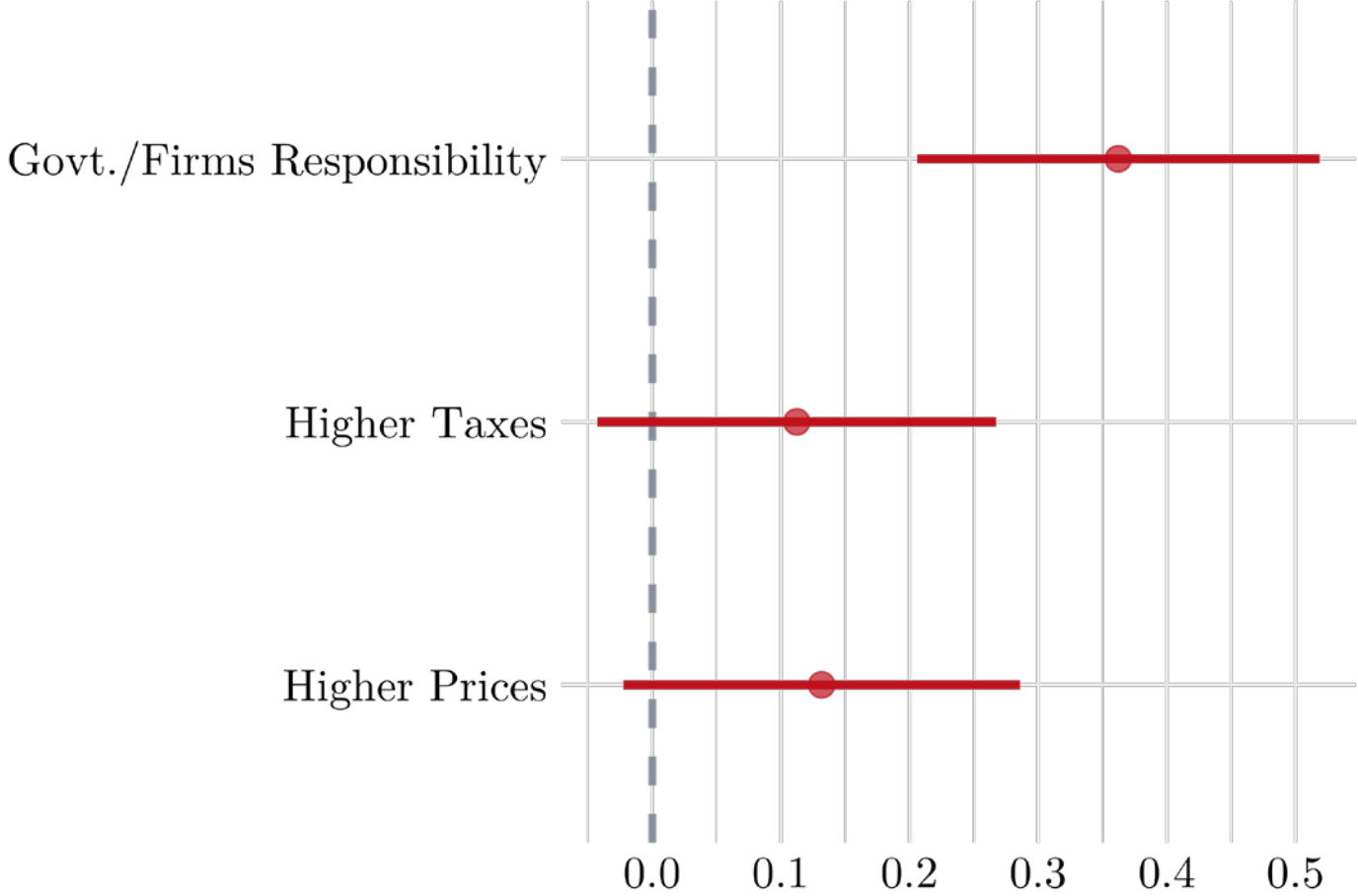
Compensation
Vote for Lega EU 2019

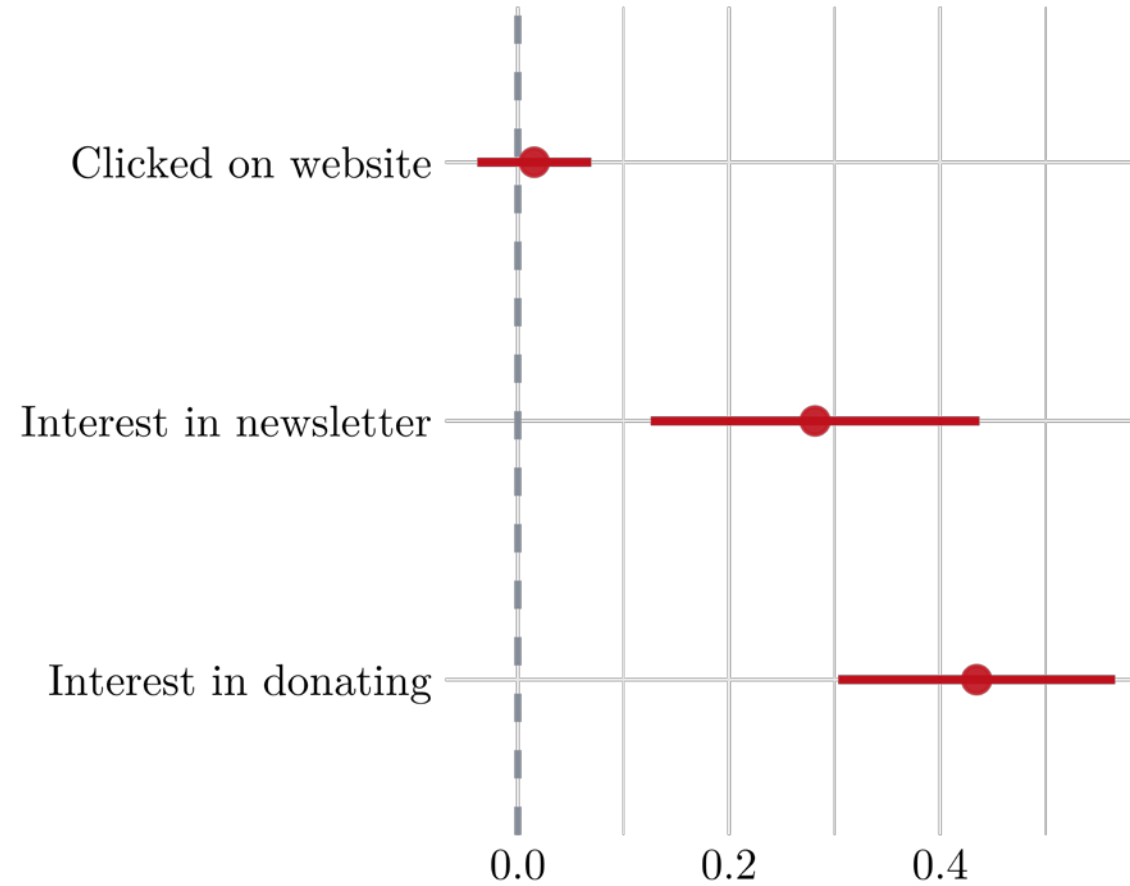| | EU Parliament 2019 | | | |
| | Vote for Lega | Switch to Lega | Switch to Lega | Switch to Lega |
	(1)	(2)	(3)	(4)
Diesel X Euro 4	0.207**	0.165**	0.167**	0.204**
	(0.079)	(0.053)	(0.056)	(0.067)
Compensated	−0.254**	−0.144**	−0.181**	−0.167**
	(0.055)	(0.052)	(0.035)	(0.050)
Diesel	−0.110	−0.045	−0.012	−0.035
	(0.057)	(0.040)	(0.040)	(0.052)
Euro 4	−0.048	−0.001	0.005	−0.038
	(0.059)	(0.037)	(0.037)	(0.048)
Age	0.001	0.001	0.003**	0.002
	(0.002)	(0.001)	(0.001)	(0.001)
Female	0.171**	0.150**	0.198**	0.182**
	(0.039)	(0.028)	(0.031)	(0.035)
Education F.E.	Yes	Yes	Yes	Yes
Income F.E.	Yes	Yes	Yes	Yes
Switch from:		L2018	R2018	M2016
Observations	602	483	450	452
R^2	0.145	0.235	0.326	0.232

Conclusion

Conclusion

- Residents shifted their vote in support of the opposition party Lega in response to the introduction of the Area B policy (13.5pp, 55% increase compared to baseline)

- Affected car owners did not become more hostile toward environmental issues

- Instead, residents appear to be responding directly to the adverse economic change they experienced. The shift to Lega is largely accounted for by the level of exposure to the Area B program's costs

- The shift to Lega was not a result of left-leaning voters abandoning their party

- Lega's anti-green stances seem to have primarily mobilized voters who were previously on the fence

Final Thoughts

- In thinking about promoting green policies, important to consider:

  – Distribution of the costs across society; where possible, should seek to spread the burden. Concentrated costs likely to spur a backlash benefiting environment-skeptical forces.

  – The environmental challenge and income inequality may be more tightly linked issues than possibly recognized.

  – Political sustainability: if (relatively) small environmental steps produce big political blowback, need to consider the trade-off between obtaining small gains in the short term and the feasibility of large-scale change in the future.